

7 Drainage

7.1 Key Points from Discussion

22. The EA1 representative raised the following key points:
1. Managing temporary drainage was far more complex than was envisaged especially along the wayleave;
 1. Effective mitigation measures need to be planned for and in place at an early stage to allow for drainage across the whole site and need to consider options including natural settlement and mechanical processes including silt busters;
 2. The drainage scheme evolved to respond to emerging situations along the cable route, it is acknowledged that it was reactive rather than proactive; and
 3. Interaction with pre construction works including archaeology was complex. A high degree of coordination between the archaeology and drainage activities is important.
23. The stakeholder representative raised the following points:
1. SCC should have had more regular visits. SCC required additional resources;
 2. There is a need to use information on the sensitive areas from EA1 in EA3 design process;
 3. There is a need to make the most of the management plans prepared for EA1 for other projects;
 4. Archaeology works should have included consideration of drainage at an early stage; and
 5. There was a good relationship between SPR and the statutory stakeholders (SCC, EA, and Natural England). This was due in part to the implementation meetings and the parties being transparent with one another.
24. The following points were noted during the general discussion
1. Permanent drainage, associated with the substation, was well planned. The SuDS at the converter station is working fine in general;
 2. Monitoring of water once mitigation was in place worked moderately well;
 3. Permits for water crossings and HDDs worked moderately well;
 4. Retaining water for use during dry weather worked moderately well, for example for watering the landscape bunds and private land;
 5. Communication of the construction drainage issues was considered as a point for improvement;
 6. The communication of changes to permanent drainage to the drainage authorities was considered as an area for improvement for future projects;
 7. Cement Bound Sand (CBS) resulted in high pH water that had to be treated with silt busters. Other backfill materials (such as sand) should be considered in future projects to keep pH values low;
 8. Drainage authorities (e.g. SCC) did not have as much resources to put onto the project as they ideally would have wished (e.g. SCC had the intention of visiting site in a more regular basis but this was not possible). Early engagement with authorities may help to resource and get the funds required resolve this. It would assist SCC if SPR could indicate the nature/frequency of future involvement so SCC could then plan for the necessary input;
 9. Earlier topographical and geological survey data would have been useful for EA1; and
 10. Management of land drains was noted as a point for improvement for future projects.

7.2 Lessons Learned

7.2.1 Worked Well

1. Worked well when everyone was open and honest – trust is important.
2. There was a good relationship between SPR and the statutory stakeholders (SCC, EA, and Natural England);
3. Response to high rainfall managed well considering the circumstances once the required mitigation was in place but needed to be in place earlier;
4. Permanent drainage, in particular the SuDS, was well planned;
5. Regulators invited to site to see the mitigations (siltbusters);
6. All discharges were reported to regulators;
7. Permits for water crossings and HDDs worked moderately well; and

8. Retaining water for use during dry weather worked moderately well.

7.2.1 Suggestions for Improvement

1. In future projects there should be earlier consideration of drainage and SCC/LPA should work with the developer/contractor to make sure that a suitable surface water and drainage plan is prepared and agreed and then implemented;
2. Look at the way in which surface water management is covered in the contract for other projects to ensure it is robustly covered;
3. Need to inform SCC as to the likely nature/frequency of their involvement in future projects;
4. Need to work with SCC to improve communication on drainage issues and in particular with respect to permanent drainage;
5. Obtain topographical data at an early stage;
6. Use sand rather than CBS; and
7. Be more proactive and less reactive on cable corridor drainage management, for example the location of the land drains prior to construction should, if reasonably possible, be better understood prior to construction starting