

**AN EVALUATION OF THE IMPACT OF THE ABERDEEN
WESTERN PERIPHERAL ROUTE ON THE CAMPHILL
COMMUNITIES IN BIELDSIDE, ABERDEEN:
PSYCHOLOGICAL AND POLICY PERSPECTIVES**

INTERIM FINDINGS

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Executive Summary

This interim report has been commissioned as part of the environmental and social impact assessment for the Aberdeen Western Peripheral Route (AWPR) being undertaken by Jacobs Babbie. This work is being conducted on behalf of Aberdeen City Council, Aberdeenshire Council and the Scottish Executive.

As the development of the scheme proposal has not yet identified all mitigation measures, this report presents the interim findings arising from an evaluation carried out on the implications of the scheme on the Camphill and Newton Dee communities, as defined at present.

The report aims to provide a preliminary evaluation of the potential impacts of the proposed AWPR on the pupils and residents of the Camphill communities in Murtle Estate and Newton Dee, located to the west and east of the scheme respectively.

The evaluation process considered certain aspects of the existing baseline environment at Camphill and Newton Dee and has compared this with how these aspects would alter both during and after construction of the AWPR. The implications of these changes for individuals with complex developmental disabilities present in the Camphill and Newton Dee communities have then been evaluated.

The result of this evaluation considers that the construction phase of the AWPR would be likely to have a detrimental effect on children in the Murtle Estate school, although it is considered that it would be possible to mitigate these effects with the implementation of appropriate management measures. A series of recommendations on this issue are presented within the report. It is not considered that the construction phase of the AWPR would have as detrimental an effect on individuals in Newton Dee, although specific recommendations are proposed to minimise any potential effects.

The present analysis confirms that there is some potential for adverse effects from construction and operation of the AWPR on the Camphill communities, which have been predicted by those who live there and their supporters. From the perspective of conventional services, however, it could be argued that both Murtle Estate and Newton Dee are viable as high quality services providing education, work and a productive life for individuals acknowledged to have extremely complex needs – and that this would continue provided that the construction phase can be managed successfully.

The results from the preliminary assessment of operational noise impacts from the road indicate that there is a risk to children with complex developmental disabilities. However, this risk is much lower than the predicted construction noise impacts and it is anticipated that most children would adapt over time.

The results of night-time noise modelling indicated noise levels that may cause sleep disturbance with windows open. Keeping windows closed during the night could mitigate these potential impacts. No noise impacts are anticipated within school classrooms.

The author's professional opinion is that the social and physical environment that would exist after road construction would not preclude continued realisation of the community's philosophy and mission, provided that changes are managed appropriately and with the availability of extensive adequate resources.

1 Evaluating the impact of the Aberdeen Western Peripheral Route on the Camphill communities in the Bielside area of Aberdeen

1.1 Background

This report has been commissioned as part of the environmental and social impact assessment for the Aberdeen Western Peripheral Route (AWPR), which is being undertaken by Jacobs Babbie. This work is being conducted on behalf of Aberdeen City Council, Aberdeenshire Council and the Scottish Executive. These bodies are the funding Partners for the delivery of the AWPR, with the Executive taking the lead role in developing the scheme as a Trunk road.

The concept of the AWPR was initiated by Grampian Regional Council in the 1990s, with development focussing on a route to connect the A90 to the south of Aberdeen to the A96 Aberdeen to Inverness Road. At the time, preliminary design work was carried out on a number of options for the route. As part of that process, Halcrow Fox consultants were commissioned to investigate potential issues associated with the route and the Camphill/Newton Dee communities.

This interim report aims to update the previous Halcrow Fox study and make a preliminary assessment of potential effects of the route on the Camphill and Newton Dee communities located in the Bielside area of Aberdeen (please refer to Figures 1 and 2).

Following this report, it is intended to conduct further work, which would build on the conclusions of this preliminary assessment. The further assessment would include the development of the detailed design and associated mitigation measures for the AWPR, which have not been fully developed, together with discussions with the Camphill and Newton Dee

communities, in order to identify appropriate measures that could be put in place to mitigate the potential impacts of the route.

1.2 Report Purpose and Approach

The purpose of this report is to examine the potential impacts of the proposed Aberdeen Western Peripheral Route (AWPR) on the pupils and residents of the Camphill communities in the Bielside area of Aberdeen. It sets out to use the available evidence-base on the effects of environmental factors, particularly noise, on the psychological well-being of children and adults with complex developmental disabilities. Here the term *well-being* is used to cover both the mental health of an individual and his or her subjective experience of quality of their life. While adverse changes in mental health may lead to diagnosable psychiatric conditions such as depression, poorer well-being may also be reflected in individuals becoming distressed or unhappy without such a change constituting a specific psychiatric condition.

This report presents the initial findings arising from this examination, with recognition of the fact that many of the detailed measures associated with the AWPR have yet to be completed and in particular that appropriate mitigation measures have not at this time been fully developed. A final report will be completed at a later date.

Concerns regarding the anticipated effects on the well-being of pupils and villagers, from the perspective of the community, stated by *Camphill Medical Practices Ltd*¹ are that the AWPR would:

- *‘Exacerbate the very complex medical and social problems of many residents, such as asthma, allergies and epileptic conditions’*
- *‘Devastate the safe and tranquil environment – crucial to the success of Camphill’s therapies with residents who are often overly sensitive,*

¹ *The Threat to the Camphill communities:* <http://www.savecamphill.org.uk/threat.htm>

stressed by noise and have sleeping difficulties – with major construction work, then heavy traffic’

Other anticipated problems that have been raised by representatives of the community relate more to the overall ethos and reputation of this community and predict the total destruction of the community, i.e. that the road would... ‘*Destroy the work, home, health, safety and recreation facilities of the residents.*’

The report begins by describing the needs of the children and adults in, respectively, the Steiner School Murtle Estate and in the Newton Dee community (**Section 2**), set against the background of the community’s philosophy. The two communities are viewed separately, as both demographically and with respect to the needs of pupils and villagers there are important distinctions to be made. In passing, however, we should add that from the perspective of those who support the individuals, those in both locations are seen as making up a single community embraced by the same philosophical ethos. Reference is also made to a second Camphill school two miles to the west of Murtle Estate. This second school is viewed as part of the overall Camphill community in this area and has a close relationship with Murtle Estate. It is not immediately affected by construction or operation of the AWPR, however.

In **Section 3**, the school and adult community are considered from the perspective of national policy in this field as set out in various *Scottish Executive* documents. Understanding this policy context is critical. Decisions regarding building of the AWPR will also be made within the framework of other segments of *Scottish Executive* policy and in the interests of an integrated policy approach they both need to be considered.

In **Section 4**, the principal evidence is summarised with respect to environmental factors which influence the behaviour, psychological well-being and health of people with the pattern of developmental disabilities represented in the two communities. We then evaluate the potential impact of

the AWPR on pupils and villagers in the light of this information and information that has been provided by Jacobs Babbie on the construction and operation of the road.

Conclusions are offered in **Section 5** from two perspectives:

- The first perspective might be referred to as the *conventional service model*. Two questions can be posed:
 - Can a small residential school for children with complex disabilities provide education and support for pupils throughout the construction period and subsequent operation of the AWPR, in line with national educational policy?
 - Can a community such as that in Newton Dee continue to enjoy living and working in its present setting during these two phases of the AWPR?

Note that here we are viewing the school and Newton Dee as effectively self-contained services comparable in fundamental respects to other such facilities in Scotland specifically, and the UK in general.

- The second perspective is that of the Camphill movement itself and those responsible for the school and Newton Dee who work through, and in, the context of this philosophy. Here both entities make up a single community in which those who live in them can freely interact. The overall site is considered to have intrinsic qualities essential to the Camphill communities and development of those who live there. The present quiet and natural environment is viewed as critical to achieving the aspirations of such communities.

It is, however, acknowledged that given the complexity of this situation, the picture drawn through this process will inevitably deal in probabilities rather than certainties.

2 The needs of pupils and villagers attending the Steiner School Murtle Estate and Newton Dee

2.1 Sources of information

Information has been collected principally through:

- Interview with Mr Alan Pilkington (Head of Services, Neighbourhood Services (Central), Aberdeen City Council Social Work Department) (August 23 2004)
- Interviews with Dr Stefan Geider (Medical Officer, Camphill communities, Aberdeen) (August 23 2004; September 15 2004; September 22 2004)
- Interviews with co-workers in the Murtle Estate school and children's homes, notably Mr. Vincent D'Agostino (Administrator), Ms. Betty Marx (Teacher and Senior Staff Member), Mr. Bernard Menzinger (Teacher Co-ordinator), Ms. Veronica Goichon (Therapist & House Co-ordinator) and Ms Birte Stenzen (House Co-ordinator) (September 22 2004)
- Interview with a pupil of Murtle Estate school (September 22 2004)
- Interviews with five villagers living in the Newton Dee Community (15 September 2004) and associated co-workers
- Meetings with the AWPR road team, principally Mr Derick Murray (Managing Agent) and Mr Cliff Buchan (Assistant Managing Agent), members of the Jacobs Babbie team including Mr Andrew Mackay (Principal Engineer), Ms Julia Wallis (Technical Director) and representatives of the Scottish Executive Enterprise, Transport and Lifelong Learning Department – Trunk Roads: Design and Construction Division (July 27 2004; September 31 2004)
- Interview with Mr John Rowland and Ms Stephanie Baldwin (Principal Environmental Consultants, Jacobs Babbie) (September 26 2004) and subsequent information exchanged with Mr Rowland
- Communications with Professor Barry Carpenter (Head Teacher & Chief Executive, Sunfield (residential) School, Worcester

- Communications with Mr Michael Gibson (Scottish Executive Education Department) and Mr Alan Dixon (Chief Executive, Capability Scotland) regarding educational policy with respect to residential schools
- Documentation provided by Murtle Estate and Newton Dee
- A review of relevant research and clinical literature related to the impact of noise and other stressor on children and adults with complex development disabilities
- Visits to observe the Murtle Estate and Newton Dee classrooms and workshops and horticultural areas

The author wishes to express his appreciation to all those who have contributed their time and knowledge.

2.2 The Camphill communities

We noted above the two perspectives that may be taken on the Camphill communities when considering the impact of construction and operation of the AWPR. In contrasting provision of conventional services with the Camphill movement's own vision of the community, we must emphasise that the former perspective is not entirely consistent with that of members of Camphill-Rudolf-Steiner-Schools and Newton Dee. These communities are not considered to be *services* in the conventional sense by those who work in them. Those who work in Newton Dee view the unpaid co-workers as interdependent with villagers. The two sites and their environs are viewed as a totality with a negative impact on one having inevitable consequences for the other.

The philosophy realised in this setting is that of Rudolph Steiner, and as is well known, the worldwide Camphill movement began in 1940 in Camphill House, Aberdeen, founded by Dr Karl König. The holistic approach to education, therapy and care employed is referred to as *Curative Education*² or *healing education*. Here physical, mental and spiritual development are seen

² Camphill Rudolph Steiner Schools (ND) *Curative Education*: Camphill's holistic approach to education therapy and care. Bieldside, Aberdeen: Camphill Rudolph Steiner Schools.

as entirely interdependent, and educational and therapeutic activity is directed to enhancing all three. Therapeutic and health care support is informed by Steiner's anthroposophical view of human beings, which views treatment as having to take into account the whole person's emotional and spiritual life³ as well as their health care needs. A wide range of specific therapies realise this vision⁴ and a full account of the curriculum is available⁵.

2.3 *Children's needs and characteristics*

Twelve girls and 19 boys at present attend the Rudolf Steiner School on the Murtle Estate. This total is made up of 25 residential school places and six day pupils. The overall number of 31 pupils at the time of collecting the information (22 September 2004) is expected to increase during the course of the school year, as admissions in response to referrals can take place at any time. Hence, 31 children should be viewed as a minimum.

Other children, approximately 20, come to the Murtle Estate medical centre for medical and therapeutic treatment and are invariably supervised by a parent or carer.

The 31 children referred to range in age from 8-18 years (average 14.1 years). They have been resident between 1 and 10 years (average 3.6 years). Attention should be drawn to an important feature of the duration of time children have spent at the school. Of the ten children who have attended for *one year*, eight are in their teens. Thus, the school is making provision for some young people for whom other forms of educational provision have failed over a lengthy period of time. The oldest child, who is 18 years, was admitted near the end of his school career at the age of 17 years. One implication of this pattern of admission is that during the teen years, and especially during this stage of

³ Bopp, A. et al. (2003) *Anthroposophical Medicine: Its nature, its aims, its possibilities*. Dornach: Medical Section, School of spiritual Science.

⁴ Camphill Rudolph Steiner Schools (ND) *Therapies at the Camphill Rudolph Steiner Schools*. Bielside, Aberdeen: Camphill Rudolph Steiner Schools.

⁵ Camphill Rudolph Steiner Schools (ND) *Camphill Rudolf Steiner Schools Aberdeen for Children and Young People in Need of Special Care*. Bielside, Aberdeen: Camphill Rudolph Steiner Schools.

children's lives, the significant and complex needs of a small number cannot be met by local authority education departments.

Twenty nine of the 31 children have learning disabilities. In UK terminology *learning disability* refers to what historically would have been known as *mental handicap* or in US terminology would be labelled *mental retardation*. The two remaining children have significant social-emotional problems with marked challenging behaviour. Again, with respect to terminology, *challenging behaviour* has become the accepted term for what in the past would be referred to as *behavioural problems* or *maladaptive behaviour*.

However, all children have needs which go beyond 'simple' learning disability or social-emotional problems. Thirteen have autistic spectrum disorders (ASDs), 11 associated with learning disability as defined above and two with Asperger syndrome. Twenty-three children display significant challenging behaviour and seven have severe sleep problems. Among the former physical aggression, self injurious behaviour and Attention Deficit Hyperactivity Disorder (ADHD) are present. Specific challenging behaviours can be extremely dangerous, as is the case with one 14 year old boy whose physical aggression has been seen to be life-threatening to others and who, given the opportunity, will throw stones at moving vehicles. Such behaviour is thought to result from situations in which he is unable to communicate feelings of distress and manage them in constructive ways. Several children tend to wander outside the estate, sometimes necessitating their return by the police. Some of these children are reported to be attracted by traffic and mechanical activities, though no specific information is available on the frequency of behaviour related to such attraction.

A number of specific genetic syndromes are represented. These are of particular significance as some of the work cited in the following section is concerned with the impact of environmental stress on individuals with these syndromes. Two children have Angelman syndrome, two Fragile-X syndrome, three Down syndrome, and one Tourette syndrome. Accessible information

on such syndromes is readily available⁶. These syndromes are associated with a range of behavioural difficulties and characteristics known as *behavioural phenotypes*, and the implications of them are relevant to the impact of the AWPR on the children. Both diagnosed and undiagnosed Foetal Alcohol syndrome is also represented.

In addition to these behavioural and psychological features, most children have complex health care needs including incontinence, asthma, chronic constipation and sensitivities to medication.

As noted above, for all children there has been a pattern of failure and instability in the services they have received. In some cases four or five schools will have been attempted. In some, but by no means all instances, family stress has compounded the impact of such instability. Suspected or documented abuse, both physical and sexual has been reported. These have a profound effect on some children, resulting in low self-esteem, poor mental health and can lead to high anxiety and depression in some. Attention should be drawn to the two boys with Asperger syndrome. They are particularly vulnerable to the development of severe mental health problems during their teens, including a risk of suicidal behaviour.

2.4 Needs of Newton Dee villagers

Newton Dee is a community of 88 villagers (36 women and 52 men) supported by unpaid co-workers who live in the community and over 20 paid staff who live outwith Newton Dee. Eighty six have learning disabilities. On average they have lived there for 25 years. This ranges from a residence of between three months and 44 years. The three individuals who have lived there for 44 years have in fact done so since the village's opening in 1960. The age of the villagers ranges from 25-79 years (average 51 years). Nearly a quarter, 20 villagers, are over 60 years of age. Eleven men and three women join the permanent villagers for day placements. Such placements have

⁶ *The CaF Directory of Specific Conditions and Rare Disorders 2002*. London: Contact a Family (www.cafamily.org.uk). The directory is updated regularly and contains a useful introductory article on behavioural phenotypes (www.cafamily.org.uk/behaviour.html).

increased over the past ten years. This group is somewhat younger, with an average age of 37.6 years (range 27-53 years). Referrals have come from both local authorities and family members. A small number of individuals have left Newton Dee. In some cases this has been enabled by new opportunities for them to live in the community resulting from changing community care policy. Some have developed age-related conditions such as dementia and it has not been possible to meet their needs in Newton Dee.

While national policy has promoted care in the community, for many years the population of Newton Dee has remained stable. During the last two years there has been an increase in referrals and there is now a waiting list. This may partly reflect continuing parental demand, but also possibly increased flexibility of referrers in the statutory sector.

At the time information was collected (September 15 2004), a detailed breakdown on the characteristics of villagers was not available. In contrast to the children for whom typically thorough assessments are available, many adults may have lived in the community for decades without a full diagnostic assessment. For example, it was reported that there were villagers considered to have autistic spectrum disorders, though this condition was not formally diagnosed but informally inferred from their behaviour, e.g. ritualistic behaviour and extreme sensitivity to noise. Others are thought likely to have Fragile-X syndrome with concomitant sensitivity to environmental disruption. One man whose case was reviewed in detail responds by extremely challenging behaviour, e.g. throwing chairs and tearing his clothes. He also approaches any new person. Twenty people living in Newton Dee were reported to be very likely to make such approaches.

As with the children, the disabilities of villagers were reported to be complex with dual diagnosis, i.e. learning disabilities and mental health problems. Five villagers were reported to be vulnerable to being sexually abused and perpetrating sexual abuse. There are also individuals with Down syndrome who are particularly vulnerable to early on-set Alzheimer disease but continue to live in Newton Dee until they require full nursing care.

If construction and operation of the AWPR is to have an impact on the mental health of villagers in Newton Dee, then it is in the area of *affective disorders* that this is most likely to occur, i.e. with respect to depression and anxiety. For older people in the general population, depression is a common condition in later life. Nevertheless, there is evidence that major depression is not more common among people over the age of 65 years than among their younger peers⁷. This author notes, however, the prevalence of adjustment disorders and depression linked to social and health factors in older people, and emphasises that these are both important and treatable.

That the same stressors may have an impact on some older people with learning disabilities is to be expected. Nevertheless, a recent review of depression, ageing and learning disability concludes by saying: '*There is virtually no scientifically-based evidence regarding any aspect of depression in older adults...(with learning disabilities)... Epidemiological, clinical, treatment or outcome information is totally absent.*'⁸ Thus, we do not know whether older people with developmental disabilities are more or less likely to be affected by environmental stress than older people in the general population. In addition, there is no evidence that older people with learning disabilities are vulnerable to trauma when major residential changes occur in their lives⁹. However, the studies on which this comment is based are of relocation from long stay institutions to community homes, and do not tell us anything about relocation from, for example, a desired residence (e.g. the family home) to a less desired residence.

It may be suggested that age in itself may not be a significant factor in villagers' response to construction and operation of the road. What would probably have an impact would be their pre-existing vulnerability with respect

⁷ Prasher, V. (2003) Depression in ageing individuals with intellectual disabilities. In P.W. Davidson, V.P. Prasher & M.P. Janicki (eds.) *Mental health, Intellectual Disabilities and the Ageing Process*. Oxford: Blackwell, pp. 51-66.

⁸ Prasher, V. (2003) Depression in ageing individuals with intellectual disabilities. In P.W. Davidson, V.P. Prasher & M.P. Janicki (eds.) *Mental health, Intellectual Disabilities and the Ageing Process*. Oxford: Blackwell, pp. 51-66.

⁹ Hogg, J., Moss, S. & Cooke, L. (1988) *Ageing and Mental Handicap*. London: Croom Helm.

to any present mental health difficulties coupled with general stress arising from noise and disruption of routine.

At present it is difficult to characterise as fully as we would wish the detailed picture of Newton Dee villagers' needs. Overall these can be considered in relation to an ageing population amongst whom there are a number of people with complex and challenging behaviour and whose characteristic behaviour might make them vulnerable in situations in which they encountered significant environmental change.

3 National context of the work of the Camphill communities

As noted in **Section 1**, it is not desirable to view the Camphill communities in isolation from national policy as set by the *Scottish Executive* and trends related to complex disability. The significance of the impact of the AWPR on residential special educational provision can only assist decision making regarding the road if seen in this framework.

3.1 Trends in prevalence of people with complex needs

There is a consensus that the prevalence of people with complex needs in the population is increasing. Studies in the UK, USA and New Zealand of babies born before full-term, i.e. premature babies of 1500 grams or less, indicate increased survival and an increased probability of complex disabilities. Increased prevalence of autism has also been reported, though it is an open question as to whether this reflects changes in assessment methods and increase in detection or a real increase in incidence. Though difficult to quantify, it is anticipated that the prevalence of children with complex disabilities of the sort catered for by Murtle Estate School will increase in the coming years.

3.2 Trends in educational policy

Parental choice with respect to what are referred to as “placing requests” in independent special schools has been reinforced by legislation enacted in the recent “The Education (Additional Support for Learning) Scotland Act (2004)”¹⁰. Section 22 of the Act refers to such placing requests, i.e. where a parent requests a specific school placement. The right to make such a request (described in detail in Schedule 2 of the Act) applies to requests for placement of a child in an independent special school, such as a Camphill School. In

¹⁰ Scottish Executive (2004) The Education (Additional Support for Learning) (Scotland) Act (2004): A Guide for Parents. Edinburgh: Scottish Executive.
www.scotland.gov.uk/library5/education/esa04gp-asp

such cases where the local authority cannot make appropriate provision and subject to other circumstances *'...it is the duty of the authority...to meet fees and other necessary costs of the child's attendance at the specified school.'* (p.31). (Circumstances are stated in which such placing requests can be refused by the local authority and admitting a child remains dependent on the school management's decision.)

During consultation on the Bill,¹¹ opposition was voiced that if parents had the option to go for independent special schools this would not be considered compatible with inclusion; however, others argued that parents should have this choice if *"...the school would be able to offer specialist support to the pupil not available elsewhere."* (p.25.) Importantly, *"Representatives from independent special schools were worried that once this comes into force schools may be overwhelmed by the demands for places."* (p.25.)

Legislative support for parent choice of independent special schools coupled with trends indicative of increased complexity of need, suggest that far from being an anachronism made redundant by educational inclusion policy, independent residential special schools have a key role to play in the spectrum of future provision. It is worth remarking that in England one of the country's most prestigious residential special schools, Sunfield School in Worcestershire¹², which caters for children directly comparable to those attending Camphill School, is at present embarking on a ten-year programme of expansion. This reflects a judgement that increased and improved provision – not contraction - will be required over that period. The head teacher and chief executive of this school, Professor Barry Carpenter, considers that such schools are in reality making a major contribution to the inclusion agenda as the children catered for would otherwise be totally excluded from the educational system due to its inability to support such pupils¹³.

¹¹ Scottish Executive (2003) *Report of the Consultation on the Draft Additional Support for Learning Bill*. Edinburgh: Scottish Executive. www.scotland.gov.uk

¹² <http://www.sunfield-school.org.uk>

¹³ Personal communication, 28 September 2004.

Discussion with the Scottish Executive Education Department (see above, Section 2.1) indicates that the Department's view is that provision under the new Act will *not* result in increased placing requests with respect to independent residential schools. However, even if this proves to be the case, such requests may increase because of increased prevalence of children with complex needs whose needs cannot be met in local authority provision. The author's own view is that the downward trend in referrals to independent residential schools of the past 12 years will at the very least be checked, and that there is a probability of an increasing rate of referral. This will occur because of (a) parents exercising their right under the new educational legislation to choose independent residential schools for their children, and (b) the increased prevalence of children with complex disabilities who cannot be catered for in local authority schools.

3.3 Policy and adult provision

Increased survival among people with learning disabilities has also been established leading to a growing population of older people who outlive their parents. Half of this population now have a life expectation comparable to the rest of the population. Those with Down syndrome are vulnerable to developing Alzheimer disease from the age of 30 onwards while others have a normal life expectancy and will live to develop age-related illness comparable to the rest of the population.

Scottish Executive policy¹⁴ is directed to the social inclusion in the community of adults with learning disabilities, i.e. they should have the opportunity to live in ordinary housing with appropriate support, where possible be employed, and be able to access all community facilities available to the general population. Nevertheless, the need for special provision and support when required is acknowledged. Importantly, a strong emphasis is placed on personal choice as to where a person wishes to live. With respect to Newton Dee, there can be little doubt that villagers who can indicate directly where they wish to live would choose to remain in Newton Dee. The five villagers

¹⁴ Scottish Executive (2000) *The Same as You? Scottish Executive Review of learning disability services*. Edinburgh: Scottish Executive.

interviewed all clearly expressed the view stated by one of their number when asked if they would wish to leave if the AWPR was built: “*Why would we want to leave? This is our home!*” In addition, there is a waiting list of three people wishing to join the community. The waiting time is reported to be two years. Irrespective of the AWPR being built, and in the light of the social inclusion agenda and diminishing resources available to maintain the village, our view is that Newton Dee will continue to support its present ageing population for some years to come, against a background of slowly declining numbers.

3.4 The future of the Camphill communities

It is important in considering future trends to bear in mind that the present predictions are based on differing assumptions regarding the quite separate effects of (a) epidemiological trends, and (b) legislation and policy in Scotland.

To summarise: There is a predicted increase in the prevalence of children with complex needs. Though the aspiration of the Scottish Executive Education Department is for these children to receive their education in local authority schools, parents now have the right to apply for education in independent residential schools. The author’s view is that more will avail themselves of this option. Taken together, the two trends will lead to independent schools maintaining and increasing their intake.

With respect to adults, Scottish Executive policy directs that except in a limited number of cases (e.g. individuals with learning disabilities with forensic needs) adults should live in ordinary community settings as described above. Referrals to village communities will typically be resisted and will decline. Despite greater longevity of people with learning disabilities and an increase in overall prevalence of people 50+ years, it is not predicted that this will feed through to increased referrals to such communities. Where elderly people with learning disabilities have high nursing needs, it has already been demonstrated that Newton Dee provision is in some cases unable to meet such needs.

Therefore, Murtle Estate will continue to have a numerically small but important part to play in the spectrum of educational provision for children with highly complex needs. It is predicted that this role will increase in the coming years.

Newton Dee will continue to provide for its present villagers for many years, but due to implementation of the community care agenda leading to fewer referrals, we would anticipate a slow contraction of numbers as villagers leave or die and are not replaced by new referrals. With respect to the AWPR if constructed, this overall picture indicates that the Newton Dee community and road would have to co-exist for several years to come.

Section 4 Environmental influences on the Camphill communities of people with developmental disabilities

4.1 Environmental stress and developmental disability

The impact of environmental stress on the mental health and well-being of people with learning disabilities is also well documented¹⁵. Studies of extreme stress in areas affected by conflict, e.g. the Gaza strip and Northern Ireland, demonstrate just how damaging such events can be. In general terms we take this as read. Any individual may be positively or adversely affected by stressful events. This applies to people with learning disabilities generally, but is especially the case for those with complex needs however, there is increased vulnerability to stress arising from an inability to control, modulate or “gate”, sensory input¹⁶. This in turn may lead to increased anxiety, alarm and avoidance of the stressful situation, which may be realised in seriously violent or self-injurious behaviour. For some individuals such a pattern of responding is viewed as *Sensory defensiveness syndrome*¹⁷.

A wide variety of stressors have been described in the literature on mental health and learning disability. Among the principal ones noted in a recent consensus document¹⁸ on this topic the following are noted:

- a. *transitional influences*: movement within a service from one house to another or day activity to another. How much control *does* a person with learning disabilities have over changes in a service when policy dictates change whether for resource or for philosophical reasons?
- b. *developmental transitions*: e.g. the onset of puberty or the start of menstruation or age-related changes that reduce physical and/or mental capacity

¹⁵ Rush, A.J. & Frances, A. (eds.) (2000) Treatment of Psychiatric and behavioral problems in mental retardation: Expert Consensus Guidelines Series. *American Journal of Mental Retardation*, **105**, 159-228.

¹⁶ Dunn, W. (2001) The sensations of everyday life: Empirical, theoretical, and pragmatic considerations. *American Journal of Occupational Therapy*, **55**, 608-620.

¹⁷ Stagnitti, K., Raison, P. & Ryan, P. (1999) Sensory defensiveness syndrome. *Australian Occupational Therapy Journal*, **46**, 175-187.

¹⁸ Rush, A.J. & Frances, A. (eds.) (2000) Treatment of Psychiatric and behavioral problems in mental retardation: Expert Consensus Guidelines Series. *American Journal of Mental Retardation*, **105**, 159-228.

- c. *environmental*: stress arising from work or occupational pressures, an un-stimulating *or* over demanding environment, or adverse living circumstances, e.g. noisiness, overcrowding
- d. *social influences*: lack of good, supportive relationships; hostility and rejection; destabilising contacts, e.g. intermittent contact with a family member; emotional, physical or sexual abuse (including bullying, taunting, exclusion and exploitation)
- e. *physical ill health*: problems arising from the consequences of sensory and/or physical disability, acute or chronic illness
- f. *frustration* due to inability to communicate needs and wishes, absence of choice, awareness of own limitations

Clearly the impact of the construction and operation of the AWPR might lead to stressors in a number of these categories. While (c – *environmental stress*) is the most obviously relevant, enforced changes in lifestyle (a – *transitions*), and changes in social behaviour due to curtailment of activities (d – *social influences*) might also play their part.

What are the implications of research in this area for those who live in these Camphill communities? Given that it is accepted that they are susceptible to stressors in many of the same ways as the rest of the population, what would suggest that they are additionally vulnerable? Table 1 notes types of developmental disability associated with hypersensitivity to a range of stressors. We also note whether this information is relevant to pupils and villagers. Given the limited information available on Newton Dee villagers, what is presented here is considered to be, if anything, an underestimate of people's responses where there are specific conditions that make them vulnerable to the kind of stress with which we are here concerned.

As may be seen in Table 1, individuals with many of the conditions associated with sensory hypersensitivity and difficult social-emotional behaviour live in Camphill. A more precise quantification of the link between the conditions and such vulnerability would require a more exact appraisal of individuals, especially in Newton Dee. Table 1 and the associated behaviours, detail the developmental disabilities and sensory sensitivities of a variety of conditions.

Table 1 Association of developmental disabilities and sensory sensitivity

Condition	Consequences	Relevant to Camphill?
Developmental disability ¹⁹	Auditory & other sensory hypersensitivities	✓
Autistic Spectrum Disorders (ASD) ^{20 21}	Hypersensitivity to noise hear too acutely	✓
Asperger syndrome	Often over-sensitivity to sound & other sensory input & difficulty in coping with change	✓
Fragile-X syndrome ^{22, 23}	Hypersensitivity to social & sensory stimuli	✓
Williams syndrome ^{24 25}	Hypersensitivity to sound	-
Costello syndrome ²⁶	Hypersensitivity to sound, tactile stimuli, sleep disturbance	-
Attention Deficit Hyperactivity Disorder (ADHD) ²⁷	Poor sensory processing	✓
Developmental Delay	Poor sensory processing	✓
Schizophrenia	Poor sensory processing	✓
Williams syndrome ²⁸	Noise sensitivity—clapping ears & crying, challenging behaviour; emotional insecurity; ADHD;	-

¹⁹ Baranek, G.T., Foster, L.G. & Berkson, G. (1997) Sensory defensiveness in persons with developmental disabilities. *Occupational Therapy Journal of Research*, **17**, 173-185.

²⁰ Link, K.M. (1997) Auditory Integration Training: sound therapy? Case studies of three boys with autism who received AIT. *British Journal of Learning Disabilities*, **25**, 106-110.

²¹ Sudhalter, V. & Belser, R.C. (2001) Conversational characteristics of children with Fragile-X syndrome: Tangential language. *American Journal of Mental Retardation*, **106**, 389-400.

²² Belser, R.C. & Sudhalter, V. (2001) Conversational characteristics of children with Fragile-X syndrome. *American Journal of Mental Retardation*, **106**, 28-38.

²³ McIntosh, D., Miller, L., Shyu, V., & Dunn, W. (1999) Sensory modulation disruption, electordermal responses and functional behaviors. *Developmental Medicine and Child Neurology*, **41**, 608-615.

²⁴ Enfield, S.L., Tonge, B.J. & Florio, T. (1997) Behavioral and emotional disturbance in individuals with Williams syndrome. *American Journal of Mental Retardation*, **102**, 45-53.

²⁵ O'Reilly, M.F., Lacey, C. & Lancioni, G.E. (2000) Assessment of the influence of background noise on escape-maintained problem behavior and pain in a child with Williams syndrome. *Journal of Applied Behavior Analysis*, **33**, 511-514.

²⁶ Kawame, H., Matsui, H., Kurosawa, K., Matsuo, M., Masuno, M., Ohashi, H., Fueki, H., Aoyama, K., Miyatsuka, Y., Suzuki, K., Akatasuka, A., Ochiai, Y. & Fukushima, Y. Further delineation of the behavioural and neurologic features in Costello syndrome. *American Journal of Medical Genetics*, **118A**, 8-14.

²⁷ Dunn, W. & Bennett, D. The performance of children with ADHD on the Sensory Profile. *Occupational Therapy Journal of Research*. (In press.)

²⁸ Gosch, A. & Pankau, R. (1994) Social-emotional and behavioural adjustment in children with Williams-Beuren syndrome. *American Journal of Medical Genetics*, **53**, 335-339.

In addition, there is an association between some conditions and individuals actively looking for stimulation referred to as *sensory seeking*. This is evident, for example, in children with Williams syndrome who will seek out and approach other people. Some individuals with autism will be attracted to machinery and traffic, as reported for some of the children and adults in Murtle Estate and Newton Dee.

Clearly sensory sensitivity and sensory avoidance have different implications for managing a situation in which there is a major transition to increased stimulation from construction activities and operation of the proposed road.

It is anticipated, therefore, that we are dealing with individuals who are potentially vulnerable to the projected construction and operation of the AWPR with respect to sensitivity to the noise impact of the road and with regard to seeking out contact with people and events associated with the road.

4.2 Specific potential stressors during road construction and operation

Our present concern is with the impact of environmental events and change, on both pupils of the school and villagers in Newton Dee. There is a wide range of potentially damaging factors associated with construction and operation of the road that have been raised during discussion with staff, pupils and villagers. Principally these are; the impact of noise during construction (Section 4.2.1.4); traffic noise during the operation of the road (Section 4.2.1.5); the attraction of people working on site and machinery during construction and vehicles on the road during operation (Section 4.2.2); and the restrictions put on movement around what is viewed as an integrated community during both phases (Section 4.2.3), but particularly with respect to such restrictions once the road is operational. Although for the purpose of discussion these consequences can be considered separately, they need also to be brought together to consider their cumulative impact.

4.2.1 Noise

Though by no means the only significant concern of members of the Murtle Estate School and Newton Dee, the noise generated during road construction and its subsequent operation is of particular importance. This concern arises from the centrality of the inherent, rural tranquillity of the site at present and the significance of the natural world in Steiner's own philosophy. The level of detail available is important when assessing the noise associated with the proposed road. We will therefore review briefly the information provided by John Rowland and Stephanie Baldwin (Jacobs Babbie, Principal Environmental Consultants; September 24 2004 and subsequent correspondence). The following comments are based on spreadsheets related to noise during construction and operation of the road.

4.2.1.1 Background to predicted noise

In order to put the following observations in context, a brief account of issues relating to the measurement of sound follows. The information provided on the impact of sounds generated during road construction and operation on both Camphill communities is based on the measurement of the pressure or force exerted by sound waves, with increasing pressure generating increasing loudness or volume. The loudness of a sound or *sound pressure level* (SPL) is measured in decibels (dBs), with zero decibels representing the threshold of human hearing and a maximum level for human hearing of 120 dBs at which pain may be experienced.

This picture is complicated by the existence of different ways of expressing the SPL, which provides a measure of ambient noise, i.e. the total of all sound sources at a given place. For example, the average SPL from a number of sources over a given period may be determined and expressed as the equivalent sound pressure level - Leq,T where T is the time over which measurements were taken. For the measurements provided by Jacobs Babbie in the present assessment, T=18 hours, the period from 6.00am to midnight.

The maximum level – Lmax - of individual noise events may also be recorded. Since the human ear is more sensitive to some sound frequencies than others, it is possible to correct this measurement to take this into account. This correction is known as the “A-weighting” and is accordingly indicated in the metric - LAeq,T. Two further measurements should be noted: LA10,T is the A-weighted ambient noise exceeded for 10% of the time during the period of measurement, again 18 hrs in this case. This gives an indication of the noise level during noisier periods. LA90,T is the A-weighted ambient noise exceeded for 90% of the time during the period of measurement and gives an indication of noise during quieter periods. LA10,T is the more commonly used measurement to assess traffic noise. Specific noise contributes to ambient noise but arises from a specific source. In the present situation the operation of a particular piece of machinery would contribute such specific noises.

The term “noise” itself is in practice defined as *unwanted sound*. Transportation noise, including road traffic noise, is considered to be the main source of environmental noise pollution. However, it is also acknowledged that noise from construction can present significant environmental pollution, though because of its temporary nature it is typically better tolerated than noise, which occurs continuously over much longer periods.

The impact of road construction and operation has, of course, to be evaluated against existing ambient noise levels. These are LAeq18hrs =41.6dB on Murtle Estate and LAeq,18hrs=43.8dB at Newton Dee based on measurements undertaken between Tuesday 27 July 2004 and Monday 2 August 2004. Both sites are considered to be within a quiet rural setting.

4.2.1.2 The impact of noise on Camphill communities

The predicted information on noise levels that have been provided by Jacobs Babbie for the present report is considered to be **preliminary**. Further development of traffic information, scheme design and construction methods may change the predicted noise levels. Also mitigating measures such as the

use of temporary or permanent noise barriers and quieter plant would further reduce the noise levels stated below. When revised predictions of noise levels become available, taking account of a range of mitigation measures, then the predications of the impact of construction activities on pupils and villagers might require revision.

Understanding of the effects of noise on people generally is still limited. For the present purpose, however, such information provides a baseline against which to set the possible effects of the construction and operational phases of the AWPR on individuals who are significantly more vulnerable to the effects of noise than their peers without developmental disabilities.

While most sources of environmental noise are usually outdoors, transmission into buildings may also have detrimental effects. We therefore also review the impact of the estimated noise levels on the life of the children and villagers in indoor settings during day and night time.

The specific effects of noise on a wide range of functions and activities are reviewed in the World Health Organization (WHO) document *Guidelines for Community Noise*²⁹. This report focuses on areas of particular concern with respect to the impact of the AWPR on the present communities. In each of the following sections the general concerns and recommendations of WHO are summarised. Figures from Jacobs Bابتie's preliminary noise calculations are then set against these comments, and where available, ambient noise levels. The particular additional vulnerabilities of pupils and residents living in the Murtle Estate and Newton Dee are then considered in relation to the impact of the AWPR against this background, which is principally concerned with the responses of people without disabilities.

²⁹ Berglund, B., Lindvall, T. & Schwela, D.H. (1999) *Guidelines for Community Noise*. Geneva: World Health Organization.

4.2.1.3 Noise and school and work performance

Both children and adults can be adversely affected by noise when undertaking complex tasks, particularly with respect to reading, attention, problem solving and memorising material. Sudden noises can result in disruption of on-going activity. Aircraft noise in particular can lower school performance on a range of tasks. The WHO report recommends that schools and day care centres should not be located near major noise sources, such as highways, airports, and industrial sites. Under such conditions direct effects on children's stress as measured physiologically have been reported, while adults make more errors at work and possibly are more prone to accidents.

The specific WHO recommendations with respect to both internal and external noise levels in schools and day centres (the nearest point of comparison to Newton Dee) are clearly spelled out with particular reference to the critical effects of noise on speech interference, disturbance of comprehension and reading acquisition, communication and annoyance: *'To be able to hear and understand spoken messages in classrooms, the background sound level should not exceed 35dB LAeq during teaching sessions. For hearing impaired children, a still lower sound level may be needed... for outdoor playgrounds the sound level of the noise from external sources should not exceed 55dB LAeq, ...'*

Given the nature of the special needs of both pupils and villagers it is essential to go beyond these educational and work-related effects of noise. What is the likely impact of construction and operation on their mental well-being during these phases? The view expressed in the WHO report on the effects of environmental noise on mental health is that while such noise may not directly cause mental illness, it can intensify and accelerate the development of such conditions. No specific noise levels are recommended, however, with respect to the effects of noise on vulnerable individuals' mental health. Social and behavioural effects of noise are acknowledged to be the outcome of a range of factors that go beyond noise itself, and include social and psychological influences. Attention is drawn particularly to noise above 80dB(A) which may also reduce helping behaviour and increase aggression. It

is noted: *'There is particular concern that high-level continuous noise exposures may increase the susceptibility of schoolchildren to feelings of helplessness.'*

4.2.1.4 Effect of noise during construction

During the currently projected 67 week period of construction in the vicinity of Camphill and Newton Deethere would be a shifting level of ambient noise related to where the principal activity is undertaken. This would vary with the distance from where the activity is being undertaken. In addition, these projected levels would vary with the distance and location of the various parts of both communities from the on-going work. The maximum impact would be when work is undertaken immediately adjacent to the communities, i.e. between the River Dee and the disused railway line. It is predicted that construction work would last 20 weeks (five months) in this locality. Bearing in mind the recommended outdoor noise level of 55dB LAeq,T cited above, noise levels are predicted to be in excess of this level for the 20 weeks, at both Robert Owen House and Fedelma (residential houses) which are the closest receptors to the construction work, located on the Murtle Estate. The predicted noise levels have the potential to be reduced by the introduction of barriers either close to the source or close to the receiver. Taking the anticipated maximum reduction afforded by a localised barrier, noise levels are likely to remain above 55dB during this phase of construction.

Beyond week 21 when the majority of construction activities are furthest away from Murtle Estate and Newton Dee, projected noise levels are below 55dB at Robert Owen House. It is expected that there will be 25 weeks during the construction of the River Dee bridge when Fedelma would experience noise levels of greater than 55dB. This bridge work runs concurrently with the road building on the immediately adjacent site. Again, further sound reductions are possible from the positioning of more localised noise barriers closer to individual sources of noise.

The impact of noise on Newton Dee during construction would be appreciably less than for Murtle Estate. However, noise levels associated with the River Dee bridge construction would be likely to exceed 55dB for 20 weeks out of

the first 21 weeks of construction. There is the potential for intermittent, specific noise from individual pieces of machinery to exceed these levels further.

Following the first 22 weeks of construction, ambient noise is predicted to fall although remaining above the existing average ambient level of 41.6dB LAeq,18hrs at Murtle Estate and 43.8dB LAeq,18hrs at Newton Dee.

The preceding figures are WHO recommendations for *typical* children in *typical* schools. As we have shown, a high proportion of the children in Murtle Estate and some adults in Newton Dee would have a much lower threshold for disturbance by ambient noise at lower levels than would affect typical children and adults. Given this lower threshold for negative effects of noise, the time for which such disturbance would exceed the first 36 weeks of construction. This would not be for the full duration of construction, however.

Though it is not possible to quantify how long such an effect would last or the proportion of children or adults who would be adversely affected by noise arising from the construction phase, it is considered that there is a high risk of detrimental effects on a proportion of children. Without detailed clinical assessments it is not possible to be specific about this proportion. Such consequences would have a ripple effect with respect to other children not directly sensitive to construction noise, both as a result of the disturbed person's behaviour and the activities of staff in their efforts to cope. Such activities would involve withdrawal of attention from children who are not showing disturbance as well as the direct impact on such children of their peers' behaviour.

The vulnerability of people with complex developmental disabilities to environmental stress, including noise, described in Section 4.1, suggests *the potential* of the road construction phase to exacerbate the behavioural and mental health problems of some children and adults. Though predicted external noise levels would fall well short of the 80dB noted above, we would anticipate that the mental well-being of some children would be significantly affected. This judgement is made on the basis of the well-documented vulnerabilities of children with the specific syndromes described in Section 4.1

above. Again, on the basis of the broad information provided to date, we cannot be specific regarding numbers. A detailed review of each child would be called for.

During construction, noise would probably be a significant stressor for some children attending Murtle Estate school. As noted this effect would not be limited to the individual but would affect staff and other pupils. Other adverse influences would also come to play, notably the potentially disruptive presence of unfamiliar people and machinery which we discuss more fully in Section 4.2.2. The overall impact of construction is therefore likely to affect the social life of the community putting it under significant and damaging pressures during this phase. This risk would be at its highest during the first five months of construction, but is likely to extend beyond that period.

Though some individual villagers in Newton Dee may be adversely affected by ambient noise during construction, we would not anticipate that members of the community would be put under significant stress as would be the case for children living on Murtle Estate, nor would the overall social ecology of the village be significantly damaged. This judgement is influenced by the observation that much higher levels of intermittent, specific sound occurs on the farm and in the workshops at Newton Dee. Again, evaluation of the impact on individual villagers is called for.

Further review of construction phasing and methodology will be undertaken in conjunction with further development of the design. This will include reviewing the construction sequence to specifically address construction noise. Any such review would be undertaken in conjunction with an evaluation of the impact on individual pupils or villagers to update the assessment.

4.2.1.5 Effect of noise during road operation

Noise from the road during its operation has been predicted for each building or cluster of buildings on both the Murtle Estate and Newton Dee communities. These predictions have been made on the assumption that the road has been paved using a quiet road surface, which can be demonstrated to reduce road traffic noise. Daytime external facade noise levels predicted for

the Murtle Estate range between 37.8dB LAeq,18hrs (ground floor Mica) to 53dB LAeq, 16hrs (ground floor Mignonette). These are based upon a two way total traffic flow of 32,462 vehicles with 1.9% heavy goods vehicles (HGVs). Noise levels are predicted to be reduced by between 0-4dB depending on location, through the construction of a 3m noise barrier to the west of the road. With respect to the two locations identified, the predicted attenuation by the noise barrier is marginal, resulting in a reduction in noise levels to 37.6dB and 52.3dB respectively. For other locations the impact would be greater, e.g. for Robert Owen House ground floor the noise barrier would lead to a predicted reduction in noise from 50.5dB to 46.7dB.

These figures fall within the WHO recommendation for external environments for typical children. There is a risk in the present situation that for some children with complex developmental disabilities this level of noise would, however, be stressful and detrimental. In contrast to the construction phase, the noise would be a relatively consistent background noise falling below a level that, as a point of reference, is associated with listening to speech at a distance of 3m, i.e. 55dB. The operational noise should be viewed as “continuous noise” given the predicted traffic flow. Sensory adaptation (i.e. filtering out the noise) by most children to this level and consistency of noise in the external environment over time would be anticipated. Such a view is reinforced by the fact that similar schools operate successfully close to busy roads where adaptation to increasing noise has been made.

Predicted daytime façade noise levels for Newton Dee are lower overall than for Murtle Estate. They range from 41.3–48.5 dB, LAeq 16hrs assuming that the road is constructed using a quiet road surface. In this case additional mitigation measures such as the construction of noise barriers are not considered to be necessary. Some adults may be adversely affected by the higher noise levels in certain locations while working outdoors. However, the projected noise levels are close to the existing ambient noise levels (see Section 4.2.1.1) resulting in less disturbance for Newton Dee than for Murtle Estate as a result of increased distance of the former from the road. In addition, many of the villagers work indoors, e.g. the bakery and woodwork

shop. In the latter, far higher levels of machine specific noise occur intermittently and have not been reported to be detrimental to villagers.

4.2.1.6 Effect of ambient noise in classrooms and inside work areas

With respect to internal noise generated by the operational phase of the AWPR, the WHO recommendations for schools has been used. The relevant bench mark is a maximum noise level of LAeq 35dB during teaching sessions. Projected noise levels for the school house at Murtle Estate and associated buildings (i.e. Mica, Tourmaline and Pyrite) fall well within this recommendation. Two levels are predicted for Mica 22.6dB LAeq(ground floor) and 24.1dB LAeq(upper floor), with windows left open. This is low level sound, less than the *present* outdoor level and we would not anticipate it would have detrimental educational effects.

Internal noise in other dwellings is consistently higher, i.e. with respect to Robert Owen House, Mignon/Columbine, Mignonette, St Machar and Heather Dee. Sound levels for ground floors range from 31.7 to 37.3dB LAeq, 16hrs and upper floors from 32.9 to 38.5dB, LAeq 16hrs, with windows left open.

4.2.1.7 Effect of ambient noise on sleep patterns

In addition to the impact of the road on activities carried out during the day, it is also necessary to consider possible sleep disturbance. As noted in Section 4.1, poor sleep patterns are closely associated with people with developmental disabilities. WHO observations on sleep disturbance are therefore particularly pertinent: *“Measurable effects of noise on sleep begin at LAeq levels of about 30dB. However, the more intense the background noise, the more disturbing is its effect on sleep. Sensitive groups mainly include the elderly, shift workers, people with physical or mental disorders and other individuals who have difficulty sleeping.”* It is recommended that if sleep problems are to be avoided when noise is continuous, the equivalent ambient noise should not exceed 30dB(A) indoors. Not unexpectedly, specific loud noises would also affect sleep and their occurrence should also be taken into account, with 45dBmax not being exceeded. However WHO suggests that for those prone to sleep disturbance, a lower (but unspecified level) should be set.

Predicted internal night time noise during operation of the road varies both within and between Murtle Estate and Newton Dee. Predicted night time LAeq 8 hour noise levels for Murtle Estate rooms with windows open ranged from 12.6-27.3dB on the ground floor of the children's homes, and 14.1-28.3dB for the upper floor. Bedrooms with the window open, therefore, are generally predicted to have noise levels that comply with WHO guidance for acceptable conditions promoting good sleep for typical children. Such noise levels would however have the potential to create sleep disturbance for several of these pupils. However, these figures fall for predicted noise levels with windows closed. With the additional attenuation afforded by closed windows, such reduced levels are unlikely to directly affect sleep patterns. However, disruption of behaviour and mental well-being during the day through the construction phase may indirectly lead to sleep problems subsequently. That is, behaviour that has become disturbed during construction may not come to an end immediately on completion of the road. During the operation of the road it may persist, and may in turn affect sleep quite independently of acceptable noise levels.

The equivalent noise levels for Newton Dee are overall lower than for Murtle Estate. For ground floors the range is 16.3dB-224.1dB and upper floors 17.5-23.5dB with windows open. These reduce significantly with windows kept closed. It is not anticipated that these levels would significantly affect sleep, though again villagers emotionally disturbed during the construction phase by noise may remain so after its completion with the result that both their behaviour and sleep patterns would continue to be affected.

4.2.1.8 Overall conclusion on impact of ambient noise

During construction of the AWPR there is a high risk of a negative impact of external noise on certain children in the Camphill School, Murtle Estate. This would be exacerbated by the wider disruption discussed below in Sections 4.2.2 and 4.2.3. This impact may extend beyond individual children's mental well-being and affect the wider social ecology of the community.

Should road construction proceed, there would be a need for proactive planning to minimise these difficulties. These should include consideration of

the schedule of construction, e.g. can construction begin at the on-set of the summer holiday allowing five weeks in which children would not be attending school? This, however, covers less than a quarter of the construction phase and would at best only be a partial answer. Relocation of pupils during construction would extend the period away from construction activity. However, in the light of the foregoing review of the vulnerabilities of the pupils this would in itself be extremely disruptive. Such an option could only be considered in discussion with staff and co-workers and with a detailed appraisal of the careful preparation that would be required.

If the school remains operational during construction, preparation of staff and pupils should be undertaken. Additional staff resources and support for children and co-workers would be required. It has been noted that construction noise would not impact *directly* on children in classroom (i.e. noise levels would not disrupt teaching) or in their home setting. However, the effect of external noise and other disruptive activity may create psychological and behavioural difficulties, which also manifest themselves in these indoor environments.

It is not anticipated that external ambient noise from operation of the road would lead to general and prolonged negative effects on the children. This judgement is based partly on the likelihood of sensory adaptation to road sound and the demonstrable viability of residential special schools located near busy roads elsewhere. There remains the possibility that some individual children would continue to be affected and their support requirements would have to be reviewed and responded to.

Overall the impact of external ambient noise during construction on Newton Dee villagers is not expected to be as negative as for the children living on Murtle Estate. Any overall damage to the social fabric of the community is not anticipated though again the possibility of adverse effects on individuals should be kept under review and support needs responded to. Ambient noise arising from operation of the road in the longer term is unlikely to affect the overall quality of life in Newton Dee in a significant way.

4.2.2 People and machinery

It was noted in Section 4.1 that for some children and adults, far from being aversive, both construction activities and operation of the road would attract interest. Attempts may be made to approach both those working on the road and machinery during construction, and to approach vehicles using the road in the operational phase. These risks are undoubtedly present and it would be essential to manage them if the AWPR is built in this location. One casualty or death would be totally unacceptable to all parties involved. This raises the wider issue of risk management before, during and after construction of the road. This issue is considered in Section 4.2.4.

4.2.3 Contact within the community

As noted in Section 1, the Murtle Estate school, Newton Dee, and the Camphill school to the west of Murtle Estate are viewed as a single community by those who study, work and live in them. Though contact between the three groups is evident, the extent to which these communities are *functionally integrated* is difficult to determine. The principal physical linkage, which is all that need concern us here, is along the disused railway track to the north of Murtle Estate and Newton Dee which is a pedestrianised Right of Way. It is understood that this Right of Way is to be maintained on its current route following completion of AWPR, although temporary closure may be required during the construction phase. There is therefore no permanent loss of the exiting physical linkage between the sites.

The area between Camphill School and Murtle Estate school is cut by a busy road, the B979. Linkage between Murtle Estate and Newton Dee involves crossing or at least walking along the access roads into each community. Pupils and villagers who are independent travellers also have access to the extremely busy A93 to the north of the communities. Physical connections, then, are restricted, and other forms of joint activity, e.g. social events, can be affected through vehicular travel between the communities. Importantly, however, the nature of the present access to busy roads is, to this independent

observer, a matter of some concern with respect to potential risks, and it is to this issue we now turn.

4.2.4 Managing potential risks

The freedom offered to pupils and villagers within both Murtle Estate and Newton Dee is viewed from the perspective of the Steiner philosophy as an important element of the therapeutic value of such communities. This aspect complements the protective aspects of the work and is captured in the expression: *exposure and shelter*. The curtailment of the freedom of movement of pupils and villagers that might be expected during construction and operation of the road is, therefore, a principal concern of the communities. However, this needs to be considered in relation to risk from the present situation, one in which pupils and residents have access to busy roads, and on occasions have had to be brought back (unharmed) from Aberdeen by the police. The recent report by the Care Commission and HM Inspectorate of Education³⁰ did not identify such risks explicitly, but comments on the need for *improved security of education buildings with assistance of an expert in health and safety*" (p.2), alluding to the vulnerability of classrooms being accessed by unwanted individuals.

It may be noted that restriction of access to construction sites is understood to be a normal requirement for any area, however such measures may require enhancement in order to be fully effective with regard to the requirements of the Camphill and Newton Dee communities. In addition, it is considered that any permanent arrangements should incorporate further measures to prevent access to this area.

In considering the potential risks introduced by the AWPR, we would recommend that these be set against the present conditions, which are considered to be far from ideal and risk free. Such an appraisal could lead into an assessment of risk during construction of the road and its operation.

³⁰ Care Commission & HM Inspectorate of Education (2003) *Integrated Inspection by the Care Commission and HM Inspectorate of Education of Camphill Rudolf Steiner Schools, Aberdeen*. Edinburgh: Scottish Executive.

It is also understood that a forward process of Road Safety Audit will consider the details of proposed works from the point of view of all road users, including pedestrians. It is recommended that parties engaged in such work give careful consideration to proposals in relation to Murtle Estate and Newton Dee.

It is understood that a legislative requirement applying to construction projects requires the assessment of safety hazards as they may affect those engaged in construction, those affected by construction and those who use the completed works. In this context, it is considered that careful evaluation of health, safety and welfare issues at Murtle Estate and Newton Dee should be undertaken. Confidence in such an evaluation could perhaps be enhanced by the involvement of an independent organisation such as the Royal Society for the Prevention of Accidents, in its review.

Any required modifications could be introduced in advance of the start of construction. This would allow residents to adjust to curtailments in movement well in advance of having to cope with the immediate stressors associated with construction and operation discussed above. In Section 5 we discuss possible positive benefits that might be achieved in responding to risk.

Section 5 Conclusions

In **Section 1** we identified two perspectives from which the impact of the construction and operation of the AWPR could be considered.

- The first perspective might be referred to as the *conventional service model*. Two questions were posed:
 - Can a small school for children with complex disabilities provide education and support for pupils throughout the period of construction and subsequent operation of the AWPR in line with national educational policy?
 - Can a community such as that in Newton Dee continue to enjoy living and working in its present setting during these two phases of the AWPR?
- The second is that of the Camphill movement itself and those responsible for the Murtle Estate school and Newton Dee who work in the context of this philosophy. Here both entities consider that they make up a single community in which those who live in them can freely interact. The overall site is considered by them to have intrinsic qualities essential to the well-being and development of those who live there. The present quiet and natural environment is viewed as critical to achieving the aspirations of such communities.

5.1 Continued operation of Murtle Estate school

The pupils of Murtle Estate school are psychologically an extremely vulnerable group of children. If we consider them in relation to wider research evidence on children with comparable developmental disabilities, then the author's view is that their mental health and well-being are at risk from the adverse effects of the noise and activity that would accompany construction of the road, if insufficient mitigation measures are put in place. It is not possible to

be specific about such consequences for individual children given the available information. However, and again in the light of the wider literature, it may be suggested that these reactions will vary from extreme distress to poor concentration and possibly regression with respect to the progress they have made.

It is predicted that the operation of the road, however, would not have such significant effects, though some children may be disturbed by the on-going noise when out-of-doors. Noise in classrooms, however, is unlikely to be disruptive and ambient noise in bedrooms would not, in most instances cause, sleep difficulties. Where individual children do react to road noise emotionally or through sleep disturbance, individual support would be required, as is the case with any present difficulties.

If, despite the serious potential effects of road construction activity on the children, construction proceeds, maintaining the viability of Murtle Estate school should be viewed as an essential requirement in the overall process of radically changing the environment in which it functions. This requirement arises directly from the view expressed in the foregoing report, namely, our view that independent residential schools for children with complex disabilities have an important part to play in the spectrum of educational provision in Scotland. Our judgement is that, far from being a spent force, increased complexity and prevalence of childhood disability, coupled with an emphasis on parental choice, would ensure the need for such schools for many years to come.

The critical issue in the present judgement, then, is management of the impact of the construction phase on pupils and staff of Murtle Estate school should the road proceed. Unless temporary relocation of the school is considered to be less disruptive than remaining during construction, proactive preparation would be required. As yet no detailed information on the feasibility of such a move or its consequences has been provided. In our view, if the road is to proceed, it would not be acceptable simply to initiate construction and expect

pupils and staff to cope with what would undoubtedly be a profoundly adverse reaction. To minimise this:

- Children's possible reactions would have to be individually assessed and detailed planning as to how to support them through this phase undertaken. In a sense this would be an extension of planning individual educational programmes (IEPs) as recommended in the Inspectorate's report (p.7.). An IEP is based on a detailed assessment of an individual child's educational, social and emotional needs, specifies targets for that child, and the educational means by which such targets will be realised. Where feasible this extension of IEPs to embrace preparation for and support through the construction phase should be shared with pupils.
- Part of this planning process should be to review each child's physical proximity to the construction work. Already consideration has been given to relocating buildings on Murtle Estate, e.g. replacing Robert Owen House with a building further from the road
- Where feasible, children should be given the opportunity to understand what is entailed in the changes which would be going on around them and given appropriate support
- We would anticipate that risk assessments would show that a high degree of containment would be essential during both the construction and operation periods, i.e. children cannot be allowed to wander onto the construction site, or eventually, the road and its access roads. The security necessary to achieve this would in part be through restricting access to the road (i.e. walls, gates etc.) but may also entail additional staffing to control access to and from the Estate. A detailed appraisal of what would be required would be essential and these measures should be in place well before construction begins in order for pupils to have the opportunity to adapt to these before they experience the stress of

construction. Such measures would have resource implications and would impact on the overall ethos of the school

- The principal concern of staff would be to support the children and minimise stress on them. Though members of staff would be highly supportive of each other, they should have the opportunity to have independent support to cope with the stress they experience. This might be through colleagues in other Camphill setting or through independent counselling
- Since contact between the two schools and with Newton Dee is seen as a central feature of this community, attention will have to be directed to how this can be maintained. A realistic view is that there would be some curtailment during construction of independent travel. However, with the road established independent travel might be maintained through improvements in security between and around the main route of disused railway, e.g. an underpass walkway beneath the B979, high-sided natural barriers along the track. From the point of view of risk it might be argued that the construction of the AWPR might achieve a higher level of safety than is achieved under the current situation
- A final point that invites comment is the extent to which the physical changes required might enhance the present campus, or at least compensate for the loss of present amenities. For example, the proposed 3m noise barrier on the eastern edge of Murtle Estate presents opportunities to create a feature that could be both visually interesting and have leisure and educational value. It could offer interactive opportunities and help to assist desensitisation to the road noise for some children. The development of a “creative barrier” could, for example, be undertaken by pupils and staff in collaboration with local, Aberdeen, art and design students

5.2 *Continued operation of Newton Dee*

Residents of Newton Dee also include some highly vulnerable individuals with complex conditions. As with the pupils of Murtle Estate they are also at their most vulnerable during the construction phase, though here distance from construction activity is greater. We do not predict the potentially damaging effects anticipated for Murtle Estate in Newton Dee. However, the overall strategy of preparation advocated for Murtle Estate in Section 5.1 should also be put into effect for Newton Dee villagers. This would again involve support for both villagers whose individual vulnerabilities have been assessed and co-workers and would precede the on-set of construction.

As with Murtle Estate, risk assessment is called for. This should consider safety within the disused railway track walk, but also safety along the western edge of Newton Dee. Though no form of barrier has been proposed here, access to both the construction site and road when it is in operation require a formal risk assessment. Should Newton Dee residents be disturbed by operation of the road on its completion, then clearly on-going support would need to be given by co-workers and relevant professionals, as indeed as is the case now.

5.3 *The Camphill perspective*

The broad concerns of those responsible for the community were presented in **Section 1**³¹, i.e. that, first, the AWPR would:

- *exacerbate the very complex medical and social problems of many residents, such as asthma, allergies and epileptic conditions*
- *devastate the safe and tranquil environment – crucial to the success of Camphill's therapies with residents who are often overly sensitive, stressed by noise and have sleeping difficulties – with major construction work, then heavy traffic*

³¹ *The Threat to the Camphill communities*: <http://www.savecamphill.org.uk/threat.htm>

- *destroy the work, home, health, safety and recreation facilities of the residents*

The assessment given above provides, at least in part, confirmation of some of these concerns. Certainly during the construction phase there would be an exacerbation of the difficulties of many children and some villagers. For a smaller number, difficulties would continue subsequently during operation of the road. As presented in these Camphill comments, the difficulties that arise are irremediable and irreversible and catastrophic consequences would follow. That Murtle Estate pupils and staff would be put under extreme pressure during construction is fully acknowledged in the preceding analysis. Nevertheless, we do not subscribe to the vision of catastrophe presented. Though the road would reduce the tranquillity of the environment, it is questionable that reduction in safety is an inevitable consequence. It is also our view that the educational and therapeutic approaches employed are far more robust than is suggested in the above comments.

The second concern relates to the unity between Murtle Estate and Newton Dee, joined by a single philosophy:

- *Here both entities make up a single community in which those who live in them can freely interact. The overall site is considered to have intrinsic qualities essential to the Camphill communities and development of those who live there. The present quiet and natural environment is viewed as critical to achieving the aspirations of such communities.*

Any form of containment or restriction arising from the AWPR would destroy this unity and undermines the context in which the Steiner philosophy is realised. Our analysis indicates that from the perspective of the community important aspects of the present situation would be changed significantly. However, we view this as an issue of risk and environmental management and while fully acknowledging the concerns, believe the problems created are

manageable, and note that there are no proposals to close permanently any of the current linkages between the sites.

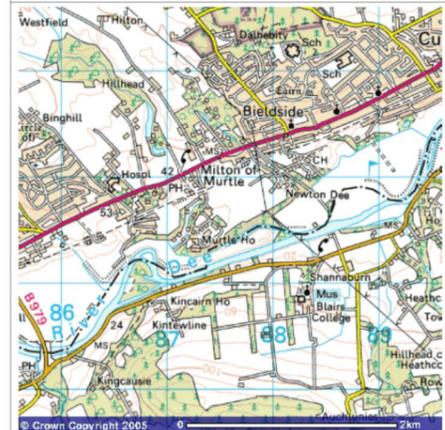
5.4 Concluding comment

The present analysis confirms some of the adverse effects of construction and operation of the AWPR on the Camphill communities predicted by those who live there and their supporters. From the perspective of conventional services, however, we would argue that both Murtle Estate and Newton Dee are viable as high quality services providing education, work and a productive life for individuals acknowledged to have extremely complex needs – provided the construction phase can be managed successfully. The authors' professional view is that the social and physical environment that would exist after road construction would not preclude continued realisation of the community's philosophy and mission, provided changes are managed appropriately and with adequate resources and support.

5.5 Further evaluation

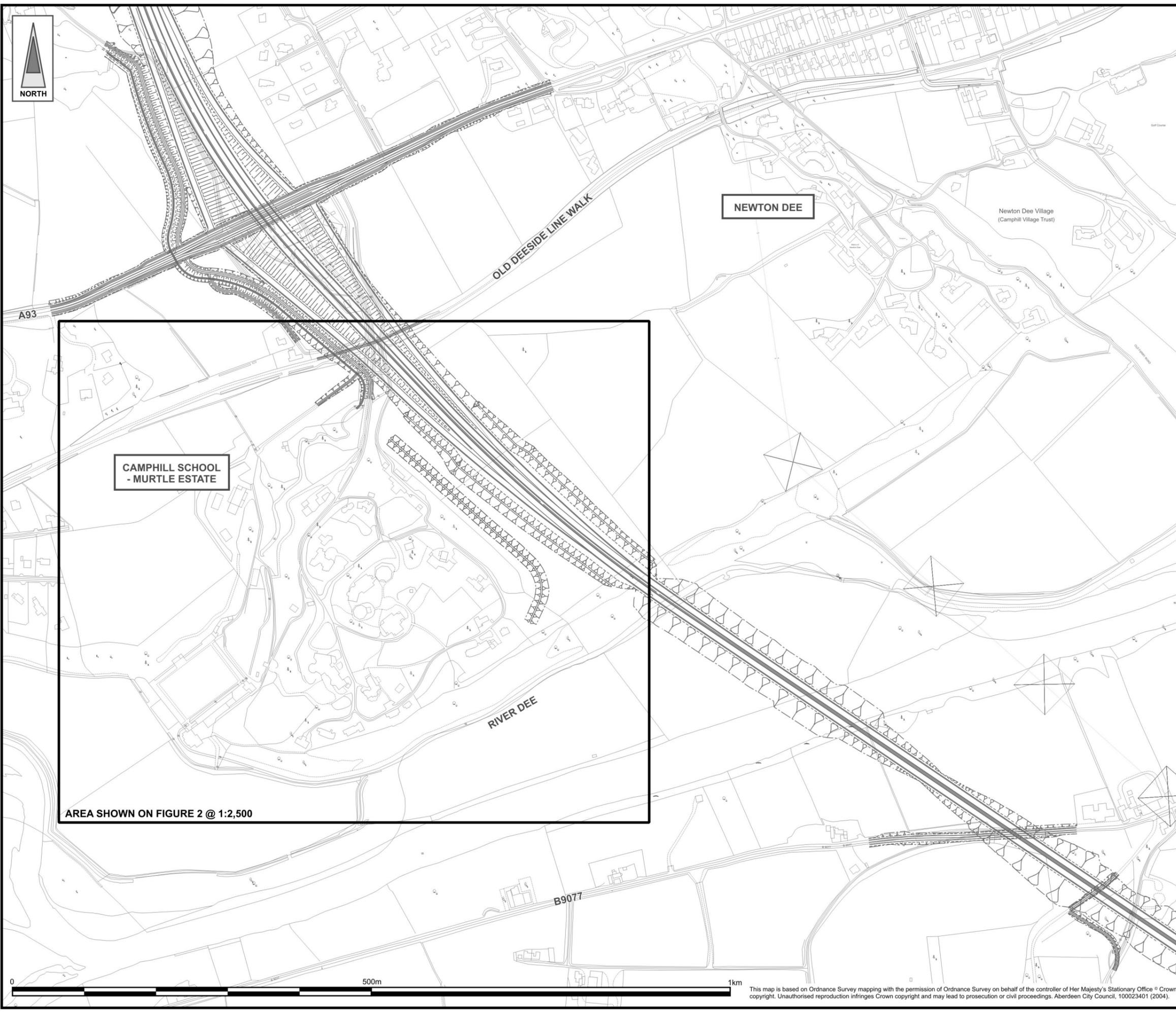
It is noted that work to develop the proposals for the AWPR, including detailed mitigation measures, is ongoing, and therefore it is proposed that these initial findings be the subject of further review when full details are available, leading to the completion of a final report.

FIGURE 1



LEGEND

 Indicative Location of the Proposed Aberdeen Western Peripheral Route



**CAMPHILL SCHOOL
- MURTLE ESTATE**

NEWTON DEE

OLD DEESIDE LINE WALK

Newton Dee Village
(Camphill Village Trust)

RIVER DEE

A93

B9077

AREA SHOWN ON FIGURE 2 @ 1:2,500

Rev	Date	Checked

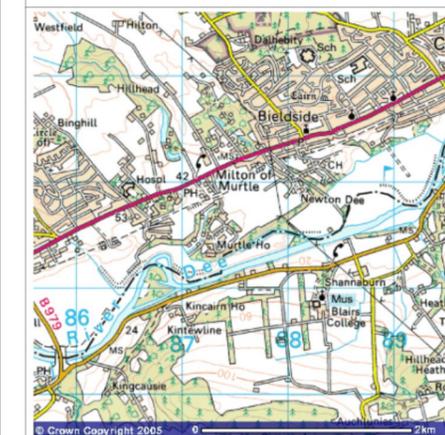
Client	
Project	Aberdeen Western Peripheral Route Camphill Communities Preliminary Psychological Assessment
Title	Camphill School, Murtle Estate & Newton Dee Location Map

Drawing No.	Figure 1	Revisions
Scale	1:5,000	Date Jan. 2005
Drawn	AMD	Checked JW
	signature	Approved JW
	signature	signature

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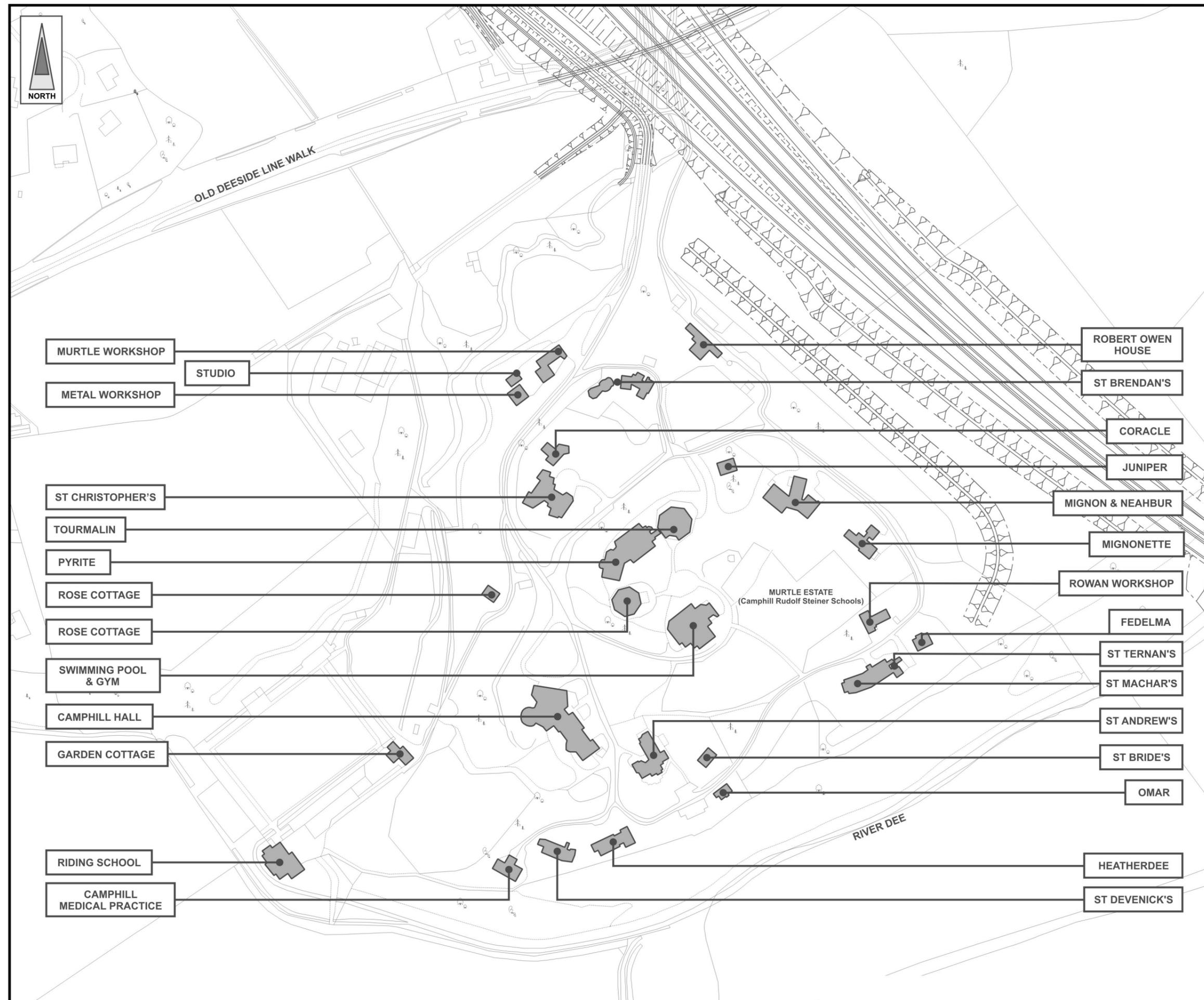
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FIGURE 2



LEGEND

 Indicative Location of the Proposed Aberdeen Western Peripheral Route



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Rev	Date	Checked

Client:  Aberdeen Western Peripheral Route

Project: Aberdeen Western Peripheral Route
Camphill Communities Preliminary
Psychological Assessment

Title: Camphill School, Murtle Estate
Site Layout

Drawing No.	Figure 2	Revisions
Scale	1:2,500	Date Jan. 2005
Drawn	AMD	Checked JW
		Approved JW

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