of a condition grade for the asset. A confidence grade will also be given alongside the condition grade, as with the above ground assets. Refer to Appendices C-1 and C-3 for condition and confidence grading criteria, respectively. For every assessed underground asset, the Asset Survey Form (see Appendix C-2) shall be filled out, even if the data analyzed came solely from the desktop study.

Step two; the result would then be applied to all the pipes laid under this contract in similar locations, diameter and material. This exercise should be undertaken for all pipes in each area/zone until the entire network has been assigned a condition grade.
Once this exercise is completed a program of strategic cut outs and pipe sampling should be implemented to verify the desktop analysis and adjust the findings/improve confidence grade on the information.

With the implementation of the Short, Medium and Long-term strategies below the above information will be continually reviewed and the data in the GIS database updated accordingly.

Short / Medium Term Strategy

- The network condition survey should in the first instance be undertaken at the same time as the leak detection/network modelling program. Also O&M team should commence the recording of pipe condition every time a pipe is exposed on the data collection forms provided for this purpose.
- For the chosen area of study/or incident an extract from the GIS file should be taken indicating the location/material/diameter/internal- external protection/depth
- Any existing fittings in the location should also be recorded and their location checked/plotted against the GIS data.
- A suitably qualified engineer, in accordance with agreed criteria, should determine the internal and external condition of any pipe cut out.
- If no cut out is taken but a fitting is replaced/removed the opportunity should be taken to observe the internal and external condition of the pipe plus other required attributes and for these to be recorded on the form.
- If there is any deviation on location of the pipeline this should identified on the GIS plot with appropriate dimensions.
- If any apparatus is permanently fitted during the course of the leak detection/modelling exercise/maintenance then this should also be recorded on the GIS plot.
- All data should be recorded on appropriate forms and copied to the DMAT GIS center for updating the system.

Medium to Long Term Strategy

This further reinforces the methodology already established above

- A system needs to be implemented for the on-going network data verification/updating/ recording new plant and condition grading of network assets.
- It should become a requirement of all maintenance and repair gangs to check and verify attributes of underground assets against that recorded in GIS.
- This requirement should be identified in all work orders/job cards issued and the results recorded for copying to GIS center. CMMS should be used to manage and record the issuing of work order cards and produce the appropriate asset reference numbers.
- A procedure should be established to issue a plot from the GIS for all work locations so that new works can be recorded thereon and the attributes of the pipes and fittings verified or amended.