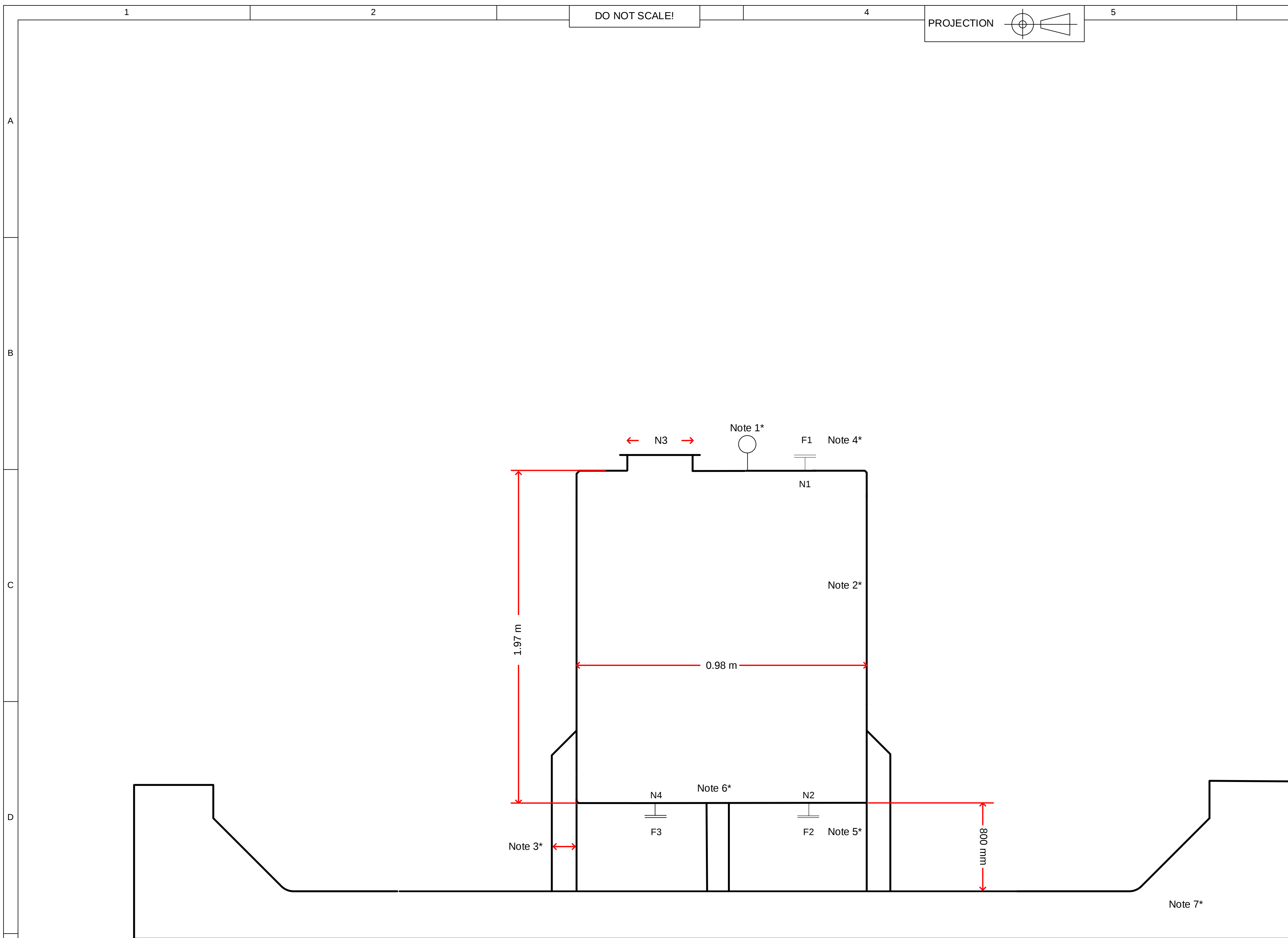




| APPROVAL |            |                           |           |      |
|----------|------------|---------------------------|-----------|------|
|          | DISCIPLINE | NAME                      | SIGNATURE | DATE |
|          | Prepared   | Process Engineer          | M Mashaya |      |
| F        | Checked    | Process Engineer          | N Mokoena |      |
|          | Checked    | Senior Process Engineer   | M Correia |      |
|          | Checked    | Mechanical Engineer       | S Masango |      |
|          | Checked    | Chief Mechanical Engineer | S Mngoma  |      |
|          | Checked    | Chief C&I Engineer        | G Manuel  |      |
|          | Approved   | Chief Process Engineer    | K Moodley |      |
|          |            |                           |           |      |
|          |            |                           |           |      |
|          |            |                           |           |      |
|          |            |                           |           |      |

| Revision History |                                                                       |                |            |
|------------------|-----------------------------------------------------------------------|----------------|------------|
| Revision         | Description                                                           | By             | Date       |
| 1                | First Issue.                                                          | Mondli Mashaya | 15/01/2025 |
| 2                | Update for Uranium Contaminated Waste Oil Plasma Gasification Project | Mondli Mashaya | 04/03/2025 |
|                  |                                                                       |                |            |
|                  |                                                                       |                |            |
|                  |                                                                       |                |            |

|                                         |                                                                                                                                                                                                                     |                |                                                |                    |     |
|-----------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------|------------------------------------------------|--------------------|-----|
| DESCRIPTION                             | Tank T1601 is used as a buffer for the holding of demineralised cooling water in the Nuclear Waste Plasma Gasification and the Uranium Contaminated Waste Oil Plasma Gasification (CWOPG) Demonstration Facilities. |                |                                                |                    |     |
| EQUIPMENT LOCATION                      | NW PlasGas and CWOPG Demonstration Facility- Outside laboratory 150, Building V-H2                                                                                                                                  |                |                                                |                    |     |
| PLANT LOCATION                          | Necsa, Pelindaba, North-West Province                                                                                                                                                                               |                |                                                |                    |     |
| SAFETY CLASSIFICATION                   | Non-classified (N) and SC-3(C)                                                                                                                                                                                      |                |                                                |                    |     |
| QUALITY CLASSIFICATION                  | Non-classified (N) and QC-3(C)                                                                                                                                                                                      |                |                                                |                    |     |
| FLUID PROPERTIES                        |                                                                                                                                                                                                                     |                |                                                |                    |     |
| FLUID                                   | Demineralised Water                                                                                                                                                                                                 |                |                                                |                    |     |
| FLUID STATE                             | Liquid                                                                                                                                                                                                              | SOLIDS CONTENT | ≤ 1200 mg/L total dissolved solids [5]         |                    |     |
| MASS FLOW RATE IN/OUT (kg/h)            | 16802.1 [1]                                                                                                                                                                                                         |                |                                                |                    |     |
| DENSITY (kg/m³)                         | 995.65 at 30 °C [1]                                                                                                                                                                                                 |                |                                                |                    |     |
| VISCOSITY (cP)                          | 0.7 at 30 °C [3]                                                                                                                                                                                                    |                |                                                |                    |     |
| THERMAL CONDUCTIVITY (W/m.K)            | 0.615 at 30 °C [4]                                                                                                                                                                                                  |                |                                                |                    |     |
| SPECIFIC HEAT CAPACITY (kJ/kgK)         | 4.18 at 30 °C [4]                                                                                                                                                                                                   |                |                                                |                    |     |
| CORROSIVE DUE TO                        | N/A                                                                                                                                                                                                                 |                |                                                |                    |     |
| MASS EMPTY (kg)                         | Supplier to advise                                                                                                                                                                                                  |                | CORROSION ALLOWANCE (")                        | 0.00               |     |
| CAPACITY OF VESSEL (L)                  | 1500                                                                                                                                                                                                                |                | VOLUME OF FLUID (L)                            | -                  |     |
| PRESSURE (kPa (g))                      |                                                                                                                                                                                                                     |                | TEMPERATURE (°C)                               |                    |     |
| DESIGN                                  | 1585                                                                                                                                                                                                                |                | DESIGN                                         | 93                 |     |
| OPERATING                               | 0                                                                                                                                                                                                                   |                | OPERATING                                      | 30 - 40 °C         |     |
| MINIMUM                                 | 0                                                                                                                                                                                                                   |                | MINIMUM                                        | -2.6 °C            |     |
| TEST                                    | Supplier to Advise                                                                                                                                                                                                  |                | TEST                                           | Supplier to Advise |     |
| TYPE OF PRESSURE TEST                   |                                                                                                                                                                                                                     | HYDROSTATIC    | Yes                                            | PNEUMATIC          | N/A |
| DESIGN CODE                             | ASME B31.3-2022, ISO 9001                                                                                                                                                                                           |                |                                                |                    |     |
| SPECIFICATION                           | N/A                                                                                                                                                                                                                 |                |                                                |                    |     |
| LAGGING                                 | N/A                                                                                                                                                                                                                 |                |                                                |                    |     |
| TANK HEIGHT (m)                         | 1.97 [2]                                                                                                                                                                                                            |                |                                                |                    |     |
| TANK DIAMETER (m)                       | 0.98 [2]                                                                                                                                                                                                            |                | INTERNAL VOLUME (m³)                           | 1.5                |     |
| No. of LEG SUPPORTS                     | 3 See Note 8*                                                                                                                                                                                                       |                |                                                |                    |     |
| AGITATOR REQUIREMENTS                   |                                                                                                                                                                                                                     |                | COOLING/HEATING REQUIREMENTS                   |                    |     |
| AGITATOR REQUIRED                       |                                                                                                                                                                                                                     | N              | COOLING/HEATING REQUIRED                       |                    | N   |
| AGITATOR SPECIFICATIONS / DATASHEET NO. |                                                                                                                                                                                                                     | N/A            | COOLING/HEATING SPECIFICATIONS / DATASHEET NO. |                    | N/A |

|                                    |                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |
|------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|                                    |                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |
| <p><b>NOTES AND REFERENCES</b></p> | <p>[1] ENS-OWPVR-CLC-24004: OWPVR Facility Piping System Design Calculations - Line Sizing<br/>         [2] ENS-FDP-REP-24006: Equipment Sizing: Demineralised Cooling Water Tank T83237<br/>         [3] ENS-FDP-REP-24034: Centrifugal Pumps Sizing Report for FDP Demonstration Facility<br/>         [4] ENS-FDP-FDM-24001: Process Flow Diagram Filter Destruction Project<br/>         [5] Rand Water Supply to Tshwane municipality: 1 Month Water Quality Report</p> |

| MATERIAL             |                                            |                 |                                                                  |
|----------------------|--------------------------------------------|-----------------|------------------------------------------------------------------|
| SHELL                | FLANGES                                    | HEADS           | PIPE NOZZLES                                                     |
| SS 304L              | SS, ASTM A182-F304/304L,<br>ASME B16.5     | Stainless steel | SS, ASTM A182-F304/304L                                          |
| SUPPORTS             | GASKETS                                    | UTILITIES       | BOLTS                                                            |
| Stainless steel (SS) | 1/16" thick flexible graphite w/<br>304 SS | N/A             | ASTM A193, Gr B7 stud, w/2<br>heavy hex nuts ASTM A194,<br>Gr 2H |

[illegible]

| OTHER  |                                                                                                                                                     |
|--------|-----------------------------------------------------------------------------------------------------------------------------------------------------|
| MARK   | DESCRIPTION                                                                                                                                         |
| Note 1 | An additional 80 NB Sch 40 pipe nozzle connection port will have to be created for the insertion of an ultrasonic level indicator at this location. |
| Note 2 | The wall thickness will be specified on advise from the supplier.                                                                                   |
| Note 3 | Leg support details will be specified on advice from the supplier. This includes the distances between each of the supports.                        |
| Note 4 | Flange sizes specified based on SS, ASTM A182-F304/304L, ASME B16.5.                                                                                |
| Note 5 | Flange sizes specified based on SS, ASTM A182-F304/304L, ASME B16.5.                                                                                |
| Note 6 | T1601 is designed for construction as a cylindrical, flat-bottomed tank.                                                                            |
| Note 7 | T1601 will be located in a banded area, the design of which shall be according to the relevant civil engineering standards.                         |
| Note 8 | The supplier to supply a suitable platform for the shape and weight of the tank.                                                                    |
| F      | All process lines marked "F" shall be flanged for easy maintainability.                                                                             |
|        |                                                                                                                                                     |
|        |                                                                                                                                                     |

| NON DESTRUCTIVE TESTING (NDT) |   | FABRICATION             |   |
|-------------------------------|---|-------------------------|---|
| DYE-PENETRANT                 | N | CHEMICAL CLEANING       | Y |
| HALIED                        | N | HEAT TREATMENT          | N |
| MAGNETIC PARTICLE TESTING     | Y | HELIUM LEAK TESTING     | N |
| ULTRA-SONIC                   | Y | ALLOWABLE LEAK RATE     | N |
| HARDNESS TESTING              | N | SURFACE FINISH INTERNAL | N |
| X-RAY                         | N | MATERIAL CERTIFICATES   | Y |
| QUALITY CONTROL BLOCK         | N | VESSEL TO BE DRIED      | N |

|                                                                                                                                                                                                                                                                                                                                       |                                                                                                       |                            |                                                                                       |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------|----------------------------|---------------------------------------------------------------------------------------|
|  <p><b>Copyright</b></p> <p>This drawing is the property of Necsa and may not, without written permission, be copied, communicated to a third party, or be used either wholly or in part for any purpose other than for which it is supplied</p> | <p>Integrated NW PlasGas and Contaminated Waste Oil Plasma Gasification Demonstration Facilities.</p> |                            | <p>DESTROY ALL PREVIOUS PRINTS</p>                                                    |
|                                                                                                                                                                                                                                                                                                                                       | <p>Primary Cooling Water Tank T1601 Specification Sheet</p>                                           |                            |  |
| <p>CONFIDENTIAL</p>                                                                                                                                                                                                                                                                                                                   | <p>Document No.</p>                                                                                   | <p>ENS-NWPVR-SPE-24013</p> | <p>Revision</p>                                                                       |