M & R HOSIER, REP: 20020373

WRITTEN SUMMARY FROM ISSUE SPECIFIC HEARING 10 GROUNDWATER PROTECTION

Agenda item 5 Private Water Supplies

i) Whether the controls in the OEMP (for example MW-WAT2, MW-WAT4, MW-WAT10, MW-WAT11, MW-WAT15 and MW-COM6 are adequate?

I back up all of the points that Fowler Fortescue have raised on behalf of the Turner family, as we are in a very similar situation.

Our farm is totally reliant on boreholes for a water supply.

If we experience an issue with a lack of water, there will be animal welfare issues.

Pigs are very susceptible to salt poisoning and in hot weather, will start to die within 6 hours if they do not have access to water.

The worst case water scenario would be to lose our supply water on a Friday evening over a Bank Holiday weekend, during a spell of extreme temperatures with potential drought conditions.

My reservoir only holds 24 hours' worth of water supply.

Therefore I have 24 hours before needing water before animals will start to die. (Post meeting note. There are also two cottages connected to the farm water supply that will need potable drinking water).

My reservoir is situated within an arable field with no road/track access. Therefore, it is not possible for an emergency tanker to reach and replenish it.

A tanker of emergency water at the farm entrance is of no use to me as it cannot get into our water network without reaching the reservoir.

In addition to the Water Supply Statement (WSS), there is a need for basic infrastructure measures to be in place before items under the Statement will be of any practical use or meet animal welfare standards.

There is a requirement for an access road capable of carrying an emergency water tanker across the arable field to the reservoir. This road needs to be suitable for use at all times of the year. It is not feasible to install an adequate road with only 24 hours notice.

As previously stated by Fowler Fortescue, there is the likelihood that we will be drinking contaminated water before the contractors even know there is a problem.

Only one of my boreholes has UV treatment. The other untreated borehole is very vulnerable.

Following comments from the Inspector that measures within OEMP Water Supply Statement would cover temporary water provisions.

The WSS does commit to identify how the water supply is to be maintained, but it does not necessarily follow that what is proposed is either practical or possible.

As it stands, if we lose our water supply, it is not possible for the emergency tankers to bring in water supplies, as our reservoir is in the middle of an arable field with no approach road. Therefore, there is a requirement that following on from the assessment of how water supplies are to be maintained, any infrastructure for emergency water deliveries is put into place prior to the Scheme construction. Our reservoir only has 24 hours water capacity.

In addition our research shows that emergency water tankers are not easy to procure at short notice. This practicality would need to be built into the WSS. Priority for water tankers is always given to public water supplies over private water users. The availability of water tankers over bank holiday periods at short notice is doubtful. Therefore, in a bank holiday scenario, there would be a need for additional reservoir capacity to ensure sufficient daily supply. This may not be practically possible.

If a possible Wessex Water (WW) mains water connection was used for emergency supplies, the nearest point to our reservoir would be in the Woodford Valley. There is no assurance that the mains water pressure would be the same as our current pressure. If this is the case a mains connection alone may not be capable of reaching all of our water network. From recent dialogue with WW, they may not have the capacity to supply our farm requirements. For additional supplies to the mains water, the WW supply model has to be recalculated for a predetermined number of new houses that it has to supply. The WW supply model would have to be recalculated to determine whether a farm could be accommodated, but this calculation would only be applicable to that specific time. Supplies to additional new housing over the course of the tunnel construction period may mean that unless planned well in advance, that a farm mains water supply would not be a feasible option.

As requested by the Inspectors at Issue Specific Hearing 10, Groundwater on 29th August 2019 M & R Hosier comments in respect of OEMP measures which relate to their farming business.

OEMP item MW-GEO2 **Groundwater contamination**: We suggest there is a need for all water abstractors to be notified if there is any groundwater contamination incident on site as there is the potential for this to enter the water supply that is drunk by farm tenants and livestock. I have a responsibility to provide water to Drinking Water Inspectorate standards (DWI). Livestock Assurance Schemes also have water quality standards required by retailers.

OEMP item MW-WAT5 **Pollution incident monitoring.** There is no mention that any "*actual significant pollution incidents*" will be reported to any private water abstractors for them to monitor their water supplies or seek to take remedial action.

Who defines what "significant" should mean. How is "significant" quantified?

OEMP item MW-WAT6 **Protection of water courses:** This is in respect of working in or adjacent to watercourses, but it also includes boreholes aquifers and catchment areas of work

operations. "*The main works contractor shall adopt measures to prevent deposition of silt or other materiel into existing watercourses (boreholes, aquifers and catchment areas).*"

Previously, the Applicant stated that due to health reasons, the archaeological topsoil could not be sifted on land occupied by the pigs. Similarly there should be no water discharge from dewatering on land that has intensive livestock activity, as this would carry a health risk washing silt, organic matter and pathogens into the groundwater. Is this item dealt with within the OEMP?

OEMP item MW-WAT7 **Control of pollution to water bodies:** Who will monitor the main works contractors to ensure the handling of contaminated material treatment processes and storage does not affect the chalk aquifer?

OEMP item MW-WAT8 **Dewatering and abstraction**: What will happen if the Scheme, whilst tunnelling, identifies a need for dewatering and the Environment Agency (EA) do not agree to this due to the fact that the level of dewatering is significantly more than has been identified within the groundwater risk assessment? Will this just go ahead and all private water abstractors will be warned in advance with temporary water supply on standby?

With reference to the Examining Authorities Written Questions submitted at deadline 6 [REP-028, Question Fg.2.33] The Environment Agency response states "*there has so far been no assessment of dewatering relating to this scheme".*

We have concerns regarding the areas where any discharge from dewatering will occur. See point above in relation to water discharge in areas of historic intensive livestock production.

OEMP item MW-WAT10 **Groundwater management Plan**: From independent research, we remain concerned that the main works contractor when compiling the Groundwater management plan, will be relying on the Applicant's survey works and their interpretation, which we believe to be inaccurate.

Under point c)

There is no noting of private boreholes being monitored, when these are the boreholes that we rely on for all our water supply.

There is no requirement to monitor the water quality levels for drinking water standards. Therefore, there is the potential for private water abstractors to ultimately be drinking contaminated water as only chemical components will be picked up.

There is no noting of how often the water monitoring will take place. If only carried out quarterly or monthly, there is the possibility that water could be contaminated for a period of time before the issue identified. If this was to be the case, people and livestock would be drinking contaminated water.

OEMP MW-WAT11 Management of impact on abstraction boreholes:

Background to our comments

The Applicant's response to our reply at 8.44 states MW-WAT11 contains measures to "minimise and reduce potential adverse impacts on abstraction boreholes". It does not guarantee that there will be no problems. As the Applicant has not provided "risk percentage" of the adverse impact, therefore we do not believe they have accurately assessed this risk.

If it cannot be proved that the Scheme will not impact on the quality and quantity of water from private borehole abstractions, the risk percentage to water needs to be calculated. By failing to provide a risk percentage, the Applicant has a responsibility to have alternative water supplies all ready in place prior to the Scheme going ahead.

We do not believe the A303 tunnel Scheme is a typical Scheme as stated by the Applicant. The geology of the area is complex including weak structural phosphatic chalk. The hydrogeology of the area is complex.

Independent research has shown that alternative water supplies can take as long as 18 months plus to put in place and it would be unreasonable for the Applicant to rely on temporary water supplies over that length of time.

OEMP makes no mention of what constitutes "appropriate monitoring". Will farmers be consulted, to ensure that what is proposed is actually "appropriate" for their farm circumstances? Will water be monitored to drinking water inspectorate standards where people are drinking the borehole water?

Points of concern within MW-WAT11

Under the second paragraph we note that main works contractors will consult with existing abstractors for measures to minimise loss or interruption of supply, provision of emergency water supply, and provision of alternative permanent water supplies.

Point a) states "*Where determined, and agreed with the owners /operators or other abstraction licence holders, targeted risk-based audits and checks of water quality monitoring will be undertaken at abstraction sources by the main works contractor"*

Who will "determine" whether these water quality monitoring will be carried out? Will farmers be able to request this monitoring? Will quality monitoring be to drinking water standards or to standards required by farm livestock assurance schemes? Will farmers be provided with a copy of the results so they can provide evidence at farm assurance schemes audits? How soon will information be provided to farmers?

Point a) continues "*The period of monitoring will be appropriate to the timing and type of work undertaken, and will include a period of baseline monitoring*".

Realistically, there is no way of knowing what an "appropriate period of monitoring" is, so we would suggest that this is carried out as frequently as possible.

No mention is made of when the baseline monitoring would start. To provide a representative for baseline quality and supply, monitoring should be undertaken as soon as possible and we would suggest that it should already be happening. Our water engineers are concerned that this is not currently happening.

The Applicant is relying on water models for the flow of water within the area, but there is no certainty that these will be accurate. The Applicant believes there to be no karstic behaviour of the rock within the area, but if this is incorrect: We believe, the water flow within the area will be quicker than anticipated, so contamination incidents would show up sooner. Having not carried out any 3 D modelling of the Scheme to show fissure flow, how can the main works contractor or even any landowners etc, properly assess where these monitoring boreholes should be accurately placed within the landscape?

There is no requirement for all private water abstraction boreholes to be monitored. As such, there is the significant possibility that boreholes deemed not to be at risk, will not be monitored and may experience problems at a later date.

Point b) of MW-WAT11 states "*the main works contractor will arrange any monitoring of water levels in areas where dewatering of the chalk aquifer is required*"

The location of the monitoring will naturally depend on how much water will be abstracted by dewatering. If there is a large volume of water to be abstracted then this could potentially have a large drawdown area within the landscape. We believe that the Applicant's water model needs to be backed up by a full fracture 3D model. This will show the extent of fissures within the geology, which will accurately inform where these additional water monitoring points should be and provide more information to assess the dewatering needs of the Scheme on the chalk aquifer.

Point c) of MW-WAT11 states *"where the water quality monitoring shows an adverse impact on water quality as a result of the works, the main works contractor will contact the relevant abstractor (licence holder and operator) and will put in place appropriate emergency measures to overcome the adverse impact where this has resulted from the construction works*"

Point c) continues "*these emergency measures may include the transfer of a potable water supply to another water source and informing the water users*."

There is a need for the main works contractor to carry out a feasibility study to assess any work required to enable emergency tankers of water to access our farm and discharge the water into farm reservoirs. A tanker of water delivered to the farm entrance alone is not sufficient. The farm reservoir is located in the middle of an arable field with no road/track, so it is not possible for a tanker to even reach the reservoir. Therefore as already noted, there is a considerable amount of work that needs to take place prior to the Scheme construction to ensure farm emergency water supplies are secure in a practical respect as well as on paper.

We would hope that we would be informed of any suspected contamination problem as soon as it becomes apparent, so we are able to stop tenants and livestock drinking contaminated water.

Should our supply become contaminated, there will be a need to clean out and disinfect our reservoir and water network. Alternative temporary reservoir facilities would be required in this event.

OEMP MW-WAT15 Monitoring of water resources: Under heading Groundwater, this states, " *The main works contractor shall, where changes in groundwater levels are predicted to occur as a result of construction activity, which would be considered significant using the methodology*

defined in the groundwater management plan (refer to MW-WAT10) undertake additional site investigations".

We understand that this makes the main works contractor responsible for carrying out additional surveys should it be shown that there is a need for dewatering or there is evidence that the tunnel constructed within the water table is having a greater than anticipated effect on the groundwater flow. This is putting too much responsibility on the main works contractor. If the Applicant carried out a full 3 D fracture model of the Scheme prior to starting the tendering process, the contractor would be fully aware of all potential problems, so able to tender accordingly reducing the risk of the Scheme running over budget.

MW-WAT15 continues "*Water levels at selected observation piezometers will be monitored before, during and after any dewatering associated with the construction of the tunnel".*

By carrying out a 3D fracture model it will show where the observation piezometers need to be placed within the Scheme to provide an accurate representation of what is occurring in the groundwater.

In addition to this, we note that some of the monitoring boreholes (that were constructed on our farm last October with a view to providing baseline information prior to construction), have yet to have any monitoring equipment installed. We would suggest that the Applicant is failing in its duty to carry out adequate base line monitoring for which the groundwater levels will be assessed. This has the potential for the main works contractor to base assessments on insufficient information leading to errors.

MW-WAT15 concludes that "*additional drainage will be provided as mitigation where necessary. Monitoring arrangements will be in defined within the groundwater management plan*."

What happens if the EA does not permit additional drainage within areas? And what measures will be put in place to ensure that water discharge areas are not going to contaminate the groundwater? See points above in relation to location of water discharge. There is the potential for farmers to be blamed for groundwater contamination due to livestock production rather than the practices of the contractor who is discharging water in inappropriate locations.

We are pleased to see that the EA and WC are also sharing responsibility for the protection of private water supplies.

OEMP item MW-COM6 **Private water supplies:** Wording within first paragraph *"Where an existing private water supply to a farm is adversely and directly affected by the construction of the Scheme"*

This only refers to the construction of the Scheme. It does not directly refer to any problems that will arise in the groundwater as a result of the tunnel being present within the geology, blocking water flow. This has the potential for devastating long term consequences on our farming business. Is this wording adequate to cover any impact on groundwater due to the presence of the tunnel within the groundwater? Can we have some written assurance that this worst case scenario is catered for?

The paragraph continues, "*the main works contractor shall, if requested by the farmer or landowner to do so, provide or procure or meet the reasonable cost of the provision of an alternative supply of water (at the contractor's option)"*

We suggest that the cost of providing an alternative water supply for all abstractors needs to be assessed prior to the Scheme construction, as this has the potential to be a considerable cost which would need to be built into any contractor's tender. We believe that the Applicant should undertake assessment of costs relating to provision of alternative water supplies and not leave this to the main works contractor. We urge that the alternative supply of water should be in place ahead of Scheme work commencing, as it would take potentially 18 months to construct an alternative water network. Studies will need to be carried out to ascertain whether Wessex Water has the capacity to add large farms onto the existing mains network, with a suitable water pressure that the farms can operate with no adversity. Should a mains supply be chosen, then on a like for like basis, farmers should not pay for the water they use. Who will pay for the farmers' water usage? Will it be the main works contractor or will it be the Applicant?

Construction of new boreholes also have a licence application requirement prior to any work commencing. The availability of a water engineer to construct the borehole also has to be taken into account.

The paragraph continues, *"Where the supply is affected temporarily by the construction of the Scheme, then the alternative supply need only be supplied for the period during which it is affected."*

Temporary water provision will also need considerable assessment by the main works contractor as it is not sufficient for a tanker to be delivered to the farm gate. The means by which the potable water is transferred by the tanker into the farm water network is important, as is year round access to the farm water network. See OEMP points above.

When does a temporary water provision change to a need for a permanent water provision? Long-term temporary water supplies will be costly to the contractor, as well as bringing added complications of ensuring regular supplies over periods of drought and bank holidays. Public water supplies always take priority over private water requirements, so this needs to be considered.

Our farm reservoir only has a 24hour capacity. Therefore, any emergency temporary water will have to be in place within 24 hours of the problem being identified. This is an animal welfare issue as well as a one of public health. We have a duty to provide safe drinking water to tenants living in our farm cottages.

Second paragraph, *"Where a request is made by the farmer or landowner for a permanent supply due to permanent severance of the existing supply caused by the construction of the Scheme"*.

Similar to the first paragraph in MW-COM6, does this take into consideration the severance of fissures within the geology that supply water to our borehole, ie fissures that are either blocked by grout, or blocked by the physical presence of the tunnel itself. Is additional wording required to take this into account? Can we have written assurance that this scenario is covered?

Continuing in the second paragraph, "*the main works contractor shall, where provision of an alternative means of supply can be demonstrated by the landowner/farmer to be reasonably required for his business, provide or procure or meet the reasonable cost of a permanent means of alternative supply of water…*"

We would add that the supply of water would be on a like for like basis, (with no added water meterage costs and at a similar water pressure as existing supply), if a mains water connection is

chosen. We would also suggest that the new supply is designed in consultation with our existing water engineers. As they are familiar with our network, this would speed up the design process.

For animal welfare reasons and business security we would suggest a permanent water supply is installed ahead of the Scheme works taking place as it would remove a lot of the other private water abstracting issues.

Water Supply Statement (WSS)

This is only intended to show "how" the water supply will be maintained in the unlikely event that there is a problem as a consequence of the works. There is a further need to ensure that the WSS is backed up with a practical assessment to ensure that what is proposed will actually be practical and possible.

We are pleased to see we will be provided with a copy of the WSS in advance of works commencing. Previously we have had to wait months for reports to be signed off before they have been shared with us. Due to past experience, we are not confident that reports will be made available in a timely manner.

Points of inclusion within the WSS:

Under point a)

It is not sufficient to just show the locations of the boreholes as they are only one part of the water supply infrastructure. The whole of the water system needs to be fully assessed to include reservoir, water pipe network, electrical supplies and road access. A tanker of water sitting at the farm gate is of no practical use if it is unable to discharge into the farm reservoir due to it's location in an arable field to the reservoir is of no practical use.

Under point b)

We would suggest that ALL information and test results relating to groundwater surveys are included in every farm WSS, not just the information that is deemed "relevant". Who will decide what data is relevant and what is not? The contractor will be working from documents that they have not produced so will be at a disadvantage. Provision of all groundwater surveys and results will ensure the contractor has as much information to refer to as possible should it be needed at a later date. This will save on time and money having all information to hand in one document.

Under point c)

We would like to see the wording changed to "how and when" an emergency will be reported if water is contaminated. If monitoring is only going to be done once a month and does not include monitoring of private abstraction boreholes, there is the possibility that we will already be drinking contaminated water.

Under point d)

This point relates to temporary supply issues.

There is a need to commit to provide temporary water supplies within 24 hours, as our reservoir only holds a day supply. We have animal welfare issues to consider, as well as farm cottage tenants.

We would request the wording “like for like” to be added to the clause, as there is no assurance that temporary water provided will be adequate for the basic farm demands. If mains supply is used for temporary water, we could potentially end up with a poor water pressure that will either not keep up with the demands of livestock, or is not capable of reaching the whole farm network.

We would suggest the inclusion of a minimum period for which farmers will have to rely on temporary/emergency water supplies, as this is vulnerable in its provision. Water tanker availability at weekends/holiday periods is questionable and may even result in the requirement of additional reservoir capacity. When does the need for a temporary water supply become permanent? Should a time scale be specified?

Under item e)

The WSS only mentions a new permanent supply in respect of contamination issues, although the second paragraph of the main MW-COM6 item does refer to “permanent severance of the existing supply.” Better clarification on this point to include water quantity as well would provide more confidence in this item.

Additional points we would suggest to be included within the WSS would be:

The provision of a contact number 24 hours a day, 365 days of the year, so any issues are dealt with promptly to ensure a water supply is in place within 24 hours.

The requirement for a feasibility study to be carried out, on the provision of the most appropriate methods for temporary and permanent water supplies to be established.

The provision of any infrastructure requirement necessary, as noted within the feasibility study, to enable emergency/temporary water supplies to be provided, ie: to provide road access to enable a tanker to deliver water to our reservoir.

Agricultural Liaison Officer (ALO)

The provision of an ALO on paper is a good idea. However, unless he has any authority to make decisions and is contactable 24hours a day 365 days of the year, this is of limited use. It is doubtful they will have water engineering experience and will not necessarily understand our water requirements and the practicalities involved. From past experience the Applicant’s agricultural representatives have not seemed to grasp the issues we have faced with surveys or understood our farming operations. Inevitably issues with water etc occur over bank holidays, or at 4pm on Fridays, when it is difficult to get in contact with relevant parties. If we lose our water supply at 4pm on a bank holiday Friday, how is an ALO going to ensure we get an alternative source within 24 hours?