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ASSESSMENT OF ENVIRONMENTAL EFFECTS

Patricia Harte is a consultant Planner with Davie Lovell-Smith, Planners, Engineers and Surveyors of Christchurch. Ms Harte prepared planning evidence on behalf of Mike Greer Homes NZ Limited for the Waimakariri PDP hearing. Excerpts from Ms Harte's evidence relevant to an assessment of adverse effects are set out below:

Ms Harte's summary of potential impacts of the development draws from the specialist reports and evidence relating to transportation, visual/urban design, contamination, geotechnical and infrastructure assessments and evidence.

Residential land supply

1. Fraser Colegrave, an economist with particular experience of housing supply and demand in greater Christchurch, has prepared evidence relating to the proposed rezoning of the submitters South Kaiapoi site. He has based his assessment on an indicative layout plan which provides for 195 lots ranging from 235m² to 660m² with an average of 365m². He makes the following observations and conclusions:
 - a) *Waimak housing offers better value for money than Christchurch City. While median house prices have historically been similar, homes in Waimak are considerably larger, on average. Consequently, the tide of post-quake relocations from red zoned areas of the city, including into Waimak and Selwyn, has been sustained into the long term.*
 - b) *Second, the Covid-19 pandemic has caused people to reconsider what they really need and want from life, including where they want to live. With the rapid uptake of working from home and the newly emerging "hybrid working model" taking hold, many people are now even more willing to trade off proximity to the city in exchange for living in areas that better meet their day-to-day needs.*
 - c) *With both trends (a and b) likely to continue well into the foreseeable future, significant additional capacity will be required to keep pace with growth in housing demand.*
 - d) *Currently, there is little greenfield land available for development, with the consented stages of Beachgrove the only significant undeveloped land left in Kaiapoi. As at late 2023, Stages 1-4 had been developed and Stages 5 and 6 were selling. Along with future stages, these will provide around 300 further lots to be developed, after which there will be no more greenfield land to accommodate ongoing growth in demand for living in Kaiapoi.*
 - e) *Accordingly, new urban areas like the submitters site in South Kaiapoi need to be enabled as soon as possible to keep pace with demand for new dwellings well into the long term.*
2. With regard to the recent 2023 capacity assessment prepared for the Waimakariri District Council, Mr Colegrave is of the opinion that there are a number of aspects which overestimate supply. In particular there is no distinction between housing types when in fact there are different demands for housing types. He notes for example, that the average dwelling in Kaiapoi currently has 175m² of floorspace on a 690m² section, with an average of 3.3 bedrooms which is likely to exceed the requirements of many future households. In my opinion to satisfy Policy 1 of the NPS-UD which

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requires "a variety of homes that meet needs in terms of type, price, location and of different households" a range of smaller dwellings is needed to increase choice and promote affordability for people wishing to live in Kaiapoi.

3. The new Housing Capacity Assessment (**HCA**) was prepared to reflect new plan-enabled capacity associated with new Medium Density Residential Standards (MDRS). As noted by Mr Colgrave unsurprisingly, *"the 2023 HCA identified even greater capacity to meet demand than the 2021 version, mostly due to higher density options enabled by the MDRS and the NPS-UD."* However the assessment did not test whether there are sufficient land/sites for different dwelling types in locations, including potentially new locations. In Mr Colegrave's opinion this approach *"invariably masks a material shortfall for stand-alone dwellings in new urban areas, which are consistently in high demand"*.
4. I agree with Mr Colegrave that medium density typologies like duplexes and terrace houses are increasingly important pieces of the future housing puzzle, at least nationally, but there is currently limited demand for them in the Rangiora District. This opinion is supported by building consent data which I understand shows that 92% of homes in the last 10 years are standalone homes. Therefore, in my opinion, it would be unwise to provide for growth of housing in Kaiapoi based only on the 2023 Housing Capacity Assessment which appears to assume a significant proportion of new housing being multi-unit housing and therefore requiring less land. To do so would appear to overestimate the land available for new housing.
5. I also agree with Mr Colegrave that while the MDRS may have provided unparalleled boosts in plan-enabled capacity, much of this is theoretical and fails to acknowledge and meet local housing needs and preferences which are predominantly for standalone homes. Reliance on the plan-enabled approach is therefore very likely to provide insufficient land for residential development over time resulting in higher prices and consequential difficulties and hardship for people buying or renting.
6. The current Review of the Waimakariri District Plan under the RMA provides a logical and appropriate opportunity for consideration of, and provision for, the growth needs for all sectors of the community and District. As part of the review of the current District Plan capacity assessments of the likely demand and supply of land for housing were obtained and included in Urban Form and Development **Objective 1 Feasible development capacity for residential activities**. I assume that in some manner the Housing bottom lines in this Objective determined the extent of new zoning in the Proposed Plan. However it appears that most of the rezoning was of land that had already been identified in Map A of the Canterbury Regional Policy Statement. In my opinion the hearing and deciding of submissions seeking residential zoning should be undertaken with an open mind and with the real-world knowledge that rezoning of land that is not immediately required for development has no negative impacts on the environment or on the competitive operation of the land and development market.
7. Finally I note that Mr Colegrave concludes that *"recent reporting for the district, including the 2023 HCA, suggest that sufficient capacity is already being provided. However, as noted above, these conclusions are based on out-of-date cost data and unsubstantiated assumptions that limit their*

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reliability. Consequently, I do not believe the district has enough capacity to meet demand, with a lot more needed".

8. He therefore considers that in relation to the Mike Greer Home's South Kaiapoi site *"The proposal helps to plug this looming gap in feasible capacity by providing quality, master-planned housing that is in step with market demand and able to be realised at both pace and scale.*

Flooding

9. DHI have been involved in all the recent flood modelling of Kaiapoi undertaken for the PWDP and which is portrayed on the Planning Maps. The submitter requested Gregory White of DHI to undertake a detailed assessment of the flood risk of the site. This has involved a series of modelled flood events resulting from a breakout of the South Ashley River based on a 0.5% flood event. This flood event equates with a 1 in 200 year flood, which is the flooding standard used in the Proposed Waimakariri District Plan. He has prepared evidence describing this modelling, its impact on the site and the effectiveness of the proposed mitigation.
10. In response to this site-specific modelling MGH intend to raise the site to a level which ensures the land can be used for housing and new buildings as they will be above 0.5% flood event including a 500mm freeboard for new buildings. This provides a permanent response and one which will only involve cost for the developer. The modelled resulting flood levels in a 0.5% flood event are expected predominantly to be 0.1 to 0.5m with a maximum of 0.8m. The 0.8m deep areas are localised to small areas within the roading network. There will generally be a decrease in flood levels on surrounding properties, however the flooding will increase by 0.065m along Main North Road shown in orange in Figure 5 of Mr Whyte's evidence.
11. Jamie Verstappen's earthworks and infrastructure evidence also addresses matters relating to the potential flooding of the site. He confirms that the Council's flood mapping showing low to medium risk areas are generally suitable for new lots. With regard to the high risk along the Kaikainui and Courtney Streams on the northern and southern boundaries of the site and the low lying eastern portion, these areas are intended to be used as a stormwater treatment and detention area and/or recreation/esplanade reserves.
12. Mr Verstappen confirms that filling of the site to a depth of 1m is needed to ensure building platforms area above the 200 year level which will ensure minimum floor levels required by the pWDP are achieved.
13. The pWDP approach to flood hazard management seeks that that new subdivision and development with the existing urban environment is managed to ensure any increased risk to people is " low". There is no specification as to what constitutes low in relation to flooding return periods whereas for areas outside the urban environment people and property natural hazard risk is to be avoided or mitigated. However, Natural Hazard policy 2(NH-P2) for subdivision and development which relates to activities in **high flood hazard** area requires that development is managed to ensure that minimum floor levels are adopted to ensure the risk of life and potential

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damage to buildings from flooding are mitigated. High flood hazard is defined in the pWDP as relating to a 0.2% annual exceed probability with equates to a 1 in 500 year flood. On this basis the proposed development with its mitigation measures based on the lesser flood of 1 in 200 year flood (0.5%) will satisfy NH-P2.

14. The other relevant provision is Natural hazard Objective 3 Natural hazard mitigation which seeks that: *Adverse effects on people, property, infrastructure and the environment resulting from methods used to manage natural hazards are avoided or, where avoidance is not possible, mitigated.*
15. The mitigation proposed to limit flooding impacts on the site have been designed to limit any off-site effects. The only displacement effect appears to be along Main North Road in major floods, however I understand that the volume of flood water involved is such that compensatory works on site are possible to reduce this impact.

Servicing

16. The evidence of Mr Verstappen explains the various services can be provided in a manner that does not impact on neighbouring land or on Council's assets. Stormwater is to be provided for and managed on site including treatment and flow attenuation and utilizing existing flood prone areas. It will therefore have no off-site effects. Council's preferred wastewater servicing plan for the site involves a gravity sewer network discharging to the existing sewer network requiring upgrades to the current pressure network. If there is insufficient capacity to accommodate this proposal, upgrades can be undertaken using development contribution funding. With regard to water supply there are two points of connection to the existing network and a headworks upgrade to provide an additional 70 l/s. This headworks upgrade is underway.

Transportation

17. Matthew Collins report concludes that the site is well served by public transport to connect Kaiapoi to Rangiora, Christchurch, Woodend, Pegasus and Waikuku. It also has excellent access to local and strategic roading. The layout proposed in the amended ODP does not raise any issues with regard to transportation, with the proposed two site accesses located a sufficient distance apart to meet required standards. The site is anticipated to be permeable for residents and visitors with the detail of the internal walking and cycling network being determined by subsequent subdivision consents. This is expected to include the future provision of pedestrian or cycle infrastructure on the eastern side of MNR. Overall it is not expected that the traffic related impacts of the development of the site will be adverse in the immediate area.

Soil contamination

18. The report of Davis Robotham states that the site is not identified on the LLUR for hazardous activities. His site inspection indicated that there are a number of discrete activities and potential

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HAIL activities, however these are able to appropriately managed and therefore should not preclude rezoning of the site to Medium Density Residential.

Geotechnical

19. Neil Charters geotechnical evidence notes that the site has been used primarily for agriculture along with a dwelling. A large area of the site is consistent with medium liquefaction vulnerability (TC2) and two areas are TC3. The two geohazards identified for the site are surface deformation due to liquefaction and long-term consolidation settlement of certain materials across the site. These hazards are able to be mitigated through earthworks and ground improvement and therefore should not preclude the site being rezoned for residential purposes.

Noise

20. William Reeve's evidence assesses and comments on potential noise impacts on future residents of the site. The site is potentially impacted by three main noise sources, namely aircraft noise, road traffic noise and rail noise. The site is under the operative 50dBA Ldn aircraft noise contour, as is most of Kaiapoi. Aircraft noise impacts and associated plan provisions are being addressed in a separate hearing (Stream 10A (airport noise issues)). I prepared evidence for that hearing for Mike Greer Homes and Momentum Land Limited, and I stand by the views expressed in that evidence. In the circumstances noise it is not addressed in this evidence except in relation to cumulative noise issues.
21. Mr Reeve has calculated noise levels that area expected to be experienced on the site from Main North Road and the Main North Railway. He has used the Proposed District Plan noise standards and forms of measurement as a guide in addition to the more recent approach developed through expert conferencing. In relation to road and rail noise he considers that the sound insulation rule will control internal noise levels within the future houses on the site to an appropriate level. This approach involves specific levels insulation for some houses closer to the noise sources and is similar to the current Plan requirements. The design of the subdivision required by the ODP means that houses do not adjoining the road or railway so the insulation requirements will not require unusual construction approaches. There are no standards for outdoor noise.
22. There is also potential for vibration impacts from trains which will vary across the site. There are standards that can be used to determine an appropriate response to nuisance vibration however Mr Reeve concludes that the levels of vibration experiences are unlikely to be unusually high, but this does not mean that vibration from trains will not be noticed by residents.

Neighbour impacts

23. Mr Reeve also considers possible cumulative impacts from the various noise sources. In his opinion the site layout and location relative to noise sources will limit these effects. In this regard he advises that houses closest to noise sources will likely have increased insulation thereby reducing noise levels to an acceptable level. Houses further away will then be screened by the closer house as well as being more distance from the road or rail noise and will therefore receive a lower/acceptable level of noise.

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24. The issue of neighbour impacts and reverse sensitivity is raised in the evidence of Geoffrey Dunham, a farm management consultant. He notes that land use to the north, east, south and west of the site involves residential housing, pastoral farming and a mix of light industrial and rural uses. The potential impact of noise and dust pollution and spray drift on neighbours largely occurs on the northern housing creating potential for complaints. In reverse, there is potential dog harassment of livestock and disease transfer as well as theft and vandalism all of which impact on the operations and viability of the farming enterprise. As a consequence of these and other challenges farming this site has become a very marginal operation and with the likelihood these challenges will only increase. In my opinion a change of landuse to residential will be more appropriate than its current farming use.
25. I note that with regard to the remaining farming land on the east side of the railway line, this will become even more isolated. The owners of this land have submitted on the PWDP requesting that it, in addition to the land on the west side of the railway line (the site), be rezoned for residential use.

Reverse Sensitivity

- 1 The majority of the established urban area of Kaiapoi is located under the 50dBA airport noise contour. The Proposal accounts for potential reverse sensitivity effects associated with the operations of Christchurch Airport by adopting 'qualifying matter – airport noise' introduced through Variation 1, which limits residential density to one dwelling / 200m². In this way, and with reference to the Spatial Plan in respect of strategic infrastructure, MRZ-enabled development under the airport noise contour will *"be carefully managed...to ensure the safety and wellbeing of residents, and to safeguard the effective operation, maintenance and potential for upgrades"*¹ of the Airport.
- 2 Mike Greer Homes Limited filed evidence in respect of Hearing Stream 10A (airport noise). The key findings of Patricia Harte (planning) are summarised below. These are based on the technical evidence of Fraser Colegrave (economics) and Reeves (acoustic) and Professor Clarke (aeronautic acoustic), as being:
- (a) The PWDP provides for noise sensitive activities (which include residential activities) as permitted activities in residential zones under the 50 dBA noise contour and (subject to achieving indoor sound levels) under the 55 dBA noise contour, an approach that is consistent with the operative District Plan and was supported by Marshall Day in their review of the PWDP noise provisions. Ms Harte considers this, coupled with the Council's practice of recording the potential for increased aircraft noise on LIM of properties within the 50 dBA, to be *"a balanced approach to providing for residential use under the 50dBA contour while limiting the potential for residents to be annoyed to the extent that they lodge complaints about aircraft noise."*
 - (b) The fact that ECan has not lodged a submission opposing the Proposal could indicate that they are satisfied with the identification of the Site (as part of the wider Future Development Area) for future residential growth. Given the limited opportunities for land to be rezoned

¹ Protecting Strategic Infrastructure, Spatial Plan, page 53

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for residential purposes in Kaiapoi, such opportunities *"should be taken and their full potential recognised and provided for if at all possible"*.

- (c) Through Variation 1, the Council has chosen to control Medium Density Residential development under the 50 dBA noise contour by way of a qualifying matter, effectively restricting development to a maximum density of one dwelling / 200m² site. Ms Harte agrees with this approach to mitigating (rather than avoiding) potential adverse reverse sensitivity effects.
 - (d) The NPS UD elevates housing shortage as a matter of national significance, and *"[does] not require or prioritise protection of strategic infrastructure when making planning decisions that contribute to well-functioning urban environments and enable a variety of homes the meet the people's needs in terms of type, price and location of households"*. Rather, decisions on urban development are to be integrated with infrastructure and planning decisions (Objective 6) and engagement with infrastructure providers is required (Policy 10(b)).
 - (e) No potential issues associated with air noise contours were raised throughout the preparation of Plan Change 1 to the CRPS, which introduced the Future Development Areas now identified on Map A, indicating their suitability for greenfield development.
 - (f) Based on the evidence of Professor John-Paul Clarke, *"it has not been established that it is necessary to avoid the activity of residential development or intensification within the 50 dB Ldn, CIAL airport noise contour, because that activity in that location is not likely to result in material harm."*
 - (g) *"the preferred approach in the Proposed Plan and Variation 1, of minimum lot size 200m², one house per site and LIM notice is better aligned with NPS-UD policies regarding integration of housing development with planned infrastructure, than is CIAL approach of preventing/avoiding residential development / intensification within the 50 dBA airport noise contour. In my opinion this approach is unlikely to result in reverse sensitivity issues for CIAL."*
- 3 On this basis, the Proposal is not considered to raise any reverse sensitivity concerns that should preclude a decision in its favour.

Visual amenity and landscape character

26. The landscape evidence of Rory Langbridge and the urban design Virkamjit Singh describe the site and its surroundings in detail and assess the site's current values and the anticipated change in landscape and visual amenity with its rezoning to Medium Density Residential. Mr Langbridge considers the natural character of the site to be low due extensive buildings and limited level of cropping. In addition the site lacks openness normally associated with rural land due to the two rivers and associated riparian vegetation enclosing the land. He rates the rural character of the location as moderate-low.
27. The receiving environment of the site to the west includes the Main North Road and builder's yard and a small area of paddocks for growing ready-lawn. To the north is the Kaikainui Stream and with a residential enclave along its northern bank. The Main North Railway line is the eastern boundary

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with the eastern half of the Winter brothers farm and to the south is Courtenay Stream with a drilling company operation. There is therefore a range of neighbouring activities, all of which do not immediately adjoin the site. Mr Langbridge describes the surrounding features as creating a setting with a unique character with a good level of intimacy.

28. A key feature of the rezoning is the associated South Kaiapoi-Outline Development Plan which creates the setting for future residential development. The ODP draws on the enclosed character of the site by providing a series of reserves around the perimeter. These include esplanade reserves along Kaikainui and Courtenay Streams, and 10m greenway along Main North Road and an extensive stormwater management area along the western boundary. The combination of these areas provides for pedestrian walkways and cycleways around the full perimeter of the site which can be accessed by residents and visitors. The width of these reserves enables a wide range of character areas to be formed including extensive indigenous planting. This includes the potential for the creation of an ecological enhancement area that could provide habitat for translocated Canterbury mudfish. An additional feature of the ODP is the inclusion of a footbridge over the Kaikainui Stream linking the site through to the residential area to the north.
29. Mr Singh considers that the "landscape edge treatments associated with the existing streams and provision of green spaces throughout and around the boundary of the site will create a unique character that can be supported in urban design terms". Mr Langbridge considers the primary impact of the development will be the loss of low-to moderate rural qualities which will be replaced by a significant increase in housing density, a green amenity and recreational framework that complements and extends the existing green network.

Ecological values

30. Lydia Metcalf has assessed the ecological character of the site and supports the earmarking of a small area within the stormwater management areas for ecological enhancement and the use of indigenous riparian planting in the esplanade reserves along the Courtenay and Kaikainui Streams. She notes that the southern part of the stormwater management areas includes a tall fescue-rautahi wetland as well as a ripgut brome grassland and rye grassland. She supports the inclusion of these wetland habitats with the reserve in order for them to be protected from development and vegetation clearance. Ms Metcalf notes that not all of the wetland is included in the ecological enhancement area but notes that there is potential for this to occur in the future. She also supports the use of indigenous plants in the esplanade reserves along the boundaries of the Courtney and Kaikainui streams both as riparian planting and as a buffer to filter and limit unwanted runoff and contaminants. They will also provide additional habitat for birds over time.
31. There are areas within the site that are potential lizard habitat, however as noted this will not necessarily impede development as there is now recognised process of undertaking surveys and if lizards are present they can be relocated. An area has also been identified as a possible site for translocation of Canterbury Mudfish. While the submitters are supportive of this, there are a range of factors that would need be considered prior to this occurring as detailed in Ms Metcalf's evidence.

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Urban design

32. Mr Singh concludes, and I agree, that the site is located such that it can achieve a coordinated pattern of development with the existing residential development of south Kaiapoi. Its form provides for integrated connections and green spaces able to be used by existing and new residents. As noted previously the site is well located with public and active modes of transport. This location therefore provides for ready accessibility to jobs, health and community services. The proposed Outline Development Plan for the site provides a coordinated landscape approach with esplanade reserves and a stormwater management area and a planted margin along Main North Road. The MDR zoning will enable more intensive use of the land with a variety of housing typologies than has occurred in the past in Kaiapoi, thereby providing housing choice.

Value of land for farming use

33. The evidence of Mr Dunham assesses in detail the various challenges faced by the current owners of the site in maintaining their farming operations. These challenges include:
- (a) Types of farming are limited by wet soils over winter and early spring and by soil moisture deficits in summer. These conditions exclude horticulture, intensive arable crops in summer and heavy livestock and machinery use in winter.
 - (b) Access to the site by contractors is constrained.
 - (c) There is no potential for irrigation on this site
 - (d) The farming operation generally only breaks even or makes a loss
- Consequently there are no long-term viable land use options for this site.