

| Home Team | Result | Away Team | Date | Time | Status |
|------------------------|---------------|------------------------|---------------|-------------|---------------|
| Barnsley B | 5 - 1 | Darnall & Handsworth C | Tue 26 Sep 23 | 19:30 | OU |
| Sheffield Nomads C | 3½ - 2½ | Barnsley B | Tue 10 Oct 23 | 19:30 | OU |
| Barnsley B | 3 - 3 | Sheffield University B | Tue 31 Oct 23 | 19:30 | OU |
| Woodseats B | 3½ - 2½ | Barnsley B | Mon 6 Nov 23 | 19:30 | OU |
| Ecclesall C | ½ - 5½ | Barnsley B | Wed 22 Nov 23 | 19:30 | OU |
| Barnsley B | 1 - 5 | SASCA B | Tue 5 Dec 23 | 19:30 | OU |
| Barnsley B | 4 - 2 | Chesterfield B | Tue 19 Dec 23 | 19:30 | OU |
| Darnall & Handsworth C | 1 - 5 | Barnsley B | Mon 15 Jan 24 | 19:30 | OU |
| SASCA B | 5½ - ½ | Barnsley B | Mon 19 Feb 24 | 19:30 | OU |
| Sheffield University B | 2 - 4 | Barnsley B | Thu 29 Feb 24 | 19:30 | OU |
| Barnsley B | 3½ - 2½ | Sheffield Nomads C | Tue 5 Mar 24 | 19:30 | OU |
| Barnsley B | 6 - 0 | Ecclesall C | Tue 26 Mar 24 | 19:30 | OU |
| Chesterfield B | 4 - 2 | Barnsley B | Thu 4 Apr 24 | 19:30 | OU |
| Barnsley B | 4 - 2 | Woodseats B | Tue 23 Apr 24 | 19:30 | OU |