# Preparing a two column extended abstract

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## ABSTRACT

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Built in 1968, this multi-level concrete parking facility has been subjected to years of moisture and chloride ion attack causing it to experience corrosion-related deterioration to the point that its structural integrity was being compromised. Over the years, moisture and chloride contamination has caused both the embedded mild steel and paper wrapped "Button-Head" post-tensioning to experience corrosion-related deterioration, which in turn, has resulted in the failure of the post-tensioning system. After years of monitoring and structural capacity calculations, sections of the structure were deemed to be no longer able to safely support the applied loading. This paper will illustrate the procedures implemented in the design of the new post-tensioning system, which enabled us to rejuvenate this 40-year old structure and extend its overall effective service life. This paper will also outline how the new system was installed while the parking facility remained operational.

A detailed riparian field study to assess the importance of bedrock groundwater in streamflow processes was established in the headwaters of the Afon Hafren, mid-Wales, UK. Results from this study identified distinct groundwater horizons close to the stream channel. Different flow pathways and travel times resulted in a different chemical charac-ter of groundwaters in these different horizons. Groundwater discharge from these horizons into the stream was by piston displacement in response to re-charging rainfall higher up in the catchment. Groundwater upwelling into the soils indicated soil water to be sourced from both groundwater and rain-fall. Soil waters closest to the stream (ca. 25m) were predominantly groundwater controlled and may be the major source for ecologically toxic soil compo-nents such as aluminium entering the river.

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Figure 1: Sketch of flow configuration

Table 1: Margin settings for A4 size paper and letter size paper.

| | A4 size paper | | Letter size paper | |
|---|---|---|---|---|
| Setting | cm | inches | cm | inches |
| Top | 1.2 | 0.47" | 0.32 | 0.13" |
| Bottom | 1.3 | 0.51" | 0.42 | 0.17" |
| Left | 1.15 | 0.45" | 1.45 | 0.57" |
| Right | 1.15 | 0.45" | 1.45 | 0.57" |
| All other | 0.0 | 0.0" | 0.0 | 0.0" |
| Column width* | 9.0 | 3.54" | 9.0 | 3.54" |
| Column spacing* | 0.7 | 0.28" | 0.7 | 0.28" |

## REFERENCES

[1] Donald, A.P. and Gee, A.S., 1992. Acid waters in upland Wales: causes, effects and remedies. Environmental Pollu-tion, 78, 141-148.

[2] Duff, P.M.D. and Smith, A.J., 1992. Geology of England and Wales. The Geological Society, London.

[3] Haria, A.H. and Shand, P., 2004. Evidence for deep sub-surface flow routing in forested upland Wales: implications for contaminant transport and stream flow generation. Hy-drology and Earth System Sciences, 8(3): 334-344.