

## Appendix 1 Member List of the Survey Team

(1) Field Survey 1 (November 12 – December 4, 2016)

| Name                 | Specialty  | Title / Organization  |
|----------------------|--|---|
| Mr. Kenichi ITO      | Leader   | Director, Health Division 1, Health Group 1, Human Development Department, JICA |
| Dr. Hiroshi TAKENAKA | Technical Advisor                                  | JICA Senior Advisor   |
| Mr. Mikuni YAMAE     | Cooperation Planning                               | Health Division 1, Health Group 1, Human Development Department, JICA           |
| Mr. Keiichi IDE      | Project Manager / Architectural Planning           | Yokogawa Architects & Engineers, Inc.   |
| Mr. Koki MASUMI      | Assistant Project Manager / Architectural Design   | Yokogawa Architects & Engineers, Inc.   |
| Mr. Yasumichi DOI    | Equipment Planning 1 / Maintenance                 | INTEM Consulting, Inc.  |
| Dr. Kyo HANADA       | Health and Medical Planning                        | Estrella INC.   |
| Ms. Misato OHARA     | Equipment Planning 2 / QS (Voluntary)              | INTEM Consulting, Inc.  |
| Mr. Kazufumi UCHIDA  | Health and Medical Planning Assistance (Voluntary) | Estrella INC.   |

(2) Field Survey 2 (February 7 – March 12, 2017)

| Name                 | Specialty  | Title / Organization  |
|----------------------|--|---|
| Mr. Kenichi ITO      | Leader   | Director, Health Division 1, Health Group 1, Human Development Department, JICA |
| Dr. Hiroshi TAKENAKA | Technical Advisor                                | JICA Senior Advisor   |
| Mr. Mikuni YAMAE     | Cooperation Planning                             | Health Division 1, Health Group 1, Human Development Department, JICA           |
| Mr. Keiichi IDE      | Project Manager / Architectural Planning         | Yokogawa Architects & Engineers, Inc.   |
| Mr. Koki MASUMI      | Assistant Project Manager / Architectural Design | Yokogawa Architects & Engineers, Inc.   |
| Mr. Yasumichi DOI    | Equipment Planning 1 / Maintenance               | INTEM Consulting, Inc.  |
| Mr. Satoru KATO      | Health and Medical Planning                      | Yokogawa Architects & Engineers, Inc.   |
| Mr. Shoichi TASHIRO  | Construction Planning/QS                         | Yokogawa Architects & Engineers, Inc.   |
| Ms. Misato OHARA     | Equipment Planning 2 / QS (Voluntary)            | INTEM Consulting, Inc.  |

(3) Draft Outline Design Explanatory Mission (August 19 – 27, 2017)

| Name                | Specialty  | Title / Organization  |
|---------------------|--|---|
| Mr. Shintaro TAKANO | Leader   | Deputy Director, Grant Aid Project Management Division 2, Financial Cooperation Implementation Department, JICA |
| Mr. Mikuni YAMAE    | Cooperation Planning                             | Health Division 1, Health Group 1, Human Development Department, JICA   |
| Mr. Keiichi IDE     | Project Manager / Architectural Planning         | Yokogawa Architects & Engineers, Inc.   |
| Mr. Koki MASUMI     | Assistant Project Manager / Architectural Design | Yokogawa Architects & Engineers, Inc.   |
| Mr. Yasumichi DOI   | Equipment Planning 1 / Maintenance               | INTEM Consulting, Inc.  |

## Appendix 2 Survey Schedule

### (1) Field Survey 1 (November 12 – December 4, 2016)

| No.         | Date  | Day | Official Members   |                      |  | Consultant Members   |                                     |                                    |                             | Consultant Members (Voluntary) |  |                         |
|-------------|-------|-----|--|----------------------|--|--|-------------------------------------|------------------------------------|-----------------------------|--------------------------------|--|-------------------------|
|             |       |     | Leader   | Cooperation Planning | Technical Advisor  | PM / Architectural Planning                                | Assistant PM / Architectural Design | Equipment Planning 1 / Maintenance | Health and Medical Planning | Equipment Planning 2 / QS      | Health and Medical Planning Assistance |                         |
|             |       |     | Mr. Kenichi Ito  | Mr. Mikuni Yamae     | Dr. Hiroshi Takenaka   | Mr. Keiichi Ide  | Mr. Koki Masumi                     | Mr. Yasumichi Doi                  | Mr. Kyo Hanada              | Ms. Misato Ohara               | Mr. Kazufumi Uchida                    |                         |
| Survey days |       |     | 8  | 21                   | 21   | 21   | 21                                  | 19                                 | 23                          | 13                             | 23                                     |                         |
| 1           | 11/12 | Sat |  |                      |  |  | Narita 22:20 -->                    |                                    |                             |                                | Narita 22:20 -->                       |                         |
| 2           | 11/13 | Sun | Haneda --> Entebbe   |                      | (Doha) --> Entebbe 14:15   |  |                                     |                                    |                             |                                | (Doha) --> Entebbe 14:15               |                         |
| 3           | 11/14 | Mon | Courtesy call to JICA office, courtesy call to Ministry of Health (MOH) / discussions              |                      |  |  |                                     |                                    |                             |                                |  | Accompanying PM         |
| 4           | 11/15 | Tue | AM: Kampala (4.5Hrs.) --> Mbarara<br>PM: Survey of Mbarara RRH, Mbarara (2Hrs.) --> Masaka         |                      |  |  |                                     |                                    |                             |                                |  | Accompanying PM         |
| 5           | 11/16 | Wed | Masaka NRH, Masaka (4Hrs.) --> Lira  |                      |  |  |                                     |                                    |                             |                                |  | Accompanying PM         |
| 6           | 11/17 | Thu | Survey of Lira RRH   |                      |  |  |                                     |                                    |                             |                                |  | Accompanying PM         |
| 7           | 11/18 | Fri | Survey of Lira RRH   |                      |  |  |                                     |                                    |                             |                                |  | Accompanying PM         |
| 8           | 11/19 | Sat | AM: Roundup of the survey and report to Lira RRH<br>PM: Lira (4Hrs.) --> Arua                      |                      |  |  |                                     |                                    |                             |                                |  | Accompanying PM         |
| 9           | 11/20 | Sun | Team meeting / data filing   |                      |  |  |                                     |                                    |                             | Joining the team at Arua       | Accompanying PM                        |                         |
| 10          | 11/21 | Mon | Survey of Arua RRH   |                      |  |  |                                     |                                    |                             |                                |  |                         |
| 11          | 11/22 | Tue | Survey of Arua RRH   |                      |  |  |                                     |                                    |                             |                                |  |                         |
| 12          | 11/23 | Wed | AM: Roundup of the survey and report to Arua RRH<br>Arua (4Hrs.) --> Gulu                          |                      |  |  |                                     |                                    |                             |                                |  |                         |
| 13          | 11/24 | Thu | Survey of Gulu RRH   |                      |  |  |                                     |                                    |                             |                                |  |                         |
| 14          | 11/25 | Fri | Survey of Gulu RRH   |                      |  |  |                                     |                                    |                             |                                |  |                         |
| 15          | 11/26 | Sat | Haneda --> Entebbe   |                      | AM: Roundup of the survey and report to Gulu RRH<br>PM: Gulu (5Hrs.) --> Kampala |  |                                     |                                    |                             |                                |  |                         |
| 16          | 11/27 | Sun | Team meeting / preparation of "Observations by the Survey Team"                                    |                      |  |  |                                     |                                    |                             |                                |  |                         |
| 17          | 11/28 | Mon | AM: Report of the survey results of the 3 RRHs to MOH<br>PM: Drafting Minutes of Discussions (M/D) |                      |  |  |                                     |                                    |                             |                                |  |                         |
| 18          | 11/29 | Tue | Discussions on M/D   |                      |  | Accompanying Leader  |                                     | Entebbe 19:10 -->                  | Supplementary surveys       | Accompanying Leader            | Supplementary surveys                  |                         |
| 19          | 11/30 | Wed | Submission of MD, discussions w/ other donors  |                      |  | Accompanying Leader  |                                     | (Doha) --> Narita 19:00            | Supplementary surveys       | Discussions w/ other donors    | Supplementary surveys                  |                         |
| 20          | 12/1  | Thu | Signing MD, Report to JICA office and Japanese Embassy   |                      |  | Accompanying Leader  |                                     |                                    | Supplementary surveys       | Entebbe -->                    | Supplementary surveys                  |                         |
| 21          | 12/2  | Fri | Entebbe -->  |                      |  | AM: Kampala (6Hrs.) --> Kabale<br>PM: Survey of Kabale RRH |                                     |                                    | Supplementary surveys       | (Dubai) --> Japan              | Supplementary surveys                  |                         |
| 22          | 12/3  | Sat | --> Haiti  | --> Japan            | --> Zambia   | Defect inspection at Hoima and Kabale RRHs till December 8 |                                     |                                    | Entebbe 19:10 -->           |                                | Entebbe 19:10 -->                      |                         |
| 23          | 12/4  | Sun |  |                      |  |  |                                     |                                    |                             | (Doha) --> Narita 19:00        |  | (Doha) --> Narita 19:00 |

(2) Field Survey 2 (February 7 – March 12, 2017)

| No.         | Date | Day | Official Members |   |   | Official Members  |  |   |  |  |                           |  |                          |  |  |
|-------------|------|-----|------------------|---|---|---|--|---|--|--|---------------------------|--|--------------------------|--|--|
|             |      |     | Leader           | Cooperation Planning  | Technical Advisor                                 | PM / Architectural Planning   | Assistant PM / Architectural Design  | Utility Planning                            | Construction Planning / QS                         | Equipment Planning 1 / Maintenance                         | Equipment Planning 2 / QS |  |                          |  |  |
|             |      |     | Mr. Keiichi Ito  | Mr. Mikuni Yamae  | Dr. Hiroshi Takenaka                              | Mr. Keiichi Ide   | Mr. Koki Masumi  | Mr. Satoru Kato                             | Mr. Shoichi Tashiro                                | Mr. Yasumichi Doi  | Ms. Misato Ohara          |  |                          |  |  |
| Survey days |      |     | 7                | 12  | 15  | 33  | 33   | 22  | 29   | 33   | 33                        |  |                          |  |  |
| 1           | 2/7  | Tue |                  |   |   | Narita 22:00-->   |  |   |  |  | Narita 22:00-->           |  |                          |  |  |
| 2           | 2/8  | Wed |                  |   |   | (Doha)--> Entebbe 13:15   | Narita 22:00-->  |   |  |  |                           |  | (Doha)-->Entebbe 13:15   |  |  |
| 3           | 2/9  | Thu |                  |   |   | Courtesy call to JICA office, courtesy call to Ministry of Health (MOH) / discussions | (Doha)--> Entebbe 13:15<br>Courtesy call to Ministry of Health (MOH) / discussions |   |  |  |                           |  | Accompanying PM          |  |  |
| 4           | 2/10 | Fri |                  |   |   |   | Discussion with MOH, USAID   |   |  |  |                           |  | Accompanying PM          |  |  |
| 5           | 2/11 | Sat |                  |   |   |   | Data filing  | Commissioning survey of natural conditions  |  | Narita 22:00-->  |                           |  | Data filing              |  |  |
| 6           | 2/12 | Sun |                  |   |   |   | Kampala (7 Hrs.)--> Arua   | Data filing                                 |  | (Doha)-->Entebbe 13:15                                     |                           |  | Kampala (7 Hrs.)--> Arua |  |  |
| 7           | 2/13 | Mon |                  |   |   |   | Survey of Arua RRH   | Commissioning survey of natural conditions  |  | Survey of local contractors / construction situation       |                           |  | Survey of Arua RRH       |  |  |
| 8           | 2/14 | Tue |                  |   |   |   | Survey of Arua RRH   |   |  | Kampala (7 Hrs.)--> Arua                                   |                           |  | Survey of Arua RRH       |  |  |
| 9           | 2/15 | Wed |                  |   |   |   | Survey of Arua RRH   |   |  | Survey of Arua RRH   |                           |  | Survey of Arua RRH       |  |  |
| 10          | 2/16 | Thu |                  |   |   |   | Arua (4.5 Hrs.)--> Gulu  |   |  | Survey of Arua RRH   |                           |  | Arua (4.5 Hrs.)--> Gulu  |  |  |
| 11          | 2/17 | Fri |                  |   |   |   | Survey of Gulu RRH   |   |  | Survey of Arua RRH   |                           |  | Survey of Gulu RRH       |  |  |
| 12          | 2/18 | Sat |                  |   |   |   | Haneda-->(Dubai)-->Entebbe   | Survey of Gulu RRH                          |  | Arua (4.5 Hrs.)--> Gulu                                    |                           |  | Survey of Gulu RRH       |  |  |
| 13          | 2/19 | Sun |                  |   |   |   | Entebbe-->Gulu   | Team meeting / Data filing                  |  |  |                           |  |                          |  |  |
| 14          | 2/20 | Mon |                  |   |   |   | Survey of Gulu RRH   |   |  |  |                           |  |                          |  |  |
| 15          | 2/21 | Tue |                  |   |   |   | Haneda--> Entebbe  | Survey of Gulu RRH                          |  |  |                           |  |                          |  |  |
| 16          | 2/22 | Wed |                  |   |   |   | Entebbe-->Lira   | Survey of Gulu RRH<br>Gulu (2 Hrs.)--> Lira | Survey of Gulu RRH                                 |  |                           |  |                          |  |  |
| 17          | 2/23 | Thu |                  |   |   |   | Survey of Lira RRH   |   |  | Gulu (2 Hrs.)--> Lira, Survey of Lira RRH                  |                           |  |                          |  |  |
| 18          | 2/24 | Fri |                  |   |   |   | Survey of Lira RRH   |   |  |  |                           |  |                          |  |  |
| 19          | 2/25 | Sat |                  |   |   |   | Survey of Lira RRH   |   |  |  |                           |  |                          |  |  |
| 20          | 2/26 | Sun |                  | Haneda--> (Dubai)--> Entebbe  | Lira--> Hoima                                     | Team meeting / Data filing  |  |   |  |  |                           |  |                          |  |  |
| 21          | 2/27 | Mon |                  | Kampala--> Hoima  | Survey of Lira RRH                                |   |  |   |  |  |                           |  |                          |  |  |
| 22          | 2/28 | Tue |                  | AM: Hoima--> Kampala  |   |   | AM: Lira (4.5Hrs.)--> Kampala  |   |  |  |                           |  |                          |  |  |
| 23          | 3/1  | Wed |                  | AM: Report of the survey results of the 3 RRHs to MOH<br>PM: Drafting Minutes of Discussions (MD) |   |   |  |   |  |  |                           |  |                          |  |  |
| 24          | 3/2  | Thu |                  | Presenting and discussions on MD  |   |   |  | Survey of local contractors                 | Accompanying Leader                                |  |                           |  |                          |  |  |
| 25          | 3/3  | Fri |                  | Report to JICA and Japanese Embassy<br>Entebbe-->   |   |   | Accompanying Leader  |   | Entebbe18:30-->                                    | Survey of local contractors                                | Accompanying leader       | Market research relevant to equipment supply / local agent |                          |  |  |
| 26          | 3/4  | Sat |                  | --> Iran  | --> Moldova                                       | Examination of the plan of the target RRH, others                                     |  | (Doha)--> Narita 17:35                      | Market research relevant to construction materials | Market research relevant to equipment supply / local agent |                           |  |                          |  |  |
| 27          | 3/5  | Sun |                  | Data filing   |   |   |  | Data filing                                 |  |  |                           |  |                          |  |  |
| 28          | 3/6  | Mon |                  | Discussion on modified MD draft with MOH and signing MD   |   |   |  | Construction materials market research      | Accompanying PM                                    |  |                           |  |                          |  |  |
| 29          | 3/7  | Tue |                  | Visit Uganda Cancer Institute   | Examination of the plan of the target RRH, others |   | Construction materials market research   | Accompanying PM                             | Equipment market research / local agent            |  |                           |  |                          |  |  |
| 30          | 3/8  | Wed |                  | International Women's Day<br>Data filing  |   |   |  | Survey of local contractors                 | International Women's Day<br>Data filing           |  |                           |  |                          |  |  |
| 31          | 3/9  | Thu |                  | Discussion with MOH / Singing Technical Note  |   |   |  |   |  |  |                           |  |                          |  |  |
| 32          | 3/10 | Fri |                  | Entebbe 18:30-->  | Receiving survey data of natural conditions       |   | Entebbe 18:30-->   |   |  |  |                           |  |                          |  |  |
| 33          | 3/11 | Sat |                  | (Doha)-->Narita 17:45   | Entebbe 18:30-->                                  |   | (Doha)--> Narita 17:45   |   |  |  |                           |  |                          |  |  |
| 34          | 3/12 | Sun |                  |   |   |   |  | (Doha)-->Narita 17:45                       |  |  |                           |  |                          |  |  |

(3) Draft Outline Design Explanatory Mission (August 19 – 27, 2017)

| No.         | Date | Day | Official Members  |  | Consultant Members                       |  |                                    |
|-------------|------|-----|---|--|--|--|------------------------------------|
|             |      |     | Leader  | Cooperation Planning                             | PM / Architectural Planning              | Assistant PM / Architectural Design      | Equipment Planning 1 / Maintenance |
|             |      |     | Mr. Shintaro Takano   | Mr. Mikuni Yamae                                 | Mr. Keiichi Ide                          | Mr. Koki Masumi                          | Mr. Yasumichi Doi                  |
|             |      |     | Grn. Manag. Div.2,<br>Fin.Coop. Impl. Dept.,<br>JICA  | Health Team 1, Health<br>Group 1, HD Dept., JICA | Yokogawa Architects &<br>Engineers, Inc. | Yokogawa Architects &<br>Engineers, Inc. | INTEM Consulting, Inc.             |
| Survey days |      |     | 8   | 8  | 9  | 9  | 9                                  |
| 1           | 8/19 | Sat |   |  | Narita 21:25 -->                         |  |                                    |
| 2           | 8/20 | Sun | Haneda 01:00-->(Doha) --> Entebbe 14:45   |  | (Doha) --> Entebbe 14:45                 |  |                                    |
| 3           | 8/21 | Mon | 9:30-12:00 Discussions with HID, MOH<br>16:00-17:00 Meeting with JICA Office (with CR, Takayama, Sugai)   |  |  |  |                                    |
| 4           | 8/22 | Tue | 9:00-13:00 Discussions with target RRH executives in the presence of MOH (in Kampala)<br>15:00-17:00 Draft Minutes of Discussions within the team                                     |  |  |  |                                    |
| 5           | 8/23 | Wed | 9:30-11:30 Presentation to the Minister and discussions with target RRH and MOH<br>14:00-17:00 Draft Minutes of Discussions within the team and send the final draft to MOH           |  |  |  |                                    |
| 6           | 8/24 | Thu | 9:00-12:00 Draft Minutes of Discussions with MOH<br>15:00 Discussion with MOFPED  |  |  |  |                                    |
| 7           | 8/25 | Fri | 10:30 Sign Minutes/Explanation to MOH<br>14:45 Sign Minutes/Explanation to MOFPED<br>15:30-16:30 Meeting with EOJ (with Takayama)<br>17:00-18:00 Meeting with JICA Office (Confirmed) |  |  |  |                                    |
| 8           | 8/26 | Sat | Entebbe 16:15 -->   |  |  |  |                                    |
| 9           | 8/27 | Sun | (Doha) -->Narita 19:05  |  | (Doha) --> Narita 19:05                  |  |                                    |

### Appendix 3 List of Parties Concerned in the Recipient Country

| Name                                   | Title, Position                                  |
|--|--|
| <b>Ministry of Health</b>              |  |
| Dr. Aceng Jane Ruth                    | Minister   |
| Dr. Diana Atwine                       | Permanent Secretary                              |
| Dr. Olaro Charles                      | Director, Clinical Services                      |
| Dr. Jackson Amone                      | Commissioner, Curative Services                  |
| Dr. Henry Mwebesa                      | Director Health Services, Planning & Development |
| Eng. Priscilla Nakiboneka              | Assistant Commissioner                           |
| Eng. Paul Kaliba                       | Civil Engineer, Infrastructure Dept.             |
| Eng. Tusbira Samuel                    | Civil Engineer, Infrastructure Dept.             |
| Eng. Kataaha Edward                    | Electrical Engineer, Infrastructure Dept.        |
| Eng. Sitra Mulepo                      | Equipment Engineer, Infrastructure Dept.         |
| <b>Gulu Regional Referral Hospital</b> |  |
| Dr. James Elima                        | Director   |
| Dr. Onyachi Nathan                     | Ex. Director                                     |
| Tibemanya David                        | Principal Hospital Administrator                 |
| Mubiru Muhammed                        | Ex. Principal Hospital Administrator             |
| Lanyero Agnes Patricia                 | PPT  |
| Omara Julius                           | AMRO   |
| Odyek Beatrice                         | SNO90  |
| Dr. Arach Milly                        | MO   |
| Chebet Juliet                          | SMSW   |
| Bermas Henry                           | PMCO   |
| Opio George Pius                       | AMRO   |
| Ochorog Gabriel                        | AMRO   |
| Opio Larubi Micheal                    | Electrician                                      |
| Dr. Ssenfuka Samuel                    | MO   |
| Saad Waigonda                          | Biomedical engineer                              |
| Emeru James                            | Inventory Officer                                |
| Lukwiya Geoffrey                       | Electrician                                      |
| Ekou Edson E                           | Plumber  |
| Tolit James                            | SAS Laroo Division                               |
| <b>Lira Regional Referral Hospital</b> |  |
| Dr. Odu Bernard                        | Director   |
| Dr. James Elima                        | Ex. Director                                     |
| Michael Odur                           | Ex. Principal Hospital Administrator             |
| Ogwal Walter                           | W/S Eng.   |
| Oyang William                          | Cons. Paed.                                      |
| Dralada Thomas Opeli                   | Psych. NO  |
| Acan Ruth Lucy                         | SNO  |
| Apio Stella                            | SNO  |
| Evalyn Abongo                          | NO   |
| Margaret Odongwen                      | PNO  |
| Odepe Simon                            | Head Accts.                                      |
| Urassa Johnathan G.                    | S. Radio   |
| Sangadi Justine                        | PCO  |
| Aciro Rose                             | SNO  |
| Akuno Doreen Ruth                      | NO   |
| Opota Walter                           | SEC  |

| <b>Arua Regional Referral Hospital</b>                           |  |
|--|--|
| Dr. Adakau Alex  | Ag. Director                                 |
| Dr. Odu Bernard  | Ex. Director                                 |
| Okello Odeke Peter   | Ex. Principal Hospital Administrator         |
| Ezati Ezaruku  | Chairperson Hospital Member of Board         |
| Obeti Francis  | BMET   |
| Anite Joyce  | N/O  |
| Alezuyo Janet A  | AC SPNO                                      |
| Emudu Abosolom   | Ag. Engineering Officer                      |
| Dr. Candia Robert  | Dental Surgeon                               |
| Ogen-Mungu Ronald  | Asst. Engineering Officer                    |
| <b>USAID/SUSTAIN</b>   |  |
| Gladyst Tugume   | Deputy Chief of Party                        |
| Kiwanuka Paul  | Director for Operations                      |
| Hillary Alima  | Care & Treatment Advisor                     |
| Julien Natulaura   | Communication Specialist                     |
| Kayita Crolgry   | QI-TA  |
| <b>UNHCR Arua Office</b>   |  |
| Ezati Erzaruku   | Chairperson HMB                              |
| Omed Aiyoub  | Associate Field Officer                      |
| Anchinesh Mahotome   | Protectional Officer                         |
| <b>Uganda Cancer Institute</b>                                   |  |
| Dr. Jackson Orem   | Director                                     |
| <b>Ministry of Finance , Planning &amp; Economic Development</b> |  |
| Maris Wanyera  | Ag. Director, Directorate Debt & Cash Policy |

## Appendix 4 Minutes of Discussions

(1) Field Survey 1

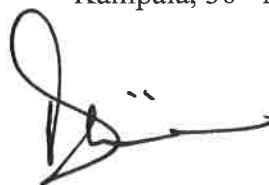
### Minutes of Discussions on the Preparatory Survey I for the Project for Rehabilitation and Re-Equipping of Hospitals in Northern Uganda, in the Republic of Uganda

In response to the request from the Government of the Republic of Uganda (hereinafter referred to as “Uganda”), Japan International Cooperation Agency (hereinafter referred to as “JICA”) dispatched the Preparatory Survey Team (hereinafter referred to as “the Team”) for the Outline Design of “the Project for Rehabilitation and Re-Equipping of Hospitals in Northern Uganda” (hereinafter referred to as “the Project”), to Uganda, headed by Mr. Kenichi Ito, Director of Health Team 1, Health Group 1, Human Development Department, JICA, from 13th November to 3rd December, 2016. The Team held a series of discussions with the officials of the Government of Uganda and conducted a field survey. In the course of the discussions, both sides have confirmed the main items described in the attached sheets.



Mr. Kenichi Ito  
Leader, Preparatory Survey Team  
Japan International Cooperation Agency  
Japan

Kampala, 30<sup>th</sup> November, 2016



Dr. Diana Atwiine  
Permanent Secretary  
Ministry of Health  
Republic of Uganda

Witness



Ms. Maris Wanyera  
For: Permanent Secretary/Secretary to the  
Treasury  
Ministry of Finance, Planning and  
Economic Development  
Republic of Uganda



## ATTACHMENT

### 1. Objective of the Project

The objective of the Project is to strengthen the functions of the selected Regional Referral Hospitals (hereinafter referred to as “RRH”) in the northern region of Uganda, through construction of facilities and procurement of equipment, thereby contributing to improving access to and quality of health care services in Northern Uganda.

### 2. Title of the Preparatory Survey

Both sides agreed to amend the title of the Preparatory Survey as “the Preparatory Survey for the Project for Improvement of Regional Referral Hospitals in Northern Uganda,” to reflect the content of the Project more clearly. The final title will be decided by the Government of Japan.

### 3. Project sites

The Project sites will be selected from Gulu RRH, Lira RRH, and Arua RRH. The location map of the candidate Project sites is shown in Annex 1. All of these sites are in legal possession of the Ministry of Health (hereinafter referred to as “MOH”) as shown in Annex 2-1, 2-2 and 2-3.

### 4. Responsible authorities for the Project

Both sides confirmed the authorities responsible for the Project are as follows:

The Health Infrastructure Division under the Department of Clinical Services of MOH and the RRHs to be covered by the Project will be the executing agencies for the Project (hereinafter referred to as “the Executing Agencies”). The Executing Agencies shall coordinate with all the relevant authorities to ensure smooth implementation of the Project and ensure that the undertakings for the Project shall be managed by relevant authorities properly and on time. The current organograms of MOH, the Health Infrastructure Division, and the RRHs are shown in Annex 3-1, 3-2, 3-3 and 3-4.

### 5. Items requested by the Government of Uganda

5-1-1. As a result of discussions, both sides confirmed the facilities requested by the Government of Uganda, with findings by the Team and priorities agreed by both

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sides, which are shown in Annex 4.

5-1-2. Each RRH submitted the priority department list for equipment (Annex 5). The revised priority department list and the requested equipment list with priority in sequential number by each department shall be finalized and submitted to JICA Uganda Office by the end of December, 2016.

5-2. JICA will assess the feasibility of the items in Annex 4, 5 and the requested equipment list through the Preparatory Survey, and JICA will report the findings to the Government of Japan. Both sides will elaborate and refine the scope of the Project during the Preparatory Survey II. The final scope of the Project will be decided by the Government of Japan.

## 6. Procedures and Basic Principles of Japanese Grant

6-1. The Ugandan side agreed that the procedures and basic principles of Japanese Grant as described in Annex 6 shall be applied to the Project. As for the monitoring of the implementation of the Project, JICA requires Ugandan side to submit the Project Monitoring Report, the form of which is attached as Annex 7.

6-2. The Ugandan side agreed to take the necessary measures, as described in Annex 8, for smooth implementation of the Project. The contents of Annex 8 will be elaborated and refined in the Preparatory Survey II and be agreed in the mission dispatched for explanation of the Draft Preparatory Survey Report. The contents of Annex 8 will be used as an attachment to the Grant Agreement.

## 7. Schedule of the Survey

7-1. JICA will dispatch a mission as the Preparatory Survey II around February, 2017, in order to further discuss the details of the scope of the Project.

7-2. JICA will prepare a draft Preparatory Survey Report in English and dispatch a mission to Uganda in order to explain its contents around August, 2017.

7-3. When the contents of the draft Preparatory Survey Report are accepted and the undertakings for the Project are fully agreed by the Ugandan side, JICA will finalize the Preparatory Survey Report and send it to the Ugandan side around October, 2017.

7-4. The above schedule is tentative and subject to change.

## 8. Environmental and Social Considerations

8-1. The Ugandan side confirmed to give due environmental and social considerations before and during implementation, and after completion of the Project, in



accordance with the JICA Guidelines for Environmental and Social Considerations (April, 2010).

8-2. The Project is categorized as “C” from the following considerations: not located in a sensitive area, nor has it sensitive characteristics, nor falls it into sensitive sectors under the Guidelines, and its potential adverse impacts on the environment are not likely to be significant.

9. Other Relevant Issues

9-1. The Ugandan side agreed to allocate budget (operational and maintenance costs) and human resources (health service providers and any other personnel) necessary for the proper and sustainable operation and maintenance of the facilities and the equipment under the Project.

9-2. The Ugandan side expressed their needs for Soft Component under the Japan's Grant Aid. The contents will be discussed during the Preparatory Survey II. The Team will convey the request to the Government of Japan.

9-3. The Ugandan side will submit the future plans of the assistance from other development partners towards the three RRHs, especially the project of procurement of medical imaging equipment for Gulu RRH by Italian Cooperation and the project of renovation of neonatal intensive care unit of Lira RRH by UNICEF, to JICA Uganda Office by the end of December, 2016.

9-4. Both sides confirmed that the followings would be the undertakings of the Government of Uganda;

- 1) demolition of existing facilities and land leveling to construct new facilities and
- 2) providing alternative space and functions of demolished facilities during construction period.

9-5. Both sides noted that treatment of taxes and duties for the Project shall be in accordance with the agreement to be concluded between the Government of Uganda and the Government of Japan. MOH shall take necessary measures according to the agreement.



Annex 1 Location map of the candidate Project sites

Annex 2-1, 2-2, 2-3 Ownership of land

Annex 3-1, 3-2, 3-3 and 3-4 Organograms of MOH, the Health Infrastructure Division and 3 RRHs

Annex 4 Requested facilities list

Annex 5 Priority department list for equipment

Annex 6 Japan Grant Aid

Annex 7 Project Monitoring Report (template)

Annex 8 Major Undertakings to be taken by the Government of Uganda







**GULU DISTRICT LOCAL GOVERNMENT**  
**DEPARTMENT OF NATURAL RESOURCES**  
**LAND MANAGEMENT SECTOR**

P.O. Box 2,


Date: 5<sup>th</sup> October, 2016

The Chief Representative  
Japan International Cooperation Agency (JICA)

  
**RE: GULU REGIONAL REFERRAL HOSPITAL LAND**

This letter serves to confirm that plot nos 4 – 10 Dr. Mathew Lukwiya Road – on Sheet No. 22/21/NE/4 is gazetted as Land belonging to Gulu Regional Referral Hospital.

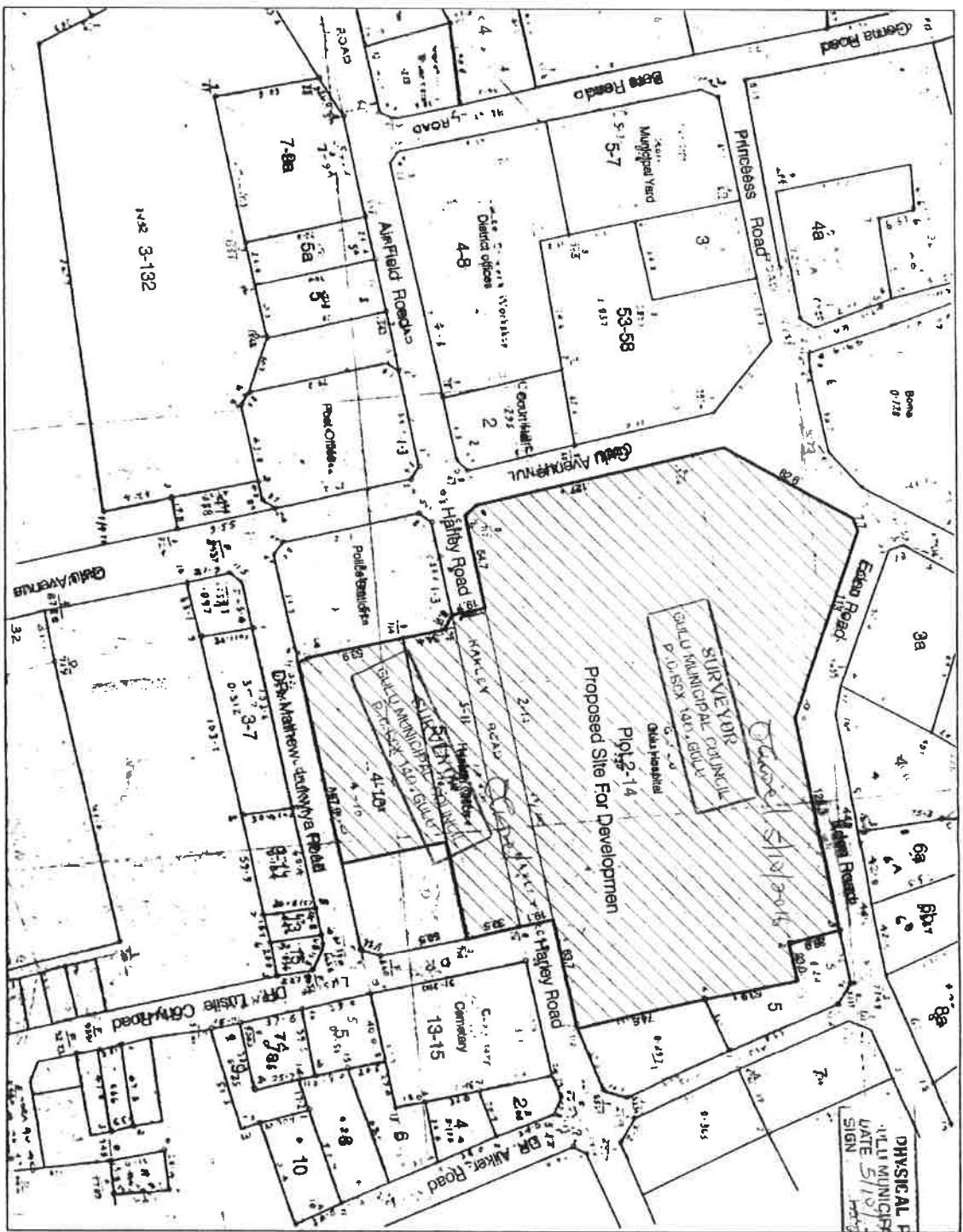
The Board has received an application from the Hospital Management for acquiring a land title over the said plot and upon the acquisition of the land title, a copy shall be forwarded to your office.

  
Ojera Alex  
District Land officer/Gulu

Cc Director Gulu Regional Referral Hospital  
Cc The Hospital Administrator/ Gulu Regional Referral Hospital  
Cc File.



107



Detailed Map

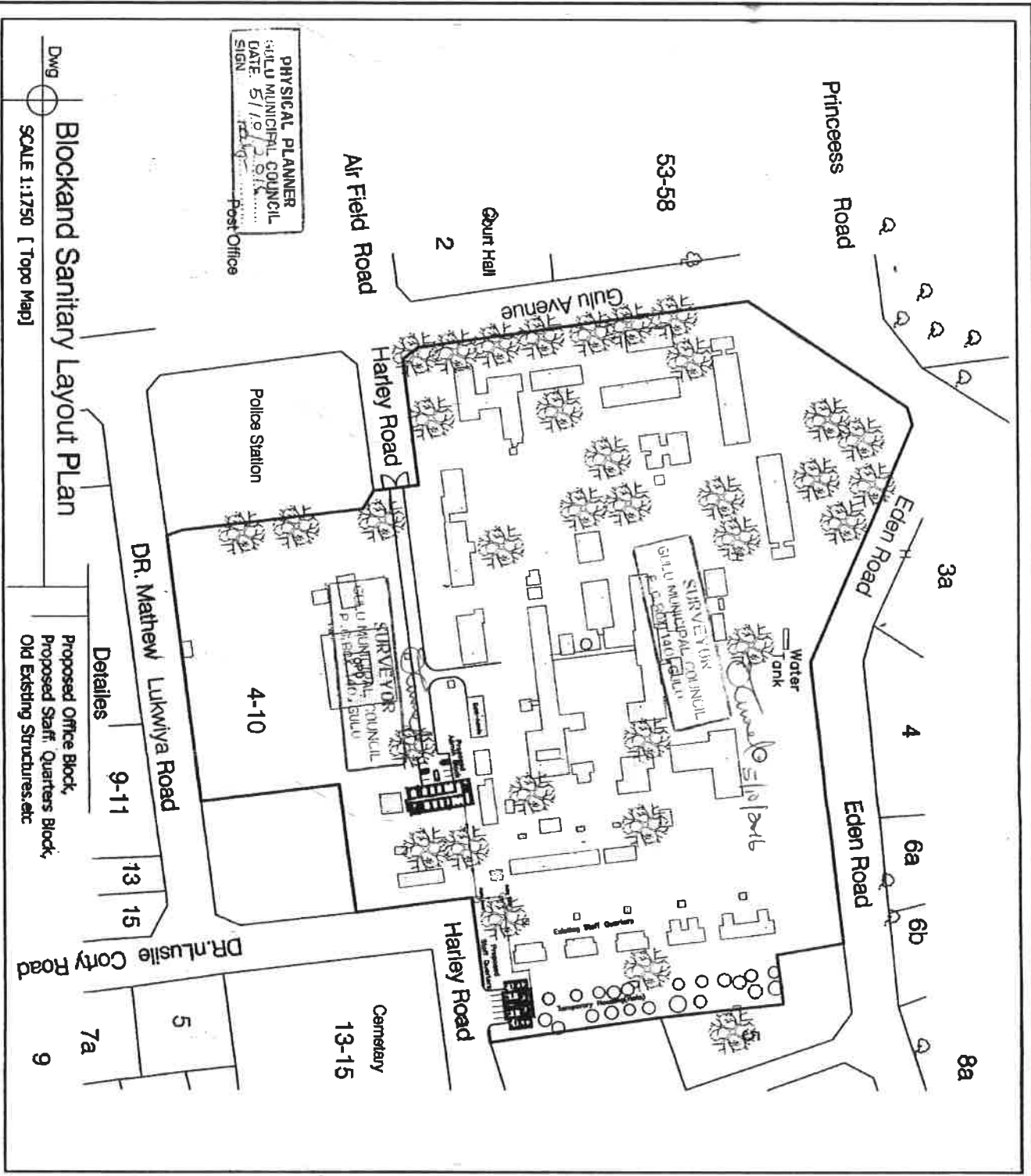
### Site location Plan (Deed Plan)

Dwg 107  
SCALE 1:2500 [Cadastral Map]

|         |  |
|---------|--|
| Title:  | PROPOSED SITE FOR OFFICE AND STAFF QUARTER BLOCK, TO BE BUILT ON PLOT 2-14, ON GULU AVENUE AND, HARLEY ROAD, LAYIBI DIVISION GMC, GULU DISTRICT. |
| Client: | GOVERNMENT OF THE REPUBLIC OF UGANDA<br>GULU REFERRAL HOSPITAL<br>P.o Box ,GULU. E-Mail :  |
| Sign:   | .....  |

|              |                         |
|--------------|-------------------------|
| Designed:    | <b>OCHORA BERNARD</b>   |
| Drawn:       | <b>CAD</b>              |
| Checked:     |                         |
| Date:        | <b>18 . June . 2009</b> |
| Scale:       | <b>1:2500</b>           |
| Sheet No.    | <b>1 of 1</b>           |
| Drawing No : | <b>OCH/06/09/003</b>    |

5



PHYSICAL PLANNER  
 GULU MUNICIPAL COUNCIL  
 DATE: 5/10/09  
 SIGN: [Signature]

DWG  
 Blockland Sanitary Layout Plan  
 SCALE 1:1750 [Topo Map]

DR. Mathew Lukwiya Road  
 DR. Nluslie Cory Road  
 Details  
 Proposed Office Block,  
 Proposed Staff Quarters Block,  
 Old Existing Structures, etc

|         |  |
|---------|--|
| Title:  | PROPOSED SITE FOR OFFICE AND STAFF QUARTER BLOCK, TO BE BUILT ON PLOT 2-14, ON GULU AVENUE AND, HARLEY ROAD, LAYIBI DIVISION GMC, GULU DISTRICT. |
| Client: | GOVERNMENT OF THE REPUBLIC OF UGANDA<br>- - GULU REFERRAL HOSPITAL<br>P.o Box ,GULU. E-Mail :  |
| Sign:   | .....  |

|               |                  |
|---------------|------------------|
| Designed:     | OCHORA BERNARD   |
| Drawn:        | CAD              |
| Checked:      |                  |
| Date:         | 18 . June . 2009 |
| Scale:        | 1:1750           |
| Sheet No.     | 2 of 1           |
| Drawing No. : | OCH/06/09/003    |

[Handwritten signatures and marks]

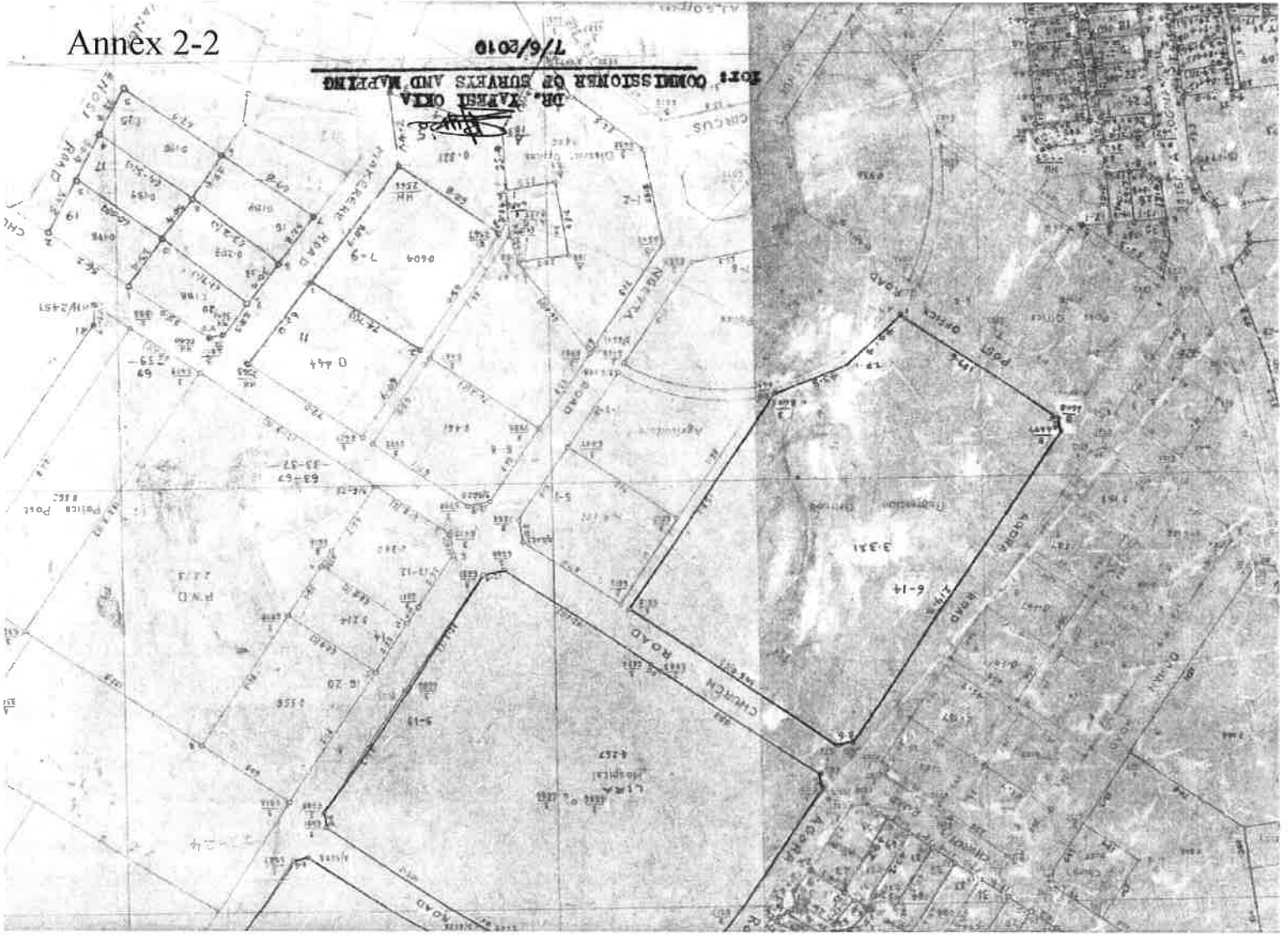


Annex 2-2

7/6/2010

DR. YABESI OKIA  
COMMISSIONER OF SURVEYS AND MAPPING

*(Handwritten signature)*

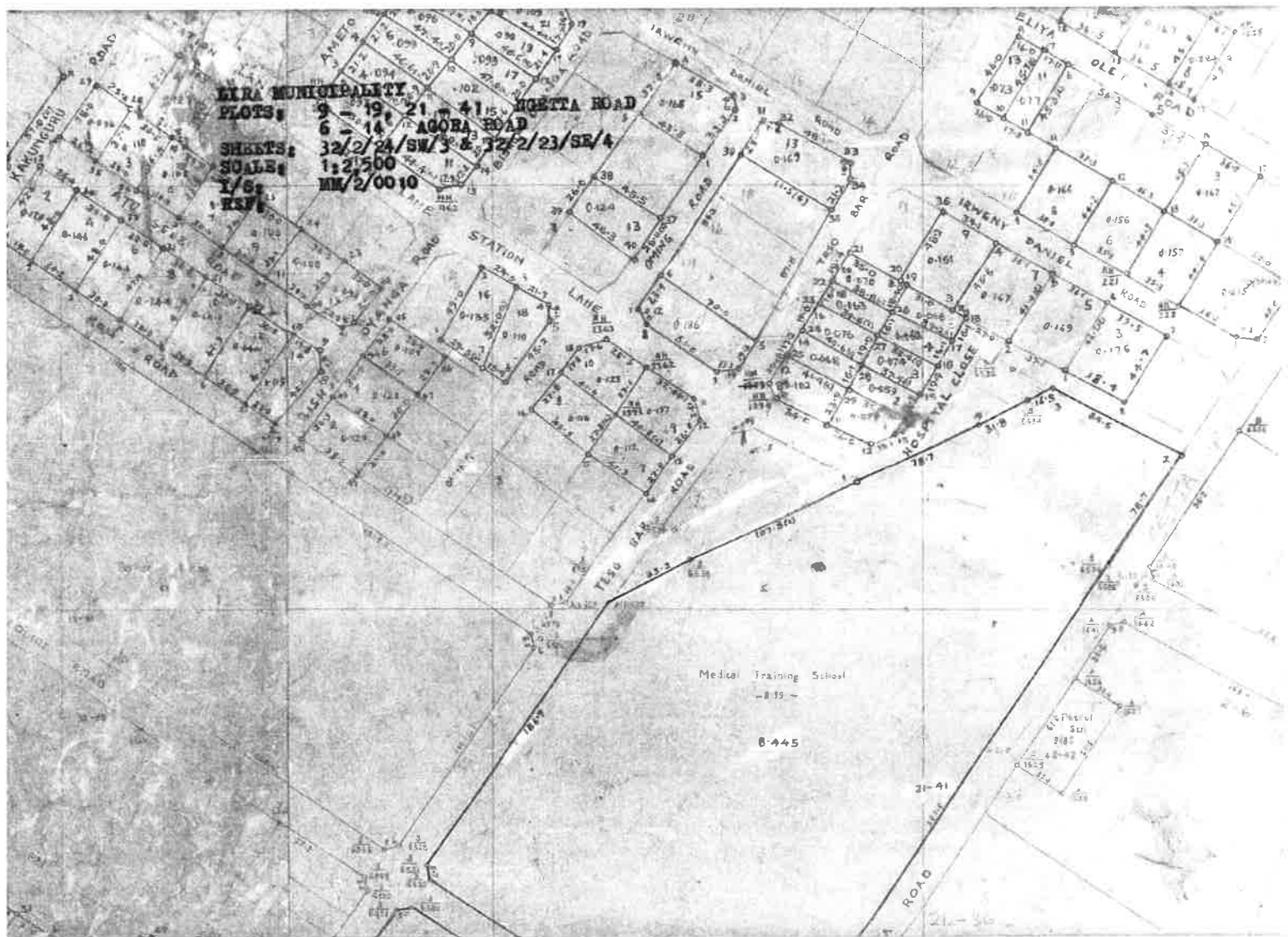


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**HIRA MUNICIPALITY**  
**PLOTS: 9 - 19, 21 - 41**  
**6 - 14**  
**SHEETS: 32/2/24/SW/3 & 32/2/23/SE/4**  
**SCALE: 1:2500**  
**Y/S: MM/2/0010**  
**REF:**



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*Handwritten mark*

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ULC/154/1052

THE REPUBLIC OF UGANDA

REGISTRATION OF TITLES ACT

# Certificate of Title.

FREEHOLD REGISTER      Volume 765    Folio 5

## DESCRIPTION OF LAND

**ALL THAT** piece of land delineated and edged red on the plan hereto annexed containing the following area or thereabouts and situate as follows:-

| Area.           | County.           | District. |
|-----------------|-------------------|-----------|
| 16.023 HECTARES | LIRA MUNICIPALITY | LIRA      |

and known as **PLOTS 9-19, 21 - 41 NGETTA ROAD AND 6-14 AGORA ROAD**

(SUBJECT TO CONDITIONS HEREIN)

## OWNERSHIP

UGANDA LAND COMMISSION OF P.O. Box 36408, KAMPALA

Date, time and Inst. No.  
**REGD. 25.6.2010**  
**AT. 2.10P.M.**  
**INST. 430893**

*[Signature]*  
Signature of Registrar

is/are now the proprietors of an estate in fee simple in the land above described subject to the conditions and incumbrances hereinafter set out.

Dated this **2ND** day of **JULY** 20 **10**




*[Signature]*

*[Signature]*

*[Signature]*  
Registrar of Titles.

*[Signature]*

**OWNERSHIP**—*continued*

| Date, time<br>and Inst No | Name and Address of Owner   | Signature of<br>Registrar   |
|---------------------------|---|---|
|                           |  |   |



*copy*



THE REPUBLIC OF UGANDA

REGISTRATION OF TITLES ACT.

# Certificate of Title.

FREEHOLD REGISTER Volume 657 Folio 16

## DESCRIPTION OF LAND

**ALL THAT** piece of land delineated and edged red on the plan hereto annexed containing the following area or thereabouts and situate as follows:-

| Area.         | County.           | District. |
|---------------|-------------------|-----------|
| 9.920 HECTARE | ARUA MUNICIPALITY | ARUA      |

and known as **PLOT 26-62 AVENUE ROAD - ARUA**  
(SUBJECT TO CONDITIONS HEREIN)

### OWNERSHIP

UGANDA LAND COMMISSION of P.O. Box 36408, KAMPALA

Signature of Registrar

Date, time and Inst. No.  
30.12.6.09  
3.20 P.M.  
r.414346

is/are now the proprietors of an estate in fee simple in the land above described subject to the conditions and incumbrances hereinafter set out.

Dated this 4<sup>TH</sup> day of AUGUST 2009

*[Handwritten mark]*

Registrar of Titles.

*[Handwritten signature]*

ARUA MUNICIPALITY

PLOT NO. 26 AVENUE ROAD

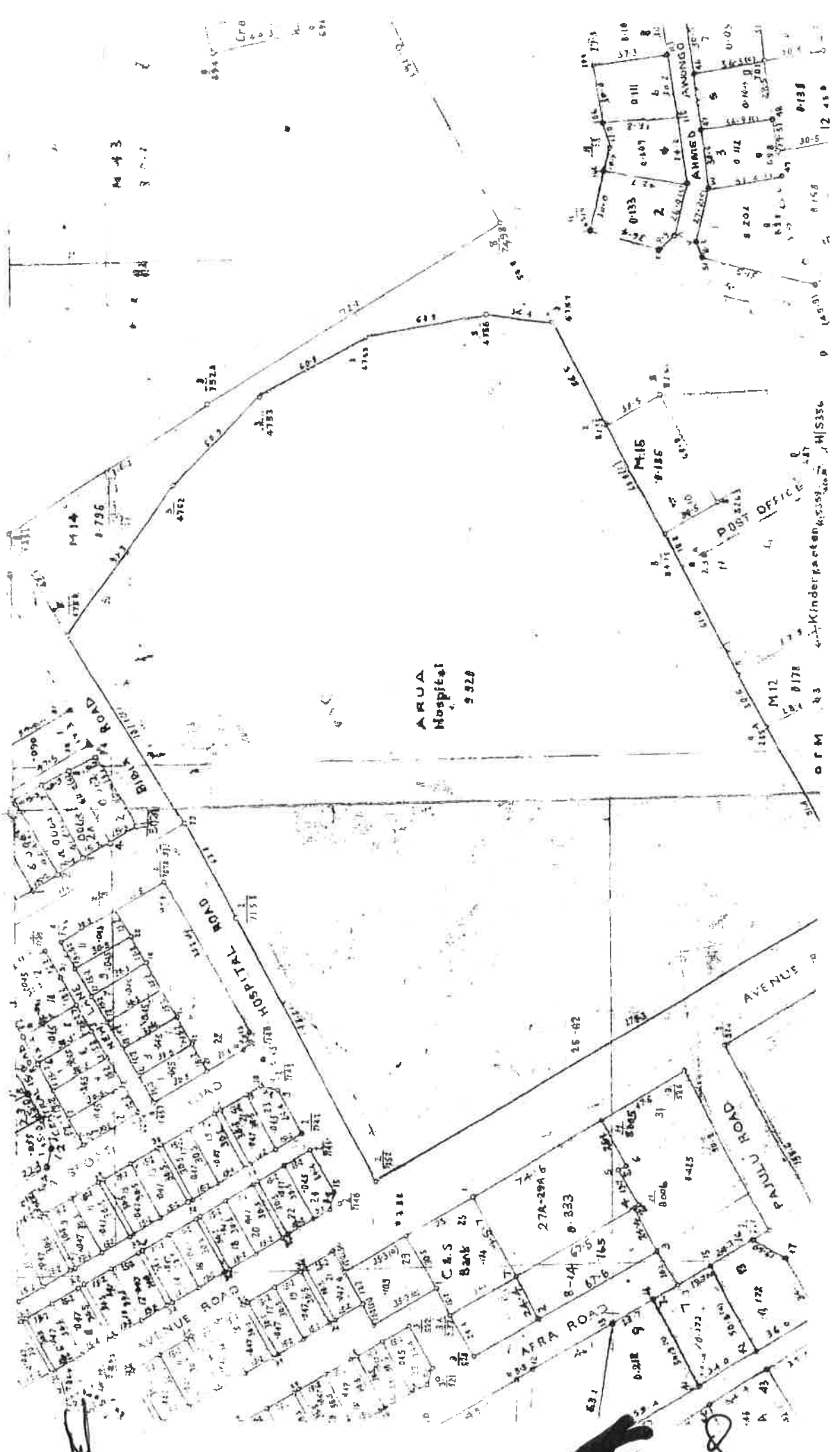
SHEET : 11/4/24/SW/1 & 2

SCALE: 1 : 2,500


REF : ULC/154/522

SHEET 11/4/24/SW/1

SCALE 1:2,500



CONDITIONS  
~~RENT~~

| Date, time and Inst. No. | Particulars  | Signature of Registrar  |
|--------------------------|--|---|
| A)                       | MINISTRY OF HEALTH (ARUA REGIONAL REFERRAL HOSPITAL) |  |

*Handwritten mark*



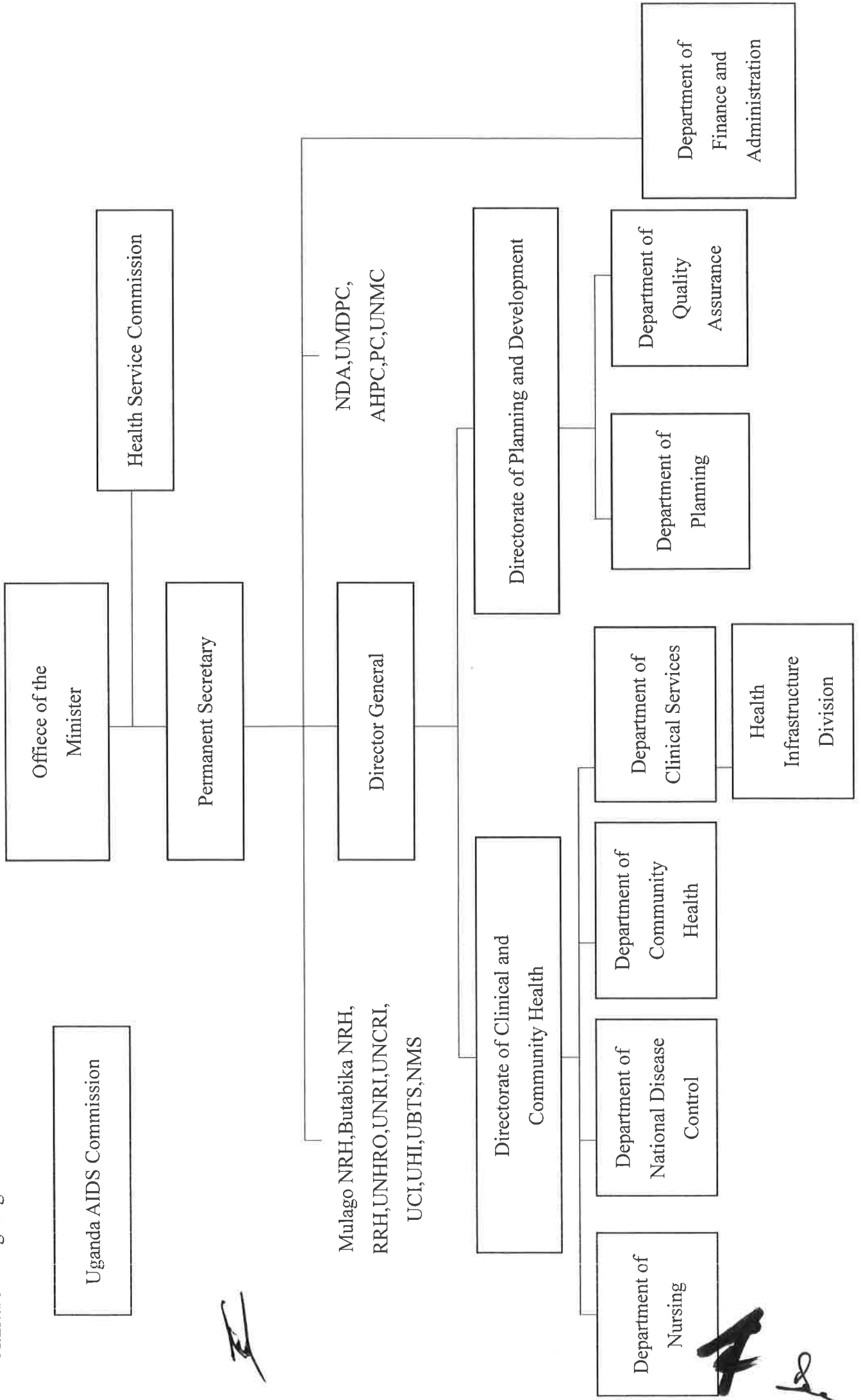
**OWNERSHIP**—*continued*

| Date, time<br>and Inst. No. | Name and Address of Owner | Signature of<br>Registrar |
|-----------------------------|---------------------------|---------------------------|
|                             |                           |                           |

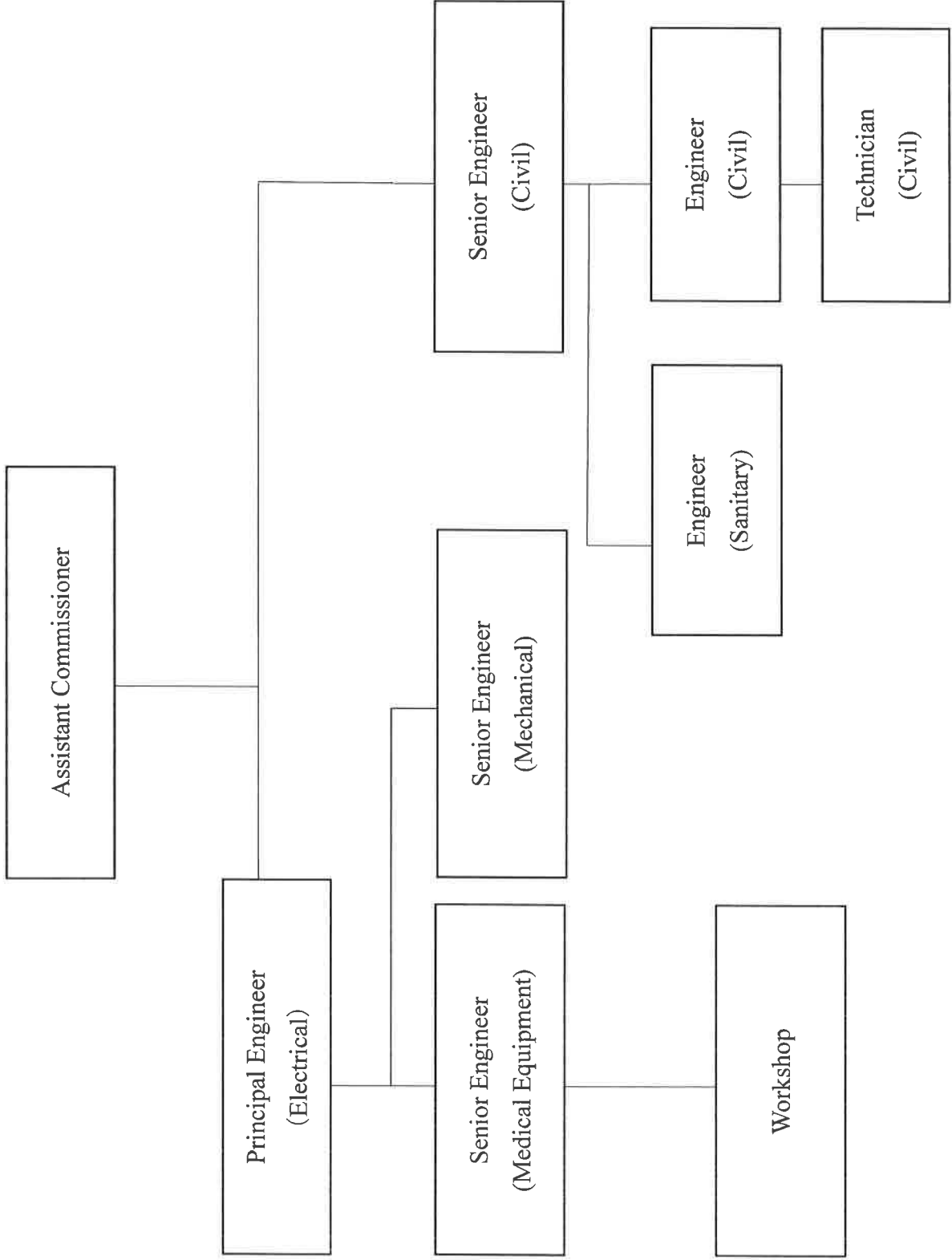
*M*

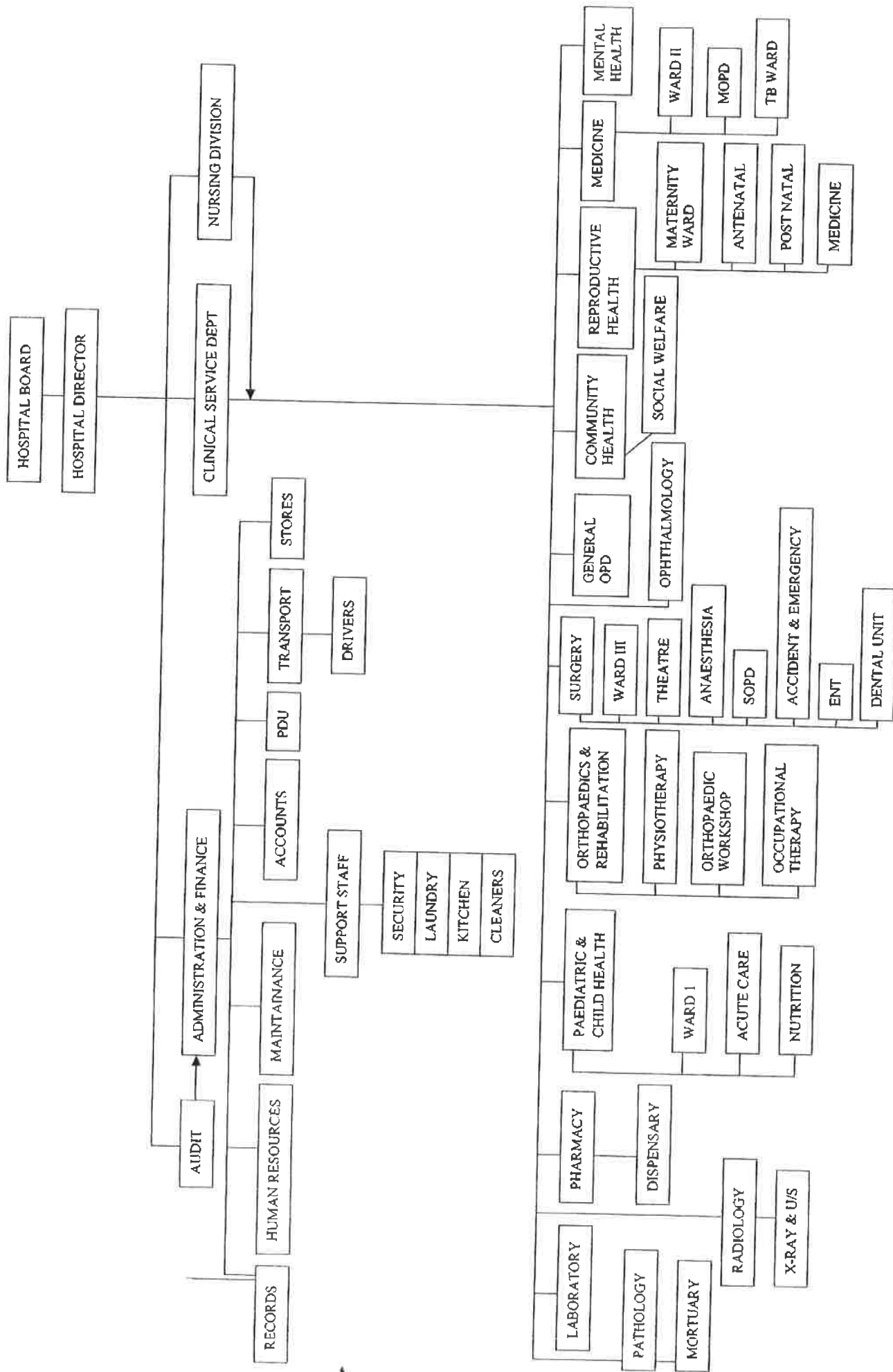
*[Signature]*

Annex 3-1 Organogram of MOH and Health Infrastructure Division

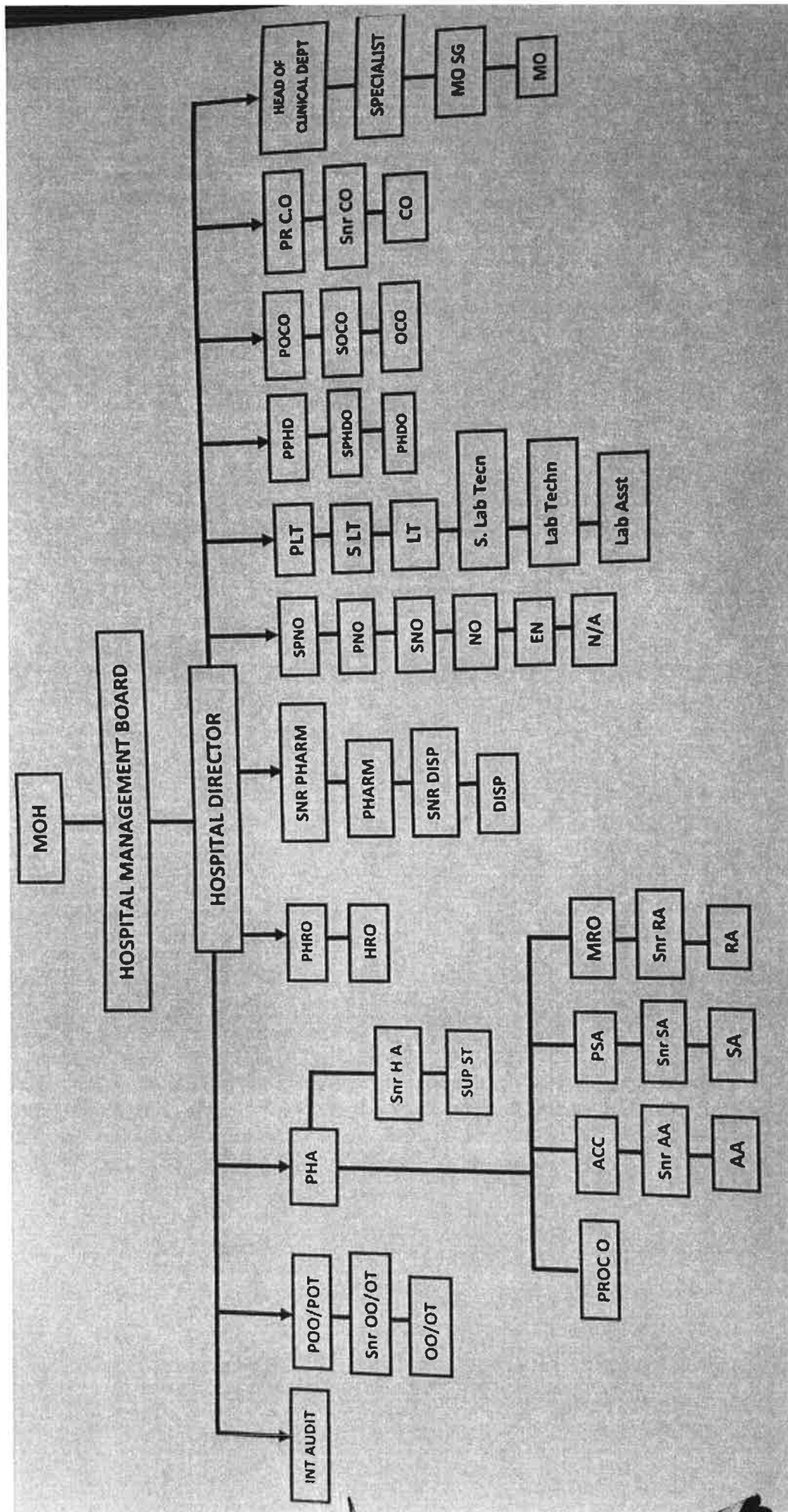


Organogram of the Health Infrastructure Division





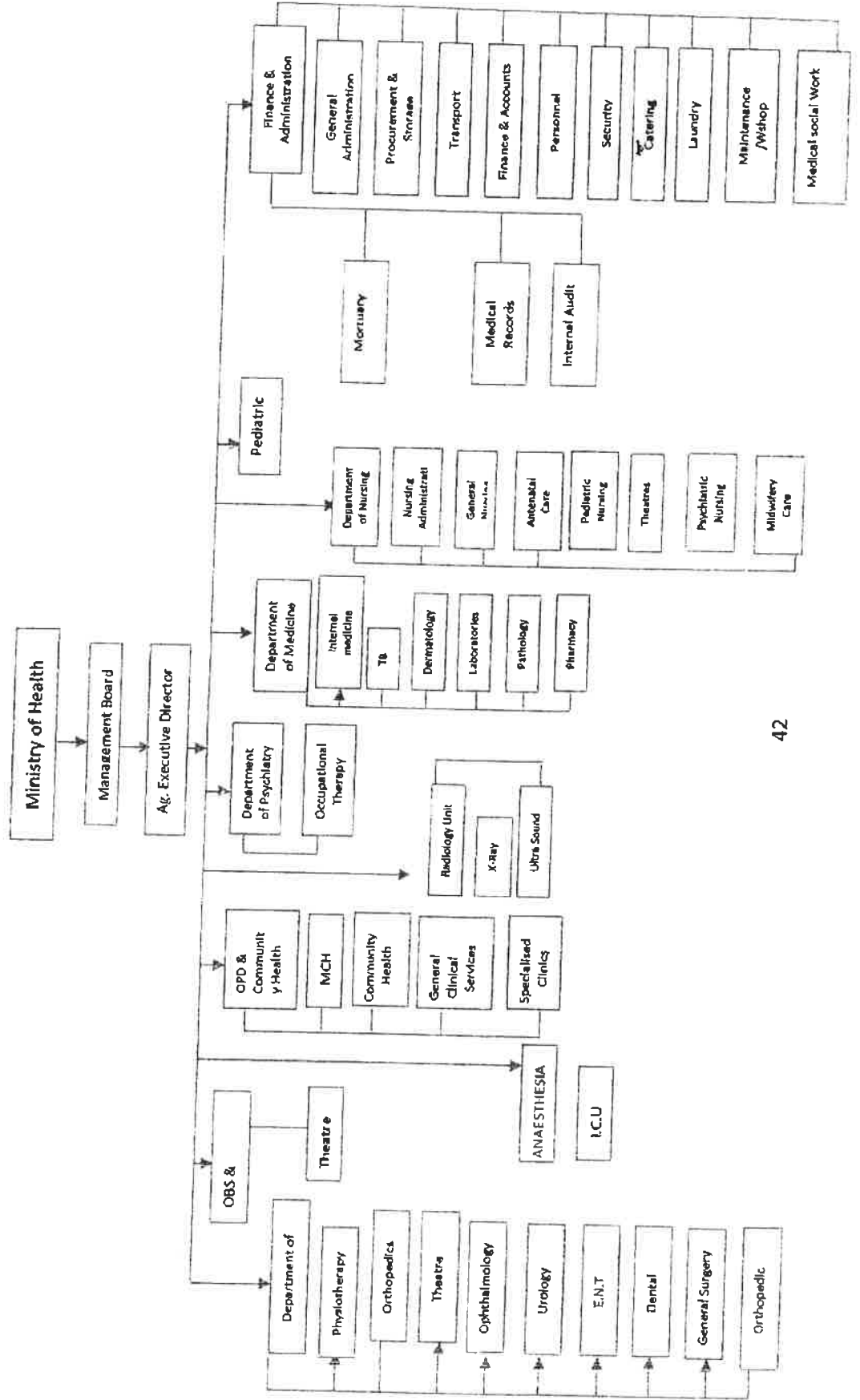
Annex 3-3 Organogram of Lira RRH



*[Handwritten signatures and marks at the bottom of the page]*

Sep. 2014

### Functional Organisation Structure for Arua Regional Referral Hospital



Annex 4 Requested facilities list

| Hospital                        | Gulu  |   |   |  | Lira  |   |   | Arua   |  |
|---------------------------------|---|---|---|--|---|---|---|--|--|
|                                 | (1) Maternity, Theatre, Casualty  | (2) OPD   | (1) OPD + Casualty  | (2) Maternity  | (1) OPD + Casualty  | (2) Maternity   | (1) OPD + Casualty  | (2) Maternity Ward   |  |
| Priority by each hospital       | A   | B   | A   | B  | A   | B   | A   | B  |  |
| Function of the facility        | Maternity   | OPD   | Casualty  | OPD  | OPD   | Delivery  | OPD + Casualty  | Maternity Ward   |  |
|                                 | A   | C   | C   | C  | A-  | A+  | B   | C  |  |
| Aging level of the facility     | No good separation of sterile and non-sterile areas. No good function of sterilization room or changing room. | Functioning good, including observation beds.   | Functioning but scattered. No good environment regarding waiting space. | Using old main theater. Located in inpatient area, far from OPD. | Concerns regarding nosocomial infection facility and equipment. | Functioning good with necessary facility and equipment. | Main OPD buildings and MCH are separated. Complicated patient flow.                     | Functioning good including operating theatre. Neonatal ward, 10 delivery beds. |  |
|                                 | A+  | A   | A   | B  | A+  | A+  | A-  | C  |  |
| Insufficiency of the space      | Renovated in 2010, but not in good condition inside.  | Built in 1930s. Old.                            | Built in 1930s. Old.  | Built in 1930s. Old.   | Built in 1920s. Old.  | Built in 1930s. Old.                                    | Built in 1930s. Maintained in good condition.   | Built in 1930s. Renovated in recent years with good condition.                 |  |
|                                 | A+  | B   | A   | A  | A+  | B   | B   | C  |  |
| Overall assessment by JICA team | Absolute lack of the space, e.g. beds in the corridor.  | Currently enough space to accommodate patients. | Absolute lack of space.   | Not too congested.   | Only 4 delivery beds. Extremely small space between beds.       | Lack of space, but not so highly urgent.                | Small space in consultation room or corridor. Relatively enough space for waiting area. | Enough space.  |  |
|                                 | A   | B   | A   | A-   | A   | A+  | B   | C  |  |
| Tentative Prioritization        | A   | B   | A   | B  | A   | A   | B   | C  |  |
| Remarks                         | *1  |   |   |  | *2  |   |   |  |  |

Findings by JICA Survey team

\*1 MOH suggested the need to include ICU in Theatre and Casualty complex of Gulu RRH. The Team pointed out the need for capacity development for ICU operation to be conducted by MOH.  
 \*2 MOH expressed great need of OPD + Casualty complex of Arua RRH to be included in the Project.



Annex 5 Priority department list for equipment

| Hospital | Department                    |  | Priority |
|----------|-------------------------------|--|----------|
| Gulu RRH | Operation Theatre             |  | 1        |
|          | Emergency                     |  | 2        |
|          | Imagery                       |  | 3        |
|          | OB/GYN                        |  | 4        |
|          | Outpatient Department         |  | 5        |
|          | ICU (including Recovery room) |  | 6        |
|          | Surgery Ward                  |  | 7        |
|          | Laboratory                    |  | 8        |
|          | Ambulance                     |  | 9        |
|          | Sterilization and Laundry     |  | 10       |
|          | Dental                        |  | 11       |
|          | ENT                           |  | 12       |
|          | Internal Medicine Ward        |  | 13       |
|          | Physiotherapy                 |  | 14       |
|          | Pharmacy                      |  | 15       |
|          | Paediatric                    |  | 16       |
|          | Orthopeadic work shop         |  | 17       |
|          | Maintenance work shop         |  | 18       |
| Lira RRH | Out patient                   |  | 1        |
|          | OB/GYN                        |  | 2        |
|          | Imaging                       |  | 3        |
|          | Ambulance                     |  | 4        |
|          | Emergency                     |  | 5        |
|          | Sterilisation & Laundry       |  | 6        |
|          | Dental                        |  | 7        |
|          | Peadiatric                    |  | 8        |
|          | Operation Theatre             |  | 9        |
|          | Sugery ward                   |  | 10       |
|          | ENT                           |  | 11       |
|          | Laboratory                    |  | 12       |
|          | Internal Medicine             |  | 13       |
|          | ICU/Recovery                  |  | 14       |
|          | Internal Medicine Ward        |  | 15       |
|          | Phamarcy                      |  | 16       |
|          | Medical Equipment W/s         |  | 17       |
| Arua RRH | OPD                           | Including Accident/Emergency, Dental, Phisiotherapy, Imaging Unit, Orthopedics, Laboratory | 1        |
|          | Martenirty                    | Including Labour suite, Anetenatal-Post natala ward, Theatre, Neonatal Unit                | 2        |
|          | CSSD                          |  | 3        |
|          | Ambrance                      |  | 4        |



|                        |   |
|------------------------|---|
| Main operating theatre | 5 |
| Medical ward           | 6 |
| Pediatric Ward         | 7 |
| Surgical Ward          | 8 |
| Medical Workshop       | 9 |



## JAPANESE GRANT

The Japanese Grant is non-reimbursable fund provided to a recipient country (hereinafter referred to as “the Recipient”) to purchase the products and/or services (engineering services and transportation of the products, etc.) for its economic and social development in accordance with the relevant laws and regulations of Japan. Followings are the basic features of the project grants operated by JICA (hereinafter referred to as “Project Grants”).

### 1. Procedures of Project Grants

Project Grants are conducted through following procedures (See “PROCEDURES OF JAPANESE GRANT” for details):

(1) Preparation

- The Preparatory Survey (hereinafter referred to as “the Survey”) conducted by JICA

(2) Appraisal

- Appraisal by the government of Japan (hereinafter referred to as “GOJ”) and JICA, and Approval by the Japanese Cabinet

(3) Implementation

Exchange of Notes

- The Notes exchanged between the GOJ and the government of the Recipient

Grant Agreement (hereinafter referred to as “the G/A”)

- Agreement concluded between JICA and the Recipient

Banking Arrangement (hereinafter referred to as “the B/A”)

- Opening of bank account by the Recipient in a bank in Japan (hereinafter referred to as "the Bank") to receive the grant

Construction works/procurement

- Implementation of the project (hereinafter referred to as “the Project”) on the basis of the G/A

(4) Ex-post Monitoring and Evaluation

- Monitoring and evaluation at post-implementation stage

### 2. Preparatory Survey

(1) Contents of the Survey

The aim of the Survey is to provide basic documents necessary for the appraisal of the the Project made by the GOJ and JICA. The contents of the Survey are as follows:

- Confirmation of the background, objectives, and benefits of the Project and also institutional capacity of

relevant agencies of the Recipient necessary for the implementation of the Project.

- Evaluation of the feasibility of the Project to be implemented under the Japanese Grant from a technical, financial, social and economic point of view.
- Confirmation of items agreed between both parties concerning the basic concept of the Project.
- Preparation of an outline design of the Project.
- Estimation of costs of the Project.
- Confirmation of Environmental and Social Considerations

The contents of the original request by the Recipient are not necessarily approved in their initial form. The Outline Design of the Project is confirmed based on the guidelines of the Japanese Grant.

JICA requests the Recipient to take measures necessary to achieve its self-reliance in the implementation of the Project. Such measures must be guaranteed even though they may fall outside of the jurisdiction of the executing agency of the Project. Therefore, the contents of the Project are confirmed by all relevant organizations of the Recipient based on the Minutes of Discussions.

#### (2) Selection of Consultants

For smooth implementation of the Survey, JICA contracts with (a) consulting firm(s). JICA selects (a) firm(s) based on proposals submitted by interested firms.

#### (3) Result of the Survey

JICA reviews the report on the results of the Survey and recommends the GOJ to appraise the implementation of the Project after confirming the feasibility of the Project.

### 3. Basic Principles of Project Grants

#### (1) Implementation Stage

##### 1) The E/N and the G/A

After the Project is approved by the Cabinet of Japan, the Exchange of Notes (hereinafter referred to as “the E/N”) will be signed between the GOJ and the Government of the Recipient to make a pledge for assistance, which is followed by the conclusion of the G/A between JICA and the Recipient to define the necessary articles, in accordance with the E/N, to implement the Project, such as conditions of disbursement, responsibilities of the Recipient, and procurement conditions. The terms and conditions generally applicable to the Japanese Grant are stipulated in the “General Terms and Conditions for Japanese Grant (January 2016).”



## 2) Banking Arrangements (B/A) (See “Financial Flow of Japanese Grant (A/P Type)” for details)

a) The Recipient shall open an account or shall cause its designated authority to open an account under the name of the Recipient in the Bank, in principle. JICA will disburse the Japanese Grant in Japanese yen for the Recipient to cover the obligations incurred by the Recipient under the verified contracts.

b) The Japanese Grant will be disbursed when payment requests are submitted by the Bank to JICA under an Authorization to Pay (A/P) issued by the Recipient.

## 3) Procurement Procedure

The products and/or services necessary for the implementation of the Project shall be procured in accordance with JICA's procurement guidelines as stipulated in the G/A.

## 4) Selection of Consultants

In order to maintain technical consistency, the consulting firm(s) which conducted the Survey will be recommended by JICA to the Recipient to continue to work on the Project's implementation after the E/N and G/A.

## 5) Eligible source country

In using the Japanese Grant disbursed by JICA for the purchase of products and/or services, the eligible source countries of such products and/or services shall be Japan and/or the Recipient. The Japanese Grant may be used for the purchase of the products and/or services of a third country as eligible, if necessary, taking into account the quality, competitiveness and economic rationality of products and/or services necessary for achieving the objective of the Project. However, the prime contractors, namely, constructing and procurement firms, and the prime consulting firm, which enter into contracts with the Recipient, are limited to "Japanese nationals", in principle.

## 6) Contracts and Concurrence by JICA

The Recipient will conclude contracts denominated in Japanese yen with Japanese nationals. Those contracts shall be concurred by JICA in order to be verified as eligible for using the Japanese Grant.

## 7) Monitoring

The Recipient is required to take their initiative to carefully monitor the progress of the Project in order to ensure its smooth implementation as part of their responsibility in the G/A, and to regularly report to JICA about its status by using the Project Monitoring Report (PMR).

## 8) Safety Measures

The Recipient must ensure that the safety is highly observed during the implementation of the Project.

## 9) Construction Quality Control Meeting

Construction Quality Control Meeting (hereinafter referred to as the “Meeting”) will be held for quality assurance and smooth implementation of the Works at each stage of the Works. The member of the Meeting will be composed by the



Recipient (or executing agency), the Consultant, the Contractor and JICA. The functions of the Meeting are as followings:

- a) Sharing information on the objective, concept and conditions of design from the Contractor, before start of construction.
- b) Discussing the issues affecting the Works such as modification of the design, test, inspection, safety control and the Client's obligation, during construction.

## (2) Ex-post Monitoring and Evaluation Stage

- 1) After the project completion, JICA will continue to keep in close contact with the Recipient in order to monitor that the outputs of the Project is used and maintained properly to attain its expected outcomes.
- 2) In principle, JICA will conduct ex-post evaluation of the Project after three years from the completion. It is required for the Recipient to furnish any necessary information as JICA may reasonably request.

## (3) Others

### 1) Environmental and Social Considerations

The Recipient shall carefully consider environmental and social impacts by the Project and must comply with the environmental regulations of the Recipient and JICA Guidelines for Environmental and Social Considerations (April, 2010).

### 2) Major undertakings to be taken by the Government of the Recipient

For the smooth and proper implementation of the Project, the Recipient is required to undertake necessary measures including land acquisition, and bear an advising commission of the A/P and payment commissions paid to the Bank as agreed with the GOJ and/or JICA. The Government of the Recipient shall ensure that customs duties, internal taxes and other fiscal levies which may be imposed in the Recipient with respect to the purchase of the Products and/or the Services be exempted or be borne by its designated authority without using the Grant and its accrued interest, since the grant fund comes from the Japanese taxpayers.

### 3) Proper Use

The Recipient is required to maintain and use properly and effectively the products and/or services under the Project (including the facilities constructed and the equipment purchased), to assign staff necessary for this operation and maintenance and to bear all the expenses other than those covered by the Japanese Grant.



#### 4) Export and Re-export

The products purchased under the Japanese Grant should not be exported or re-exported from the Recipient.



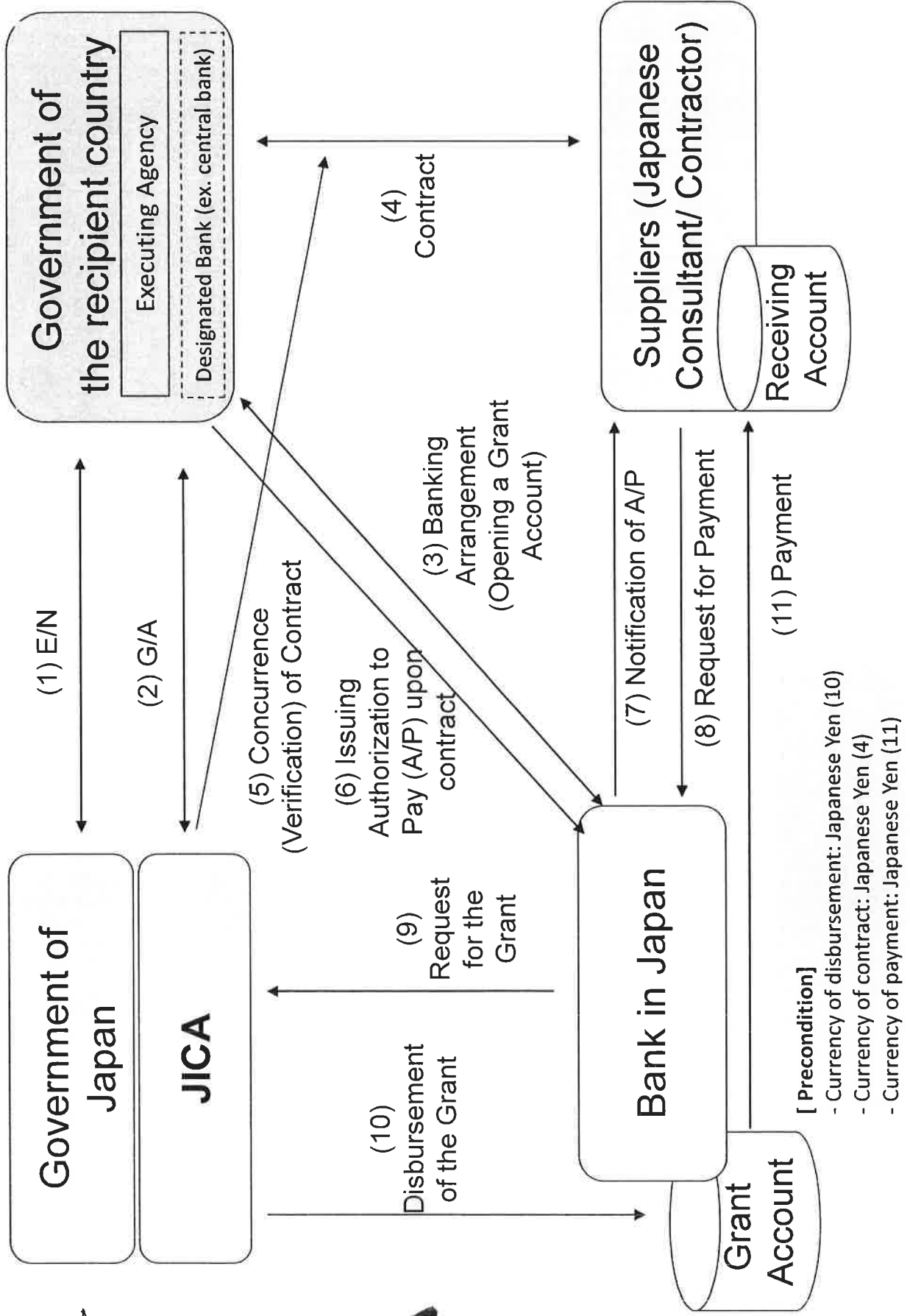
## PROCEDURES OF JAPANESE GRANT

| Stage                              | Procedures   | Remarks  | Recipient Government | Japanese Government | JICA    | Consultants | Contractors | Agent Bank |
|------------------------------------|--|--|----------------------|---------------------|---------|-------------|-------------|------------|
| Official Request                   | Request for grants through diplomatic channel  | Request shall be submitted before appraisal stage.   | x                    | x                   |         |             |             |            |
| 1. Preparation                     | (1) Preparatory Survey<br>Preparation of outline design and cost estimate                                  |  | x                    |                     | x       | x           |             |            |
| 2. Appraisal                       | (2) Preparatory Survey<br>Explanation of draft outline design, including cost estimate, undertakings, etc. |  | x                    |                     | x       | x           |             |            |
|                                    | (3) Agreement on conditions for implementation   | Conditions will be explained with the draft notes (E/N) and Grant Agreement (G/A) which will be signed before approval by Japanese government. | x                    | x (E/N)             | x (G/A) |             |             |            |
|                                    | (4) Approval by the Japanese cabinet   |  |                      | x                   |         |             |             |            |
| 3. Implementation                  | (5) Exchange of Notes (E/N)  |  | x                    | x                   |         |             |             |            |
|                                    | (6) Signing of Grant Agreement (G/A)   |  | x                    |                     | x       |             |             |            |
|                                    | (7) Banking Arrangement (B/A)  | Need to be informed to JICA  | x                    |                     |         |             |             | x          |
|                                    | (8) Contracting with consultant and issuance of Authorization to Pay (A/P)                                 | Concurrence by JICA is required  | x                    |                     |         | x           |             | x          |
|                                    | (9) Detail design (D/D)  |  | x                    |                     |         | x           |             |            |
|                                    | (10) Preparation of bidding documents  | Concurrence by JICA is required  | x                    |                     |         | x           |             |            |
|                                    | (11) Bidding   | Concurrence by JICA is required  | x                    |                     |         | x           | x           |            |
|                                    | (12) Contracting with contractor/supplier and issuance of A/P  | Concurrence by JICA is required  | x                    |                     |         |             | x           | x          |
|                                    | (13) Construction works/procurement  | Concurrence by JICA is required for major modification of design and amendment of contracts.   | x                    |                     |         | x           | x           |            |
|                                    | (14) Completion certificate  |  | x                    |                     |         | x           | x           |            |
| 4. Ex-post monitoring & evaluation | (15) Ex-post monitoring  | To be implemented generally after 1, 3, 10 years of completion, subject to change  | x                    |                     | x       |             |             |            |
|                                    | (16) Ex-post evaluation  | To be implemented basically after 3 years of completion  | x                    |                     | x       |             |             |            |

notes:

1. Project Monitoring Report and Report for Project Completion shall be submitted to JICA as agreed in the G/A
2. Concurrence by JICA is required for allocation of grant for remaining amount and/or contingencies as agreed in the G/A.

# Financial Flow of Japanese Grant (A/P Type)



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**Project Monitoring Report**  
**on**  
**Project Name**  
**Grant Agreement No. XXXXXXXX**  
 20XX, Month

**Organizational Information**

|  |  |
|--|--|
| <b>Signer of the G/A<br/>(Recipient)</b> | _____<br>Person in Charge (Designation)<br>_____<br>Contacts            Address: _____<br>Phone/FAX: _____<br>Email: _____ |
| <b>Executing<br/>Agency</b>              | _____<br>Person in Charge (Designation)<br>_____<br>Contacts            Address: _____<br>Phone/FAX: _____<br>Email: _____ |
| <b>Line Ministry</b>                     | _____<br>Person in Charge (Designation)<br>_____<br>Contacts            Address: _____<br>Phone/FAX: _____<br>Email: _____ |

**General Information:**

|                          |   |
|--------------------------|---|
| <b>Project Title</b>     |   |
| <b>E/N</b>               | Signed date:<br>Duration:   |
| <b>G/A</b>               | Signed date:<br>Duration:   |
| <b>Source of Finance</b> | Government of Japan: Not exceeding JPY _____ mil.<br>Government of (_____): _____ |





|                               |  |
|-------------------------------|--|
| <b>1: Project Description</b> |  |
|-------------------------------|--|

**1-1 Project Objective**

**1-2 Project Rationale**

- Higher-level objectives to which the project contributes (national/regional/sectoral policies and strategies)
- Situation of the target groups to which the project addresses

**1-3 Indicators for measurement of "Effectiveness"**

| Quantitative indicators to measure the attainment of project objectives |                    |                  |
|---|--------------------|------------------|
| Indicators  | Original (Yr     ) | Target (Yr     ) |
|   |                    |                  |
|   |                    |                  |
|   |                    |                  |
| Qualitative indicators to measure the attainment of project objectives  |                    |                  |
|   |                    |                  |

|                                  |
|----------------------------------|
| <b>2: Details of the Project</b> |
|----------------------------------|

**2-1 Location**

| Components | Original<br><i>(proposed in the outline design)</i> | Actual |
|------------|---|--------|
| 1.         |   |        |

**2-2 Scope of the work**

| Components | Original*<br><i>(proposed in the outline design)</i> | Actual* |
|------------|--|---------|
| 1.         |  |         |
|            |  |         |
|            |  |         |

Reasons for modification of scope (if any).

(PMR)

2

**2-3 Implementation Schedule**

| Items | Original                                |   | Actual |
|-------|---|---|--------|
|       | <i>(proposed in the outline design)</i> | <i>(at the time of signing the Grant Agreement)</i> |        |
|       |   |   |        |

Reasons for any changes of the schedule, and their effects on the project (if any)

**2-4 Obligations by the Recipient**

**2-4-1 Progress of Specific Obligations**

See Attachment 2.

**2-4-2 Activities**

See Attachment 3.

**2-4-3 Report on RD**

See Attachment 11.

**2-5 Project Cost**

**2-5-1 Cost borne by the Grant(Confidential until the Bidding)**

| Components |   |  | Cost<br>(Million Yen)  |        |
|------------|---|--|--|--------|
|            | Original<br><i>(proposed in the outline design)</i> | Actual<br><i>(in case of any modification)</i> | Original <sup>1),2)</sup><br><i>(proposed in the outline design)</i> | Actual |
|            | 1.  |  |  |        |
|            |   |  |  |        |
|            |   |  |  |        |
| Total      |   |  |  |        |

Note: 1) Date of estimation:  
 2) Exchange rate: 1 US Dollar = Yen

**2-5-2 Cost borne by the Recipient**

| Components |   |  | Cost   |        |
|------------|---|--|--|--------|
|            | Original<br><i>(proposed in the outline design)</i> | Actual<br><i>(in case of any modification)</i> | Original <sup>1),2)</sup><br><i>(proposed in the outline design)</i> | Actual |
|            | 1.  |  |  |        |
|            |   |  |  |        |
|            |   |  |  |        |

- Note: 1) Date of estimation:  
2) Exchange rate: 1 US Dollar =

Reasons for the remarkable gaps between the original and actual cost, and the countermeasures (if any)

(PMR)

### 2-6 Executing Agency

- Organization's role, financial position, capacity, cost recovery etc,
- Organization Chart including the unit in charge of the implementation and number of employees.

**Original** (at the time of outline design)

name:

role:

financial situation:

institutional and organizational arrangement (organogram):

human resources (number and ability of staff):

**Actual** (PMR)

### 2-7 Environmental and Social Impacts

- The results of environmental monitoring based on Attachment 5 (in accordance with Schedule 4 of the Grant Agreement).
- The results of social monitoring based on in Attachment 5 (in accordance with Schedule 4 of the Grant Agreement).
- Disclosed information related to results of environmental and social monitoring to local stakeholders (whenever applicable).

## 3: Operation and Maintenance (O&M)

### 3-1 Physical Arrangement

- Plan for O&M (number and skills of the staff in the responsible division or section, availability of manuals and guidelines, availability of spareparts, etc.)

**Original** (at the time of outline design)

**Actual** (PMR)

### 3-2 Budgetary Arrangement

- Required O&M cost and actual budget allocation for O&M

**Original** (at the time of outline design)

**Actual (PMR)**

**4: Potential Risks and Mitigation Measures**

- Potential risks which may affect the project implementation, attainment of objectives, sustainability
- Mitigation measures corresponding to the potential risks

**Assessment of Potential Risks (at the time of outline design)**

| Potential Risks          | Assessment                                       |
|--------------------------|--|
| 1. (Description of Risk) | Probability: High/Moderate/Low                   |
|                          | Impact: High/Moderate/Low                        |
|                          | Analysis of Probability and Impact:              |
|                          |  |
|                          | Mitigation Measures:                             |
|                          |  |
|                          | Action required during the implementation stage: |
|                          |  |
|                          | Contingency Plan (if applicable):                |
|                          |  |
| 2. (Description of Risk) | Probability: High/Moderate/Low                   |
|                          | Impact: High/Moderate/Low                        |
|                          | Analysis of Probability and Impact:              |
|                          |  |
|                          | Mitigation Measures:                             |
|                          |  |
|                          | Action required during the implementation stage: |
|                          |  |
|                          | Contingency Plan (if applicable):                |
|                          |  |
| 3. (Description of Risk) | Probability: High/Moderate/Low                   |
|                          | Impact: High/Moderate/Low                        |
|                          | Analysis of Probability and Impact:              |
|                          |  |
|                          | Mitigation Measures:                             |
|                          |  |
|                          | Action required during the implementation stage: |
|                          |  |

|   |                                   |
|---|-----------------------------------|
|   | Contingency Plan (if applicable): |
|   |                                   |
| <b>Actual Situation and Countermeasures</b> |                                   |
| (PMR)                                       |                                   |

## 5: Evaluation and Monitoring Plan (after the work completion)

### 5-1 Overall evaluation

Please describe your overall evaluation on the project.

### 5-2 Lessons Learnt and Recommendations

Please raise any lessons learned from the project experience, which might be valuable for the future assistance or similar type of projects, as well as any recommendations, which might be beneficial for better realization of the project effect, impact and assurance of sustainability.

### 5-3 Monitoring Plan of the Indicators for Post-Evaluation

Please describe monitoring methods, section(s)/department(s) in charge of monitoring, frequency, the term to monitor the indicators stipulated in 1-3.



Attachment

1. Project Location Map
  2. Specific obligations of the Recipient which will not be funded with the Grant
  3. Monthly Report submitted by the Consultant
- Appendix - Photocopy of Contractor's Progress Report (if any)
- Consultant Member List
  - Contractor's Main Staff List
4. Check list for the Contract (including Record of Amendment of the Contract/Agreement and Schedule of Payment)
  5. Environmental Monitoring Form / Social Monitoring Form
  6. Monitoring sheet on price of specified materials (Quarterly)
  7. Report on Proportion of Procurement (Recipient Country, Japan and Third Countries) (PMR (final) only)
  8. Pictures (by JPEG style by CD-R) (PMR (final)only)
  9. Equipment List (PMR (final) only)
  10. Drawing (PMR (final) only)
  11. Report on RD (After project)



Monitoring sheet on price of specified materials

1. Initial Conditions (Confirmed)

| Items of Specified Materials | Initial Volume<br>A | Initial Unit Price (¥)<br>B | Initial total Price<br>C=A×B | 1% of Contract Price<br>D | Condition of payment<br>Price (Decreased)<br>E=C-D | Price (Increased)<br>F=C+D |
|------------------------------|---------------------|-----------------------------|------------------------------|---------------------------|--|----------------------------|
| Item 1                       | ●●t                 | ●                           | ●●                           | ●                         | ●  | ●                          |
| Item 2                       | ●●t                 | ●                           | ●●                           | ●                         |  |                            |
| Item 3                       |                     |                             |                              |                           |  |                            |
| Item 4                       |                     |                             |                              |                           |  |                            |
| Item 5                       |                     |                             |                              |                           |  |                            |

2. Monitoring of the Unit Price of Specified Materials

(1) Method of Monitoring : ●●

(2) Result of the Monitoring Survey on Unit Price for each specified materials

| Items of Specified Materials | 1st month, 2015 | 2nd month, 2015 | 3rd month, 2015 | 4th | 5th | 6th |
|------------------------------|-----------------|-----------------|-----------------|-----|-----|-----|
| Item 1                       | ●               | ●               | ●               |     |     |     |
| Item 2                       |                 |                 |                 |     |     |     |
| Item 3                       |                 |                 |                 |     |     |     |
| Item 4                       |                 |                 |                 |     |     |     |
| Item 5                       |                 |                 |                 |     |     |     |

(3) Summary of Discussion with Contractor (if necessary)

.....





Report on Proportion of Procurement (Recipient Country, Japan and Third Countries)  
 (Actual Expenditure by Construction and Equipment each)

|                             | Domestic Procurement<br>(Recipient Country)<br>A | Foreign Procurement<br>(Japan)<br>B | Foreign Procurement<br>(Third Countries)<br>C | Total<br>D |
|-----------------------------|--|-------------------------------------|---|------------|
| Construction Cost           | (A/D%)   | (B/D%)                              | (C/D%)  |            |
| Direct Construction Cost    | (A/D%)   | (B/D%)                              | (C/D%)  |            |
| others                      | (A/D%)   | (B/D%)                              | (C/D%)  |            |
| Equipment Cost              | (A/D%)   | (B/D%)                              | (C/D%)  |            |
| Design and Supervision Cost | (A/D%)   | (B/D%)                              | (C/D%)  |            |
| Total                       | (A/D%)   | (B/D%)                              | (C/D%)  |            |




## Major Undertakings to be taken by the Government of Uganda

**Specific obligations of the Government of Uganda which will not be funded with the Grant**

## (1) Before the Tender

| NO | Items   | Deadline   | In charge    | Estimated Cost | Ref. |
|----|---|--|--------------|----------------|------|
| 1  | To open bank account (B/A)  | within 1 month after the signing of the G/A      | MOH          |                |      |
| 2  | To issue A/P to a bank in Japan (the Agent Bank) for the payment to the consultant  | within 1 month after the signing of the contract | MOH          |                |      |
| 3  | To provide alternative space and functions of facilities to be demolished during construction period.   | before start of demolition                       | RRHs         |                |      |
| 4  | To secure and clear the following lands<br>1) the project site(s) to construct facility(ies)<br>2) the temporary construction yard and stock yard near to the Project site(s) | before notice of the bidding document            | RRHs         |                |      |
| 5  | To obtain the planning, zoning, building permit   | before notice of the bidding document            | MOH and RRHs |                |      |
| 6  | To clear, level and reclaim the following sites<br>1) existing facilities   | before notice of the bidding document            | RRHs         |                |      |
| 7  | To submit Project Monitoring Report (with the result of Detail Design)  | before preparation of bidding documents          | MOH          |                |      |

(B/A: Banking Arrangement, A/P: Authorization to pay, N/A: Not Applicable)

## (2) During the Project Implementation

| NO | Items  | Deadline  | In charge    | Estimated Cost | Ref. |
|----|--|---|--------------|----------------|------|
| 1  | To issue A/P to a bank in Japan (the Agent Bank) for the payment to the Supplier(s)  | within 1 month after the signing of the contract(s)   | MOH          |                |      |
| 2  | To bear the following commissions to a bank in Japan for the banking services based upon the B/A   |   | MOH          |                |      |
|    | 1) Advising commission of A/P  | within 1 month after the signing of the contract(s)   | MOH          |                |      |
|    | 2) Payment commission for A/P  | every payment   | MOH          |                |      |
| 3  | To ensure prompt customs clearance and to assist the Supplier(s) with internal transportation in recipient country   | during the Project  | MOH          |                |      |
| 4  | To accord Japanese nationals and/or physical persons of third countries whose services may be required in connection with the supply of the products and the services such facilities as may be necessary for their entry into the country of the Recipient and stay therein for the performance of their work   | during the Project  | MOH          |                |      |
| 5  | To ensure that customs duties, internal taxes and other fiscal levies which may be imposed in the country of the Recipient with respect to the purchase of the products and/or the services shall be in accordance with the agreement to be concluded between the Government of Uganda and the Government of Japan. MOH shall take necessary measures according to the agreement | during the Project  | MOH          |                |      |
| 6  | To bear all the expenses, other than those covered by the Grant, necessary for the implementation of the Project   | during the Project  | MOH and RRHs |                |      |
| 7  | To submit Project Monitoring Report  | every month   | MOH          |                |      |
|    | 1) To submit Project Monitoring Report (final)   | within one month after signing of Certificate of Completion for the works under the contract(s) | MOH          |                |      |
| 8  | To submit a report concerning completion of the Project  | within six months after completion of the Project   | MOH          |                |      |
| 9  | To construct access roads  | 3 months before completion of the construction  | RRHs         |                |      |
|    | 1) Outside the site  |   |              |                |      |
| 10 | To provide facilities for distribution of electricity, water supply and drainage and other incidental facilities necessary for the implementation of the Project outside the sites   |   | RRHs         |                |      |
|    | 1) Electricity<br>The distributing line to the sites   | before start of the construction  | RRHs         |                |      |
|    | 2) Water Supply<br>The city water distribution main to the sites   | 6 months before completion of the construction  | RRHs         |                |      |
|    | 3) Drainage<br>The city drainage main ( for storm, sewer and others ) to the sites   | 6 months before completion of the construction  | RRHs         |                |      |
|    | 4) Furniture and Equipment<br>General furniture  | 1 month before completion of the construction   | RRHs         |                |      |

|    |   |                         |      |  |  |
|----|---|-------------------------|------|--|--|
| 11 | To take necessary measure for safety construction traffic control | during the construction | RRHs |  |  |
|----|---|-------------------------|------|--|--|

*Handwritten signature*

*See ↑*

(3) After the Project

| NO | Items   | Deadline                             | In charge    | Estimated Cost | Ref. |
|----|---|--------------------------------------|--------------|----------------|------|
| 1  | To maintain and use properly and effectively the facilities constructed and equipment provided under the Grant Aid<br>1) Allocation of maintenance cost<br>2) Operation and maintenance structure<br>3) Routine check/Periodic inspection | After completion of the construction | MOH and RRHs |                |      |



(2) Field Survey 2

Minutes of Discussions  
on the Preparatory Survey 2 for the Project for  
Improvement of Regional Referral Hospitals in Northern Uganda,  
in the Republic of Uganda

In response to the request from the Government of the Republic of Uganda (hereinafter referred to as “Uganda”), Japan International Cooperation Agency (hereinafter referred to as “JICA”) dispatched the Preparatory Survey Team (hereinafter referred to as “the Team”) for the Outline Design of the Project for Improvement of Regional Referral Hospitals in Northern Uganda (hereinafter referred to as “the Project”), to Uganda, headed by Mr. Kenichi Ito, Director of Health Team 1, Health Group 1, Human Development Department, JICA, from 8th February to 11th March, 2017. The Team held a series of discussions with the officials of the Government of Uganda and conducted a field survey. In the course of the discussions, both sides have confirmed the main items described in the attached sheets.

Kampala, 2nd March, 2017



Mr. Kenichi Ito  
Leader, Preparatory Survey Team  
Japan International Cooperation Agency  
Japan



Dr. Diana Atwine  
Permanent Secretary  
Ministry of Health  
Republic of Uganda

Witness



Ms. Maris Wanyera  
For: Permanent Secretary/Secretary to the Treasury  
Ministry of Finance, Planning and Economic  
Development  
Republic of Uganda

## ATTACHMENT

### 1. Objective of the Project

The objective of the Project is to strengthen the functions of the selected Regional Referral Hospitals (hereinafter referred to as “RRH”) in the northern region of Uganda, through construction of facilities and procurement of equipment, thereby contributing to improving access to and quality of health care services in Northern Uganda.

### 2. Title of the Preparatory Survey

Both sides confirmed the title of the Preparatory Survey as “the Preparatory Survey for the Project for Improvement of Regional Referral Hospitals in Northern Uganda”. The final title will be decided by the Government of Japan.

### 3. Project sites

Both sides confirmed that the sites of the Project are Gulu RRH, Lira RRH and Arua RRH. The location map of the Project sites is shown in Annex 1. All of these sites are in legal possession of the Ministry of Health (hereinafter referred to as “MOH”) as shown in Annex 2-1, 2-2 and 2-3.

### 4. Responsible authorities for the Project

Both sides confirmed the authorities responsible for the Project are as follows:  
The Health Infrastructure Division under the Department of Clinical Services of MOH, planned to be upgraded to the Department of Health Infrastructure from July, 2017, and the RRHs to be covered by the Project will be the executing agencies for the Project (hereinafter referred to as “the Executing Agencies”). The Executing Agencies shall coordinate with all the relevant authorities to ensure smooth implementation of the Project and ensure that the undertakings for the Project shall be managed by relevant authorities properly and on time. The current organograms of MOH, the Health Infrastructure Division, and the RRHs are shown in Annex 3-1, 3-2, 3-3 and 3-4.

### 5. Items requested by the Government of Uganda

5-1. As a result of discussions, both sides confirmed the items requested by the Government of Uganda, which are shown in Annex 4 (facility) and Annex 5 (equipment). Both sides also confirmed the priority of requested equipment within each department in each RRH by the Government of Uganda as shown in

1



Annex 5.

5-2. JICA will assess the feasibility of the items in Annex 4 and 5 through the Preparatory Survey and report the findings to the Government of Japan. The final scope of the Project will be decided by the Government of Japan.

6. Procedures and Basic Principles of Japanese Grant

6-1. The Ugandan side agreed that the procedures and basic principles of Japanese Grant as described in Annex 6 shall be applied to the Project. As for the monitoring of the implementation of the Project, JICA requires the Ugandan side to submit the Project Monitoring Report, the form of which is attached as Annex 7.

6-2. The Ugandan side agreed to take the necessary measures, as described in Annex 8, for smooth implementation of the Project. The contents of Annex 8 will be elaborated and refined during the Preparatory Survey and be agreed in the mission dispatched for explanation of the Draft Preparatory Survey Report. The contents of Annex 8 will be used as an attachment to the Grant Agreement.

6-3. The Ugandan side agreed to allocate the necessary budget for the items in Annex 8 which will be completed in the Ugandan financial year 2017/18 (from July 2017 to June 2018).

7. Schedule of the Survey

7-1. The Team will proceed with further survey in Uganda until 11th March, 2017.

7-2. JICA will prepare a draft Preparatory Survey Report in English and dispatch a mission to Uganda in order to explain its contents around August, 2017.

7-3. When the contents of the draft Preparatory Survey Report are accepted and the undertakings for the Project are fully agreed by the Ugandan side, JICA will finalize the Preparatory Survey Report and send it to the Ugandan side around October, 2017.

7-4. The above schedule is tentative and subject to change.

8. Environmental and Social Considerations

8-1. The Ugandan side confirmed to give due environmental and social considerations before and during implementation, and after completion of the Project, in accordance with the JICA Guidelines for Environmental and Social Considerations (April, 2010).

8-2. The Project is categorized as "C" from the following considerations: not located in a sensitive area, nor has it sensitive characteristics, nor falls into sensitive



sectors under the Guidelines, and its potential adverse impacts on the environment are not likely to be significant.

## 9. Other Relevant Issues

- 9-1. The Ugandan side agreed to allocate budget (operational and maintenance costs), human resources with skills (health service providers and any other personnel), and goods (spare parts and consumables) necessary for the proper and sustainable operation and maintenance of the facilities and the equipment under the Project. Especially, the Ugandan side agreed to take necessary measures to train and allocate sufficient human resources with adequate skills to functionalize Intensive Care Unit (ICU) requested to be built in Gulu RRH before the completion of the Project. In addition, the Ugandan side confirmed that the oxygen plants will be built in all the target three RRHs by the Government of Uganda in order to make oxygen available at all times by the completion of the Project.
- 9-2. The Ugandan side expressed their needs for Soft Component under the Japan's Grant Aid for clinical operation and maintenance targeting some of procured medical equipment in the Project. The Team will convey the request to the Government of Japan.
- 9-3. Both sides confirmed the tentative plan of the construction site of new facilities and the facilities to be demolished as shown in Annex 9 and 10. Based on this plan, both sides confirmed the followings would be the undertakings of the Government of Uganda;
  - 1) demolition of existing facilities and land leveling to construct new facilities
  - 2) providing alternative space for the services carried out in the demolished facilities during the construction period.
- 9-4. Both sides noted that treatment of taxes and duties for the Project shall be in accordance with the agreement to be concluded between the Government of Uganda and the Government of Japan. MOH shall take necessary measures according to the agreement.
- 9-5. Both sides agreed that the facility plan will be designed in accordance with the following policies.
  - 1) Health Sector Development Plan 2015/16-2019/20 and the provisional facility master plans of Gulu RRH and Lira RRH should be referred. If the master plan or its draft of Arua RRH is established and submitted to JICA Uganda office by the end of March, 2017, this should be referred. The facilities to be constructed in the Project should be planned in consideration

that they will continuously take the central role of medical service delivery in the future.

- 2) The component and grade of facilities will be designed to achieve the objective of the Project.
  - 3) The scale or size of the planned facilities of the target hospitals will be determined based on the present and past performance data on diagnosis and treatment, and also considered forecast population increases in the areas to be covered by these hospitals.
  - 4) The facility plan will be formulated in consideration of the technical and fiscal sustainability of the hospitals, based on their management capabilities (the number of medical and healthcare professionals, their technical levels, financial affordability, state of procurement of consumables and spare parts, etc.) and staff reinforcement plan of the medical staff.
  - 5) The Ugandan standards for earthquake resistance and wind force resistance will be adopted, and the structure of the facilities will be designed to allow the facilities to provide continuous medical activities without disruption in case of natural disasters.
  - 6) The plot plan and construction plan will be designed to enable the provision of sustainable medical service delivery, and to minimize the influence of construction on medical service provision.
- 9-6. Both sides agreed that the equipment will be selected in accordance with the following criteria.
- 1) The equipment listed in the National Medical Equipment Policy (2009, MOH) should be referred to.
  - 2) The equipment plan will be formulated to achieve the objective of the Project.
  - 3) The selection and the number of the equipment to be procured will be determined based on the present and past performance data on diagnosis and treatment, and also on forecast of population increases in the areas to be covered by these hospitals.
  - 4) The equipment plan will be formulated in consideration of the technical and fiscal sustainability of the hospitals, based on their management capabilities (the number of medical and healthcare professionals, their technical levels to properly operate and maintain the equipment, financial affordability, state of procurement of consumables and spare parts, etc.) and staff reinforcement plan of the medical staff.
  - 5) The equipment to be installed to the facilities which will be constructed in

the Project will be prioritized.

- 6) The room in the existing building where the equipment will be installed should be secured, and be made ready to install the equipment.
  - 7) The equipment which will be installed in existing building should not require large scope of construction works for its installation.
  - 8) The equipment for which spare parts and consumables are readily available in Uganda should be selected.
  - 9) The equipment which can be maintained and repaired properly by the agencies in Uganda should be prioritized.
  - 10) The equipment should not be for private use.
  - 11) The equipment should be for clinical use. (General furniture, office equipment, etc. will be excluded.)
  - 12) The equipment that can be easily procured by the Ugandan side will be excluded.
  - 13) The equipment which will overlap the existing ones or will be supplied by other donors or by the budget of the Government of Uganda will be excluded.
- 9-7. The Team explained that the Team does not think of including CT scan in the Project because it requires high technical levels of healthcare professionals, high financial affordability, and highly stabilized infrastructure to operate and maintain. The Ugandan side expressed their strong need for CT scan and their will to take necessary measures to operate and maintain it.
- 9-8. In accordance with the selection criteria of equipment above, both sides agreed that the equipment which will be procured by Italian Cooperation or UNICEF will be excluded. MOH will submit the plan and/or the result of these two partners' projects by the end of March, 2017.
- 9-9. Both sides noted that it is necessary to consider the possibility of including maintenance service contract to some major medical equipment that needs frequent maintenance in the component of the Project.

Annex 1 Location map of the Project sites

Annex 2-1, 2-2, 2-3 Ownership of land

Annex 3-1, 3-2, 3-3 3-4 Organograms of MOH, the Health Infrastructure Division and 3 RRHs

Annex 4 Requested facilities list

Annex 5-1, 5-2, 5-3 Requested equipment list with priority

Annex 6 Japan Grant Aid

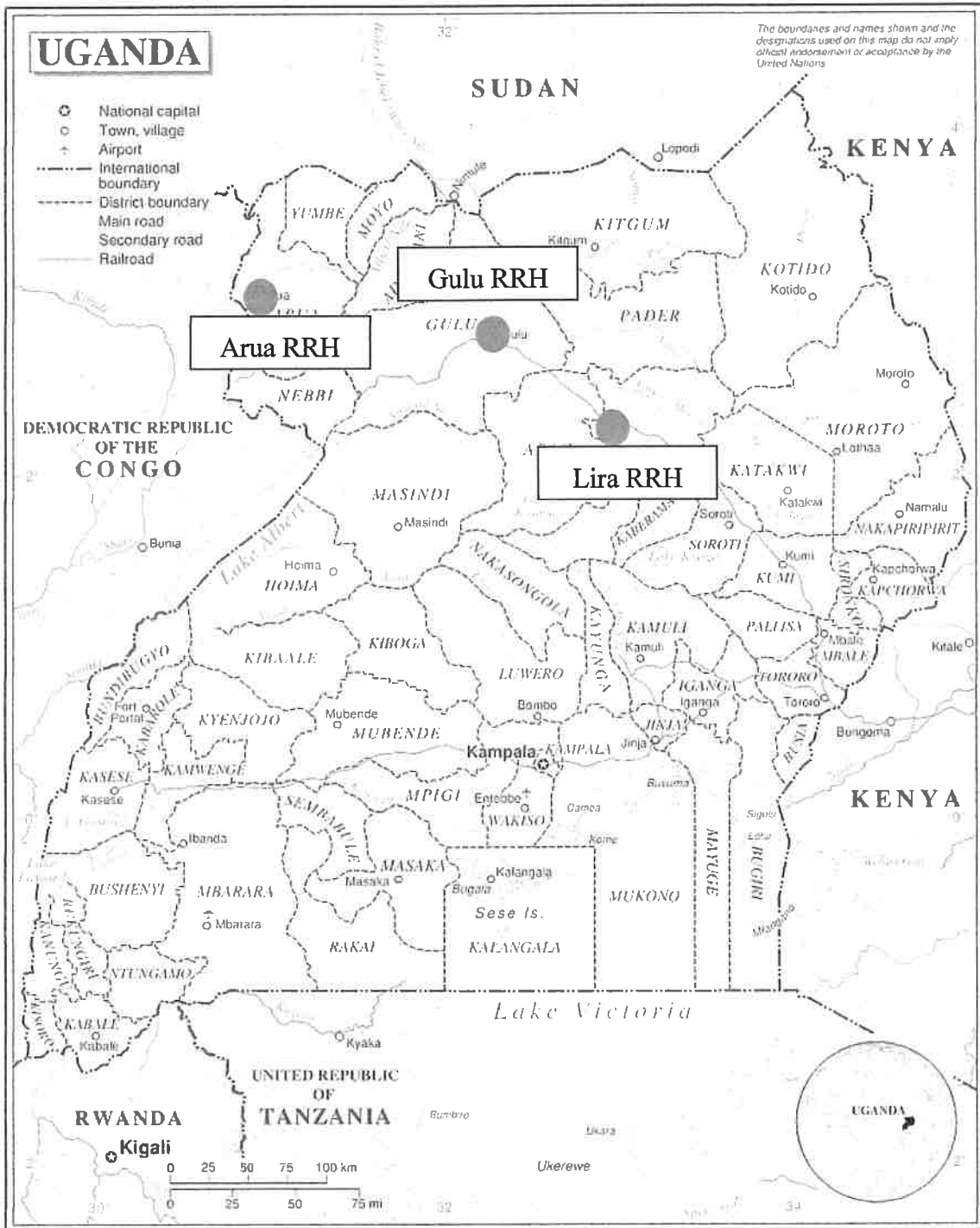
Annex 7 Project Monitoring Report (template)

Annex 8 Major Undertakings to be taken by the Government of Uganda

Annex 9-1, 9-2, 9-3 Plot plan of facilities in each RRH

Annex 10-1, 10-2, 10-3 Memorandum of meetings between each RRH and consultant

Annex 1: Location map of the candidate Project sites



7

*[Handwritten signatures and marks]*



**GULU DISTRICT LOCAL GOVERNMENT**  
**DEPARTMENT OF NATURAL RESOURCES**  
**LAND MANAGEMENT SECTOR**

P.O. Box 2,

Date: 5<sup>th</sup> October, 2016

The Chief Representative  
Japan International Cooperation Agency (JICA)

**RE: GULU REGIONAL REFERRAL HOSPITAL LAND**

This letter serves to confirm that plot nos 4 – 10 Dr. Mathew Lukwiya Road – on Sheet No. 22/21/NE/4 is gazetted as Land belonging to Gulu Regional Referral Hospital.

The Board has received an application from the Hospital Management for acquiring a land title over the said plot and upon the acquisition of the land title, a copy shall be forwarded to your office.

*JICA*  
Ojera Alex

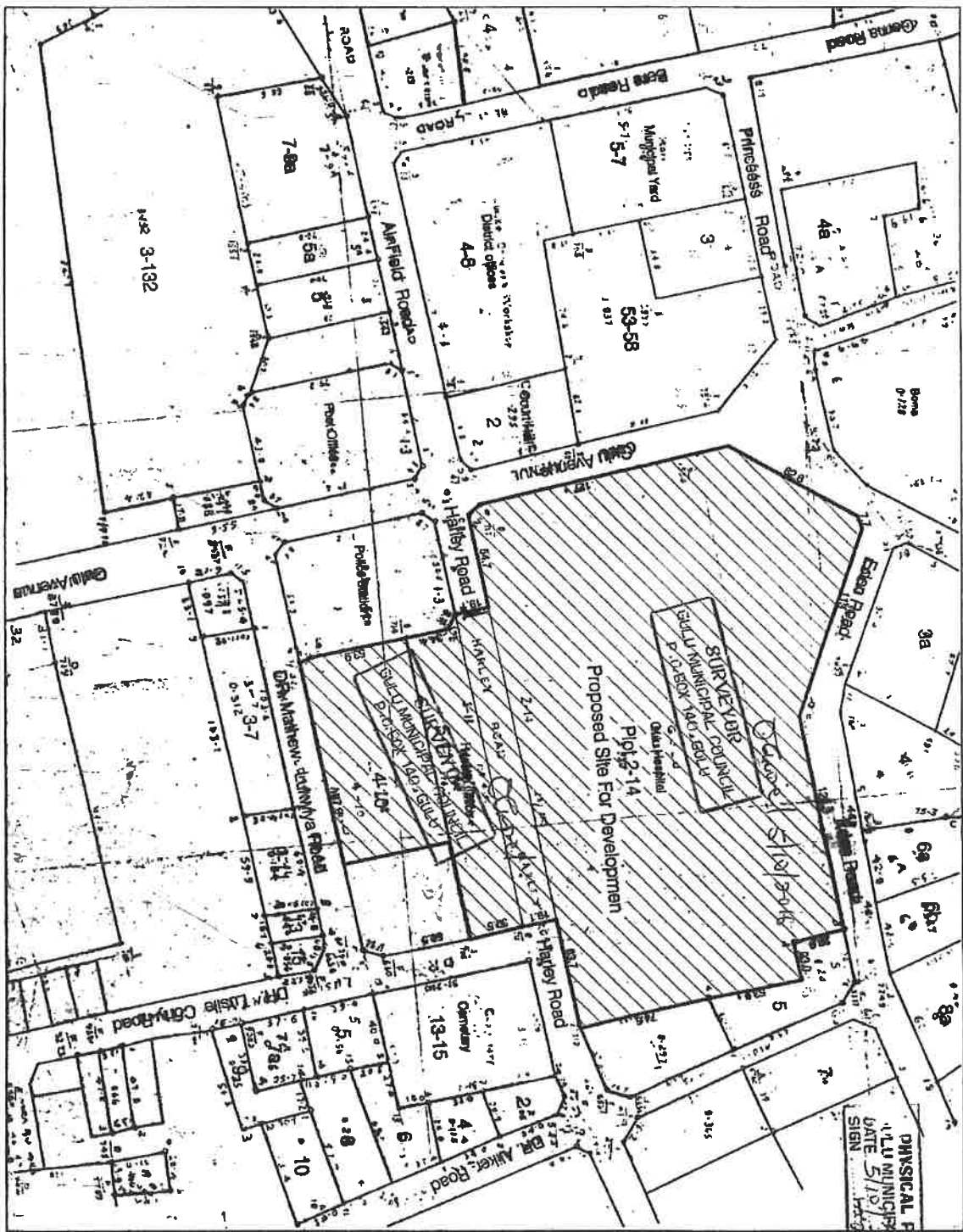
District Land officer/Gulu

Cc Director Gulu Regional Referral Hospital

Cc The Hospital Administrator/ Gulu Regional Referral Hospital

Cc File.

107



Detailed Map

Site location Plan (Deed Plan)

DWG  
SCALE 1:2500 [Cadastral Map]

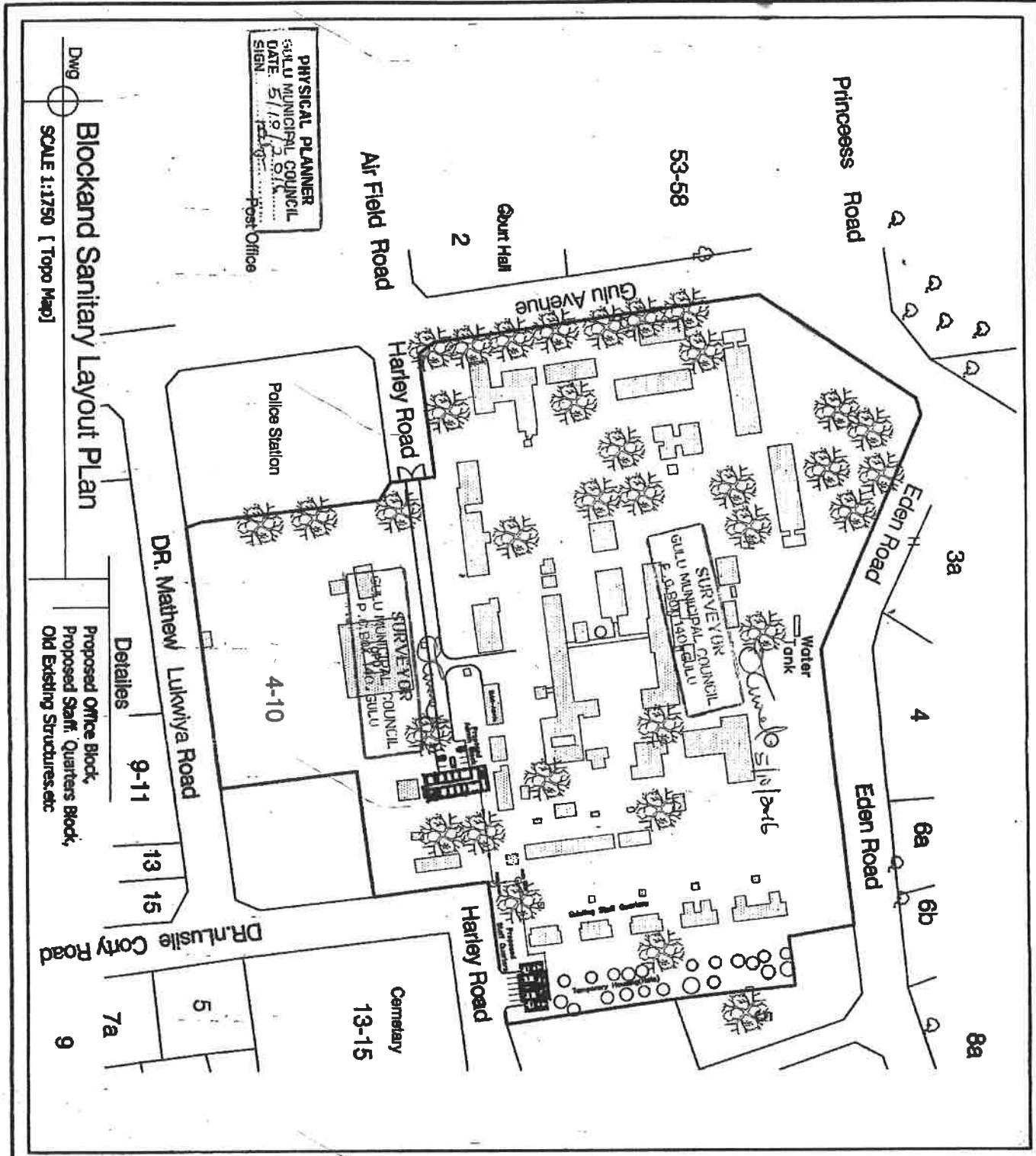
PHYSICAL PLANNER  
GULU MUNICIPAL COUNCIL  
DATE 5/15/2009  
SIGN

|         |  |
|---------|--|
| Title:  | PROPOSED SITE FOR OFFICE AND STAFF QUARTER BLOCK, TO BE BUILT ON PLOT 2-14, ON GULU AVENUE AND, HARLEY ROAD, LAYIBI DIVISION GMC, GULU DISTRICT. |
| Client: | GOVERNMENT OF THE REPUBLIC OF UGANDA<br>GULU REFERRAL HOSPITAL<br>P.o Box ,GULU. E-Mail :  |
| Sign:   | .....  |

|               |                  |
|---------------|------------------|
| Designed:     | OCHORA BERNARD   |
| Drawn:        | CAD              |
| Checked:      |                  |
| Date:         | 18 . June . 2009 |
| Scale:        | 1:2500           |
| Sheet No.     | 1 of 1           |
| Drawing No. : | OCH/06/09/003    |

Handwritten signatures and initials at the bottom of the page.

(5)



**PHYSICAL PLANNER**  
 GULU MUNICIPAL COUNCIL  
 DATE: 5/19/2009  
 SIGN: [Signature]

Dwg  
**Blockland Sanitary Layout Plan**  
 SCALE 1:1750 [Topo Map]

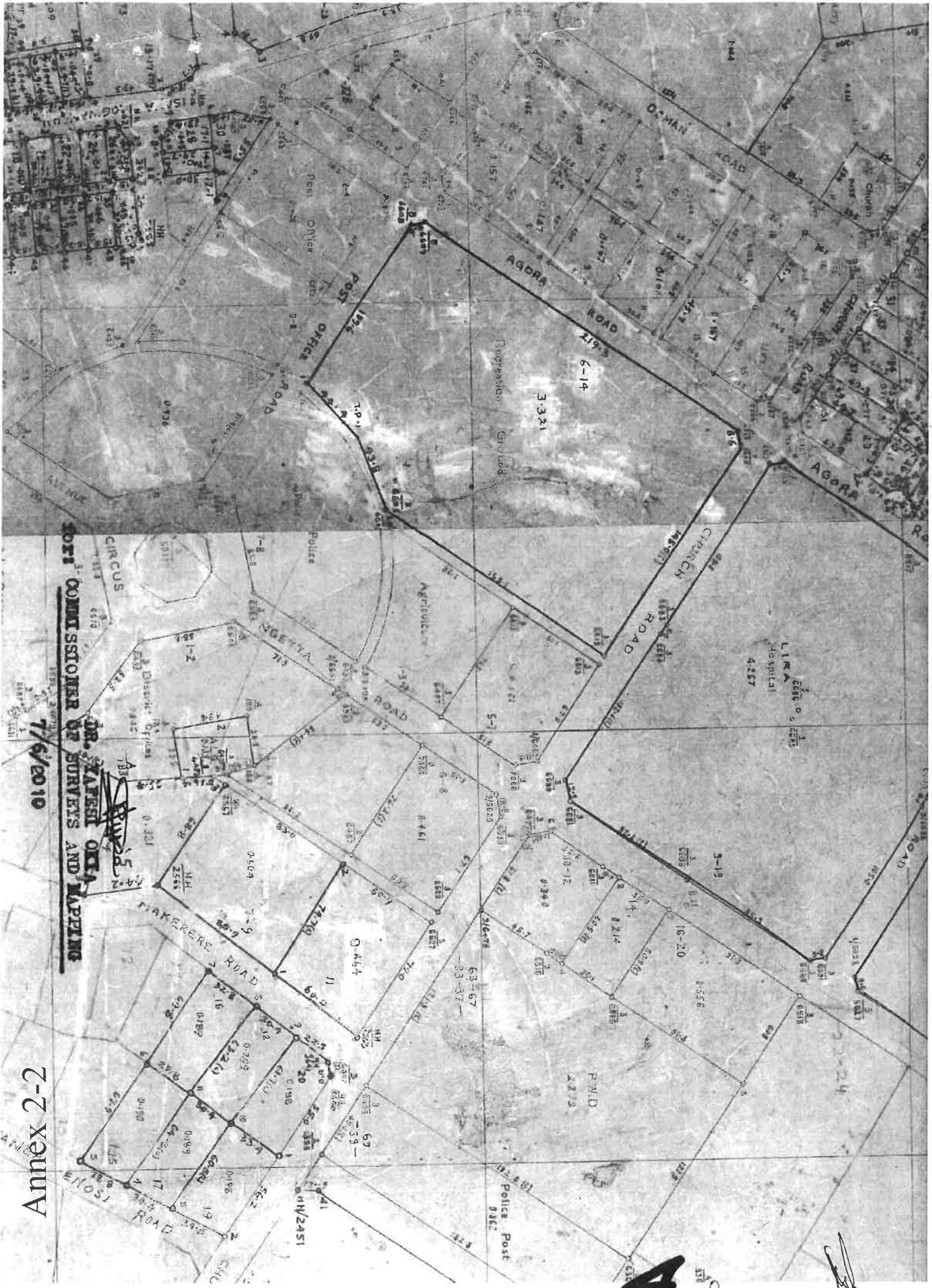
Proposed Office Block,  
 Proposed Staff Quarters Block,  
 Old Existing Structures etc

|                |   |
|----------------|---|
| <b>Title:</b>  | PROPOSED SITE FOR OFFICE AND STAFF QUARTER BLOCK, TO BE BUILT ON PLOT 2-14, ON GULU AVENUE AND HARLEY ROAD, LAYIBI DIVISION GMC, GULU DISTRICT. |
| <b>Client:</b> | GOVERNMENT OF THE REPUBLIC OF UGANDA<br>-- GULU REFERRAL HOSPITAL<br>P.o Box ,GULU. E-Mail :  |
| <b>Sign:</b>   | .....   |

|                      |                  |
|----------------------|------------------|
| <b>Designed:</b>     | OCHORA BERNARD   |
| <b>Drawn:</b>        | CAD              |
| <b>Checked:</b>      |                  |
| <b>Date:</b>         | 18 . June . 2009 |
| <b>Scale:</b>        | 1:1750           |
| <b>Sheet No.</b>     | 2 of 1           |
| <b>Drawing No. :</b> | OCH/06/09/003    |

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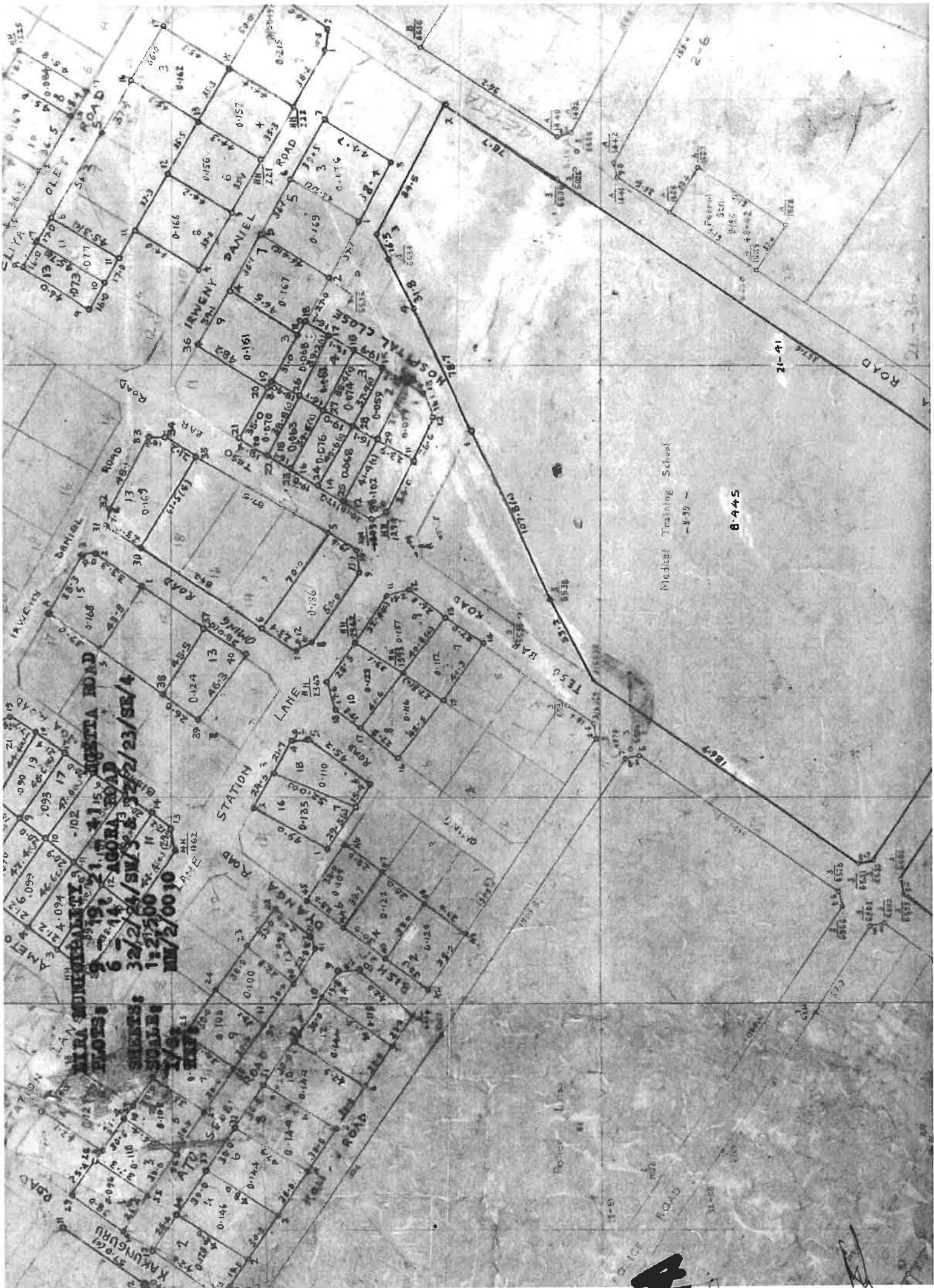




DR. SAFERU OJA  
 FOR THE COMMISSIONER OF SURVEYS AND MAPPING  
 7/6/2010

Annex 2-2

**A**



Medical Training School

-8 59 -

8-445

**F**

**R**

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ULC/154/1052

THE REPUBLIC OF UGANDA

REGISTRATION OF TITLES ACT.

# Certificate of Title.

FREEHOLD REGISTER      Volume 765    Folio 5

## DESCRIPTION OF LAND

**ALL THAT** piece of land delineated and edged red on the plan hereto annexed containing the following area or thereabouts and situate as follows:-

| Area.           | County.           | District. |
|-----------------|-------------------|-----------|
| 16.023 HECTARES | LIRA MUNICIPALITY | LIRA      |

and known as **PLOTS 9-19, 21 - 41 NGETTA ROAD AND 6-14 AGORA ROAD**

(SUBJECT TO CONDITIONS HEREIN)

### OWNERSHIP

UGANDA LAND COMMISSION OF P.O. Box 36408, KAMPALA

*Anna*  
Signature of Registrar

Date, time and Inst. No.  
**REGD. 25.6.2010**  
**AT. 2.10 P.M.**  
**INST. 430893**

is/are now the proprietors of an estate in fee simple in the land above described subject to the conditions and incumbrances hereinafter set out.

Dated this **2ND** day of **JULY** 20 **10**

*Anna*  
Registrar of Titles.

**OWNERSHIP**—*continued*

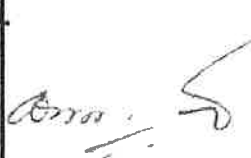
| Date, time<br>and Inst. No. | Name and Address of Owner | Signature of<br>Registrar |
|-----------------------------|---------------------------|---------------------------|
|                             |                           |                           |

**F**

*[Handwritten mark]*

*[Handwritten signature]*

CONDITIONS  
~~RENT~~

| Date, time and Inst. No. | Particulars  | Signature of Registrar  |
|--------------------------|--|---|
| A)                       | USER TO BE RESTRICTED TO LIRA REGIONAL REFERRAL HOSPITAL (HOSPITAL, MEDICAL TRAINING SCHOOL AND A RECREATION GROUND) |  |

*4*

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*copy*



THE REPUBLIC OF UGANDA

REGISTRATION OF TITLES ACT.

# Certificate of Title.

FREEHOLD REGISTER

Volume 657 Folio 16

### DESCRIPTION OF LAND

**ALL THAT** piece of land delineated and edged red on the plan hereto annexed containing the following area or thereabouts and situate as follows:-

| Area.         | County.           | District. |
|---------------|-------------------|-----------|
| 9.920 HECTARE | ARUA MUNICIPALITY | ARUA      |

and known as **PLOT 26-62 AVENUE ROAD - ARUA**

(SUBJECT TO CONDITIONS HEREIN)

### OWNERSHIP

UGANDA LAND COMMISSION of P.O. Box 36408, KAMPALA

Signature of Registrar

is/are now the proprietors of an estate in fee simple in the land above described subject to the conditions and incumbrances hereinafter set out.

Dated this 4<sup>TH</sup> day of August 2009

Registrar of Titles.

*[Signature]*

*[Signature]*

Date, time and Inst. No.  
20.12.6.09  
3.20 P.M.  
r.414346

ARUA MUNICIPALITY

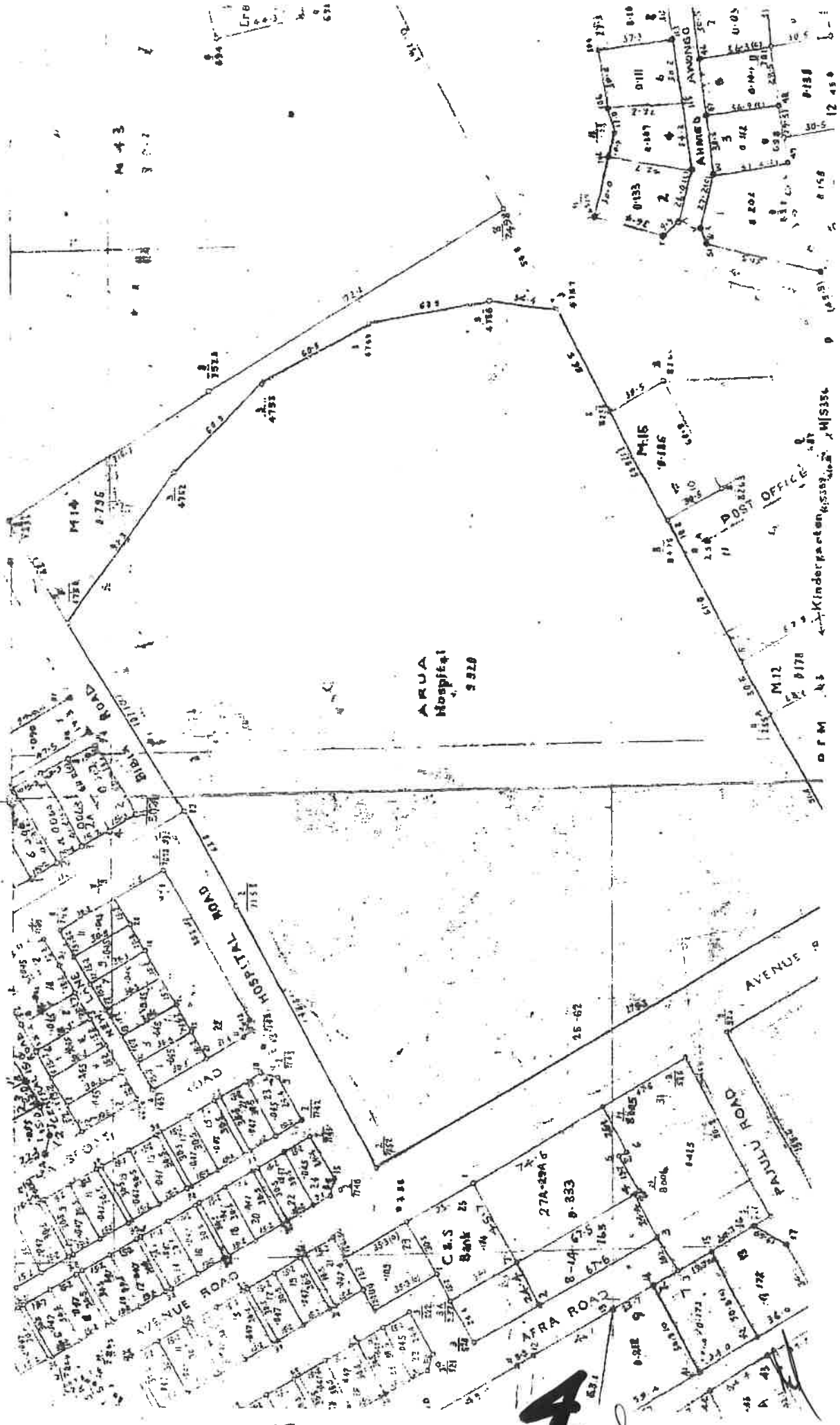
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SHEET: 11/4/24/SW/1 & 2

SCALE: 1: 2, 500

REF: ULC/154/522

SHEET 11/4/SW/1

SCALE 1:2,500



17

**F**

**CONDITIONS  
-RENT-**

| Date, time and inst. No. | Particulars  | Signature of Registrar |
|--------------------------|--|------------------------|
| A)                       | MINISTRY OF HEALTH (ARUA REGIONAL REFERRAL HOSPITAL) |                        |

*[Handwritten marks]*



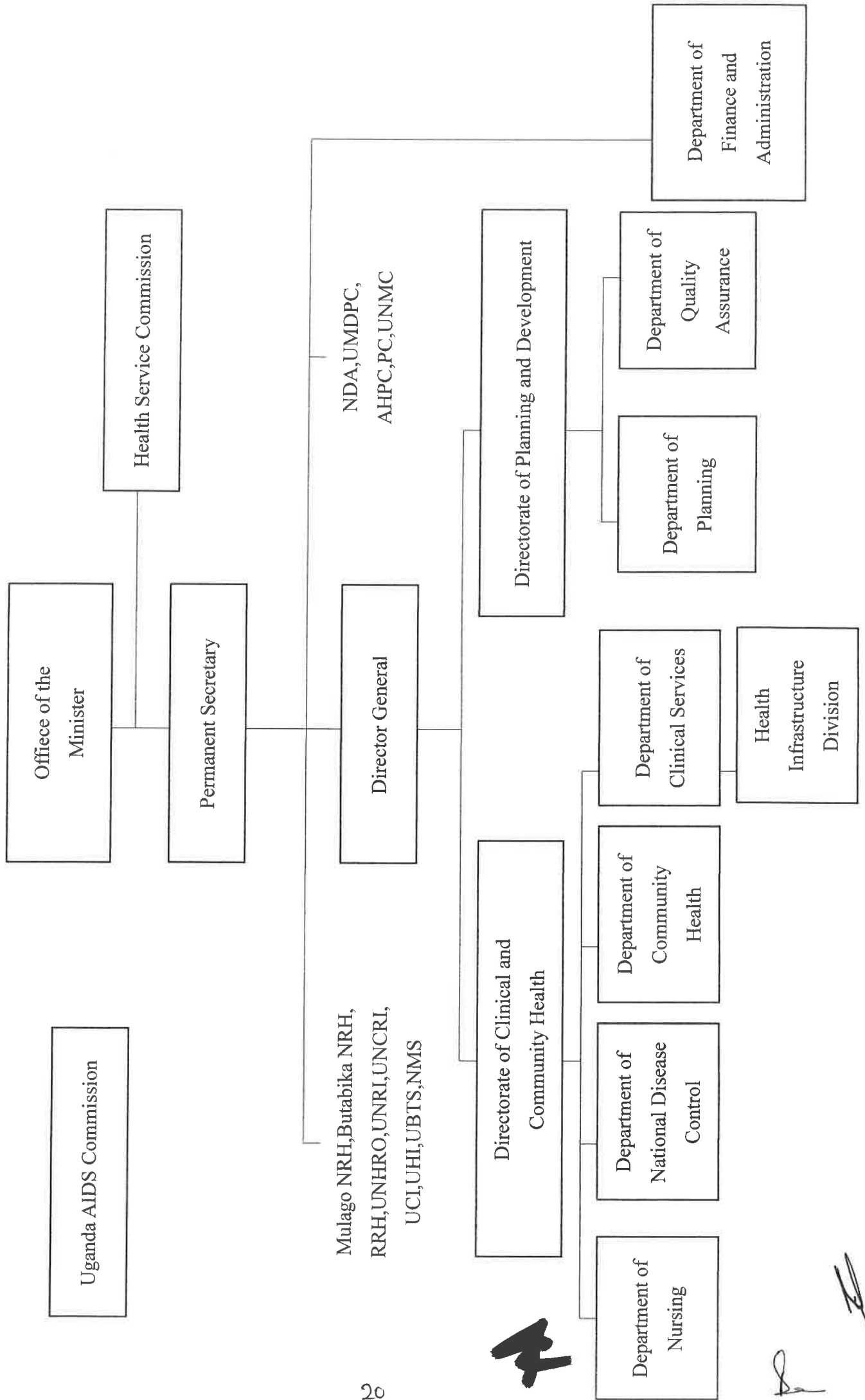
**OWNERSHIP—continued**

| Date, time<br>and Inst. No. | Name and Address of Owner | Signature of<br>Registrar |
|-----------------------------|---------------------------|---------------------------|
|                             |                           |                           |

**7**

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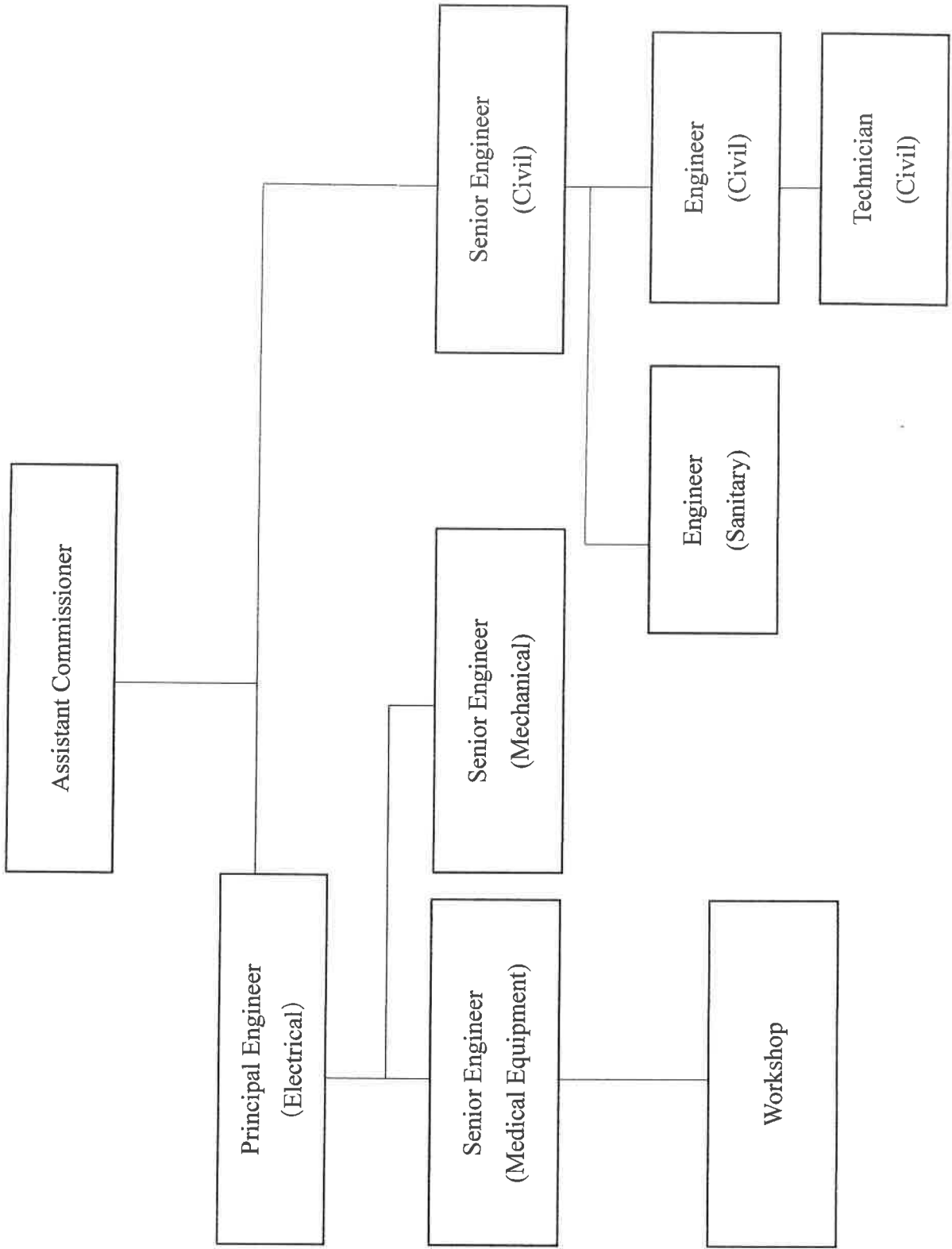
Annex 3-1 Organogram of MOH and Health Infrastructure Division



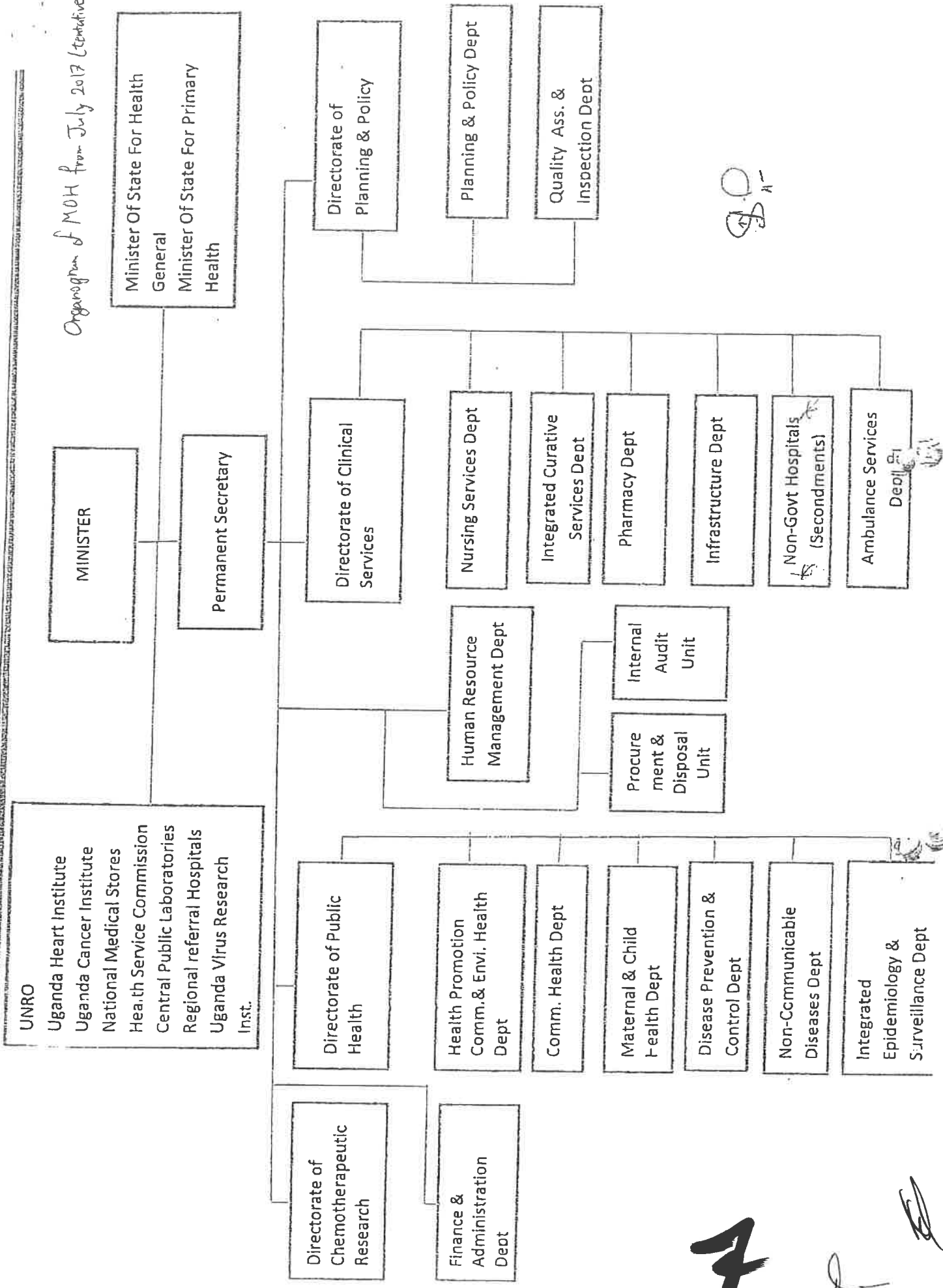
**7**

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Organogram of the Health Infrastructure Division



Organogram of MOH from July 2017 (tentative)

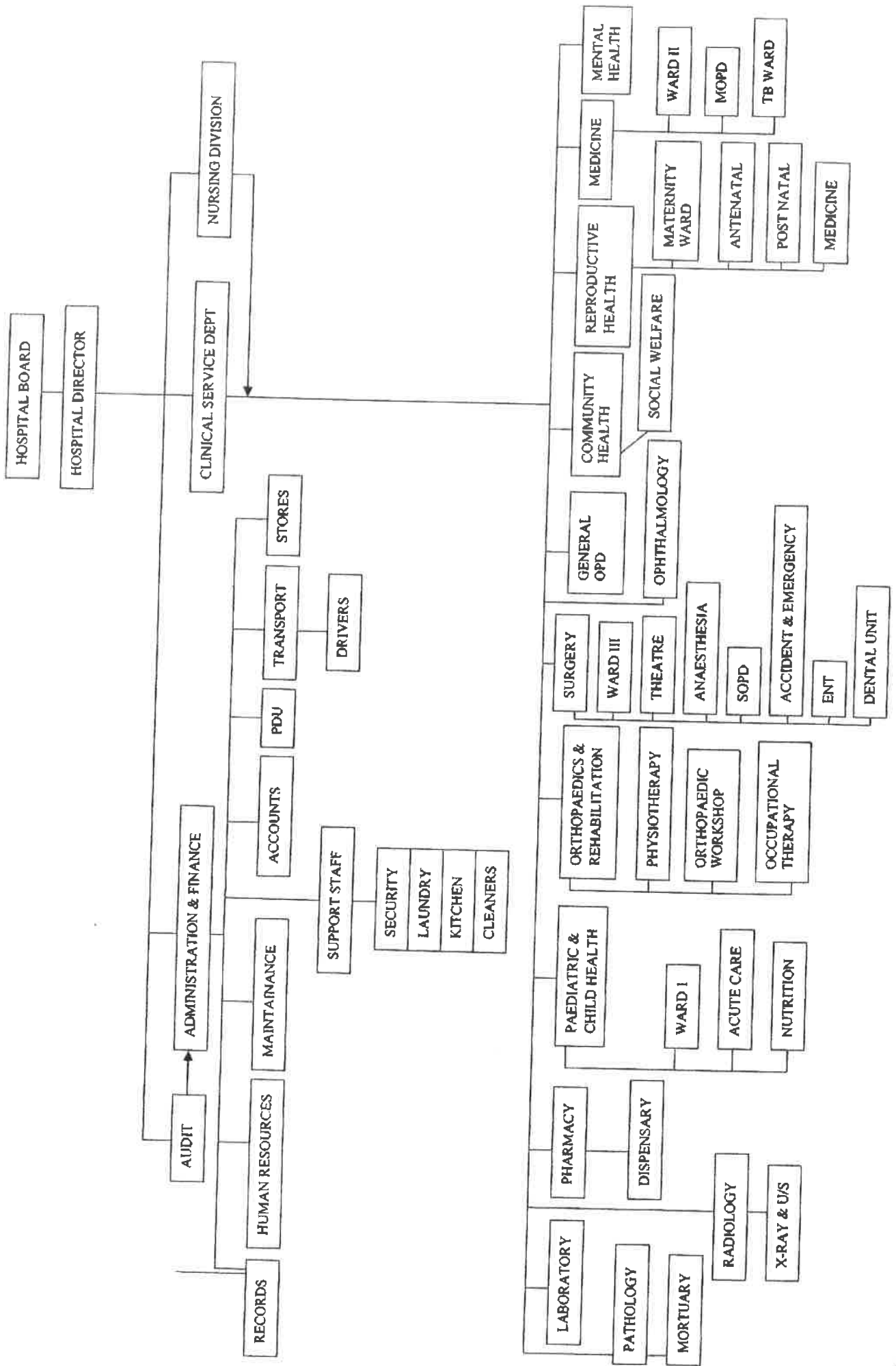


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**7**

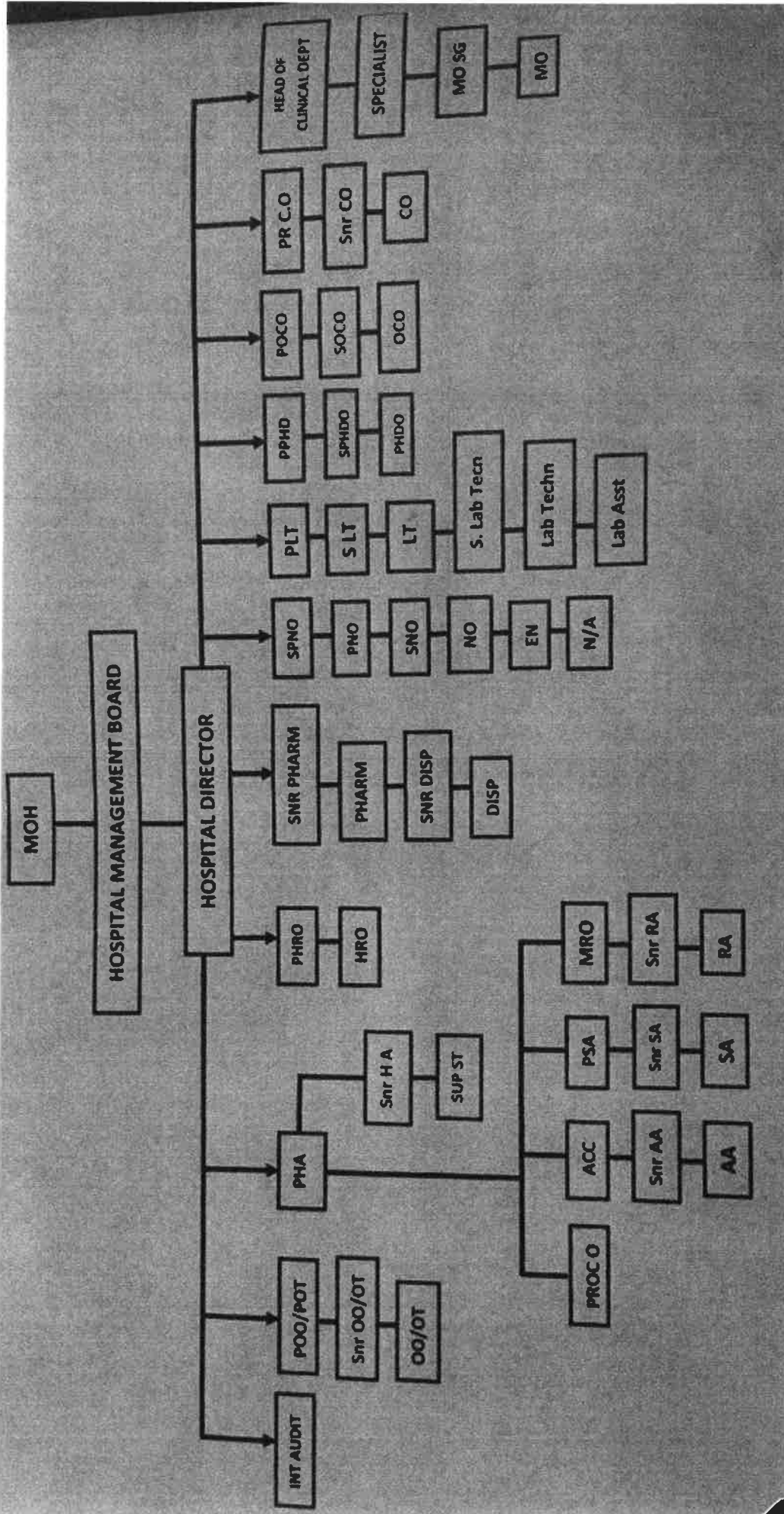
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*Handwritten signature*



*[Handwritten signatures and marks]*

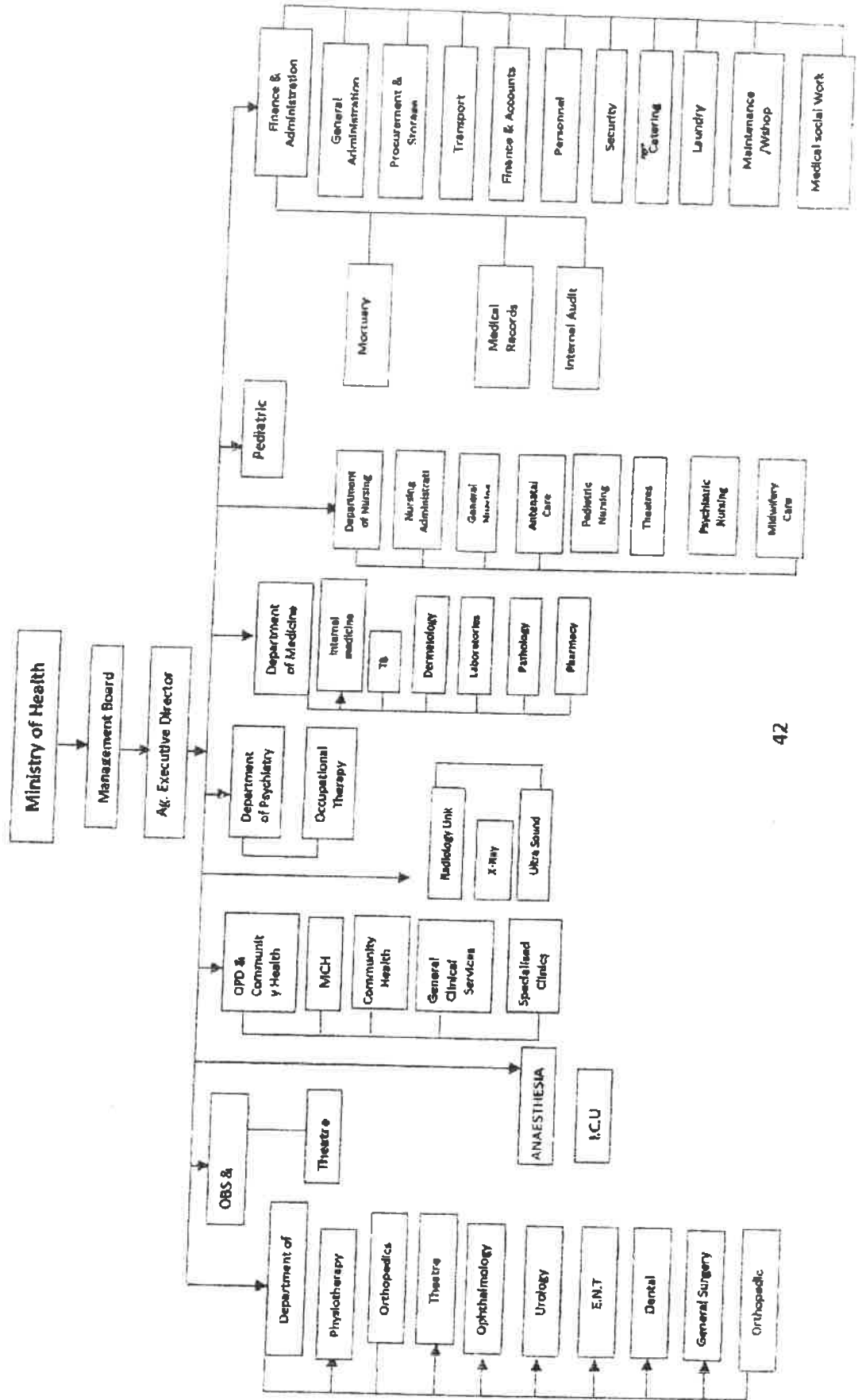
Annex 3-3 Organogram of Lira RRH



*[Handwritten signatures and marks]*

Sep. 2014

### Functional Organisation Structure for Arua Regional Referral Hospital



*[Handwritten signature]*

*[Handwritten signature]*

Annex 4 Requested facilities list

| Hospital | Facility                                 | Contents   |
|----------|--|--|
| Gulu RRH | the Maternity / Theatre / Casualty Block | <p><b>Maternity</b></p> <ol style="list-style-type: none"> <li>1) 75 to 81 patient beds</li> <li>2) six delivery rooms</li> <li>3) one kangaroo care room</li> <li>4) one Neonatal Intensive Care Unit (NICU)</li> </ol> <p><b>Theatre</b></p> <ol style="list-style-type: none"> <li>5) one surgical operation room</li> <li>6) one orthopaedic operation room</li> <li>7) one obstetrics/gynaecology operation room</li> <li>8) one recovery space</li> </ol> <p><b>Casualty</b></p> <ol style="list-style-type: none"> <li>9) one resuscitation room for 12 to 15 beds</li> <li>10) one triage room/clinic</li> <li>11) one minor operation theatre connected to the Theatre</li> </ol> <p><b>Others</b></p> <ol style="list-style-type: none"> <li>12) one ICU<sup>1</sup> for four to six beds</li> <li>13) Central Supply and Sterilization Department (CSSD) adjacent to the Theatre and also accessible from other departments</li> <li>14) one connection corridor between the new building and the imagery building</li> </ol> |
| Lira RRH | Outpatient Department (OPD) Complex      | <p><b>OPD</b></p> <ol style="list-style-type: none"> <li>1) one pharmacy/dispensary</li> <li>2) one satellite laboratory</li> <li>3) two pediatric consultation rooms</li> <li>4) one male consultation room</li> <li>5) one female consultation room</li> <li>6) one diabetic consultation room</li> <li>7) one dental clinic</li> <li>8) one Ear, Nose and Throat (ENT) clinic</li> <li>9) one Most At Risk Populations (MARPs) room</li> <li>10) one treatment room</li> <li>11) one orthopedic consultation room</li> <li>12) one physiotherapy/occupational consultation room</li> <li>13) two specialized clinics</li> </ol> <p><b>Maternal and Child Health (MCH)</b></p> <ol style="list-style-type: none"> <li>14) one office for in charge</li> <li>15) one palpation room with six couches</li> </ol>   |

<sup>1</sup> The level of this ICU will be between the level which provides general intensive monitoring of the patients and the level which provides intensive care for the patients with one organ failure. The level will be almost the same as the level of HDUs in Hoima RRH and Kabale RRH built by the Project for the Rehabilitation of Hospitals and Supply of Medical Equipment in the Western Region in Uganda



|          |                           |  |
|----------|---------------------------|--|
|          |                           | <p>16) one treatment room<br/> 17) one Early Infant Diagnosis (EID) point treatment room<br/> 18) one immunization room,<br/> 19) family planning<br/> 20) cervical cancer screening<br/> <b>X-Ray</b><br/> 21) one X-Ray room<br/> 22) one ultra sound room<br/> <b>Casualty</b><br/> 23) one resuscitation room with 10 – 12 beds<br/> 24) one minor operation theatre<br/> <b>Others</b><br/> 25) Waiting space for MCH attached to OPD complex</p>   |
|          | Delivery Complex          | <p>1) six delivery suites<br/> 2) one new born baby room (NICU)<br/> 3) one sterilisation room<br/> 4) one nurse station<br/> 5) changing/wash rooms for nurses</p>  |
| Arua RRH | the OPD and Casualty unit | <p><b>OPD</b><br/> 1) four general OPD consultation rooms<br/> 2) one medical outpatient consultation room<br/> 3) two paediatric rooms<br/> 4) one surgical outpatient consultation room<br/> 5) one ENT and ophthalmology consultation room<br/> 6) one gynaecology consultation room<br/> 7) one dental room<br/> 8) one adolescence room<br/> 9) two HIV Counseling and Testing (HCT) rooms<br/> 10) one MARPs room<br/> 11) one satellite laboratory<br/> 12) one pharmacy/dispensary<br/> <b>Casualty</b><br/> 13) one resuscitation room with 10-15 beds<br/> 14) one minor operation theatre</p> |

GULU RRH

Annex 5-1 Gulu RRH Requested Equipment List

| Requested No.             | No. in Dep | Equipment Name                      | Final Q'ty | Final Priority |
|---------------------------|------------|-------------------------------------|------------|----------------|
| <b>OUT PATIENT</b>        |            |                                     |            |                |
| 1                         | 1          | BP machines                         | 8          | 1              |
| 2                         | 2          | weighing scales adult               | 5          | 2              |
| 3                         | 3          | weighing scales children            | 1          | 3              |
| 4                         | 4          | Height meters                       | 5          | 6              |
| 5                         | 5          | Autoclaves                          | 1          | 5              |
| 6                         | 6          | Pulse oximeters                     | 8          | 7              |
| 7                         | 7          | Thermometers                        | 8          | 8              |
| 8                         | 8          | Examination lights                  | 8          | 4              |
| <b>EMERGENCY UNIT</b>     |            |                                     |            |                |
| 9                         | 1          | BP machine                          | 6          | 10             |
| 10                        | 2          | Stethoscopes                        | 6          | 11             |
| 11                        | 3          | Weighing scales infant              | 1          | 12             |
| 12                        | 4          | Thermometers                        | 6          | 13             |
| 13                        | 5          | Pulse Oximeters                     | 6          | 9              |
| 14                        | 6          | Oxygen Cylinder Set                 | 5          | 5              |
| 15                        | 7          | Suction machines                    | 3          | 3              |
| 16                        | 8          | Mobile X-ray                        | 1          | 1              |
| 17                        | 9          | Ultrasound machine                  | 1          | 2              |
| 18                        | 10         | X-ray film viewer boxes             | 1          | 17             |
| 19                        | 11         | Examination light                   | 2          | 18             |
| 20                        | 12         | Infusions Pumps                     | 4          | 19             |
| 21                        | 13         | Patient monitor                     | 3          | 6              |
| 22                        | 14         | Suction machine manual              | 3          | 4              |
| 23                        | 15         | Operation light (mobile)            | 1          | 16             |
| 24                        | 16         | Syringe pump                        | 2          | 20             |
| 25                        | 17         | Emergency bed                       | 4          | 15             |
| 26                        | 18         | Operation Table                     | 1          | 14             |
| 27                        | 19         | Ambu bag                            | 1          | 21             |
| 28                        | 20         | Cervical spine fixed color          | 2          | 22             |
| 29                        | 21         | Patient trolley                     | 2          | 8              |
| 30                        | 22         | Wheel chair                         | 3          | 7              |
| <b>OPERATING THEATRE</b>  |            |                                     |            |                |
| 31                        | 1          | Anesthetic machines                 | 1          | 1              |
| 32                        | 2          | Operating lights                    | 3          | 2              |
| 33                        | 3          | Patient monitor                     | 4          | 4              |
| 34                        | 4          | Oxygen Cylinder Set                 | 2          | 7              |
| 35                        | 5          | Suction machines                    | 3          | 5              |
| 36                        | 6          | Weighing scales set                 | 1          | 15             |
| 37                        | 7          | Operating Beds                      | 3          | 3              |
| 38                        | 8          | Electro surgery machines            | 3          | 8              |
| 39                        | 9          | Defibrillators                      | 1          | 9              |
| 40                        | 10         | Refrigerator                        | 1          | 10             |
| 41                        | 11         | Operating light (mobile)            | 2          | 14             |
| 42                        | 12         | Patient trolley                     | 5          | 11             |
| 43                        | 13         | Syringe pump                        | 2          | 6              |
| 44                        | 14         | Instrument trolley                  | 3          | 12             |
| 45                        | 15         | Mayo table                          | 3          | 12             |
| 46                        | 16         | Instrument set for OT               | 1          | 13             |
| <b>IMAGING DEPARTMENT</b> |            |                                     |            |                |
| 47                        | 1          | General mounted X-ray machine       | 1          | 1              |
| 48                        | 2          | Mobile X-ray                        | 1          | 5              |
| 49                        | 3          | CR machines                         | 1          | 2              |
| 50                        | 4          | Mammography X-ray machine           | 1          | 9              |
| 51                        | 5          | CT Scan                             | 1          | 4              |
| 52                        | 6          | Ultrasound machine                  | 1          | 6              |
| 53                        | 7          | ECG                                 | 1          | 7              |
| 54                        | 8          | Eco - cardiogram ultrasound machine | 1          | 3              |
| 55                        | 9          | X-ray viewing boxes                 | 10         | 10             |
| 56                        | 10         | Fluoroscopy X-ray machine           | 1          | 8              |
| <b>ICU</b>                |            |                                     |            |                |
| 57                        | 1          | ICU bed                             | 4-6        | 2              |
| 58                        | 2          | Vital monitors                      | 2          | 3              |
| 59                        | 3          | Suction machines                    | 1          | 5              |
| 60                        | 4          | Oxygen cylinder set                 | 1          | 4              |

GULU RRH

| Requested No.    | No. in Dep | Equipment Name                    | Final Q'ty | Final Priority |
|------------------|------------|-----------------------------------|------------|----------------|
| 61               | 5          | Autoclaves                        | 1          | 6              |
| 62               | 6          | Infusion pumps                    | 1          | 7              |
| 63               | 7          | Ventilator                        | 1          | 1              |
| 64               | 8          | Ambu bag                          | 1          | 8              |
| 65               | 9          | Nebulizer                         | 1          | 9              |
| NICU             |            |                                   |            |                |
| 66               | 1          | Infants incubators                | 5          | 1              |
| 67               | 2          | Photo therapy units               | 1          | 5              |
| 68               | 3          | Patient monitor                   | 1          | 8              |
| 69               | 4          | Infusion Pumps                    | 1          | 7              |
| 70               | 5          | Pulse oximeters                   | 2          | 3              |
| 71               | 6          | Infant warmer                     | 1          | 4              |
| 72               | 7          | Examination lamp                  | 2          | 6              |
| 73               | 8          | Oxygen cylinder set               | 1          | 2              |
| 74               | 9          | BP machine for infant             | 2          | 9              |
| OB&GY            |            |                                   |            |                |
| 75               | 1          | Examination Bed for Gyn           | 3          | 12             |
| 76               | 2          | Examination beds                  | 4          | 13             |
| 77               | 3          | Ultrasound machines               | 2          | 9              |
| 78               | 4          | Doppler Fetoscope                 | 3          | 11             |
| 79               | 5          | Autoclaves                        | 1          | 2              |
| 80               | 6          | Cryo-therapy machine              | 1          | 3              |
| 81               | 7          | Oxygen cylinder set               | 4          | 5              |
| 82               | 8          | Suction machines                  | 4          | 6              |
| 83               | 9          | Delivery bed                      | 6          | 1              |
| 84               | 10         | Fetal monitor                     | 1          | 14             |
| 85               | 11         | Vacuum extractor (manual)         | 2          | 4              |
| 86               | 12         | Patient monitor                   | 2          | 8              |
| 87               | 13         | Infant warmer                     | 2          | 10             |
| 88               | 14         | Patient trolley                   | 4          | 7              |
| 89               | 15         | Corpo scope                       | 1          | 15             |
| 90               | 16         | Speculum set                      | 20         | 17             |
| 91               | 17         | Curettage Instrument set          | 5          | 16             |
| 92               | 18         | LEEP machine                      | 1          | 18             |
| PAEDIATRICS      |            |                                   |            |                |
| 93               | 1          | Oxygen cylinder set               | 10         | 1              |
| 94               | 2          | weighing scales infants           | 4          | 8              |
| 95               | 3          | Infusion pumps                    | 4          | 4              |
| 96               | 4          | Patient Monitor                   | 1          | 2              |
| 97               | 5          | Stethoscopes                      | 5          | 7              |
| 98               | 6          | Examination lights                | 3          | 9              |
| 99               | 7          | Infant BP machines                | 3          | 6              |
| 100              | 8          | Nebulizer                         | 2          | 3              |
| 101              | 9          | Gluco meter                       | 1          | 5              |
| CSSD and LAUNDRY |            |                                   |            |                |
| 102              | 1          | Big Autoclaves                    | 1          | 1              |
| 103              | 2          | Laundry machine                   | 1          | 2              |
| 104              | 3          | Ironing machine                   | 1          | 3              |
| 105              | 4          | Dryers                            | 1          | 4              |
| 106              | 5          | Working table for CSSD            | 1          | 7              |
| 107              | 6          | Laundry trolley                   | 1          | 5              |
| 108              | 7          | Storage cabinet                   | 1          | 6              |
| ENT              |            |                                   |            |                |
| 109              | 1          | Tonsillectomy set                 | 2          | 1              |
| 110              | 2          | Adenoidectomy set                 | 2          | 2              |
| 111              | 3          | Laryngoscopy set                  | 1          | 3              |
| 112              | 4          | Caldwell luc set                  | 1          | 4              |
| 113              | 5          | Tracheostomy set                  | 1          | 13             |
| 114              | 6          | Suction machines                  | 2          | 7              |
| 115              | 7          | Operating Microscopes             | 1          | 9              |
| 116              | 8          | Middle ear set                    | 1          | 10             |
| 117              | 9          | Mastoid drill                     | 1          | 11             |
| 118              | 10         | Esophagoscopy                     | 1          | 6              |
| 119              | 11         | Bronchoscopy for children         | 1          | 5              |
| 120              | 12         | Tympanometer                      | 1          | 8              |
| 121              | 13         | Acoustic Emission Testing machine | 1          | 12             |

GULU RRH

| Requested No.     | No. in Dep | Equipment Name              | Final Q'ty | Final Priority |
|-------------------|------------|-----------------------------|------------|----------------|
| 122               | 14         | Walsham forceps             | 1          | 14             |
| LABORATORY        |            |                             |            |                |
| 123               | 1          | Binocular microscopes       | 2          | 5              |
| 124               | 2          | Centrifuge                  | 3          | 11             |
| 125               | 3          | Fridges                     | 2          | 1              |
| 126               | 4          | Glucometer                  | 3          | 10             |
| 127               | 5          | Water bath                  | 1          | 11             |
| 128               | 6          | Incubators                  | 1          | 12             |
| 129               | 7          | Safety cabinets             | 1          | 13             |
| 130               | 8          | shakers                     | 3          | 14             |
| 131               | 9          | Pipette                     | 5          | 9              |
| 132               | 10         | Heamometers                 | 1          | 15             |
| 133               | 11         | Water distiller             | 1          | 8              |
| 134               | 12         | Chemistry analyzer          | 1          | 16             |
| 135               | 13         | Autoclaves                  | 1          | 6              |
| 136               | 14         | Hot air oven                | 1          | 7              |
| 137               | 15         | Deep freezer                | 1          | 2              |
| 138               | 16         | Blood bank refrigerator     | 1          | 4              |
| 139               | 17         | ELISA system with PCR       | 1          | 3              |
| 140               | 18         | Electrolyte analyzer        | 1          | 5              |
| 141               | 19         | Eye wash station            | 1          | 17             |
| 142               | 20         | GeneXpert                   | 1          | 18             |
| DENTAL            |            |                             |            |                |
| 143               | 1          | Dental unit                 | 3          | 1              |
| 144               | 2          | Dental X-ray                | 1          | 2              |
| 145               | 3          | Dental instrument sets      | 1          | 3              |
| 146               | 4          | Light Curing machines       | 1          | 4              |
| 147               | 5          | Intra oral cameras          | 1          | 7              |
| 148               | 6          | Pulp Tester                 | 1          | 5              |
| 149               | 7          | Dental laboratory equipment | 1          | 8              |
| 150               | 8          | Autoclaves                  | 1          | 6              |
| PHARMACY          |            |                             |            |                |
| 151               | 1          | Drugs shelves               | 1          | 4              |
| 152               | 2          | Drugs fridges               | 4          | 1              |
| 153               | 3          | Dispensing tray             | 6          | 5              |
| 154               | 4          | Drug trolley                | 5          | 3              |
| 155               | 5          | Cupboard                    | 2          | 2              |
| SURGICAL WARD     |            |                             |            |                |
| 156               | 1          | Oxygen cylinder set         | 3          | 2              |
| 157               | 2          | Vital monitors              | 2          | 4              |
| 158               | 3          | Autoclaves                  | 1          | 1              |
| 159               | 4          | Examination lights          | 2          | 6              |
| 160               | 5          | BP machines                 | 2          | 9              |
| 161               | 6          | Suction machine             | 2          | 3              |
| 162               | 7          | Patient trolley             | 2          | 11             |
| 163               | 8          | Drum set                    | 2          | 5              |
| 164               | 9          | Diagnosis set               | 1          | 7              |
| 165               | 10         | Weighing scale              | 1          | 10             |
| 166               | 11         | Pulse oximeter              | 1          | 8              |
| INTERNAL MEDICINE |            |                             |            |                |
| 167               | 1          | Endoscopy unit              | 1          | 12             |
| 168               | 2          | BP machine                  | 4          | 7              |
| 169               | 3          | Weighing scales             | 3          | 11             |
| 170               | 4          | Pulse oximeter              | 2          | 9              |
| 171               | 5          | Portable ultrasound machine | 1          | 3              |
| 172               | 6          | Oxygen cylinder set         | 6          | 1              |
| 173               | 7          | Nebulizer                   | 4          | 2              |
| 174               | 8          | Diagnosis set               | 2          | 8              |
| 175               | 9          | Infusion pumps              | 1          | 10             |
| 176               | 10         | Patient trolley             | 4          | 6              |
| 177               | 11         | Wheel chair                 | 4          | 14             |
| 178               | 12         | Fibroscan                   | 1          | 4              |
| 179               | 13         | Medicine trolley            | 4          | 5              |
| 180               | 14         | Suction machine             | 2          | 15             |
| 181               | 15         | Ventilator                  | 1          | 13             |

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| Requested No.              | No. in Dep | Equipment Name                                 | Final Q'ty | Final Priority |
|----------------------------|------------|--|------------|----------------|
| <b>AMBULANCE</b>           |            |  |            |                |
| 182                        | 1          | Ambulance                                      | 1          |                |
| <b>ORTHOPEDIC CLINICAL</b> |            |  |            |                |
| 183                        | 1          | Plaster shear Manual                           | 2          | 2              |
| 184                        | 2          | Plaster shear (electrical)                     | 1          | 1              |
| 185                        | 3          | Plaster opener                                 | 2          | 4              |
| 186                        | 4          | Plaster bender                                 | 2          | 6              |
| 187                        | 5          | Splint set                                     | 1          | 3              |
| 188                        | 6          | Operating Fracture bed                         | 1          | 7              |
| 189                        | 7          | C-Arm  | 1          | 5              |
| 190                        | 8          | Film viewer                                    | 1          | 8              |
| <b>PHYSIOTHERAPY</b>       |            |  |            |                |
| Electro therapy Section    |            |  |            |                |
| 191                        | 1          | UV Lamp  | 2          | 13(1A, 1B)     |
| 192                        | 2          | Therapeutic ultrasound                         | 2          | 2(1A, 1B)      |
| 193                        | 3          | Short wave diathermy                           | 1          | 3              |
| 194                        | 4          | TENS   | 1          | 11             |
| 195                        | 5          | EMS  | 1          | 15             |
| 196                        | 6          | Infra-Red Radiation lamps                      | 2          | 4              |
| 197                        | 7          | Electrical massager                            | 2          | 12             |
| Manipulative therapy       |            |  |            |                |
| 198                        | 8          | Traction machines (Cervical and lumber)        | 1          | 1              |
| 199                        | 9          | Therapeutic Massage beds                       | 3          | 5              |
| Exercise therapy section   |            |  |            |                |
| 200                        | 10         | Tread mill                                     | 2          | 6              |
| 201                        | 11         | Pulley systems                                 | 1          | 16             |
| 202                        | 12         | Suspension bed                                 | 1          | 17             |
| 203                        | 13         | Muscle strengthening weights                   | 2          | 18             |
| 204                        | 14         | Therapeutic mats                               | 3          | 19             |
| 205                        | 15         | Postural mirror                                | 1          | 20             |
| 206                        | 16         | Hand exercise equipment                        | 1          | 24             |
| 207                        | 17         | Shoulder wheels                                | 1          | 25             |
| 208                        | 18         | stationary bikes, - adult                      | 2          | 8              |
| 209                        | 19         | Stationary bikes - children                    | 1          | 9              |
| 210                        | 20         | Quadriceps bench with accessories like weights | 1          | 7              |
| 211                        | 21         | Bo baths balls different sizes                 | 1          | 10             |
| 212                        | 22         | Stares adult                                   | 1          | 26             |
| 213                        | 23         | Stares children                                | 1          | 27             |
| 214                        | 24         | Parallel bars children                         | 1          | 28             |
| 215                        | 25         | Abdominal strengthening equipment              | 1          | 21             |
| Hydrotherapy facilities    |            |  |            |                |
| 216                        | 26         | Warm parks equipment                           | 2          | 22             |
| 217                        | 27         | Cold parks equipment                           | 2          | 23             |
| 218                        | 28         | Parallel bars adult                            | 1          | 29             |
| 219                        | 29         | Electrical Oscillatory manipulative bed        | 1          | 14             |
| Orthopaedic workshop       |            |  |            |                |
| 220                        | 1          | Jig saw  | 1          | 5              |
| 221                        | 2          | Heavy duty oven                                | 1          | 9              |
| 222                        | 3          | Rotor machine                                  | 1          | 1              |
| 223                        | 4          | Dust Suction machine                           | 2          | 3              |
| 224                        | 5          | Pressure compressor                            | 1          | 4              |
| 225                        | 6          | Vertical band saw                              | 1          | 12             |
| 226                        | 7          | Pipe bender                                    | 1          | 2              |
| 227                        | 8          | Hand drilling machine                          | 2          | 6              |
| 228                        | 9          | Vacuum machine                                 | 1          | 7              |
| 229                        | 10         | Automatic parallels bars                       | 1          | 10             |
| 230                        | 11         | Mirror   | 1          | 11             |
| 231                        | 12         | Polishing machine                              | 1          | 8              |
| <b>HOSPITAL WORKSHOP</b>   |            |  |            |                |
| 232                        | 1          | Carpentry tool box                             | 1          | 5              |
| 233                        | 2          | Plumbing tool box                              | 1          | 4              |
| 234                        | 3          | Oxygen gas analyzer                            | 2          | 7              |
| 235                        | 4          | Digital Multi-meter                            | 2          | 6              |
| 236                        | 5          | Welding generator                              | 1          | 2              |
| 237                        | 6          | Heavy Duty Engraving machine                   | 1          | 8              |
| 238                        | 7          | Electric safety analyzer machine               | 1          | 9              |

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| Requested No.      | No. in Dep | Equipment Name                    | Final Q'ty | Final Priority |
|--------------------|------------|-----------------------------------|------------|----------------|
| 239                | 8          | Working mats for electronics      | 1          | 10             |
| 240                | 9          | Electronics tool box              | 2          | 1              |
| 241                | 10         | Mechanical tool box               | 2          | 3              |
| OPHTHALMOLOGY      |            |                                   |            |                |
| 242                | 1          | Operating Microscopes             | 1          | 1              |
| 243                | 2          | Slit lamp                         | 1          | 4              |
| 244                | 3          | Visual field analyzer (automated) | 1          | 2              |
| 245                | 4          | Hand held portable slit lamp      | 1          | 7              |
| 246                | 5          | Direct ophthalmoscope             | 3          | 8              |
| 247                | 6          | Parkins tomometer                 | 1          | 11             |
| 248                | 7          | Cataract set                      | 8          | 6              |
| 249                | 8          | Extra owler (lid surgery ) set    | 5          | 10             |
| 250                | 9          | Suction machines                  | 1          | 3              |
| 251                | 10         | Magnifying head loop              | 4          | 9              |
| 252                | 11         | Autorefracto meter                | 1          | 5              |
| MENTAL HEALTH CARE |            |                                   |            |                |
| 253                | 1          | BP machines                       | 3          | 1              |
| 254                | 2          | Weighing scale                    | 4          | 3              |
| 255                | 3          | Autoclaves                        | 1          | 2              |
| 256                | 4          | Drum set                          | 2          | 7              |
| 257                | 5          | Oxygen cylinder                   | 2          | 11             |
| 258                | 6          | ECT (Electroconvulsive Therapy)   | 1          | 6              |
| 259                | 7          | Pulse oximeter                    | 1          | 4              |
| 260                | 8          | Patient trolley                   | 2          | 5              |
| 261                | 9          | Examination bed                   | 3          | 10             |
| 262                | 10         | Infusion pump                     | 1          | 8              |
| 263                | 11         | Wheel chair                       | 2          | 9              |

## LIRA RRH

Annex 5-2 Lira RRH Requested Equipment List

| Requested No.                    | No. in Dep. | Equipment Name                    | Final Q'ty         | Final Priority |
|----------------------------------|-------------|-----------------------------------|--------------------|----------------|
| Out Patient                      |             |                                   |                    |                |
| 1                                | 1           | BP machine                        | each clinical room | 1              |
| 2                                | 2           | Examination Couch                 | each clinical room | 3              |
| 3                                | 3           | Wheel Chair                       | 2                  | 4              |
| 4                                | 4           | Weighing Scale                    | each clinical room | 5              |
| 5                                | 5           | Glucometer                        | each clinical room | 6              |
| 6                                | 6           | Diagnostic set                    | each clinical room | 2              |
| 7                                | 7           | Patient trolley                   | 1                  | 7              |
| OB/GYN                           |             |                                   |                    |                |
| 8                                | 1           | Delivery Bed                      | 4                  | 1              |
| 9                                | 2           | Operation Light mobile            | 2                  | 2              |
| 10                               | 3           | Oxygen cylinder set               | 2                  | 7              |
| 11                               | 4           | suction Machine                   | 2                  | 11             |
| 12                               | 5           | Examination Couch                 | 2                  | 5              |
| 13                               | 6           | weighing and height Scale         | 3                  | 8              |
| 14                               | 7           | BP machine                        | 4                  | 4              |
| 15                               | 8           | Cesarean operating instrument set | 4                  | 3              |
| 16                               | 9           | Intubation set                    | 2                  | 13             |
| 17                               | 10          | Resuscitation kit                 | 1                  | 14             |
| 18                               | 11          | Autoclave                         | 1                  | 9              |
| 19                               | 12          | Patient monitor                   | 2                  | 12             |
| 20                               | 13          | Examination bed for OBGY          | 2                  | 6              |
| 21                               | 14          | Drum set                          | 3                  | 10             |
| Imaging                          |             |                                   |                    |                |
| 22                               | 1           | CT                                | 1                  | 4              |
| 23                               | 2           | Fluoroscopy machine               | 1                  | 5              |
| 24                               | 3           | ultra sound scanner               | 1                  | 3              |
| 25                               | 4           | Fixed X-ray with card reader      | 1                  | 1              |
| 26                               | 5           | Automatic film processor          | 1                  | 2              |
| 27                               | 6           | Read character                    | 1                  | 7              |
| 28                               | 7           | Mobile X-ray machine              | 1                  | 6              |
| 29                               | 8           | CR system                         | 1                  | 8              |
| Ambulance                        |             |                                   |                    |                |
| 30                               | 1           | Ambulance                         | 1                  | 1              |
| Emergency                        |             |                                   |                    |                |
| 31                               | 1           | Ventilator                        | 2                  | 4              |
| 32                               | 2           | Anesthesia machine                | 1                  | 5              |
| 33                               | 3           | Autoclave                         | 1                  | 7              |
| 34                               | 4           | patient Trolley                   | 4                  | 10             |
| 35                               | 5           | suction machine                   | 2                  | 8              |
| 36                               | 6           | Operation table                   | 1                  | 2              |
| 37                               | 7           | patient Monitor                   | 2                  | 6              |
| 38                               | 8           | Operating instrument set          | 2                  | 11             |
| 39                               | 9           | Emergency bed                     | 4                  | 1              |
| 40                               | 10          | Diagnostic set                    | 2                  | 12             |
| 41                               | 11          | Drum Set                          | 5                  | 9              |
| 42                               | 12          | B.P. machine                      | 2                  | 13             |
| 43                               | 13          | Operation light mobile            | 1                  | 3              |
| Sterilisation in Thetre and OBGY |             |                                   |                    |                |
| 44                               | 1           | Autoclave for sterilization       | 2                  | 1              |
| 45                               | 2           | Boiler                            | 1                  | 2              |
| 46                               | 3           | Storage cabinet                   | 2                  | 3              |
| 47                               | 4           | Steel cabinet                     | 2                  | 4              |
| Laundry                          |             |                                   |                    |                |
| 48                               | 1           | laundry machine                   | 1                  | 1              |
| 49                               | 2           | Heavy duty electric iron          | 1                  | 2              |
| 50                               | 3           | Dryer                             | 1                  | 3              |
| Dental                           |             |                                   |                    |                |
| 51                               | 1           | Dental Chair                      | 4                  | 1              |
| 52                               | 2           | Dental X-Ray                      | 1                  | 2              |
| 53                               | 3           | Autoclave                         | 1                  | 3              |
| 54                               | 4           | Light cure machine                | 1                  | 5              |

## LIRA RRH

| Requested No.     | No. in Dep. | Equipment Name               | Final Q'ty | Final Priority |
|-------------------|-------------|------------------------------|------------|----------------|
| 55                | 5           | Electronic scaler            | 1          | 6              |
| 56                | 6           | Dry-heat sterilizer          | 1          | 9              |
| 57                | 7           | Dental forceps (all sets)    | 5          | 4              |
| 58                | 8           | Sterilizing box set          | 1          | 10             |
| 59                | 9           | Drums set                    | 1          | 11             |
| 60                | 10          | Pulp tester                  | 1          | 7              |
| 61                | 11          | Intra oral cameras           | 1          | 8              |
| Pediatic          |             |                              |            |                |
| 62                | 1           | Oxygen cylinder set          | 10         | 1              |
| 63                | 2           | Radiant warmer (for NICU)    | 2          | 2              |
| 64                | 3           | Incubator (for NICU)         | 2          | 3              |
| 65                | 4           | weighing scale               | 2          | 4              |
| 66                | 5           | patient Monitor              | 2          | 5              |
| 67                | 6           | Pulse oximeter               | 8          | 6              |
| 68                | 7           | Pediatic BP machine          | 3          | 7              |
| 69                | 8           | Diagnostic set               | 3          | 8              |
| Operation Theatre |             |                              |            |                |
| 70                | 1           | Anesthesia machine           | 1          | 1              |
| 71                | 2           | Patient Monitor              | 1          | 2              |
| 72                | 3           | suction machine              | 3          | 6              |
| 73                | 4           | Oxygen cylinder set          | 4          | 5              |
| 74                | 5           | Operation table              | 2          | 7              |
| 75                | 6           | Pulse oximeter               | 4          | 3              |
| 76                | 7           | BP machine Digital           | 4          | 4              |
| 77                | 8           | Glucometer                   | 1          | 8              |
| 78                | 9           | Sterilizing drum Large       | 10         | 13             |
| 79                | 10          | Sterilizing drum Medium      | 5          | 14             |
| 80                | 11          | Sterilizing drum Small       | 5          | 15             |
| 81                | 12          | Operation light portable     | 2          | 9              |
| 82                | 13          | Autoclave                    | 1          | 10             |
| 83                | 14          | patient Trolley              | 2          | 11             |
| 84                | 15          | Laparotomy set               | 1          | 12             |
| 85                | 16          | Instrument trolley           | 2          | 16             |
| Sugery Ward       |             |                              |            |                |
| 86                | 1           | Autoclave                    | 2          | 2              |
| 87                | 2           | suction machine              | 2          | 11             |
| 88                | 3           | BP machine                   | 2          | 12             |
| 89                | 4           | examination couch            | 3          | 8              |
| 90                | 5           | Drip stand                   | 10         | 7              |
| 91                | 6           | Patient trolley              | 2          | 3              |
| 92                | 7           | Wheel Chair                  | 2          | 4              |
| 93                | 8           | Drum set                     | 3          | 6              |
| 94                | 9           | Oxygen cylinder set          | 2          | 1              |
| 95                | 10          | Dressing trolley             | 2          | 9              |
| 96                | 11          | Drug trolley                 | 2          | 10             |
| 97                | 12          | Resuscitation kit            | 2          | 5              |
| 98                | 13          | Glucometer                   | 2          | 13             |
| 99                | 14          | Dressing instrument set      | 2          | 14             |
| 100               | 15          | Pulse oximeter               | 2          | 15             |
| 101               | 16          | Weighing scale               | 2          | 16             |
| ENT               |             |                              |            |                |
| 102               | 1           | ENT examination microscope   | 1          | 9              |
| 103               | 2           | ENT examination set complete | 1          | 1              |
| 104               | 3           | Mastidectomy set             | 1          | 8              |
| 105               | 4           | Tonsillectomy set            | 1          | 7              |
| 106               | 5           | Bronchoscopy set             | 1          | 2              |
| 107               | 6           | ENT examination unit         | 1          | 6              |
| 108               | 7           | Tympanometer                 | 1          | 3              |
| 109               | 8           | BP machine                   | 1          | 5              |
| 110               | 9           | Audiometer                   | 1          | 4              |
| Laboratory        |             |                              |            |                |
| 111               | 1           | Hematology analyzer          | 1          | 3              |



## LIRA RRH

| Requested No.       | No. in Dep. | Equipment Name                    | Final Q'ty | Final Priority |
|---------------------|-------------|-----------------------------------|------------|----------------|
| 112                 | 2           | Biochemistry machine              | 1          | 4              |
| 113                 | 3           | Refrigerator Blood Bank           | 1          | 1              |
| 114                 | 4           | Microscope                        | 2          | 5              |
| 115                 | 5           | Centrifuge                        | 2          | 10             |
| 116                 | 6           | Incubator                         | 1          | 7              |
| 117                 | 7           | Autoclave                         | 1          | 6              |
| 118                 | 8           | Voltex mixer                      | 1          | 11             |
| 119                 | 9           | weighing scale                    | 1          | 9              |
| 120                 | 10          | Water desterilizer                | 1          | 8              |
| 121                 | 11          | Refrigerator                      | 1          | 2              |
| Internal Medicine   |             |                                   |            |                |
| 122                 | 1           | Oxygen cylinder set               | 2          | 2              |
| 123                 | 2           | Nebulizer                         | 1          | 4              |
| 124                 | 3           | suction Machine                   | 1          | 6              |
| 125                 | 4           | patient Trolley                   | 2          | 5              |
| 126                 | 5           | syringe pump                      | 2          | 8              |
| 127                 | 6           | infusion pump                     | 2          | 7              |
| 128                 | 7           | Drip stand                        | 10         | 3              |
| 129                 | 8           | Ultrasound machine portable       | 1          | 1              |
| ICU                 |             |                                   |            |                |
| 130                 | 1           | syringe pump                      | 2          | 1              |
| Pharmacy            |             |                                   |            |                |
| 131                 | 1           | Refrigerator (large)              | 7          | 1              |
| 132                 | 2           | Refrigerator (small)              | 4          | 2              |
| 133                 | 3           | Table drug                        | 1          | 5              |
| 134                 | 4           | Drug trolley                      | 3          | 6              |
| 135                 | 5           | Steel cabinet                     | 2          | 8              |
| 136                 | 6           | Water destilizer                  | 2          | 4              |
| 137                 | 7           | Autoclave                         | 1          | 3              |
| 138                 | 8           | Drug cupboard                     | 7          | 7              |
| Medical Equipment   |             |                                   |            |                |
| 139                 | 1           | Portable oscilloscope             | 1          | 7              |
| 140                 | 2           | Thermometer/hygrometer            | 1          | 9              |
| 141                 | 3           | Analyzer Tachometer               | 1          | 8              |
| 142                 | 4           | Insulation resistance tester      | 1          | 1              |
| 143                 | 5           | Earth mega tester                 | 1          | 3              |
| 144                 | 6           | Cramp meter                       | 1          | 2              |
| 145                 | 7           | Welding machine mobile            | 1          | 5              |
| 146                 | 8           | Electrical tool box               | 1          | 6              |
| 147                 | 9           | Pipe bender                       | 1          | 4              |
| Orthopedic workshop |             |                                   |            |                |
| 148                 | 1           | Broad Belt Sander                 | 1          | 4              |
| 149                 | 2           | Vacuumed machine                  | 1          | 3              |
| 150                 | 3           | Welding hot jet                   | 1          | 5              |
| 151                 | 4           | Welding MIRROR                    | 1          | 2              |
| 152                 | 5           | Router machine                    | 1          | 1              |
| Orthopedic          |             |                                   |            |                |
| 153                 | 1           | Oscillation Plaster cutter        | 1          | 1              |
| 154                 | 2           | Plaster share                     | 1          | 2              |
| 155                 | 3           | Plaster bender                    | 1          | 6              |
| 156                 | 4           | Plaster opener                    | 1          | 8              |
| 157                 | 5           | Operating flucture bed            | 1          | 9              |
| 158                 | 6           | Bone fracture instrument set      | 1          | 7              |
| 159                 | 7           | Thomas splint                     | 20         | 3              |
| 160                 | 8           | Browne splint                     | 20         | 4              |
| 161                 | 9           | Electrical bone drill             | 1          | 10             |
| 162                 | 10          | Wheel Chair                       | 5          | 5              |
| Ophthalmology       |             |                                   |            |                |
| 163                 | 1           | Operating microscope              | 1          | 2              |
| 164                 | 2           | Cataract operation instrument set | 6          | 3              |
| 165                 | 3           | Autoclave                         | 1          | 4              |
| 166                 | 4           | Slit lamp with Tonometer          | 1          | 6              |
| 167                 | 5           | Area thetie machine               | 1          | 5              |

## LIRA RRH

| Requested No. | No. in Dep. | Equipment Name                  | Final Q'ty | Final Priority |
|---------------|-------------|---------------------------------|------------|----------------|
| 168           | 6           | Instrument trolley              | 2          | 11             |
| 169           | 7           | Kerato meter                    | 1          | 7              |
| 170           | 8           | Trial lens set                  | 1          | 10             |
| 171           | 9           | weighing scale                  | 2          | 9              |
| 172           | 10          | BP machine                      | 2          | 8              |
| 173           | 11          | Phaco emulsification machine    | 1          | 1              |
| Physiotherapy |             |                                 |            |                |
| 174           | 1           | Ultrasound therapy              | 1          | 2              |
| 175           | 2           | Short wave therapy              | 1          | 1              |
| 176           | 3           | Infra-Red Radiation lamps       | 1          | 3              |
| 177           | 4           | Exercise mat                    | 2          | 5              |
| 178           | 5           | Stationary bike                 | 2          | 6              |
| 179           | 6           | Balance ball                    | 2          | 7              |
| 180           | 7           | Traction bed                    | 1          | 4              |
| 181           | 8           | Electrical massager             | 1          | 8              |
| 182           | 9           | Refrigerator                    | 1          | 9              |
| Mental Health |             |                                 |            |                |
| 183           | 1           | Drug trolley                    | 2          | 4              |
| 184           | 2           | Drug cupboard                   | 1          | 3              |
| 185           | 3           | Examination coach               | 2          | 2              |
| 186           | 4           | Chito forceps                   | 2          | 6              |
| 187           | 5           | Drums set                       | 2          | 5              |
| 188           | 6           | Autoclave                       | 1          | 1              |
| 189           | 7           | Drip stand                      | 4          | 7              |
| Pathology     |             |                                 |            |                |
| 190           | 1           | Mortuary refrigerator           | 1          | 2              |
| 191           | 2           | Mortuary trolley with cover     | 2          | 1              |
| 192           | 3           | Mortuary Instrument set         | 1          | 4              |
| 193           | 4           | Holding patient trolley         | 2          | 3              |
| NMCH          |             |                                 |            |                |
| 194           | 1           | Examination couch               | 9          | 1              |
| 195           | 2           | Examination lump                | 2          | 7              |
| 196           | 3           | Speculum set                    | 1          | 8              |
| 197           | 4           | Uterine sonde set               | 2          | 13             |
| 198           | 5           | Uterine Elevator instrument set | 5          | 14             |
| 199           | 6           | Drum set                        | 4          | 5              |
| 200           | 7           | Cupboard                        | 2          | 9              |
| 201           | 8           | Deep freezer                    | 1          | 4              |
| 202           | 9           | Refractor for vaccines          | 1          | 3              |
| 203           | 10          | Vaccine carrier                 | 10         | 6              |
| 204           | 11          | Weighing scale neonatal         | 3          | 10             |
| 205           | 12          | BP machine                      | 7          | 2              |
| 206           | 13          | Weighing and height scale adult | 3          | 10             |
| 207           | 14          | Patient trolley                 | 1          | 11             |
| 208           | 15          | Wheel chair                     | 1          | 12             |

## ARUA RRH

Annex 5-3 Arua RRH Requested Equipment List

| Requested No.                 | No. in Dep | Equipment Name                                 | Final Q'ty | Final Priority |
|-------------------------------|------------|--|------------|----------------|
| <b>Accident And Emergency</b> |            |  |            |                |
| 1                             | 1          | Vital sign monitor [ECG,Pulse rate Bp,SP2]     | 2          | 1              |
| 2                             | 2          | Endoscopy machine                              | 1          | 19             |
| 3                             | 3          | Emergency Respirators                          | 1          | 2              |
| 4                             | 4          | Defibrilators                                  | 1          | 16             |
| 5                             | 5          | Oxygen cylinder set                            | 2          | 8              |
| 6                             | 6          | Suction machine Electrical                     | 2          | 3              |
| 7                             | 7          | Nebulizer                                      | 2          | 4              |
| 8                             | 8          | Patient transfer trolleys                      | 4          | 5              |
| 9                             | 9          | Wheel chairs                                   | 4          | 9              |
| 10                            | 10         | Operating table                                | 1          | 6              |
| 11                            | 11         | Operating light mobile                         | 1          | 7              |
| 12                            | 12         | Drug trolley                                   | 1          | 17             |
| 13                            | 13         | Medicine Cupboards                             | 2          | 18             |
| 14                            | 14         | Emergency Bed                                  | 5          | 10             |
| 15                            | 15         | Examination light                              | 1          | 11             |
| 16                            | 16         | Dressing cart                                  | 1          | 12             |
| 17                            | 17         | Dressing instrument set                        | 1          | 14             |
| 18                            | 18         | Diagnosis set                                  | 1          | 15             |
| 19                            | 19         | Minor surgery instrument set,                  | 1          | 13             |
| 20                            | 20         | Autoclave                                      | 1          | 20             |
| <b>Ambulance</b>              |            |  |            |                |
| 21                            | 1          | Ambulance                                      | 1          | 1              |
| <b>Dental</b>                 |            |  |            |                |
| 22                            | 1          | Dental Unit                                    | 3          | 1              |
| 23                            | 2          | Dental imaging/x-ray machine and processors    | 1          | 2              |
| 24                            | 3          | Vacuum Autoclaves                              | 1          | 4              |
| 25                            | 4          | LED cure lights                                | 2          | 6              |
| 26                            | 5          | Ultrasonic Scalars                             | 2          | 7              |
| 27                            | 6          | Ultrasonic cleaner                             | 1          | 8              |
| 28                            | 7          | Dental implant surgical motors                 | 1          | 15             |
| 29                            | 8          | Handpieces oiler                               | 1          | 9              |
| 30                            | 9          | Apex Locators                                  | 1          | 10             |
| 31                            | 10         | Casting machine                                | 1          | 11             |
| 32                            | 11         | Polishing and trimming machines                | 1          | 12             |
| 33                            | 12         | Hydroflasks, Heat cure flasks and articulators | 1          | 13             |
| 34                            | 13         | Orthopantomogram                               | 1          | 14             |
| 35                            | 14         | Electric pulp tester                           | 2          | 5              |
| 36                            | 15         | Dental instrument set                          | 1          | 3              |
| <b>Occupational Therapy</b>   |            |  |            |                |
| 37                            | 1          | Large portable mirror                          | 1          | 2              |
| 38                            | 2          | Sewing machines                                | 1          | 3              |
| 39                            | 3          | Standing frames,adults and children            | 1          | 6              |
| 40                            | 4          | Walking frames,adults and children             | 2          | 4              |
| 41                            | 5          | Parralel bars,adults and children              | 1          | 1              |
| 42                            | 6          | Prone boards                                   | 1          | 5              |
| <b>Physiotherapy</b>          |            |  |            |                |
| 43                            | 1          | Short wave Diathermy                           | 2          | 1              |
| 44                            | 2          | Infra Red machine                              | 2          | 2              |
| 45                            | 3          | Ultra sound Machine                            | 1          | 3              |
| 46                            | 4          | Muscle stimulators                             | 1          | 4              |
| 47                            | 5          | Cervical Traction machine                      | 1          | 5              |
| 48                            | 6          | Lumbar traction machine                        | 1          | 6              |
| 49                            | 7          | TENS Machine                                   | 2          | 7              |
| 50                            | 8          | Shoulder traction machine                      | 1          | 8              |
| 51                            | 9          | Stational bicycle                              | 2          | 9              |
| 52                            | 10         | Exercise mat                                   | 3          | 10             |
| 53                            | 11         | Wheel chair                                    | 5          | 11             |
| 54                            | 12         | Bobath ball                                    | 5          | 12             |
| 55                            | 13         | Hand therapy springs                           | 2          | 13             |

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| Requested No.                         | No. in Dep | Equipment Name  | Final Q'ty | Final Priority |
|---------------------------------------|------------|---|------------|----------------|
| <b>Imargery</b>                       |            |   |            |                |
| 56                                    | 1          | Computerised Tommographic Scan (CT-Scan)                    | 1          | 1              |
| 57                                    | 2          | Berium Enamel set   | 1          | 6              |
| 58                                    | 3          | Mamography Machine  | 1          | 4              |
| 59                                    | 4          | Ultra sound scan [Cardiac Abdominal,obstetric] with doppler | 1          | 2              |
| 60                                    | 5          | Digital Radiography system DRS                              | 1          | 3              |
| 61                                    | 7          | Hysterosalpingogram set                                     | 1          | 7              |
| 62                                    | 8          | Electro encephalogram                                       | 1          | 8              |
| <b>Pharmacy</b>                       |            |   |            |                |
| 63                                    | 1          | Refrigerators Large   | 1          | 1              |
| 64                                    | 2          | Drug Cupboards Metallics                                    | 3          | 2              |
| 65                                    | 3          | Autoclave   | 1          | 4              |
| 66                                    | 4          | Dry oven  | 1          | 5              |
| 67                                    | 5          | Water Distillers  | 2          | 3              |
| 68                                    | 6          | Water bath  | 1          | 6              |
| 69                                    | 7          | Weighing scale digital                                      | 2          | 7              |
| <b>Orthopeadics</b>                   |            |   |            |                |
| 70                                    | 1          | Gypsum cutter   | 1          | 1              |
| 71                                    | 2          | Manual Plaster cutter                                       | 2          | 14             |
| 72                                    | 3          | Pulse oximetre  | 1          | 2              |
| 73                                    | 4          | Oxygen cylinder and mask                                    | 1          | 3              |
| 74                                    | 5          | Dressing set  | 1          | 4              |
| 75                                    | 6          | Dressing trolley  | 1          | 5              |
| 76                                    | 7          | Patient trasnfer trolley                                    | 2          | 6              |
| 77                                    | 8          | Drug trolley  | 1          | 7              |
| 78                                    | 9          | Drum set  | 1          | 8              |
| 79                                    | 10         | Autoclve  | 1          | 9              |
| 80                                    | 11         | Drip stand  | 10         | 10             |
| 81                                    | 12         | Examination couch   | 3          | 11             |
| 82                                    | 13         | Plaster table   | 1          | 12             |
| 83                                    | 14         | Wheel chair   | 2          | 13             |
| 84                                    | 15         | Bed craddle   | 5          | 15             |
| 85                                    | 16         | Working frame   | 2          | 16             |
| 86                                    | 17         | Orthopedic braun frame for traction                         | 5          | 17             |
| 87                                    | 18         | C-arm   | 1          | 18             |
| 88                                    | 19         | Instrument set for orhopedic surgery                        | 1          | 19             |
| <b>Laboratory</b>                     |            |   |            |                |
| 89                                    | 1          | Heamatology analyser [5 parametre]                          | 1          | 7              |
| 90                                    | 2          | Clinical Chemistry Analysers                                | 1          | 8              |
| 91                                    | 3          | Refrigerator  | 2          | 1              |
| 92                                    | 4          | Electrical centrifuge [8-12 Buckets]                        | 2          | 2              |
| 93                                    | 5          | Orbital shaker  | 1          | 9              |
| 94                                    | 6          | Blood mixer [Roller]  | 1          | 10             |
| 95                                    | 7          | Laboratory incubator  | 1          | 11             |
| 96                                    | 8          | Electrical weighing Scale [Laboratory]                      | 1          | 4              |
| 97                                    | 9          | Weighing Scale for blood transfusion                        | 1          | 3              |
| 98                                    | 10         | Autoclave Elecrtical  | 1          | 5              |
| 99                                    | 11         | Microscope Olympus  | 2          | 6              |
| 100                                   | 12         | Hemoglobino meter   | 1          | 12             |
| <b>CSSD</b>                           |            |   |            |                |
| 101                                   | 1          | Autoclave Set   | 1          | 1              |
| 102                                   | 2          | Whashing Machines   | 1          | 1              |
| 103                                   | 3          | Dryer   | 1          | 2              |
| 104                                   | 4          | Ironing roller  | 1          | 3              |
| 105                                   | 5          | Flat ironing machine  | 1          | 5              |
| 106                                   | 6          | Laundry trolley   | 4          | 4              |
| <b>MARTENITY</b>                      |            |   |            |                |
| <b>Labour and Delivery room , HDU</b> |            |   |            |                |
| 107                                   | 1          | Vital sign monitor [ECG,Pulse rate ,SP2,Foetal doppler]     | 3          | 4              |
| 108                                   | 2          | Blood preesure machine wll mounted or on stands             | 2          | 9              |
| 109                                   | 3          | Delivery Beds   | 8          | 1              |
| 110                                   | 4          | Infant Warmer   | 3          | 3              |
| 111                                   | 5          | Patient Transfer trolleys                                   | 2          | 2              |

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| Requested No.                 | No. in Dep | Equipment Name                                     | Final Q'ty | Final Priority |
|-------------------------------|------------|--|------------|----------------|
| 112                           | 6          | Oxygen cylinder set                                | 5          | 11             |
| 113                           | 7          | Wheel chairs                                       | 2          | 12             |
| 114                           | 8          | Examminations spot lights                          | 2          | 10             |
| 115                           | 9          | Instrument set for delivery                        | 10         | 5              |
| 116                           | 10         | Suction machine Electrical                         | 2          | 8              |
| 117                           | 11         | Fetal dopper                                       | 2          | 7              |
| 118                           | 12         | Ambubag set fro neonatal                           | 2          | 6              |
| 119                           | 13         | Vacuum extractor                                   | 1          | 13             |
| <b>OB/GY</b>                  |            |  |            |                |
| 120                           | 1          | Vital sign monitor [ECG,Pulse rate Bp,SP2]         | 2          | 4              |
| 121                           | 2          | Drug Trolleys                                      | 3          | 7              |
| 122                           | 3          | Dressing trollely                                  | 3          | 8              |
| 123                           | 4          | Dressing sets [Forceps,Kidney dishes,arteries etc] | 2          | 5              |
| 124                           | 5          | Examination table                                  | 3          | 3              |
| 125                           | 6          | Fetal dopper                                       | 2          | 6              |
| 126                           | 7          | Instrument set for examination                     | 1          | 2              |
| 127                           | 8          | Blood pressure                                     | 6          | 1              |
| <b>Theatre</b>                |            |  |            |                |
| 128                           | 1          | Vital sign monitors                                | 2          | 1              |
| 129                           | 2          | Electrical suction machine                         | 2          | 2              |
| 130                           | 3          | Anasthetic machine                                 | 1          | 3              |
| 131                           | 4          | Ceiling mounted mobile type                        | 2          | 4              |
| 132                           | 5          | Oxygen cylinder set                                | 2          | 5              |
| 133                           | 6          | Autoclave  | 1          | 7              |
| 134                           | 7          | Instrument Set for theatre                         | 1          | 6              |
| <b>Neontal unit</b>           |            |  |            |                |
| 135                           | 1          | Incubators   | 4          | 3              |
| 136                           | 2          | Oxygen cylinder set                                | 4          | 6              |
| 137                           | 3          | Baby courches                                      | 5          | 2              |
| 138                           | 4          | Vital sign monitor [ECG,Pulse rate Bp,SP2]         | 2          | 1              |
| 139                           | 5          | Suction machine electrical                         | 1          | 7              |
| 140                           | 6          | Infant Radiant Warmers                             | 2          | 5              |
| 141                           | 7          | Continuous postive air way pressure(CPAP) sets     | 1          | 4              |
| <b>Internal Medicine</b>      |            |  |            |                |
| 142                           | 1          | Oxygen cylinder set                                | 5          | 1              |
| 143                           | 2          | Suction machine Electrical                         | 2          | 2              |
| 144                           | 3          | Autoclave small                                    | 1          | 3              |
| 145                           | 4          | Wheel chair  | 3          | 4              |
| 146                           | 5          | Vital sign monitor [ECG,Pulse rate Bp,SP2]         | 2          | 5              |
| 147                           | 6          | Patient trolley                                    | 2          | 6              |
| 148                           | 7          | HBAIc machine                                      | 1          | 8              |
| 149                           | 8          | Drug infusion pumps                                | 4          | 9(2A, 2B)      |
| 150                           | 9          | Nebulisers   | 1          | 10             |
| 151                           | 10         | Diagnostic set general                             | 2          | 7              |
| 152                           | 11         | Refrigerators medicine                             | 2          | 12(1A, 1B)     |
| 153                           | 12         | Dressing instrument set                            | 2          | 13             |
| 154                           | 13         | Drug trolley                                       | 2          | 14             |
| 155                           | 14         | Instument drums set                                | 1          | 15             |
| 156                           | 15         | Patient examination coach                          | 2          | 18             |
| 157                           | 16         | Glucometer   | 2          | 19             |
| 158                           | 17         | Pulsoximeter                                       | 2          | 20             |
| 159                           | 18         | Weighing scale                                     | 2          | 21             |
| <b>Main Operating Theatre</b> |            |  |            |                |
| 160                           | 1          | Operating table                                    | 3          | 1 (2A, 1B)     |
| 161                           | 2          | Vital sign monitor [ECG,Pulse rate Bp,SP2]         | 3          | 4(2A, 1B)      |
| 162                           | 3          | Operating lamp mobile type                         | 3          | 2(2A, 1B)      |
| 163                           | 4          | Anaesthetic Machine                                | 2          | 6              |
| 164                           | 5          | Electrical Dermatome(Skin Graft Set)               | 2          | 5(1A, 1B)      |
| 165                           | 6          | Oxygen cylinder set                                | 2          | 9              |
| 166                           | 7          | Pneumatic tournique                                | 2          | 8              |
| 167                           | 8          | Patient Transfer trolley                           | 2          | 7              |
| 168                           | 9          | Suction machine electrical                         | 3          | 3              |
| 169                           | 10         | Electrical surgical unit                           | 1          | 10             |

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| Requested No.                     | No. in Dep | Equipment Name                             | Final Q'ty | Final Priority |
|-----------------------------------|------------|--|------------|----------------|
| 170                               | 11         | Instrument set for OP theatre              | 1          | 11             |
| <b>General Surgery</b>            |            |  |            |                |
| 171                               | 1          | Vital sign monitor [ECG,Pulse rate Bp,SP2] | 2          | 5              |
| 172                               | 2          | Oxygen cylinder set                        | 2          | 7              |
| 173                               | 3          | Suction machine                            | 2          | 6              |
| 174                               | 4          | Medicine/treatment trolleys                | 4          | 3              |
| 175                               | 5          | Patient screens                            | 6          | 8              |
| 176                               | 6          | Patient transfer trolleys                  | 3          | 2              |
| 177                               | 7          | Instrument set                             | 1          | 1              |
| 178                               | 8          | Dressing trolley                           | 4          | 4              |
| <b>Pediatric</b>                  |            |  |            |                |
| 179                               | 1          | Oxygen cylinder set                        | 4          | 1              |
| 180                               | 2          | Nebulisers                                 | 3          | 2              |
| 181                               | 3          | Vital sign monitor [ECG,Pulse rate Bp,SP2] | 2          | 3              |
| 182                               | 4          | infant and child Blood pressure machine    | 6          | 4              |
| 183                               | 5          | Pulse oximetre                             | 10         | 6              |
| 184                               | 6          | Patient screens                            | 4          | 12             |
| 185                               | 7          | reservoir bags with face masks             | 4          | 13             |
| 186                               | 8          | Examination couch                          | 5          | 7              |
| 187                               | 9          | Stethoscope paediatrics                    | 3          | 8              |
| 188                               | 10         | Files trolley                              | 3          | 11             |
| 189                               | 11         | Diagnosis set                              | 3          | 10             |
| 190                               | 12         | Thermometre digital                        | 12         | 9              |
| 191                               | 13         | Examination light                          | 5          | 5              |
| <b>Medical Equipment Workshop</b> |            |  |            |                |
| 192                               | 1          | Electronic / Electrical tools              | 2          | 7              |
| 193                               | 2          | Refrigeration tools                        | 1          | 1              |
| 194                               | 3          | Oxygen analyser                            | 2          | 5              |
| 195                               | 4          | Mechanical tools                           | 2          | 6              |
| 196                               | 5          | Welding Genarator Portable                 | 1          | 4              |
| 197                               | 6          | Plumbling Tool                             | 1          | 9              |
| 198                               | 7          | Drilling machine                           | 1          | 3              |
| 199                               | 8          | Carpently tool set                         | 1          | 10             |
| 200                               | 9          | Multimeter                                 | 2          | 8              |
| 201                               | 10         | Clamp meter                                | 2          | 2              |

## JAPANESE GRANT

The Japanese Grant is non-reimbursable fund provided to a recipient country (hereinafter referred to as “the Recipient”) to purchase the products and/or services (engineering services and transportation of the products, etc.) for its economic and social development in accordance with the relevant laws and regulations of Japan. Followings are the basic features of the project grants operated by JICA (hereinafter referred to as “Project Grants”).

### 1. Procedures of Project Grants

Project Grants are conducted through following procedures (See “PROCEDURES OF JAPANESE GRANT” for details):

(1) Preparation

- The Preparatory Survey (hereinafter referred to as “the Survey”) conducted by JICA

(2) Appraisal

- Appraisal by the government of Japan (hereinafter referred to as “GOJ”) and JICA, and Approval by the Japanese Cabinet

(3) Implementation

Exchange of Notes

- The Notes exchanged between the GOJ and the government of the Recipient

Grant Agreement (hereinafter referred to as “the G/A”)

- Agreement concluded between JICA and the Recipient

Banking Arrangement (hereinafter referred to as “the B/A”)

- Opening of bank account by the Recipient in a bank in Japan (hereinafter referred to as "the Bank") to receive the grant

Construction works/procurement

- Implementation of the project (hereinafter referred to as “the Project”) on the basis of the G/A

(4) Ex-post Monitoring and Evaluation

- Monitoring and evaluation at post-implementation stage

### 2. Preparatory Survey

(1) Contents of the Survey

The aim of the Survey is to provide basic documents necessary for the appraisal of the the Project made by the GOJ and JICA. The contents of the Survey are as follows:

- Confirmation of the background, objectives, and benefits of the Project and also institutional capacity of

relevant agencies of the Recipient necessary for the implementation of the Project.

- Evaluation of the feasibility of the Project to be implemented under the Japanese Grant from a technical, financial, social and economic point of view.
- Confirmation of items agreed between both parties concerning the basic concept of the Project.
- Preparation of an outline design of the Project.
- Estimation of costs of the Project.
- Confirmation of Environmental and Social Considerations

The contents of the original request by the Recipient are not necessarily approved in their initial form. The Outline Design of the Project is confirmed based on the guidelines of the Japanese Grant.

JICA requests the Recipient to take measures necessary to achieve its self-reliance in the implementation of the Project. Such measures must be guaranteed even though they may fall outside of the jurisdiction of the executing agency of the Project. Therefore, the contents of the Project are confirmed by all relevant organizations of the Recipient based on the Minutes of Discussions.

## (2) Selection of Consultants

For smooth implementation of the Survey, JICA contracts with (a) consulting firm(s). JICA selects (a) firm(s) based on proposals submitted by interested firms.

## (3) Result of the Survey

JICA reviews the report on the results of the Survey and recommends the GOJ to appraise the implementation of the Project after confirming the feasibility of the Project.

### 3. Basic Principles of Project Grants

#### (1) Implementation Stage

##### 1) The E/N and the G/A

After the Project is approved by the Cabinet of Japan, the Exchange of Notes (hereinafter referred to as “the E/N”) will be signed between the GOJ and the Government of the Recipient to make a pledge for assistance, which is followed by the conclusion of the G/A between JICA and the Recipient to define the necessary articles, in accordance with the E/N, to implement the Project, such as conditions of disbursement, responsibilities of the Recipient, and procurement conditions. The terms and conditions generally applicable to the Japanese Grant are stipulated in the “General Terms and Conditions for Japanese Grant (January 2016).”

##### 2) Banking Arrangements (B/A) (See “Financial Flow of Japanese Grant (A/P Type)” for details)



a) The Recipient shall open an account or shall cause its designated authority to open an account under the name of the Recipient in the Bank, in principle. JICA will disburse the Japanese Grant in Japanese yen for the Recipient to cover the obligations incurred by the Recipient under the verified contracts.

b) The Japanese Grant will be disbursed when payment requests are submitted by the Bank to JICA under an Authorization to Pay (A/P) issued by the Recipient.

### 3) Procurement Procedure

The products and/or services necessary for the implementation of the Project shall be procured in accordance with JICA's procurement guidelines as stipulated in the G/A.

### 4) Selection of Consultants

In order to maintain technical consistency, the consulting firm(s) which conducted the Survey will be recommended by JICA to the Recipient to continue to work on the Project's implementation after the E/N and G/A.

### 5) Eligible source country

In using the Japanese Grant disbursed by JICA for the purchase of products and/or services, the eligible source countries of such products and/or services shall be Japan and/or the Recipient. The Japanese Grant may be used for the purchase of the products and/or services of a third country as eligible, if necessary, taking into account the quality, competitiveness and economic rationality of products and/or services necessary for achieving the objective of the Project. However, the prime contractors, namely, constructing and procurement firms, and the prime consulting firm, which enter into contracts with the Recipient, are limited to "Japanese nationals", in principle.

### 6) Contracts and Concurrence by JICA

The Recipient will conclude contracts denominated in Japanese yen with Japanese nationals. Those contracts shall be concurred by JICA in order to be verified as eligible for using the Japanese Grant.

### 7) Monitoring

The Recipient is required to take their initiative to carefully monitor the progress of the Project in order to ensure its smooth implementation as part of their responsibility in the G/A, and to regularly report to JICA about its status by using the Project Monitoring Report (PMR).

### 8) Safety Measures

The Recipient must ensure that the safety is highly observed during the implementation of the Project.

### 9) Construction Quality Control Meeting

Construction Quality Control Meeting (hereinafter referred to as the "Meeting") will be held for quality assurance and smooth implementation of the Works at each stage of the Works. The member of the Meeting will be composed by the Recipient (or executing agency), the Consultant, the Contractor and JICA. The functions of the Meeting are as followings:

- a) Sharing information on the objective, concept and conditions of design from the Contractor, before start of construction.
- b) Discussing the issues affecting the Works such as modification of the design, test, inspection, safety control and the Client's obligation, during construction.

(2) Ex-post Monitoring and Evaluation Stage

- 1) After the project completion, JICA will continue to keep in close contact with the Recipient in order to monitor that the outputs of the Project is used and maintained properly to attain its expected outcomes.
- 2) In principle, JICA will conduct ex-post evaluation of the Project after three years from the completion. It is required for the Recipient to furnish any necessary information as JICA may reasonably request.

(3) Others

1) Environmental and Social Considerations

The Recipient shall carefully consider environmental and social impacts by the Project and must comply with the environmental regulations of the Recipient and JICA Guidelines for Environmental and Social Considerations (April, 2010).

2) Major undertakings to be taken by the Government of the Recipient

For the smooth and proper implementation of the Project, the Recipient is required to undertake necessary measures including land acquisition, and bear an advising commission of the A/P and payment commissions paid to the Bank as agreed with the GOJ and/or JICA. The Government of the Recipient shall ensure that customs duties, internal taxes and other fiscal levies which may be imposed in the Recipient with respect to the purchase of the Products and/or the Services be exempted or be borne by its designated authority without using the Grant and its accrued interest, since the grant fund comes from the Japanese taxpayers.

3) Proper Use

The Recipient is required to maintain and use properly and effectively the products and/or services under the Project (including the facilities constructed and the equipment purchased), to assign staff necessary for this operation and maintenance and to bear all the expenses other than those covered by the Japanese Grant.

4) Export and Re-export

The products purchased under the Japanese Grant should not be exported or re-exported from the Recipient.

## PROCEDURES OF JAPANESE GRANT

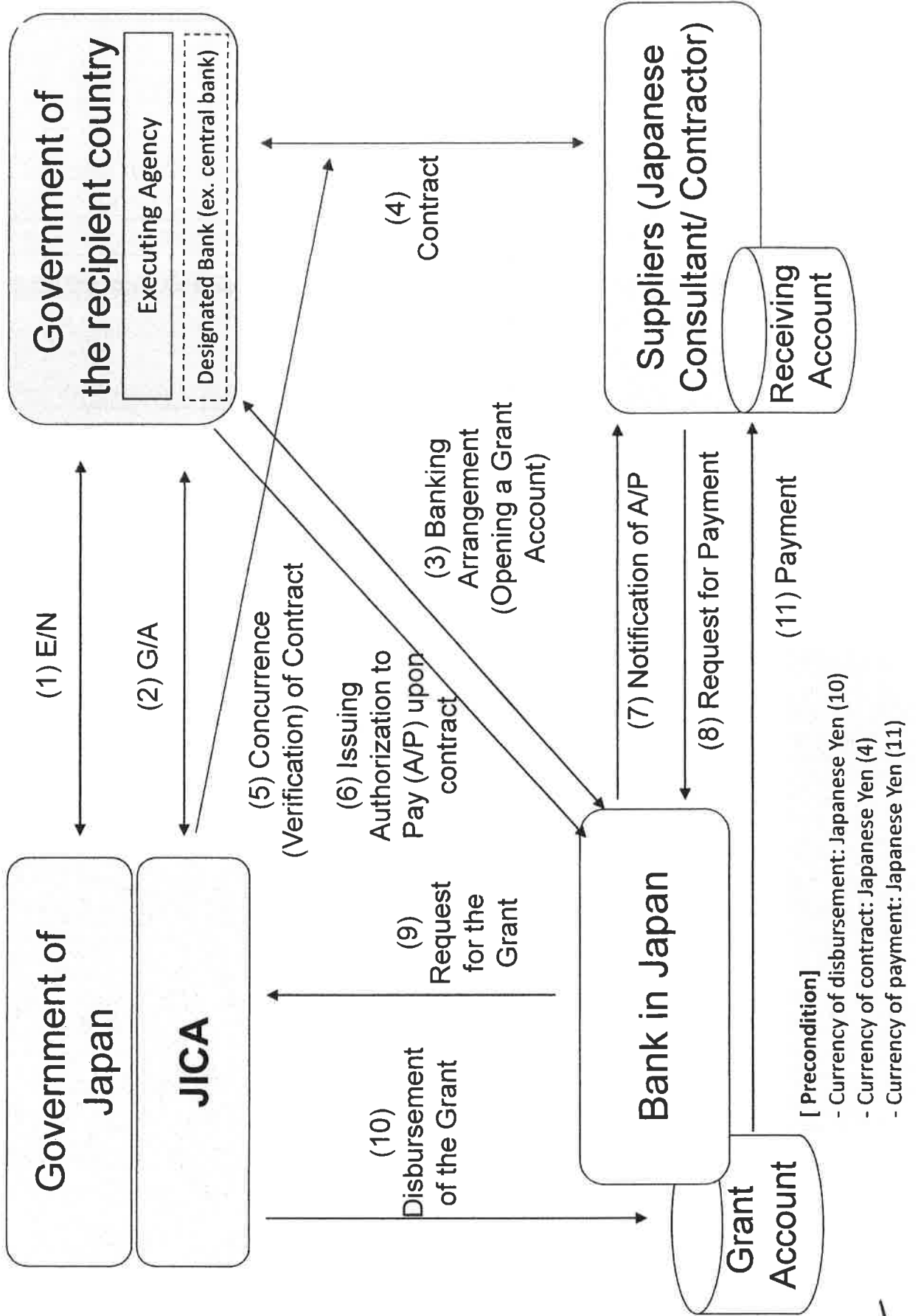
| Stage                              | Procedures   | Remarks  | Recipient Government | Japanese Government | JICA    | Consultants | Contractors | Agent Bank |
|------------------------------------|--|--|----------------------|---------------------|---------|-------------|-------------|------------|
| Official Request                   | Request for grants through diplomatic channel  | Request shall be submitted before appraisal stage.   | x                    | x                   |         |             |             |            |
| 1. Preparation                     | (1) Preparatory Survey<br>Preparation of outline design and cost estimate                                  |  | x                    |                     | x       | x           |             |            |
| 2. Appraisal                       | (2) Preparatory Survey<br>Explanation of draft outline design, including cost estimate, undertakings, etc. |  | x                    |                     | x       | x           |             |            |
|                                    | (3) Agreement on conditions for implementation   | Conditions will be explained with the draft notes (E/N) and Grant Agreement (G/A) which will be signed before approval by Japanese government. | x                    | x (E/N)             | x (G/A) |             |             |            |
|                                    | (4) Approval by the Japanese cabinet   |  |                      | x                   |         |             |             |            |
| 3. Implementation                  | (5) Exchange of Notes (E/N)  |  | x                    | x                   |         |             |             |            |
|                                    | (6) Signing of Grant Agreement (G/A)   |  | x                    |                     | x       |             |             |            |
|                                    | (7) Banking Arrangement (B/A)  | Need to be informed to JICA  | x                    |                     |         |             |             | x          |
|                                    | (8) Contracting with consultant and issuance of Authorization to Pay (A/P)                                 | Concurrence by JICA is required  | x                    |                     |         | x           |             | x          |
|                                    | (9) Detail design (D/D)  |  | x                    |                     |         | x           |             |            |
|                                    | (10) Preparation of bidding documents  | Concurrence by JICA is required  | x                    |                     |         | x           |             |            |
|                                    | (11) Bidding   | Concurrence by JICA is required  | x                    |                     |         | x           | x           |            |
|                                    | (12) Contracting with contractor/supplier and issuance of A/P  | Concurrence by JICA is required  | x                    |                     |         |             | x           | x          |
|                                    | (13) Construction works/procurement  | Concurrence by JICA is required for major modification of design and amendment of contracts.   | x                    |                     |         | x           | x           |            |
| (14) Completion certificate        |  | x  |                      |                     | x       | x           |             |            |
| 4. Ex-post monitoring & evaluation | (15) Ex-post monitoring  | To be implemented generally after 1, 3, 10 years of completion, subject to change  | x                    |                     | x       |             |             |            |
|                                    | (16) Ex-post evaluation  | To be implemented basically after 3 years of completion  | x                    |                     | x       |             |             |            |

notes:

1. Project Monitoring Report and Report for Project Completion shall be submitted to JICA as agreed in the G/A.

2. Concurrence by JICA is required for allocation of grant for remaining amount and/or contingencies as agreed in the G/A.

# Financial Flow of Japanese Grant (A/P Type)



**Project Monitoring Report**  
**on**  
**Project Name**  
**Grant Agreement No. XXXXXXXX**  
20XX, Month

**Organizational Information**

|  |   |
|--|---|
| <b>Signer of the G/A<br/>(Recipient)</b> | _____<br>Person in Charge (Designation) _____<br><br>Contacts _____<br>Address: _____<br>Phone/FAX: _____<br>Email: _____ |
| <b>Executing<br/>Agency</b>              | _____<br>Person in Charge (Designation) _____<br><br>Contacts _____<br>Address: _____<br>Phone/FAX: _____<br>Email: _____ |
| <b>Line Ministry</b>                     | _____<br>Person in Charge (Designation) _____<br><br>Contacts _____<br>Address: _____<br>Phone/FAX: _____<br>Email: _____ |

**General Information:**

|                          |   |
|--------------------------|---|
| <b>Project Title</b>     |   |
| <b>E/N</b>               | Signed date:<br>Duration:   |
| <b>G/A</b>               | Signed date:<br>Duration:   |
| <b>Source of Finance</b> | Government of Japan: Not exceeding JPY _____ mil.<br>Government of (_____): _____ |




**1: Project Description**

**1-1 Project Objective**

|  |
|--|
|  |
|--|

**1-2 Project Rationale**

- Higher-level objectives to which the project contributes (national/regional/sectoral policies and strategies)
- Situation of the target groups to which the project addresses

|  |
|--|
|  |
|--|

**1-3 Indicators for measurement of "Effectiveness"**

| Quantitative indicators to measure the attainment of project objectives |                |              |
|---|----------------|--------------|
| Indicators  | Original (Yr ) | Target (Yr ) |
|   |                |              |
|   |                |              |
| Qualitative indicators to measure the attainment of project objectives  |                |              |
|   |                |              |

**2: Details of the Project**

**2-1 Location**

| Components | Original<br><i>(proposed in the outline design)</i> | Actual |
|------------|---|--------|
| 1.         |   |        |

**2-2 Scope of the work**

| Components | Original*<br><i>(proposed in the outline design)</i> | Actual* |
|------------|--|---------|
| 1.         |  |         |
|            |  |         |
|            |  |         |

Reasons for modification of scope (if any).

|       |
|-------|
| (PMR) |
|-------|

**2-3 Implementation Schedule**

| Items | Original                         |  | Actual |
|-------|----------------------------------|--|--------|
|       | (proposed in the outline design) | (at the time of signing the Grant Agreement) |        |
|       |                                  |  |        |

Reasons for any changes of the schedule, and their effects on the project (if any)

|  |
|--|
|  |
|--|

**2-4 Obligations by the Recipient**

**2-4-1 Progress of Specific Obligations**

See Attachment 2.

**2-4-2 Activities**

See Attachment 3.

**2-4-3 Report on RD**

See Attachment 11.

**2-5 Project Cost**

**2-5-1 Cost borne by the Grant(Confidential until the Bidding)**

| Components |  |   | Cost (Million Yen)  |        |
|------------|--|---|---|--------|
|            | Original<br>(proposed in the outline design) | Actual<br>(in case of any modification) | Original <sup>1),2)</sup><br>(proposed in the outline design) | Actual |
|            | 1.   |   |   |        |
|            |  |   |   |        |
|            |  |   |   |        |
| Total      |  |   |   |        |

Note: 1) Date of estimation:  
 2) Exchange rate: 1 US Dollar = Yen

**2-5-2 Cost borne by the Recipient**

| Components |  |   | Cost  |        |
|------------|--|---|---|--------|
|            | Original<br>(proposed in the outline design) | Actual<br>(in case of any modification) | Original <sup>1),2)</sup><br>(proposed in the outline design) | Actual |
|            | 1.   |   |   |        |
|            |  |   |   |        |
|            |  |   |   |        |

- Note: 1) Date of estimation:  
2) Exchange rate: 1 US Dollar =

Reasons for the remarkable gaps between the original and actual cost, and the countermeasures (if any)

(PMR)

### 2-6 Executing Agency

- Organization's role, financial position, capacity, cost recovery etc,
- Organization Chart including the unit in charge of the implementation and number of employees.

**Original** (at the time of outline design)

name:

role:

financial situation:

institutional and organizational arrangement (organogram):

human resources (number and ability of staff):

**Actual** (PMR)

### 2-7 Environmental and Social Impacts

- The results of environmental monitoring based on Attachment 5 (in accordance with Schedule 4 of the Grant Agreement).
- The results of social monitoring based on in Attachment 5 (in accordance with Schedule 4 of the Grant Agreement).
- Disclosed information related to results of environmental and social monitoring to local stakeholders (whenever applicable).

## 3: Operation and Maintenance (O&M)

### 3-1 Physical Arrangement

- Plan for O&M (number and skills of the staff in the responsible division or section, availability of manuals and guidelines, availability of spareparts, etc.)

**Original** (at the time of outline design)

**Actual** (PMR)

### 3-2 Budgetary Arrangement

- Required O&M cost and actual budget allocation for O&M

**Original** (at the time of outline design)



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Actual (PMR)

**4: Potential Risks and Mitigation Measures**

- Potential risks which may affect the project implementation, attainment of objectives, sustainability
- Mitigation measures corresponding to the potential risks

**Assessment of Potential Risks (at the time of outline design)**

| Potential Risks          | Assessment                                       |
|--------------------------|--|
| 1. (Description of Risk) | Probability: High/Moderate/Low                   |
|                          | Impact: High/Moderate/Low                        |
|                          | Analysis of Probability and Impact:              |
|                          |  |
|                          | Mitigation Measures:                             |
|                          |  |
|                          | Action required during the implementation stage: |
| 2. (Description of Risk) | Probability: High/Moderate/Low                   |
|                          | Impact: High/Moderate/Low                        |
|                          | Analysis of Probability and Impact:              |
|                          |  |
|                          | Mitigation Measures:                             |
|                          |  |
|                          | Action required during the implementation stage: |
| 3. (Description of Risk) | Probability: High/Moderate/Low                   |
|                          | Impact: High/Moderate/Low                        |
|                          | Analysis of Probability and Impact:              |
|                          |  |
|                          | Mitigation Measures:                             |
|                          |  |
|                          | Action required during the implementation stage: |

|   |                                   |
|---|-----------------------------------|
|   | Contingency Plan (if applicable): |
|   |                                   |
| <b>Actual Situation and Countermeasures</b> |                                   |
| (PMR)                                       |                                   |

**5: Evaluation and Monitoring Plan (after the work completion)**

**5-1 Overall evaluation**

Please describe your overall evaluation on the project.

|  |
|--|
|  |
|--|

**5-2 Lessons Learnt and Recommendations**

Please raise any lessons learned from the project experience, which might be valuable for the future assistance or similar type of projects, as well as any recommendations, which might be beneficial for better realization of the project effect, impact and assurance of sustainability.

|  |
|--|
|  |
|--|

**5-3 Monitoring Plan of the Indicators for Post-Evaluation**

Please describe monitoring methods, section(s)/department(s) in charge of monitoring, frequency, the term to monitor the indicators stipulated in 1-3.

|  |
|--|
|  |
|--|

Attachment

1. Project Location Map
  2. Specific obligations of the Recipient which will not be funded with the Grant
  3. Monthly Report submitted by the Consultant
- Appendix - Photocopy of Contractor's Progress Report (if any)
- Consultant Member List
  - Contractor's Main Staff List
4. Check list for the Contract (including Record of Amendment of the Contract/ Agreement and Schedule of Payment)
  5. Environmental Monitoring Form / Social Monitoring Form
  6. Monitoring sheet on price of specified materials (Quarterly)
  7. Report on Proportion of Procurement (Recipient Country, Japan and Third Countries) (PMR (final) only)
  8. Pictures (by JPEG style by CD-R) (PMR (final) only)
  9. Equipment List (PMR (final) only)
  10. Drawing (PMR (final) only)
  11. Report on RD (After project)

Monitoring sheet on price of specified materials

1. Initial Conditions (Confirmed)

| Items of Specified Materials | Initial Volume<br>A | Initial Unit Price (¥)<br>B | Initial total Price<br>C=A×B | 1% of Contract Price<br>D | Condition of payment<br>Price (Decreased)<br>E=C-D | Condition of payment<br>Price (Increased)<br>F=C+D |
|------------------------------|---------------------|-----------------------------|------------------------------|---------------------------|--|--|
| Item 1                       | ●●t                 | ●                           | ●                            | ●                         | ●  | ●  |
| Item 2                       | ●●t                 | ●                           | ●                            | ●                         |  |  |
| Item 3                       |                     |                             |                              |                           |  |  |
| Item 4                       |                     |                             |                              |                           |  |  |
| Item 5                       |                     |                             |                              |                           |  |  |

2. Monitoring of the Unit Price of Specified Materials

(1) Method of Monitoring : ●●

(2) Result of the Monitoring Survey on Unit Price for each specified materials

| Items of Specified Materials | 1st month, 2015 | 2nd month, 2015 | 3rd month, 2015 | 4th | 5th | 6th |
|------------------------------|-----------------|-----------------|-----------------|-----|-----|-----|
| Item 1                       | ●               | ●               | ●               |     |     |     |
| Item 2                       |                 |                 |                 |     |     |     |
| Item 3                       |                 |                 |                 |     |     |     |
| Item 4                       |                 |                 |                 |     |     |     |
| Item 5                       |                 |                 |                 |     |     |     |

(3) Summary of Discussion with Contractor (if necessary)

..

..

Report on Proportion of Procurement (Recipient Country, Japan and Third Countries)  
 (Actual Expenditure by Construction and Equipment each)

|                             | Domestic Procurement<br>(Recipient Country)<br>A | Foreign Procurement<br>(Japan)<br>B | Foreign Procurement<br>(Third Countries)<br>C | Total<br>D |
|-----------------------------|--|-------------------------------------|---|------------|
| Construction Cost           | (A/D%)   | (B/D%)                              | (C/D%)  |            |
| Direct Construction Cost    | (A/D%)   | (B/D%)                              | (C/D%)  |            |
| others                      | (A/D%)   | (B/D%)                              | (C/D%)  |            |
| Equipment Cost              | (A/D%)   | (B/D%)                              | (C/D%)  |            |
| Design and Supervision Cost | (A/D%)   | (B/D%)                              | (C/D%)  |            |
| Total                       | (A/D%)   | (B/D%)                              | (C/D%)  |            |

## Major Undertakings to be taken by the Government of Uganda

**Specific obligations of the Government of Uganda which will not be funded with the Grant**

## (1) Before the Tender

| NO | Items  | Deadline   | In charge    | Estimated Cost | Ref. |
|----|--|--|--------------|----------------|------|
| 1  | To open bank account (B/A)   | within 1 month after the signing of the G/A      | MOH          |                |      |
| 2  | To issue A/P to a bank in Japan (the Agent Bank) for the payment to the consultant   | within 1 month after the signing of the contract | MOH          |                |      |
| 3  | To provide alternative space for the services carried out in the facilities to be demolished during construction period.   | before start of demolition                       | RRHs         |                |      |
| 4  | To secure and clear land for ;<br>1) the construction areas<br>2) the area for temporary office, temporary store and working shade, stock yard for materials and concrete mixing space   | before notice of the bidding document            | RRHs         |                |      |
| 5  | To obtain the planning, zoning, building permit  | before notice of the bidding document            | MOH and RRHs |                |      |
| 6  | To clear, level and reclaim the following sites at the construction areas including their foundations<br><br>1) the existing buildings<br>2) all existing trees<br>3) the existing sewerage pipes, manholes, water supply pipes, underground electric cables<br>4) any other obstacles | before notice of the bidding document            | RRHs         |                |      |
| 7  | To submit Project Monitoring Report (with the result of Detail Design)   | before preparation of bidding documents          | MOH          |                |      |

(B/A: Banking Arrangement, A/P: Authorization to pay, N/A: Not Applicable)

## (2) During the Project Implementation

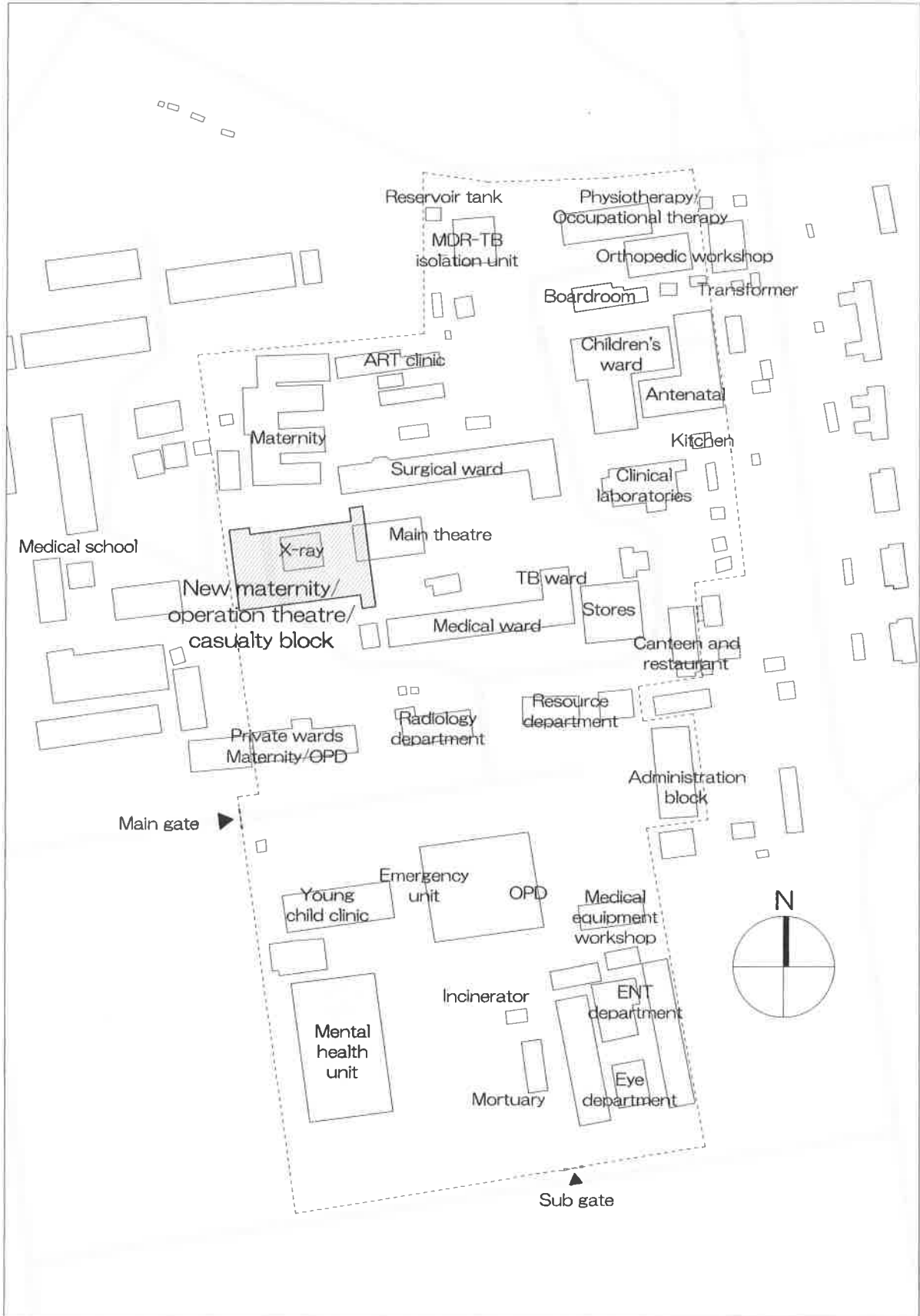
| NO | Items   | Deadline  | In charge    | Estimated Cost | Ref. |
|----|---|---|--------------|----------------|------|
| 1  | To issue A/P to a bank in Japan (the Agent Bank) for the payment to the Supplier(s)   | within 1 month after the signing of the contract(s)   | MOH          |                |      |
| 2  | To bear the following commissions to a bank in Japan for the banking services based upon the B/A  |   | MOH          |                |      |
|    | 1) Advising commission of A/P   | within 1 month after the signing of the contract(s)   | MOH          |                |      |
|    | 2) Payment commission for A/P   | every payment   | MOH          |                |      |
| 3  | To ensure prompt customs clearance and to assist the Supplier(s) with internal transportation in recipient country  | during the Project  | MOH          |                |      |
| 4  | To accord Japanese nationals and/or physical persons of third countries whose services may be required in connection with the supply of the products and the services such facilities as may be necessary for their entry into the country of the Recipient and stay therein for the performance of their work  | during the Project  | MOH          |                |      |
| 5  | To ensure that customs duties, internal taxes and other fiscal levies which may be imposed in the country of the Recipient with respect to the purchase of the products and/or the services shall be in accordance with the agreement to be concluded between the Government of Uganda and the Government of Japan. MOH shall take necessary measures according to the agreement. | during the Project  | MOH          |                |      |
| 6  | To bear all the expenses, other than those covered by the Grant, necessary for the implementation of the Project  | during the Project  | MOH and RRHs |                |      |
| 7  | To submit Project Monitoring Report   | every month   | MOH          |                |      |
|    | 1) To submit Project Monitoring Report (final)  | within one month after signing of Certificate of Completion for the works under the contract(s) | MOH          |                |      |
| 8  | To submit a report concerning completion of the Project   | within six months after completion of the Project   | MOH          |                |      |
| 9  | To conduct necessary pre-installation works in the case of installing new equipment in the existing buildings   | before installation of equipment  | RRHs         |                |      |
| 10 | To provide facilities for distribution of electricity, water supply and drainage and other incidental facilities necessary for the implementation of the Project outside the sites  |   | RRHs         |                |      |
|    | 1) Electricity<br>- The distributing line and appropriate power supply to the buildings   | before start of the construction  | RRHs         |                |      |
|    | 2) Water Supply<br>- The water supply line and the appropriate water supply to the buildings  | 6 months before completion of the construction  | RRHs         |                |      |
|    | 3) Drainage<br>- The public sewer line and the appropriate drainage system to the buildings   | 6 months before completion of the construction  | RRHs         |                |      |
|    | 4) Furniture and Equipment<br>- general furniture and office equipment<br>- spare parts and consumables   | 1 month before completion of the construction   | RRHs         |                |      |
| 11 | To take necessary measure for safe construction and traffic control   | during the construction   | RRHs         |                |      |

(3) After the Project

| NO | Items  | Deadline                             | In charge    | Estimated Cost | Ref. |
|----|--|--------------------------------------|--------------|----------------|------|
| 1  | To maintain and use properly and effectively the facilities constructed and equipment provided under the Grant Aid<br>1) Allocation of maintenance cost<br>2) Operation and maintenance system<br>3) Routine check/Periodic inspection | After completion of the construction | MOH and RRHs |                |      |



Annex 9-1 Plot plan of facilities in Gulu RRH



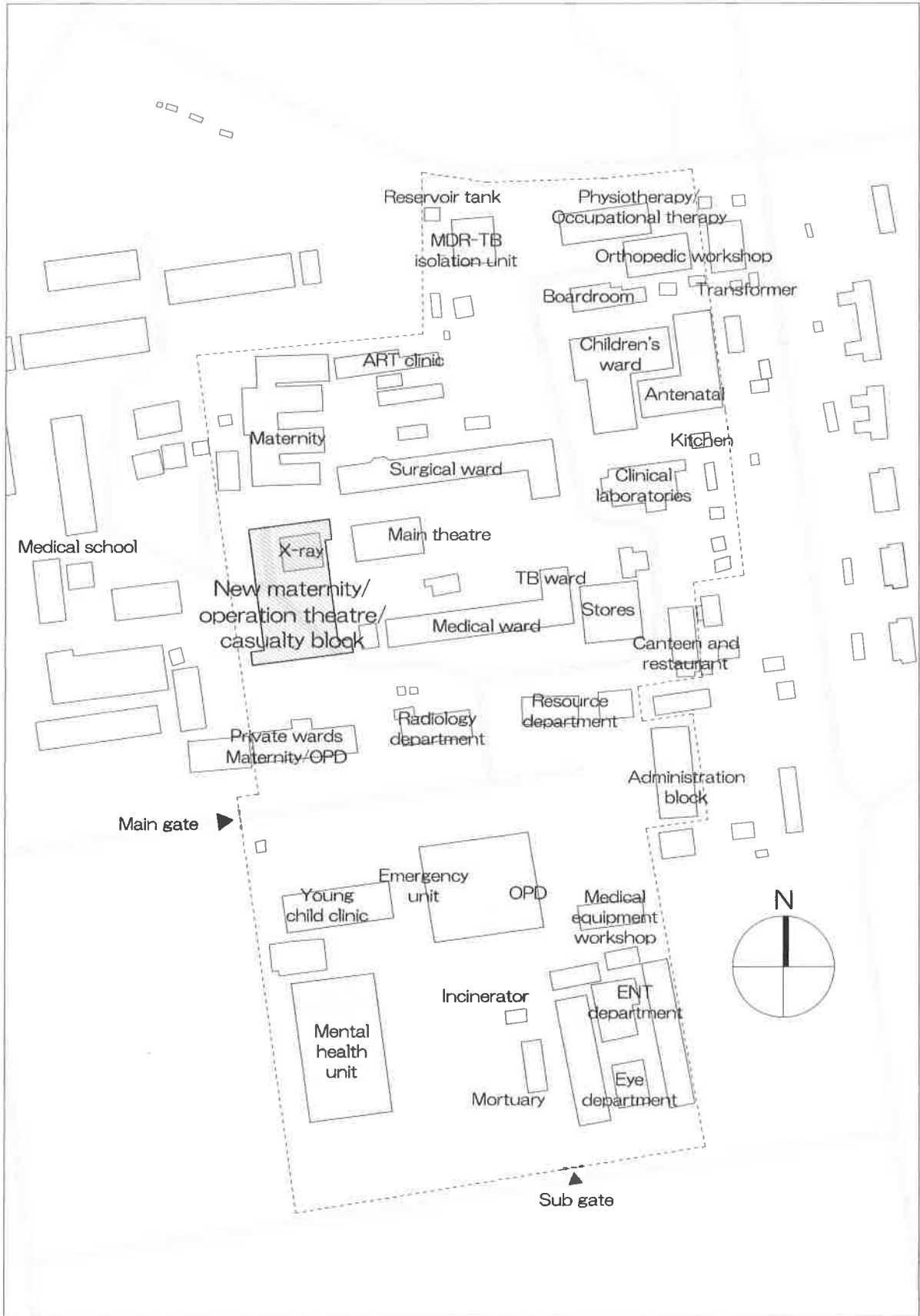
CONSULTANT  
 THE CONSORTIUM OF  
 YOKOGAWA ARCHITECTS & ENGINEERS, INC  
 AND INTEM CONSULTING, INC.  


PROJECT  
 THE PREPARATORY SURVEY FOR  
 THE PROJECT FOR IMPROVEMENT OF  
 REGIONAL REFERRAL HOSPITALS  
 IN NORTHERN UGANDA

TITLE  
 MATERNITY/OPERATION  
 THEATRE/CASUALTY BLOCK  
 LAYOUT - OPTION A  
 DATE: 2017.02 SITE: GULU RRH

DRAWING NO  
 SCALE  
 1:1,500





CONSULTANT  
 THE CONSORTIUM OF  
 YOKOGAWA ARCHITECTS & ENGINEERS, INC  
 AND ITEM CONSULTING, INC.  

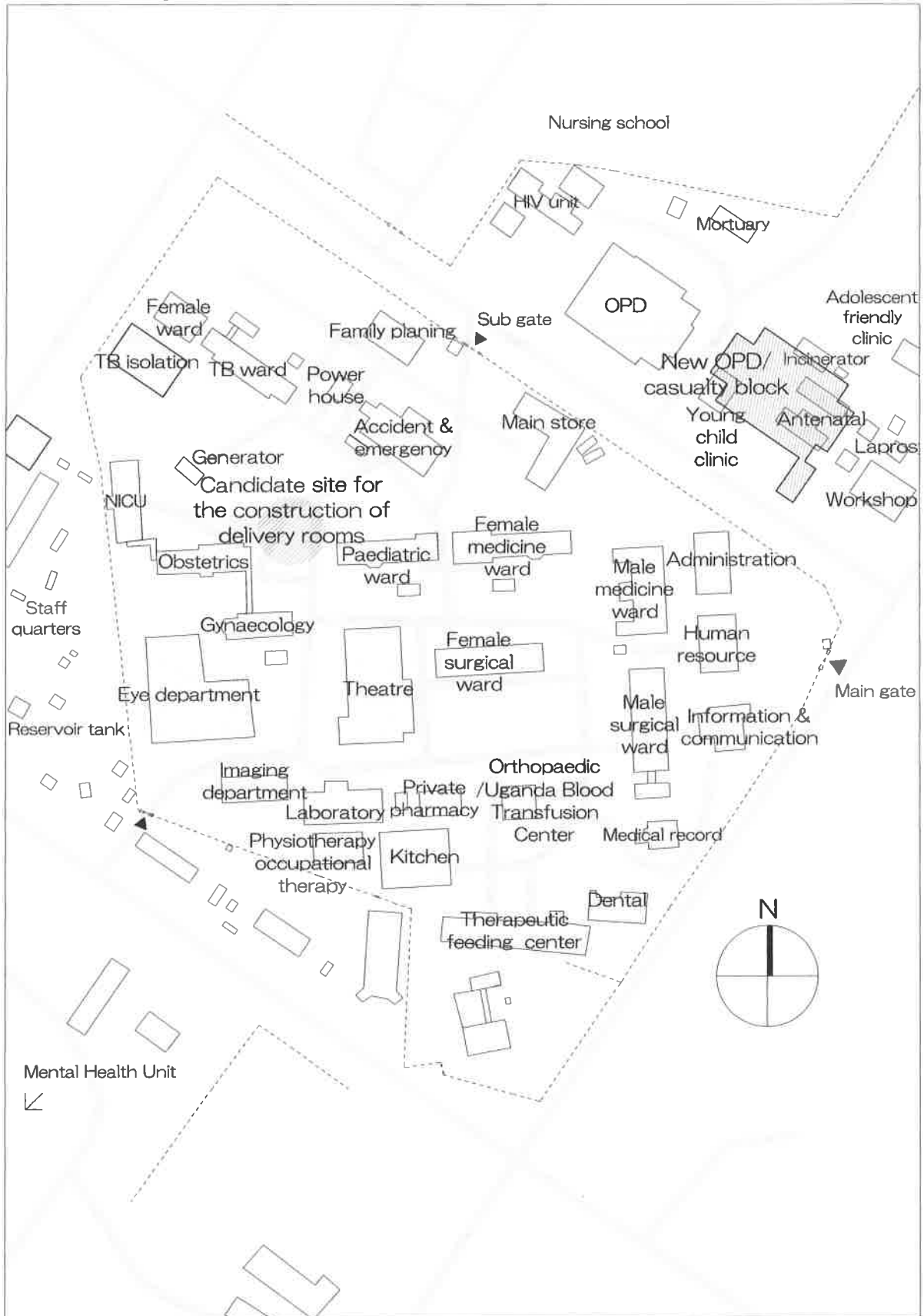

PROJECT  
 THE PREPARATORY SURVEY FOR  
 THE PROJECT FOR IMPROVEMENT OF  
 REGIONAL REFERRAL HOSPITALS  
 IN NORTHERN UGANDA

TITLE MATERNITY/OPERATION  
 THEATRE/CASUALTY BLOCK  
 LAYOUT - OPTION B  
 DATE: 2017.02 SITE: GULU RRH

DRAWING NO  
 SCALE 1:1,500

*[Handwritten signatures and initials]*

Annex 9-2 Plot plan of facilities in Lira RRH

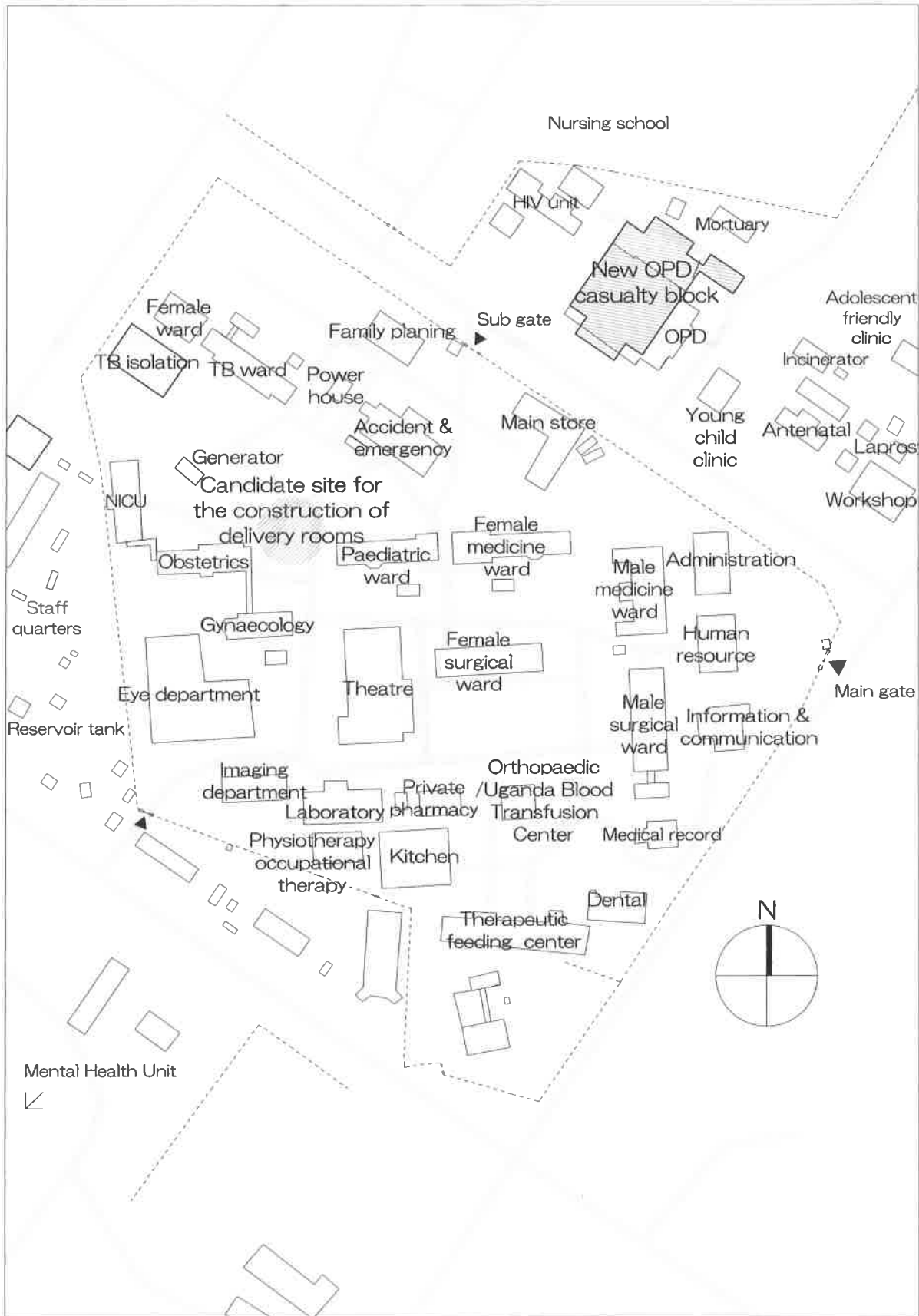


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 AND INTEM CONSULTING, INC.  
 YOKOGAWA ARCHITECTS & ENGINEERS, INC. INTERTOP

PROJECT  
 THE PREPARATORY SURVEY FOR  
 THE PROJECT FOR IMPROVEMENT OF  
 REGIONAL REFERRAL HOSPITALS  
 IN NORTHERN UGANDA

|       |   |            |
|-------|---|------------|
| TITLE | OPD/CASUALTY BLOCK<br>LAYOUT - OPTION A | DRAWING NO |
| DATE  | 2017.02                                 | SCALE      |
| SITE  | LIRA RRH                                | 1:1,500    |

*[Handwritten signatures and initials]*



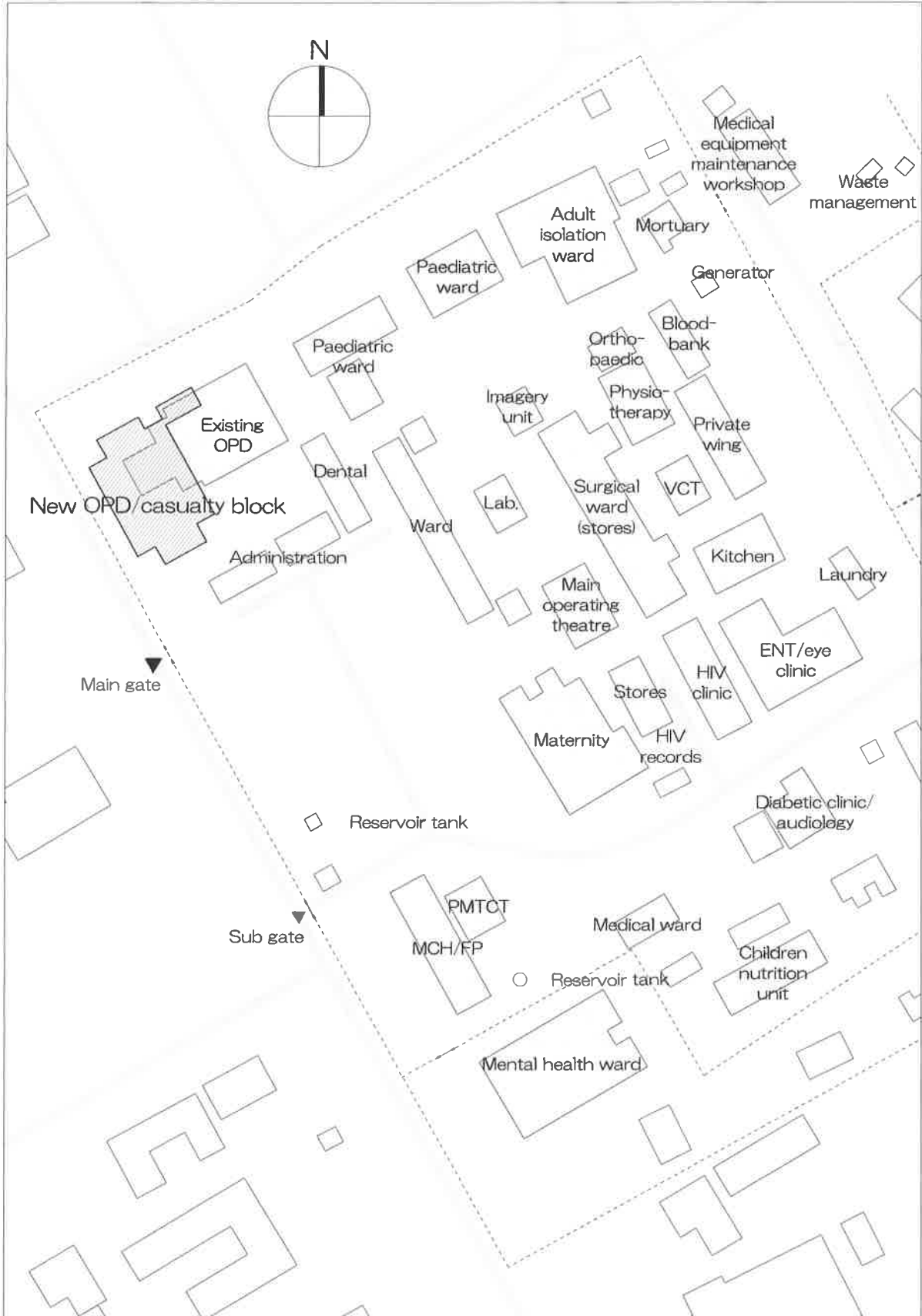
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YOKOGAWA ARCHITECTS & ENGINEERS, INC. 

PROJECT  
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 THE PROJECT FOR IMPROVEMENT OF  
 REGIONAL REFERRAL HOSPITALS  
 IN NORTHERN UGANDA.

|       |   |       |            |
|-------|---|-------|------------|
| TITLE | OPD/CASUALTY BLOCK<br>LAYOUT - OPTION B |       | DRAWING NO |
| DATE  | 2017.02                                 | SITE  | LIRA RRH   |
|       |   | SCALE | 1:1,500    |

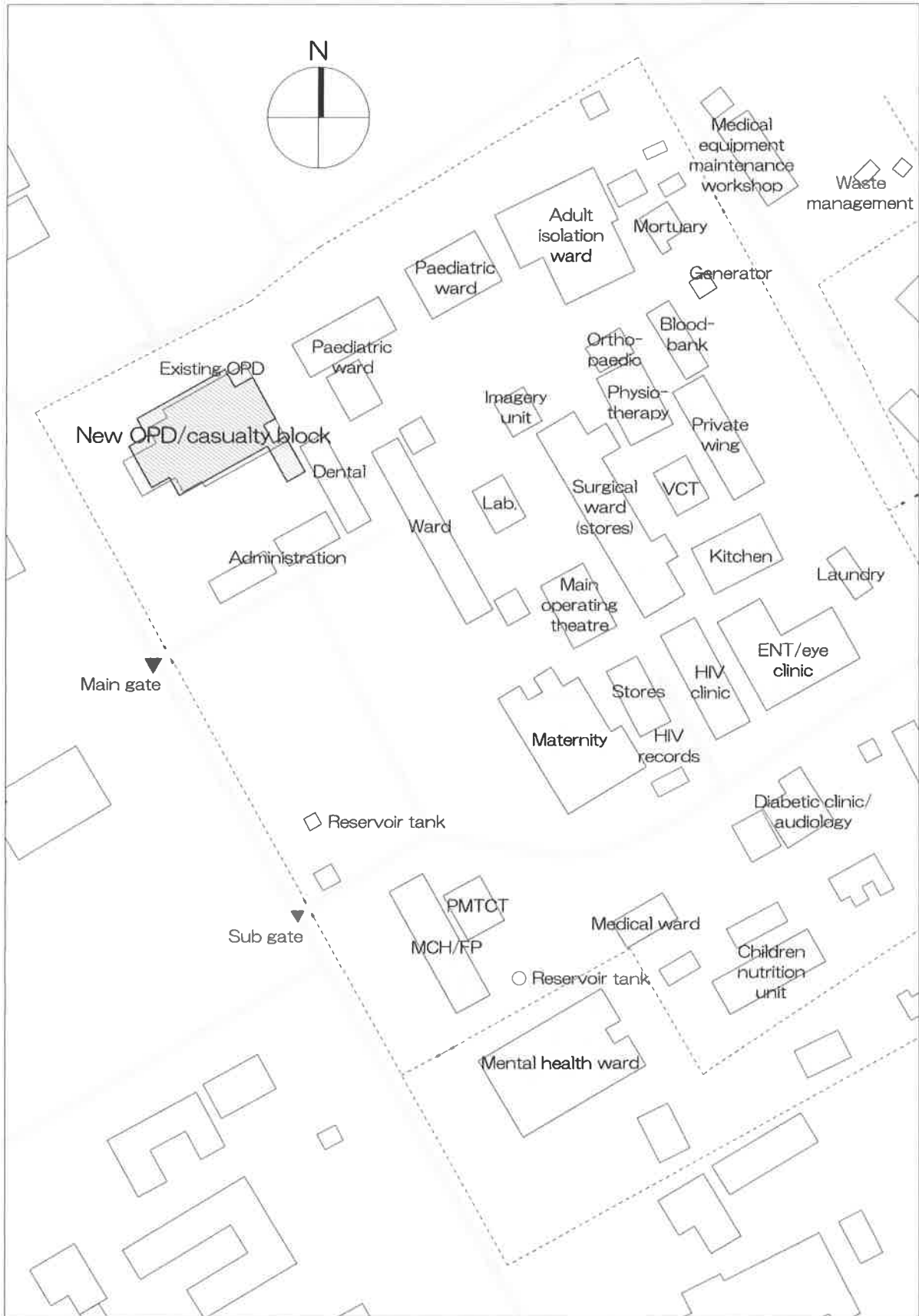
Annex 9-3 Plot plan of facilities in Arua RRH



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 REGIONAL REFERRAL HOSPITALS  
 IN NORTHERN UGANDA

|       |   |             |
|-------|---|-------------|
| TITLE | OPD/CASUALTY BLOCK<br>LAYOUT - OPTION A | DRAWING NO. |
| DATE  | 2017.02                                 | SCALE       |
| SITE  | ARUA RRH                                | 1:1,500     |



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 THE PROJECT FOR IMPROVEMENT OF  
 REGIONAL REFERRAL HOSPITALS  
 IN NORTHERN UGANDA

|       |   |             |
|-------|---|-------------|
| TITLE | OPD/CASUALTY BLOCK<br>LAYOUT - OPTION B | DRAWING NO. |
| DATE: | 2017.02                                 | SCALE       |
| SITE  | ARUA RRH                                | 1:1,500     |

THE PROJECT FOR IMPROVEMENT OF REGIONAL REFERRAL HOSPITALS  
IN NORTHERN UGANDA IN THE REPUBLIC OF UGANDA

PREPARATORY SURVEY 2 FOR FACILITY BETWEEN  
GULU REGIONAL REFERRAL HOSPITAL AND CONSULTANT

Memorandum

The memorandum records the results of the preparatory survey for facility planning held between Gulu Regional Referral Hospital ("Gulu RRH") and the Preparatory Survey Team ("the Team") for the Project for Improvement of Regional Referral Hospital in Northern Uganda, in the Republic of Uganda.

The preparatory survey for facilities was held at Gulu RRH, from 20<sup>th</sup> to 22<sup>nd</sup> February, 2017. As the result of the discussion, both sides have confirmed the main items described below:

1. Final Requested Facility

Both sides confirmed the final requested facility is the Maternity / Theatre / Casualty Block including:

- 1) 75 to 81 patient beds,
- 2) six delivery rooms,
- 3) a kangaroo care room,
- 4) a NICU in the Maternity Ward,
- 5) a surgical operation room,
- 6) an orthopaedic operation room,
- 7) an obstetrics/gynaecology operation room, and
- 8) a recovery space, in the Operation Theatre, ✓
- 9) a resuscitation room for 12 to 15 beds,
- 10) a triage room/clinic, and
- 11) a minor operation theatre connected to the Operation Theatre, in the Casualty Unit, and
- 12) an ICU for four to six beds,
- 13) CSSD adjacent to the Operation Theatre and also accessible from other departments, and
- 14) a connection corridor between the new building and the imagery building.

The Team will explain the final facility plan in the Explanation of Draft Final Report (DOD) to Ugandan side.

2. Minutes of the meeting held on 21<sup>st</sup> and 22<sup>nd</sup> February 2017

- 1) The Hospital approved to use part of its land in front of the Mental Unit for temporary office, temporary store and working shade, stock yard for materials and concrete mixing space.
- 2) The Hospital approved to use the existing gate at Mental Health Unit for construction activities.
- 3) The Contractor will deploy two guards to control construction traffic, in order to ensure safety of the patients, their attendants, and Hospital staff.
- 4) The Contractor will construct a temporary fence at the construction site and temporary storage area to ensure safety of the patients, their attendants, and Hospital staff.
- 5) The Hospital will demolish the existing old X-Ray building including its foundation before the



65







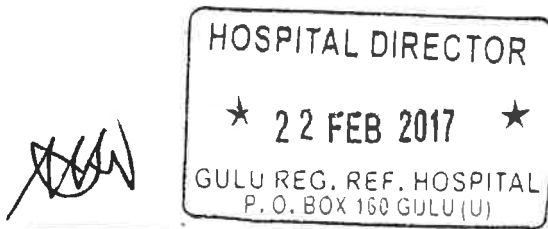




commencement of construction works

- 6) The Hospital will demolish the following buildings including their foundations before commencement of construction works in case they are to be obstacles for the works:
  - a. existing main operation theatre,
  - b. existing toilet facility for medical ward, and
  - c. existing store next to toilet facility for medical ward.
- 7) The Hospital will demolish the following before commencement of construction works:
  - a. all existing trees at the construction area,
  - b. existing sewerage pipes, manholes, water supply pipes, underground electric cables, and
  - c. any other obstacles.
- 8) The Hospital approved to stop using the open burning pit near the incinerator.
- 9) The Hospital requested the Project to install rain water harvesting tanks.
- 10) The Hospital agreed to connect the sewer line from the new building to the existing public sewer line.
- 11) A new electric pole, transformer and protection circuit will be installed by the Japanese side.
- 12) The Hospital requested the Project to install solar water heater for the new building.
- 13) The Ministry of Health requested the Project to install a solar electric system (power back up) for the new building.
- 14) The Hospital requested the Project to install manifold system for oxygen supply.
- 15) The Hospital approved to connect the existing water supply line to the new building.

Gulu, 22<sup>nd</sup> February, 2017



Dr. Onyachi Nathan  
Hospital Director  
Gulu Regional Referral Hospital  
The Republic of Uganda

Mr. Keiichi IDE  
Project Manager, Preparatory Survey Team  
The Consortium of the Yokogawa Architects &  
Engineers, Inc. and INTEM Consulting, Inc.

Witness

Samuel Tsubira  
Engineer  
Ministry of Health



THE PROJECT FOR IMPROVEMENT OF REGIONAL REFERRAL HOSPITALS  
IN NORTHERN UGANDA IN THE REPUBLIC OF UGANDA

PREPARATORY SURVEY 2 FOR EQUIPMENT BETWEEN  
GULU REGIONAL REFERRAL HOSPITAL AND CONSULTANT

Memorandum

The memorandum records the results of the preparatory survey for equipment planning held between Gulu Regional Referral Hospital ("Gulu RRH") and the Preparatory Survey Team. ("the Team") for the Project for Improvement of Regional Referral Hospital in Northern Uganda, in the Republic of Uganda.

The preparatory survey for equipment was held at Gulu RRH, from 17<sup>th</sup> to 22<sup>nd</sup> February, 2017. As the result of the discussion, both sides have confirmed the main items described bellow.

1. Final Requested Equipment List

Both side confirmed the final requested equipment list with priority from Gulu RRH. The Team will analyze the final requested equipment list in Japan and plan the component of equipment for the project. The Team will explain the final equipment plan in the Explanation of Draft Final Report to Ugandan side. The final requested equipment list is referred to the Attachment 1.

2. Undertaking by Ugandan Side



Both side confirmed the following would be undertaking of the Government of Uganda;

- (1) Dental: To remove existing dental unit, and provide appropriate water supply and drainage.
- (2) Laboratory: To remove existing biosafety cabinet.
- (3) Imagery: To prepare rooms for imagery machines including X-ray protection wall, X-ray protection window and AC, and provide appropriate power supply in case of the project includes imagery equipment.
- (4) Physiotherapy: To remove existing equipment adapting and renovate existing room if necessary.
- (5) Orthopedic workshop: To remove existing equipment, supply appropriate power supply and renovate existing building if necessary.
- (6) Pharmacy: To remove existing wooden shelves at the candidate inpatient pharmacy.
- (7) Other department which use existing rooms: To prepare appropriate space and power supply.


3. Attendance List

The preparatory survey was held with attendance of staff from Gulu RRH as in Attachment 2.

Gulu, 23 February, 2017

   
Hicatala 67

 **HOSPITAL DIRECTOR**  
★ 23 FEB 2017 ★  
GULU REG. REF. HOSPITAL  
P. O. BOX 160 GULU (U)

Dr. Onyachi Nathan  
Hospital Director  
Gulu Regional Referral Hospital  
The Republic of Uganda

for 

Mr. Keiichi IDE  
Project Manager, Preparatory Survey Team  
The Consortium of the Yokogawa Architects &  
Engineers, Inc. and INTEM Consulting, Inc.

Witness



Eng. Kataha Edward  
Principal Electrical Engineer  
Ministry of Health

GULU RRH

Attachment 1. Final Requested Equipment List

| Requested No.             | No. in Dep | Equipment Name                      | Q'ty | Priority |
|---------------------------|------------|-------------------------------------|------|----------|
| <b>OUT PATIENT</b>        |            |                                     |      |          |
| 1                         | 1          | BP machines                         | 8    | 1        |
| 2                         | 2          | weighing scales adult               | 5    | 2        |
| 3                         | 3          | weighing scales children            | 1    | 3        |
| 4                         | 4          | Height meters                       | 5    | 6        |
| 5                         | 5          | Autoclaves                          | 1    | 5        |
| 6                         | 6          | Pulse oximeters                     | 8    | 7        |
| 7                         | 7          | Thermometers                        | 8    | 8        |
| 8                         | 8          | Examination lights                  | 8    | 4        |
| <b>EMERGENCY UNIT</b>     |            |                                     |      |          |
| 9                         | 1          | BP machine                          | 6    | 10       |
| 10                        | 2          | Stethoscopes                        | 6    | 11       |
| 11                        | 3          | Weighing scales infant              | 1    | 12       |
| 12                        | 4          | Thermometers                        | 6    | 13       |
| 13                        | 5          | Pulse Oximeters                     | 6    | 9        |
| 14                        | 6          | Oxygen Cylinder Set                 | 5    | 5        |
| 15                        | 7          | Suction machines                    | 3    | 3        |
| 16                        | 8          | Mobile X-ray                        | 1    | 1        |
| 17                        | 9          | Ultrasound machine                  | 1    | 2        |
| 18                        | 10         | X-ray film viewer boxes             | 1    | 17       |
| 19                        | 11         | Examination light                   | 2    | 18       |
| 20                        | 12         | Infusions Pumps                     | 4    | 19       |
| 21                        | 13         | Patient monitor                     | 3    | 6        |
| 22                        | 14         | Suction machine manual              | 3    | 4        |
| 23                        | 15         | Operation light (mobile)            | 1    | 16       |
| 24                        | 16         | Syringe pump                        | 2    | 20       |
| 25                        | 17         | Emergency bed                       | 4    | 15       |
| 26                        | 18         | Operation Table                     | 1    | 14       |
| 27                        | 19         | Ambu bag                            | 1    | 21       |
| 28                        | 20         | Cervical spine fixed color          | 2    | 22       |
| 29                        | 21         | Patient trolley                     | 2    | 8        |
| 30                        | 22         | Wheel chair                         | 3    | 7        |
| <b>OPERATING THEATRE</b>  |            |                                     |      |          |
| 31                        | 1          | Anesthetic machines                 | 1    | 1        |
| 32                        | 2          | Operating lights                    | 3    | 2        |
| 33                        | 3          | Patient monitor                     | 4    | 4        |
| 34                        | 4          | Oxygen Cylinder Set                 | 2    | 7        |
| 35                        | 5          | Suction machines                    | 3    | 5        |
| 36                        | 6          | Weighing scales set                 | 1    | 15       |
| 37                        | 7          | Operating Beds                      | 3    | 3        |
| 38                        | 8          | Electro surgery machines            | 3    | 8        |
| 39                        | 9          | Defibrillators                      | 1    | 9        |
| 40                        | 10         | Refrigerator                        | 1    | 10       |
| 41                        | 11         | Operating light (mobile)            | 2    | 14       |
| 42                        | 12         | Patient trolley                     | 5    | 11       |
| 43                        | 13         | Syringe pump                        | 2    | 6        |
| 44                        | 14         | Instrument trolley                  | 3    | 12       |
| 45                        | 15         | Mayo table                          | 3    | 12       |
| 46                        | 16         | Instrument set for OT               | 1    | 13       |
| <b>IMAGING DEPARTMENT</b> |            |                                     |      |          |
| 47                        | 1          | General mounted X-ray machine       | 1    | 1        |
| 48                        | 2          | Mobile X-ray                        | 1    | 5        |
| 49                        | 3          | CR machines                         | 1    | 2        |
| 50                        | 4          | Mammography X-ray machine           | 1    | 9        |
| 51                        | 5          | CT Scan                             | 1    | 4        |
| 52                        | 6          | Ultrasound machine                  | 1    | 6        |
| 53                        | 7          | ECG                                 | 1    | 7        |
| 54                        | 8          | Eco - cardiogram ultrasound machine | 1    | 3        |
| 55                        | 9          | X-ray viewing boxes                 | 10   | 10       |
| 56                        | 10         | Fluoroscopy X-ray machine           | 1    | 8        |
| <b>ICU</b>                |            |                                     |      |          |
| 57                        | 1          | ICU bed                             | 4-6  | 2        |
| 58                        | 2          | Vital monitors                      | 2    | 3        |
| 59                        | 3          | Suction machines                    | 1    | 5        |
| 60                        | 4          | Oxygen cylinder set                 | 1    | 4        |

GULU RRH

| Requested No.           | No. in Dep | Equipment Name                    | Q'ty | Priority |
|-------------------------|------------|-----------------------------------|------|----------|
| 61                      | 5          | Autoclaves                        | 1    | 6        |
| 62                      | 6          | Infusion pumps                    | 1    | 7        |
| 63                      | 7          | Ventilator                        | 1    | 1        |
| 64                      | 8          | Ambu bag                          | 1    | 8        |
| 65                      | 9          | Nebulizer                         | 1    | 9        |
| <b>NICU</b>             |            |                                   |      |          |
| 66                      | 1          | Infants incubators                | 5    | 1        |
| 67                      | 2          | Photo therapy units               | 1    | 5        |
| 68                      | 3          | Patient monitor                   | 1    | 8        |
| 69                      | 4          | Infusion Pumps                    | 1    | 7        |
| 70                      | 5          | Pulse oximeters                   | 2    | 3        |
| 71                      | 6          | Infant warmer                     | 1    | 4        |
| 72                      | 7          | Examination lamp                  | 2    | 6        |
| 73                      | 8          | Oxygen cylinder set               | 1    | 2        |
| 74                      | 9          | BP machine for infant             | 2    | 9        |
| <b>OB&amp;GY</b>        |            |                                   |      |          |
| 75                      | 1          | Examination Bed for Gyn           | 3    | 12       |
| 76                      | 2          | Examination beds                  | 4    | 13       |
| 77                      | 3          | Ultrasound machines               | 2    | 9        |
| 78                      | 4          | Doppler Fetoscope                 | 3    | 11       |
| 79                      | 5          | Autoclaves                        | 1    | 2        |
| 80                      | 6          | Cryo-therapy machine              | 1    | 3        |
| 81                      | 7          | Oxygen cylinder set               | 4    | 5        |
| 82                      | 8          | Suction machines                  | 4    | 6        |
| 83                      | 9          | Delivery bed                      | 6    | 1        |
| 84                      | 10         | Fetal monitor                     | 1    | 14       |
| 85                      | 11         | Vacuum extractor (manual)         | 2    | 4        |
| 86                      | 12         | Patient monitor                   | 2    | 8        |
| 87                      | 13         | Infant warmer                     | 2    | 10       |
| 88                      | 14         | Patient trolley                   | 4    | 7        |
| 89                      | 15         | Corpo scope                       | 1    | 15       |
| 90                      | 16         | Speculum set                      | 20   | 17       |
| 91                      | 17         | Curettage Instrument set          | 5    | 16       |
| 92                      | 18         | LEEP machine                      | 1    | 18       |
| <b>PAEDIATRICS</b>      |            |                                   |      |          |
| 93                      | 1          | Oxygen cylinder set               | 10   | 1        |
| 94                      | 2          | weighing scales infants           | 4    | 8        |
| 95                      | 3          | Infusion pumps                    | 4    | 4        |
| 96                      | 4          | Patient Monitor                   | 1    | 2        |
| 97                      | 5          | Stethoscopes                      | 5    | 7        |
| 98                      | 6          | Examination lights                | 3    | 9        |
| 99                      | 7          | Infant BP machines                | 3    | 6        |
| 100                     | 8          | Nebulizer                         | 2    | 3        |
| 101                     | 9          | Gluko meter                       | 1    | 5        |
| <b>CSSD and LAUNDRY</b> |            |                                   |      |          |
| 102                     | 1          | Big Autoclaves                    | 1    | 1        |
| 103                     | 2          | Laundry machine                   | 1    | 2        |
| 104                     | 3          | Ironing machine                   | 1    | 3        |
| 105                     | 4          | Dryers                            | 1    | 4        |
| 106                     | 5          | Working table for CSSD            | 1    | 7        |
| 107                     | 6          | Laundry trolley                   | 1    | 5        |
| 108                     | 7          | Storage cabinet                   | 1    | 6        |
| <b>ENT</b>              |            |                                   |      |          |
| 109                     | 1          | Tonsillectomy set                 | 2    | 1        |
| 110                     | 2          | Adenoidectomy set                 | 2    | 2        |
| 111                     | 3          | Laryngoscopy set                  | 1    | 3        |
| 112                     | 4          | Caldwell luc set                  | 1    | 4        |
| 113                     | 5          | Tracheostomy set                  | 1    | 13       |
| 114                     | 6          | Suction machines                  | 2    | 7        |
| 115                     | 7          | Operating Microscopes             | 1    | 9        |
| 116                     | 8          | Middle ear set                    | 1    | 10       |
| 117                     | 9          | Mastoid drill                     | 1    | 11       |
| 118                     | 10         | Esophagoscopy                     | 1    | 6        |
| 119                     | 11         | Bronchoscopy for children         | 1    | 5        |
| 120                     | 12         | Tympanometer                      | 1    | 8        |
| 121                     | 13         | Acoustic Emission Testing machine | 1    | 12       |

GULU RRH

| Requested No.            | No. in Dep | Equipment Name              | Q'ty | Priority |
|--------------------------|------------|-----------------------------|------|----------|
| 122                      | 14         | Walsham forceps             | 1    | 14       |
| <b>LABORATORY</b>        |            |                             |      |          |
| 123                      | 1          | Binocular microscopes       | 2    | 5        |
| 124                      | 2          | Centrifuge                  | 3    | 11       |
| 125                      | 3          | Fridges                     | 2    | 1        |
| 126                      | 4          | Glucometer                  | 3    | 10       |
| 127                      | 5          | Water bath                  | 1    | 11       |
| 128                      | 6          | Incubators                  | 1    | 12       |
| 129                      | 7          | Safety cabinets             | 1    | 13       |
| 130                      | 8          | shakers                     | 3    | 14       |
| 131                      | 9          | Pipette                     | 5    | 9        |
| 132                      | 10         | Heamometers                 | 1    | 15       |
| 133                      | 11         | Water distiller             | 1    | 8        |
| 134                      | 12         | Chemistry analyzer          | 1    | 16       |
| 135                      | 13         | Autoclaves                  | 1    | 6        |
| 136                      | 14         | Hot air oven                | 1    | 7        |
| 137                      | 15         | Deep freezer                | 1    | 2        |
| 138                      | 16         | Blood bank refrigerator     | 1    | 4        |
| 139                      | 17         | ELISA system with PCR       | 1    | 3        |
| 140                      | 18         | Electrolyte analyzer        | 1    | 5        |
| 141                      | 19         | Eye wash station            | 1    | 17       |
| 142                      | 20         | GeneXpert                   | 1    | 18       |
| <b>DENTAL</b>            |            |                             |      |          |
| 143                      | 1          | Dental unit                 | 3    | 1        |
| 144                      | 2          | Dental X-ray                | 1    | 2        |
| 145                      | 3          | Dental instrument sets      | 1    | 3        |
| 146                      | 4          | Light Curing machines       | 1    | 4        |
| 147                      | 5          | Intra oral cameras          | 1    | 7        |
| 148                      | 6          | Pulp Tester                 | 1    | 5        |
| 149                      | 7          | Dental laboratory equipment | 1    | 8        |
| 150                      | 8          | Autoclaves                  | 1    | 6        |
| <b>PHARMACY</b>          |            |                             |      |          |
| 151                      | 1          | Drugs shelves               | 1    | 4        |
| 152                      | 2          | Drugs fridges               | 4    | 1        |
| 153                      | 3          | Dispensing tray             | 6    | 5        |
| 154                      | 4          | Drug trolley                | 5    | 3        |
| 155                      | 5          | Cupboard                    | 2    | 2        |
| <b>SURGICAL WARD</b>     |            |                             |      |          |
| 156                      | 1          | Oxygen cylinder set         | 3    | 2        |
| 157                      | 2          | Vital monitors              | 2    | 4        |
| 158                      | 3          | Autoclaves                  | 1    | 1        |
| 159                      | 4          | Examination lights          | 2    | 6        |
| 160                      | 5          | BP machines                 | 2    | 9        |
| 161                      | 6          | Suction machine             | 2    | 3        |
| 162                      | 7          | Patient trolley             | 2    | 11       |
| 163                      | 8          | Drum set                    | 2    | 5        |
| 164                      | 9          | Diagnosis set               | 1    | 7        |
| 165                      | 10         | Weighing scale              | 1    | 10       |
| 166                      | 11         | Pulse oximeter              | 1    | 8        |
| <b>INTERNAL MEDICINE</b> |            |                             |      |          |
| 167                      | 1          | Endoscopy unit              | 1    | 12       |
| 168                      | 2          | BP machine                  | 4    | 7        |
| 169                      | 3          | Weighing scales             | 3    | 11       |
| 170                      | 4          | Pulse oximeter              | 2    | 9        |
| 171                      | 5          | Portable ultrasound machine | 1    | 3        |
| 172                      | 6          | Oxygen cylinder set         | 6    | 1        |
| 173                      | 7          | Nebulizer                   | 4    | 2        |
| 174                      | 8          | Diagnosis set               | 2    | 8        |
| 175                      | 9          | Infusion pumps              | 1    | 10       |
| 176                      | 10         | Patient trolley             | 4    | 6        |
| 177                      | 11         | Wheel chair                 | 4    | 14       |
| 178                      | 12         | Fibroscan                   | 1    | 4        |
| 179                      | 13         | Medicine trolley            | 4    | 5        |
| 180                      | 14         | Suction machine             | 2    | 15       |
| 181                      | 15         | Ventilator                  | 1    | 13       |

GULU RRH

| Requested No.                   | No. in Dep | Equipment Name                                 | Q'ty | Priority   |
|---------------------------------|------------|--|------|------------|
| <b>AMBULANCE</b>                |            |  |      |            |
| 182                             | 1          | Ambulance                                      | 1    |            |
| <b>ORTHOPEDIC CLINICAL</b>      |            |  |      |            |
| 183                             | 1          | Plaster shear Manual                           | 2    | 2          |
| 184                             | 2          | Plaster shear (electrical)                     | 1    | 1          |
| 185                             | 3          | Plaster opener                                 | 2    | 4          |
| 186                             | 4          | Plaster bender                                 | 2    | 6          |
| 187                             | 5          | Splint set                                     | 1    | 3          |
| 188                             | 6          | Operating Fracture bed                         | 1    | 7          |
| 189                             | 7          | C-Arm  | 1    | 5          |
| 190                             | 8          | Film viewer                                    | 1    | 8          |
| <b>PHYSIOTHERAPY</b>            |            |  |      |            |
| <b>Electro therapy Section</b>  |            |  |      |            |
| 191                             | 1          | UV Lamp  | 2    | 13(1A, 1B) |
| 192                             | 2          | Therapeutic ultrasound                         | 2    | 2(1A, 1B)  |
| 193                             | 3          | Short wave diathermy                           | 1    | 3          |
| 194                             | 4          | TENS   | 1    | 11         |
| 195                             | 5          | EMS  | 1    | 15         |
| 196                             | 6          | Infra-Red Radiation lamps                      | 2    | 4          |
| 197                             | 7          | Electrical massager                            | 2    | 12         |
| <b>Manipulative therapy</b>     |            |  |      |            |
| 198                             | 8          | Traction machines (Cervical and lumber)        | 1    | 1          |
| 199                             | 9          | Therapeutic Massage beds                       | 3    | 5          |
| <b>Exercise therapy section</b> |            |  |      |            |
| 200                             | 10         | Tread mill                                     | 2    | 6          |
| 201                             | 11         | Pulley systems                                 | 1    | 16         |
| 202                             | 12         | Suspension bed                                 | 1    | 17         |
| 203                             | 13         | Muscle strengthening weights                   | 2    | 18         |
| 204                             | 14         | Therapeutic mats                               | 3    | 19         |
| 205                             | 15         | Postural mirror                                | 1    | 20         |
| 206                             | 16         | Hand exercise equipment                        | 1    | 24         |
| 207                             | 17         | Shoulder wheels                                | 1    | 25         |
| 208                             | 18         | stationary bikes, - adult                      | 2    | 8          |
| 209                             | 19         | Stationary bikes - children                    | 1    | 9          |
| 210                             | 20         | Quadriceps bench with accessories like weights | 1    | 7          |
| 211                             | 21         | Bo baths balls different sizes                 | 1    | 10         |
| 212                             | 22         | Stares adult                                   | 1    | 26         |
| 213                             | 23         | Stares children                                | 1    | 27         |
| 214                             | 24         | Parallel bars children                         | 1    | 28         |
| 215                             | 25         | Abdominal strengthening equipment              | 1    | 21         |
| <b>Hydrotherapy facilities</b>  |            |  |      |            |
| 216                             | 26         | Warm parks equipment                           | 2    | 22         |
| 217                             | 27         | Cold parks equipment                           | 2    | 23         |
| 218                             | 28         | Parallel bars adult                            | 1    | 29         |
| 219                             | 29         | Electrical Oscillatory manipulative bed        | 1    | 14         |
| <b>Orthopeadic workshop</b>     |            |  |      |            |
| 220                             | 1          | Jig saw  | 1    | 5          |
| 221                             | 2          | Heavy duty oven                                | 1    | 9          |
| 222                             | 3          | Rotor machine                                  | 1    | 1          |
| 223                             | 4          | Dust Suction machine                           | 2    | 3          |
| 224                             | 5          | Pressure compressor                            | 1    | 4          |
| 225                             | 6          | Vertical band saw                              | 1    | 12         |
| 226                             | 7          | Pipe bender                                    | 1    | 2          |
| 227                             | 8          | Hand drilling machine                          | 2    | 6          |
| 228                             | 9          | Vacuum machine                                 | 1    | 7          |
| 229                             | 10         | Automatic parallels bars                       | 1    | 10         |
| 230                             | 11         | Mirror   | 1    | 11         |
| 231                             | 12         | Polishing machine                              | 1    | 8          |
| <b>HOSPITAL WORKSHOP</b>        |            |  |      |            |
| 232                             | 1          | Carpentry tool box                             | 1    | 5          |
| 233                             | 2          | Plumbing tool box                              | 1    | 4          |
| 234                             | 3          | Oxygen gas analyzer                            | 2    | 7          |
| 235                             | 4          | Digital Multi-meter                            | 2    | 6          |
| 236                             | 5          | Welding generator                              | 1    | 2          |
| 237                             | 6          | Heavy Duty Engraving machine                   | 1    | 8          |
| 238                             | 7          | Electric safety analyzer machine               | 1    | 9          |

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GULU RRH

| Requested No.      | No. in Dep | Equipment Name                    | Q'ty | Priority |
|--------------------|------------|-----------------------------------|------|----------|
| 239                | 8          | Working mats for electronics      | 1    | 10       |
| 240                | 9          | Electronics tool box              | 2    | 1        |
| 241                | 10         | Mechanical tool box               | 2    | 3        |
| OPHTHALMOLOGY      |            |                                   |      |          |
| 242                | 1          | Operating Microscopes             | 1    | 1        |
| 243                | 2          | Slit lamp                         | 1    | 4        |
| 244                | 3          | Visual field analyzer (automated) | 1    | 2        |
| 245                | 4          | Hand held portable slit lamp      | 1    | 7        |
| 246                | 5          | Direct ophthalmoscope             | 3    | 8        |
| 247                | 6          | Parkins tomometer                 | 1    | 11       |
| 248                | 7          | Cataract set                      | 8    | 6        |
| 249                | 8          | Extra owler (lid surgery ) set    | 5    | 10       |
| 250                | 9          | Suction machines                  | 1    | 3        |
| 251                | 10         | Magnifying head loop              | 4    | 9        |
| 252                | 11         | Autorefracto meter                | 1    | 5        |
| MENTAL HEALTH CARE |            |                                   |      |          |
| 253                | 1          | BP machines                       | 3    | 1        |
| 254                | 2          | Weighing scale                    | 4    | 3        |
| 255                | 3          | Autoclaves                        | 1    | 2        |
| 256                | 4          | Drum set                          | 2    | 7        |
| 257                | 5          | Oxygen cylinder                   | 2    | 11       |
| 258                | 6          | ECT (Electroconvulsive Therapy)   | 1    | 6        |
| 259                | 7          | Pulse oximeter                    | 1    | 4        |
| 260                | 8          | Patient trolley                   | 2    | 5        |
| 261                | 9          | Examination bed                   | 3    | 10       |
| 262                | 10         | Infusion pump                     | 1    | 8        |
| 263                | 11         | Wheel chair                       | 2    | 9        |

THE PROJECT FOR IMPROVEMENT OF REGIONAL REFERRAL HOSPITALS  
IN NORTHERN UGANDA IN THE REPUBLIC OF UGANDA

PREPARATORY SURVEY 2 FOR FACILITY BETWEEN  
LIRA REGIONAL REFERRAL HOSPITAL AND CONSULTANT

Memorandum

The memorandum records the results of the preparatory survey for facility planning held between Lira Regional Referral Hospital ("Lira RRH") and the Preparatory Survey Team ("the Team") for the Project for Improvement of Regional Referral Hospital in Northern Uganda, in the Republic of Uganda.

The preparatory survey for facilities was held at Lira RRH, from 23<sup>rd</sup> – 27<sup>th</sup> February, 2017. As the result of the discussion, both sides have confirmed the main items described below:

1. Final Requested Facility

Both sides confirmed the final requested facility is the OPD, MCH, Casualty Block and Delivery unit complex including:

**OPD Complex**

- 1) Pharmacy/Dispensary
- 2) Satellite Laboratory
- 3) 2No. pediatric consultation rooms
- 4) Male consultation room
- 5) Female consultation room
- 6) Diabetic consultation room
- 7) Dental clinic
- 8) ENT clinic
- 9) MARPS room
- 10) Treatment room
- 11) Orthopedic consultation room
- 12) Physiotherapy/Occupational consultation room
- 13) 2No. specialized clinics.
- 14) MCH consultation rooms (office for in charge, palpation room with 6No. couches, treatment room, EID point treatment room, immunization room, family planning, cervical cancer screening)
- 15) X-Ray room, ultra sound room
- 16) Casualty (resuscitation room with 10 – 12 beds and minor operation theatre.)
- 17) Waiting space for MCH attached to OPD complex

Adolescent consultation room should be considered by Lira Hospital using existing nearby buildings.

**Delivery Complex**

- 1) 6No. delivery suites
- 2) New born baby room (NICU)
- 3) Sterilisation room
- 4) Nurse station
- 5) Changing/wash rooms for nurses

The Team will explain the final facility plan in the Explanation of Draft Final Report (DOD) to Ugandan side.

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2. Minutes of the meeting held on 23<sup>rd</sup> – 27<sup>th</sup> February 2017

- 1) The Hospital approved to use part of its land in front of the staff quarters for temporary office, temporary store and working shade, stock yard for materials and concrete mixing space.
- 2) The Hospital approved to establish a temporary gate for construction work at the west part of the Hospital land.
- 3) The Hospital will demolish the OPD building including its foundations before commencement of construction works.
- 4) The Hospital requested the Project to construct a new access road to the staff quarters along the temporary fence.
- 5) The Hospital will demolish the following before commencement of construction works:
  - a. All existing trees at the construction area,
  - b. Existing sewerage pipes, manholes, water supply pipes, underground electric cables.
  - c. Any other obstacles.
- 6) The Contractor will deploy guards to control construction traffic, ensure safety of the patients, their attendants and Hospital staff.
- 7) The Hospital requested the Project to install rain water harvesting tanks.
- 8) The Hospital approved to connect the sewer line from the new building to the existing sewer line.
- 9) A new electric pole, transformer and protection circuit will be installed by the Japanese side.
- 10) The Ministry of Health requested the Project to install a solar electric system (the power back up) for the new building.
- 11) The Hospital approved to connect the existing public water supply line to the new building.
- 12) The Hospital requested the Project to install Local Area Network (LAN) to the new building.

Lira 27<sup>th</sup> February, 2017



28/2/17

Dr. Elima James  
Hospital Director  
Lira Regional Referral Hospital  
The Republic of Uganda



Mr. Keiichi IDE  
Project Manager, Preparatory Survey Team  
The Consortium of the Yokogawa Architects &  
Engineers, Inc. and INTEM Consulting, Inc.

Witness



Samuel Tusubira  
Engineer  
Ministry of Health

THE PROJECT FOR IMPROVEMENT OF REGIONAL REFERRAL HOSPITALS  
IN NORTHERN UGANDA IN THE REPUBLIC OF UGANDA

PREPARATORY SURVEY 2 FOR EQUIPMENT BETWEEN  
LIRA REGIONAL REFERRAL HOSPITAL AND CONSULTANT

Memorandum

The memorandum records the results of the preparatory survey for equipment planning held between Lira Regional Referral Hospital (“Lira RRH”) and the Preparatory Survey Team. (“the Team”) for the Project for Improvement of Regional Referral Hospital in Northern Uganda, in the Republic of Uganda.

The preparatory survey for equipment was held at Lira RRH, from 23<sup>rd</sup> to 27<sup>th</sup> February, 2017. As the result of the discussion, both sides have confirmed the main items described below.

1. Final Requested Equipment List

Both side confirmed the final requested equipment list with priority from Lira RRH. The Team will analyze the final requested equipment list in Japan and plan the component of equipment for the project. The Team will explain the final equipment plan in the Explanation of Draft Final Report to Ugandan side. The final requested equipment list is referred to the Attachment 1.

2. Undertaking by Ugandan Side

Both side confirmed the following would be undertaking of the Government of Uganda;

- (1) Laundry: To renovate existing room for new machines if necessary, and supply appropriate power supply and water supply.
- (2) Sterilization unit in Main Operation Theatre: To prepare appropriate power supply, water supply and drainage.
- (3) Imagery: To construct wired LAN network from new building to existing buildings where Client PCs for CR system will be installed in case of CR system is included in the project.
- (4) Pathology: To renovate existing room for new machines if necessary, and supply appropriate power supply.
- (5) Other department which use existing rooms: To prepare appropriate space and power supply.

3. Attendance List

The preparatory survey was held with attendance of staff from Lira RRH as in Attachment 2.

Lira 27 March, 2017

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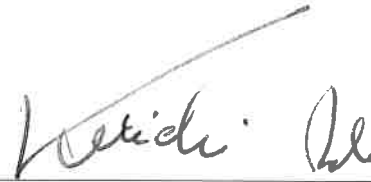




  
25/2/17

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Dr. Elima James  
Hospital Director  
Lira Regional Referral Hospital  
The Republic of Uganda



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Mr. Keiichi IDE  
Project Manager, Preparatory Survey Team  
The Consortium of the Yokogawa Architects &  
Engineers, Inc. and INTEM Consulting, Inc.

Witness



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Eng. Kataha Edward  
Principal Electrical Engineer  
Ministry of Health

LIRA RRH

| Requested No.                            | No. in Dep. | Equipment Name                    | Final Q'ty         | Final Priority |
|--|-------------|-----------------------------------|--------------------|----------------|
| <b>Out Patient</b>                       |             |                                   |                    |                |
| 1  | 1           | BP machine                        | each clinical room | 1              |
| 2  | 2           | Examination Couch                 | each clinical room | 3              |
| 3  | 3           | Wheel Chair                       | 2                  | 4              |
| 4  | 4           | Weighing Scale                    | each clinical room | 5              |
| 5  | 5           | Glucometer                        | each clinical room | 6              |
| 6  | 6           | Diagnostic set                    | each clinical room | 2              |
| 7  | 7           | Patient trolley                   | 1                  | 7              |
| <b>OB/GYN</b>                            |             |                                   |                    |                |
| 8  | 1           | Delivery Bed                      | 4                  | 1              |
| 9  | 2           | Operation Light mobile            | 2                  | 2              |
| 10                                       | 3           | Oxygen cylinder set               | 2                  | 7              |
| 11                                       | 4           | suction Machine                   | 2                  | 11             |
| 12                                       | 5           | Examination Couch                 | 2                  | 5              |
| 13                                       | 6           | weighing and height Scale         | 3                  | 8              |
| 14                                       | 7           | BP machine                        | 4                  | 4              |
| 15                                       | 8           | Cesarean operating instrument set | 4                  | 3              |
| 16                                       | 9           | Intubation set                    | 2                  | 13             |
| 17                                       | 10          | Resuscitation kit                 | 1                  | 14             |
| 18                                       | 11          | Autoclave                         | 1                  | 9              |
| 19                                       | 12          | Patient monitor                   | 2                  | 12             |
| 20                                       | 13          | Examination bed for OBGY          | 2                  | 6              |
| 21                                       | 14          | Drum set                          | 3                  | 10             |
| <b>Imaging</b>                           |             |                                   |                    |                |
| 22                                       | 1           | CT                                | 1                  | 4              |
| 23                                       | 2           | Fluoroscopy machine               | 1                  | 5              |
| 24                                       | 3           | ultra sound scanner               | 1                  | 3              |
| 25                                       | 4           | Fixed X-ray with card reader      | 1                  | 1              |
| 26                                       | 5           | Automatic film processor          | 1                  | 2              |
| 27                                       | 6           | Read character                    | 1                  | 7              |
| 28                                       | 7           | Mobile X-ray machine              | 1                  | 6              |
| 29                                       | 8           | CR system                         | 1                  | 8              |
| <b>Ambulance</b>                         |             |                                   |                    |                |
| 30                                       | 1           | Ambulance                         | 1                  | 1              |
| <b>Emergency</b>                         |             |                                   |                    |                |
| 31                                       | 1           | Ventilator                        | 2                  | 4              |
| 32                                       | 2           | Anesthesia machine                | 1                  | 5              |
| 33                                       | 3           | Autoclave                         | 1                  | 7              |
| 34                                       | 4           | patient Trolley                   | 4                  | 10             |
| 35                                       | 5           | suction machine                   | 2                  | 8              |
| 36                                       | 6           | Operation table                   | 1                  | 2              |
| 37                                       | 7           | patient Monitor                   | 2                  | 6              |
| 38                                       | 8           | Operating instrument set          | 2                  | 11             |
| 39                                       | 9           | Emergency bed                     | 4                  | 1              |
| 40                                       | 10          | Diagnostic set                    | 2                  | 12             |
| 41                                       | 11          | Drum Set                          | 5                  | 9              |
| 42                                       | 12          | B.P. machine                      | 2                  | 13             |
| 43                                       | 13          | Operation light mobile            | 1                  | 3              |
| <b>Sterilisation in Theatre and OBGY</b> |             |                                   |                    |                |
| 44                                       | 1           | Autoclave for sterilization       | 2                  | 1              |
| 45                                       | 2           | Boiler                            | 1                  | 2              |
| 46                                       | 3           | Storage cabinet                   | 2                  | 3              |
| 47                                       | 4           | Steel cabinet                     | 2                  | 4              |
| <b>Laundry</b>                           |             |                                   |                    |                |
| 48                                       | 1           | laundry machine                   | 1                  | 1              |
| 49                                       | 2           | Heavy duty electric iron          | 1                  | 2              |
| 50                                       | 3           | Dryer                             | 1                  | 3              |
| <b>Dental</b>                            |             |                                   |                    |                |
| 51                                       | 1           | Dental Chair                      | 4                  | 1              |
| 52                                       | 2           | Dental X-Ray                      | 1                  | 2              |
| 53                                       | 3           | Autoclave                         | 1                  | 3              |
| 54                                       | 4           | Light cure machine                | 1                  | 5              |

LIRA RRH

| Requested No.     | No. in Dep. | Equipment Name               | Final Q'ty | Final Priority |
|-------------------|-------------|------------------------------|------------|----------------|
| 55                | 5           | Electronic scaler            | 1          | 6              |
| 56                | 6           | Dry-heat sterilizer          | 1          | 9              |
| 57                | 7           | Dental forceps (all sets)    | 5          | 4              |
| 58                | 8           | Sterilizing box set          | 1          | 10             |
| 59                | 9           | Drums set                    | 1          | 11             |
| 60                | 10          | Pulp tester                  | 1          | 7              |
| 61                | 11          | Intra oral cameras           | 1          | 8              |
| Peadiatric        |             |                              |            |                |
| 62                | 1           | Oxygen cylinder set          | 10         | 1              |
| 63                | 2           | Radiant warmer (for NICU)    | 2          | 2              |
| 64                | 3           | Incubator (for NICU)         | 2          | 3              |
| 65                | 4           | weighing scale               | 2          | 4              |
| 66                | 5           | patient Monitor              | 2          | 5              |
| 67                | 6           | Pulse oximeter               | 8          | 6              |
| 68                | 7           | Pediatric BP machine         | 3          | 7              |
| 69                | 8           | Diagnostic set               | 3          | 8              |
| Operation Theatre |             |                              |            |                |
| 70                | 1           | Anesthesia machine           | 1          | 1              |
| 71                | 2           | Patient Monitor              | 1          | 2              |
| 72                | 3           | suction machine              | 3          | 6              |
| 73                | 4           | Oxygen cylinder set          | 4          | 5              |
| 74                | 5           | Operation table              | 2          | 7              |
| 75                | 6           | Pulse oximeter               | 4          | 3              |
| 76                | 7           | BP machine Digital           | 4          | 4              |
| 77                | 8           | Glucometer                   | 1          | 8              |
| 78                | 9           | Sterilizing drum Large       | 10         | 13             |
| 79                | 10          | Sterilizing drum Medium      | 5          | 14             |
| 80                | 11          | Sterilizing drum Small       | 5          | 15             |
| 81                | 12          | Operation light portable     | 2          | 9              |
| 82                | 13          | Autoclave                    | 1          | 10             |
| 83                | 14          | patient Trolley              | 2          | 11             |
| 84                | 15          | Laparotomy set               | 1          | 12             |
| 85                | 16          | Instrument trolley           | 2          | 16             |
| Sugery Ward       |             |                              |            |                |
| 86                | 1           | Autoclave                    | 2          | 2              |
| 87                | 2           | suction machine              | 2          | 11             |
| 88                | 3           | BP machine                   | 2          | 12             |
| 89                | 4           | examination couch            | 3          | 8              |
| 90                | 5           | Drip stand                   | 10         | 7              |
| 91                | 6           | Patient trolley              | 2          | 3              |
| 92                | 7           | Wheel Chair                  | 2          | 4              |
| 93                | 8           | Drum set                     | 3          | 6              |
| 94                | 9           | Oxygen cylinder set          | 2          | 1              |
| 95                | 10          | Dressing trolley             | 2          | 9              |
| 96                | 11          | Drug trolley                 | 2          | 10             |
| 97                | 12          | Resuscitation kit            | 2          | 5              |
| 98                | 13          | Glucometer                   | 2          | 13             |
| 99                | 14          | Dressing instrument set      | 2          | 14             |
| 100               | 15          | Pulse oximeter               | 2          | 15             |
| 101               | 16          | Weighing scale               | 2          | 16             |
| ENT               |             |                              |            |                |
| 102               | 1           | ENT examination microscope   | 1          | 9              |
| 103               | 2           | ENT examination set complete | 1          | 1              |
| 104               | 3           | Mastidectomy set             | 1          | 8              |
| 105               | 4           | Tonsillectomy set            | 1          | 7              |
| 106               | 5           | Bronchoscopy set             | 1          | 2              |
| 107               | 6           | ENT examination unit         | 1          | 6              |
| 108               | 7           | Tympanometer                 | 1          | 3              |
| 109               | 8           | BP machine                   | 1          | 5              |
| 110               | 9           | Audiometer                   | 1          | 4              |
| Laboratory        |             |                              |            |                |
| 111               | 1           | Hematology analyzer          | 1          | 3              |

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## LIRA RRH

| Requested No.       | No. in Dep. | Equipment Name                    | Final Q'ty | Final Priority |
|---------------------|-------------|-----------------------------------|------------|----------------|
| 112                 | 2           | Biochemistry machine              | 1          | 4              |
| 113                 | 3           | Refrigerator Blood Bank           | 1          | 1              |
| 114                 | 4           | Microscope                        | 2          | 5              |
| 115                 | 5           | Centrifuge                        | 2          | 10             |
| 116                 | 6           | Incubator                         | 1          | 7              |
| 117                 | 7           | Autoclave                         | 1          | 6              |
| 118                 | 8           | Voltex mixer                      | 1          | 11             |
| 119                 | 9           | weighing scale                    | 1          | 9              |
| 120                 | 10          | Water desterilizer                | 1          | 8              |
| 121                 | 11          | Refrigerator                      | 1          | 2              |
| Internal Medicine   |             |                                   |            |                |
| 122                 | 1           | Oxygen cylinder set               | 2          | 2              |
| 123                 | 2           | Nebulizer                         | 1          | 4              |
| 124                 | 3           | suction Machine                   | 1          | 6              |
| 125                 | 4           | patient Trolley                   | 2          | 5              |
| 126                 | 5           | syringe pump                      | 2          | 8              |
| 127                 | 6           | infusion pump                     | 2          | 7              |
| 128                 | 7           | Drip stand                        | 10         | 3              |
| 129                 | 8           | Ultrasound machine portable       | 1          | 1              |
| ICU                 |             |                                   |            |                |
| 130                 | 1           | syringe pump                      | 2          | 1              |
| Pharmacy            |             |                                   |            |                |
| 131                 | 1           | Refrigerator (large)              | 7          | 1              |
| 132                 | 2           | Refrigerator (small)              | 4          | 2              |
| 133                 | 3           | Table drug                        | 1          | 5              |
| 134                 | 4           | Drug trolley                      | 3          | 6              |
| 135                 | 5           | Steel cabinet                     | 2          | 8              |
| 136                 | 6           | Water destilizer                  | 2          | 4              |
| 137                 | 7           | Autoclave                         | 1          | 3              |
| 138                 | 8           | Drug cupboard                     | 7          | 7              |
| Medical Equipment   |             |                                   |            |                |
| 139                 | 1           | Portable oscilloscope             | 1          | 7              |
| 140                 | 2           | Thermometer/hygrometer            | 1          | 9              |
| 141                 | 3           | Analyzer Tachometer               | 1          | 8              |
| 142                 | 4           | Insulation resistance tester      | 1          | 1              |
| 143                 | 5           | Earth mega tester                 | 1          | 3              |
| 144                 | 6           | Cramp meter                       | 1          | 2              |
| 145                 | 7           | Welding machine mobile            | 1          | 5              |
| 146                 | 8           | Electrical tool box               | 1          | 6              |
| 147                 | 9           | Pipe bender                       | 1          | 4              |
| Orthopedic workshop |             |                                   |            |                |
| 148                 | 1           | Broad Belt Sander                 | 1          | 4              |
| 149                 | 2           | Vacuumed machine                  | 1          | 3              |
| 150                 | 3           | Welding hot jet                   | 1          | 5              |
| 151                 | 4           | Welding MIRROR                    | 1          | 2              |
| 152                 | 5           | Router machine                    | 1          | 1              |
| Orthopedic          |             |                                   |            |                |
| 153                 | 1           | Oscillation Plaster cutter        | 1          | 1              |
| 154                 | 2           | Plaster share                     | 1          | 2              |
| 155                 | 3           | Plaster bender                    | 1          | 6              |
| 156                 | 4           | Plaster opener                    | 1          | 8              |
| 157                 | 5           | Operating flucture bed            | 1          | 9              |
| 158                 | 6           | Bone fracture instrument set      | 1          | 7              |
| 159                 | 7           | Thomas splint                     | 20         | 3              |
| 160                 | 8           | Browne splint                     | 20         | 4              |
| 161                 | 9           | Electrical bone drill             | 1          | 10             |
| 162                 | 10          | Wheel Chair                       | 5          | 5              |
| Ophthalmology       |             |                                   |            |                |
| 163                 | 1           | Operating microscope              | 1          | 2              |
| 164                 | 2           | Cataract operation instrument set | 6          | 3              |
| 165                 | 3           | Autoclave                         | 1          | 4              |
| 166                 | 4           | Slit lamp with Tonometer          | 1          | 6              |

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LIRA RRH

| Requested No. | No. in Dep. | Equipment Name                  | Final Q'ty | Final Priority |
|---------------|-------------|---------------------------------|------------|----------------|
| 167           | 5           | Area thetie machine             | 1          | 5              |
| 168           | 6           | Instrument trolley              | 2          | 11             |
| 169           | 7           | Kerato meter                    | 1          | 7              |
| 170           | 8           | Trial lens set                  | 1          | 10             |
| 171           | 9           | weighing scale                  | 2          | 9              |
| 172           | 10          | BP machine                      | 2          | 8              |
| 173           | 11          | Phaco emulsification machine    | 1          | 1              |
| Physiotherapy |             |                                 |            |                |
| 174           | 1           | Ultrasound therapy              | 1          | 2              |
| 175           | 2           | Short wave therapy              | 1          | 1              |
| 176           | 3           | Infra-Red Radiation lamps       | 1          | 3              |
| 177           | 4           | Exercise mat                    | 2          | 5              |
| 178           | 5           | Stationary bike                 | 2          | 6              |
| 179           | 6           | Balance ball                    | 2          | 7              |
| 180           | 7           | Traction bed                    | 1          | 4              |
| 181           | 8           | Electrical massager             | 1          | 8              |
| 182           | 9           | Refrigerator                    | 1          | 9              |
| Mental Health |             |                                 |            |                |
| 183           | 1           | Drug trolley                    | 2          | 4              |
| 184           | 2           | Drug cupboard                   | 1          | 3              |
| 185           | 3           | Examination coach               | 2          | 2              |
| 186           | 4           | Chito forceps                   | 2          | 6              |
| 187           | 5           | Drums set                       | 2          | 5              |
| 188           | 6           | Autoclave                       | 1          | 1              |
| 189           | 7           | Drip stand                      | 4          | 7              |
| Pathology     |             |                                 |            |                |
| 190           | 1           | Mortuary refrigerator           | 1          | 2              |
| 191           | 2           | Mortuary trolley with cover     | 2          | 1              |
| 192           | 3           | Mortuary Instrument set         | 1          | 4              |
| 193           | 4           | Holding patient trolley         | 2          | 3              |
| NMCH          |             |                                 |            |                |
| 194           | 1           | Examination couch               | 9          | 1              |
| 195           | 2           | Examination lump                | 2          | 7              |
| 196           | 3           | Speculum set                    | 1          | 8              |
| 197           | 4           | Uterine sonde set               | 2          | 13             |
| 198           | 5           | Uterine Elevator instrument set | 5          | 14             |
| 199           | 6           | Drum set                        | 4          | 5              |
| 200           | 7           | Cupboard                        | 2          | 9              |
| 201           | 8           | Deep freezer                    | 1          | 4              |
| 202           | 9           | Refractor for vaccines          | 1          | 3              |
| 203           | 10          | Vaccine carrier                 | 10         | 6              |
| 204           | 11          | Weighing scale neonatal         | 3          | 10             |
| 205           | 12          | BP machine                      | 7          | 2              |
| 206           | 13          | Weighing and height scale adult | 3          | 10             |
| 207           | 14          | Patient trolley                 | 1          | 11             |
| 208           | 15          | Wheel chair                     | 1          | 12             |

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THE PROJECT FOR IMPROVEMENT OF REGIONAL REFERRAL HOSPITALS  
IN NORTHERN UGANDA IN THE REPUBLIC OF UGANDA

PREPARATORY SURVEY 2 FOR FACILITY BETWEEN  
ARUA REGIONAL REFERRAL HOSPITAL AND CONSULTANT

Memorandum

The memorandum records the results of the preparatory survey for facility planning held between Arua Regional Referral Hospital ("Arua RRH") and the Preparatory Survey Team ("the Team") for the Project for Improvement of Regional Referral Hospital in Northern Uganda, in the Republic of Uganda.

The preparatory survey for facilities was held at Arua RRH, from 13<sup>th</sup> to 17<sup>th</sup> February, 2017. As the result of the discussion, both sides have confirmed the main items described below:

1. Final Requested Facility

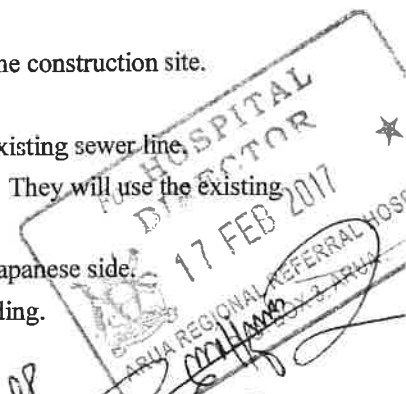
Both sides confirmed the final requested facility is the OPD and Casualty unit including:

- 1) four General OPD consultation rooms,
- 2) one Medical Outpatient consultation room,
- 3) two Paediatric rooms,
- 4) one Surgical Outpatient consultation room,
- 5) one ENT and Ophthalmology consultation room,
- 6) one Gynaecology consultation room,
- 7) one Dental room, one Adolescence room,
- 8) two HCT rooms,
- 9) one MARPs room in the OPD, and
- 10) a resuscitation room with four beds
- 11) a minor operation theatre in the Casualty Unit.

The Team will explain the final facility plan in the Explanation of Draft Final Report (DOD) to Uganda side.

2. Minutes of the meeting held on 17<sup>th</sup> February 2017

- 1) The Hospital approved to use part of its land for the Construction of the new OPD.
- 2) The Hospital approved to demolish part of the perimeter wall to create access for construction materials. The Contractor will repair the demolished part of the wall after completion of the construction.
- 3) The Hospital approved to use part of its land for site accommodation.
- 4) The Hospital approved to use part of its land for dumping soil excavated from the construction site.
- 5) The Hospital requested the Project to install rain water harvesting tanks.
- 6) The Hospital approved to connect the sewer line from the new building to the existing sewer line.
- 7) The Hospital agreed that there is no need to create a new ambulance entrance. They will use the existing entrance at the main gate.
- 8) A new electric pole, transformer and protection circuit will be installed by the Japanese side.
- 9) The Hospital requested the Project to install solar water heater for the new building.



Annex

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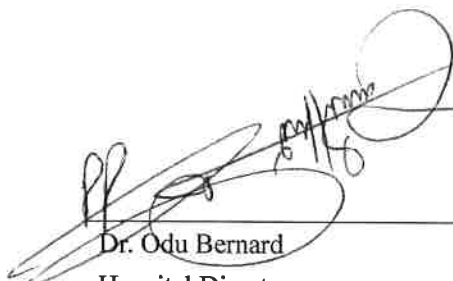
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- 10) The Hospital requested the Project to install a solar electric system (the power back up) for the new building.
- 11) The Hospital requested the Project to install manifold system for oxygen supply.
- 12) The Hospital approved to connect the existing water supply line to the new building.
- 13) The Hospital requested the project to install Local Area Network(LAN) to the new building.

Arua, 17 February, 2017

*pp*  
  
 Dr. Odu Bernard  
 Hospital Director  
 Arua Regional Referral Hospital  
 The Republic of Uganda

*pp* 直用右樹  
 Mr. Keiichi IDE  
 Project Manager, Preparatory Survey Team  
 The Consortium of the Yokogawa Architects &  
 Engineers, Inc. and INTEM Consulting, Inc.

  
 For: HOSPITAL DIRECTOR  
 17 FEB 2017  
 ARUA REGIONAL REFERRAL HOSPITAL  
 P.O. BOX 3, ARUA  
 Witness

*Samuel*  
 Samuel Tsubira  
 Engineer  
 Ministry of Health

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THE PROJECT FOR IMPROVEMENT OF REGIONAL REFERRAL HOSPITALS  
IN NORTHERN UGANDA IN THE REPUBLIC OF UGANDA

PREPARATORY SURVEY 2 FOR EQUIPMENT BETWEEN  
ARUA REGIONAL REFERRAL HOSPITAL AND CONSULTANT

Memorandum

The memorandum records the results of the preparatory survey for equipment planning held between Arua Regional Referral Hospital ("Arua RRH") and the Preparatory Survey Team. ("the Team") for the Project for Improvement of Regional Referral Hospital in Northern Uganda, in the Republic of Uganda.

The preparatory survey for equipment was held at Arua RRH, from 13<sup>th</sup> to 15<sup>th</sup> February, 2017. As the result of the discussion, both sides have confirmed the main items described below.

1. Final Requested Equipment List

Both side confirmed the final requested equipment list with priority from Arua RRH. The Team will analyze the final requested equipment list in Japan and plan the component of equipment for the project. The Team will explain the final equipment plan in the Explanation of Draft Final Report to Ugandan side. The final requested equipment list is referred to the Attachment 1.

2. Undertaking by Ugandan Side

Both side confirmed the following would be undertaking of the Government of Uganda;

- (1) Dental: To remove existing dental unit in case the dental department is remained in existing building, and provide appropriate water supply and drainage.
- (2) CSSD: To renovate the existing sterilization room in the main operation theatre, and provide appropriate power and water supply for autoclaves.
- (3) Laundry: To renovate the existing laundry and provide appropriate power and water supply.
- (4) Imagery: To construct wired LAN network from new OPD building to existing buildings where Client PCs for CR system will be installed.

3. Attendance List

The preparatory survey was held with attendance of staff from Arua RRH as in Attachment 2.

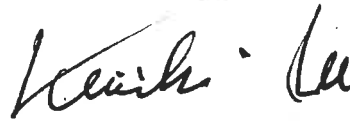
Arua, 16 February, 2017

JK






Dr. Bernard Odu  
Hospital Director  
Arua Regional Referral Hospital  
The Republic of Uganda



Mr. Keiichi IDE  
Project Manager, Preparatory Survey Team  
The Consortium of the Yokogawa Architects &  
Engineers, Inc. and INTEM Consulting, Inc.

Witness



Eng. Sitra Mulepo  
Senior Engineer  
Ministry of Health

16/02/2017

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ARUA RRH

Attachment 1. Final Requested Equipment List

| Requested No.                 | No. in Dep | Equipment Name                                 | Final Q'ty | final Priority |
|-------------------------------|------------|--|------------|----------------|
| <b>Accident And Emergency</b> |            |  |            |                |
| 1                             | 1          | Vital sign monitor [ECG,Pulse rate Bp,SP2]     | 2          | 1              |
| 2                             | 2          | Endoscopy machine                              | 1          | 19             |
| 3                             | 3          | Emergency Respirators                          | 1          | 2              |
| 4                             | 4          | Defibrilators                                  | 1          | 16             |
| 5                             | 5          | Oxygen cylinder set                            | 2          | 8              |
| 6                             | 6          | Suction machine Electrical                     | 2          | 3              |
| 7                             | 7          | Nebulizer                                      | 2          | 4              |
| 8                             | 8          | Patient transfer trolleys                      | 4          | 5              |
| 9                             | 9          | Wheel chairs                                   | 4          | 9              |
| 10                            | 10         | Operating table                                | 1          | 6              |
| 11                            | 11         | Operating light mobile                         | 1          | 7              |
| 12                            | 12         | Drug trolley                                   | 1          | 17             |
| 13                            | 13         | Medicine Cupboards                             | 2          | 18             |
| 14                            | 14         | Emergency Bed                                  | 5          | 10             |
| 15                            | 15         | Examination light                              | 1          | 11             |
| 16                            | 16         | Dressing cart                                  | 1          | 12             |
| 17                            | 17         | Dressing instrument set                        | 1          | 14             |
| 18                            | 18         | Diagnosis set                                  | 1          | 15             |
| 19                            | 19         | Minor surgery instrument set,                  | 1          | 13             |
| 20                            | 20         | Autoclave                                      | 1          | 20             |
| <b>Ambulance</b>              |            |  |            |                |
| 21                            | 1          | Ambulance                                      | 1          | 1              |
| <b>Dental</b>                 |            |  |            |                |
| 22                            | 1          | Dental Unit                                    | 3          | 1              |
| 23                            | 2          | Dental imaging/x-ray machine and processors    | 1          | 2              |
| 24                            | 3          | Vacuum Autoclaves                              | 1          | 4              |
| 25                            | 4          | LED cure lights                                | 2          | 6              |
| 26                            | 5          | Ultrasonic Scalers                             | 2          | 7              |
| 27                            | 6          | Ultrasonic cleaner                             | 1          | 8              |
| 28                            | 7          | Dental implant surgical motors                 | 1          | 15             |
| 29                            | 8          | Handpieces oiler                               | 1          | 9              |
| 30                            | 9          | Apex Locators                                  | 1          | 10             |
| 31                            | 10         | Casting machine                                | 1          | 11             |
| 32                            | 11         | Polishing and trimming machines                | 1          | 12             |
| 33                            | 12         | Hydroflasks, Heat cure flasks and articulators | 1          | 13             |
| 34                            | 13         | Orthopantomogram                               | 1          | 14             |
| 35                            | 14         | Electric pulp tester                           | 2          | 5              |
| 36                            | 15         | Dental instrument set                          | 1          | 3              |
| <b>Occupational Therapy</b>   |            |  |            |                |
| 37                            | 1          | Large portable mirror                          | 1          | 2              |
| 38                            | 2          | Sewing machines                                | 1          | 3              |
| 39                            | 3          | Standing frames,adults and children            | 1          | 6              |
| 40                            | 4          | Walking frames,adults and children             | 2          | 4              |
| 41                            | 5          | Parralel bars,adults and children              | 1          | 1              |
| 42                            | 6          | Prone baords                                   | 1          | 5              |
| <b>Physiotherapy</b>          |            |  |            |                |
| 43                            | 1          | Short wave Diathermy                           | 2          | 1              |
| 44                            | 2          | Infra Red machine                              | 2          | 2              |
| 45                            | 3          | Ultra sound Machine                            | 1          | 3              |
| 46                            | 4          | Muscle stimulators                             | 1          | 4              |
| 47                            | 5          | Cervical Traction machine                      | 1          | 5              |
| 48                            | 6          | Lumbar traction machine                        | 1          | 6              |
| 49                            | 7          | TENS Machine                                   | 2          | 7              |
| 50                            | 8          | Shoulder traction machine                      | 1          | 8              |
| 51                            | 9          | Stational bicycle                              | 2          | 9              |
| 52                            | 10         | Exercise mat                                   | 3          | 10             |
| 53                            | 11         | Wheel chair                                    | 5          | 11             |
| 54                            | 12         | Bobbath ball                                   | 5          | 12             |
| 55                            | 13         | Hand therapy springs                           | 2          | 13             |

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ARUA RRH

| Requested No.                         | No. in Dep | Equipment Name  | Final Q'ty | final Priority |
|---------------------------------------|------------|---|------------|----------------|
| <b>Imager</b>                         |            |   |            |                |
| 56                                    | 1          | Computerised Tomographic Scan (CT-Scan)                     | 1          | 1              |
| 57                                    | 2          | Berium Enamel set   | 1          | 6              |
| 58                                    | 3          | Mamography Machine  | 1          | 4              |
| 59                                    | 4          | Ultra sound scan [Cardiac Abdominal,obstetric] with doppler | 1          | 2              |
| 60                                    | 5          | Digital Radiography system DRS                              | 1          | 3              |
| 61                                    | 7          | Hysterosalpingogram set                                     | 1          | 7              |
| 62                                    | 8          | Electro encephalogram                                       | 1          | 8              |
| <b>Pharmacy</b>                       |            |   |            |                |
| 63                                    | 1          | Refrigerators Large   | 1          | 1              |
| 64                                    | 2          | Drug Cupboards Metallics                                    | 3          | 2              |
| 65                                    | 3          | Autoclave   | 1          | 4              |
| 66                                    | 4          | Dry oven  | 1          | 5              |
| 67                                    | 5          | Water Distillers  | 2          | 3              |
| 68                                    | 6          | Water bath  | 1          | 6              |
| 69                                    | 7          | Weighing scale digital                                      | 2          | 7              |
| <b>Orthopedics</b>                    |            |   |            |                |
| 70                                    | 1          | Gypsum cutter   | 1          | 1              |
| 71                                    | 2          | Manual Plaster cutter                                       | 2          | 14             |
| 72                                    | 3          | Pulse oximetre  | 1          | 2              |
| 73                                    | 4          | Oxygen cylinder and mask                                    | 1          | 3              |
| 74                                    | 5          | Dressing set  | 1          | 4              |
| 75                                    | 6          | Dressing trolley  | 1          | 5              |
| 76                                    | 7          | Patient transfer trolley                                    | 2          | 6              |
| 77                                    | 8          | Drug trolley  | 1          | 7              |
| 78                                    | 9          | Drum set  | 1          | 8              |
| 79                                    | 10         | Autoclave   | 1          | 9              |
| 80                                    | 11         | Drip stand  | 10         | 10             |
| 81                                    | 12         | Examination couch   | 3          | 11             |
| 82                                    | 13         | Plaster table   | 1          | 12             |
| 83                                    | 14         | Wheel chair   | 2          | 13             |
| 84                                    | 15         | Bed cradle  | 5          | 15             |
| 85                                    | 16         | Working frame   | 2          | 16             |
| 86                                    | 17         | Orthopedic braun frame for traction                         | 5          | 17             |
| 87                                    | 18         | C-arm   | 1          | 18             |
| 88                                    | 19         | Instrument set for orthopedic surgery                       | 1          | 19             |
| <b>Laboratory</b>                     |            |   |            |                |
| 89                                    | 1          | Haematology analyser [5 parameters]                         | 1          | 7              |
| 90                                    | 2          | Clinical Chemistry Analysers                                | 1          | 8              |
| 91                                    | 3          | Refrigerator  | 2          | 1              |
| 92                                    | 4          | Electrical centrifuge [8-12 Buckets]                        | 2          | 2              |
| 93                                    | 5          | Orbital shaker  | 1          | 9              |
| 94                                    | 6          | Blood mixer [Roller]  | 1          | 10             |
| 95                                    | 7          | Laboratory incubator  | 1          | 11             |
| 96                                    | 8          | Electrical weighing Scale [Laboratory]                      | 1          | 4              |
| 97                                    | 9          | Weighing Scale for blood transfusion                        | 1          | 3              |
| 98                                    | 10         | Autoclave Electrical  | 1          | 5              |
| 99                                    | 11         | Microscope Olympus  | 2          | 6              |
| 100                                   | 12         | Hemoglobinometer  | 1          | 12             |
| <b>CSSD</b>                           |            |   |            |                |
| 101                                   | 1          | Autoclave Set   | 1          | 1              |
| 102                                   | 2          | Washing Machines  | 1          | 1              |
| 103                                   | 3          | Dryer   | 1          | 2              |
| 104                                   | 4          | Ironing roller  | 1          | 3              |
| 105                                   | 5          | Flat ironing machine  | 1          | 5              |
| 106                                   | 6          | Laundry trolley   | 4          | 4              |
| <b>MARTENITY</b>                      |            |   |            |                |
| <b>Labour and Delivery room , HDU</b> |            |   |            |                |
| 107                                   | 1          | Vital sign monitor [ECG,Pulse rate ,SP2,Foetal doppler]     | 3          | 4              |
| 108                                   | 2          | Blood pressure machine wll mounted or on stands             | 2          | 9              |
| 109                                   | 3          | Delivery Beds   | 8          | 1              |
| 110                                   | 4          | Infant Warmer   | 3          | 3              |
| 111                                   | 5          | Patient Transfer trolleys                                   | 2          | 2              |

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ARUA RRH

| Requested No.          | No. in Dep | Equipment Name                                     | Final Q'ty | final Priority |
|------------------------|------------|--|------------|----------------|
| 112                    | 6          | Oxygen cylinder set                                |            |                |
| 113                    | 7          | Wheel chairs                                       | 5          | 11             |
| 114                    | 8          | Examinations spot lights                           | 2          | 12             |
| 115                    | 9          | Instrument set for delivery                        | 2          | 10             |
| 116                    | 10         | Suction machine Electrical                         | 10         | 5              |
| 117                    | 11         | Fetal dopper                                       | 2          | 8              |
| 118                    | 12         | Ambubag set fro neonatal                           | 2          | 7              |
| 119                    | 13         | Vacuum extractor                                   | 2          | 6              |
| OB/GY                  |            |  | 1          | 13             |
| 120                    | 1          | Vital sign monitor [ECG,Pulse rate Bp,SP2]         |            |                |
| 121                    | 2          | Drug Trolleys                                      | 2          | 4              |
| 122                    | 3          | Dressing trollely                                  | 3          | 7              |
| 123                    | 4          | Dressing sets [Forceps,Kidney dishes,arteries etc] | 3          | 8              |
| 124                    | 5          | Examination table                                  | 2          | 5              |
| 125                    | 6          | Fetal dopper                                       | 3          | 3              |
| 126                    | 7          | Instrument set for examination                     | 2          | 6              |
| 127                    | 8          | Blood pressure                                     | 1          | 2              |
| Theatre                |            |  | 6          | 1              |
| 128                    | 1          | Vital sign monitors                                |            |                |
| 129                    | 2          | Electrical suction machine                         | 2          | 1              |
| 130                    | 3          | Anasthetic machine                                 | 2          | 2              |
| 131                    | 4          | Ceiling mounted mobile type                        | 1          | 3              |
| 132                    | 5          | Oxygen cylinder set                                | 2          | 4              |
| 133                    | 6          | Autoclave  | 2          | 5              |
| 134                    | 7          | Instrument Set for theatre                         | 1          | 7              |
| Neontal unit           |            |  | 1          | 6              |
| 135                    | 1          | Incubators   |            |                |
| 136                    | 2          | Oxygen cylinder set                                | 4          | 3              |
| 137                    | 3          | Baby courches                                      | 4          | 6              |
| 138                    | 4          | Vital sign monitor [ECG,Pulse rate Bp,SP2]         | 5          | 2              |
| 139                    | 5          | Suction machine electrical                         | 2          | 1              |
| 140                    | 6          | Infant Radiant Warmers                             | 1          | 7              |
| 141                    | 7          | Continuous postive air way pressure(CPAP) sets     | 2          | 5              |
| Internal Medicine      |            |  | 1          | 4              |
| 142                    | 1          | Oxygen cylinder set                                |            |                |
| 143                    | 2          | Suction machine Electrical                         | 5          | 1              |
| 144                    | 3          | Autoclave small                                    | 2          | 2              |
| 145                    | 4          | Wheel chair  | 1          | 3              |
| 146                    | 5          | Vital sign monitor [ECG,Pulse rate Bp,SP2]         | 3          | 4              |
| 147                    | 6          | Patient trolley                                    | 2          | 5              |
| 148                    | 7          | HBA/c machine                                      | 2          | 6              |
| 149                    | 8          | Drug infusion pumps                                | 1          | 8              |
| 150                    | 9          | Nebulisers   | 4          | 9(2A, 2B)      |
| 151                    | 10         | Diagnostic set general                             | 1          | 10             |
| 152                    | 11         | Refrigerators medicine                             | 2          | 7              |
| 153                    | 12         | Dressing instrument set                            | 2          | 12(1A, 1B)     |
| 154                    | 13         | Drug trolley                                       | 2          | 13             |
| 155                    | 14         | Instument drums set                                | 2          | 14             |
| 156                    | 15         | Patient examination coach                          | 1          | 15             |
| 157                    | 16         | Glucometer   | 2          | 18             |
| 158                    | 17         | Pulsoximeter                                       | 2          | 19             |
| 159                    | 18         | Weighing scale                                     | 2          | 20             |
| Main Operating Theatre |            |  | 2          | 21             |
| 160                    | 1          | Operating table                                    |            |                |
| 161                    | 2          | Vital sign monitor [ECG,Pulse rate Bp,SP2]         | 3          | 1 (2A, 1B)     |
| 162                    | 3          | Operating lamp mobile type                         | 3          | 4(2A, 1B)      |
| 163                    | 4          | Anaesthetic Machine                                | 3          | 2(2A, 1B)      |
| 164                    | 5          | Electrical Dermatome(Skin Graft Set)               | 2          | 6              |
| 165                    | 6          | Oxygen cylinder set                                | 2          | 5(1A, 1B)      |
| 166                    | 7          | Pneumatic tournique                                | 2          | 9              |
| 167                    | 8          | Patient Transfer trolley                           | 2          | 8              |
| 168                    | 9          | Suction machine electrical                         | 2          | 7              |
| 169                    | 10         | Electrical surgical unit                           | 3          | 3              |
|                        |            |  | 1          | 10             |

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ARUA RRH

| Requested No.              | No. in Dep | Equipment Name                             | Final Q'ty | final Priority |
|----------------------------|------------|--|------------|----------------|
| 170                        | 11         | Instrument set for OP theatre              | 1          | 11             |
| General Surgery            |            |  |            |                |
| 171                        | 1          | Vital sign monitor [ECG,Pulse rate Bp,SP2] | 2          | 5              |
| 172                        | 2          | Oxygen cylinder set                        | 2          | 7              |
| 173                        | 3          | Suction machine                            | 2          | 6              |
| 174                        | 4          | Medicine/treatment trolleys                | 4          | 3              |
| 175                        | 5          | Patient screens                            | 6          | 8              |
| 176                        | 6          | Patient transfer trolleys                  | 3          | 2              |
| 177                        | 7          | Instrument set                             | 1          | 1              |
| 178                        | 8          | Dressing trolley                           | 4          | 4              |
| Pediatric                  |            |  |            |                |
| 179                        | 1          | Oxygen cylinder set                        | 4          | 1              |
| 180                        | 2          | Nebulisers                                 | 3          | 2              |
| 181                        | 3          | Vital sign monitor [ECG,Pulse rate Bp,SP2] | 2          | 3              |
| 182                        | 4          | infant and child Blood pressure machine    | 6          | 4              |
| 183                        | 5          | Pulse oximetre                             | 10         | 6              |
| 184                        | 6          | Patient screens                            | 4          | 12             |
| 185                        | 7          | reservoir bags with face masks             | 4          | 13             |
| 186                        | 8          | Examination couch                          | 5          | 7              |
| 187                        | 9          | Stethoscope paediatrics                    | 3          | 8              |
| 188                        | 10         | Files trolley                              | 3          | 11             |
| 189                        | 11         | Diagnosis set                              | 3          | 10             |
| 190                        | 12         | Thermometre digital                        | 12         | 9              |
| 191                        | 13         | Examination light                          | 5          | 5              |
| Medical Equipment Workshop |            |  |            |                |
| 192                        | 1          | Electronic / Electrical tools              | 2          | 7              |
| 193                        | 2          | Refrigeration tools                        | 1          | 1              |
| 194                        | 3          | Oxygen analyser                            | 2          | 5              |
| 195                        | 4          | Mechanical tools                           | 2          | 6              |
| 196                        | 5          | Welding Genarator Portable                 | 1          | 4              |
| 197                        | 6          | Plumbing Tool                              | 1          | 9              |
| 198                        | 7          | Drilling machine                           | 1          | 3              |
| 199                        | 8          | Carpently tool set                         | 1          | 10             |
| 200                        | 9          | Multimeter                                 | 2          | 8              |
| 201                        | 10         | Clamp meter                                | 2          | 2              |

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 The name "The name" is written in a cursive script.  
 Below it is a large, bold, stylized letter "Z".  
 To the right, there are several other handwritten marks, including what appears to be a signature "K...".  
 At the bottom right, there is another signature or set of initials.

(3) Explanation of Draft Report

**Minutes of Discussions**  
**on the Preparatory Survey for the Project for**  
**Improvement of Regional Referral Hospitals in Northern Uganda,**  
**in the Republic of Uganda**  
**(Explanation on Draft Preparatory Survey Report)**

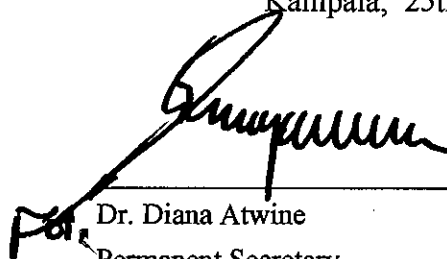
With reference to the minutes of discussions signed between the Ministry of Health (hereinafter referred to as "MOH") and the Japan International Cooperation Agency (hereinafter referred to as "JICA") on 30<sup>th</sup> November, 2016 and 2<sup>nd</sup> March, 2017 and in response to the request from the Government of the Republic of Uganda (hereinafter referred to as "Uganda") dated 8<sup>th</sup> August, 2011, JICA dispatched the Preparatory Survey Team (hereinafter referred to as "the Team") for the explanation of Draft Preparatory Survey Report (hereinafter referred to as "the Draft Report") for the Project for Improvement of Regional Referral Hospitals in Northern Uganda (hereinafter referred to as "the Project"), headed by Mr. Shintaro Takano, Deputy Director, Grant Aid Project Management Division 2, Financial Cooperation Implementation Department, JICA from 20<sup>th</sup> to 26<sup>th</sup> August, 2017.

As a result of the discussions, both sides agreed on the main items described in the attached sheets.

Kampala, 25th August, 2017



Mr. Shintaro Takano  
Leader, Preparatory Survey Team  
Japan International Cooperation Agency  
Japan



Dr. Diana Atwine  
Permanent Secretary  
Ministry of Health  
Republic of Uganda

Witness



Ms. Maris Wanyera  
For: Permanent Secretary/Secretary to the  
Treasury  
Ministry of Finance, Planning and Economic  
Development  
Republic of Uganda



## ATTACHEMENT

1. Responsible authority for the Project

Both sides confirmed the authority responsible for the Project is MOH which will be the executing agency for the Project (hereinafter referred to as “the Executing Agency”). The Executing Agency shall coordinate with all the relevant authorities to ensure smooth implementation of the Project and ensure that the undertakings for the Project shall be taken care by relevant authorities properly and on time.

2. Contents of the Draft Report

After the explanation of the contents of the Draft Report by the Team, the Ugandan side agreed to its contents. The facility components which are included in the Project are shown in Annex 1 and the equipment list in each RRH is shown in Annex 2.

3. Cost estimate

Both sides confirmed that the cost estimate be borne by the Japanese side including the contingency described in Annex 3 is provisional and will be examined further by the Government of Japan for its approval. The contingency would cover the additional cost against natural disaster, unexpected natural conditions, etc.

4. Confidentiality of the cost estimate and technical specifications

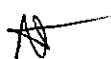
Both sides confirmed that the cost estimate and technical specifications in the Draft Report and Annex 3 should never be duplicated or disclosed to any third parties except for Ministry of Finance, Planning and Economic Development until all the contracts under the Project are concluded.

5. Timeline for the project implementation

The Team explained to the Ugandan side that the expected timeline for the Project implementation is as attached in Annex 4.

6. Expected outcomes and indicators

Both sides agreed that key indicators for expected outcomes are as follows. The Ugandan side will be responsible for the achievement of agreed key indicators targeted in the Ugandan financial year 2022/23 and shall monitor the progress based on those indicators.



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[Quantitative indicators]

Gulu RRH

| Indicator  | Baseline<br>(Average number of<br>2011/12-2015/16) | Target (2022/23) |
|--|--|------------------|
| Number of Deliveries<br>(case/year)                              | 4,768  | 5,500            |
| Number of Operations<br>(case/year)                              | 1,543  | 1,800            |
| Number of Emergency Patients<br>(person/year)                    | 5,445  | 6,300            |
| Number of Patients of Intensive<br>Care Unit (ICU) (person/year) | 0  | 200              |

Lira RRH

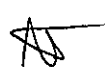
| Indicator  | Baseline<br>(Average number of<br>2011/12-2015/16) | Target (2022/23) |
|--|--|------------------|
| Number of Outpatients *1<br>(person/year)                                | 121,345  | 144,000          |
| Number of Patients of Maternal<br>and Child Health Unit<br>(person/year) | 36,164   | 42,900           |
| Number of Emergency Patients<br>(person/year)                            | 4,800  | 5,400            |
| Number of Deliveries<br>(case/year)                                      | 5,804  | 6,800            |

\*1: This number consists of the patients of General Outpatients clinic, Orthopedics clinic, Ophthalmology clinic, Ear, Nose and Throat (ENT) clinic, and Dental clinic

Arua RRH

| Indicator                                     | Baseline<br>(Average number of<br>2011/12-2015/16) | Target (2022/23) |
|---|--|------------------|
| Number of Outpatients *2<br>(person/year)     | 96,208   | 116,000          |
| Number of Emergency Patients<br>(person/year) | 5,315  | 6,400            |

\*2: This number consists of the patients of General Outpatients clinic, Medical Outpatients clinic, Diabetes clinic, Nutrition clinic, Palliative care clinic, Paediatrics clinic, Surgery clinic, Orthopedics clinic, ENT clinic, Ophthalmology clinic, Dental clinic, and Obstetrics and Gynaecology clinic.







[Qualitative indicators]

- Through strengthening the functions which are necessary for RRH as the top referral hospital in each sub-region, the access to and quality of health care services in Northern Uganda will be improved.
- Through construction of facilities and procurement of equipment, the inconvenience such as the congestion and the dirty environment will be improved, thereby credibility and satisfaction of the hospitals for the people in Northern Uganda including refugees will be boosted.

7. Technical assistance (“Soft Component” of the Project)

Considering the sustainable operation and maintenance of the products and services granted through the Project, following technical assistance is planned under the Project. The Ugandan side confirmed to deploy necessary number of counterparts who are appropriate and competent in terms of its purpose of the technical assistance as described in the Draft Report.

8. Undertakings of the Project

- 8-1. Both sides confirmed the undertakings of the Project as described in Annex 5 which will be used as an attachment of G/A.
- 8-2. Both sides confirmed that customs duties, internal taxes and other fiscal levies which may be imposed in Uganda will be budgeted for by MOH without using the Grant, according to the agreement between the Government of Uganda and the Government of Japan.
- 8-3. The Ugandan side assured to take the necessary measures and coordination including allocation of the necessary budget which are preconditions of implementation of the Project as described in Annex 3 and 5. It is further agreed that the costs are indicative, i.e. at Outline Design level. More accurate costs will be calculated at the Detailed Design stage.
- 8-4. Both sides confirmed the following would be the undertakings of the Government of Uganda to be completed according to the schedule in Annex 4;
- 1) demolition of existing facilities and land leveling to construct new facilities
  - 2) providing alternative space for the services carried out in the demolished facilities during the construction period.
- 8-5. The Ugandan side agreed to allocate budget (operational and maintenance costs), human resources with skills (health service providers and any other personnel), and goods (spare parts and consumables) necessary for the proper and sustainable operation and maintenance of the facilities and the equipment under the Project based on the Draft Report. Specifically, the Ugandan side agreed to take necessary

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Annex 1 Outline of the Facilities

Annex 2 Equipment List

Annex 3 Project Cost Estimation (confidential)

Annex 4 Project Implementation Schedule (tentative)

Annex 5 Major Undertakings to be taken by the Government of Uganda

Annex 6 Project Monitoring Report (template)



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Annex 1: Outline of the facilities

Gulu RRH

| Project Component                  |                            | Description  |
|------------------------------------|----------------------------|--|
| Theatre /Casualty / Maternity Ward | GF 1,208.89 m <sup>2</sup> | OT: OT (3), Recovery room, Staff room, Operation hall, CSSD & sterilisation room<br>Casualty: Ambulance, Triage/Clinic, Resuscitation room, Office, Minor operation room (1), Staff room, etc.<br>ICU: ICU, Anteroom, Staff room, Office, etc.<br>Common: Power house, Generator house, Fire pump room, etc. |
|                                    | 1F 1,260.11 m <sup>2</sup> | Maternity bed rooms (81 beds), NICU (2), Delivery room (5)<br>Labour room, Nurse station, Sluice/sterilisation room, Patient toilet, etc.  |
| Total                              | 2,469.00m <sup>2</sup>     |  |

Lira RRH

| Project Component  |                            | Description   |
|--------------------|----------------------------|---|
| OPD/Casualty Block | GF 980.30 m <sup>2</sup>   | OPD: Reception, Laboratory, Pharmacy, Imagery, etc.<br>Casualty: Ambulance, Triage/clinic, Resuscitation room, Minor operation room, Sluice/sterilisation room, Office, Staff room, etc.<br>MCH: Clinic, Office, etc.<br>Common: Patient toilet, etc. |
|                    | 1F 1,022.56 m <sup>2</sup> | OPD: Clinics (paediatric, obstetrics, general OPD, specialised OPD), Dental clinic, etc.<br>MCH: Clinic, Vaccine store, etc.<br>Common: Patient toilet, etc.  |
| Subtotal           | 2,002.86 m <sup>2</sup>    |   |
| Power House        | GF 17.31 m <sup>2</sup>    | Power house, Generator house  |
| Delivery Suite     | GF 278.98m <sup>2</sup>    | Delivery room (6), NICU, Sluice/sterilisation room, Staff room, etc.  |
| Generator House    | GF 13.78 m <sup>2</sup>    | Generator house   |
| Total              | 2,312.93 m <sup>2</sup>    |   |

Arua RRH

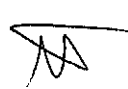


| Project Component  |                          | Description   |
|--------------------|--------------------------|---|
| OPD/Casualty Block | GF 865.97 m <sup>2</sup> | OPD: Reception, Laboratory, Pharmacy, Imagery, etc.<br>Casualty: Ambulance, Triage/clinic, Resuscitation room, Minor operation room, Sluice/sterilisation, Office, Staff room, etc.<br>Common: Patient toilet, etc. |
|                    | 1F 897.20 m <sup>2</sup> | OPD: Clinic (paediatric, gynaecology, general OPD, specialised OPD), Dental clinic, Patient toilet, etc.  |
| Subtotal           | 1,763.17 m <sup>2</sup>  |   |
| Power House        | GF 17.31 m <sup>2</sup>  | Power house, Generator house  |
| Total              | 1,780.48m <sup>2</sup>   |   |

## Annex 2: Equipment List

| No. | Requested No. | Equipment Name                                 | Q'ty | Unit | Gulu       | Lira       | Arua       |
|-----|---------------|--|------|------|------------|------------|------------|
|     |               |  |      |      | RRH        | RRH        | RRH        |
|     |               |  |      |      | Total Q'ty | Total Q'ty | Total Q'ty |
| 1   | Req-3         | Adenoidectomy and Tonsillectomy instrument set | 2    | Sets | 1          | 1          |            |
| 2   | Req-4         | Ambu bag set for adult                         | 2    | Sets | 2          |            |            |
| 3   | Req-5         | Ambu bag set for neonatal                      | 3    | Sets |            |            | 3          |
| 4   | Req-6         | Ambubag set                                    | 1    | Set  |            |            | 1          |
| 5   | Req-7         | Ambulance                                      | 3    | Sets | 1          | 1          | 1          |
| 6   | Req-8         | Anaesthesia Machine                            | 7    | Sets | 2          | 2          | 3          |
| 7   | Req-10        | Audiometer (Screening)                         | 1    | Set  |            | 1          |            |
| 8   | Req-11        | Autoclave (desktop)                            | 20   | Sets | 7          | 7          | 6          |
| 9   | Req-12        | Autoclave (Laboratory type)                    | 1    | Set  |            |            | 1          |
| 10  | Req-13        | Autoclave (stand alone)                        | 3    | Sets | 1          | 1          | 1          |
| 11  | Req-16        | Baby bed                                       | 2    | Sets |            |            | 2          |
| 12  | Req-20        | Binocular microscope                           | 2    | Sets | 1          |            | 1          |
| 13  | Req-21        | Biochemistry analyzer                          | 3    | Sets | 1          | 1          | 1          |
| 14  | Req-26        | BP machine                                     | 13   | Sets | 8          | 5          |            |
| 15  | Req-29        | BP machine for adult                           | 10   | Sets | 1          | 4          | 5          |
| 16  | Req-30        | BP machine for neonatal                        | 6    | Sets | 3          | 1          | 2          |
| 17  | Req-31        | Broad belt sander                              | 1    | Set  |            | 1          |            |
| 18  | Req-32        | Esophagoscope                                  | 3    | Sets | 1          | 1          | 1          |
| 19  | Req-35        | Caesarean instrument set                       | 3    | Sets |            | 2          | 1          |
| 20  | Req-36        | Caldwel luc instrument set                     | 1    | Set  | 1          |            |            |
| 21  | Req-40        | Centrifuge                                     | 3    | Sets | 1          | 1          | 1          |
| 22  | Req-43        | Clamp meter                                    | 2    | Sets |            | 1          | 1          |
| 23  | Req-47        | Colpo scope                                    | 1    | Set  | 1          |            |            |
| 24  | Req-48        | CPAP   | 1    | Set  |            |            | 1          |
| 25  | Req-49        | CR system                                      | 2    | Sets |            | 1          | 1          |
| 26  | Req-51        | Cryosurgery machine                            | 1    | Set  | 1          |            |            |
| 27  | Req-54        | Curettage instrument set                       | 3    | Sets | 3          |            |            |
| 28  | Req-55        | Deep freezer                                   | 2    | Sets | 1          | 1          |            |
| 29  | Req-57        | Delivery bed                                   | 16   | Sets | 6          | 4          | 6          |
| 30  | Req-59        | Delivery instrument set                        | 5    | Sets |            |            | 5          |
| 31  | Req-61        | Dental chair                                   | 3    | Sets | 1          | 1          | 1          |
| 32  | Req-63        | Dental instrument set                          | 5    | Sets | 1          | 3          | 1          |
| 33  | Req-66        | Dental X-ray machine                           | 3    | Sets | 1          | 1          | 1          |
| 34  | Req-66-2      | Dental X-ray CR                                | 3    | Sets | 1          | 1          | 1          |
| 35  | Req-67        | Diagnosis set                                  | 12   | Sets | 2          | 7          | 3          |

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|    |         |                                |    |      |    |    |    |
|----|---------|--------------------------------|----|------|----|----|----|
| 36 | Req-69  | Dressing cart                  | 6  | Sets |    | 2  | 4  |
| 37 | Req-70  | Dressing instrument set        | 7  | Sets |    | 2  | 5  |
| 38 | Req-71  | Drilling machine               | 1  | Set  |    |    | 1  |
| 39 | Req-72  | Drip stand                     | 10 | Sets |    | 8  | 2  |
| 40 | Req-73  | Drug trolley                   | 12 | Sets | 4  | 2  | 6  |
| 41 | Req-74  | Drum set                       | 8  | Sets | 1  | 6  | 1  |
| 42 | Req-79  | Dryer                          | 3  | Sets | 1  | 1  | 1  |
| 43 | Req-80  | Dust vacuume machine           | 1  | Set  | 1  |    |    |
| 44 | Req-81  | Earth mege tester              | 1  | Set  |    | 1  |    |
| 45 | Req-82  | ECG                            | 1  | Set  | 1  |    |    |
| 46 | Req-85  | Electrical balance             | 2  | Sets |    |    | 2  |
| 47 | Req-86  | Electrical dermatome           | 1  | Set  |    |    | 1  |
| 48 | Req-89  | Electrical tool set            | 2  | Sets | 1  | 1  |    |
| 49 | Req-90  | Electro surgical unit          | 3  | Sets | 2  |    | 1  |
| 50 | Req-93  | Eletrolyte analyzer            | 1  | Set  | 1  |    |    |
| 51 | Req-95  | Emergency bed                  | 36 | Sets | 12 | 12 | 12 |
| 52 | Req-97  | EMS                            | 2  | Sets | 1  |    | 1  |
| 53 | Req-98  | Engraving machine              | 1  | Set  | 1  |    |    |
| 54 | Req-99  | ENT chair                      | 1  | Set  |    | 1  |    |
| 55 | Req-100 | ENT examination instrument set | 1  | Set  |    | 1  |    |
| 56 | Req-101 | ENT oprating microscope        | 2  | Sets | 1  | 1  |    |
| 57 | Req-103 | Examination bed                | 29 | Sets | 2  | 23 | 4  |
| 58 | Req-104 | Examination light              | 17 | Sets | 9  | 1  | 7  |
| 59 | Req-106 | Examination table for OB&GY    | 6  | Sets | 2  | 2  | 2  |
| 60 | Req-107 | Exercise mat                   | 3  | Sets | 1  | 1  | 1  |
| 61 | Req-110 | Fetal doppler                  | 6  | Sets | 2  | 1  | 3  |
| 62 | Req-116 | Fluoroscopy X-ray machine      | 2  | Sets |    | 1  | 1  |
| 63 | Req-118 | General X-ray machine          | 2  | Sets |    | 1  | 1  |
| 64 | Req-120 | Glucometer                     | 17 | Sets | 3  | 13 | 1  |
| 65 | Req-122 | Hand drilling machine          | 1  | Set  | 1  |    |    |
| 66 | Req-126 | HBA1o analyzer                 | 1  | Set  |    |    | 1  |
| 67 | Req-127 | Height meter                   | 1  | Set  | 1  |    |    |
| 68 | Req-128 | Hematology analyzer            | 3  | Sets | 1  | 1  | 1  |
| 69 | Req-130 | Hot air oven                   | 1  | Set  | 1  |    |    |
| 70 | Req-133 | Hysterosalpingogram set        | 1  | Set  |    |    | 1  |
| 71 | Req-134 | ICU bed                        | 5  | Sets | 5  |    |    |
| 72 | Req-135 | Incubator                      | 2  | Sets | 1  | 1  |    |
| 73 | Req-136 | Infant incubator               | 10 | Sets | 4  | 2  | 4  |
| 74 | Req-137 | Infant warmer                  | 4  | Sets | 1  | 1  | 2  |
| 75 | Req-138 | Infra red machine              | 3  | Sets | 1  | 1  | 1  |


9



|     |         |                                |    |      |    |    |    |
|-----|---------|--------------------------------|----|------|----|----|----|
| 76  | Req-139 | Infusion pump                  | 5  | Sets | 3  |    | 2  |
| 77  | Req-141 | Instrument trolley             | 3  | Sets | 3  |    |    |
| 78  | Req-142 | Insulation resistance tester   | 1  | Set  |    | 1  |    |
| 79  | Req-145 | Jig saw                        | 1  | Set  | 1  |    |    |
| 80  | Req-149 | Laryngoscope                   | 1  | Set  | 1  |    |    |
| 81  | Req-154 | Light cure machine             | 3  | Sets | 1  | 1  | 1  |
| 82  | Req-158 | Mayo table                     | 3  | Sets | 3  |    |    |
| 83  | Req-160 | Medicine cupboard              | 5  | Sets |    | 1  | 4  |
| 84  | Req-161 | Micropipette set               | 2  | Sets | 2  |    |    |
| 85  | Req-162 | Middle ear instrument set      | 1  | Set  | 1  |    |    |
| 86  | Req-163 | Minor surgery instrument set   | 3  | Sets |    | 2  | 1  |
| 87  | Req-164 | Mobile X-ray machine           | 2  | Sets | 1  | 1  |    |
| 88  | Req-166 | Multimeter                     | 2  | Sets | 1  |    | 1  |
| 89  | Req-168 | Nebulizer                      | 10 | Sets | 5  | 1  | 4  |
| 90  | Req-171 | Operating light (ceiling mont) | 4  | Sets | 4  |    |    |
| 91  | Req-172 | Operating light (mobile)       | 9  | Sets |    | 5  | 4  |
| 92  | Req-173 | Operating table                | 7  | Sets | 3  | 2  | 2  |
| 93  | Req-174 | Operating table with traction  | 3  | Sets | 1  | 1  | 1  |
| 94  | Req-178 | Orthopedic instrument set      | 1  | Set  |    |    | 1  |
| 95  | Req-179 | Oscilloscope (portable)        | 1  | Set  |    | 1  |    |
| 96  | Req-182 | Oxygen cylinder set            | 47 | Sets | 16 | 14 | 17 |
| 97  | Req-185 | Parallel bar for adult         | 1  | Set  | 1  |    |    |
| 98  | Req-186 | Patient Bed                    | 86 | Sets | 86 |    |    |
| 99  | Req-189 | Patient monitor                | 27 | Sets | 10 | 5  | 12 |
| 100 | Req-194 | Patient trolley                | 32 | Sets | 12 | 8  | 12 |
| 101 | Req-197 | Photo therapy unit             | 1  | Set  | 1  |    |    |
| 102 | Req-198 | Pipe bender                    | 1  | Set  | 1  |    |    |
| 103 | Req-199 | Plaster bender                 | 2  | Sets | 1  | 1  |    |
| 104 | Req-200 | Plaster cutter (electrical)    | 3  | Sets | 1  | 1  | 1  |
| 105 | Req-201 | Plaster cutter (manual)        | 2  | Sets | 1  | 1  |    |
| 106 | Req-202 | Plaster opener                 | 2  | Sets | 1  | 1  |    |
| 107 | Req-206 | Pneumatic tournique            | 1  | Set  |    |    | 1  |
| 108 | Req-208 | Polishing machine              | 1  | Set  | 1  |    |    |
| 109 | Req-209 | Posture mirror                 | 1  | Set  | 1  |    |    |
| 110 | Req-211 | Pulp tester                    | 3  | Sets | 1  | 1  | 1  |
| 111 | Req-212 | Pulse oximeter                 | 29 | Sets | 15 | 7  | 7  |
| 112 | Req-217 | Refrigerator (battery type)    | 2  | Sets |    | 1  | 1  |
| 113 | Req-218 | Refrigerator for bloodbank     | 3  | Sets | 1  | 1  | 1  |
| 114 | Req-220 | Refrigerator for drug (large)  | 4  | Sets |    | 2  | 2  |
| 115 | Req-221 | Refrigerator for drug (medium) | 7  | Sets | 4  | 1  | 2  |

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|     |           |                                     |    |      |    |   |    |
|-----|-----------|-------------------------------------|----|------|----|---|----|
| 116 | Req-222   | Refrigerator for drug (small)       | 3  | Sets | 1  | 1 | 1  |
| 117 | Req-224   | Resuscitation set                   | 1  | Set  |    | 1 |    |
| 118 | Req-226   | Rotor machine                       | 2  | Sets | 1  | 1 |    |
| 119 | Req-231   | Shaker                              | 1  | Set  | 1  |   |    |
| 120 | Req-232   | Short wave diathermy                | 3  | Sets | 1  | 1 | 1  |
| 121 | Req-233   | Shulder wheel                       | 1  | Set  | 1  |   |    |
| 122 | Req-236   | Speculum set                        | 14 | Sets | 10 | 1 | 3  |
| 123 | Req-240   | Spring balance                      | 1  | Set  |    |   | 1  |
| 124 | Req-244   | Stationary bike for adult           | 4  | Sets | 2  | 1 | 1  |
| 125 | Req-246   | Steel cabinet                       | 6  | Sets | 2  | 4 |    |
| 126 | Req-247   | Sterilizing box set                 | 2  | Sets |    | 1 | 1  |
| 127 | Req-249   | Stethoscope for pediatric           | 2  | Sets | 2  |   |    |
| 128 | Req-250-1 | Storage cabinet for Gulu CSSD       | 1  | Set  | 1  |   |    |
| 129 | Req-250-2 | Storage cabinet for Lira CSSD       | 1  | Set  |    | 1 |    |
| 130 | Req-251   | Storage cabinet for drug storage    | 1  | Set  | 1  |   |    |
| 131 | Req-252   | Storage cabinet for pharmacy        | 1  | Set  |    | 1 |    |
| 132 | Req-253   | Suction machine (electrical)        | 31 | Sets | 13 | 8 | 10 |
| 133 | Req-254   | Suction machine (manual)            | 4  | Sets | 3  | 1 |    |
| 134 | Req-255   | Surgery instrument set              | 1  | Set  |    |   | 1  |
| 135 | Req-258   | Syringe pump                        | 3  | Sets | 1  | 2 |    |
| 136 | Req-261   | Therapeutic massage bed             | 2  | Sets | 2  |   |    |
| 137 | Req-263   | Thermometer                         | 7  | Sets | 2  |   | 5  |
| 138 | Req-266   | Traction bed                        | 1  | Set  | 1  |   |    |
| 139 | Req-267   | Traction machine for cervical       | 1  | Set  |    |   | 1  |
| 140 | Req-270   | Tread mill                          | 1  | Set  | 1  |   |    |
| 141 | Req-272   | Tympanometer                        | 2  | Sets | 1  | 1 |    |
| 142 | Req-275   | Ultrasonic therapy machine          | 3  | Sets | 1  | 1 | 1  |
| 143 | Req-277   | Ultrasound machine (cardiac)        | 3  | Sets | 1  | 1 | 1  |
| 144 | Req-278   | Ultrasound machine (mobile)         | 4  | Sets | 3  | 1 |    |
| 145 | Req-282   | Vacuum extractor                    | 1  | Set  | 1  |   |    |
| 146 | Req-285   | Ventilator                          | 1  | Set  | 1  |   |    |
| 147 | Req-293   | Washing machine                     | 3  | Sets | 1  | 1 | 1  |
| 148 | Req-294   | Water bath                          | 1  | Set  | 1  |   |    |
| 149 | Req-295   | Water distillizer                   | 4  | Sets | 1  | 2 | 1  |
| 150 | Req-296   | Weighing and height scale for adult | 3  | Sets |    | 3 |    |
| 151 | Req-298   | Weighing scale for adult            | 9  | Sets | 5  | 3 | 1  |
| 152 | Req-300   | Weighing scale for infant           | 5  | Sets | 4  | 1 |    |
| 153 | Req-304   | Wheel chair                         | 17 | Sets | 4  | 5 | 8  |
| 154 | Req-306   | Working table for CSSD              | 2  | Sets | 2  |   |    |
| 155 | Req-307   | Working table for pharmacy          | 1  | Set  |    | 1 |    |


11

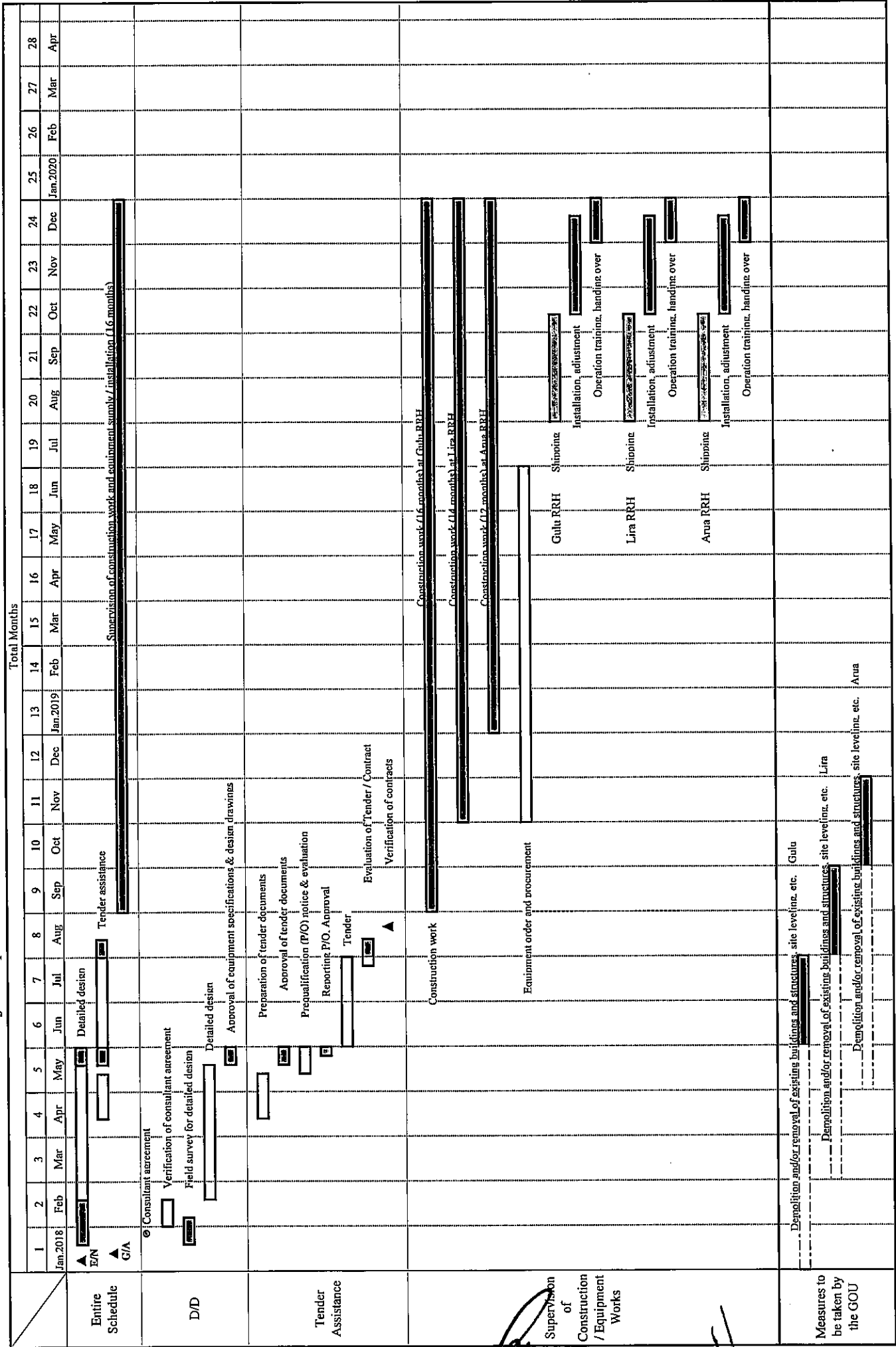


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Annex 4: Project Implementation Schedule (tentative) (Detailed Design / Construction - Equipment Works)



Note 1) Supervision period of construction / equipment works will be reconsidered according to the result of field surveys

2) : Works in Uganda : Works in Japan

Annex 5: Major Undertakings to be taken by the Government of Uganda

Specific obligations of the Government of Uganda which will not be funded with the Grant

(1) Before the Tender

| NO | Items  | Deadline   | In charge    | Estimated Cost (1,000UShs) | Ref.             |
|----|--|--|--------------|----------------------------|------------------|
| 1  | To open bank account (B/A)   | within 1 month after the signing of the G/A      | MOH          | -                          |                  |
| 2  | To issue A/P to a bank in Japan (the Agent Bank) for the payment to the consultant   | within 1 month after the signing of the contract | MOH          | 9,100                      | the Draft Report |
| 3  | To provide alternative space for the services carried out in the facilities to be demolished during construction period.   | before start of demolition                       | RRHs         | Gulu<br>6,000              | the Draft Report |
|    |  |  |              | Lira<br>21,500             |                  |
|    |  |  |              | Arua<br>6,000              |                  |
| 4  | To secure and clear land for ;<br>1) the construction areas<br>2) the area for temporary office, temporary store and working shade, stock yard for materials and concrete mixing space   | before notice of the bidding document            | RRHs         | -                          |                  |
| 5  | To obtain the planning, zoning, building permit  | before notice of the bidding document            | MOH and RRHs | -                          |                  |
| 6  | To clear, level and reclaim the following sites at the construction areas including their foundations<br><br>1) the existing buildings<br>2) all existing trees<br>3) the existing sewerage pipes, manholes, water supply pipes, underground electric cables<br>4) any other obstacles | before notice of the bidding document            | Gulu RRH     | 58,600                     | the Draft Report |
|    |  |  | Lira RRH     | 49,300                     |                  |
|    |  |  | Arua RRH     | 43,100                     |                  |
| 7  | To submit Project Monitoring Report (with the result of Detailed Design)   | before preparation of bidding documents          | MOH          | -                          |                  |

(B/A: Banking Arrangement, A/P: Authorization to pay, N/A: Not Applicable)

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## (2) During the Project Implementation

| NO | Items  | Deadline  | In charge                        | Estimated Cost (1,000UShs) | Ref.             |
|----|--|---|----------------------------------|----------------------------|------------------|
| 1  | To issue A/P to a bank in Japan (the Agent Bank) for the payment to the Contractor(s)  | within 1 month after the signing of the contract(s)   | MOH                              | 77,560                     | the Draft Report |
| 2  | To bear the following commissions to a bank in Japan for the banking services based upon the B/A   |   | MOH                              |                            |                  |
|    | 1) Advising commission of A/P  | within 1 month after the signing of the contract(s)   | MOH                              |                            |                  |
|    | 2) Payment commission for A/P  | every payment   | MOH                              |                            |                  |
| 3  | To ensure prompt customs clearance and to assist the Supplier(s) with internal transportation in recipient country   | during the Project  | MOH                              | -                          |                  |
| 4  | To accord Japanese nationals and/or physical persons of third countries whose services may be required in connection with the supply of the products and the services such facilities as may be necessary for their entry into the country of the Recipient and stay therein for the performance of their work | during the Project  | MOH                              | -                          |                  |
| 5  | To ensure that customs duties, internal taxes and other fiscal levies which may be imposed in the country of the Recipient with respect to the purchase of the products and/or the services be borne by its designated authority without using the Grant.  | during the Project  | MOH                              | *                          |                  |
| 6  | To bear all the expenses, other than those covered by the Grant, necessary for the implementation of the Project   | during the Project  | MOH and RRHs                     |                            |                  |
| 7  | To submit Project Monitoring Report  | every month   | MOH                              | -                          |                  |
|    | 1) To submit Project Monitoring Report (final)   | within one month after signing of Certificate of Completion for the works under the contract(s) | MOH                              | -                          |                  |
| 8  | To submit a report concerning completion of the Project  | within six months after completion of the Project   | MOH                              | -                          |                  |
| 9  | To conduct necessary pre-installation works in the case of installing new equipment in the existing buildings  | before installation of equipment  | Gulu RRH<br>Lira RRH<br>Arua RRH | 11,000<br>6,500<br>12,000  | the Draft Report |
| 10 | To provide facilities for distribution of electricity, water supply and drainage and other incidental facilities necessary for the implementation of the Project outside the sites   |   | RRHs                             | -                          |                  |
|    | 1) Electricity<br>- The distributing line and appropriate power supply to the buildings  | before start of the construction  | Gulu RRH<br>Lira RRH<br>Arua RRH | 1,550<br>1,550<br>1,550    | the Draft Report |

|    |   |  |          |        |                  |
|----|---|--|----------|--------|------------------|
| 2) | Water Supply<br>- The water supply line and the appropriate water supply to the buildings   | 6 months before completion of the construction | RRHs     | -      |                  |
| 3) | Drainage<br>- The public sewer line and the appropriate drainage system to the buildings  | 6 months before completion of the construction | RRHs     | -      |                  |
| 4) | LAN system<br>- LAN system wiring in the existing building and between the existing building and the new building (for CR system) | 6 months before completion of the construction | Lira RRH | 10,000 | the Draft Report |
|    |   |  | Arua RRH | 10,000 |                  |
| 5) | Furniture and Equipment<br>- general furniture and office equipment   | 1 month before completion of the construction  | Gulu RRH | 31,000 | the Draft Report |
|    |   |  | Lira RRH | 31,000 |                  |
|    |   |  | Arua RRH | 31,000 |                  |
| 11 | To take necessary measure for safe construction and traffic control   | during the construction                        | RRHs     | -      |                  |

\* The estimated costs to be borne by by the Executing Agency will be calculated in the later stage.



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(3) After the Project

| NO | Items  | Deadline                             | In charge    | Estimated Cost<br>(1,000UShs) | Ref. |
|----|--|--------------------------------------|--------------|-------------------------------|------|
| 1  | To maintain and use properly and effectively the facilities constructed and equipment provided under the Grant Aid<br>1) Allocation of maintenance cost<br>2) Operation and maintenance system<br>3) Routine check/Periodic inspection<br>4) Spare parts and Consumables | After completion of the construction | MOH and RRHs | -                             |      |



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**Project Monitoring Report**  
**on**  
**Project Name**  
**Grant Agreement No. XXXXXXXX**  
 20XX, Month

**Organizational Information**

|  |  |
|--|--|
| <b>Signer of the G/A<br/>(Recipient)</b> | _____<br>Person in Charge (Designation)<br>_____<br>Contacts            Address: _____<br>Phone/FAX: _____<br>Email: _____ |
| <b>Executing Agency</b>                  | _____<br>Person in Charge (Designation)<br>_____<br>Contacts            Address: _____<br>Phone/FAX: _____<br>Email: _____ |
| <b>Line Ministry</b>                     | _____<br>Person in Charge (Designation)<br>_____<br>Contacts            Address: _____<br>Phone/FAX: _____<br>Email: _____ |

**General Information:**

|                          |   |
|--------------------------|---|
| <b>Project Title</b>     |   |
| <b>E/N</b>               | Signed date:<br>Duration:   |
| <b>G/A</b>               | Signed date:<br>Duration:   |
| <b>Source of Finance</b> | Government of Japan: Not exceeding JPY _____ mil.<br>Government of (_____): _____ |


 20 


|                               |  |
|-------------------------------|--|
| <b>1: Project Description</b> |  |
|-------------------------------|--|

**1-1 Project Objective**

|  |
|--|
|  |
|--|

**1-2 Project Rationale**

- Higher-level objectives to which the project contributes (national/regional/sectoral policies and strategies)
- Situation of the target groups to which the project addresses

|  |
|--|
|  |
|--|

**1-3 Indicators for measurement of "Effectiveness"**

| Quantitative indicators to measure the attainment of project objectives |                    |                  |
|---|--------------------|------------------|
| Indicators  | Original (Yr     ) | Target (Yr     ) |
|   |                    |                  |
|   |                    |                  |
|   |                    |                  |
| Qualitative indicators to measure the attainment of project objectives  |                    |                  |
|   |                    |                  |

|                                  |
|----------------------------------|
| <b>2: Details of the Project</b> |
|----------------------------------|

**2-1 Location**

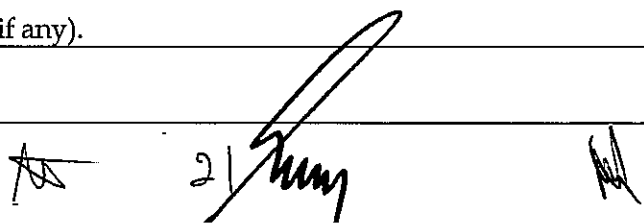
| Components | Original<br><i>(proposed in the outline design)</i> | Actual |
|------------|---|--------|
| 1.         |   |        |
|            |   |        |

**2-2 Scope of the work**

| Components | Original*<br><i>(proposed in the outline design)</i> | Actual* |
|------------|--|---------|
| 1.         |  |         |
|            |  |         |
|            |  |         |

Reasons for modification of scope (if any).

|       |
|-------|
| (PMR) |
|-------|


  
 21/11/11

**2-3 Implementation Schedule**

| Items | Original                                |   | Actual |
|-------|---|---|--------|
|       | <i>(proposed in the outline design)</i> | <i>(at the time of signing the Grant Agreement)</i> |        |
|       |   |   |        |

Reasons for any changes of the schedule, and their effects on the project (if any)

|  |
|--|
|  |
|--|

**2-4 Obligations by the Recipient**

**2-4-1 Progress of Specific Obligations**

See Attachment 2.

**2-4-2 Activities**

See Attachment 3.

**2-4-3 Report on RD**

See Attachment 11.

**2-5 Project Cost**

**2-5-1 Cost borne by the Grant(Confidential until the Bidding)**

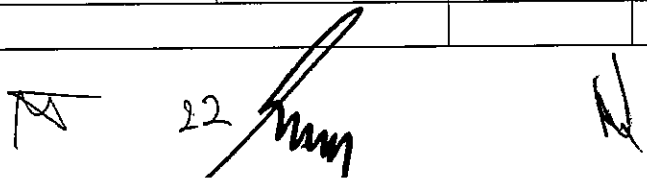
| Components |   |  | Cost<br>(Million Yen)  |        |
|------------|---|--|--|--------|
|            | Original<br><i>(proposed in the outline design)</i> | Actual<br><i>(in case of any modification)</i> | Original <sup>1)/2)</sup><br><i>(proposed in the outline design)</i> | Actual |
| 1.         |   |  |  |        |
|            |   |  |  |        |
|            |   |  |  |        |
| Total      |   |  |  |        |

Note: 1) Date of estimation:

2) Exchange rate: 1 US Dollar = Yen

**2-5-2 Cost borne by the Recipient**

| Components |   |  | Cost   |        |
|------------|---|--|--|--------|
|            | Original<br><i>(proposed in the outline design)</i> | Actual<br><i>(in case of any modification)</i> | Original <sup>1)/2)</sup><br><i>(proposed in the outline design)</i> | Actual |
| 1.         |   |  |  |        |
|            |   |  |  |        |
|            |   |  |  |        |
|            |   |  |  |        |



- Note: 1) Date of estimation:  
2) Exchange rate: 1 US Dollar =

Reasons for the remarkable gaps between the original and actual cost, and the countermeasures (if any)

(PMR)

**2-6 Executing Agency**

- Organization's role, financial position, capacity, cost recovery etc,
- Organization Chart including the unit in charge of the implementation and number of employees.

|   |
|---|
| <b>Original</b> (at the time of outline design)<br>name:<br>role:<br>financial situation:<br>institutional and organizational arrangement (organogram):<br>human resources (number and ability of staff): |
| <b>Actual</b> (PMR)   |

**2-7 Environmental and Social Impacts**

- The results of environmental monitoring based on Attachment 5 (in accordance with Schedule 4 of the Grant Agreement).
- The results of social monitoring based on in Attachment 5 (in accordance with Schedule 4 of the Grant Agreement).
- Disclosed information related to results of environmental and social monitoring to local stakeholders (whenever applicable).

**3: Operation and Maintenance (O&M)**

**3-1 Physical Arrangement**

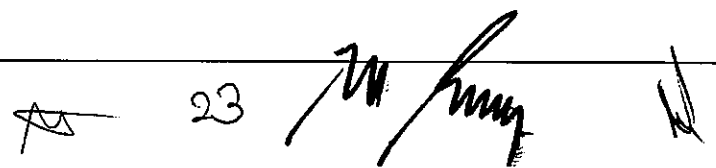
- Plan for O&M (number and skills of the staff in the responsible division or section, availability of manuals and guidelines, availability of spareparts, etc.)

|   |
|---|
| <b>Original</b> (at the time of outline design) |
| <b>Actual</b> (PMR)                             |

**3-2 Budgetary Arrangement**

- Required O&M cost and actual budget allocation for O&M

**Original** (at the time of outline design)

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Actual (PMR)

**4: Potential Risks and Mitigation Measures**

- Potential risks which may affect the project implementation, attainment of objectives, sustainability
- Mitigation measures corresponding to the potential risks

**Assessment of Potential Risks (at the time of outline design)**

| Potential Risks          | Assessment                                       |
|--------------------------|--|
| 1. (Description of Risk) | Probability: High/Moderate/Low                   |
|                          | Impact: High/Moderate/Low                        |
|                          | Analysis of Probability and Impact:              |
|                          |  |
|                          | Mitigation Measures:                             |
|                          |  |
|                          | Action required during the implementation stage: |
| 2. (Description of Risk) | Probability: High/Moderate/Low                   |
|                          | Impact: High/Moderate/Low                        |
|                          | Analysis of Probability and Impact:              |
|                          |  |
|                          | Mitigation Measures:                             |
|                          |  |
|                          | Action required during the implementation stage: |
| 3. (Description of Risk) | Probability: High/Moderate/Low                   |
|                          | Impact: High/Moderate/Low                        |
|                          | Analysis of Probability and Impact:              |
|                          |  |
|                          | Mitigation Measures:                             |
|                          |  |
|                          | Action required during the implementation stage: |

|   |                                   |
|---|-----------------------------------|
|   | Contingency Plan (if applicable): |
|   |                                   |
| <b>Actual Situation and Countermeasures</b> |                                   |
| (PMR)                                       |                                   |

**5: Evaluation and Monitoring Plan (after the work completion)**

**5-1 Overall evaluation**

Please describe your overall evaluation on the project.


**5-2 Lessons Learnt and Recommendations**

Please raise any lessons learned from the project experience, which might be valuable for the future assistance or similar type of projects, as well as any recommendations, which might be beneficial for better realization of the project effect, impact and assurance of sustainability.

**5-3 Monitoring Plan of the Indicators for Post-Evaluation**

Please describe monitoring methods, section(s)/department(s) in charge of monitoring, frequency, the term to monitor the indicators stipulated in 1-3.

25



Monitoring sheet on price of specified materials

1. Initial Conditions (Confirmed)

| Items of Specified Materials | Initial Volume<br>A | Initial Unit Price (¥)<br>B | Initial total Price<br>C=A×B | 1% of Contract Price<br>D | Condition of payment<br>Price (Decreased)<br>E=C-D | Condition of payment<br>Price (Increased)<br>F=C+D |
|------------------------------|---------------------|-----------------------------|------------------------------|---------------------------|--|--|
| Item 1                       | ●●t                 | ●                           | ●                            | ●                         | ●  | ●  |
| Item 2                       | ●●t                 | ●                           | ●                            | ●                         |  |  |
| Item 3                       |                     |                             |                              |                           |  |  |
| Item 4                       |                     |                             |                              |                           |  |  |
| Item 5                       |                     |                             |                              |                           |  |  |

2. Monitoring of the Unit Price of Specified Materials

(1) Method of Monitoring : ●●

(2) Result of the Monitoring Survey on Unit Price for each specified materials

| Items of Specified Materials | 1st month, 2015 | 2nd month, 2015 | 3rd month, 2015 | 4th | 5th | 6th |
|------------------------------|-----------------|-----------------|-----------------|-----|-----|-----|
| Item 1                       | ●               | ●               | ●               |     |     |     |
| Item 2                       |                 |                 |                 |     |     |     |
| Item 3                       |                 |                 |                 |     |     |     |
| Item 4                       |                 |                 |                 |     |     |     |
| Item 5                       |                 |                 |                 |     |     |     |

(3) Summary of Discussion with Contractor (if necessary)

27 Sun



Report on Proportion of Procurement (Recipient Country, Japan and Third Countries)  
 (Actual Expenditure by Construction and Equipment each)

|                             | Domestic Procurement<br>(Recipient Country)<br>A | Foreign Procurement<br>(Japan)<br>B | Foreign Procurement<br>(Third Countries)<br>C | Total<br>D |
|-----------------------------|--|-------------------------------------|---|------------|
| Construction Cost           | (A/D%)   | (B/D%)                              | (C/D%)  |            |
| Direct Construction Cost    | (A/D%)   | (B/D%)                              | (C/D%)  |            |
| others                      | (A/D%)   | (B/D%)                              | (C/D%)  |            |
| Equipment Cost              | (A/D%)   | (B/D%)                              | (C/D%)  |            |
| Design and Supervision Cost | (A/D%)   | (B/D%)                              | (C/D%)  |            |
| Total                       | (A/D%)   | (B/D%)                              | (C/D%)  |            |

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## Appendix 5 Technical Note

TECHNICAL NOTE  
ON PREPARATORY SURVEY (FIELD SURVEY 2)  
ON THE PROJECT FOR IMPROVEMENT OF REGIONAL REFERRAL HOSPITALS  
IN NORTHERN UGANDA

After Signing of Minutes of Discussions on 2nd March 2017, the consultant team held discussions with the officials concerned from the Government of Uganda. In the course of discussions and field surveys, both parties confirmed the items described below.

### 1. Facilities

- (1) The Japanese Survey Team explained roughly the required building Conceptual Schematic Design (Maternity/Casualty/Theatre Block in Gulu RRH, OPD/Casualty Block and Delivery Suite in Lira RRH, and OPD/Casualty Block in Arua RRH) as shown in ANNEX to the Ugandan Counterparts. The Ugandan Counterparts agreed to the preliminary Building Conceptual Schematic Design.
- (2) The Japanese Survey Team and the Ugandan Counterparts agreed that the solar water heater system shall be installed in the Maternity/Casualty/Theatre Block in Gulu RRH and the Delivery Suite in Lira RRH, and shall not be installed in the OPD/Casualty Blocks in Lira and Arua RRHs.
- (3) The Japanese Survey Team and the Ugandan Counterparts agreed that the manifold and the oxygen piping shall only be installed in the Operation Theatre and the ICU in Gulu RRH, and shall not be installed in any other buildings including the Casualty Units in all RRHs.

### 2. Equipment

The Ugandan side additionally requested equipment as below;

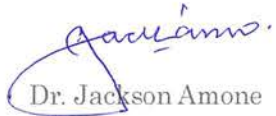
- Laparoscope x 1unit, Colonoscope x 1unit and Gastroscope x 1unit for Gulu RRH
- Mammograph x 1unit and Fetal Doppler x 1unit for Lira RRH

The Japanese Survey Team will analyze the requested equipment for all the three hospitals (including the additional requested equipment) in Japan, and plan the component of equipment for the project.





Kampala, 9<sup>th</sup> March, 2017



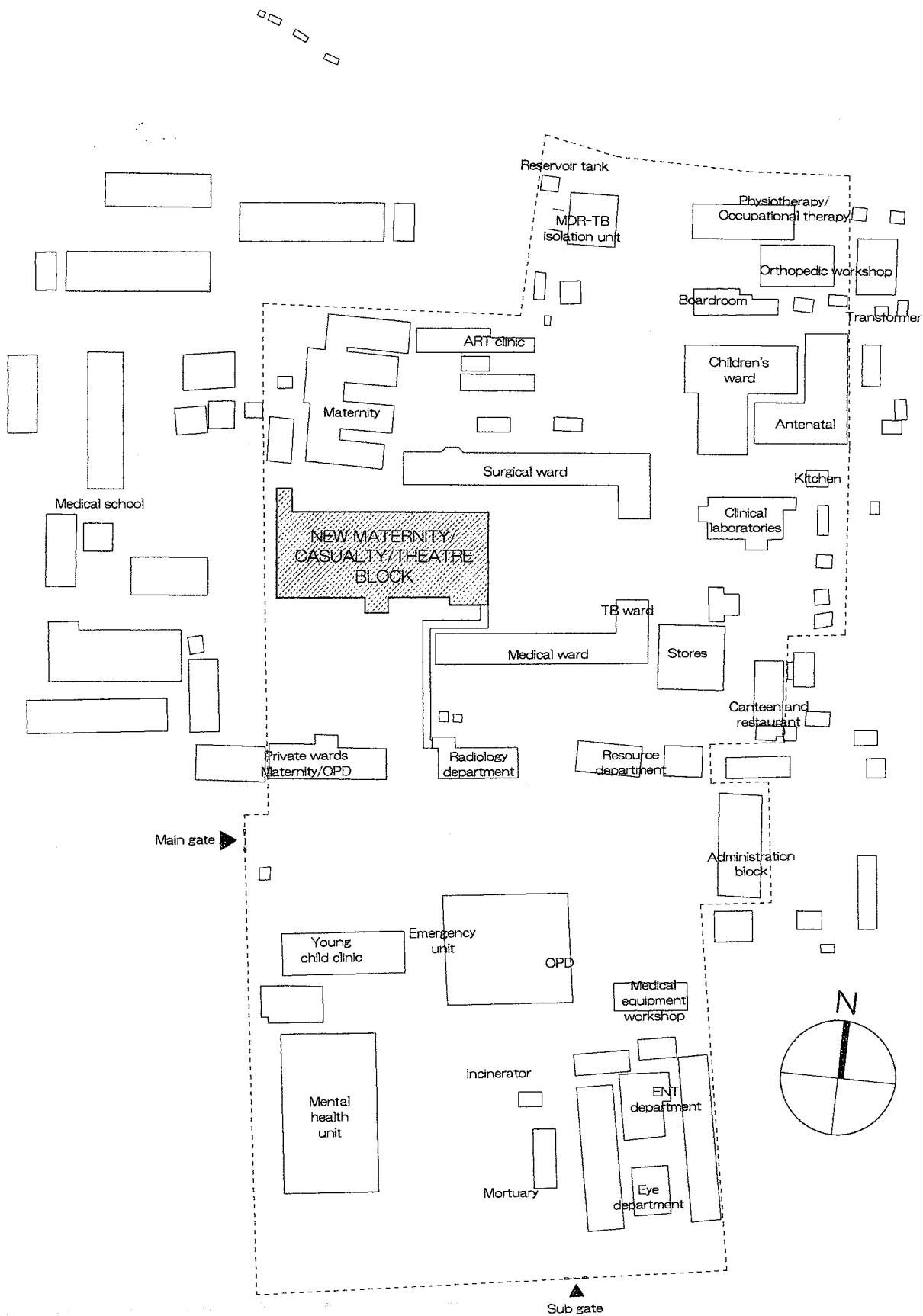
Dr. Jackson Amone


Acting Commissioner for Health  
Services (Clinical Services), MOH



Mr. Keiichi Ide

Project Manager  
Survey Team



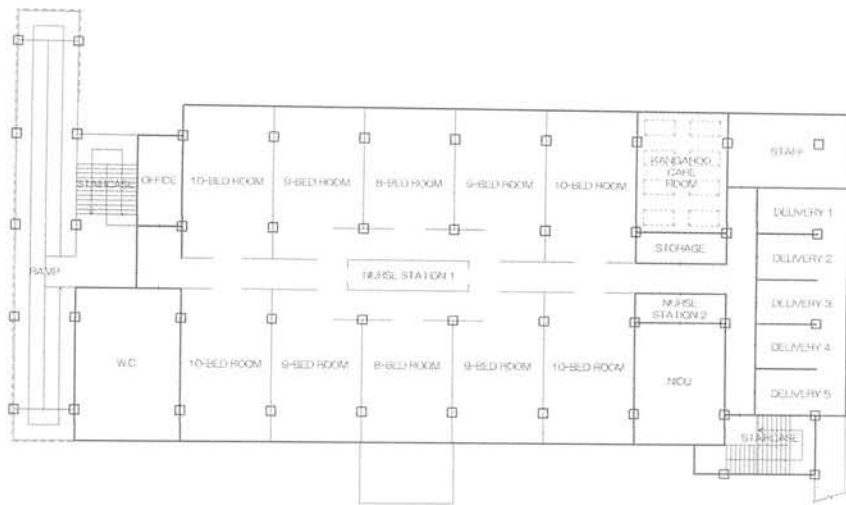
CONSULTANT  
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 AND INTEM CONSULTING, INC.  
 YOKOGAWA ARCHITECTS & ENGINEERS, INC. 

PROJECT  
 THE PREPARATORY SURVEY FOR  
 THE PROJECT FOR IMPROVEMENT OF  
 REGIONAL REFERRAL HOSPITALS  
 IN NORTHERN UGANDA

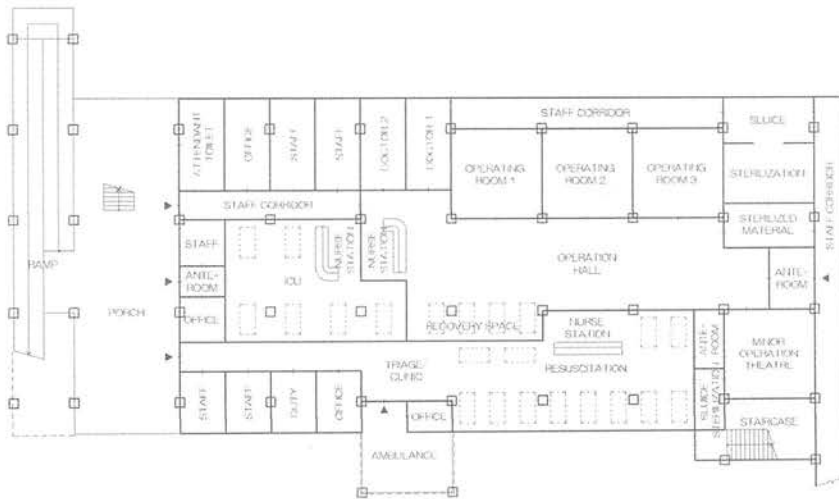
|                     |                  |                  |
|---------------------|------------------|------------------|
| TITLE<br>PLOT PLAN  |                  | DRAWING NO.<br>1 |
| DATE:<br>2017.03.09 | SITE<br>GULU RRH | SCALE<br>1:1,500 |

*Yokogawa*

*K.A.*



2 MATERNITY/CASUALTY/THEATRE BLOCK - FIRST FLOOR PLAN



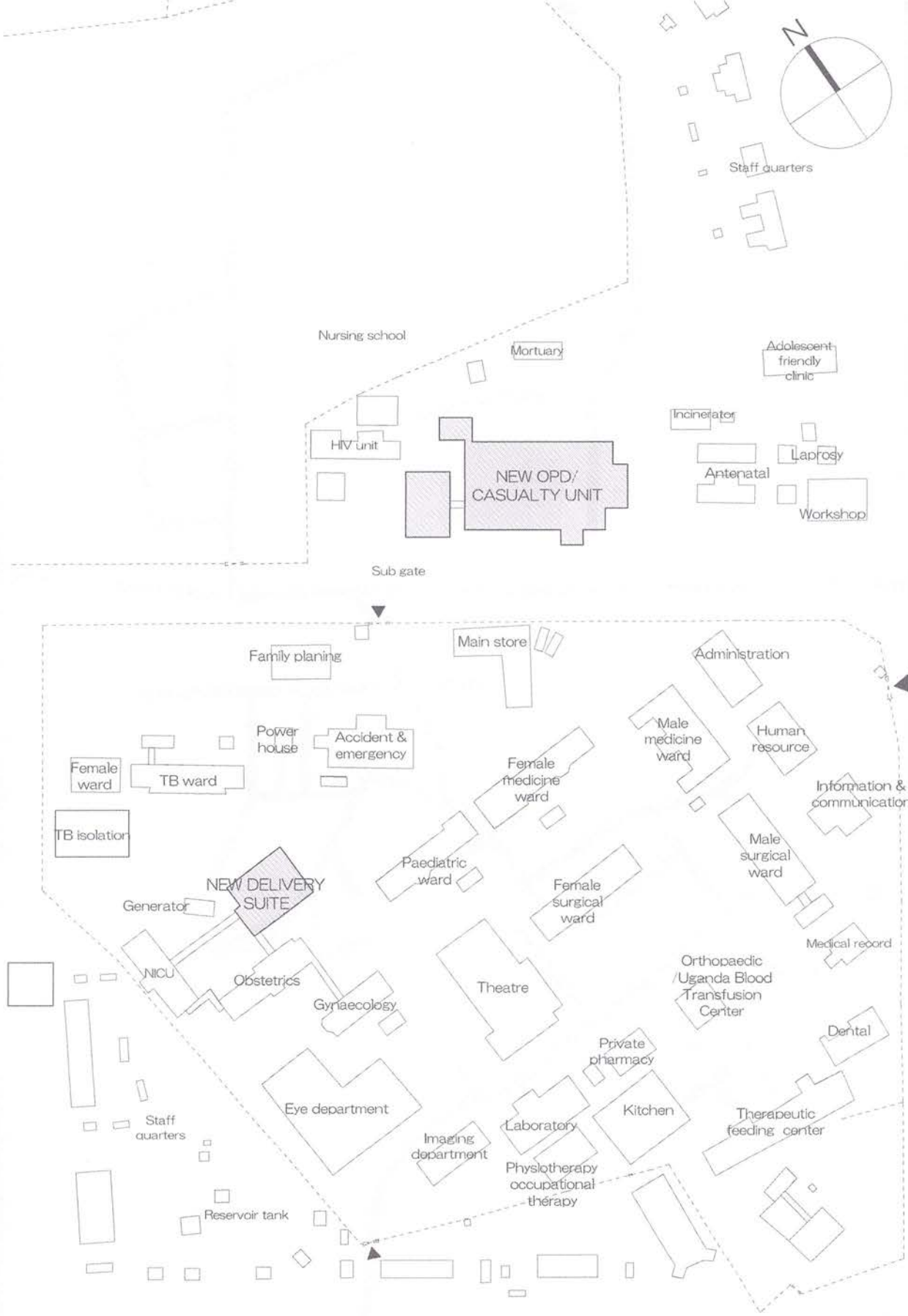
1 MATERNITY/CASUALTY/THEATRE BLOCK - GROUND FLOOR PLAN



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 REGIONAL REFERRAL HOSPITALS  
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|       |            |             |          |
|-------|------------|-------------|----------|
| TITLE | PLANS      | DRAWING NO. | 2        |
| DATE  | 2017.03.09 | SITE        | GULU RRH |
|       |            | SCALE       | 1:500    |



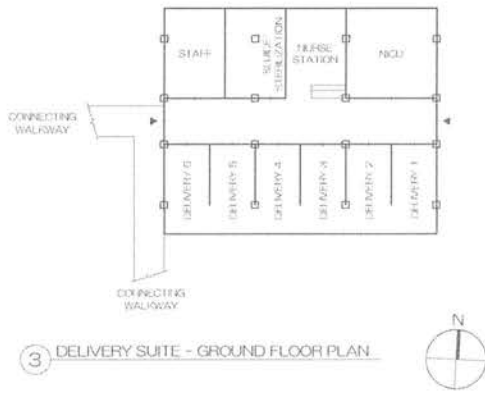
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 THE PROJECT FOR IMPROVEMENT OF  
 REGIONAL REFERRAL HOSPITALS  
 IN NORTHERN UGANDA

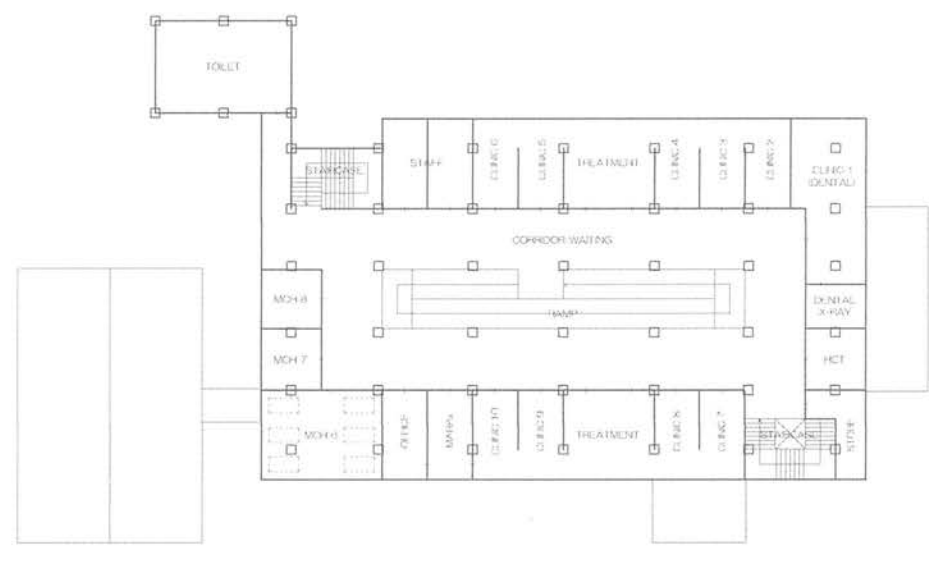
|       |            |          |                |
|-------|------------|----------|----------------|
| TITLE | PLOT PLAN  |          | DRAWING NO.    |
| DATE  | 2017.03.09 | SITE     | 3              |
|       |            | URRA RRH | SCALE: 1:1,500 |

*gachamo.*

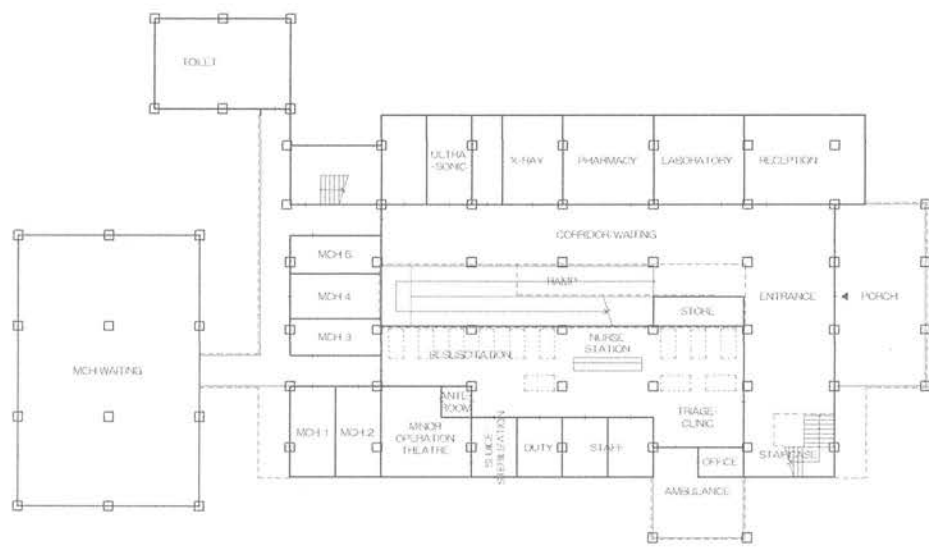
*[Signature]*



3 DELIVERY SUITE - GROUND FLOOR PLAN



2 OPD/CASUALTY BLOCK - FIRST FLOOR PLAN

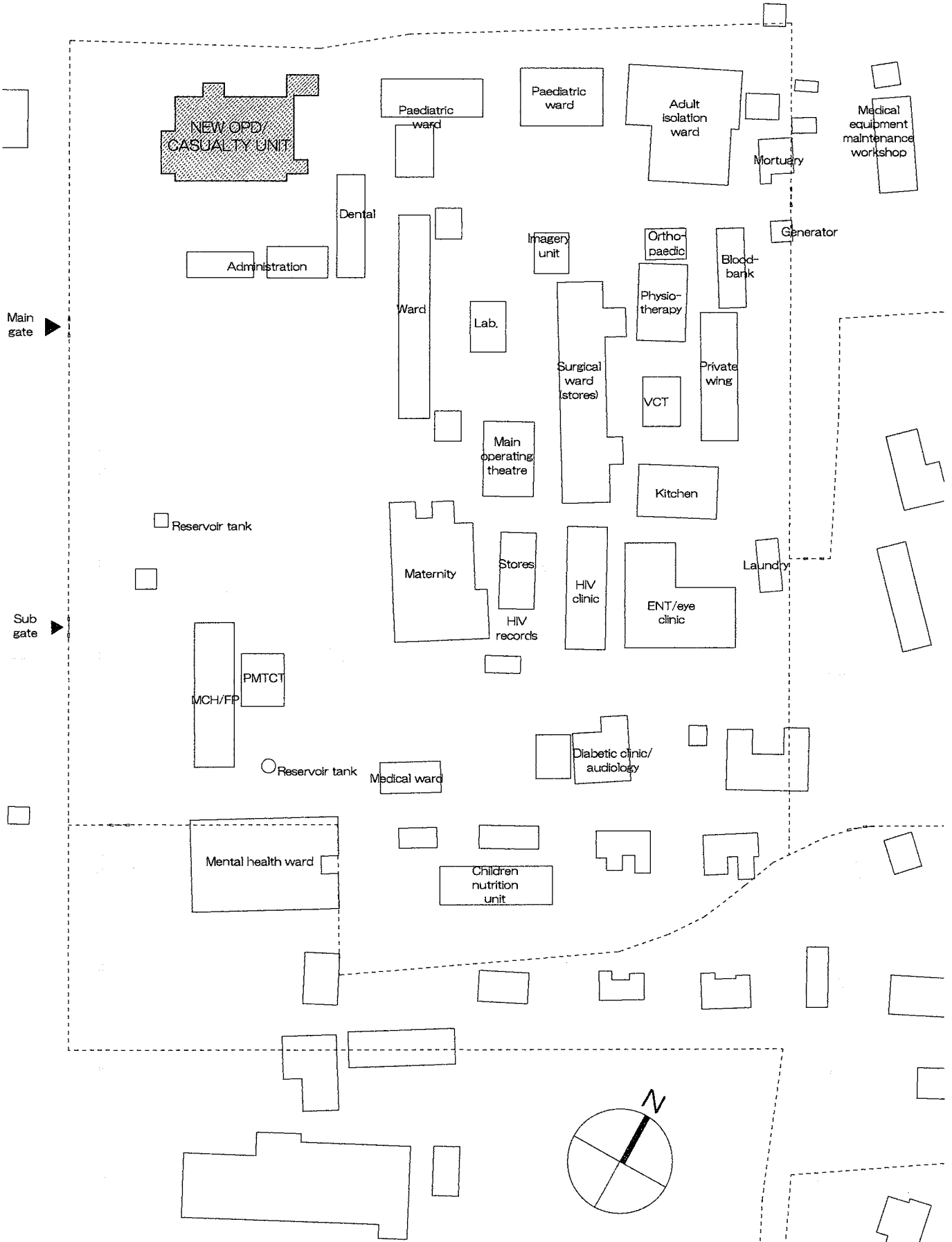



1 OPD/CASUALTY BLOCK - GROUND FLOOR PLAN

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|                    |                  |                  |
|--------------------|------------------|------------------|
| TITLE<br>PLANS     |                  | DRAWING NO.<br>4 |
| DATE<br>2017.03.09 | SITE<br>LIRA RRH | SCALE<br>1:500   |



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 REGIONAL REFERRAL HOSPITALS  
 IN NORTHERN UGANDA

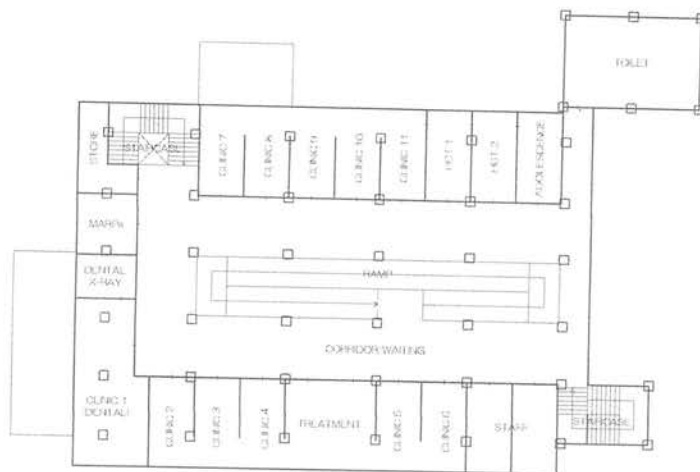
TITLE  
 PLOT PLAN  
 DATE: 2017.03.09 | SITE: ARUA RRH

DRAWING NO.  
 5  
 SCALE  
 1:1,500

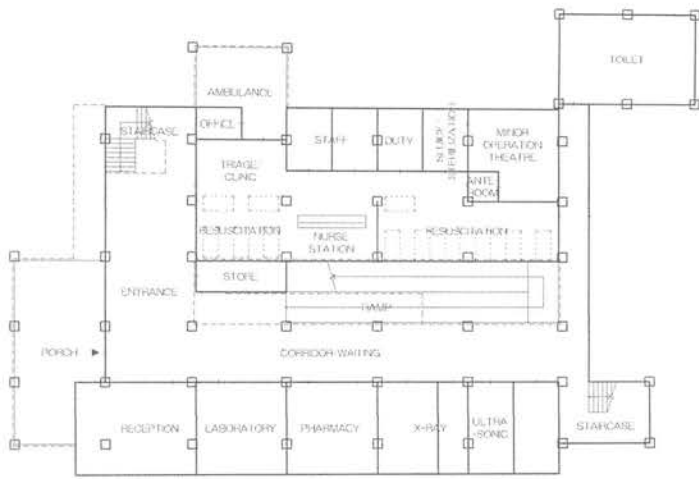
*Yokogawa*

*K. Lee*





2 OPD/CASUALTY BLOCK - FIRST FLOOR PLAN



1 OPD/CASUALTY BLOCK - GROUND FLOOR PLAN



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 IN NORTHERN UGANDA

|       |            |             |          |
|-------|------------|-------------|----------|
| TITLE | PLANS      | DRAWING NO. | 6        |
| DATE  | 2017.03.09 | SITE        | ARUA RRH |
|       |            | SCALE       | 1:500    |

PREPARATORY SURVEY  
ON  
THE PROJECT FOR IMPROVEMNET  
OF  
REGIONAL REFERRAL HOSPITALS  
IN  
NORTHERN UGANDA

SOFT COMPONENT (TECHNICAL ASSISTANCE) PLAN

August 2017

Consortium of  
Yokogawa Architects & Engineers, Inc.  
and INTEM Consulting, Inc.

## Contents

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## 1. Background of Soft Component

The Project for Improvement of Regional Referral Hospitals in Northern Uganda (hereinafter called the Project) in to improve facilities and medical equipment in three regional referral hospitals in Northern Uganda. Among the targeted hospitals, Gulu Regional Referral Hospital (hereinafter called “RRH”), Lira RRH and Arua RRH will be assisted though the construction of facilities and procurement of medical equipment.

The Ugandan government is progressing activities focusing on the improvement of healthcare service as an important area, following Health Sector Development Plan: (HSDP, 2015-2019). Japanese government has implemented support to RRH in Soroti region, East area, Central area and Western area as Grant Aid in the past. This Project is positioned as following these projects, and the content of support is similar.

The equipment planned for this Project has been selected through adequate discussions with the Ugandan side in the field survey as well as complying with the standard equipment list specified by the Ministry of Health (hereinafter called “MOH”). In addition, its validity has been sufficiently verified, consistent with the Ugandan implementation system (personnel, budget, etc.), and there is no particular problem in its use. However, some equipment items at the target hospitals are not currently used due to lack of actual equipment at hospitals, aging of equipment or breakdowns. Therefore, although doctors or nurses have experiences of using equipment in the past, there are some concerning about handling techniques of the equipment. For these reasons, it is desirable to brush up clinical techniques to use supplied equipment based on sustained and up-to-date knowledge after the procurement.

Under these circumstances, soft components aimed at brushing up clinical techniques have been implemented in the past projects targeting central and western Regional Referral Hospitals, and have lead to effective utilization of equipment after project implementation. From past actual achievement, it is highly significant to implement soft component intended to brush up clinical techniques.

Additionally, CR (Computed Radiography) system is planned in place of the existing system for using film in radiation diagnosis. This system is an alternative system of classic method, and since the conventional technology is applied, no major technical obstacle is not likely to be occurred. However, the data management method such as storing digital data in server, the image sharing method which share in digital data via LAN instead of film are totally different. It is also an advantage for CR system to be able to use image editing technology by using software, for example emphasizing necessary diagnostic part or correcting insufficient exposure.

In order to understand these differences from the operation method with film and to make effective operation of obtained data, it is necessary to implement comprehensive training including LAN environment as well as training by equipment manufacture. Unlike initial instruction and operation training by agent technician, this soft component is effective that including how to process clinically useful digital data and how to decide rules for data sharing across hospitals.

In the past projects, supplier and technician from agent conducted instruction for operation and maintenance. However the knowledge and technique are likely to become ambiguous as time passed, as a result, there are risk in which the equipment is operated with inappropriate usage method or a slight breakdown is ignored. Besides, the staffs who have received training when installation are sometimes in place changed after a year since installation. Therefore this soft component which implement training after half of year from installation can contribute to resolve and improve these issues significantly by re-training the operation method including clinical technology and the maintenance method.

From above viewpoints, the MOH has requested the Japanese side to provide soft component service for these technical assistance. In response to that request, the Project plan the following soft components.

- I Training in Clinical Techniques
- II Training in CR system
- III Training in maintenance management

Remark, currently technical cooperation project “Project on Improvement of Health Service through Health Infrastructure Management (Phase2)” has been implemented. User trainer who has capability to train effective operation and maintenance method of medical equipment have been trained up in captioned project targeting Regional Referral Hospital including targeted 3 RRH of this project. Additionally this

captioned project has made maintenance system be strengthening for regional workshops<sup>1</sup>. This soft component narrow down the targeted equipment based on the result of this technical cooperation project.

## **2. Objectives of Soft Component**

At the target hospitals, clinical training, maintenance training and CR system training will be carried out to medical staffs (doctors, nurses, etc.). Also training on equipment maintenance management technology will be implemented to regional workshop engineers. The achievement of the following three objectives can be expected after implementation soft component in case of the effectiveness is continued after the implementation.

- I Supplied equipment is effectively used
- II The CR system is effectively operated
- III Technique for maintenance management of supplied equipment is improved, and equipment is appropriately managed and operated for a long time

## **3. Output of Soft Component**

The outputs to be achieved at the completion of soft components are as follows.

### **I Training in Clinical Techniques**

This training will be implemented after half of year since the hand over. Outputs are as bellow.

- I-① Marshal clinical knowledge about function and role of supplied equipment
- I-② Mater appropriate handling technique depending on situation of patient using targeted equipment

### **II Training in CR system**

This training will be implemented just after the handover. This targets medical staffs for X-ray such as X-ray technicians, X-ray doctors and doctors in each department. Outputs are as bellow.

- II -① Share X-ray image effectively within the hospital
- II -② Improve the quality of X-ray image and increase accuracy of diagnosis

### **III Training in maintenance management**

This training will be implemented after half of year since the handover of equipment.

This training targets medical staffs such as doctors and nurses who operate supplied equipment in the target hospital and regional workshop technicians.

- III-① Re-confirm principle purpose of supplied equipment and improve operation technique
- III-② Learn inspection and maintenance method focused on supplied equipment and construct constant maintenance and operation system
- III-③ Improve technique for trouble shooting to identify problem on equipment and be able to share correct information about trouble to the central workshop or technicians in manufactures.

## **4. Method for Confirming the Degrees of Achievement of Outputs**

Achievement of the soft components will be confirmed in the following manner.

---

<sup>1</sup> Workshop: workshops are in charge of maintenance and management of all infrastructures including facilities and medical equipment at governmental healthcare facility,. There are 12 workshops in Uganda. The capital, Kampala, is covered by the central workshop under the control of the Infrastructure department of MOH, and the other 11 areas are covered by regional workshops. A regional workshop is located at each of the targeted are of RRH, controlling maintenance and management of all the health facilities allocated in these areas.

|  | Output  | Method of Confirming Achievements  |
|--|---|--|
| I Training in Clinical Techniques      | ① Marshal clinical knowledge about function and role of supplied equipment  | Level of understanding will be confirmed by carrying out technical assessment before and after the provision of technical training.              |
|  | ② Mater appropriate handling technique depending on situation of patient using targeted equipment                               | Level of understanding will be confirmed by carrying out technical assessment before and after the provision of technical training.              |
| II Training in CR system               | ① Share X-ray image effectively within the hospital   | Level of understanding will be confirmed by carrying out post-test after the provision of technical training.                                    |
|  | ② Improve the quality of X-ray image and increase accuracy of diagnosis   | Check edited images after training and confirm level of understanding  |
| III Training in maintenance management | ① Improve operation technique   | Check the number of unused equipment and the frequency of use before training, and confirm the improvement of availability ratio after training. |
|  | ② Learn inspection and maintenance method focused on supplied equipment and construct constant maintenance and operation system | Level of learning will be confirmed by carrying out technical assessment before and after the provision of technical training.                   |
|  | ③ Improve technique for trouble shooting to identify problem  | Improvement of technique will be confirmed by carrying out technical assessment before and after the provision of technical training.            |

## 5. Activities of Soft Component (Input Plan)

Activities to achieve each output (Input Plan) are as follows.

### (1) Trainers

- **Consultant for clinical technique: Ugandan doctor, 1 person**
- **Consultant for CR system: Japanese expert, 1 person**
- **Consultant for operation and maintenance technique: Japanese expert, 1 person**
- **Consultant for training planning: Japanese expert, 1 person**

### (2) Plan of Operation

Activities ①Preparation work in Japan ②Field work ③Post work in Japan  
Details are as follows.

#### ① Preparation work in Japan

Each consultant prepares lecture materials necessary for each training. Consultant for training planning will organize the training program of each specialized training, meeting with MOH, targeted hospitals, other related organizations, and arrange venues and transportation in advance. Number of days required for domestic preparation work: Consultant for CR system 3 days. Consultant for operation and maintenance technique 3 days. Consultant for training planning 5 days.

Consultant for clinical technique and consultant for operation and maintenance technique need to check the situation of equipment before visiting the hospitals via email and prepare necessary documents before the training which is implemented after half of year since the handover.

② Training in Uganda

| Output                                 |  | Plan of Operation                                  |   |
|--|--|--|---|
|  |  | Lecture  | Outline of Training   |
| I Training in Clinical Techniques      | ① Marchal clinical knowledge about function and role of supplied equipment   | Consultant for clinical technique                  | -Confirmation of principle and purpose of use, re-learning basic knowledge (just after hand over)<br>-Resolution of unclear point and re-confirmation of principle and purpose of use on equipment (after half of year sicce hand over) |
|  | ② Mater appropriate handling technique depengin on situation of patient using targeted equipment                                 |  | -Training method of applying real case in practice (just after hand over)<br>-Re-training method of applying real case in practice and resoluion of unclear points (after half of year sicce hand over)                                 |
| II Training in CR system               | ① Share X-ray image effectively within the hospital  | Consultant for CR system                           | -Training operation method of digital data including receive, store and search method<br>Construct rule to store digital data   |
|  | ② Improve the quality of X-ray image and increcase accuracy of diagnosis   |  | - Training editing techniques for actual obtained images  |
| III Training in maintenance management | ① Improve operation technique  | Consultant for operation and maintenance technique | - Re-training method of preparation and operation on ineffectively used equipment   |
|  | ② Learn inspection and maintenance method focused on supplied equipment and construct constant maintenance and opearation system |  | - Re-training maintenance method on insufficient maintained equipment   |
|  | ③ Improve technique for trouble shooting to identify problem   |  | - Training inspection and maintenance techniques with real broken equipment   |

Targeted equipment

|                        | Gulu RRH | Lira RRH | Arua RRH |
|------------------------|----------|----------|----------|
| CR system              |          | ○        | ○        |
| Ventilator             | ○        |          |          |
| Anesthesia machine     | ○        | ○        | ○        |
| Infusion pump          | ○        |          | ○        |
| Syringe pump           | ○        | ○        |          |
| ECG                    | ○        |          |          |
| Esophagoscope          | ○        | ○        | ○        |
| Electric surgical unit | ○        |          | ○        |
| Patient Monitor        | ○        | ○        | ○        |

## Curriculum(draft)

## I . Training of Clinical Techniques

(1) The first time (Just after hand over of equipment)

## Gulu RRH

| No.   |    | Training Item  | Form               | Trainee  |
|-------|----|--|--------------------|--|
| Day 1 | AM | Confirmation of functions and roles of procured equipment  | Lecture            | Medical doctors and nurses (approx. 10 people) |
|       | PM | Confirmation of clerical knowledge concerning anaesthesia  | Lecture            |  |
| Day 2 | AM | Breath control method  | Lecture            | Ditto  |
|       | PM | Handling of ventilators and Confirm alarm activation condition and countermeasure method                                     | Practical Training |  |
| Day 3 | AM | Infusion management method   | Lecture            | Ditto  |
|       | PM | Handling of syringe pump and infusion pump and Confirm alarm activation condition and countermeasure method                  | Practical Training |  |
| Day 4 | AM | Methods of general management and postoperative management of patients in severe condition                                   | Lecture            | Ditto  |
|       | PM | Handling of patient monitor/ECG and confirm alarm activation condition and countermeasure method                             | Practical Training |  |
| Day 5 | AM | Method of patient management during operation  | Lecture            | Ditto  |
|       | PM | Handling of anaesthesia machine, Electrical surgical unit, patient monitor, infusion pump and Esophagoscope during operation | Practical Training |  |
| Day 6 | AM | Question resolved, Summary   | Lecture            | Ditto  |
|       | PM | Confirmation of assignment documents and level of settlement   | Lecture            |  |

## Lira RRH

| No.   |    | Training Item   | Form               | Trainee  |
|-------|----|---|--------------------|--|
| Day 1 | AM | Confirmation of functions and roles of procured equipment   | Lecture            | Medical doctors and nurses (approx. 10 people) |
|       | PM | Confirmation of clerical knowledge concerning anaesthesia   | Lecture            |  |
| Day 2 | AM | Infusion management method  | Lecture            | Ditto  |
|       | PM | Handling of syringe pump and infusion pump and Confirm alarm activation condition and countermeasure method | Practical Training |  |
| Day 3 | AM | Methods of general management and postoperative management of patients in severe condition                  | Lecture            | Ditto  |
|       | PM | Handling of portable monitor and confirm alarm activation condition and countermeasure method               | Practical Training |  |
| Day 4 | AM | Method of patient management during operation   | Lecture            | Ditto  |
|       | PM | Handling of anaesthesia machine, patient monitor and Syringe pump during operation                          | Practical Training |  |
| Day 5 | AM | Handling of Esophagoscope   | Lecture            | Ditto  |
|       | PM | Question resolved   | Practical Training |  |
| Day 6 | AM | Summary   | Lecture            | Ditto  |
|       | PM | Confirmation of assignment documents and level of settlement  | Lecture            |  |



Arua RRH

| No.   |    | Training Item  | Form               | Trainee  |
|-------|----|--|--------------------|--|
| Day 1 | AM | Confirmation of functions and roles of procured equipment  | Lecture            | Medical doctors and nurses (approx. 10 people) |
|       | PM | Confirmation of clerical knowledge concerning anaesthesia  | Lecture            |  |
| Day 2 | AM | Infusion management method   | Lecture            | Ditto  |
|       | PM | Handling of syringe pump and infusion pump and Confirm alarm activation condition and countermeasure method        | Practical Training |  |
| Day 3 | AM | Methods of general management and postoperative management of patients in severe condition                         | Lecture            | Ditto  |
|       | PM | Handling of portable monitor and confirm alarm activation condition and countermeasure method                      | Practical Training |  |
| Day 4 | AM | Method of patient management during operation  | Lecture            | Ditto  |
|       | PM | Handling of anaesthesia machine, Electric knife, patient monitor, infusion pump and Esophagoscope during operation | Practical Training |  |
| Day 5 | AM | Handling of Esophagoscope  | Lecture            | Ditto  |
|       | PM | Question resolved  | Practical Training |  |
| Day 6 | AM | Summary  | Lecture            | Ditto  |
|       | PM | Confirmation of assignment documents and level of settlement   | Lecture            |  |

The target equipment differs in each RRH, but training for each RRH uniform 6 days is assumed. The reason is as follows. The level of the staff of each hospital and the experience of using the equipment are finely different. Also, the training executor can turn multiple hospitals efficiently and with the maximum number of days. (Monday to Saturday training, Sunday movement)

(2) The second time (six months after the hand over)

| No.   |    | Training Item  | Form               | Trainee  |
|-------|----|--|--------------------|--|
| Day1  | AM | Selection of target equipment and retraining of operation techniques | Practical Training | Medical doctors and nurses (approx. 10 people) |
|       | PM | Ditto  | Practical Training |  |
| Day2  | AM | Ditto  | Practical Training | Ditto  |
|       | PM | Ditto  | Practical Training |  |
| Day 3 | AM | Ditto  | Practical Training | Ditto  |
|       | PM | Ditto  | Practical Training |  |
| Day 4 | AM | Summary  | Practical Training | Ditto  |
|       | PM | Confirmation of assignment documents and level of settlement         | Practical Training |  |

## II. Training of CR system (Just after hand over)

| No.   |    | Training Item  | Form               | Trainee   |
|-------|----|--|--------------------|---|
| Day 1 | AM | Confirmation of outline of CR system and mechanism           | Lecture            | Doctors who read diagnostic images, Diagnostic person in image department (about 20 people)   |
|       | PM | Method of digital data acquisition from CR plate CR          | Practical Training |   |
| Day 2 | AM | Storing and managing digital image data                      | Lecture            | Ditto   |
|       | PM | Method of digital image data transfer                        | Practical Training |   |
| Day 3 | AM | Method of data acquisition from server on client PC          | Practical Training | Ditto   |
|       | PM | Ditto  | Practical Training |   |
| Day 4 | AM | Image processing technology of image data                    | Practical Training | Ditto   |
|       | PM | Ditto  | Practical Training |   |
| Day 5 | AM | Periodic inspection, maintenance method                      | Practical Training | Doctors who interpret diagnostic images, Diagnostic person in image department and Equipment maintenance engineer (about 25 people) |
|       | PM | Troubleshooting in case of breakdown                         | Practical Training |   |
| Day 6 | AM | Summary  | Lecture            | Ditto   |
|       | PM | Confirmation of assignment documents and level of settlement | Practical Training |   |

## III. Training of Maintenance and Management Techniques (six months after the hand over)

| No.   |    | Training Item  | Form                          | Trainee   |
|-------|----|--|-------------------------------|---|
| Day 1 | AM | Selection of target equipment                                | Practical Training            | Regional workshop technicians, user trainers and nurses (approx. 10 people) |
|       | PM | Training of operation methods                                | Practical Training            |   |
| Day 2 | AM | Ditto  | Lecture<br>Practical Training | Ditto   |
|       | PM | Ditto  | Lecture<br>Practical Training |   |
| Day 3 | AM | Ditto  | Lecture<br>Practical Training | Ditto   |
|       | PM | Ditto  | Lecture<br>Practical Training |   |
| Day 4 | AM | Training of Equipment maintenance management                 | Lecture<br>Practical Training | Ditto   |
|       | PM | Ditto  | Lecture<br>Practical Training |   |
| Day 5 | AM | Training for equipment troubleshooting methods etc.          | Lecture<br>Practical Training | Ditto   |
|       | PM | Ditto  | Lecture<br>Practical Training |   |
| Day 6 | AM | Summary  | Lecture                       | Ditto   |
|       | PM | Confirmation of assignment documents and level of settlement | Lecture                       |   |

Although targeted equipment items in training of maintenance and management techniques will be changed based on real situation of operation, maintenance and some other conditions on each hospital, the possible number of targeted equipment is around 40-50 in each RRH. The targeted equipment will be decided with actual situation which heard via email before the training, especially the priority for training will give on equipment with following categories; 1. Critical problem occurred because of trouble on equipment, 2. Expensive equipment and 3. High frequency of use (approx. 10-20 items are targeted, although conditions and situations are different in each hospital). Especially equipment with category 1 give direct impact to patients' life, therefore training will be repeated as much as possible within the term.

The period of dispatch for each training session is as follows.

#### I. Training of Clinical Techniques

##### - Consultant for clinical technique : Ugandan doctor, 1 person

A total of 23 days (6 for training x 3 hospitals, 4 for domestic travel and 1 for report to MOH, JICA and Japanese embassy) x 1 time

A total of 19 days (4 for training x 3 hospitals, 4 for domestic travel and 1 for report) x 1 time

##### - Consultant for CR system : Japanese expert, 1 person

A total of 20 days (4 for international travel, 6 for training x 2 hospitals (Lira and Arua), 3 for domestic travel and 1 for report) x 1 time

##### - Consultant for operation and maintenance technique : Japanese expert, 1 person

A total of 27 days (4 for international travel, 6 for training x 3 hospitals, 4 for domestic travel and 1 for report) x 1 time

##### - Consultant for training planning : Japanese expert, 1 person

A total of 27 days (4 for international travel, 6 for training x 3 hospitals, 4 for domestic travel and 1 for report) x 2 times

#### ④ Post work in Japan

Summarize the result of technical training etc., and the Interim Report, Implementation Report and Completion Report created. The number of days required for the work in Japan shall be 2 days for the consultant for CR system and the consultant for operation and maintenance technique and 3 days for consultant for training planning.

## 6. Method for Procuring Resources for the Implementation of Soft Component

For the implementation of soft component, "Training of clinical technique" will be done by a Ugandan doctor from the viewpoint of cost, language, local custom and sustainability of training after the completion. Doctors who have sufficient knowledge and skills related to clinical practice using targeted equipment, and work in higher referral hospital such as National Hospital, and also have experience of training lecturers on clinical techniques, are dispatched. The first training will be carried out just after the handover of equipment. The second training will be carried out after half of year since the hand over for equipment that target hospital requests to re-train, and the consultants check the degree of establishment and give training again on the equipment with luck of establishment.

"Training of CR system" basically dispatches a consultant who is qualified as a medical radiology technician in Japan and has sufficient experience in CR operation and implements technical training using the supplied CR system in the Project.

"Training of operation and maintenance technique" dispatches a Japanese consultant with general expertise to supplied equipment in the Project, confirms the degree of utilization of supplied equipment, and re-train the equipment that is deemed necessary for technical training again.

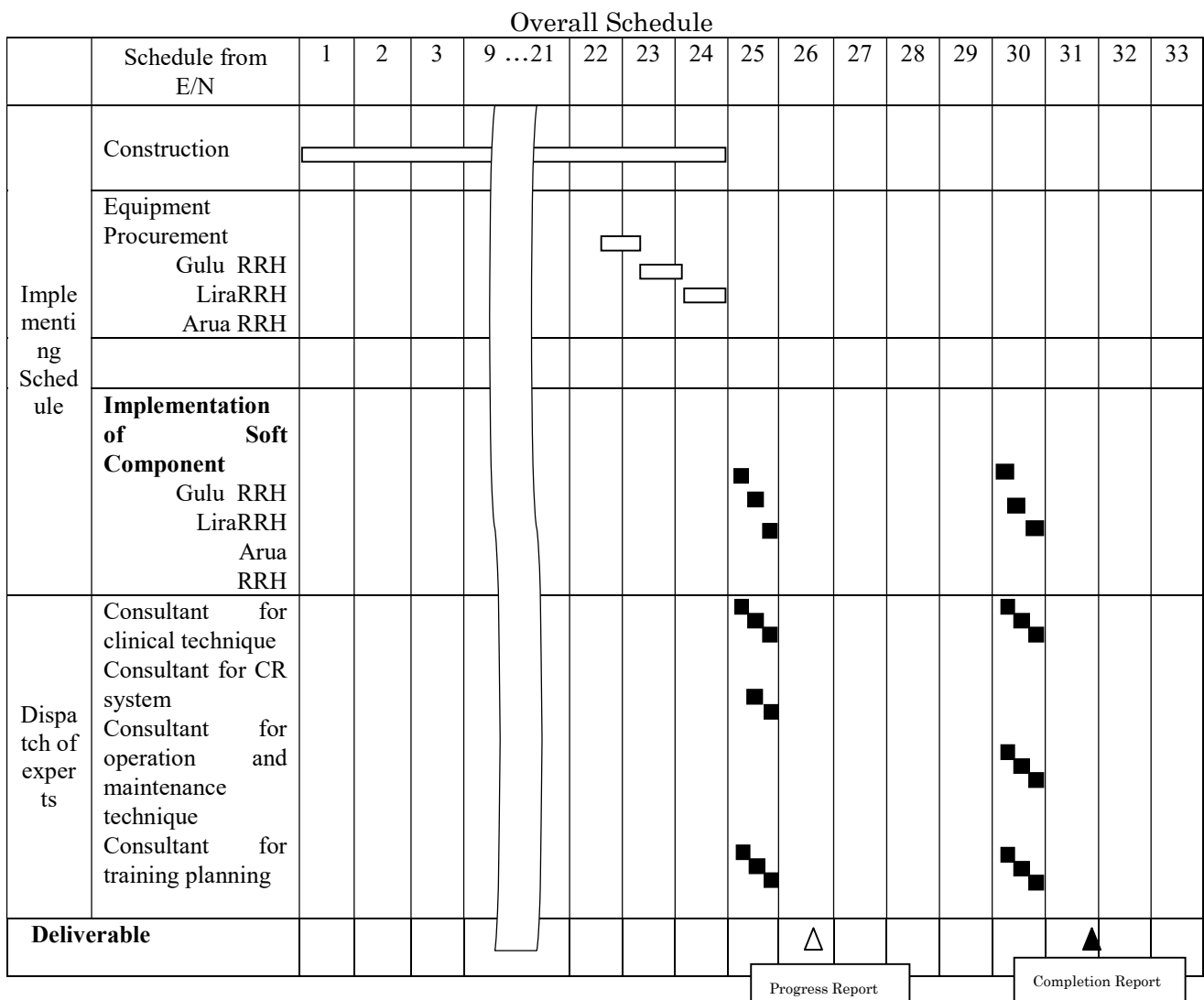
The "technical guidance plan" dispatches a Japanese consultant who grasps the soft components, the structure of Japanese grant aid, and the details of the equipment to be supplied, and has experience of coordination work. The consultant organizes the technical training process, overall schedule, etc., as well as formulate a detailed implementation plan, in consultation with the executing agency such as Ministry

of Health, central workshop, target hospital, regional workshop etc.. After that, during each training implementation period, in cooperation with the hospital staff in charge, support the implementation of appropriate and efficient training such as participant count management, venue coordination, schedule management and so on. In order each expert to be able to concentrate on the training, the consultant do consideration / adjustment so that the participants can get the maximum technical skill.

## 7. Implementing Schedule of Soft Component

The implementation of the soft component will basically be started after the installation of supplied equipment. As mentioned above, training of clinical training will be conducted twice, including the first training (immediately after handover of equipment) and follow-up training (half year after the hand over). Training of CR system will be conducted once after handover of equipment. Training of operation maintenance and management techniques will be conducted about half a year after handover of equipment.

Estimated implementation schedule at this stage is as follows. The final implementation schedule will be determined after discussion with Ugandan related organization and Japanese experts.



The place of implementation is Gulu RRH, Lira RRH, Arua RRH of this project.

## **8. Deliverable of Soft Component**

Other than the completion report to the client and Japanese side, the following documents will be the deliverables of the soft components.

- ① Training materials: Lecture materials, maintenance management manual, maintenance checklist, etc.
- ② Repots: Training report by each consultant, summary of test results before and after training etc.

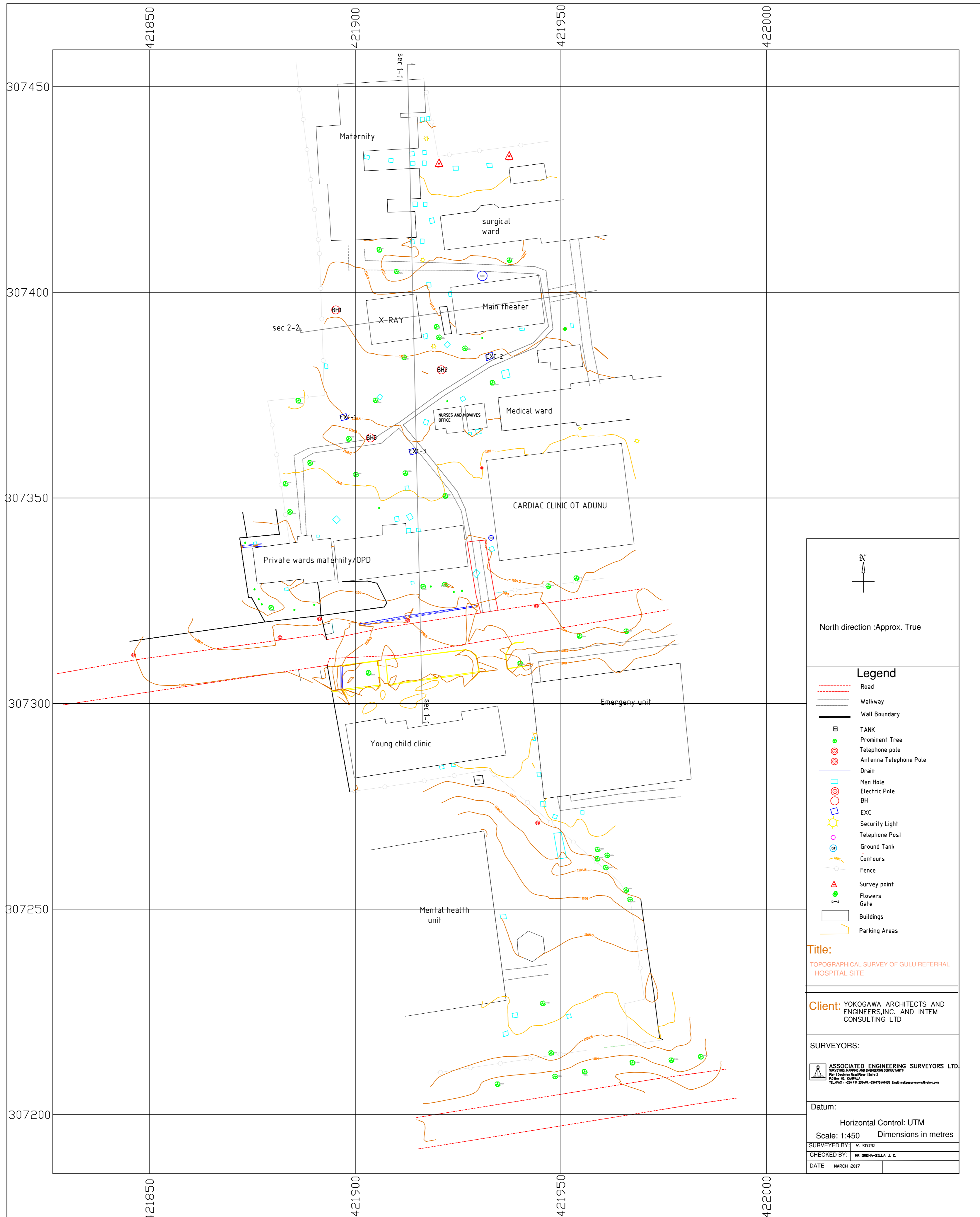
## **9. Responsibility of Implementing Agencies of Recipient Country**

Persons concerned in the plan in the Infrastructure Division of MOH, the central workshop, targeted hospitals, regional workshops etc. are required to select trainees and ensure they will participate in the technical training, as well as coordinating the schedule of the technical training and providing the venues.

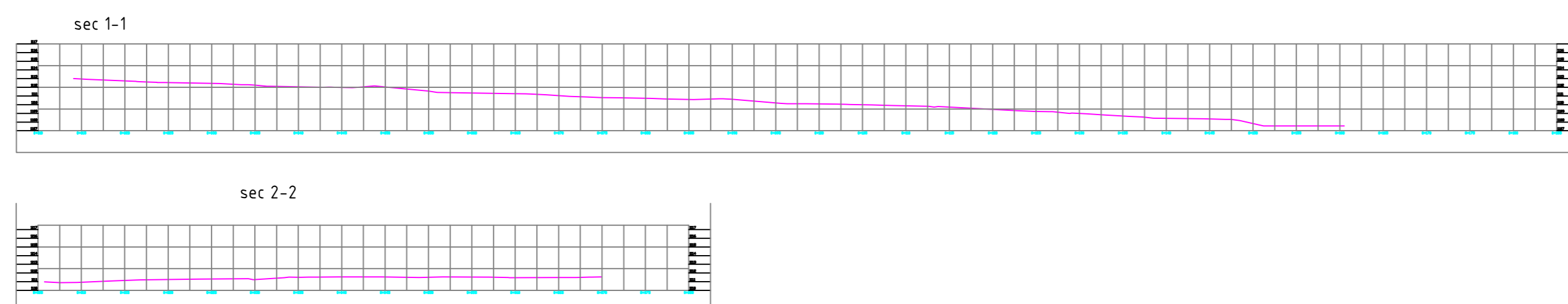
In addition, the responsible persons from the target hospital and the Infrastructure department of MOH participate in this training as necessary. In order to ensure proper operation and maintenance of supplied equipment for a long time, it is necessary to improve existing management system and continue similar trainings by Ugandan side. MOH and target hospitals are required to secure budget for maintaining operational structure with appropriate personnel, consumables and spare parts as responsibility.

# Appendix 7 Excerpt of the investigation report of natural conditions

## 7-1 Gulu RRH (1) Topographic Map



CROSS SECTION OF GULU HOSPITAL



|   |          |          |          |      |
|---|----------|----------|----------|------|
| 1 | 421894.9 | 307395.4 | 1111.073 | BH-1 |
| 2 | 421920.6 | 307380.9 | 1110.654 | BH-2 |
| 3 | 421903.4 | 307364.3 | 1110.151 | BH-3 |

|   |          |          |          |       |
|---|----------|----------|----------|-------|
| 1 | 421896.9 | 307369.4 | 1109.961 | EXC-1 |
| 2 | 421932.3 | 307384.2 | 1110.918 | EXC2  |
| 3 | 421913.6 | 307361   | 1109.821 | EXC-3 |

# PREPARATORY SURVEY FOR THE PROJECT FOR IMPROVEMENT OF REGIONAL REFERRAL HOSPITALS IN NORTHERN UGANDA

## GEOTECHNICAL INVESTIGATIONS AT GULU REGIONAL REFERRAL HOSPITAL

Client:

**Yokogawa Architects & Engineers, Inc. & INTEM  
Consulting, Inc**

### Investigations Report



Contractor:

**Associated Engineering Surveyors (AES)**

March 2017

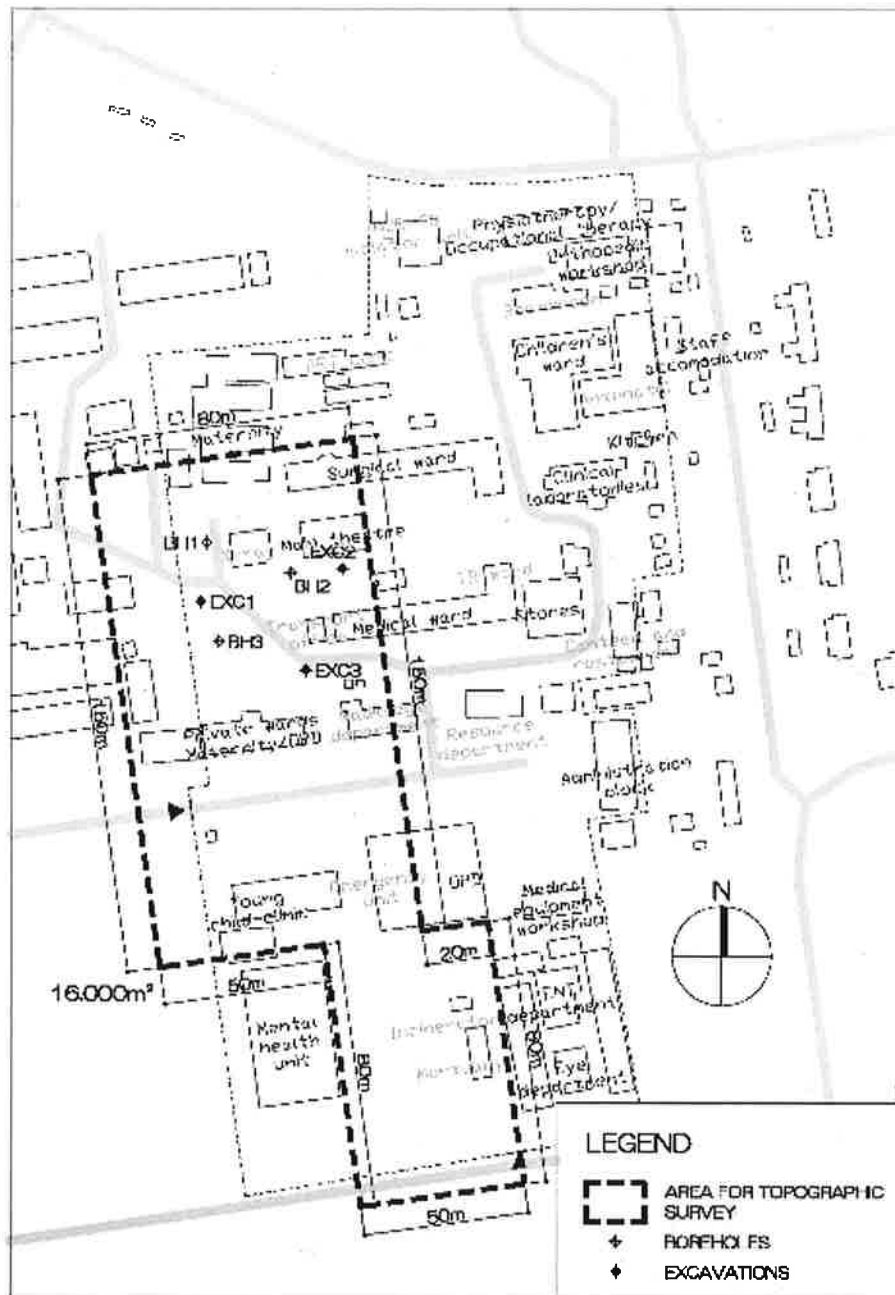
| Rev | Established      | Checked | Approved by | Date     | Comments/ Amendments | STAT   |
|-----|------------------|---------|-------------|----------|----------------------|--------|
| 0   | Technical Office | Orena   | Akena       | 19/03/17 | First Issue          | Report |

## 2 FIELD INVESTIGATIONS AND LABORATORY TESTING

### 2.1 Field Activities

Field works were commenced on 20<sup>th</sup> of February 2017 and completed on 22<sup>nd</sup> of February 2017. Geotechnical investigation works were carried out in accordance with the specifications provided by the client; Yokogawa Architects & Engineers, Inc. & INTEM Consulting, Inc.

An investigations location layout is presented below: -





### 3 BOREHOLE 1 LOG AND CORE PHOTOS

Borehole 1 was drilled from 0.0m at the surface down to 15m as instructed by the client.

#### 3.1 BH -01 borehole log

| Client: <b>Yokogawa Architects &amp; Engineers, Inc. &amp; INTEM Consulting, Inc</b>   |        | Borehole No. <b>BH - 01</b>                    |                 |                     |                    |
|--|--------|--|-----------------|---------------------|--------------------|
| Project: <b>Geotechnical Investigations at Gulu Regional Referral Hospital</b>         |        | Date   | Start:          | 20 – Feb - 2017     |                    |
| Location: <b>Gulu Regional Referral Hospital</b>                                       |        |  | Finish:         | 21 – Feb - 2017     |                    |
| Equipment: <b>GY-100</b>   |        | Co-ordinates: <b>E 421894.896 N 307395.431</b> |                 |                     |                    |
| Ground elevation: 1111.073   |        | Depth of Borehole                              | 15.0m           |                     |                    |
| Description  | Legend | Depth (m)                                      | SPT (N)         | SPT Depth Range (m) | Undisturbed Sample |
| Brown red silty clay soils. Stiff. Locally contains quartz fragments. Moderately stiff |        | 0  |                 |                     |                    |
|  |        | 1  |                 |                     |                    |
|  |        | 2  | 47              | 1.0 – 1.45          | (1.45m – 1.75m)    |
|  |        | 3  | 19              | 2.75 – 3.2          |                    |
|  |        | 4  |                 |                     | (3.2m – 3.5m)      |
|  |        | 5  | 16              | 4.5 – 4.95          |                    |
|  |        | 6  |                 |                     | (4.95m – 5.25m)    |
|  |        | 7  | 12              | 6.25 – 6.7          | (6.7m – 7.0m)      |
|  |        | 8  |                 |                     |                    |
|  |        | 9  | 13              | 8.0 – 8.45          | (8.45m – 8.75m)    |
|  |        | 10   | 10              | 9.75 – 10.2         |                    |
|  |        | 11   |                 |                     |                    |
|  |        | 12   | 18              | 11.2 – 11.65        |                    |
|  |        | 13   | 15              | 12.65 – 13.1        |                    |
| 14   | -      | -  | (13.1m – 13.4m) |                     |                    |
| Brown gray gravel soils  |        | 15   | -               | -                   | -                  |

## 4 BOREHOLE 2 LOG AND CORE PHOTOS

Borehole 2 was drilled from 0.0m at the surface down to 15m as instructed by the client.

### 4.1 BH -02 borehole log

| Client: <b>Yokogawa Architects &amp; Engineers, Inc. &amp; INTEM Consulting, Inc</b>                                  |        | Borehole No. <b>BH - 02</b>                    |                   |                     |                    |
|---|--------|--|-------------------|---------------------|--------------------|
| Project: <b>Geotechnical Investigations at Gulu Regional Referral Hospital</b>  |        | Date   | Start:            | 21 – Feb - 2017     |                    |
| Location: <b>Gulu Regional Referral Hospital</b>  |        |  | Finish:           | 22 – Feb - 2017     |                    |
| Equipment: <b>GY-50</b>   |        | Co-ordinates: <b>E 421920.551 N 307380.866</b> |                   |                     |                    |
| Ground elevation: 1110.654  |        | Depth of Borehole                              | 15.0m             |                     |                    |
| Description   | Legend | Depth (m)                                      | SPT (N)           | SPT Depth Range (m) | Undisturbed Sample |
| Brown red silty clay soils. Stiff. Locally contains quartz fragments. Moderately stiff. Becomes sandy at 12.5m to 15m |        | 0  |                   |                     |                    |
|   |        | 1  |                   |                     |                    |
|   |        | 2  | 53                | 1.0 – 1.45          | (1.45m – 1.75m)    |
|   |        | 3  | 56                | 2.75 – 3.2          |                    |
|   |        | 4  |                   |                     | (3.2m – 3.5m)      |
|   |        | 5  | 40                | 4.5 – 4.95          |                    |
|   |        | 6  |                   |                     |                    |
|   |        | 7  | 20                | 5.95 – 6.4          | (6.4m – 6.7m)      |
|   |        | 8  | 40                | 7.7 – 8.15          |                    |
|   |        | 9  |                   |                     |                    |
|   |        | 10   | 34                | 9.15 – 9.6          |                    |
|   |        | 11   | 23                | 10.6 – 11.05        |                    |
|   |        | 12   |                   |                     |                    |
|   |        | 13   | 17                | 12.05 – 12.5        |                    |
|   |        | 14   | >50 (Refusal)     | 13.5 – 13.95        |                    |
| 15  |        |  | (13.95m – 14.25m) |                     |                    |

## 5 BOREHOLE 3 LOG AND CORE PHOTOS

Borehole 3 was drilled from 0.0m at the surface down to 15m as instructed by the client.

### 5.1 BH -03 borehole log

| Client: <b>Yokogawa Architects &amp; Engineers, Inc. &amp; INTEM Consulting, Inc</b> |        | Borehole No. <b>BH - 03</b>                   |               |                     |                    |
|--|--------|---|---------------|---------------------|--------------------|
| Project: <b>Geotechnical Investigations at Gulu Regional Referral Hospital</b>       |        | Date  | Start:        | 20 – Feb - 2017     |                    |
| Location: <b>Gulu Regional Referral Hospital</b>                                     |        |   | Finish:       | 21 – Feb - 2017     |                    |
| Equipment: <b>GY-50</b>  |        | Co-ordinates: <b>E 421903.353 N 307364.31</b> |               |                     |                    |
| Ground elevation: 1110.151   |        | Depth of Borehole                             | 15.0m         |                     |                    |
| Description  | Legend | Depth (m)                                     | SPT (N)       | SPT Depth Range (m) | Undisturbed Sample |
| Brown red silty clay soils. Stiff with some gravel                                   |        | 0   |               |                     |                    |
|  |        | 1   |               |                     |                    |
|  |        | 2   | >50 (Refusal) | 1.0 – 1.45          | (1.45m – 1.75m)    |
|  |        | 3   | >50 (Refusal) | 2.75 – 3.2          |                    |
|  |        | 4   |               |                     | (3.2m – 3.5m)      |
|  |        | 5   | 41            | 4.5 – 4.95          |                    |
|  |        | 6   |               |                     | (4.95m – 5.25m)    |
|  |        | 7   | 17            | 6.25 – 6.7          |                    |
|  |        | 8   | 25            | 7.7 – 8.15          |                    |
|  |        | 9   |               |                     |                    |
|  |        | 10  | 22            | 9.15 – 9.6          |                    |
|  |        | 11  |               |                     |                    |
|  |        | 12  |               |                     |                    |
| Clayey sand, brown gray in color   |        | 13  | 17            | 12.05 – 12.5        |                    |
|  |        | 14  |               |                     |                    |
|  |        | 15  | 48            | 14.0 – 14.45        |                    |

# PREPARATORY SURVEY FOR THE PROJECT FOR IMPROVEMENT OF REGIONAL REFERRAL HOSPITALS IN NORTHERN UGANDA

## UNDERGROUND OBSTACLES INVESTIGATIONS AT GULU REGIONAL REFERRAL HOSPITAL

Client:

**Yokogawa Architects & Engineers, Inc. & INTEM Consulting, Inc**

### Investigations Report



Contractor:

**Associated Engineering Surveyors (AES)**

March 2017

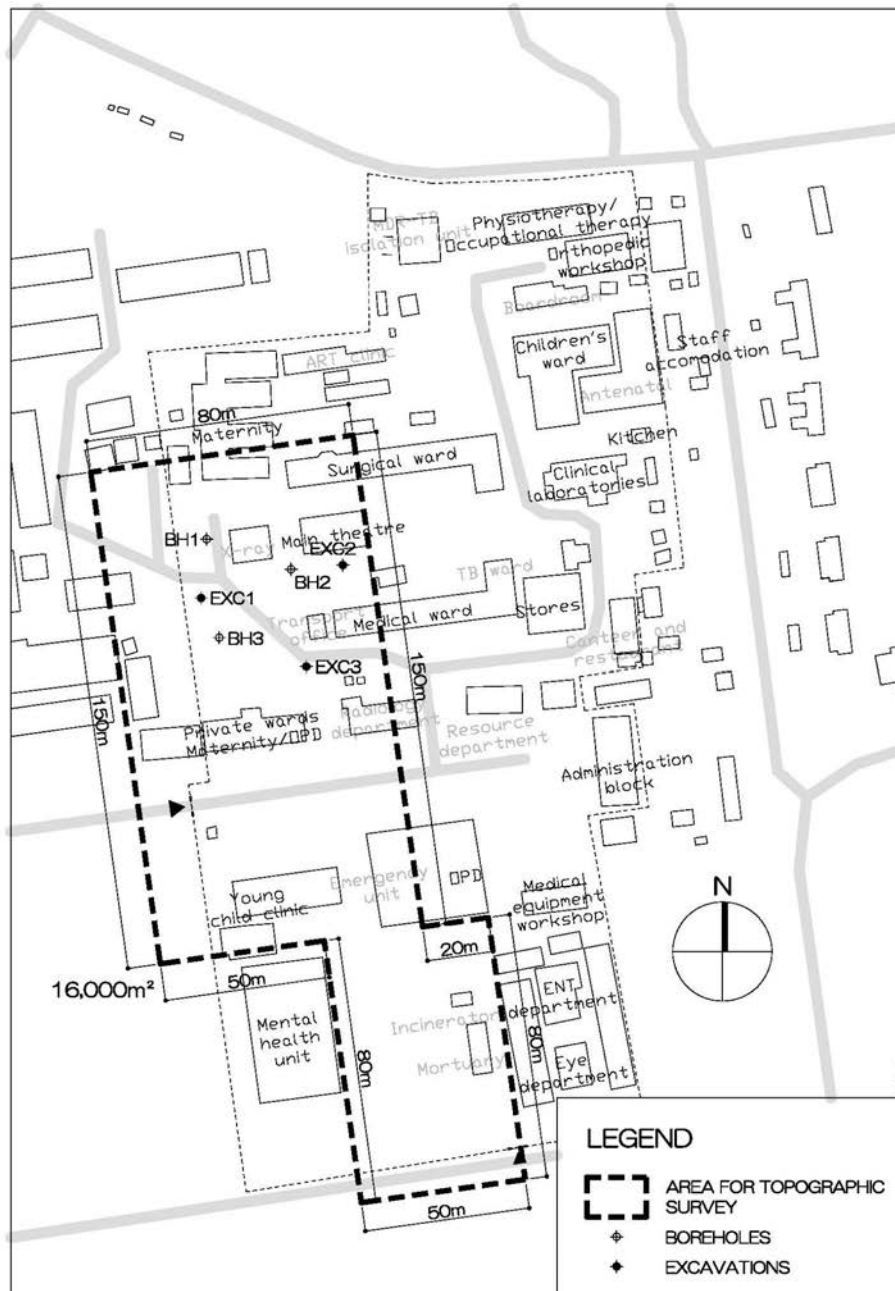
|     |                  |         |             |          |                      |        |
|-----|------------------|---------|-------------|----------|----------------------|--------|
|     |                  |         |             |          |                      |        |
| 0   | Technical Office | Orena   | Akena       | 08/03/17 | First Issue          | Report |
| Rev | Established      | Checked | Approved by | Date     | Comments/ Amendments | STAT   |

## 2 FIELD INVESTIGATIONS AND LABORATORY TESTING

### 2.1 Field Activities


Field works were commenced on 22<sup>nd</sup> of February 2017 and completed on 23<sup>rd</sup> February 2017. Underground obstacles investigation works were carried out in accordance with the specifications provided by the client; Yokogawa Architects & Engineers, Inc.& INTEM Consulting, Inc.

An investigations location layout is presented below: -



### 3 PIT/ TRENCH 1 UNDERGROUND OBSTACLES

Excavations at pit/ trench 1 revealed no underground obstacles down to a depth of 2.0m as shown in the profile below: -


|   |                  |   |
|---|------------------|---|
| <b>Co-ordinates: E 421896.9 N 307369.4 Z 1110.0</b>                                 |                  |   |
| <b>Picture EXC-01</b>   | <b>depth (m)</b> | <b>description</b>  |
|  | 0.0 – 0.2        | Brown red silty clay. Moderately compacted                    |
|   | 0.2 – 0.6        | Gray brown silty clay soils. Slightly compacted               |
|   | 0.6 – 2.0        | Brown lateritic (murrum) soils. Very hard to excavate by hand |

**Site Pictures**



#### 4 PIT/ TRENCH 2 UNDERGROUND OBSTACLES

Excavations at pit/ trench 1 revealed no underground obstacles down to a depth of 2.0m as shown in the profile below: -


|  |                  |   |
|--|------------------|---|
| <b>Co-ordinates: E 421932.3 N 307384.2 Z 1110.9</b>  |                  |   |
| <b>Picture EXC-02</b><br> | <b>depth (m)</b> | <b>description</b>  |
|  | 0.0 – 0.3        | Brown lateritic clay soil. Moderately compacted               |
|  | 0.3 – 0.6        | Brown red clay soils. Slightly compacted                      |
|  | 0.6 – 2.0        | Brown lateritic (murrum) soils. Very hard to excavate by hand |

#### Site Pictures



## 5 PIT/ TRENCH 3 UNDERGROUND OBSTACLES

Excavations at pit/ trench 3 revealed no underground obstacles down to a depth of 2.0m as shown in the profile below: -

|  |                  |  |
|--|------------------|--|
| <b>Co-ordinates: E 421913.6 N 307361.0 Z 1109.8</b>  |                  |  |
| <b>Picture EXC-03</b><br> | <b>depth (m)</b> | <b>description</b>                                       |
|  | 0.0 – 1.0        | Gray brown silty clay soil. Moderately compacted         |
|  | 1.0 – 2.0        | Brown lateritic (murrum) soils. Hard to excavate by hand |

### Site Pictures





## (4) Water Quality Certificate Analysis



**NATIONAL WATER AND SEWERAGE CORPORATION**  
 CENTRAL LABORATORY - BUGOLOBI.  
 P.O.BOX 7053 KAMPALA.  
 E-mail: [waterquality@nWSC.co.ug](mailto:waterquality@nWSC.co.ug)  
**CERTIFICATE OF ANALYSIS**

CLIENT: Yokogawa Architect & Engineers  
 Address: Kampala  
 Tel:  
 Email:  
 Date Sample Received: 06-March-2017  
 Table of Analytical Results

Ref No:LS098/INV/2017/265  
 Sampled by: Client  
 Type of container: Plastic  
 Sample Source: Gulu  
 Date of Report: 21-March-2017

| Parameters                              | Units     | Gulu         | National standards for Potable water |
|---|-----------|--------------|--------------------------------------|
| WS Sample Nr                            | --        | K1087/17/C/B |                                      |
| pH                                      | --        | 6.3          | 6.5-8.5                              |
| Electrical Conductivity (EC)            | μS/cm     | 227          | 2500                                 |
| Total Dissolved Solids (TDS)            | mg/L      | 145.3        | 1200                                 |
| Total Suspended Solids (TSS)            | mg/L      | 0            | 0                                    |
| Ammonia-N                               | mg/L      | 0.01         | 1.0                                  |
| Turbidity                               | NTU       | 0.45         | 10.0                                 |
| Alkalinity: Total as CaCO <sub>3</sub>  | mg/L      | 32           | 500                                  |
| Bicarbonate                             | mg/L      | 39           | 500                                  |
| Hardness: Total                         | mg/L      | 66           | 500                                  |
| Arsenic                                 | μg/L      | <0.004       | 0.010                                |
| Manganese                               | mg/L      | 0.0          | 0.1                                  |
| Chloride- Cl <sup>-</sup>               | mg/L      | 0            | 500                                  |
| Aluminium Residual                      | mg/L      | 0            | 0.2                                  |
| Nitrate-N                               | mg/L      | 0.0          | 5.0                                  |
| Iron:Total                              | mg/L      | 0.050        | 1.0                                  |
| Fluoride                                | mg/L      | 0.0          | 1.5                                  |
| Calcium: as Ca <sup>2+</sup>            | mg/L      | 12.8         | 75                                   |
| Magnesium: as Mg <sup>2+</sup>          | mg/L      | 17.6         | 50                                   |
| Colour (apparent)                       | PtCo      | 0            | 15                                   |
| Sulphate: SO <sub>4</sub> <sup>2-</sup> | mg/L      | 0            | 200                                  |
| Odour                                   | -----     | -            | Not Specified                        |
| Taste                                   | -----     | -            | Not Specified                        |
| Potassium: K                            | mg/L      | 1.96         | 100                                  |
| Sodium: Na                              | mg/L      | 3.17         | 400                                  |
| Bact: Ecoli                             | CFU/100mL | 0            | 0                                    |
| Bact: Faecal Coliforms                  | CFU/100mL | 0            | 0                                    |
| Bact:Total Coliforms                    | CFU/100mL | 0            | 10                                   |

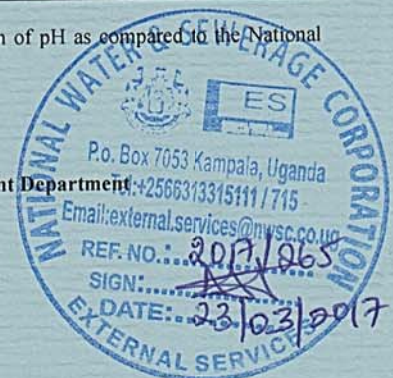
**Remarks:**

The sample showed complying physiochemical and bacteriological characteristics with the exception of pH as compared to the National standards for Potable water.

ANALYSED BY Robinah Muhirwe and Kennedy Araa

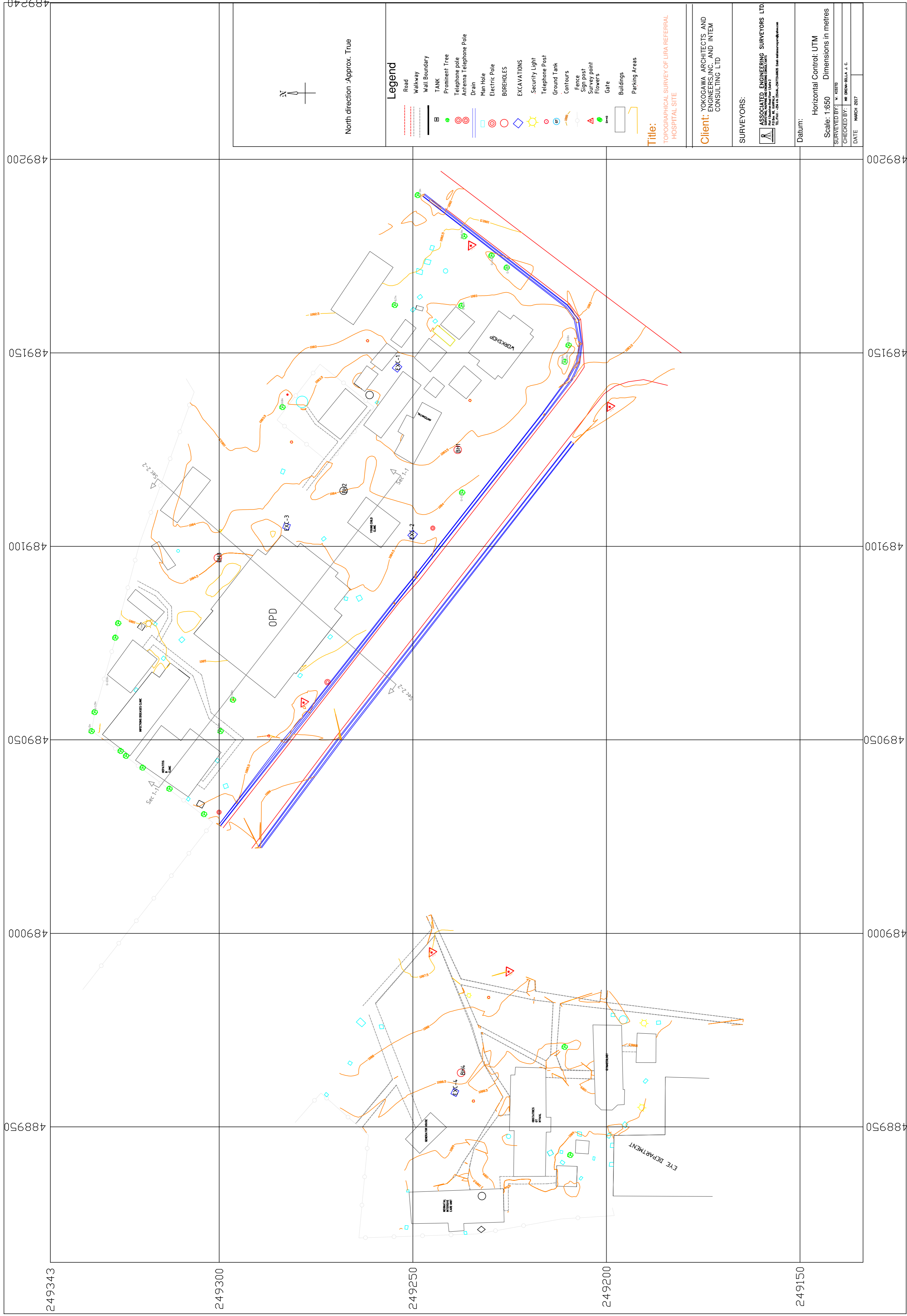
AUTHORISED BY: .....MANAGER, Central Laboratory Services

APPROVED BY: .....SENIORMANAGER, Water Quality Management Department



7-2 Lira RRH

(1) Topographic Map

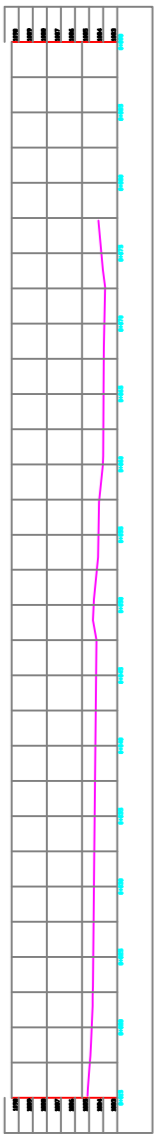


|   |          |          |          |       |
|---|----------|----------|----------|-------|
| 1 | 489146.1 | 249253.9 | 1088.241 | EXC-1 |
| 2 | 489114.3 | 249267.7 | 1084     | EXC-2 |
| 3 | 489105   | 249282.6 | 1084.21  | EXC-3 |
| 4 | 488958.8 | 249238.9 | 1088.31  | EXC-4 |

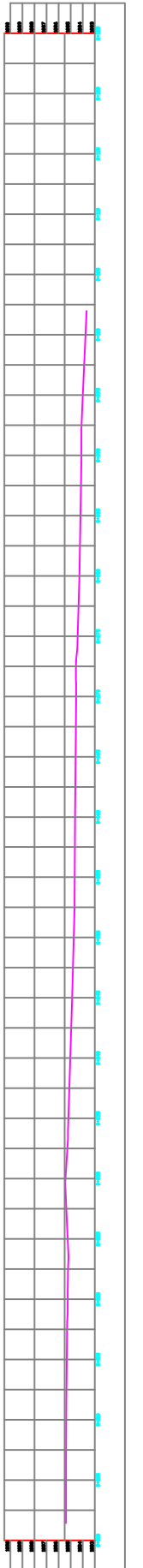
|   |          |          |          |      |
|---|----------|----------|----------|------|
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| 2 | 489105   | 249282.6 | 1084.2   | BH-2 |
| 3 | 489096.9 | 249300.2 | 1084.196 | BH-3 |
| 4 | 488963.8 | 249237.4 | 1088.29  | BH-4 |

CROSS SECTIONS OF LIRA HOSPITAL

Sec 2-2



Sec 1-1



# PREPARATORY SURVEY FOR THE PROJECT FOR IMPROVEMENT OF REGIONAL REFERRAL HOSPITALS IN NORTHERN UGANDA

## GEOTECHNICAL INVESTIGATIONS AT LIRA REGIONAL REFERRAL HOSPITAL

Client:

**Yokogawa Architects & Engineers, Inc. & INTEM  
Consulting, Inc**

### Investigations Report



Contractor:

**Associated Engineering Surveyors (AES)**

March 2017

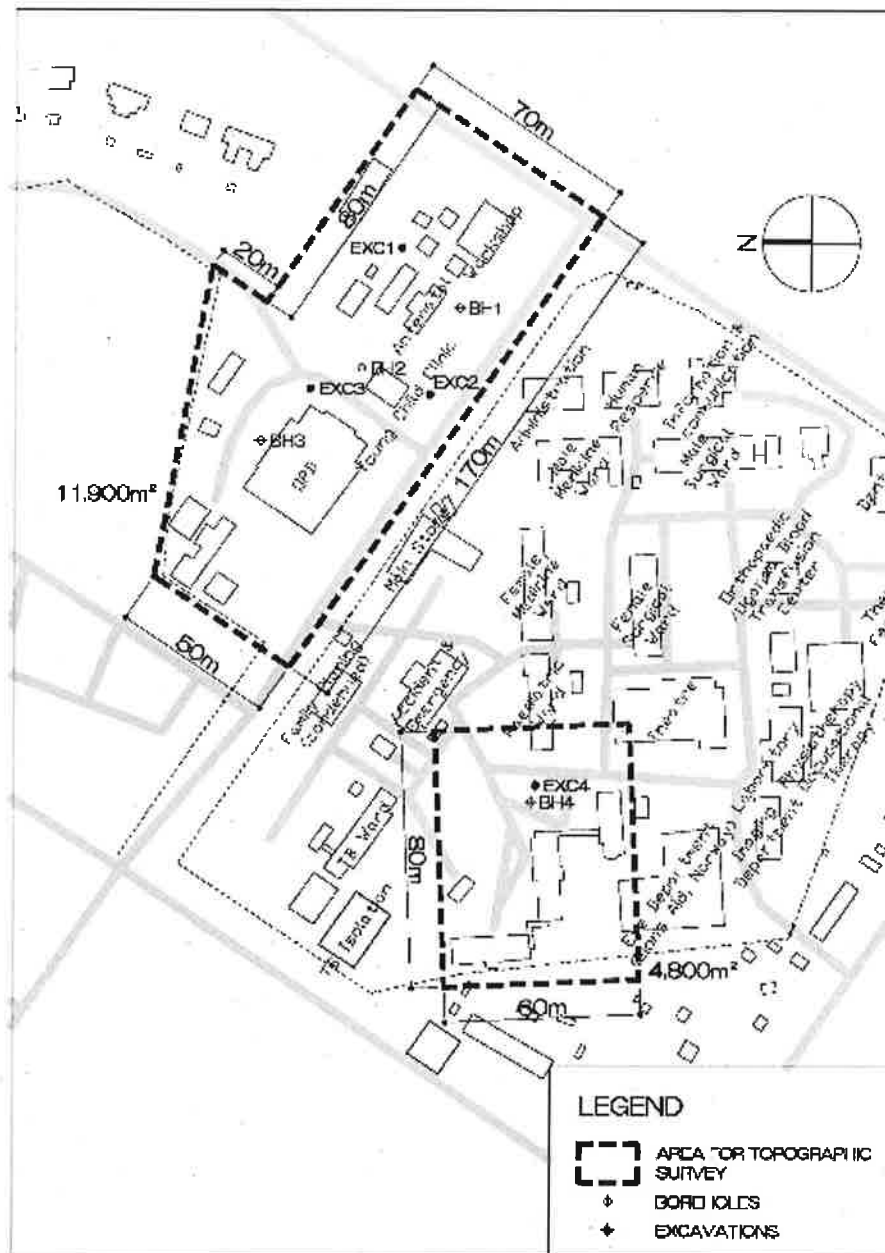
| Rev | Established      | Checked | Approved by | Date     | Comments/ Amendments | STAT   |
|-----|------------------|---------|-------------|----------|----------------------|--------|
| 0   | Technical Office | Orena   | Akena       | 19/03/17 | First Issue          | Report |

## 2 FIELD INVESTIGATIONS AND LABORATORY TESTING

### 2.1 Field Activities

Field works were commenced on 24<sup>th</sup> of February 2017 and completed on 26<sup>th</sup> February 2017. Geotechnical investigation works were carried out in accordance with the specifications provided by the client; Yokogawa Architects & Engineers, Inc. & INTEM Consulting, Inc.

An investigations location layout is presented below: -



### 3 BOREHOLE 1 LOG AND CORE PHOTOS

Borehole 1 was drilled from 0.0m at the surface down to 15m as instructed by the client.





#### 3.1 BH -01 borehole log

| Client: <b>Yokogawa Architects &amp; Engineers, Inc. &amp; INTEM Consulting, Inc</b> |        | Borehole No. <b>BH - 01</b> |               |                     |                    |
|--|--------|-----------------------------|---------------|---------------------|--------------------|
| Project: <b>Geotechnical Investigations at Lira Regional Referral Hospital</b>       |        | Date                        | Start:        | 24 – Feb - 2017     |                    |
| Location: <b>Lira Regional Referral Hospital</b>                                     |        |                             | Finish:       | 25 – Feb - 2017     |                    |
| Equipment: <b>GY-50</b>  |        | Co-ordinates: E 488963.8    |               | N 249237.4          |                    |
| Ground elevation: 1088.3   |        | Depth of Borehole           |               | 15.0m               |                    |
| Description  | Legend | Depth (m)                   | SPT (N)       | SPT Depth Range (m) | Undisturbed Sample |
| Brown loamy clay soil  |        | 0                           |               |                     |                    |
|  |        | 1                           |               |                     |                    |
| Red brown lateritic clay soils, stiff  |        | 2                           | 34            | 1.0 – 1.45          | (1.45m – 1.75m)    |
|  |        | 3                           | 17            | 2.75 – 3.2          |                    |
|  |        | 4                           |               |                     | (3.2m – 3.5m)      |
|  |        | 5                           | 20            | 4.5 – 4.95          |                    |
|  |        | 6                           |               |                     | (4.95m – 5.25m)    |
|  |        | 7                           | 26            | 5.95 – 6.4          |                    |
| Red brown to orange clay soil, moderate stiff  |        | 8                           | 15            | 7.4 – 7.85          | -                  |
|  |        | 9                           | -             | -                   | -                  |
|  |        | 10                          | 40            | 5.95 – 6.4          | (9.3m – 9.6m)      |
| Gray silty clays with mica, very stiff   |        | 11                          | >50 (Refusal) | 10.4 – 10.85        |                    |
|  |        | 12                          | -             | -                   | -                  |
|  |        | 13                          | >50 (Refusal) | 11.85 – 12.3        |                    |
|  |        | 14                          | -             | -                   | -                  |
|  |        | 15                          | >50 (Refusal) | 13.3 – 13.75        |                    |
|  |        | 15                          | -             | -                   | -                  |

## 4 BOREHOLE 2 LOG AND CORE PHOTOS

Borehole 2 was drilled from 0.0m at the surface down to 15m as instructed by the client.

### 4.1 BH -02 borehole log

| Client: <b>Yokogawa Architects &amp; Engineers, Inc. &amp; INTEM Consulting, Inc</b> |   | Borehole No. <b>BH - 02</b> |               |                     |                    |
|--|---|-----------------------------|---------------|---------------------|--------------------|
| Project: <b>Geotechnical Investigations at Lira Regional Referral Hospital</b>       |   | Date                        | Start:        | 25 – Feb - 2017     |                    |
| Location: <b>Lira Regional Referral Hospital</b>                                     |   |                             | Finish:       | 26 – Feb - 2017     |                    |
| Equipment: <b>GY-100</b>   |   | Co-ordinates: E 489105.0    |               | N 249282.6          |                    |
| Ground elevation: 1084.2   |   | Depth of Borehole           |               | 15.0m               |                    |
| Description  | Legend  | Depth (m)                   | SPT (N)       | SPT Depth Range (m) | Undisturbed Sample |
| Brown clay soil  |    | 0                           |               |                     |                    |
|  |   | 1                           |               |                     |                    |
|  |   | 2                           | 10            | 1.0 – 1.45          | (1.45m – 1.75m)    |
| Red brown lateritic clay. Very stiff   |  | 3                           | >50 (Refusal) | 2.75 – 3.2          |                    |
|  |   | 4                           |               |                     | (impenetrable)     |
| Weathered rock corestone   |  | 5                           |               |                     |                    |
|  |   | 6                           |               |                     |                    |
| Clayey sand. dense   |  | 7                           |               |                     |                    |
|  |   | 8                           | -             | -                   | -                  |
|  |   | 9                           | -             | -                   | -                  |
|  |   | 10                          | -             | -                   | -                  |
|  |   | 11                          | -             | -                   | -                  |
|  |   | 12                          | -             | -                   | -                  |
|  |   | 13                          | -             | -                   | -                  |
|  |   | 14                          | -             | -                   | -                  |
| 15   | -   | -                           | -             |                     |                    |

## 5 BOREHOLE 3 LOG AND CORE PHOTOS

Borehole 3 was drilled from 0.0m at the surface down to 15m as instructed by the client.


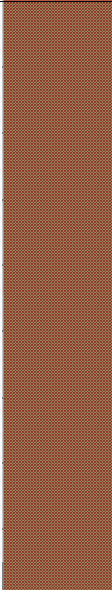
### 5.1 BH -03 borehole log

| Client: <b>Yokogawa Architects &amp; Engineers, Inc. &amp; INTEM Consulting, Inc</b>            |        | Borehole No. <b>BH - 03</b> |               |                     |                    |
|---|--------|-----------------------------|---------------|---------------------|--------------------|
| Project: <b>Geotechnical Investigations at Lira Regional Referral Hospital</b>                  |        | Date                        | Start:        | 24 – Feb - 2017     |                    |
| Location: <b>Lira Regional Referral Hospital</b>  |        |                             | Finish:       | 25 – Feb - 2017     |                    |
| Equipment: <b>GY-100</b>  |        | Co-ordinates: E 489096.9    |               | N 249300.2          |                    |
| Ground elevation: 1084.2  |        | Depth of Borehole           |               | 15.0m               |                    |
| Description   | Legend | Depth (m)                   | SPT (N)       | SPT Depth Range (m) | Undisturbed Sample |
| Brown clay, very firm   |        | 0                           |               |                     |                    |
|   |        | 1                           |               |                     | -                  |
|   |        | 2                           | >50 (Refusal) | 1.0 – 1.45          | (1.45m – 1.75m)    |
| Brown sandy clay. Very stiff between 3m and 5m. becomes red brown and softer between 5m and 10m |        | 3                           | >50 (Refusal) | 2.75 – 3.2          |                    |
|   |        | 4                           |               |                     |                    |
|   |        | 5                           |               |                     |                    |
|   |        | 6                           | 18            | 5.6 – 6.05          | -                  |
|   |        | 7                           |               |                     | (6.05m – 6.35m)    |
|   |        | 8                           | 14            | 7.35 – 7.8          | -                  |
|   |        | 9                           |               |                     | -                  |
|   |        | 10                          | 14            | 8.8 – 9.25          |                    |
|   |        | 11                          | 24            | 10.25 – 10.7        | (10.7m – 11.0m)    |
| Gray clayey sands with mica. stiff  |        | 12                          |               |                     |                    |
|   |        | 13                          | >50 (Refusal) | 12.0 – 12.45        | -                  |
|   |        | 14                          | -             | -                   | -                  |
|   |        | 15                          | -             | -                   | -                  |
|   |        | 15                          | -             | -                   | -                  |

## 6 BOREHOLE 4 LOG AND CORE PHOTOS

Borehole 4 was drilled from 0.0m at the surface down to 15m as instructed by the client.

### 6.1 BH -04 borehole log

| Client: <b>Yokogawa Architects &amp; Engineers, Inc. &amp; INTEM Consulting, Inc</b> |   | Borehole No. <b>BH - 04</b> |               |                     |                    |
|--|---|-----------------------------|---------------|---------------------|--------------------|
| Project: <b>Geotechnical Investigations at Lira Regional Referral Hospital</b>       |   | Date                        | Start:        | 25 – Feb - 2017     |                    |
| Location: <b>Lira Regional Referral Hospital</b>                                     |   |                             | Finish:       | 26 – Feb - 2017     |                    |
| Equipment: <b>GY-50</b>  |   | Co-ordinates: E 488963.8    |               | N 249237.4          |                    |
| Ground elevation: 1088.3   |   | Depth of Borehole           |               | 15.0m               |                    |
| Description  | Legend  | Depth (m)                   | SPT (N)       | SPT Depth Range (m) | Undisturbed Sample |
| Red brown lateritic clay   |   | 0                           |               |                     |                    |
|  |   | 1                           |               |                     | -                  |
|  |   | 2                           | >50 (Refusal) | 1.0 – 1.45          | (impenetrable)     |
|  |   | 3                           |               |                     |                    |
|  |   | 4                           | 17            | 3.0 – 3.45          | (3.45m – 3.75m)    |
|  |   | 5                           | 26            | 4.5 – 4.95          | -                  |
| Gray brown silty sands, dense, with mica   |  | 6                           |               |                     | -                  |
|  |   | 7                           | 35            | 6.2 – 6.65          | (6.65m – 6.95m)    |
|  |   | 8                           |               |                     |                    |
|  |   | 9                           | 35            | 7.95 – 8.4          |                    |
|  |   | 10                          | 41            | 9.4 – 9.85          |                    |
|  |   | 11                          |               |                     |                    |
|  |   | 12                          | 32            | 7.95 – 8.4          | (impenetrable)     |
|  |   | 13                          | 41            | 12.6 – 13.05        |                    |
|  |   | 14                          |               |                     |                    |
|  |   | 15                          | 48            | 14.05 – 14.5        |                    |



# PREPARATORY SURVEY FOR THE PROJECT FOR IMPROVEMENT OF REGIONAL REFERRAL HOSPITALS IN NORTHERN UGANDA

## UNDERGROUND OBSTACLES INVESTIGATIONS AT LIRA REGIONAL REFERRAL HOSPITAL

Client:

**Yokogawa Architects & Engineers, Inc. & INTEM Consulting, Inc**

### Investigations Report



Contractor:

**Associated Engineering Surveyors (AES)**

March 2017

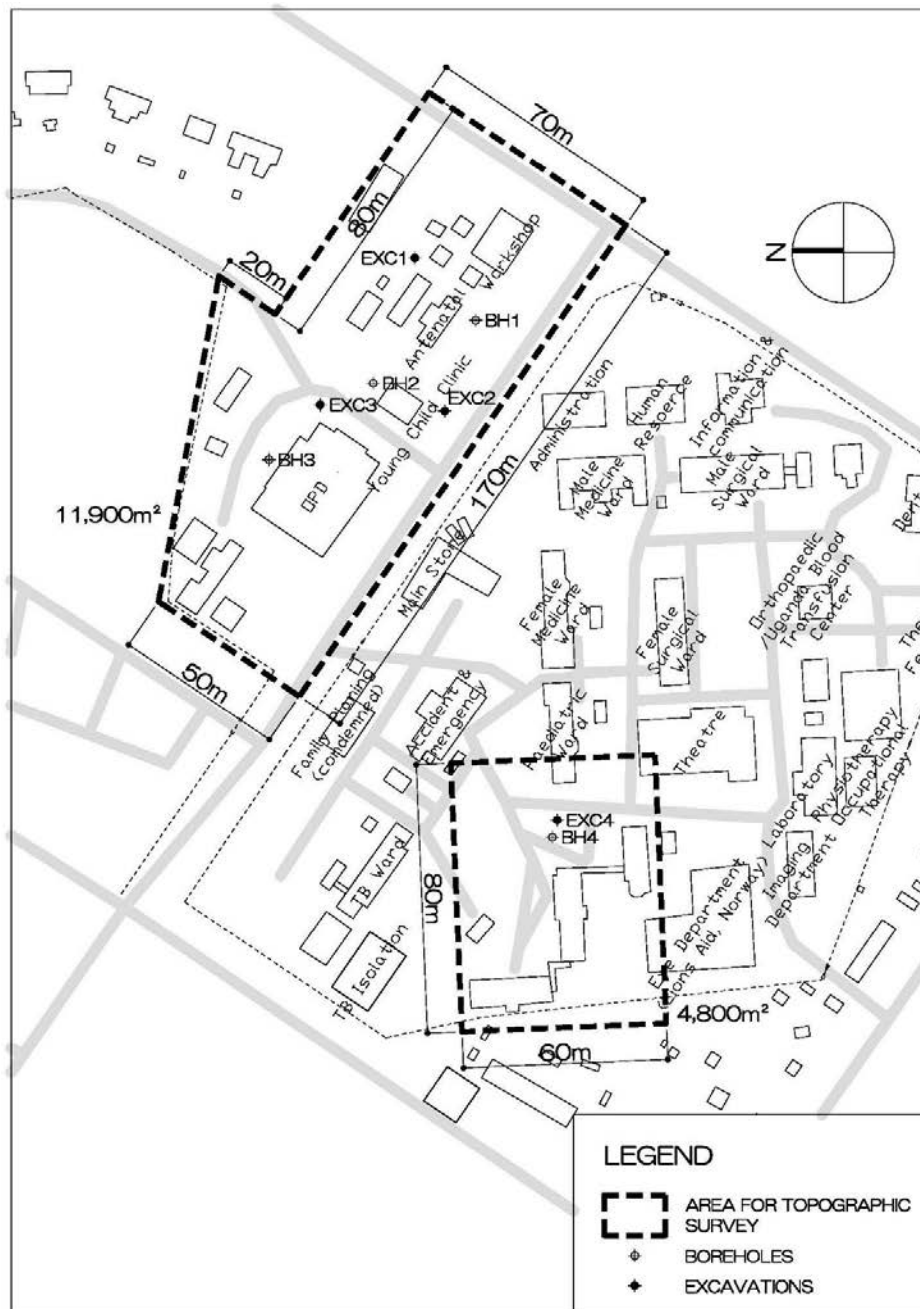
|     |                  |         |             |          |                      |        |
|-----|------------------|---------|-------------|----------|----------------------|--------|
|     |                  |         |             |          |                      |        |
| 0   | Technical Office | Orena   | Akena       | 08/03/17 | First Issue          | Report |
| Rev | Established      | Checked | Approved by | Date     | Comments/ Amendments | STAT   |

## 2 FIELD INVESTIGATIONS AND LABORATORY TESTING

### 2.1 Field Activities


Field works were commenced on 24<sup>th</sup> of February 2017 and completed on 26<sup>th</sup> February 2017. Underground obstacles investigation works were carried out in accordance with the specifications provided by the client; Yokogawa Architects & Engineers, Inc. & INTEM Consulting, Inc.

An investigations location layout is presented below: -



### 3 PIT/ TRENCH 1 UNDERGROUND OBSTACLES

Excavations at pit/ trench 1 revealed no underground obstacles down to a depth of 2.0m as shown in the profile below: -


|  |                  |  |
|--|------------------|--|
| <b>Co-ordinates: E 489146.1 N 249253.9 Z 1088.2</b>  |                  |  |
| <b>Picture EXC-01</b><br> | <b>depth (m)</b> | <b>description</b>                         |
|  | 0.0 – 0.8        | Brown loamy soils, very firm               |
|  | 0.8 – 1.4        | Red brown silty sand. firm                 |
|  | 1.4 – 2.0        | Red brown sandy silt. Moderately compacted |

#### Site Pictures



#### 4 PIT/ TRENCH 2 UNDERGROUND OBSTACLES

Excavations at pit/ trench 1 revealed no underground obstacles down to a depth of 2.0m as shown in the profile below: -


|  |                  |   |
|--|------------------|---|
| <b>Co-ordinates:</b> 489114.3 N 249267.7 Z 1084.0  |                  |   |
| <b>Picture EXC-02</b><br> | <b>depth (m)</b> | <b>description</b>                          |
|  | 0.0 – 0.1        | Gray brown loamy soils                      |
|  | 0.1 – 1.2        | Red brown lateritic soils, hard to excavate |
|  | 1.2 – 2.0        | Red Brown sandy silts. Moderately compacted |

#### Site Pictures



## 5 PIT/ TRENCH 3 UNDERGROUND OBSTACLES

Excavations at pit/ trench 3 revealed no underground obstacles down to a depth of 2.0m as shown in the profile below: -


|   |                             |  |
|---|-----------------------------|--|
| <b>Co-ordinates: E 489105.0 N 249282.6 Z 1084.2</b>                                 |                             |  |
| <b>Picture EXC-03</b>   |                             |  |
|  | <b>depth (m)</b>            | <b>description</b>                     |
|   | 0.0 – 0.7                   | brown loamy soil                       |
|   | 0.7 – 1.65                  | Dark brown silty clay soils. Very firm |
| 1.65 – 2.0  | Red brown sandy silts, firm |  |

### Site Pictures



## 6 PIT/ TRENCH 4 UNDERGROUND OBSTACLES

Excavations at pit/ trench 4 revealed no underground obstacles down to a depth of 1.0m as shown in the profile below: -

|   |                  |  |
|---|------------------|--|
| <b>Co-ordinates: E 488958.8 N 249238.9 Z 1088.3</b>                                 |                  |  |
| <b>Picture EXC-04</b>   |                  |  |
|  | <b>depth (m)</b> | <b>description</b>   |
|   | 0.0 – 0.2        | Gray brown silty clay soil with root growth                        |
|   | 0.2 – 1.0        | Red brown lateritic soils with duricrust. Hard to excavate by hand |

### Site Pictures





(4) Water Quality Certificate of Analysis

NATIONAL WATER AND SEWERAGE CORPORATION  
 CENTRAL LABORATORY - BUGOLOBI  
 P.O.BOX 7053 KAMPALA.  
 E-mail: [waterquality@nWSC.co.ug](mailto:waterquality@nWSC.co.ug)  
**CERTIFICATE OF ANALYSIS**

CLIENT: Yokogawa Architect & Engineers  
 Address: Kampala  
 Tel:  
 Email:  
 Date Sample Received: 06-March-2017  
 Table of Analytical Results

Ref No:LS098/INV/2017/265  
 Sampled by: Client  
 Type of container: Plastic  
 Sample Source: Lira  
 Date of Report: 21-March-2017

| Parameters                              | Units     | Lira         | National standards for Potable water |
|---|-----------|--------------|--------------------------------------|
| WS Sample Nr                            | --        | K1088/17/C/B |                                      |
| pH                                      | --        | 7.2          | 6.5-8.5                              |
| Electrical Conductivity (EC)            | µS/cm     | 220          | 2500                                 |
| Total Dissolved Solids (TDS)            | mg/L      | 140.8        | 1200                                 |
| Total Suspended Solids (TSS)            | mg/L      | 0            | 0                                    |
| Ammonia-N                               | mg/L      | 0.03         | 1.0                                  |
| Turbidity                               | NTU       | 0.9          | 10.0                                 |
| Alkalinity: Total as CaCO <sub>3</sub>  | mg/L      | 128          | 500                                  |
| Bicarbonate                             | mg/L      | 156.2        | 500                                  |
| Hardness: Total                         | mg/L      | 104          | 500                                  |
| Arsenic                                 | µg/L      | <0.004       | 0.010                                |
| Manganese                               | mg/L      | 0.01         | 0.1                                  |
| Chloride- Cl <sup>-</sup>               | mg/L      | 0            | 500                                  |
| Aluminium Residual                      | mg/L      | 0.0          | 0.2                                  |
| Nitrate-N                               | mg/L      | 0.01         | 5.0                                  |
| Iron:Total                              | mg/L      | 0.007        | 1.0                                  |
| Fluoride                                | mg/L      | 0.0          | 1.5                                  |
| Calcium: as Ca <sup>2+</sup>            | mg/L      | 19.2         | 75                                   |
| Magnesium: as Mg <sup>2+</sup>          | mg/L      | 23.0         | 50                                   |
| Colour (apparent)                       | PCU       | 21           | 15                                   |
| Sulphate: SO <sub>4</sub> <sup>2-</sup> | mg/L      | 4            | 200                                  |
| Odour                                   | -----     | -            | Not Specified                        |
| Taste                                   | -----     | -            | Not Specified                        |
| Potassium: K                            | mg/L      | 6.9          | 100                                  |
| Sodium: Na                              | mg/L      | 17.1         | 400                                  |
| Bact: Ecoli                             | CFU/100mL | 0            | 0                                    |
| Bact: Faecal Coliforms                  | CFU/100mL | 0            | 0                                    |
| Bact:Total Coliforms                    | CFU/100mL | 3            | 10                                   |

**Remarks:**

The sample showed complying physiochemical and bacteriological characteristics with the exception of colour as compared to the National standards for Potable water.

ANALYSED BY Robinah Muhirwe and Kennedy Araa

AUTHORISED BY: .....MANAGER, Central Laboratory Services

APPROVED BY: ..... SENIORMANAGER, Water Quality Management Department





**NATIONAL WATER AND SEWERAGE CORPORATION**  
**QUALITY CONTROL DEPARTMENT**  
**BACTERIOLOGICAL SAMPLE RECEPTION AND ANALYSIS RESULTS FORM**

| Date and time sampled | Date and time received | Lab No | Sample description  | pH | Colour (PCo) | Turbidity (FTU) | Free Cl <sub>2</sub> mg/l | Total chlorine(mg/l) | CFU counts/100 mls | Remarks |
|-----------------------|------------------------|--------|---------------------|----|--------------|-----------------|---------------------------|----------------------|--------------------|---------|
| 31/4/2017             | 12/5/2017, 4:25 PM     | 166    | Raw water           |    | 80           | 9               | N/A                       | N/A                  | 20                 | R       |
|                       |                        | 167    | Final water         |    | 14           | <5              | 0.75                      | 0.95                 | 0                  | FT      |
|                       |                        | 168    | Agwala Booster      |    | 14           | <5              | 0.7                       | 0.98                 | 0                  | B       |
|                       |                        | 169    | Adwila Gravity Tank |    | 14           | <5              | 0.35                      | 0.65                 | 0                  | D       |
|                       |                        | 170    | Ireda Res.          |    | 16           | <5              | 0.4                       | 0.85                 | 0                  | D       |
|                       |                        | 171    | UTC Lira            |    | 15           | <5              | 0.35                      | 0.5                  | 0                  | D       |
|                       |                        | 172    | Akia                |    | 15           | <5              | 0.25                      | 0.45                 | 0                  | D       |
|                       |                        | 173    | Obulo welo          |    | 16           | <5              | 0.19                      | 0.45                 | 0                  | D       |
|                       |                        | 174    | Aduku Road          |    | 14           | <5              | 0.25                      | 0.45                 | 0                  | D       |
|                       |                        | 175    | Ireda Chamber       |    | 13           | <5              | 0.2                       | 0.45                 | 0                  | D       |
|                       |                        | 176    | Juba Road           |    | 14           | <5              | 0.2                       | 0.42                 | 0                  | D       |



**NATIONAL WATER AND SEWERAGE CORPORATION**  
**QUALITY CONTROL DEPARTMENT**  
**BACTERIOLOGICAL SAMPLE RECEPTION AND ANALYSIS RESULTS FORM**

| Date and time sampled | Date and time received | Lab No | Sample description  | pH | Colour (PCo) | Turbidity (FTU) | Free Cl <sub>2</sub> mg/l | Total chlorine(mg/l) | CFU counts/100 mls | Remarks |
|-----------------------|------------------------|--------|---------------------|----|--------------|-----------------|---------------------------|----------------------|--------------------|---------|
| 31/5/2017             | 19/6/2017, 3:05 PM     | 177    | Raw water           |    | 8            | 12              | N/A                       | N/A                  | 18                 | R       |
|                       |                        | 178    | Final water         |    | 7.5          | <5              | 0.7                       | 0.9                  | 0                  | FT      |
|                       |                        | 179    | Agwala Booster      |    | 7.5          | <5              | 0.6                       | 0.88                 | 0                  | B       |
|                       |                        | 180    | Adwila Gravity Tank |    | 7.5          | <5              | 0.35                      | 0.58                 | 0                  | D       |
|                       |                        | 181    | Ireda Res.          |    | 7.5          | <5              | 0.5                       | 0.85                 | 0                  | D       |
|                       |                        | 182    | African Quarters    |    | 7.5          | <5              | 0.35                      | 0.55                 | 0                  | D       |
|                       |                        | 183    | Kakoge PSI          |    | 7.5          | <5              | 0.15                      | 0.3                  | 0                  | D       |
|                       |                        | 184    | UTC Lira            |    | 7.5          | <5              | 0.19                      | 0.3                  | 0                  | D       |
|                       |                        | 185    | Nqeta Ginnery       |    | 7.5          | <5              | 0.18                      | 0.35                 | 0                  | D       |
|                       |                        | 186    | Anai Okii           |    | 7.5          | <5              | 0.2                       | 0.45                 | 0                  | D       |
|                       |                        | 187    | Akwoyo              |    | 7.5          | <5              | 0.22                      | 0.45                 | 0                  | D       |



**NATIONAL WATER AND SEWERAGE CORPORATION**  
**QUALITY CONTROL DEPARTMENT**  
**BACTERIOLOGICAL SAMPLE RECEPTION AND ANALYSIS RESULTS FORM**

| Date and time sampled | Date and time received | Lab No | Sample description  | pH | Colour (PCo) | Turbidity (FTU) | Free Cl <sub>2</sub> mg/l | Total chlorine(mg/l) | CFU counts/100 mls | Remarks |
|-----------------------|------------------------|--------|---------------------|----|--------------|-----------------|---------------------------|----------------------|--------------------|---------|
| 31/8/2017             | 25/9/17, 6:09 PM       | 188    | Raw water           |    | 8            | 12              | N/A                       | N/A                  | 22                 | R       |
|                       |                        | 189    | Final water         |    | 7.8          | <5              | 0.8                       | 0.9                  | 0                  | FT      |
|                       |                        | 190    | Agwala Booster      |    | 7.6          | <5              | 0.6                       | 0.85                 | 0                  | B       |
|                       |                        | 192    | Adwila Gravity Tank |    | 7.6          | <5              | 0.3                       | 0.55                 | 0                  | D       |
|                       |                        | 193    | Ireda Res.          |    | 7.5          | <5              | 0.6                       | 0.8                  | 0                  | D       |
|                       |                        | 194    | Kakoge CDC          |    | 7.6          | <5              | 0.3                       | 0.55                 | 0                  | D       |
|                       |                        | 195    | Socoli Road         |    | 7.6          | <5              | 0.35                      | 0.45                 | 0                  | D       |
|                       |                        | 196    | Royal Academy SS    |    | 7.5          | <5              | 0.25                      | 0.45                 | 0                  | D       |
|                       |                        | 197    | VH Primary School   |    | 7.5          | <5              | 0.25                      | 0.45                 | 0                  | D       |
|                       |                        | 198    | Anai Ober           |    | 7.5          | <5              | 0.19                      | 0.4                  | 0                  | D       |
|                       |                        | 199    | Akwoyo              |    | 7.5          | <5              | 0.18                      | 0.4                  | 0                  | D       |





**NATIONAL WATER AND SEWERAGE CORPORATION**  
**QUALITY CONTROL DEPARTMENT**  
**BACTERIOLOGICAL SAMPLE RECEIPTION AND ANALYSIS RESULTS FORM**

| Date and time sampled | Date and time received | Lab No | Sample description  | pH | Colour (PtCo) | Turbidity (FTU) | Free Cl2 mg/l | Total chlorine(mg/l) | CFU counts/100 mls | Remarks |
|-----------------------|------------------------|--------|---------------------|----|---------------|-----------------|---------------|----------------------|--------------------|---------|
| 31/1/2017             | 15/1/17, 4:05 PM       | 133    | Raw water           |    | 70            | 10              | N/A           | N/A                  | 22                 | R       |
|                       |                        | 134    | Final water         |    | 14            | <5              | 0.7           | 0.95                 | 0                  | FT      |
|                       |                        | 135    | Agwata Booster      |    | 15            | <5              | 0.55          | 0.8                  | 0                  | B       |
|                       |                        | 136    | Adwila Gravity Tank |    | 15            | <5              | 0.35          | 0.65                 | 0                  | D       |
|                       |                        | 137    | Ireda Res.          |    | 13            | <5              | 0.45          | 0.6                  | 0                  | D       |
|                       |                        | 138    | Kirombe North       |    | 14            | <5              | 0.25          | 0.45                 | 0                  | D       |
|                       |                        | 139    | Kakoge CDC          |    | 13            | <5              | 0.25          | 0.46                 | 0                  | D       |
|                       |                        | 140    | African Quarters    |    | 13            | <5              | 0.3           | 0.6                  | 0                  | D       |
|                       |                        | 141    | Anai                |    | 15            | <5              | 0.25          | 0.65                 | 0                  | D       |
|                       |                        | 142    | UTC Lira            |    | 15            | <5              | 0.2           | 0.4                  | 0                  | D       |
|                       |                        | 143    | Ngetia Ginnery      |    | 14            | <5              | 0.25          | 0.45                 | 0                  | D       |



**NATIONAL WATER AND SEWERAGE CORPORATION**  
**QUALITY CONTROL DEPARTMENT**  
**BACTERIOLOGICAL SAMPLE RECEIPTION AND ANALYSIS RESULTS FORM**

| Date and time sampled | Date and time received | Lab No | Sample description  | pH  | Colour (PtCo) | Turbidity (FTU) | Free Cl2 mg/l | Total chlorine(mg/l) | CFU counts/100 mls | Remarks |
|-----------------------|------------------------|--------|---------------------|-----|---------------|-----------------|---------------|----------------------|--------------------|---------|
| 31/2/2017             | 25/2/17, 6:09 PM       | 144    | Raw water           | 8   | 85            | 12              | N/A           | N/A                  | 22                 | R       |
|                       |                        | 145    | Final water         | 7.5 | 16            | <5              | 0.8           | 0.9                  | 0                  | FT      |
|                       |                        | 146    | Agwata Booster      | 7.5 | 14            | <5              | 0.6           | 0.65                 | 0                  | B       |
|                       |                        | 147    | Auzwia Gravity Tank | 7.6 | 15            | <5              | 0.3           | 0.55                 | 0                  | D       |
|                       |                        | 148    | Ireda Res.          | 7.8 | 15            | <5              | 0.6           | 0.8                  | 0                  | D       |
|                       |                        | 149    | Kakoge CDC          | 7.6 | 15            | <5              | 0.3           | 0.55                 | 0                  | D       |
|                       |                        | 150    | Soroti Road         | 7.3 | 15            | <5              | 0.35          | 0.45                 | 0                  | D       |
|                       |                        | 151    | Royal Academy SS    | 7.5 | 14            | <5              | 0.25          | 0.45                 | 0                  | D       |
|                       |                        | 152    | VII Primary School  | 7.5 | 14            | <5              | 0.25          | 0.45                 | 0                  | D       |
|                       |                        | 153    | Anai Ober           | 7.8 | 16            | <5              | 0.18          | 0.4                  | 0                  | D       |
|                       |                        | 154    | Akwoyo              | 7.5 | 15            | <5              | 0.18          | 0.4                  | 0                  | D       |



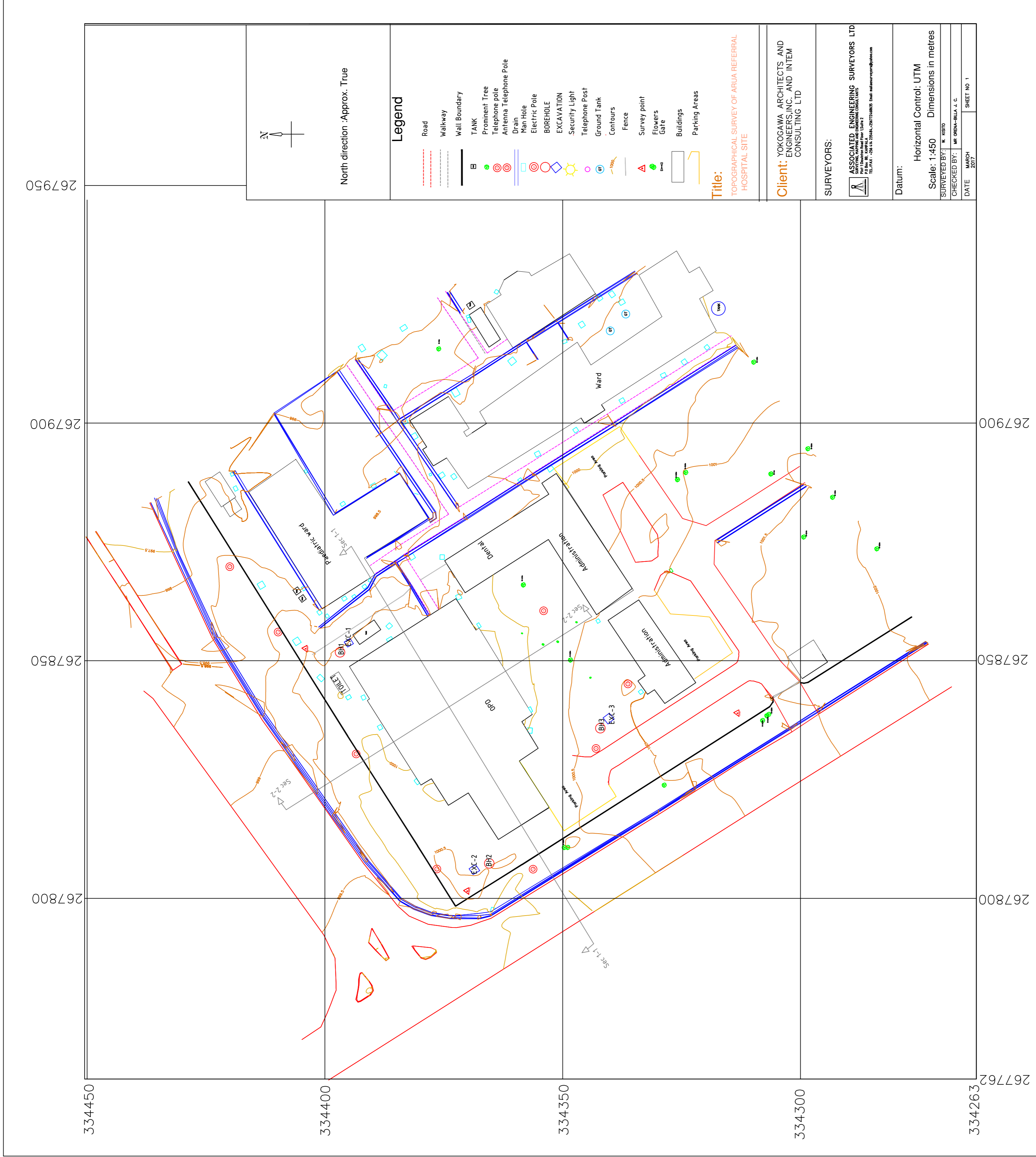
**NATIONAL WATER AND SEWERAGE CORPORATION**  
**QUALITY CONTROL DEPARTMENT**  
**BACTERIOLOGICAL SAMPLE RECEIPTION AND ANALYSIS RESULTS FORM**

| Date and time sampled | Date and time received | Lab No | Sample description  | pH | Colour (PtCo) | Turbidity (FTU) | Free Cl2 mg/l | Total chlorine(mg/l) | CFU counts/100 mls | Remarks |
|-----------------------|------------------------|--------|---------------------|----|---------------|-----------------|---------------|----------------------|--------------------|---------|
| 31/3/2017             | 5/3/2017, 5:05 PM      | 155    | Raw water           |    | 57            | 7               | N/A           | N/A                  | 20                 | R       |
|                       |                        | 156    | Final water         |    | 14            | <5              | 0.7           | 0.92                 | 0                  | FT      |
|                       |                        | 157    | Agwata Booster      |    | 13            | <5              | 0.5           | 0.8                  | 0                  | B       |
|                       |                        | 158    | Adwila Gravity Tank |    | 12            | <5              | 0.35          | 0.65                 | 0                  | D       |
|                       |                        | 159    | Ireda Res.          |    | 12            | <5              | 0.6           | 0.8                  | 0                  | D       |
|                       |                        | 160    | Kachung Junior Sch  |    | 13            | <5              | 0.5           | 0.75                 | 0                  | D       |
|                       |                        | 161    | Presidential Lodge  |    | 13            | <5              | 0.2           | 0.45                 | 0                  | D       |
|                       |                        | 162    | Ambatal P. Sch.     |    | 14            | <5              | 0.3           | 0.45                 | 0                  | D       |
|                       |                        | 163    | Ayago P. Sch.       |    | 14            | <5              | 0.25          | 0.4                  | 0                  | D       |
|                       |                        | 164    | Odokomil Ginnery    |    | 13            | <5              | 0.25          | 0.45                 | 0                  | D       |
|                       |                        | 165    | Ipwo Akere          |    |               |                 |               |                      |                    |         |



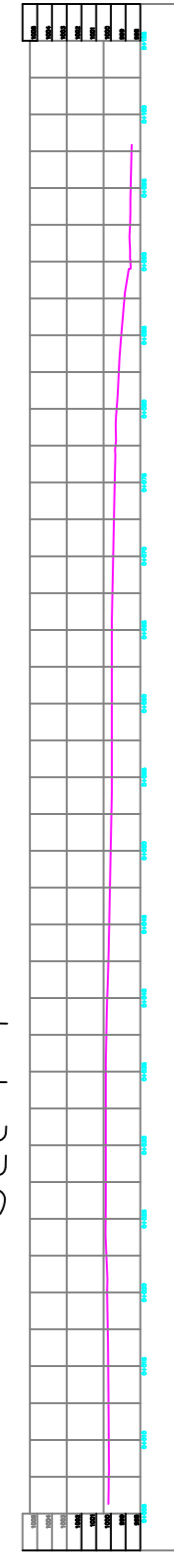
# 7-3 Arua RRH

## (1) Topographic Map

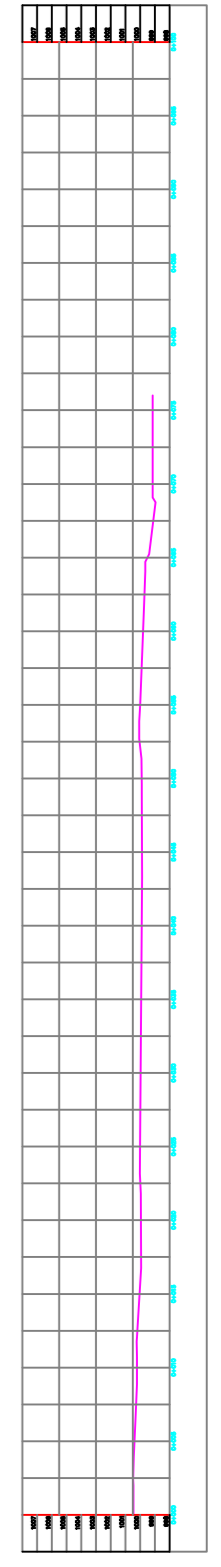


CROSS SECTION OF ARUA HOSPITAL

Sec 1-1



Sec 2-2



|          |          |          |     |
|----------|----------|----------|-----|
| 267852.2 | 334396.8 | 999.261  | BH1 |
| 267807.8 | 334365.4 | 1000.288 | BH2 |
| 267836.3 | 334342   | 1000.707 | BH3 |

|          |          |          |       |
|----------|----------|----------|-------|
| 267854.4 | 334395   | 999.5    | EXC-1 |
| 267806.5 | 334368.6 | 1000.124 | EXC-2 |
| 267838.4 | 334340.3 | 1000.815 | EXC-3 |

# PREPARATORY SURVEY FOR THE PROJECT FOR IMPROVEMENT OF REGIONAL REFERRAL HOSPITALS IN NORTHERN UGANDA

## GEOTECHNICAL INVESTIGATIONS AT ARUA REGIONAL REFERRAL HOSPITAL

Client:

**Yokogawa Architects & Engineers, Inc. & INTEM  
Consulting, Inc**

### Investigations Report



Contractor:

**Associated Engineering Surveyors (AES)**

March 2017

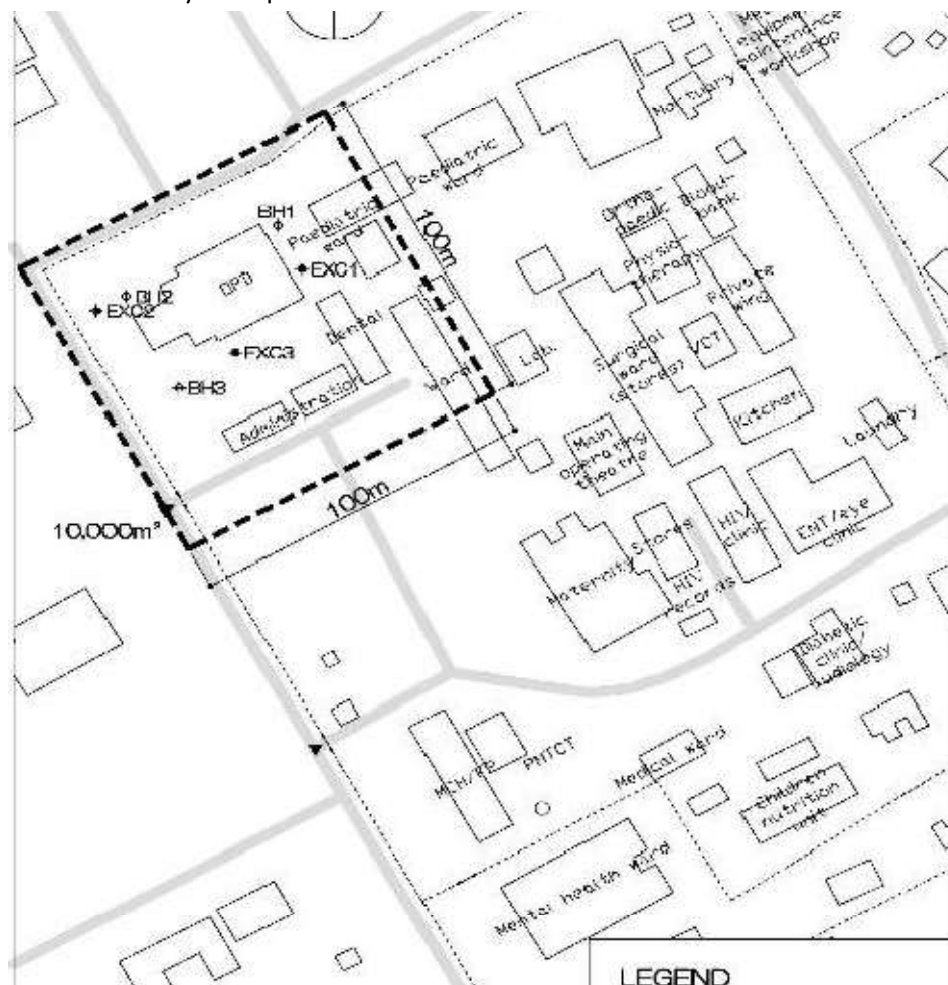
| Rev | Established      | Checked | Approved by | Date     | Comments/ Amendments | STAT   |
|-----|------------------|---------|-------------|----------|----------------------|--------|
| 0   | Technical Office | Orena   | Akena       | 19/03/17 | First Issue          | Report |

## 2 FIELD INVESTIGATIONS AND LABORATORY TESTING

### 2.1 Field Activities

Field works were commenced on 17<sup>th</sup> of February 2017 and completed on 19<sup>th</sup> February 2017. Geotechnical investigation works were carried out in accordance with the specifications provided by the client; Yokogawa Architects & Engineers, Inc.& INTEM Consulting, Inc.

An investigations location layout is presented below: -




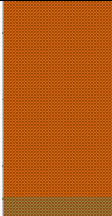
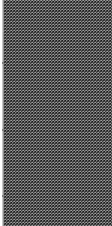

The field works comprised of mainly the following activities: -

- Boring to 15m depth
- Standard Penetration Test (SPT)
- Undisturbed sampling

### 3 BOREHOLE 1 LOG AND CORE PHOTOS

Borehole 1 was drilled from 0.0m at the surface down to 15m as instructed by the client.

#### 3.1 BH -01 borehole log

| Client: <b>Yokogawa Architects &amp; Engineers, Inc. &amp; INTEM Consulting, Inc</b>  |   | Borehole No. <b>BH - 01</b>                 |         |                     |                    |
|---|---|---|---------|---------------------|--------------------|
| Project: <b>Geotechnical Investigations at Arua Regional Referral Hospital</b>  |   | Date  | Start:  | 18 – Feb - 2017     |                    |
| Location: <b>Arua Regional Referral Hospital</b>  |   |   | Finish: | 18 – Feb - 2017     |                    |
| Equipment: <b>GY-100</b>  |   | Co-ordinates: <b>E 267852.2, N 334396.8</b> |         |                     |                    |
| Ground elevation: 999.261   |   | Depth of Borehole                           | 15.0m   |                     |                    |
| Description   | Legend  | Depth (m)                                   | SPT (N) | SPT Depth Range (m) | Undisturbed Sample |
| Gray silty clay becoming sandy clay with depth  |    | 0   |         |                     |                    |
|   |   | 1   |         |                     |                    |
| Red brown clay, somewhat lateritic. Becomes sandy at 4.5m to 5.0m   |   | 2   | 17      | 1.0 – 1.45          | (1.45m – 1.75m)    |
|   |   | 3   | 13      | 2.75 – 3.2          |                    |
|   |   | 4   |         |                     | (3.2m – 3.5m)      |
|   |   | 5   | 25      | 4.5 – 4.95          |                    |
| Gray silty sands, with some quartz particles  |  | 6   |         |                     | (4.95m – 5.25m)    |
|   |   | 7   | -       | -                   | -                  |
|   |   | 8   | -       | -                   | -                  |
|   |   | 9   | -       | -                   | -                  |
| Highly weathered to moderate weathered gneissic rock. Highly foliated and fractured. Becomes strong to very strong with depth |  | 10  | -       | -                   | -                  |
|   |   | 11  | -       | -                   | -                  |
|   |   | 12  | -       | -                   | -                  |
|   |   | 13  | -       | -                   | -                  |
|   |   | 14  | -       | -                   | -                  |
|   |   | 15  | -       | -                   | -                  |

## 4 BOREHOLE 2 LOG AND CORE PHOTOS

Borehole 2 was drilled from 0.0m at the surface down to 15m as instructed by the client.



### 4.1 BH -02 borehole log

| Client: <b>Yokogawa Architects &amp; Engineers, Inc. &amp; INTEM Consulting, Inc</b> |        | Borehole No. <b>BH - 02</b> |               |                     |                    |
|--|--------|-----------------------------|---------------|---------------------|--------------------|
| Project: <b>Geotechnical Investigations at Arua Regional Referral Hospital</b>       |        | Date                        | Start:        | 17 – Feb - 2017     |                    |
| Location: <b>Arua Regional Referral Hospital</b>                                     |        |                             | Finish:       | 17 – Feb - 2017     |                    |
| Equipment: <b>GY-100</b>   |        | Co-ordinates: E 267807.8    |               | N 334365.4          |                    |
| Ground elevation: 1000.288   |        | Depth of Borehole           |               | 15.0m               |                    |
| Description  | Legend | Depth (m)                   | SPT (N)       | SPT Depth Range (m) | Undisturbed Sample |
| Gray silty clay  |        | 0                           |               |                     |                    |
| Red brown sandy clay with some loose gravel  |        | 1                           |               |                     |                    |
|  |        | 2                           | 18            | 1.0 – 1.45          | (1.45m – 1.75m)    |
|  |        | 3                           | 29            | 2.75 – 3.2          | (3.2m – 3.5m)      |
| Coarse gray brown sand   |        | 4                           |               |                     |                    |
|  |        | 5                           | >50 (Refusal) | 4.5 – 4.95          | (4.95m – 5.25m)    |
| Gray silty sand. Dense sands   |        | 6                           |               |                     |                    |
|  |        | 7                           | >50 (Refusal) | 7.0 – 7.45          |                    |
|  |        | 8                           | -             | -                   | -                  |
|  |        | 9                           | -             | -                   | -                  |
|  |        | 10                          | -             | -                   | -                  |
|  |        | 11                          | -             | -                   | -                  |
|  |        | 12                          | -             | -                   | -                  |
|  |        | 13                          | -             | -                   | -                  |
|  |        | 14                          | -             | -                   | -                  |
|  |        | 15                          | -             | -                   | -                  |

## 5 BOREHOLE 3 LOG AND CORE PHOTOS

Borehole 3 was drilled from 0.0m at the surface down to 15m as instructed by the client.

### 5.1 BH -03 borehole log

| Client: <b>Yokogawa Architects &amp; Engineers, Inc. &amp; INTEM Consulting, Inc</b> |   | Borehole No. <b>BH - 03</b> |               |                     |                    |
|--|---|-----------------------------|---------------|---------------------|--------------------|
| Project: <b>Geotechnical Investigations at Arua Regional Referral Hospital</b>       |   | Date                        | Start:        | 17 – Feb - 2017     |                    |
| Location: <b>Arua Regional Referral Hospital</b>                                     |   |                             | Finish:       | 17 – Feb - 2017     |                    |
| Equipment: <b>GY-50</b>  |   | Co-ordinates: E 267836.3    |               | N 334342            |                    |
| Ground elevation: 1000.707   |   | Depth of Borehole           |               | 15.0m               |                    |
| Description  | Legend  | Depth (m)                   | SPT (N)       | SPT Depth Range (m) | Undisturbed Sample |
| Gray brown clay, somewhat lateritic  |   | 0                           |               |                     |                    |
|  |   | 1                           |               |                     | -                  |
|  |   | 2                           | 14            | 1.0 – 1.45          | (1.45m – 1.75m)    |
|  |   | 3                           | 28            | 2.75 – 3.2          |                    |
| Gray brown sands, very dense   |  | 4                           |               |                     | (3.2m – 3.5m)      |
|  |   | 5                           | 37            | 4.5 – 4.95          | -                  |
|  |   | 6                           | 40            | 5.95 – 6.4          | -                  |
|  |   | 7                           |               |                     | -                  |
|  |   | 8                           | 44            | 7.4 – 7.85          | -                  |
|  |   | 9                           |               |                     | -                  |
|  |   | 10                          | >50 (Refusal) | 9.0 – 9.45          | -                  |
|  |   | 11                          | -             | -                   | -                  |
|  |   | 12                          | -             | -                   | -                  |
|  |   | 13                          | -             | -                   | -                  |
|  |   | 14                          | -             | -                   | -                  |
| 15   | -   | -                           | -             |                     |                    |

# PREPARATORY SURVEY FOR THE PROJECT FOR IMPROVEMENT OF REGIONAL REFERRAL HOSPITALS IN NORTHERN UGANDA

## UNDERGROUND OBSTACLES INVESTIGATIONS AT ARUA REGIONAL REFERRAL HOSPITAL

**Client:**

**Yokogawa Architects & Engineers, Inc. & INTEM  
Consulting, Ltd.**

### Investigations Report (ARUA)



**Contractor:**

**Associated Engineering Surveyors (AES)**

March 2017

|     |                     |         |             |          |                      |        |
|-----|---------------------|---------|-------------|----------|----------------------|--------|
|     |                     |         |             |          |                      |        |
| 0   | Technical<br>Office | Orena   | Akena       | 08/03/17 | First Issue          | Report |
| Rev | Established         | Checked | Approved by | Date     | Comments/ Amendments | STAT   |

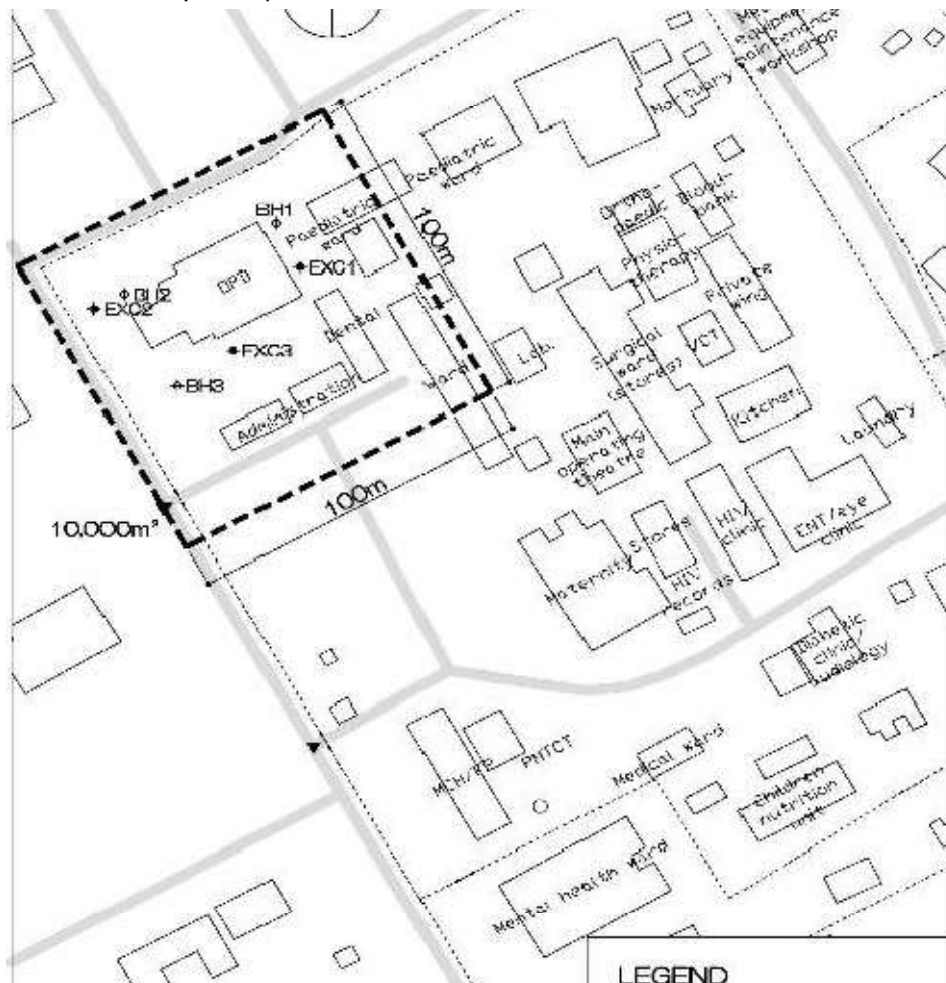


## 2 FIELD INVESTIGATIONS AND LABORATORY TESTING

### 2.1 Field Activities

Field works were commenced on 18<sup>th</sup> of February 2017 and completed on 19<sup>th</sup> February 2017. Underground obstacles investigation works were carried out in accordance with the specifications provided by the client; Yokogawa Architects & Engineers, Inc.& INTEM Consulting, Inc.

An investigations location layout is presented below: -




The field works comprised of mainly the following activities: -

- Excavation by hand of 3 pits/ trenches of 1.5 meters x 1.5meters and 2 meters deep
- Collecting both disturbed and undisturbed samples for laboratory analysis

**The table below lists the co-ordinate locations of the excavated pits/ trenches. Co-ordinates are in Arc 1960 UTM system: -**

### 3 PIT/ TRENCH 1 UNDERGROUND OBSTACLES

Excavations at pit/ trench 1 revealed no underground obstacles down to a depth of 2.0m as shown in the profile below: -

|  |                  |  |
|--|------------------|--|
| <b>Co-ordinates: E 267854.4, N 334395, Z 999.5</b>   |                  |  |
| <b>Picture EXC-01</b><br> | <b>depth (m)</b> | <b>description</b>                             |
|  | 0.0 – 0.3        | Gray loamy soils with fragments of quartz rock |
|  | 0.3 – 2.0        | Gray brown silty clay soils                    |

#### Site Pictures



#### 4 PIT/ TRENCH 2 UNDERGROUND OBSTACLES

Excavations at pit/ trench 2 revealed no underground obstacles down to a depth of 1.5m as shown in the profile below: -

|   |                  |  |
|---|------------------|--|
| <b>Co-ordinates: EXC-02 E 267806.5, N 334368.6, Z 1000.124</b>                      |                  |  |
| <b>Picture EXC-02</b>   | <b>depth (m)</b> | <b>description</b>   |
|  | 0.0 – 1.0        | Gray brown silty clay soils, moderately compacted                  |
|   | 0.3 – 1.5        | Brown lateritic soils that are very hard to excavate with pick axe |

#### Site Pictures



## 5 PIT/ TRENCH 3 UNDERGROUND OBSTACLES

Excavations at pit/ trench 3 revealed no underground obstacles down to a depth of 2.0m as shown in the profile below: -

| Co-ordinates: EXC-03 E 267838.4 N 334340.3 Z 1000.815                               |           |   |
|---|-----------|---|
| Picture EXC-03  | depth (m) | description   |
|  | 0.0 – 0.5 | <p>Gray brown silty clay soils, lateritic, very hard to excavate manually.</p> <p>Quartzite rock fragments at 2.0m, mixed with laterite</p> |

### Site Pictures



(4) Water Quality Certificate of Analysis



NATIONAL WATER AND SEWERAGE CORPORATION
CENTRAL LABORATORY - BUGOLOBI.
P.O.BOX 7053 KAMPALA.
E-mail: waterquality@nWSC.co.ug
CERTIFICATE OF ANALYSIS

CLIENT: Yokogawa Architect & Engineers
Address: Kampala
Tel:
Email:
Date Sample Received: 06-March-2017
Table of Analytical Results

Ref No:LS098/INV/2017/265
Sampled by: Client
Type of container: Plastic
Sample Source: Arua
Date of Report: 21-March-2017

Table with 4 columns: Parameters, Units, Arua, National standards for Potable water. Rows include parameters like pH, Electrical Conductivity (EC), Total Dissolved Solids (TDS), etc.

Remarks:

The sample showed complying physiochemical and bacteriological characteristics with the exception of Colour and TSS as compared to the National standards for Potable water.

ANALYSED BY Robinah Mucirwe and Keneddy Arua

AUTHORISED BY: ...MANAGER, Central Laboratory Services

APPROVED BY: ...SENIORMANAGER, Water Quality Management Department



January, 2017 NWSC-ARUA

| Parameter         | Unit        | Monitoring points |             |              |             |                      |                     |             |  |  |  | National Standards for potable water quality (water in supply) |
|-------------------|-------------|-------------------|-------------|--------------|-------------|----------------------|---------------------|-------------|--|--|--|--|
|                   |             | Waterworks        |             |              |             |                      | Water in supply     |             |  |  | National Standards for potable water quality (water in supply) |  |
|                   |             | Final water       | Reservoir   | W. works PSP | Ediofe T.C  | Rock filling Station | Muni Trading Centre | Oli T.C     |  |  |  |  |
| <b>Codes</b>      |             | <b>N953</b>       | <b>N954</b> | <b>N955</b>  | <b>N956</b> | <b>N957</b>          | <b>N958</b>         | <b>N959</b> |  |  |  |  |
| pH                | ...         | 6.78              | 6.52        | 6.95         | 6.74        | 6.78                 | 6.13                | 5.96        |  |  |  | 6.5 – 8.5  |
| EC                | µs/cm       | 266               | 268         | 264          | 144         | 188                  | 151                 | 150         |  |  |  | 1500   |
| Turbidity         | NTU         | 3.77              | 2.58        | 6.62         | 1.82        | 2.52                 | 1.9                 | 1.77        |  |  |  | 5  |
| Colour            | PtCo)       | 10                | 6           | 7            | 9           | 11                   | 10                  | 8           |  |  |  | 15   |
| Iron              | mg/L        | 0.152             | 0.168       | 0.154        | 0.162       | 0.157                | 0.265               | 0.154       |  |  |  | 0.300  |
| TSS               | mg/L        | 0                 | 0           | 0            | 0           | 0                    | 0                   | 0           |  |  |  | 0  |
| Alkalinity        | mg/L        | 64                | 60          | 66           | 70          | 58                   | 62                  | 68          |  |  |  | 500  |
| Hardness          | mg/L        | 70                | 72          | 72           | 68          | 70                   | 70                  | 70          |  |  |  | 300  |
| Aluminium Residue | mg/L        | 0.2               | NR          | NR           | NR          | NR                   | NR                  | NR          |  |  |  | 0.2  |
| Free chlorine     | mg/L        | 1.5               | 1           | 0.3          | 0.4         | 0.3                  | 0.4                 | 0.4         |  |  |  | 0.20-0.50  |
| E-Coli            | CFU/ 100 mL | 0                 | 0           | 0            | 0           | 0                    | 0                   | 0           |  |  |  | 0  |

**Remarks**

All the water samples from different points showed complying physiochemical and bacteriological characteristics compared to the National standards for potable water.

Approved by:

Dr. Mohammed Babu

Manager, Central Laboratory Services



February, 2017 NWSC-ARUA

| Parameter         | Unit        | Monitoring points |           |          |                 |             |                   |                 |                 |                 |  | National Standards for potable water quality (water in supply) |           |
|-------------------|-------------|-------------------|-----------|----------|-----------------|-------------|-------------------|-----------------|-----------------|-----------------|--|--|-----------|
|                   |             | Waterworks        |           |          | Water in Supply |             |                   |                 |                 | Androa Road PSP |  |  |           |
|                   |             | Final water       | Reservoir | Arua P.S | Ediofe T.C      | Godown Road | Oli Health Centre | Androa Road PSP | Androa Road PSP | Androa Road PSP |  |  |           |
| Lab No.           |             | N171              | N172      | N173     | N174            | N175        | N176              | N177            |                 |                 |  |  |           |
| Codes             |             | WWFT4             | DR5       | DSP3     | DCP6            | DSP5        | DCP7              | DSP2            |                 |                 |  |  |           |
| pH                | ...         | 7.04              | 7.13      | 7.17     | 7.25            | 7.22        | 7.27              | 7.28            |                 |                 |  |  | 6.5 – 8.5 |
| EC                | µs/cm       | 628               | 613       | 567      | 530             | 530         | 426               | 450             |                 |                 |  |  | 1500      |
| Colour            | PtCo.       | 6                 | 5         | 4        | 7               | 8           | 9                 | 8               |                 |                 |  |  | 15        |
| Turbidity         | NTU         | 2.79              | 1.71      | 1.61     | 1.06            | 1.36        | 1.94              | 1.42            |                 |                 |  |  | 5         |
| Iron: Total       | mg/L        | 0.187             | 0.345     | 0.288    | 0.142           | 0.134       | 0.222             | 0.211           |                 |                 |  |  | 0.300     |
| TSS               | mg/L        | 0                 | 0         | 0        | 0               | 0           | 0                 | 0               |                 |                 |  |  | 0         |
| Alkalinity        | mg/L        | 128               | 188       | 170      | 172             | 174         | 180               | 178             |                 |                 |  |  | 500       |
| Hardness          | mg/L        | 156               | 172       | 140      | 164             | 116         | 150               | 160             |                 |                 |  |  | 300       |
| Aluminium Residue | mg/L        | 0.025             | N/R       | N/R      | N/R             | N/R         | N/R               | N/R             |                 |                 |  |  | 0.2       |
| Free chlorine     | mg/L        | 1.2               | 1         | 0.4      | 0.5             | 0.3         | 0.4               | 0.5             |                 |                 |  |  | 0.20-0.50 |
| E-Coli            | CFU/ 100 mL | 0                 | 0         | 0        | 0               | 0           | 0                 | 0               |                 |                 |  |  | 0         |

Remarks

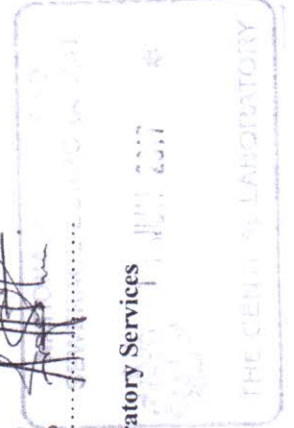
All the water samples from different points showed complying physiochemical and bacteriological characteristics compared to the National standards for potable water.

Approved by:

*[Signature]*

Dr. Mohammed Babu...

Manager, Central Laboratory Services




March 2017. NWSC-ARUA

| Parameter         | Unit       | Monitoring points |           |                 |            |          |          |                 |            |          |          | National Standards for potable water quality (water in supply) |                 |           |
|-------------------|------------|-------------------|-----------|-----------------|------------|----------|----------|-----------------|------------|----------|----------|--|-----------------|-----------|
|                   |            | Waterworks        |           | Water in Supply |            |          |          | Water in Supply |            |          |          |  |                 |           |
|                   |            | Final water       | Reservoir | Oli H/C         | Ediofe T.C | Arua P.S | Muni T.C | Androa Road PSP | Ediofe T.C | Arua P.S | Muni T.C |  | Androa Road PSP |           |
| Lab No.           |            | N397              | N398      | N399            | N400       | N401     | N402     | N403            |            |          |          |  |                 |           |
| Codes             |            | WWFT4             | DR5       | DSP7            | DCP6       | DSP3     | DVP1     | DSP2            |            |          |          |  |                 |           |
| pH                | ...        | 7.08              | 7.05      | 7.21            | 7.08       | 7.12     | 7.17     | 7.1             |            |          |          |  |                 | 6.5 - 8.5 |
| EC                | µs/cm      | 533               | 520       | 484             | 546        | 532      | 559      | 536             |            |          |          |  |                 | 1500      |
| Colour            | PtCo.      | 3                 | 5         | 0               | 8          | 11       | 13       | 15              |            |          |          |  |                 | 15        |
| Turbidity         | NTU        | 2.43              | 2.24      | 1.68            | 1.64       | 1.96     | 4.32     | 4.07            |            |          |          |  |                 | 5         |
| Iron: Total       | mg/L       | 0.272             | 0.283     | ND              | ND         | ND       | ND       | ND              |            |          |          |  |                 | 0.300     |
| TSS               | mg/L       | 0                 | 0         | 0               | 0          | 0        | 0        | 1               |            |          |          |  |                 | 0         |
| Alkalinity        | mg/L       | 72                | 100       | 110             | 90         | 72       | 72       | 80              |            |          |          |  |                 | 500       |
| Hardness          | mg/L       | 88                | 100       | 84              | 92         | 88       | 110      | 88              |            |          |          |  |                 | 300       |
| Aluminium Residue | mg/L       | 0.058             | N/R       | N/R             | N/R        | N/R      | N/R      | N/R             |            |          |          |  |                 | 0.2       |
| Free chlorine     | mg/L       | 0.4               | 0.4       | 0.3             | 0.3        | 0.2      | 0.2      | 0.2             |            |          |          |  |                 | 0.20-0.50 |
| E-Coli            | CFU/100 mL | 0                 | 0         | 0               | 0          | 0        | 0        | 0               |            |          |          |  |                 | 0         |

Remarks

All the water samples from different points showed complying physiochemical and bacteriological characteristics with exception of sample N403 which showed slightly higher TSS as compared to the National standards for potable water.

Approved by:

  
 Dr. Mohammed Babu  
 Manager, Central Laboratory Services

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