

Figure S1 XRD pattern for sample UF.

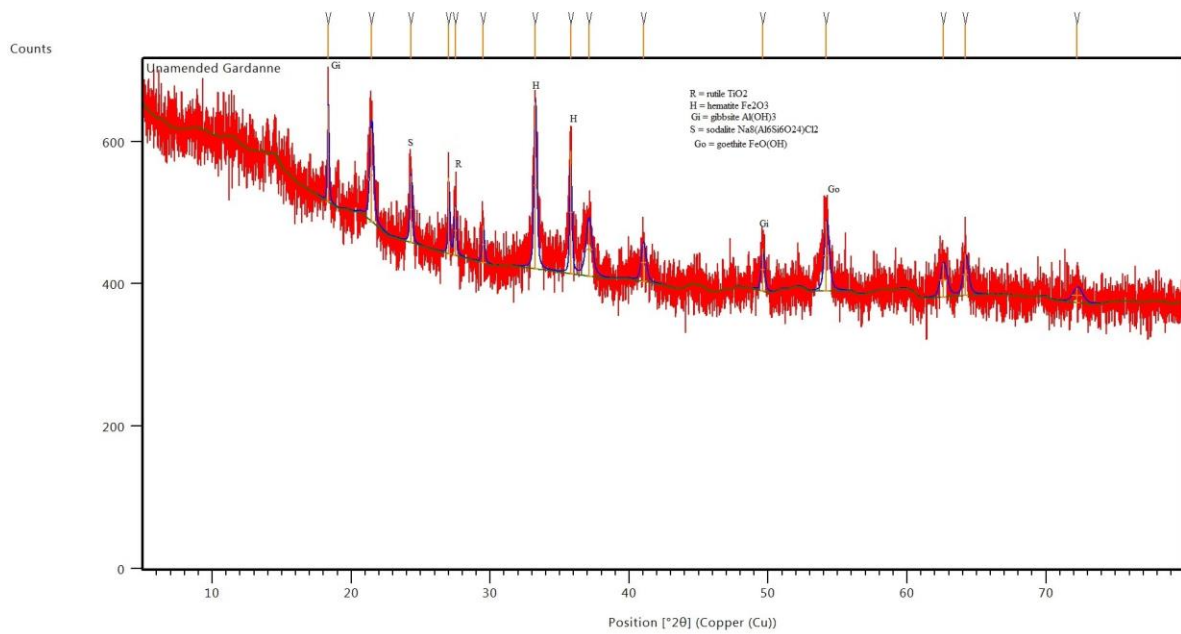


Figure S2 XRD pattern for sample UFR.

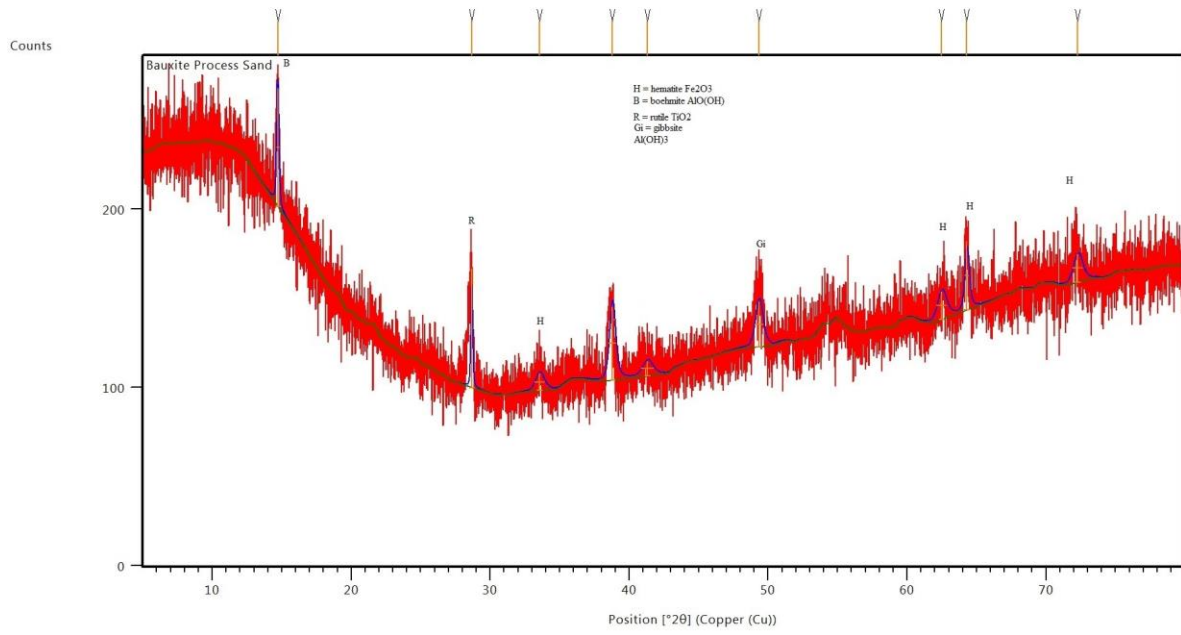


Figure S3 XRD pattern for sample UC.

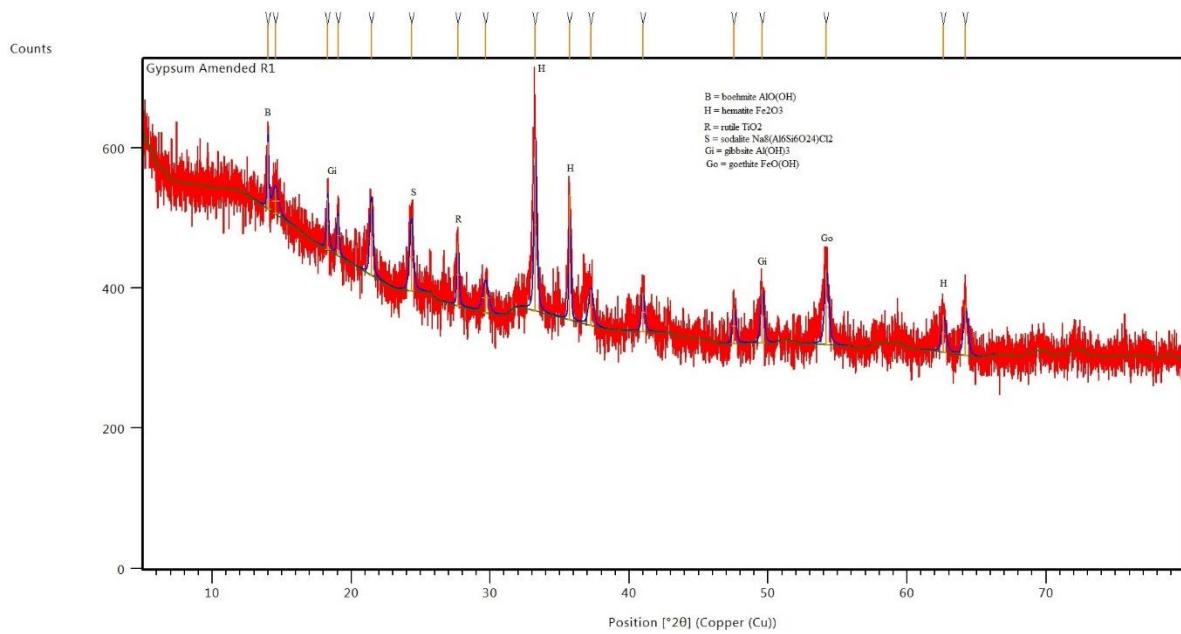


Figure S4 XRD pattern for sample UFG.

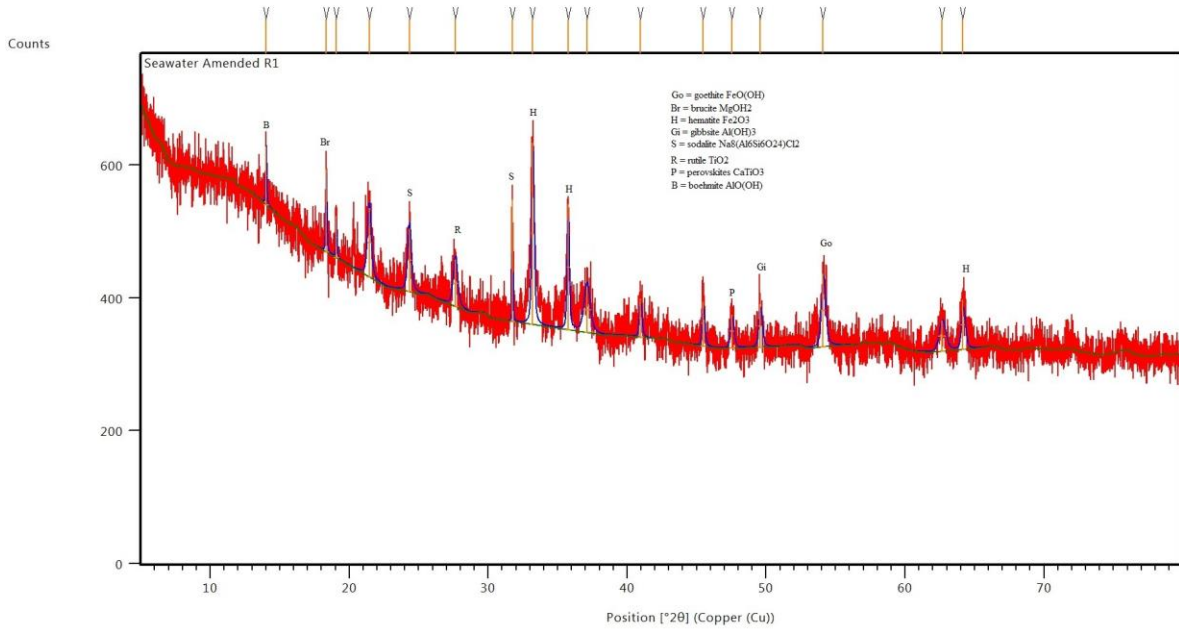


Figure S5 XRD pattern for sample UFS.

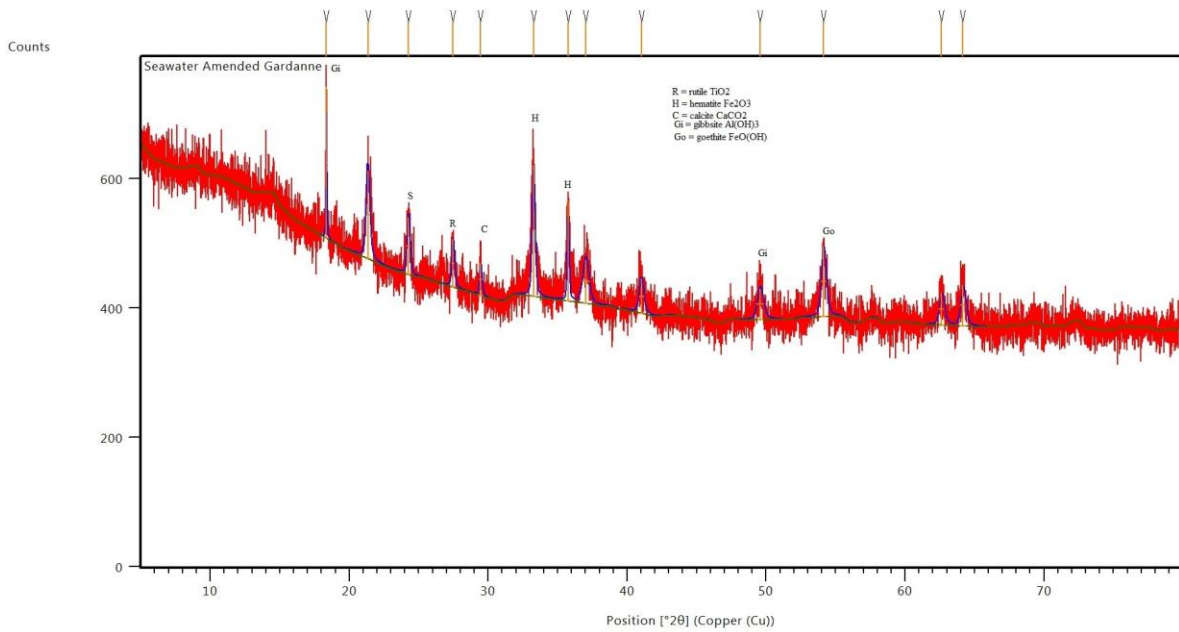


Figure S6 XRD pattern for sample UFRS.

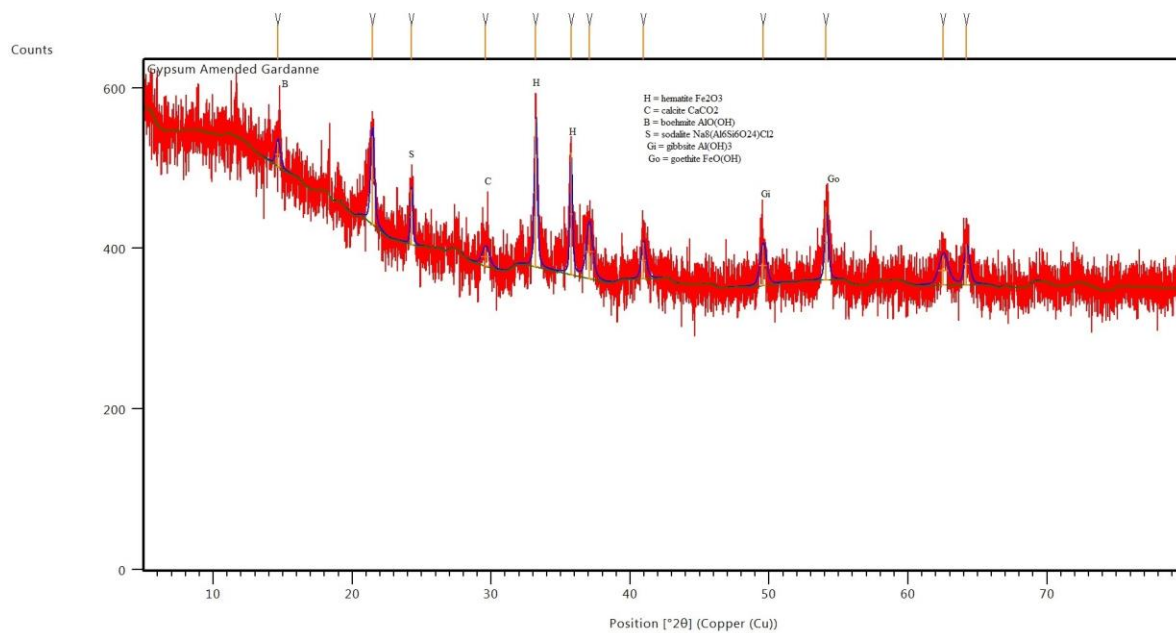


Figure S7 XRD pattern for sample UFRG.

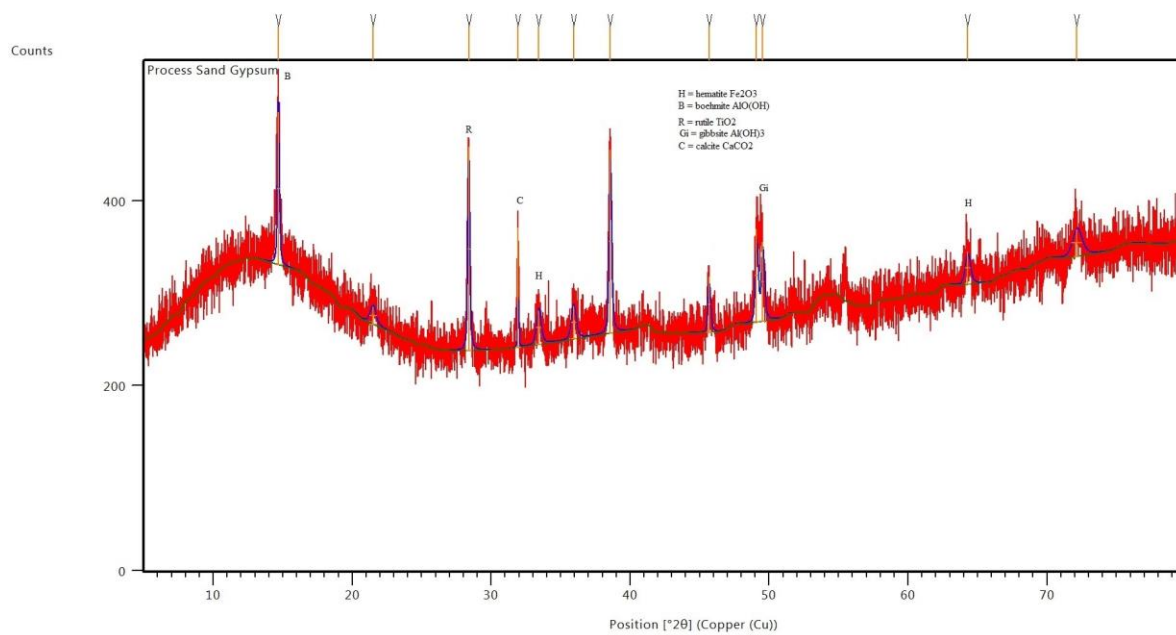


Figure S8 XRD pattern for sample UCG.

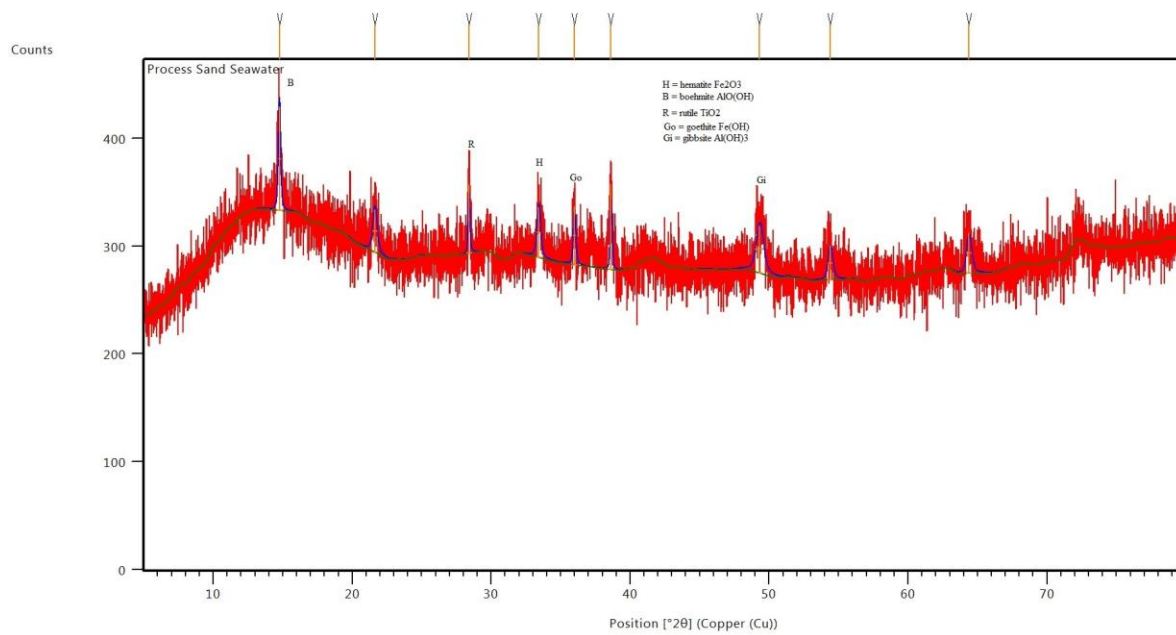


Figure S9 XRD pattern for sample UCS.

Table S1 Results from the metal release analysis carried out on each sample.

Parameter	Untreated Fine (UF)	Fine +gypsum (UFG)	Fine+ seawater (UFS)	Untreated French (UFR)	French+ gypsum (UFRG)	French +seawater (UFRS)	Untreated Coarse (UC)
Al (mg L ⁻¹)	6.26±0.57	0.065±0.05	0.44±0.4	66.1±6.1	3.2±0.71	9.71±2.7	2.08±0.202
As (mg L ⁻¹)	0.02±0.0007	0.0003±0.0001	0.001±0.0002	0.045±0.011	0.002±0.0017	0.003±0.002	0.006±0.00056
Cd (mg L ⁻¹)	<LOD ⁱ	0.0006±0.0001	0.000017±0.0005	0.00003±0	0.00001±0	0.00001±0	<LOD ⁱ
Ca (mg L ⁻¹)	0.25±0.2	496.0±49.0	404±6.0	715±3	420.0±60.0	39.0±0.3	0.5±4.0
Cr (mg L ⁻¹)	0.072±0.004	0.0268±0.001	0.00158±0.0001	0.65±0.02	0.38±0.05	0.14±0.01	0.0094±2.9
Cu (mg L ⁻¹)	0.005±0.03	0.008±0.0057	0.011±0.0002	0.003±0.0002	0.0008±0.0005	0.0007±0.0003	0.0105±0.012
Ga (mg L ⁻¹)	0.026±0.007	0.0045±0.0008	0.0062±0.001	0.11±0.0048	0.012±0.007	0.016±0.003	0.013±0.001
	0.31±0.13	0.0042±0.0001	0.001±0.0006	0.0016±0.004	0.0023±0.004	0.0014±0.005	0.32±0.422
Fe (mg L ⁻¹)							
Mg (mg L ⁻¹)	<LOD ⁱ	<LOD ⁱ	1.77±0.2	<LOD ⁱ	<LOD ⁱ	0.31±0	<LOD ⁱ
Mo (mg L ⁻¹)	0.0005±0.0005	0.0008±0.02	0.00095±0.05	0.042±0.003	0.013±0.001	0.009±0.001	0.0067±0.002
Hg (mg L ⁻¹)	<LOD ⁱ	<LOD ⁱ	<LOD ⁱ	0.64±0.02	<LOD ⁱ	0.08±0.01	<LOD ⁱ
Na (mg L ⁻¹)	84.2±2	139.3±3.2	241.3±26	191.3±1	153±24.8	388.7±18.6	83.4±2
V (mg L ⁻¹)	0.65±0.0040	0.018±0.0014	0.0979±0.0016	2.2±0.001	0.058±0.0023	0.16±0.0065	0.32±0.006

ⁱ<LOD = below the limits of detection.