STOCKLAND DDB

WATER LEVEL MANAGEMENT PLAN

ENVIRONMENT AGENCY

CONTRIBUTION

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Revision A

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ENVIRONMENT AGENCY CONTRIBUTION

1 INTRODUCTION

The Environment Agency interest in Water Level Management within this site relates to the functions and duties of the Agency as defined in the Water Resources Act 1991. Specifically these are Flood Defence, Water Resources, Fisheries, Recreation & Conservation and Pollution Control. In addition Waste Regulation is covered under the Waste Management Licensing Regulations 1994.

The Environment Agency's contribution to this WLMP presents the Agency's interests and activities within the area, under these duties and functions, in relation to water level management.

2 FLOOD DEFENCE

The Environment Agency manages designated Main Rivers to prevent the flooding of property and communications networks and in a manner appropriate to the use of the adjoining land. There are no Statutory Main Rivers within the catchment area and the Agency does not exercise any penning control at the coastal outfalls.

The Agency does however promote positive water level management for conservation objectives through its Somerset Levels and Moors Water Level Management and Nature Conservation Strategy (1991). This strategy is currently being reviewed and a proposed Action Plan was issued in February 1999 following extensive consultation. An additional period of consultation is taking place before this revised strategy is implemented and further Agency water level management objectives are likely to result (see Appendix 1).

The Agency has the responsibility for coastal protection from Burnham Promenade (Maddock's Slade) to Hinkley Point Power Station including the Parrett banks. This includes the length of coast forming the northern boundary to this WLMP. The Agency will endeavour to maintain and improve Sea/Tidal Defences along this coastline in accordance with its current and future policy.

The Sea Defences in the Stockland Drainage Board area are divided into the following sections, viz., Stolford SD (Hinkley to Little Arch), Stockland SD (Little Arch to District Council boundary) and Steart SD (to Stert Point) and the Tidal Defence is referred to as the Parrett Left Bank.

The National Rivers Authority Sea and Tidal Defence Survey report dated March 1995 adopted a different way of dividing Environment Agency's Sea Defences (SD) and Tidal Defences in the Stockland DDB area, viz.,

<u>Sea Defences</u>

a) Stolford SD (1.5 Km from ST 217 462 to ST 231 460)
b) Catsford SD (1.8 Km from ST 231 460 to ST 245 453)
c) Wall Common SD (2.0 Km from ST 245 453 to ST 265 455)
d) Steart SD (3.6 Km from ST 265 455 to ST 281 451)

Tidal Defences

a) Steart No.1 Flood Bank (FB) (1.45 Km from ST 2805 4510 to ST 2719 4453)
b) Steart No.2 FB (0.90 Km from ST 2719 4453 to ST 2662 4401)
c) North Clyse FB (1.35 Km from ST 2662 4401 to ST 2602 4284)
d) Combwich Common FB (0.63 Km from ST 2602 4284 to ST 2602 4230)

Along the Stockland Sea Defences and Tidal Defences the Agency has responsibility over the following outfalls although any penning near these structures is the responsibility of the drainage board. These outfalls are listed in a clockwise order from Hinkley Point.

a) *Coal Lane* ST 217 461
- consisting of a flap gate which closes over a 1.0 m Armco culvert situated in a concrete outfall chamber /headwall structure (refer to Agency Drg. R/2/19, 1988).

b) *Great Arch* ST 227 460
- consisting of a 2.0 m square, 150 mm thick timber non return gate in a concrete chamber with a 1.7 m high, 2.0 m wide, 60 m long (approx.) brick arch with concrete surround outfall to sea (refer to Agency Drgs R/1 &R/2 series).

c) *Little Arch* ST 234 459
- consisting of a 1.4 m wide timber non return gate adjacent the track with an outfall to sea beyond the shingle ridge (refer to Agency Drgs. Q/0, Q/1 & R/0 series).

d) *Wall Common* ST 256 453
- consisting of two 1.0 m deep, 2.6 m wide steel non return gates with concrete wingwalls situated approx. 40 m apart in the sea defence bank and a 600 mm wide sluice penstock immediately upstream.

e) *Dowells* ST 283 464
- this outfall may also be referred to as Dowdle/Dowdel on some maps/drawings. It consists of a circular cast iron non return gate which closes over a 750 mm concrete culvert (refer to Agency Drg. 100/40/6, 1988). There are also additional non return gates in a circular concrete chamber upstream of this outfall.

f) *15 Acres* ST 280 451
- also referred to as the 9 or 13 acres outfall and consists of a 785 mm wide, 880 mm high timber non return gate in a masonry headwall (refer to Agency Drg. 100/40/6, 1988).

g) *North Brook* ST 266 440
- referred to as the North Clyse on the OS map and consisting of a 1.6 m wide approx. timber gate in a stone headwall.

h) *South Brook* ST 261 431
- referred to as the Combwich Clyse on the OS map and consisting of a timber non return gate which closes over a 1.5 m Armco culvert (refer to Agency Drg.100/0/55, 1969).

i) *Combwich* ST 261 425
- consists of a 450 mm Simon Hartley cast iron non return gate in a concrete

headwall near Ship Lane (refer to Agency Drg. 100/21/6).

Further details of coastal issues are included in the Shoreline Management Plan (SMP) for Bridgwater Bay to Bideford Bay produced by the North Devon & Somerset Coastal Group in association with the British Geological Survey and Halcrow Fox Associates (refer to Appendix 2).

This document sets out a strategy for coastal defence for a specified length of coast, taking account of natural coastal processes and human and environmental influences and needs. These stand alone documents although non statutory are well recoginsed and in assessing proposed coastal defence works for grant aid MAFF require the existence of a SMP.

3 CONSERVATION AND RECREATION

3.1 Conservation Resource

The Stockland Drainage Board area includes part of the Bridgwater Bay SSSI (Site of Special Scientific Interest)/NNR (National Nature Reserve)/SAC (Special Area of Conservation) and as such it is an internationally important site. It has been designated for its range of estuarine and wetland habitats and the species that they support. The section of the designated site included within this area contains lowland wet grassland with field ditches, some of which are brackish in nature. These habitats support wintering and breeding waterfowl and important ditch flora and fauna. These will all be dependent on water levels being managed sympathetically.

The area is also potentially very important for archaeology. Stolford has been identified in the document 'England's Coastal Heritage' (English Heritage and The Royal Commission on the Historical Monuments of England), as having a 2 out of 3 star rating for its archaeological potential. Therefore any operations should take this into account.

The aim of the Water Level Management Plan should be, within the designated areas, to provide water levels which balance the requirements of nature conservation, archaeology, farming and other legitimate interests. Important habitats are likely to exist outside the designated area. Management, which is sympathetic to the needs of wildlife is encouraged.

3.2 Conservation Objectives (Agency)

The Agency have the following specific conservation objectives in relation to water level management,

a) A depth of water should be maintained within ditches at all times, particularly in winter, when drying and freezing can cause severe damage to aquatic flora and fauna.

b) In areas that support wintering and breeding bird populations, water levels should be managed so as to provide suitable foraging conditions at the relevant times of year.

c) Routine maintenance should aim to keep ditches in a condition suitable for their purpose but in a way that minimises impact on aquatic communities.

4 FISHERIES

4.1 General Resource

The Environment Agency has a duty to maintain freshwater fisheries and eel fisheries both of which are represented within the plan area. The Agency's fisheries section can provide advice to ensure that fisheries are safeguarded and that the Agency's duty to fisheries is not prejudiced.

Limited information is known on the fisheries resource in this Drainage Board area.

4.2 Fishery Issues

In general excessive growth of duckweed is a constant summer problem on many watercourses which can result in deoxygenation. Removal of this duckweed is difficult and is only effectively controlled by floating booms across the watercourse.

The existing water level management results in significant habitat change with the watercourses penned in summer and free flowing in winter. Low water depth can reduce the numbers of species and the impact is more severe in cold weather. This does not normally cause problems provided fish have access to deeper areas under critical conditions.

Water control structures and their operation may pose special problems for fisheries. Large vertical sluices can generate high water velocities when raised, resulting in the fish being stranded or swept downstream and unable to return. Tilting weirs may pose problems for elvers migrating upstream as a result of the overhanging face.

The watercourses in the catchment area are dredged and weedcut for flood defence purposes by the Drainage Board and local landowners. Dredging is unlikely to remove fish spawning sites but weedcutting could disturb spawning fish or remove spawn and will reduce the cover for fry. The timing of both dredging and weedcutting should be carefully considered.

Several watercourses have U – shaped profiles with very steep banks resulting in very high velocities in flood which may adversely affect fish populations. Where opportunities arise refuge areas of greater width and depth should be provided to improve fisheries.

If works are planned to improve water level management there may be opportunities to incorporate fisheries improvements in addition to any benefit ensuing from the improved management.

The fisheries are an important component of the wildlife interest especially eels which are widely distributed and are the favourite food of otters and a staple food of fish eating birds.

5.3 Fishery Objectives

The fishery objectives for this catchment can be summarised below :

a) The maintenance of suitable water quality, good spawning sites (aquatic plants) and

sufficient water depth on major watercourses.

b) When opportunities arise in networks of smaller watercourses access should be provided within each hydrological block to areas of greater width and depth. These refuges should ensure the survival of fish populations under harsh environmental conditions e.g. drought, prolonged frost etc.

c) Day to day water level and watercourse management (weedcutting, sluice operation etc.) should have due regard to fisheries and be carried out in such a way that fish populations are maintained.

d) If new water level management structures or other projects are planned, inclusion of fishery improvement measures should be considered.

e) Levels of dissolved oxygen can be the limiting factor affecting fish. A high percentage cover of water plants especially duckweeds can lower oxygen levels. The use of booms to confine duckweed may be valuable in some areas.

5 DEVELOPMENT CONTROL

5.1 General

The Agency require persons intending to carry out any alterations or new works within an 8 metre strip on either side of Main Rivers, or within the channel itself, to apply for a Land Drainage Consent. Where consent is applied for on land which forms part of an SSSI the applicant is obliged to consult English Nature and the Agency will only grant consent on the condition that this is done. This condition will also apply to developments which might affect an SSSI although they lie outside the boundaries of the site. (In other cases the Agency's Conservation Officer will comment on the conservation implications of applications as necessary).

The Environment Agency also gives advice to Local Planning Authorities in the form of comments on planning applications and Development Plans. The Agency is a statutory consultee on Development Plans and planning applications that affect the water environment. Local Planning Authorities however have independent powers to decide on planning application proposals, and the Agency has no powers to direct. Particular attention is paid where development is proposed on a flood plain or wash land or in an area which has been identified as subject to drainage problems or be susceptible to inundation by the sea or to tidal flooding.

5.2 Specific Objectives/Issues

There are no specific Development Control objectives relating to water level management in this catchment area.

6 WATER RESOURCES

6.1 General

Apart from those issues already discussed in the preceding sections there are no other on going Water Resource issues which directly influence or are influenced by water level management within this catchment.

The Agency has no permanent flow gauging stations but there is some (limited) flow information at a couple of sites viz, Moxhill Rhyne and Coultings Stream tributary. There is one rainfall observation site at ST 237 452 near Stolford (non telemetered).

6.2 Abstraction Licences

Under the Water Resources Act 1991 certain water abstractions require a licence from the Environment Agency. The abstraction of up to 20 cubic metres per day (approximately 4,400 gallons/day) from a surface water source for general agriculture and domestic use is permitted (i.e. is exempt). Larger abstractions require a licence. However all abstractions from a ground water source (borehole) require a licence irrespective of amount with the exception of up to 20 cubic metres per day for domestic purposes.

The Agency has powers to give a one off consent for up to 20 cubic metres for uses other than agriculture. In addition abstractions of up to 5 cubic metres as a one off abstraction (which does not form part of a continuous operation or series of operations) do not require a licence or consent from the Agency. The Agency consults the appropriate Drainage Board and English Nature in its consideration of any application for an Abstraction Licence.

The following is a list of Abstraction Licences within the catchment area. The first three are directly within the catchment whilst the others are just outside the Drainage Board boundaries. All these licences are for abstractions from a ground water source for agriculture and general farming use.

i) Licence No. 16/52/07/G/103 -
Licence issued for the extraction near Stolford Farm near the coast at ST 232 458. This licence has a maximum abstraction allowance of 1.659 ML (Million Litres) per year or 0.005 ML per day.

ii) Licence No. 16/52/07/G/105 -
Licence issued for the extraction east of Whitewick Farm just off the coast at ST 231 452. This licence has a maximum abstraction allowance of 0.30 ML/year or 0.001 ML/day.

iii) Licence No. 16/52/07/G/108 -
Licence issued for the extraction north of Whitewick Farm near the coast at ST 236 454. This licence has a maximum abstraction allowance of 1.99 ML/year or 0.005 ML/day.

iv) Licence No. 16/52/07/G/028 -
Licence issued for the extraction north west of Combwich at ST 254 425. This licence has a maximum abstraction allowance of 0.827 ML/year or 0.002 ML/day.

v) Licence No. 16/52/07/G/062 -
Licence issued for the extraction at Woolstone Farm north of Stockland Bristol at ST 238 443. This licence has a maximum abstraction allowance of 2.60 ML/year or 0.010 ML/day.

vi) Licence No. 16/52/07/G/154 -
Licence issued for the extraction near Upper Cock Farm west of Stockland Bristol at ST 230 435. This licence has a maximum abstraction allowance of 6.588 ML/year or 0.018 ML/day.

The above Abstraction Licences are unlikely to have a significant affect on the current water level management of the WLMP area.

7 WATER QUALITY

7.1 General Issues

In general terms the summer penning of ditches and rhynes may result in the downgrading of the receiving classified watercourses due to the build up of algae. Further studies are required to achieve a better understanding of where and why the main problems are occurring.

In addition the sudden flushing out of poor quality water at the end of the summer may cause problems and would require careful management to ensure against river downgrading. This however has not been examined in detail.

In general terms weedcutting activities also cause significant drops in Dissolved Oxygen (DO) levels in watercourses. Improved communication between the Agency's Environment Protection Staff and the weedcutting operators/supervisors will help to prevent fish kills and unnecessary damage to the aquatic environment.

7.2 Water Quality Objectives

The Agency's water quality objectives in relation to water level management can be stated as follows :

a.) Contingency planning to avoid water quality incidents.

Potential water quality problems resulting from water level management activities should be properly anticipated and planned for, particularly routine weedcutting and release of penned water. Such contingency planning should involve weedcutting programmes and timetables taking into account known problem areas in the past and the training of operatives to be aware of problems before they occur.

b.) Improved communication to avoid impact of water quality incidents.

Improved communication between weedcutting operatives/supervisors and the Environment Protection department of the Agency to ensure that water quality incidents are dealt with swiftly and with minimal damage to the aquatic environment. The Drainage Board should also inform the Agency when they are about to release penned water, especially in known problem areas.

8 WASTE REGULATION

8.1 General

Under the Waste Management Licensing Regulations 1994 all keeping, disposing or treating of "Directive Waste" on land is subject to a waste Management Licence unless the activity complies with the conditions of an exemption from waste management licensing. A Waste Management Licence cannot be issued without the benefit of Planning Permission. The technical and financial competence of the applicant is required to be assessed before a Waste Management Licence can be issued.

Relevant exemptions include the spreading of waste on land to improve the quality of the land (without harm to flora and fauna), deposit of inert waste on land for reclamation purposes, deposit of waste on land for construction purposes and the deposit of dredgings on the banks of a watercourse.

8.2 Waste Management Sites

There are currently no Waste Management Licences in force within the study area. The nearest landfill sites are at the Hinkley Point site compound. In addition there are currently no Waste Regulation issues under consideration in this catchment which would affect water level management.

9 CONTINGENCIES

Flood

Under flood conditions it is not always possible to control water levels. The Environment Agency ensures that outfall structures are kept clear of debris to allow evacuation of flood water as water levels allow.

Drought

Close liaison must be maintained between the Operating Authority and the Agency to conserve what water is available and to ensure its fair distribution between all occupiers so far as possible.

Pollution

Seek immediate assistance from the Agency's Pollution Officer.

APPENDIX 1

ENVIRONMENT AGENCY WATER LEVEL MANAGEMENT AND NATURE CONSERVATION STRATEGY

In 1991 the Environment Agency (acting as the National Rivers Authority at the time) launched the Somerset Levels and Moors Water Level Management and Nature Conservation Strategy. This recognises the outstanding nature conservation interest of the Somerset Levels and Moors and that this is in decline.

The Strategy promotes a review of flood defence practices, particularly within SSSIs. In these areas a presumption in favour of positive water level management for nature conservation is adopted through agreement.

The aim of the strategy is, through prudent water level management, to safeguard and enhance the ecological value of the area whilst at the same time supporting other traditional land use practices. It is recognised that the success of this strategy depends upon the joint action of those bodies that have an active involvement in the area.

This Strategy is currently being reviewed and a proposed Action Plan was issued in February 1999 following extensive consultation. An additional period of consultation is taking place before this revised strategy is implemented and further Agency water level management objectives are likely to result.

APPENDIX 2

REFERENCES & SOURCES OF INFORMATION

MAPS/DRAWINGS

M1. Somerset Local Land Drainage District Maps to accompany
Land Drainage Survey Report (1 : 50 000)
Water Act 1973 Section 24 (5)

M2. Wessex Water Authority Statutory Main River Maps
Land Drainage Act 1976
1 : 25 000

M3. Somerset River Board - Register of General Liabilities

M4. Somerset River Board - Drainage Districts
Scale 6 inches to 1 mile

M5. Flood Defences Drawing Register
- Q/0 Stockland Sea Defence
- R/0 Stolford Sea Defence
- SL/0 Stockland DDB

REPORTS

R1. Stockland District Drainage Board, Water Level Management Plan
Preliminary Report. 24 June 1997. Barrington Schofield Solicitors.

R2 Shoreline Management Plan – Bridgwater Bay to Bideford Bay
North Devon & Somerset Coastal Group in association with the
British Geological Survey and Halcrow Fox Associates
- Volume 1 (June 1998) Strategy Document
- Volume 2 (Feb. 1998) Studies and Reports
- Volume 3 (Feb. 1998) Maps and Photographs
- Volume 4 (Nov. 1998) Updates

R3 Local Environment Agency Plan (LEAP) - Consultation Report
River Parrett – March 1997, Environment Agency.

R4 Local Environment Agency Plan (LEAP) - Action Plan
River Parrett - December 1998, Environment Agency.

R5 NRA Sea and Tidal Defence Survey

North Wessex Area Summary Report. March 1995.

R6. Somerset River Authority -
Schedule of Sluices, Flaps and Clyces owned by the Authority.
Sheet 3, West Somerset District. March 1973 (File LD/230/1).

OTHER (all at Agency)

O1. Catchment Boxes (River Parrett)

O2. Photographs - River Parrett
Environment Agency (various dates)

FILES (all at Agency)

F1. General

200/34	Water Level Management Plans - General
205/17/1	Stockland DDB - General

F2. Structures

230/1	General Structures

F3. Sea Defences

225/16	Stolford,Steart & Stockland Sea Defences

F4. Moors & Levels

400/12/1	Water Level Management Plans - General
405/17	Stockland DDB - General
405/17/1	Stockland DDB - Raised Water Level Areas
405/17/2	Stockland DDB - Water Level Management Plans

GENERAL INTEREST

G1. Water Level Management Plans - A procedural guide for operating authorities
Ministry of Agriculture, Fisheries and Food - June 1994.

G2. The Draining of the Somerset Levels - Cambridge University Press
Michael Williams (1970).

G3. Somerset Levels & Moors Water Level Management & Nature Conservation Strategy National Rivers Authority, 1991.

G4 Somerset Levels and Moors Water Level Management Strategy Review -
Action Plan (proposed) - Environment Agency, February 1999.

G5. Safeguarding the Somerset Levels and Moors (Environment Agency leaflet).

G6. The Somerset River Board/Authority Annual Reports (& Abstract of Accounts) 15 No. 1950 - 1965 : 9 No. 1st April 1965 to 31st March 1974.

G7. Aquatic Weed Control , Best Practice Guidelines -
Environment Agency / Centre for Aquatic Plant Management.

G8. The Wet Grassland Guide -
Managing floodplain and coastal wet grasslands for wildlife
Royal Society for the Protection of Birds. 1997