A.1.a. **INDICATIVE USER REQUIREMENTS**

**UR 1.** Changes/additions to existing Data Items in the XML schema:

**UR 1.1.** The D3017 item (GISX) should be changed to a decimal with a maximum of 6 digits before the decimal point and 1 decimal place after the decimal point.

**UR 1.2.** The D3018 item (GISY) should be changed to a decimal with a maximum of 7 digits before the decimal point and 1 decimal place after the decimal point.

**UR 1.3.** A script should be run to convert all existing database values of GISX and Gisy to the above formats.

**UR 1.4.** The database schema should be modified, accordingly.

**UR 1.5.** A new data item should be added to the CS; D3025_Meter Location Code, which must take one of the following values:
- M1 – Outside the property boundary,
- M2 – Just inside the property boundary,
- M3 – Further inside the property boundary, or
- M4 – Inside the building.

**UR 2.** Changes to the existing T004.0 (Notify Meter Details) Transaction:

**UR 2.1.** Schema validation should be used when the D3017 (GISX), D3018 (GISY) and D3025 (Meter Location Code) are provided, noting that they are mandatory fields, as follows;
- **UR 2.1.1.** D3017 and D3018 must each satisfy the following; min x <= D3017_GISX < max x; and min y <= D3017_GISX < max y. The four numbers; min x, max x, min y and max y are to be determined and will be provided by the CMA.

**UR 2.1.2.** The D3025 value must conform to one of the values identified above (case sensitive).

**UR 2.2.** The existing CS validation steps for the D3017 and D3018 items should be replaced with the following;

- **UR 2.2.1.** When GIS co-ordinates are supplied, there should be checking as to whether the GISX, Gisy co-ordinates are within Scotland. The proposed algorithm will be agreed between the CMA and C&C, but could either be based upon the geospatial mapping tools built directly into SQL Server 2008 R2, or a variation of the PNPOLY algorithm;

  [http://www.ecse.rpi.edu/Homepages/wrf/Research/Short_Notes/pnpoly.html](http://www.ecse.rpi.edu/Homepages/wrf/Research/Short_Notes/pnpoly.html)

- **UR 2.2.2.** Boundary Points are available in ESRI shape file format through OS Open Data from the Ordnance Survey;

  - **UR 2.2.2.1.** For the SQL Server approach, Boundary Points should be loaded from the shape file to the database using the approach below or other suitable approach;


  - **UR 2.2.2.2.** For the PNPOLY approach, the CMA will provide csv files and for this approach the Boundary Points may first be filtered (depending on performance), such that Boundary Point line segments only should be used in the PNPOLY algorithm, defined as;

    Segment Nos. $P1x, P1y, P2x$ and $P2y$ where
    $GISY >= min(P1y,P2y)$ and $GISY <= max(P1y,P2y)$

    **UR 2.2.3.** If the above test is failed by either the D3017 or the D3018 items, a T009 should be
UR 3. A script should be run to identify all existing GISX and Gisy co-ordinates which lie outside Scotland and to delete these, leaving these fields set to NULL. A report on the relevant meters should be provided to the CMA.

UR 4. Changes to the existing T013.0 (Update Meter Data) and T013.1 (Notify Meter Data) transactions;
   UR 4.1. The D3019 (GISZ Free Descriptor) should be removed and all corresponding methods (validation and processing) should also be removed.
   UR 4.2. The D3017 (GIS X) and D3018 (GIS Y) fields should be subject to schema validation similar to that identified for the T004.0, noting that these fields are optional in this transaction.

UR 5. New transaction T013.2 (Update Meter Location), which should be submitted by SW, or the current LP, as described in URs below, to the CMA.
   UR 5.1. The T013.2 (Update Meter Location) should contain the following fields:
   - D2001 SPID   Optional
   - D3001 MeterID   Mandatory
   - D3019 GISZ Free Descriptor Optional
   - D3025 Meter Location Code        Optional

   UR 5.2. Validation for the T013.2 should be as follows:
   UR 5.2.1. SPID; if provided,
   UR 5.2.1.1. The SPID must exist in the CS If this is not the case, the transaction should be rejected and a T9 sent (via the T9 Helper) with error code [tbd].
   UR 5.2.1.2. The SPID must be New, Partial, Tradable, or Temporarily Disconnected. If this is not the case, the transaction should be rejected and a T9 sent (via the T9 Helper) with error code [tbd].

   UR 5.2.2. Meter;
   UR 5.2.2.1. The meter must exist in the CS. If this is not the case, the transaction should be rejected and a T9 sent (via the T9 Helper) with error code [tbd].
   UR 5.2.2.2. If the meter is a market meter, there must be a SPID provided and the meter must be associated to that SPID. If this is not the case, the transaction should be rejected and a T9 sent (via the T9 Helper) with error code [tbd].
   UR 5.2.2.3. If the meter is not a market meter, there must be no SPID provided. If a SPID is provided, the transaction should be rejected and a T9 sent (via the T9 Helper) with error code [tbd].
   UR 5.2.2.4. If the meter has an F or E read associated with it, the transaction should be rejected and a T9 sent (via the T9 Helper) with error code [tbd].

   UR 5.2.3. Sender;
   UR 5.2.3.1. The sender must be SW for a non-market meter. If this is not the case, the transaction should be rejected and a T9 sent (via the T9 Helper) with error code [tbd].
   UR 5.2.3.2. The sender must be the current LP for a market meter. If this is not the case, the transaction should be rejected and a T9 sent (via the T9 Helper) with error code [tbd].

UR 6. New transaction T013.3 (Notify Meter Location) will contain the same fields as the T013.2 and will be sent to relevant parties by the CMA on successful validation of a T013.2. Relevant
recipients will be determined by application of the following Notification Helper logic to the T013.2;

**UR 6.1.** Wholesaler to LP – Y

**UR 6.2.** LP to Wholesaler – Y

**UR 6.3.** Reflexive – N

**UR 6.4.** Associated SS LP – Y

**UR 6.5.** Associated WS LP – N

**UR 6.6.** Incoming LP – N

**UR 7.** XML Schema changes will be required;

**UR 7.1.** Validation of the T004.0 in respect of the D3017 (GISX), D3018 (GISY) and D3025 (Meter Location Code) should be modified to reflect that identified in UR 2.1

**UR 7.2.** When a T013.0 is submitted, schema validation should be applied to data items D3017 (GIS X) and D3018 (GIS Y) in the same way as for the T004.0, if they have been provided.

**UR 7.3.** Accommodation of new transactions T013.2 and T013.3

**UR 8.** LVI Changes;

**UR 8.1.** For the T004.0 submission page; change the format for the GISX and GISY fields and add a field for the D3025 item. Also, LVI validation is currently missing for the GIS X and GIS Y fields. This validation should be added for these fields and for the Preferred Meter Location.

**UR 8.2.** For the T013.0 submission page; remove the GISZ field.

**UR 8.3.** Add a new submission page for the T013.2

**UR 8.4.** On the pages which display meters, ensure that the meter location is always displayed with a single decimal place.