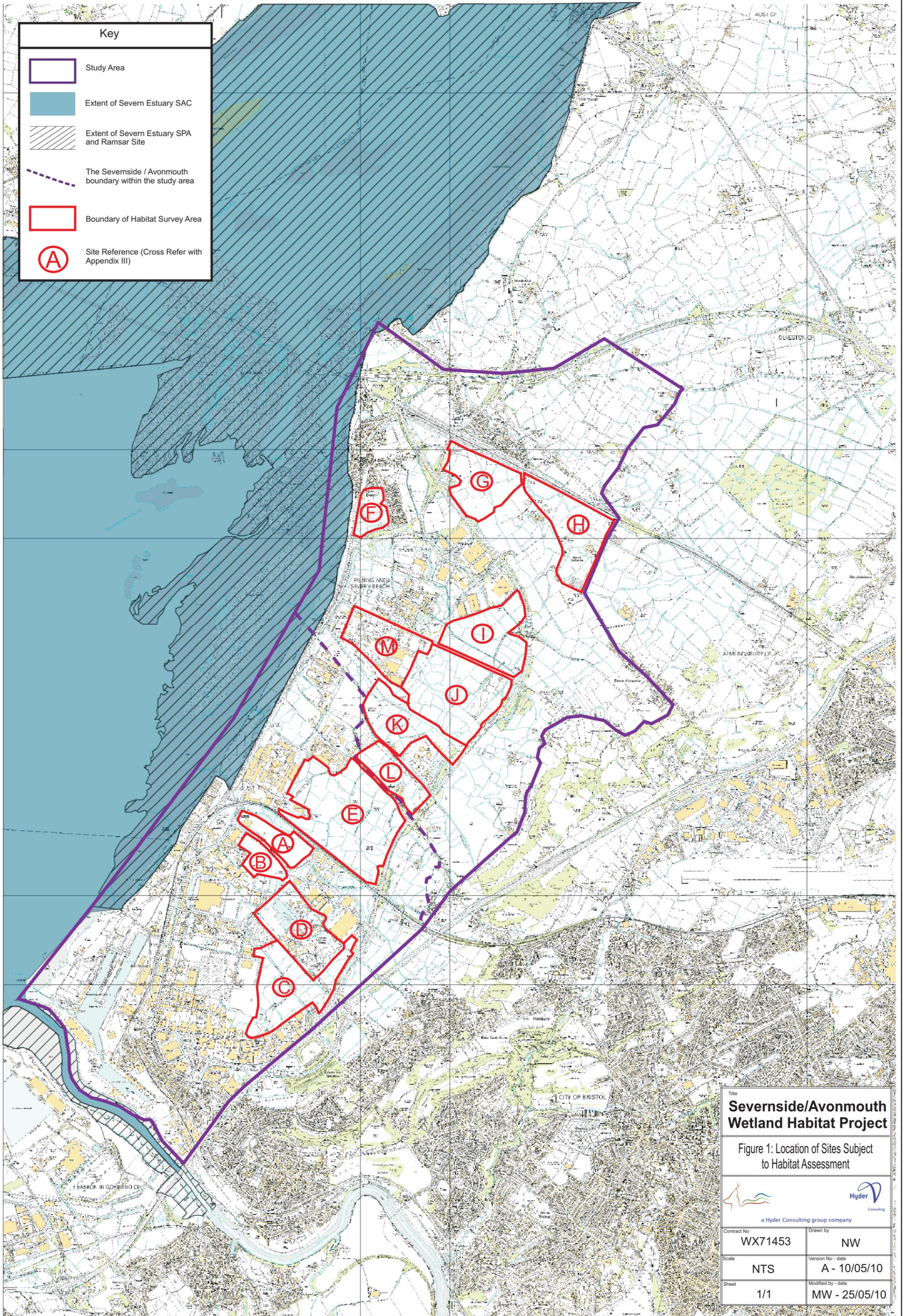


**Key**

-  Study Area
-  Extent of Severn Estuary SAC
-  Extent of Severn Estuary SPA and Ramsar Site
-  The Severnside / Avonmouth boundary within the study area
-  Boundary of Habitat Survey Area
-  Site Reference (Cross Refer with Appendix III)



**Severnside/Avonmouth Wetland Habitat Project**

Figure 1: Location of Sites Subject to Habitat Assessment



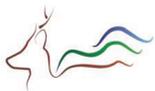
|             |                    |
|-------------|--------------------|
| Contract No | Drawn by           |
| WX71453     | NW                 |
| Scale       | Version No - date  |
| NTS         | A - 10/05/10       |
| Sheet       | Modified by - date |
| 1/1         | MW - 25/05/10      |



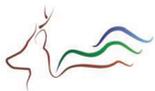
## 3.2 Stage 2 - Habitat Assessment

The following table presents the findings of the habitat-based assessment of the study area, in relation to: (a) its (likely) suitability for supporting substantial concentrations of over-wintering wildfowl and waders; and (b) its characteristics as existing wetland habitat (or potential for wetland habitat creation and/or enhancement). See Figure 1 for corresponding site locations).

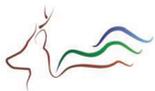
|   | Description of terrestrial habitats                            |            |  |  |   |                          |  |   | Description of aquatic habitats  |   |                                     | Bird survey findings                                  |  |
|---|--|------------|--|--|---|--------------------------|--|---|--|---|-------------------------------------|---|--|
|   | Existing land use  | Topography | Substrate/vegetation cover   | Ground softness                                    | Connectivity with other potentially suitable sites (see Figure 1) | Sightline distance(s)    | Description of boundary features   | Description of adjacent areas   | Standing water features  | Ditch/rhyne characteristics   | Presence of field drainage outfalls | Waterfowl presence (numbers, species, behaviour, etc) | Suitability for overwintering waterfowl  |
| A | Commercial car storage area                                    | Flat       | Concrete hardstanding (100%)   | N/a  | Yes - Disused Reservoir Pools                                     | Up to 100m               | Security fencing with landscape planting   | Predominantly industrial setting; however, Adjacent to Disused Reservoir Pools  | None   | N/a   | N/a                                 | None  | None   |
| B | Derelict industrial/commercial                                 | Flat       | Concrete hardstanding (100%)   | N/a  | Yes - Salt Rhyne Balancing Pond and Hallen Marsh (Area E)         | Up to 100m               | Security fencing with landscape planting   | Predominantly industrial setting; however, Salt Rhyne Balancing Pond and Hallen Marsh (Area E) located adjacent to the site | None   | N/a   | N/a                                 | None  | Potentially suitable (but sub-optimal) habitat for roosting lapwing/golden plover (given extent of sightlines and flat topography)   |
| C | Greenfield – mosaic of grazing pasture and unmanaged grassland | Flat       | Predominantly grassland/rushes of varying heights (90-100%), the majority <5-10cm in height, with some taller areas (up to 50cm) | Soft in places (penetration of ground by 6" nail). | Located in close proximity to Avonmouth Pools (Area D)            | Up to 200m in most cases | Boundaries largely comprise mature hedgerows (up to 5m high) and tree-lines (up to 10m high) | Predominantly industrial/commercial setting; however, Avonmouth Pools (Area D) in close proximity.                          | Small (<5m wide), isolated areas of standing water scattered throughout the site | Majority of ditches ~1.5-2.0m deep, with ~0.5-0.8m water depth. No obvious signs of flow, but good levels of connectivity | -                                   | 2 x mallard within ditch network                      | Ditch network likely to support wildfowl (e.g. mallard & teal), with snipe likely to be present in areas of tussocky grassland. Closely grazed areas potentially suitable for use by roosting/foraging lapwing and curlew. |
| D | Avonmouth Sewage Works and Pools                               | Flat       | Sewage works – predominantly concrete hardstanding with relatively small areas of amenity grassland                              | N/a  | Yes – located adjacent to Area C                                  | <50m                     | Security fencing with mature hedgerows and scrub (up to 5m high) and                         | Predominantly industrial/commercial setting to the north & east; however, greenfield land (Area C) to the south and west.   | Concrete pools associated with operational works                                 | N/a   | N/a                                 | None  | None of the remaining habitats within the operational sewage works site appear to provide potentially suitable habitat for over-wintering waterfowl.   |



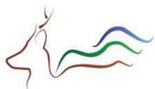
|                   |  | Description of terrestrial habitats                                  |   |   |   |                                  |  |   | Description of aquatic habitats   |  |  | Bird survey findings  |  |
|-------------------|--|--|---|---|---|----------------------------------|--|---|---|--|--|---|--|
| Existing land use | Topography                             | Substrate/vegetation cover   | Ground softness   | Connectivity with other potentially suitable sites (see Figure 1) | Sightline distance(s)   | Description of boundary features | Description of adjacent areas  | Standing water features   | Ditch/rhyme characteristics   | Presence of field drainage outfalls  | Waterfowl presence (numbers, species, behaviour, etc)      | Suitability for overwintering waterfowl   |  |
|                   |  | Pools – Mosaic of, grasses, ruderal herbs, reeds and scrub           | -   |   |   | tree-lines (up to 10m high)      |  | Small network of waterbodies which comprise good quality habitat for waterfowl and which are designated as an Avon Wildlife Trust Reserve.  | -   | -  | Small numbers (fewer than five) of mallard, coot and teal. | Avonmouth Pools represent good quality habitat for over-wintering waterfowl (particularly wildfowl) (see Cresswell Associates, 2010 for further details). |  |
| E                 | Agricultural land (arable and pasture) | Pasture – generally flat with ridge and furrow.<br><br>Arable - flat | Pasture comprises improved grassland, with remaining arable areas supporting crops. The majority of vegetation <15cm in height. | Soft in places (penetration of ground by 6" nail).                | Yes – Located adjacent to Salt Rhyne Balancing Pool and Crook's Marsh (Area L & K). | Up to 200m in some arable areas  | Boundaries largely comprise mature hedgerows and tree-lines, mainly 2-5m in height (but up >5m in some cases)  | Predominantly industrial/commercial setting to the south and west; however, more extensive area of grazing pasture to the north (Crook's Marsh (Area L) and east. Avonmouth Railway Line and M49 motorway corridor also located adjacent to the site. | Small number of isolated waterbodies (<10m diameter) scattered throughout the site.   | Majority of ditches ~0.8-2.5m deep, with ~0.1-0.5m water depth. No obvious signs of flow, but good levels of connectivity. | Yes, small number of outfalls present                      | 2 x teal in ditch network   | The presence of arable land and larger field sizes (compared to other greenfield land in the study area) may offer overwintering waterfowl improved feeding, roosting and loafing opportunities. Re-wetting of fields and increasing sightlines would represent a further enhancement. |
| F                 | Horse-grazed pasture                   | Minor undulations in topography (~0.2-0.4m)                          | Grassland (vast majority <2cm in height) with isolated stands of bramble scrub (up to 1.5m in height).                          | -   | No – however, Orchard Pools and the foreshore located nearby.                       | Up to 100m                       | Boundary features largely comprise mature hedgerows with trees (5-10m high). In several cases, internal boundaries removed and replaced with post and wire fences. | Predominantly residential (Severn Beach) to the north and east. Orchard Pools/Astra Zeneca fields, and the Severn estuary foreshore located in close proximity to the south and west, respectively.   | Several small ponds shown on OS map; however, this was not possible to ground truth, due to lack of land access permission. | Ditches appear to be deep (~2.0m) with ~0.5m water depth. No signs of flow; however, good levels of connectivity.          | -  | None  | This site represents potentially suitable roosting/foraging habitat for waterfowl (particularly waders such as curlew, lapwing and possibly golden plover). The findings of the Stage 1 desk study have confirmed the site's usage by curlew (see Cresswell Associates, 2010).         |



|                   |                 | Description of terrestrial habitats                                 |   |   |   |                                  |  | Description of aquatic habitats   |   |   | Bird survey findings                                  |   |  |
|-------------------|-----------------|---|---|---|---|----------------------------------|--|---|---|---|---|---|--|
| Existing land use | Topography      | Substrate/vegetation cover  | Ground softness   | Connectivity with other potentially suitable sites (see Figure 1) | Sightline distance(s)   | Description of boundary features | Description of adjacent areas  | Standing water features   | Ditch/rhyme characteristics   | Presence of field drainage outfalls   | Waterfowl presence (numbers, species, behaviour, etc) | Suitability for overwintering waterfowl |  |
| G                 | Grazing pasture | Largely flat with some minor undulations in topography (~0.2-0.4m). | Grassland (vast majority <5cm in height) with isolated areas of scattered rushes (up to 30m in height). | Soft in places (penetration of ground by 6" nail).                | Relatively isolated due to fragmentation by South Wales Mainline, M49 corridor and Severn Road                      | >200m in most cases              | Boundary features largely comprise mature hedgerows with trees (5-10m high). In several cases, internal boundaries removed and replaced with post and wire fences. | The Avonmouth Railway Line and Pilning to the north, commercial development to the east, the M49 motorway and commercial development to the south and Severn Road to the west. These land use areas are interspersed by relatively small and isolated areas of greenfield land. | Several small ponds are thought to be present; however, this was not possible to ground truth, due to lack of land access permission. | -   | -   | None                                    | The larger field sizes (compared to other greenfield land in the study area) likely to offer overwintering waterfowl good feeding, roosting and loafing opportunities. The findings of the Stage 1 desk study have confirmed the site's usage by flocks of over 600 lapwings (see Cresswell Associates, 2010). |
| H                 | Grazing pasture | Largely flat with some minor undulations in topography (~0.2-0.4m). | Grassland (vast majority <5cm in height) with isolated areas of scattered rushes (up to 30m in height). | Soft in places (penetration of ground by 6" nail).                | Good levels of connectivity with comparable habitat to the south, east and north (beyond the South Wales Mainline). | Up to 100m in most cases         | In most cases, managed hedgerows (<2.0m), although some taller hedgerows and tree-lines also present (5-10m)   | The Avonmouth Railway Line to the north (with greenfield land beyond), comparable areas of greenfield land to the east and south, with recently built commercial development to the west.   | -   | Ditches appear to be relatively deep (~1.0-1.5m) with ~0.5m water depth. Relatively good levels of connectivity, although no signs of flow. | -   | None                                    | The fields could provide potentially suitable roosting sites for lapwing and golden plover, and/or feeding sites for curlew; however, their usage by these species may be limited due to restricted sightlines.  |



|                   |                      | Description of terrestrial habitats   |   |   |   |  |  |   | Description of aquatic habitats                            |   |   | Bird survey findings                     |  |
|-------------------|----------------------|---|---|---|---|--|--|---|--|---|---|--|--|
| Existing land use | Topography           | Substrate/vegetation cover  | Ground softness   | Connectivity with other potentially suitable sites (see Figure 1)               | Sightline distance(s)   | Description of boundary features   | Description of adjacent areas  | Standing water features   | Ditch/rhyme characteristics                                | Presence of field drainage outfalls   | Waterfowl presence (numbers, species, behaviour, etc) | Suitability for overwintering waterfowl  |  |
| I                 | Horse-grazed pasture | Flat  | Grassland (vast majority <5cm in height). Pre-construction hedgerow/tree clearance works recently completed at the time of the survey | Soft in places (penetration of ground by 6" nail).                              | Good levels of connectivity to the south with Dyer's Common (Area J).   | Extensive following site clearance (>500m in places); however, likely to have been <200m previously. | All boundary features within the site have been removed.                                 | Commercial/industrial development to the north and west, the M49 motorway to the east (with greenfield land beyond), comparable greenfield land to the south.                                       | None   | Ditches appear to be ~1.0-1.2m deep, with 0.5m water depth. No signs of water flow. | -   | None                                     | Prior to hedgerow/tree clearance, the fields could have provided potentially suitable roosting sites for lapwing and golden plover, and/or feeding sites for curlew; however, their usage by these species may have been limited due to restricted sightlines. Following hedgerow/tree clearance works, the likely suitability of the site for roosting/foraging waterfowl (particularly lapwing and curlew) appears to have increased due to the increased sight-lines. |
| J                 | Horse-grazed pasture | Generally flat with ridge and furrow (~0.2-0.3m) present across the majority of fields. In addition, there is an area of raised ground (up to 10m) in the north-eastern corner. | Predominantly grassland (<5-10cm) with some areas of ruderal herbs/scrub.   | Generally firm, with some softer areas (2.5" penetration of ground by 6" nail). | Good levels of connectivity with comparable habitat to the north (Area I), and Crook's Marsh (Area K) to the south. | Up to 100m in most cases   | The majority of boundary features comprise mature hedgerows with trees (up to 10m high). | Derelict brownfield land to the west (Area M), the M49 motorway to the west (with greenfield land beyond), and comparable greenfield land to the north (Area I) and south (Crook's Marsh (Area K)). | Small pond (<10m diameter) at the western end of the site. | Ditches appear to be ~1.0-1.2m deep, with 0.5m water depth. No signs of water flow. | None identified                                       | Snipe flushed from small stand of reeds. | The site supports a well-established network of mature hedgerows/trees which restrict the extent of sight-lines and, therefore, could limit the attractiveness of this area for use by waterfowl. However, the ditch network could be used by moderate numbers of wildfowl (particularly mallard and teal), and snipe are likely to utilise water-logged field margins, and small stand of reeds.  |



|   | Description of terrestrial habitats |  |   |  |  |                       |  | Description of aquatic habitats   |  |  | Bird survey findings                |   |  |
|---|-------------------------------------|--|---|--|--|-----------------------|--|---|--|--|-------------------------------------|---|--|
|   | Existing land use                   | Topography                                       | Substrate/vegetation cover  | Ground softness  | Connectivity with other potentially suitable sites (see Figure 1)  | Sightline distance(s) | Description of boundary features   | Description of adjacent areas   | Standing water features  | Ditch/rhyme characteristics  | Presence of field drainage outfalls | Waterfowl presence (numbers, species, behaviour, etc) | Suitability for overwintering waterfowl  |
| K | Horse-grazed pasture                | Generally-flat with ridge and furrow (~0.2-0.3m) | Predominantly grassland (<5-10cm) with some areas of ruderal herbs/scrub. | Soft in places (such as bases of furrows) (5" penetration of ground by 6" nail), | Good levels of connectivity with comparable habitat to the north (Area J) and south (Crook's Marsh continued Area L)                         | <200m in most cases   | The majority of boundary features comprise mature hedgerows with trees (up to 10m high in places). | The immediate surroundings comprise greenfield land (including Areas J & L), as well as industrial development and the M49 motorway.  | Isolated areas of waterlogged ground in a small number of places (less than 5m diameter) | Ditches appear to be ~2.0-2.5m deep, with <0.5m water depth. No signs of water flow; however, good levels of connectivity. | None identified                     | 4 x mallard in ditch network                          | As above for Area J.   |
| L | Horse-grazed pasture                | Generally-flat with ridge and furrow (~0.2-0.3m) | Predominantly grassland (<5-10cm) with some areas of ruderal herbs/scrub. | Soft in places (such as bases of furrows) (5" penetration of ground by 6" nail), | Good levels of connectivity with comparable habitat to the north (Area K) and south (Hallen Marsh Area E) beyond the Avonmouth Railway Line. | <200m in most cases   | The majority of boundary features comprise mature hedgerows with trees (up to 10m high in places). | The site's immediate surroundings generally comprise built development (Avonmouth Railway Line, industrial/commercial development and the M49 motorway); however, the wider surroundings support comparable areas of greenfield land (e.g. Hallen Marsh). | Isolated areas of waterlogged ground in a small number of places (less than 5m diameter) | Ditches appear to be ~2.0-2.5m deep, with <0.5m water depth. No signs of water flow; however, good levels of connectivity. | None identified                     | 2 x mallard in ditch network                          | As above for Area J.   |
| M | Derelict brownfield site            | Flat   | Concrete hardstanding (70%) and gravel (30%)                              | N/a  | Good levels of connectivity with Area J.   | >300m                 | Security fencing   | Industrial development to the north, south and west, with greenfield land (Area J) to the east.   | None   | N/a  | N/a                                 | None  | This area of hardstanding is considered potentially suitable for roosting waders (possibly including lapwing, golden plover and curlew). |