IN THE MATTER of the Resource Management Act 1991

AND

IN THE MATTER of Resource Consents and Notices of Requirement for the Central Interceptor main project works under the Auckland Council District Plan (Auckland City Isthmus and Manukau Sections), the Auckland Council Regional Plans: Air, Land and Water; Sediment Control; and Coastal, and the National Environmental Standard for Assessing and Managing Contaminants in Soil to Protect Human Health

STATEMENT OF EVIDENCE OF JOHN LEWIS GOODWIN ON BEHALF OF WATERCARE SERVICES LIMITED

LANDSCAPE / VISUAL

1. INTRODUCTION

1.1 My full name is John Lewis Goodwin. I am a landscape architect and Director of Boffa Miskell Limited, Planners, Landscape Architects and Ecologists ("**Boffa Miskell**"). I hold the qualifications of Bachelor of Social Science and a post-graduate Diploma in Landscape Architecture. I am a Fellow and Registered Member of the New Zealand Institute of Landscape Architects and have practised as a landscape architect for over 25 years.

1.2 During this time, I have undertaken numerous landscape and visual assessments, working throughout the upper North Island in rural, urban and coastal environments. These have included a number of territorial landscape assessments for regional and district councils. These resource based assessments typically identify components of natural character and outstanding natural features and landscapes, as well as evaluating the existing quality of the landscape resource and visual sensitivity in relation to a range of potential activities.

1.3 I have also been involved in landscape design and rehabilitation for a range of land development and engineering projects throughout the upper North Island. This has included assistance with the integration and mitigation of a range of utility structures into both urban and rural environments. These have included such things as pump stations, water reservoirs and treatment facilities.

1.4 Between 2002 and 2004 I assisted Watercare Services Limited ("**Watercare**") with the planning and design of the coastal and foreshore restoration associated with the decommissioning of the oxidation ponds as part of Project Manukau. This initially involved contributing to a Coastal and Foreshore Restoration Plan, including liaising with a range of technical experts and stakeholders. Following this, I oversaw the preparation of a more detailed concept plan, construction drawings and contract documents for the landscape rehabilitation of the 13 kilometres of coastal foreshore.

1.5 Between 2004 and 2013 I have been involved in Watercare's Puketutu Island Rehabilitation Project. For this project I presented landscape and visual evidence to a joint Auckland Regional Council and Manukau City Council hearing, and then subsequently assisted with the consultation and liaison with various parties over an agreed landform and landscape outcome for the project and Island. Boffa Miskell remains involved in the detailed design and delivery of the Puketutu Island Rehabilitation Project, where I have a peer review role.

Involvement in Central Interceptor Project

1.6 I first became involved in the Central Interceptor Project ("**Project**") in July 2011 when I completed an assessment of landscape and visual effects report ("**Landscape Report**") which accompanied the Central Interceptor Main Project Works Assessment of Effects on the Environment submitted to the Council, dated August 2012 ("**AEE**") as Technical Report A of Part D. The Landscape Report was the culmination of a background review of the proposed works, site visits and the preparation of concept proposals for each of the sites where surface works were to take place.

1.7 The overall concept proposed for the Project is a gravity tunnel from the Western Springs area to the Mangere Waste Water Treatment Plant ("**Mangere WWTP**") with various link sewers and pipelines connecting

the existing network to the main tunnel at key locations along this route. As such, the majority of the works and completed project will be underground. This includes a 13 kilometre long 3.5 to 5 metre diameter main tunnel up to 110 metres below ground level, four link sewers and associated connections to existing sewers. At specific sites and connection points along the route a range of permanent predominantly ground level structures will be provided and during the construction of the tunnel and underground pipes additional temporary facilities will be required.

1.8 Given the largely underground nature of the Project, the landscape and visual assessment has focussed on the specific construction sites where surface elements will be required. These sites are listed in **Appendix A** of my evidence and depicted on **Figure 1** in the figures that were part of the Landscape Report. An updated version of these figures accompanies the evidence in a separate A3 folio of drawings ("**Hearing Drawing Set**"). The scale of landscape and visual effects is accordingly limited due to the majority of the asset being underground and the construction sites being relatively small by comparison to the geographic scale and extent of the Project as a whole.

1.9 The landscape and visual assessment methodology adopted for the Project involved a number of key steps and tasks. In addition to the usual assessment of both landscape effects (ie physical changes to an area) and visual effects (ie potential effects on a viewing audience), I also considered it important to assess potential effects on the open space at many of the sites. This was due to the type of activities proposed and their location generally in parks, reserves and other areas of public open space. The main steps involved in the assessment are described in **Appendix B.**

1.10 The assessment has also distinguished between potential effects during construction and permanent effects. This is because the construction effects require a range of above ground structures and activities for the duration of the works, while the permanent completed sites will generally only require at grade surface features such as shaft, manhole and chamber covers. At four of the 19 sites assessed there will remain some above ground structures to accommodate shafts, chambers and other

facilities.[1] Air treatment facilities may be constructed at three further sites. Where permanent above ground structures are required, a range of mitigation measures have been proposed to integrate these into their landscape context and to enhance existing open space areas where practicable.

Code of Conduct

1.11 I have been provided with a copy of the Code of Conduct for Expert Witnesses contained in the Environment Court's Updated Practice Note 2011 which took effect on 1 November 2011. I have read and agree to comply with that Code. This evidence is within my area of expertise, except where I state that I am relying upon the specified evidence of another person. I have not omitted to consider material facts known to me that might alter or detract from the opinions that I express.

2. EXECUTIVE SUMMARY

2.1 The Project is a large infrastructure project where the majority of the works are located underground. There are, however, 19 sites where above ground construction works will take place to enable the underground tunnels and shafts to be installed. A number of sites are located in public reserves, road reserves and other publically accessible areas (eg Lyon Avenue). The balance of the sites are located on private property although some of these are adjacent to or include areas of land available for public use (eg Mangere Pump Station, Keith Hay Park).

2.2 The duration of the works varies from five to six years for the three primary sites (ie Western Springs, May Road and the Mangere WWTP), down to six to 18 months for the 16 secondary sites. All construction activities will take place within a fenced off yard or compound. These fences and walls will provide an effective visual screen of low level activities from outside ground level locations. At two of the many sites (Western Springs and May Road) some of the construction activity will be undertaken within a temporary shed, further restricting views of the works.

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[1] There are above ground structures proposed at eight sites in total, but the control chamber proposed at Lyon Avenue is likely to be constructed to be flush with the car park deck.

2.3 Following completion of the construction works a number of surface manhole, shaft and chamber lids will be required to access the various underground tunnels, pipes and associated structures. These will vary in size up to approximately 7 metres diameter and will be reinstated flush with the surrounding land as is typically seen in a number of streets, parks and private properties throughout the city. Permanent above ground structures will remain at three sites, in addition to the works at the Mangere WWTP. These are at Haverstock Road, Pump Station 23, and at Kiwi Esplanade. At Pump Station 23 an Air Treatment Facility ("**ATF**") building will be constructed. In addition, at Lyon Avenue, a control chamber will be constructed in the vicinity of the car park which is likely to be flush with the car park deck, rather than perceived as being above ground, although this will depend on the detailed design. At three other sites, Western Springs, Pump Station 25 and May Road ATFs may also be installed at a later date if required.

2.4 I have separately assessed potential effects on open space and landscape character, and visual amenity for all sites. These have been assessed across a rating scale from very high adverse effects through to very high beneficial effects for both temporary effects (ie throughout the construction period) and permanent effects (ie for the completed works following reinstatement).

2.5 In summary, during the construction period I consider that the adverse effects on open space and landscape character will be low, very low or neutral at the Mangere WWTP Emergency Pressure Relief ("**EPR**") site Western Springs Depot, Whitney Street and Dundale Avenue; and very low to moderate at the Haverstock Road and May Road sites. At a further six sites, Mount Albert War Memorial Reserve, Walmsley Park, Kiwi Esplanade, Motions Road, Norgrove Avenue, and Haycock Avenue the adverse effects will be low to moderate. At five of the remaining sites, Western Springs, Keith Hay Park, Rawalpindi Reserve, Pump Station 25, Miranda Street East, the adverse temporary effects will range from low to high and at two sites, Lyon Avenue and Pump Station 23 the temporary adverse effects will be high to very high for the duration of the works.

2.6 For each site a Construction Management Plan ("**CMP**") will be prepared prior to works beginning. These plans will finalise the detailed layout of all elements and structures, including fencing and consideration where

practicable of other screening mechanisms to mitigate any potential adverse visual effects that are considered to be more than minor.

2.7 Given the scale of the Project, the magnitude of the temporary effects are, in my opinion, at a level that would not be unexpected. Although these temporary effects will impact some local residents and park users during construction, this should be considered in light of the significant benefits of the Project on the natural character, landscape and amenity values of many waterways.

2.8 There is also the potential for additional benefits associated with the replacement and enhancement of park and open space, access ways, facilities, furniture and planting. These will be designed as part of an Site Reinstatement Plan ("**SRP**") for each site which will be prepared in conjunction with each landowner and other parties where appropriate.

2.9 Overall, I consider the Project will result in beneficial long term effects on natural character, landscape and visual amenity attributes of the stream catchments. Where adverse effects result from construction activities at specific sites, these can be mitigated through the appropriate siting and design of surface and above ground structures as well as planting, which over time will assist to integrate these elements into their surrounding landscape context.

3. SCOPE OF EVIDENCE

3.1 In my evidence I will address the landscape and visual effects of the Project under the following main headings:

(a) Outline of the proposed works that generate landscape and visual effects – describe the Project in terms of its changes to the physical landscape and the visual expression of these changes.

(b) Assessment of Effects – assess the potential open space, physical (landscape and natural character where relevant) and visual (amenity) effects of the Project both during the construction period and following completion of the works.

(c) Mitigation – describe the key measures that have been incorporated into the concept design to avoid and/or mitigate potential landscape and visual effects.

(d) Response to Submissions – summarise and comment on relevant matters raised by submitters.

(e) Response to Council Pre-hearing Report – comment on relevant aspects of the Council's Pre-hearing Report, including any specialist reviews.

(f) Conclusion – summarise the above into concluding remarks.

4. THE PROPOSED WORKS

4.1 The Project overview presented by Mr Munro, the concept design evidence presented by Mr Cantrell and the construction evidence presented by Mr Cooper have set out the Project in detail. I have therefore not included a detailed summary of the technical aspects of the Project and instead rely on information presented in those briefs of evidence. I will, however, briefly outline some key aspects of the Project relevant to my area of expertise.

4.2 While the main tunnel, link sewers, connection pipes and many of the associated structures will be located underground, the method of construction will occupy 19 above ground sites for varying time periods, with active construction occurring for between six to eight months at small sites, 12 to 18 months at intermediate sites and five to six years at the three primary sites. The small and intermediate sites are collectively known as the secondary sites.

4.3 At each of these sites one or more permanent physical elements will remain. Most of these will be finished at ground level and will consist of typical manhole covers and lids (of shafts, control chambers and grit chambers), with the structures located below ground.

4.4 However, at three sites outside the Mangere WWTP (Pump Station 23, Kiwi Esplanade and Haverstock Road), these permanent structures are required to be above ground. At Pump Station 23 two shafts will be finished at 3 metres above ground level, at Kiwi Esplanade two shafts will be finished at 2 metres above present ground level, and at Haverstock

Road a control chamber will be located between 2.5 and 3.5 metres above ground level. At Lyon Avenue, a control chamber is required. This is likely to be finished flush with the car park deck (rather than perceived as being above ground), however, this will depend on the detailed design. These structures are required to be finished above ground level for hydraulic reasons which are further detailed in the evidence of Mr Cantrell.

4.5 In addition, ATFs will be installed at two sites - the proposed Mangere Pump Station and Pump Station 23. They may also be installed at a further three sites at a later date: Western Springs, Pump Station 25 and May Road. The determination of whether these will be required will be made by Watercare once the Project becomes operational. If required, the ATFs will be housed in separate buildings. With the exception of the ATF at the proposed Mangere Pump Station, these structures have been included in my assessment of effects and are based on preliminary locations and sizes as depicted in the Hearing Drawing Set.

4.6 Neither the proposed Mangere Pump Station nor the associated ATF have been included in my assessment, as both facilities fall within the existing designation for the Mangere WWTP and do not require any approvals (apart from submission of an Outline Plan of Works to Auckland Council at a later date). I have, however, included an assessment of the EPR structure as consent is required given its location in the Coastal Marine Area ("**CMA**").

4.7 A full list of sites and the at-grade and above-grade features is set out in detail in Part A Section 5 and Part B of the AEE, subsequent Section 92 Responses, the Hearing Drawing Set and the Key Facts Table included on pages 1 to 3 of the Hearing Drawing Set.

5. SUMMARY OF SITE ASSESSMENT EFFECTS

Introduction

5.1 For each of the 19 proposed sites I have separately assessed the effects for open space and landscape character; and visual amenity. The effects were rated on an 11 point scale as outlined in **Table 1** below, firstly for effects during the construction period (ie temporary effects), and secondly for the completed works (ie permanent effects). This rating table is

derived from the scale of effects commonly used within the landscape profession. I have expanded on this range to also include a range of potential beneficial effects, in addition to potential adverse and neutral effects, as I consider that this is particularly relevant to this Project. This approach and the methodology has been peer reviewed by Isthmus Group Limited and they concluded that it is appropriate for this assessment. The Effects Ratings and Definitions are outlined in **Appendix C**.

Table 1 - Effects Rating Scale

More Than Minor	Very High Adverse Effects	(-5)
	High Adverse Effects	(-4)
Minor	Moderate Adverse Effects	(-3)
Less Than Minor	Low Adverse Effects	(-2)
	Very Low Adverse Effects	(-1)
	Neutral Effects	(0)
	Very Small Beneficial Effects	(+1)
	Small Beneficial Effects	(+2)
Minor	Moderate Beneficial Effects	(+3)
More Than Minor	Highly Beneficial Effects	(+4)
	Very High Beneficial Effects	(+5)

5.2 As outlined in Table 1 above, I consider adverse effects that score -1 and -2 to be less than minor; with a score of -3 considered to result in minor adverse effects, and scores of -4 and -5 resulting in more than minor adverse effects. Conversely, beneficial effects were rated in the same way, +1 and +2 less than minor, +3 minor, and +4 and +5 more than minor beneficial effects.

5.3 A detailed assessment of the effects at each site is set out in Section 4.0 of the Landscape Report. **Table 2** and **Table 3**, set out below, provide a summary of the level of effects for each of the 19 sites. This includes an assessment of the two options at Mount Albert War Memorial Reserve (the Car Park site and the Reserve site). **Table 2** sets out my assessment of the effects during construction, **Table 3** sets out my

assessment of the effects following completion of construction and site reinstatement.

Table 2: Summary of Site Assessment Effects during Construction Works

Temporary Effects

Name	Duration of Construction Works	Open Space and Landscape Character	Visual Amenity
Main Tunnel Sites			
Western Springs	5 Years	-4	-3
Mount Albert War Memorial Reserve - Reserve site	12 to 18 Months	-3	-3
Mount Albert War Memorial Reserve – Car Park site	12 to 18 Months	-3	-2
Lyon Avenue	12 to 18 Months	-5	-5 to -4
Haverstock Road	12 to 18 Months	-1	-3 to -1
Walmsley Park	12 to 18 Months	-3	-2
May Road	5 Years	-1	-3 to -1
Keith Hay Park	6 Months	-2	-4 to -2
Frederick Street Pump Station 23	12 to 18 Months	-5	-4 to -2
Kiwi Esplanade	12 to 18 Months	-3	-2
Mangere WWTP - Construction of EPR	3 Weeks	-2	-1
Link Sewer Sites			
Motions Road	12 to 18 Months	-3	-2
Western Springs Depot	6 to 8 Months	0	0
Rawalpindi Reserve	12 to 18 Months	-4	-3
Norgrove Avenue	6 to 8 Months	-3	-3
Miranda Reserve Pump Station 25	12 to 18 Months	-3	-4
Miranda Reserve East	6 to 8 Months	-4	-3
Whitney Street	6 to 8 Months	-2	-2
Dundale Avenue	6 to 8 Months	-2	-2
Haycock Avenue	6 to 8 Months	-3	-2

Table 3: Summary of Site Assessment Effects from Completed Works

Permanent Effects

Name	Open Space and Landscape Character	Visual Amenity
Main Tunnel Sites		
Western Springs	-1 to +2	0 to +1
Mount Albert War Memorial Reserve - Reserve site	0	0 to +1
Mount Albert War Memorial Reserve – Car Park site	0	0 to +1
Lyon Avenue	0 to +4	-3 to 0
Haverstock Road	-1	-1
Walmsley Park	0	0 to +1
May Road	-1	-1
Keith Hay Park	0 to +4	+4
Frederick Street Pump Station 23	-3 to -2	-2
Kiwi Esplanade	0 to +2	0
Mangere WWTP - EPR	-2	-1
Link Sewer Sites		
Motions Road	-1	-1
Western Springs Depot	0	0
Rawalpindi Reserve	-1	-1
Norgrove Avenue	-2 to 0	-2 to 0
Miranda Reserve Pump Station 25	-2	-2
Miranda Reserve East	-1	0
Whitney Street	0	0
Dundale Avenue	0	0
Haycock Avenue	-1 to +4	0 to +1

Discussion of Site Assessment Effects

5.4 Given the nature of the Project, effects on open space and landscape character, and visual amenity, are very different between the two phases, ie construction and completion as depicted in the tables above. The effects are also quite different between many of the sites, depending on the location, use, character and surrounding context of each site and the duration and final configuration of the proposed works. Overall:

(a) The temporary adverse effects during construction are assessed as ranging from very low to very high. Some sites recorded neutral effects.

(b) The adverse effects following completion are assessed as ranging from very low to moderate (for only two sites), with the potential beneficial effects ranging from very small to highly beneficial. For many of the sites the effects following completion will be neutral.

5.5 In my opinion, these effects are commensurate with the nature and scale of the Project and substantial beneficial effects could occur as has been the case in other similar projects such as the Hobson tunnel project ("**Project Hobson**") where permanent structures have been integrated into the coastal setting providing for enhanced recreational use. I expand on this below.

Temporary Effects (Effects during Construction)

Open Space and Landscape Character

5.6 At two sites, Lyon Avenue and Pump Station 23, there will, in my opinion, be very high adverse temporary effects on open space and landscape character for the duration of the works. This conclusion is based on the following reasons:

(i) At Lyon Avenue this is primarily due to the removal of a large number of semi-mature native trees and other vegetation in an area of open space that is part of the Roy Clements Treeway. This open space area is used extensively as a thoroughfare, is overlooked by a number of residents, and has had wide community involvement in its restoration over an extended

period of time. While the works themselves will be mitigated to an extent by the external fence, which will screen ground level views, and the provision of an alternative pedestrian access around the site, the removal of the tree canopy and the extent of views of the works from the many residential balconies overlooking the site will still generate more than minor adverse effects for up to three years in this part of the Treeway.

(ii) At the Pump Station 23 site the high adverse effects during construction are due to the temporary construction platform proposed to be constructed over approximately 1,300 m^2 of the harbour and the removal of some existing semi-mature Pohutukawa trees. The temporary construction platform will be removed following completion of the construction works and replanting on the balance of the site will occur as depicted in **Figure 35** on page 119 of the Hearing Drawing Set. The scale of these works is similar to those that were undertaken in 2007 where a temporary construction platform was installed to upgrade the existing rising main, followed by its removal and reinstatement of the coastal edge. This reinstated coastal edge is depicted in **Figure 36** on page 120 of the Hearing Drawing Set.

5.7 Three sites are anticipated to have high temporary adverse effects during construction. These are Western Springs, Rawalpindi Reserve and Miranda Reserve, for the following reasons:

(i) At Western Springs these effects are due to the size of the construction area (at approximately 8,400 m^2) and its occupation for some five years in an area of existing public open space, and the contrasting nature of the proposed perimeter fence and visible activities within the construction area from the surrounding open park land.

(ii) At Rawalpindi Reserve in Mount Albert the high temporary effects on open space and landscape character are due to the area of 4,800 m^2 required for construction taking up much of the existing open space, confining use of the reserve to a smaller area around an existing playground. In addition, the earthworks

at this site will alter the landform and require the construction of a retaining wall, further altering the existing landscape character.

(iii) At Miranda Reserve (East) in Avondale the high temporary adverse effects are due to the use of a small area of parkland currently containing a playground which will be removed for the two year construction period. It would be possible to relocate the playground to another part of the reserve for the duration of the site occupation (two years), should this be seen as appropriate in liaison with the landowner through development of the CMP.

5.8 At a further seven sites (Mount Albert War Memorial Reserve (both sites), Walmsley Park, Kiwi Esplanade Reserve, Motions Road, Norgrove Avenue, Pump Station 25 and Haycock Avenue) the construction would, in my opinion, have moderate adverse temporary effects on the open space and landscape character attributes of these areas. These adverse effects are due to a combination of the restricted use of existing park land, removal of existing vegetation and the contrasting scale and character of the proposed external fencing and noise walls in areas with open space and/or residential character.

5.9 The temporary construction works at the remaining seven sites (Haverstock Road, May Road, Keith Hay Park, the proposed Mangere Pump Station, Western Springs Depot, Whitney Street and Dundale Avenue) will, in my opinion, result in low, very low or neutral effects on open space and landscape character.

Visual Amenity

5.10 In terms of temporary effects on visual amenity, the construction at Lyon Avenue is, in my opinion, likely to generate high to very high adverse effects on the viewing audience around this site; even with the proposed mitigation. This is due to the removal of the vegetation and visibility, over the fence, of the works from the nearby apartments.

5.11 At Pump Station 25 (Miranda Reserve West), Keith Hay Park and Pump Station 23 the adverse temporary effects are likely to range from high to moderate for the limited potential viewing audience identified. At Pump Station 25 this level of effect is based on the potential construction of the ATF, which may not be required, and for some viewers at Keith Hay Park

the proposed 3 metre high noise wall may reduce the adverse visual effects of construction to a low level.

5.12 The magnitude of effects at these four sites is largely due to the extent of vegetation removal and the change to the existing character of the area, combined with the site's visibility from a nearby residential community.

5.13 At a further five locations (Western Springs, Mount Albert War Memorial Reserve (Reserve site), Rawalpindi Reserve, Norgrove Avenue and Miranda Reserve) I consider that the temporary adverse visual effects of construction are likely to be moderate for the residential and park user viewing audience. This is due largely to the often close view of the perimeter construction fence and the associated visible activity of the works.

5.14 At the Haverstock Road and May Road sites the temporary adverse visual effects are likely to range between moderate to low depending on the specific location of the surrounding residential views:

(a) The proposed 3 metre high noise wall at May Road will screen much of the construction activity from adjacent properties and assist to restrict views from those more distant elevated locations.

(b) At Haverstock Road the proposed perimeter fence will screen much of the low level activity due to much of the surrounding residential area being at a similar level to the construction site.

5.15 At the remaining eight sites, the temporary effects on visual amenity would, in my opinion, be low, very low or neutral. These locations are Mount Albert War Memorial Reserve (Car Park site), Walmsley Park, Kiwi Esplanade, Motions Road, Whitney Street, Dundale Avenue, Haycock Avenue (all with low adverse effects); Mangere Pump Station (EPR) (with very low adverse effects) and Western Springs Depot (with neutral effects).

5.16 As outlined in Watercare's Proposed Designation and Consent Conditions (together the "**Proposed Conditions**"), during the preparation of the CMP for each of the above sites there will also be an opportunity to incorporate specific visual mitigation measures (eg higher temporary

fencing or planting) where practicable for the duration of the works period, should these be deemed necessary.

Permanent Effects (Effects of Completed Project)

5.17 In terms of permanent effects, with the exception of two sites (Lyon Avenue and Pump Station 23 I expect there to be no more than low adverse effects on open space and landscape character, with many sites having the potential for beneficial effects. Similarly, in relation to long term visual amenity effects I do not expect any site to have any more than low adverse effects in time, with most either being neutral (ie returned to a similar state as before the works) or potentially beneficial. Beneficial effects would result at many sites where there are currently visible overflows through improved water quality resulting in enhanced natural character, landscape and visual amenity values. Other potential benefits include better access to park areas, with integrated building solutions and appropriate specimen tree and shrub planting.

5.18 At Haverstock Road, although there will be a permanent above ground control chamber, its secluded location and the proposed planting around the site will, in my opinion, result in only very low adverse effects on open space and landscape character as well as visual amenity.

5.19 At Lyon Avenue, once the construction is complete and visible overflows are minimised, there will be highly beneficial effects on the natural character and visual amenity of Meola Creek and the surrounding Roy Clements Treeway. Following occupation of the site I anticipate there to be moderate short term adverse effects on visual amenity due to the open nature of the site prior to establishment of planting. In the medium-term (five to ten years) these visual adverse effects will reduce and the site will be restored to its current vegetative state with the potential for an enhanced open space and landscape character. A potential outcome at this site is depicted in a sketch (**Figure 16a** on page 67 of the Hearing Drawing Set) which shows reinstated paths and interpretation panels, an open seating area above and around the drop shaft with the covers set flush with the ground, with native planting providing context for these activities. I consider that this concept would result in an enhanced open space which would better meet Crime Prevention Through Environmental Design ("**CPTED**") principles than the current situation which presently exists on the site.

5.20 The EPR structure at the proposed Mangere Pump Station is to be located on the coastal edge adjoining the existing Watercare public walkway. Currently this area of coast is characterised by a rock rip rap wall which defines a tidal area of the harbour with a few small mangroves. An existing small outfall structure is located within the rock rip rap and the walkway adjoins this. Beyond the path is an area of grass and native vegetation which separates the Mangere WWTP from the coastal edge. The EPR structure will require the temporary removal of some existing vegetation and will result in a newly constructed element on the coastal edge. This will, in my opinion, create only low adverse effects on the natural character of the coastal environment. Within a few years replanting will have begun to mature and the structure will have weathered so any natural character, landscape and visual amenity effects would reduce to a very low level as depicted in **Figure 49a** on page 145 of the Hearing Drawing Set.

5.21 At some sites, such as Western Springs, Keith Hay Park, Kiwi Esplanade Reserve and Haycock Avenue effects on open space and landscape character, as well as visual amenity, could potentially be beneficial as outlined below:

(a) At Western Springs a new path network, improved drainage and planting could enhance the construction area as part of the reinstatement of the site.

(b) At Keith Hay Park the final permanent works could be designed to tie in with the concept design process and outcomes being promoted by the Puketapapa Local Board of the Auckland Council as depicted in the plans attached as **Appendix D**.

(c) At Kiwi Esplanade the concept to build a new toilet facility and incorporate the air vent within the building and mound around the two above ground structures, along with appropriate replanting, should enhance this area of existing park land as depicted in **Figure 41** on page 132 of the Hearing Drawing Set.

(d) At Haycock Avenue a small publicly accessible open space could be incorporated within the site and this could also link with existing open space along the Whau Creek.

5.22 The mechanism through which these outcomes would be achieved is provided for in Watercare's Proposed Conditions ("**Proposed Designation Condition SR.1**") where a SRP is required to be prepared for each construction site in conjunction with the landowner. For publicly accessible sites, these plans are to be designed to integrate as far as is practicable with park development and management plans of Auckland Council and designed in accordance with CPTED principles.

5.23 As outlined above, Project Hobson is a good example of where beneficial public outcomes have resulted through such an infrastructure project. Through the process outlined in Watercare's Proposed Conditions, I consider similar outcomes could be generated for this Project where site specific solutions are designed and incorporated into the reinstatement plans and implemented to enhance public open space. The Permanent Works Concept Plans and associated photomontages included in the Hearing Drawing Set give an indication of preliminary design ideas for many of these sites.

6. MITIGATION

6.1 Section 6 of the Landscape Report outlined a range of landscape and urban design principles and mitigation measures. The urban design principles were based on the New Zealand Urban Design Protocol and grouped in relation to the various site locations that have similar characteristics, for example, public open spaces, private landholdings, coastal areas, and urban watercourses.

6.2 There are a number of techniques that can be utilised to reduce the potential visual effects of the works, including: the type and scale of fencing in relation to the potential viewing audience, the relocation of transplantable trees, and planting of new trees and shrubs on the sites where construction is proposed over a number of years. These will be considered during the preparation of the CMP for each site.

6.3 In terms of permanent surface elements that will remain on site, the finish of large manhole covers and their potential integration with surrounding grass and planting areas are design considerations that can be determined through the proposed SRPs. This would also apply to any above ground structures where their design and finish could relate to the surrounding character of the landscape setting and use. For example, the

incorporation of an air vent and above ground shafts and other facilities within and into the area surrounding the proposed new toilet facility at Kiwi Esplanade Reserve will result in an outcome where the permanent structures can be integrated into the surrounding park. The retention of existing large Pohutukawa trees, and planting of additional appropriate coastal species, will potentially result in an enhanced park character and amenity at this site as depicted in **Figure 41** on page 132 of the Hearing Drawing Set.

6.4 While periodic maintenance access will be required at all of the sites and many of the shafts, this can be designed as an integral feature and in reserves can serve to augment existing path networks. The use of suitable grass or aggregate surface treatments (eg "surepave") that will still provide for all weather heavy vehicle access can be utilised and provided for as part of the SRPs in more sensitive park locations.

6.5 As outlined above, the consideration of CPTED principles including, where applicable, such things as the maintenance and/or enhancement of passive surveillance in public sites, avoidance of potential entrapment areas around any buildings and planting areas, providing logical visual cues for movement through sites, consideration of appropriate materials and surface treatments to discourage property damage and graffiti, and lighting (where appropriate) will all be considered in the SRP.

7. RESPONSE TO SUBMISSIONS

7.1 Of the submissions received on the Project, 19 have specifically mentioned landscape, visual effects and/or impacts on recreation/amenity.[2] A number of these make general comment on effects on amenity and recreation but the majority of comments focus on two specific sites. Below, I respond to the site specific submissions which also relate to the general concerns.

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[2] St Lukes Gardens Apartments Body Corporate, Hamish and Michelle Archer, Anne and Robin Boyd, Bruce Colloff, Nicola Craig, Toby Cumow and Helen Hume, L France, Stuart Jones, D Jotti and J Eades, Denise Laraman, I Mellor, Rosy Wei, George & Jack Zhang, Mangere Bridge Residents & Ratepayers Association, Onehunga Business Association, St Lukes Environmental Protection Society, Dennis James and Patricia Ann Prescott, Tawa Farms Limited, Mount Albert Residents Association and St Lukes Gardens Apartments Progressive Society Incorporated.

Lyon Avenue *(refer to **Figures 13 - 16a** on pages 63 - 67 of the Hearing Drawing Set)*

7.2 The submissions from the St Lukes Gardens Apartments Body Corporate and St Lukes Gardens Apartments Progressive Society Incorporated consider that significant adverse effects will occur, including visual and landscape effects and vegetation effects on the established Roy Clements Treeway. The effects on mature trees are also the subject of a submission from Mr and Mrs Prescott. Both submissions consider the replacement trees will never become mature in their lifetime and that the works will destroy the work of hundreds of school and community volunteers. The impact on these trees is also mentioned in the submission by the St Lukes Environmental Protection Society, and the Mount Albert Residents Association.

7.3 The Roy Clements Treeway walkway lies adjacent to Meola Creek and along its length provides connections to the school, residential apartments, retail shops and surrounding streets. In 2009, the Roy Clements Treeway Boardwalk Project won an IPENZ Arthur Mead award for Environment and Sustainability. The Treeway Project is one of many community projects along Meola Creek focused on enhancing this urban waterway. I understand that Watercare itself also contributed significant funding for the construction of this boardwalk.

7.4 The proposed construction site has been located to the east of the creek to maintain the existing major walkway linkage adjacent and immediately east of Meola Creek. Although the construction will temporarily cut off the existing link through to the retail shops and Wagener Place, an alternative connection will be provided around the perimeter of the construction site. The site will also extend north to incorporate the existing Watercare overflow channel and spillway which is currently covered with parking.

7.5 The works proposed at this site may require the removal of all of the trees and shrubs within the approximate 3,920 m^2 construction site, apart from a semi-mature Pohutukawa in the north-eastern corner of the site, which will be retained. The trees to be removed or relocated include semi-mature species of Pohutukawa, Kohuhu, Kanuka, Puka, Totara, Karaka, Puriri, Lemonwood, Kawakawa and a number of exotic trees, as well as other native shrubs as referred to in the Arborlab report attached to the AEE as Technical Report B of Part D. A 1.8 to 2.0 metre high closed

board fence will be provided around the perimeter of the site to screen the activities from surrounding ground level views.

7.6 Visibility of the works from ground level locations, such as along the existing walkway, and around the access ways and car parks to the rear of the apartments and retail area currently occupied by Noel Leeming and others, will be restricted to the exterior of the fence. The fence will be seen at close quarters for those who use the north south route to school and other nearby areas, and owners of the ground level apartments or shoppers using the car park at retail outlets nearby. Elevated close views of the tree removal and construction works would be afforded for residents in the above ground levels of some of the apartments in Morning Star Place, although they will still be able to view out across the remaining trees along the creek and the fields within Mount Albert Grammar School.

7.7 As outlined in my evidence above, I consider the temporary level of adverse effect on the open space and landscape character of the site during the construction and establishment period to be very high. This is primarily due to the removal of existing vegetation in an area of open space characterised by an enclosed woodland / small bush area adjacent to Meola Creek. The internal infrastructure activities and the external appearance of the fence would also have a high level of effect on the character and key attributes of the treed environment and the context within which it would be seen.

7.8 Watercare's Proposed Designation Condition SR.1 requires that an SRP be developed for the site setting out the details of site reinstatement to be undertaken once construction is complete. The SRP would also include details of replacement planting to mitigate effects of the tree and shrub removal in the Treeway **within** the construction site. Proposed Designation Condition SR.1A also provides opportunities to enhance the safety of the site by implementing CPTED principles.

7.9 In addition to the requirement to prepare and implement the SRP following construction, Watercare's Proposed Designation Conditions RC.1 to RC.5 also require that Watercare prepare a Vegetation Enhancement Plan ("**VEP**") to enable additional mitigation within the Roy Clements Treeway, **outside** the Lyon Avenue site. Any proposed planting and landscaping, included within the VEP, will aim to enhance the

amenity and ecological values of Meola Creek and associated riparian areas between Fergusson Reserve and Alberton Avenue. In my opinion, enhancing the Treeway outside of the construction area, prior to commencement of the works, will help to offset the effects from the vegetation removal associated with the construction works.

7.10 The VEP is to be prepared in conjunction with the landowner, the Council, the Albert-Eden Local Board and other community groups or environmental organisations which have an interest in the restoration and enhancement of the area. The VEP is required to be prepared and submitted to the Council within two years, and then following approval by the Council, implemented within a further two years. Under these timeframes, the VEP works will be undertaken well in advance of the construction works proposed at the Lyon Avenue site.

7.11 In terms of visual amenity, the combination of the visual context within which the site is located relative to walkway users, the limited extent of visibility of the works from ground level locations, plus the highly visible extent of works from a number of upper level residential locations would, in my opinion, generate very high to moderate temporary adverse visual effects on the perceived amenity of the area for the duration of the construction works.

7.12 The permanent works at the site will consist of two seven metre diameter shafts (only two smaller rectangular shaft covers will be apparent at ground level within a newly landscaped area) and a diversion chamber integrated with and set within the existing overflow channel. In the context of the existing outfall structure, these are minor additional structures and in my opinion can be integrated into the reinstated site. Vehicular maintenance access would be provided to these shafts from Morning Star Place and could be integrated with a new path network as depicted in **Figure 16** on page 66 of the Hearing Drawing Set. These, and other details, such as the restoration of the disturbed ground to a suitable condition for planting, the types, size and maintenance of trees and shrubs to be planted, the reinstatement of the signage and interpretation, and consideration of CPTED principles to achieve a safer environment in this highly used area, will all be considered through preparation of the SRP. As outlined above in my evidence, I consider that this could result in an enhanced landscape and amenity for this open space and provide a

potentially safer environment for the many users of this site and the associated pedestrian network.

7.13 Once the construction and initial maintenance period is complete, and the mitigation measures implemented, the open space and landscape character values of the area will, over time, in my opinion, improve. This will include a highly beneficial and enhanced outcome in terms of the natural character, landscape and visual amenity values of Meola Creek and the Treeway downstream of the existing outfall structure due to much improved water quality.

7.14 In terms of the visual effects on the viewing audience, these will, in my view, continue to be adverse immediately following construction and replanting. However, these adverse effects will progressively reduce over a period of five to ten years as the replanting matures. Once fully established and matured, estimated to be in the order of ten to 15 years, with appropriate ongoing maintenance, the overall visual amenity of the above ground area should, in my opinion, result in a significant improvement on that which exists at present.

Mount Albert War Memorial Reserve

7.15 Eight submissions outline landscape and visual effects as a concern at the Mount Albert War Memorial Reserve site. A number of these submissions also raise concerns about effects on the recreation and amenity of residents who utilise the site proposed for the works to walk their dog, picnic and/or stroll with family and friends. There is also concern raised that the photomontage which accompanied the Landscape Report is misleading as the maintenance access road is not depicted.

7.16 In response to submissions received following public notification of the NoR1 and resource consent applications, Watercare developed an alternative site layout which proposes to shift the construction area south-east on to the lower car park area (**"Car Park site"**).

*Common Aspects and Key Differences between the Reserve and Car Park locations (refer to **Figures 8 to 12 and 8a - 11a** on pages 40 - 44 and 51 - 54 of the Hearing Drawing Set)*

7.17 For both locations the duration of construction would be 12 to 18 months with the occupation of the site being three and a half years. Each location would be constructed using the same techniques and the shaft sizes and finished manhole and shaft covers would be the same diameter. Access is to be provided for either location from Wairere Avenue utilising an existing accessway between No. 5 and No. 9 Wairere Avenue. At each location there would be a series of noise walls around the perimeter their configuration and height are depicted on **Figures 10 and 10a** on pages 42 and 53 of the Hearing Drawing Set.

7.18 The Reserve site would have noise walls between 2 and 2.5 metres whereas for the Car Park site these would be between 2.5 and 3 metres high. Along the common access to each of these locations the noise wall would be 2.5 metres high, effectively screening views from the adjoining houses on either side. The existing Grisilinea hedge along this access may be able to be retained if practicable. This will be decided through the CMP design stage.

7.19 The key difference between the two locations is that the Car Park site has the construction located on the existing car park rather than within the grassed and planted area of open space to the north-west. This would result in the Car Park site works being further away from the residents to the north and west. In addition, the Car Park site has a smaller area, being 3,400 m^2 compared to 5,400 m^2 for the Reserve site.

*Reserve Site Effects (refer to **Figures 8 - 12** on pages 40 - 44 of the Hearing Drawing Set)*

7.20 The works at this location will require the removal of a number of mixed height native trees and shrubs and a number of other shrubs within the construction area. A 1.8 to 2 metre high closed board fence will be constructed around the walkway and balance park land boundary (refer to **Figure 10** on page 42). These walls, fences and retained planting will effectively screen views from adjacent ground level residential, car park and reserve areas, although views above the fence may be afforded from the area around the table tennis table, the elevated deck/walkway and car park around the Mount Albert War Memorial Reserve Community Centre

("**Community Centre**"), and second level floors from south east facing windows at 65B, 65C, 67E and 67F Asquith Avenue.

7.21 The temporary landscape and visual effects resulting from construction at this location would include the removal of three mature Karaka trees, seven young - early mature Karaka trees and seven young Puriri trees in addition to the removal of approximately 12 low to medium sized native trees and shrubs from within the site. Should ground conditions allow, it may be possible to transplant suitable trees and shrubs to other parts of the reserve, including along the northern boundary to assist screening upper level views from houses in this area. This would be determined during the preparation of the CMP for the site. Although the walls and fences would screen the majority of activities beyond, in themselves, they create an effect on the open space landscape and visual character of the area.

7.22 At the time of preparing the Landscape Report I assessed the adverse effects on open space and landscape character of the Reserve to be moderate. This conclusion was based on a combination of factors including the relatively discrete corner of the reserve where the infrastructure activities are proposed, combined with the associated reduction in open space and the external appearance of the fence. Also taken into account was the limited number of small to medium-sized native trees being removed and their type, condition and value.

7.23 Submissions from local residents indicate that many of them consider the effects on their use of the open space, the landscape character and visual amenity to be greater than my initial assessment findings as they frequently use the area for passive recreation. I acknowledge that the construction activities will render this part of the reserve un-useable for a period and that I may have under-estimated the use of this area by residents in the adjoining and nearby residential area. I note, however, that through site access will not be prevented and other parts of the reserve, including the existing active recreation areas and other passive areas, will remain available for residents' and visitor use.

7.24 Based on my review of the residents' submissions and a further site visit, my opinion is that the temporary effects on the open space and landscape character resulting from the construction works may be high (rather than moderate) but that the effects on visual amenity would overall

remain moderate (as previously assessed) due to the level of screening provided to surrounding residential properties.

7.25 Once construction is completed and the fence removed, the permanent works at this location will all be located flush with the surrounding ground level. They include three shaft covers, one of which is up to 7 metres in length; and control chamber lids. Provision for maintenance will be provided by all-weather trafficable access.

7.26 A number of techniques should be considered to remedy and mitigate the effects following construction. These would include removal of construction access roads apart from an access for maintenance vehicles at this site. I would recommend at this site such an access road be covered with grass-cell or alternative surface material to enable durable all-weather maintenance access to manholes and lids, but be integrated with the future park open space amenity. The Landscape Report photomontage referred to in one of the submissions, depicted a grass cell type of finish being used to ensure that the park still retains an open grassed character with the grass-cell structure set below the finished level of the lawn.

*Car Park Site (refer to **Figures 8a - 11a** on pages 51 - 54 of the Hearing Drawing Set)*

7.27 At this location the construction area will require the removal of one flowering cherry tree and some low shrubs adjacent to a pedestrian ramp and around the base of an existing wall. In addition to the 2.5m high noise wall which is to be provided along the entry access boundaries and for a portion of the north western fence line, a 3 metre high noise wall will be provided to all other boundaries of the construction area, including on top of the existing retaining wall adjacent to the main community building and associated outdoor deck and walkway (refer to **Figure 10** on page 53). This will effectively screen out the majority of views of the construction works from surrounding residential and park areas, including the deck and areas around the Community Centre.

7.28 With this option access from the north through Mount Albert War Memorial Reserve will be maintained around the outside of the construction area through a new path that will connect up to the level where the table tennis table is located and then around to the walkway

beside the Community Centre (refer to **Figure 11a** on page 54). For these users of the path and other open space areas to the north, views into the site will be obscured by the noise wall.

7.29 For this site, based on the construction proposed I consider the adverse effects on open space and landscape character of the reserve to be Low to Moderate. This is due to the construction works being largely located on the existing car park. This will result in the passive recreational grassed area of the reserve being available to residents and the public and will avoid the need for any of the medium size native trees to be removed. The higher 3 metre noise wall will provide a more effective screen of the construction activities, but will in itself alter the landscape character of a wider area of the reserve including around the car park outside the Bridge Club building and near the Community Centre entry.

Comparative Effects between Reserve and Car Park Location

7.30 In my opinion, the open space and landscape character effects resulting from the Car Park site would be less than the Reserve site mainly due to it being located on a hard surfaced car park, rather than the grassed and treed area of the reserve utilised by residents.

7.31 In terms of effects on visual amenity resulting from the construction activities, I consider that the effects will be low for the Car Park site compared to moderate for the previously assessed Reserve site. This is due to the Car Park site being located further away from the residential properties to the north and there being more effective screening by the higher noise walls around the construction area.

7.32 For both options permanent effects on the open space and landscape character following completion of the works would, in my opinion, be neutral with the potential for some beneficial effects on visual amenity following reinstatement. Details of the reinstated Reserve or Car Park site and the associated landscape treatment would be developed through preparation of a SRP.

Western Springs Interchange – CSO Collector Sewer Site

7.33 Tawa Farms Limited owns the land where the Western Springs Interchange – CSO Collector Sewer Site is proposed. In its submission it disagrees with the statement in the report by Arborlab that the loss of

vegetation on this site, consisting of 13 Pittosporum species (5 to 6 metre high), a Puka (3 metre high) and two Wattle (which are weed species) will be negligible. Tawa Farms consider that *"the vegetation provides a valuable softening of the built edge to the motorway and is a well established feature of the site"*. While this vegetation does screen part of the Caltex Service Station from the St Lukes Road off ramp to the North Western Motorway, there is an another area of large planting located within the motorway designation between the off ramp and motorway and along the motorway boundary of the site that effectively screens and provides a vegetated context for the buildings and forecourt (refer to **Figure 5a** on page 31 of the Hearing Drawing Set).

7.34 In my opinion, removal of the vegetation on the Tawa Farms site for the construction period will result in very low adverse effects on any open space and landscape character attributes and the visual amenity at this motorway interchange.

7.35 Tawa Farms request that a landscape plan be prepared to reinstate the removed vegetation following construction. Watercare's Proposed Designation Condition SR.1 requires the preparation of a SRP which will include details of proposed reinstatement planting. I agree with the request for replanting, which was also noted by Arborlab in its report on this site, and consider that the Proposed Designation Conditions adequately ensure that reinstatement planting will occur.

Kiwi Esplanade Reserve

7.36 The Mangere Bridge Residents and Ratepayers Association have commented in their submission that the Project will impact on recreational facilities at Kiwi Esplanade Reserve. As outlined above in my evidence, there will be some minor reduction in open space, removal of the existing toilet during construction and removal and relocation of some Pohutukawa trees during the 12 to 18 month construction period. In the long term, however, the permanent works will, in my opinion, result in an enhancement of the Reserve, with a new toilet block and additional tree and shrub planting with the permanent above ground elements integrated into the building and surrounding landscape treatment.

The proposed Mangere Pump Station

7.37 Although no formal submission has been made in relation to visual issues at this site, I understand that at a meeting held in May 2013 between Watercare and Te Akitai, concerns were raised about the size and design of the proposed EPR structure at the proposed Mangere Pump Station.

7.38 As outlined above, the EPR structure will be located within the CMA. It will be visible from the adjoining Watercare coastal walkway that connects Ambury Park with the Otuataua Stonefields. As depicted conceptually in **Figure 49a** on page 145 of the Hearing Drawing Set, the structure is designed to sit flush with the existing ground level and the concrete headwalls, and designed at the same angle as the existing rock rip rap retaining along this part of the coastal edge. The concept design is to integrate the headwall with the existing seawall and the area around the concrete structure by using rocks to screen the outer edges of the concrete headwall as depicted in the sketch in **Figure 49a** on page 145 of the Hearing Drawing Set (please note concept design only). Although wider than the existing structure located in the seawall area, the proposed EPR structure will, with appropriate design input as part of the SRP, result in a similar visual outcome.

7.39 Based on this preliminary concept design I consider the adverse effects on the open space and landscape character (including natural character of the coastal environment) to be low, and the effects on the visual amenity to be very low, for both the construction period and the permanent works. This is based on the landscape context of the proposed location in relation to the buildings, the existing modified coastal environment and the existing and proposed future works at the Mangere WWTP.

Walmsley Park

7.40 The Friends of Oakley Creek, request a reconfiguration of the construction site and its access to reduce impacts on Oakley Creek. My assessment considered the impact of bridging Oakley Creek; a contributing factor to the assessment of temporary open space and landscape character effects being moderate. Although reconfiguring the site to the south bank of Oakley Creek would reduce the temporary effects on landscape character regarding the creek, the extension of the

site along the south bank of the creek would require further removal of mature trees, which would result in an adverse effect. I also note that in the Park Sport and Recreation ("**PSR**") feedback,[3] the PSR support the location alongside the southern bank for recreational reasons.

May Road

7.41 Friends of Oakley Creek request that the north-east boundary be excluded from the construction site and a 15 metre riparian buffer be planted, to reduce impacts on Oakley Creek. The north east boundary does not protrude into the creek; it finishes along its southern bank. My assessment acknowledges the current 'business' zoning for the site and assesses the impacts (temporary and permanent) of the works to landscape character, including the creek, to be Very Low. I would, therefore, question the need for a buffer; however, a small buffer could be introduced prior to the commencement of the construction works in agreement with relevant parties as part of the formation of a CMP, or following the construction works as part of the SRP.

8. RESPONSE TO COUNCIL PRE-HEARING REPORT

8.1 Reviews of the Councils Pre-hearing Report and specialist attachments have been undertaken, identifying any issues relevant to my assessment. These are grouped and commented on accordingly below.

8.2 Firstly, it is important to acknowledge that the Isthmus Review ("**Review**"), undertaken on behalf of the Council, agrees with my assessment and that any differences identified do not alter the overall assessment and conclusions reached.[4]

8.3 Although the review contains some minor differences, it agrees that the effects are in line with, or less than, what would be expected for a project of this scale. The Pre-hearing Report confirms these conclusions and also, in agreement with my assessment, considers that the potential landscape and visual effects of the Project can be adequately remedied or mitigated.[5]

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3 Memo, Parks, Sport and Recreation Feedback, 5th March.
4 Council Pre-hearing Report, page 154 and Isthmus Review, paragraph 302.
5 Council Pre-hearing Report, page 154, Section 9.3.14.

Content

8.4 In paragraph 8 of the Review, Mr Lister presents an alternative approach to the rating of effects outlined in Chapter 5 of my assessment which rates the effects as *less than minor, minor or more than minor*. A description of how the effects were assessed is provided in **Appendix 1** of the Landscape Report. Ultimately the ratings are used to summarise the effects and do not alter the outcome of the assessment.

8.5 Mr Lister suggests that assessment of Natural Character was omitted for the following sites: Norgrove Avenue, Pump Station 25, Miranda Reserve East, Dundale Avenue, and Haycock Avenue. This is correct. My assessment specifically addresses natural character only where it is considered to be relevant, ie at Pump Station 23. For all other relevant sites it was considered as part of the assessment of effects on Open Space and Landscape Character and not directly referenced as the effects were insignificant; something which the Pre-hearing Report and Mr Lister agree with in their assessment of natural character. The Pre-hearing Report concludes that each site proposal is appropriate in terms of natural character, and, in general agrees with my assessment that overall the Project offers beneficial long term effects on natural character through enhanced water quality.

Assessment of Effects

8.6 In general, the Review and Pre-hearing Report agree with my assessment of effects; however, some specific differences with regard to the degrees of effects at individual sites have been identified.

Agreed

8.7 At 12 of the 20 sites reviewed:[6] Western Springs Interchange, Haverstock Road, May Road, Keith Hay Park, Kiwi Esplanade, Mangere Wastewater Treatment Plant, Motions Road, Western Springs Depot, Rawalpindi Reserve, Norgrove Ave, Pump Station 25 and Miranda Reserve East, the Review agrees with my assessment pending the implementation of prescribed mitigation measures and design details. Such measures will form part of the Outline Plan of Works ("**OPW**"), CMPs and SRPs,

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[6] For the purposes of the Isthmus Review, Western Springs and Western Springs Interchange were considered as separate sites where as they are considered together in the AEE, making the total of construction sites 19 rather than 20. (Note also that the two options at Mount Albert War Memorial Reserve are considered to be one site as only one will be selected.)

required through the proposed designation conditions (see Conditions section below).

8.8 At Kiwi Esplanade, Mr Lister agrees with my assessment of temporary and permanent effects, pending the implementation of mitigation measures. These mitigation measures include the transplanting of Pohutukawa trees on site, something which Mr Lister supports. The Pre-hearing Report requests further evidence regarding feasibility.[7]

8.9 My assessment was based on the retention of some of the large Pohutukawa trees on the inland side of the site and the transplanting of the smaller ones to the coastal side. Given the species' resilience and availability of heavy machinery on site, the transplanting of Pohutukawa should be feasible pending an arborists input, careful preparation, and cost.

8.10 I agree with Mr Lister's suggestion[8] that transplanting the trees to the south of the site would enhance screening of the proposed works from surrounding properties. I consider that Watercare's Proposed Designation Condition T.1 adequately provides for the protection, pruning and transplanting of trees within the construction site.

Disagreed

8.11 At a further four sites, the Review disagrees with the temporary effects judgements: Walmsley Park, Whitney Street, Dundale Avenue and Haycock Avenue. The differences between our assessments at these sites in relation to temporary effects are small; I consider that the use of CMPs and SRPs will ensure that adequate mitigation measures are implemented.

8.12 The four remaining sites are discussed below, Western Springs Park, Mount Albert War Memorial Reserve, Lyon Avenue and Pump Station 23.

<u>Western Springs Park</u>

8.13 The Review agrees with my assessment of temporary effects, however, it disagrees with the assessment of permanent effects which I assessed as "very low adverse to small beneficial". Mr Lister considers the effects

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7 Council Pre-hearing Report, page 247.
8 Paragraph 133; Isthmus Peer Review of Landscape and Visual Assessment; 11 June 3013.

would be adverse but does consider that these effects can be acceptably mitigated through detailed design.

Mount Albert War Memorial Reserve

8.14 The Review agrees with my assessment of temporary effects and permanent effects on visual amenity; however, it disagrees with the assessment of permanent effects on landscape character and open space, which I assessed as "neutral". Mr Lister considers the effects could be "very low" depending on mitigation; he specifically identifies the issue of "visual clutter" resulting from the shaft covers. As set out above in my evidence, I agree that the Car Park site is preferable; this site would incorporate the shaft covers within a hard landscape setting.

Lyon Avenue

8.15 The Review suggests the alternative location to the Lyon Avenue site could avoid significant landscape effects. Mr Lister considers that the alternative site on the Mount Albert Grammar School playing fields would have (on balance) less landscape effects and recommends that the applicant further justify the site location.

8.16 However, in contrast, the Pre-hearing Report concludes:[9]

> On balance, it is considered that the Lyon Avenue site provides the best practical location for construction due to potential impacts on the operation of Mt Albert Grammar School sports field, and the need to reinstate the sports field following construction. The authors find that despite the unavoidable and significant loss of trees and vegetation from the Roy Clements Treeway, implementation of the site reinstatement conditions i.e. compensatory replanting will ensure that these effects will be appropriately remedied or mitigated. Longer–term as the replanting matures the overall effects on amenity of the area will be restored, and the natural character of Meola Creek will be significantly improved due to the reduction in wastewater overflows.

8.17 I have not reviewed the alternative option as the site was ruled out for other reasons prior to it reaching a stage where a landscape and visual assessment was necessary.

Pump Station 23

8.18 At Pump Station 23, Mr Lister concludes that temporary visual effects would be very high as a result of removing the large Pohutukawa tree in the north-west corner.

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[9] Council Pre-hearing Report at page 195.

8.19 The Council Pre-hearing Report identifies the need to explore other site layouts which could retain the tree and requests further evidence (page 247). I agree that the large Pohutukawa tree at Pump Station 23 is an important specimen and it would be preferable if it could be retained during construction. However, my current understanding is that the tree will likely need to be removed to enable the construction works to take place. The final judgement regarding the retention, pruning or shifting is dependent on the detailed design and precise layout of the works, which will be determined as part of the CMP.

Proposed Conditions

8.20 I support, in general terms, the proposed amendments and additions to the conditions; which provide further clarity with regard to landscape and visual effects mitigation. I have addressed, where necessary, both the proposed amendments to the Proposed Conditions below.

Designation Conditions

8.21 The Council Pre-hearing Report and the Isthmus Report raise concerns regarding the level of detail, required by the Proposed Conditions, within the CMPs and SRPs.[10] These plans have yet to be developed. The Pre-hearing Report is referring to Mr Lister's comments about the openness of the current designation conditions relating to mitigation measures.[11]

> I support the suggested mitigation and remediation measures as a reasonable response to the level of effects. The Report's assessment of landscape and visual effects appears to be predicated on the assumption that such measures will be implemented. However, the conditions are general and open ended and do not give specific effect to such measures. As a consequence they cannot be relied on in assessing effects.

8.22 These concerns relate directly to the implementation of specific mitigation measures including: architectural design, all weather access, lid structures and, tree management, as such the Pre-hearing Report, based on Mr Lister's recommendations, proposes amendments to Watercare's designation conditions.

8.23 In general, I agree with the purpose of the Proposed Designation Conditions, allowing greater clarity and assurance that the mitigation measures which are proposed will be implemented. However, there are a number of these conditions where I propose additional amendments to

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10 Council Pre-hearing Report at page 156.
11 Isthmus Review, see paragraphs 299, 305 and 306.

the wording, I comment on the specific conditions proposed below. Where I refer to the wording of specific Conditions, this wording is set out in the marked up Proposed Designation Conditions attached to Ms Petersen's evidence.

Proposed Condition SR.1, SR.3 and SR.4

8.24 I support the original condition for all sites to have a SRP as set out in Proposed Condition SR.1. I would question the need to distinguish between sites in respect of the type of restoration plan they have assigned. I therefore consider it unnecessary to have Open Space Restoration Plans, as the Council had originally proposed (Proposed Condition SR.3 and SR.4).

8.25 Watercare also seeks to retain the originally proposed Conditions 32 and 33, now Proposed Conditions SR.1A and SR.1B. I support proposed Condition SR.1A which specifically makes provision for the development of Reinstatement Plans to be integrated with park development and management plans of Auckland Council, and designed in accordance with CPTED principles.

8.26 I also support retaining Proposed Condition SR.1B which specifically reflects the need to integrate the Lyon Avenue SRP with the Roy Clements Treeway VEP.

Proposed Condition SR.2 - Planting Adjacent to Residential Properties

8.27 The Council had proposed the insertion of Proposed Condition SR.2 which outlines a requirement for plans for Keith Hay Park and May Road to have specific visual mitigation planting adjacent to boundaries adjoining residential properties. This responds to comments made by both the Review and the PSR feedback. I consider that this concern can be addressed in Watercare's Proposed Condition SR.1 point (d):

> The plan shall include
> ...
> (d) Details of proposed landscaping and planting, including implementation and maintenance programmes.
> ...
> - <u>For sites that are adjacent to residential properties, and have above ground structures, details of specific mitigation planting shall be included to provide visual screening of the structures from residential properties.</u>

Proposed Conditions SR.4 and SR.5 - Use of Grass Cell

8.28 In his review, Mr Lister identifies the need for clarity regarding the use of 'grass cell' access ways as an alternative to hard surfaced permanent access ways. My assessment in the Landscape Report, at section 6.6, advocates the use of 'grass cells' as a means for better integrating vehicular access within the landscape setting across public open space.

8.29 While I support Proposed Condition SR.5 for identifying specific sites to have 'grass cell' access, it is perhaps too restrictive; at certain sites it may be preferable to have a hard surface, eg Pump Station 25 (Miranda west). I would suggest that this issue is sufficiently covered through Watercare's proposed amendment to Proposed Condition SR.1:

> The plan shall include:
>
> (c) The location and design of permanent access to the wastewater infrastructure. <u>As far as practicable, permanent all-weather access for heavy vehicles shall minimise areas of new impermeable surfaces and, in open space areas, the use of grass cell, or similar, shall be considered.</u>

Proposed Conditions SR.6 and UD.1

8.30 While I support the intent behind the Council's proposed insertion of Proposed Conditions SR.6 and UD.1, which respond to Mr Lister's concerns regarding lid structure/ chamber cover designs, the feasibility of covering the lid structures with topsoil and grass is dependent on functional requirements and engineering constraints. I therefore consider Watercare's proposed amendment to Proposed Condition SR.1 is appropriately sufficient in addressing this concern.

> The plan shall include:
> ...
> (b) The location and design of permanent wastewater infrastructure to remain at the site <u>including the design of lid structures and chamber covers</u>.

Proposed Condition SR.7- Design of permanent buildings

8.31 Proposed Condition SR.7 requires that any new buildings at Western Springs, Pump Station 25 (Miranda West), Pump Station 23 and Kiwi Esplanade be reviewed against architectural criteria, addressing Mr Lister's concerns raised in his Review.[12] I would suggest that this list is restrictive and it may be more appropriate to have a general condition which covers any new structures across all sites, taking into consideration

[12] Isthmus Review, see paragraph 267.

the 'possible air treatment facilities'. As such, I support Proposed Condition DC.7B.

Proposed Condition TM.1 - Trees

8.32 The Council Report highlights concerns regarding the absence of tree management details from the CMPs. Mr Lister's Review identifies the need for more details within the CMPs regarding tree management.[13] When the CMPs are developed these will incorporate all of the Arbolab arboriculture assessment information, and clearly identify specific trees to be protected, pruned, removed, and transplanted, in line with Watercare's amended Proposed Condition T.1. I support the further amendments to condition T.1 in addressing the concerns raised:

> ~~27~~T.1 The Requiring Authority shall provide details in the CMP as to how the potential impacts of construction on trees and vegetation will be managed ~~(as required by Condition 9).~~ The details shall provide for the:
>
> (a) Identification of trees to be protected, pruned, removed, or transplanted and procedures for marking these out on site.
>
> (b) The proposed location for any transplanted trees, including detail of any required landowner agreements if these locations are outside of the designated area.
>
> (~~b~~c) Procedures for identifying and protecting significant trees to be retained where works occur in the dripline of such trees as identified by a suitably qualified person.

8.33 The PSR feedback in the Pre-hearing Report identifies several general concerns relating to landscape and visual amenity including: reinstatement of planting, access ways, and general mitigation. Although many of the issues relate to landowners agreements, the Proposed Conditions SR.1, SR.1A and SR.1B would ensure these issues are covered in SRPs.

8.34 A further key issue identified in by PSR, concerned public access within the parks/reserves during construction. Proposed Condition PM.1 requires alternative access ways to be provided and includes the need for design in accordance with CPTED; I would therefore consider this condition to be sufficient.

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[13] Isthmus Review, see paragraph 299.

8.35 A third key concern raised by PSR relates to the replacement of tree specimens and vegetation on site. The replacement of trees will be detailed in the CMP as set out in the proposed amendments to Proposed Condition T.1 set out above.

CONCLUSION

8.36 In summary, the magnitude of the effects generated by the Project is, in my opinion, at a level that would not be unexpected with a significant infrastructure project such as this one. The majority of the works and completed Project will be underground. This includes the main tunnel, link sewers and associated connections to existing sewers. At specific sites and connection points along the route a range of permanent predominantly ground level structures will be provided, and during the construction of the tunnel and underground pipes additional temporary facilities will be required.

8.37 The Project has significant natural character benefits associated with the large reduction of wastewater overflows into the Meola Creek, Oakley Creek and Whau Stream in many locations that are frequented by the public alongside walkways and within passive reserves. In addition, there is the potential for additional landscape and visual amenity benefits associated with site reinstatement and enhancement of park access, facilities and planting.

8.38 As outlined above, the magnitude of effects resulting from the Project will vary from site to site for both the construction works (temporary effects) and the completed works (permanent effects). Effects will also vary depending on whether open space and landscape attributes, or visual amenity effects are being considered. The effects on these attributes will, in my opinion, range from very high adverse temporary effects at two sites, to potentially high beneficial permanent effects at three sites. I consider that the majority of the temporary effects are moderate and for the duration of the construction activities at each particular site. The permanent adverse effects of the completed surface works are, in my view, generally low to very low and in many instances neutral following completion of the reinstated site works. Noticeable beneficial effects will occur at many sites through the enhancement of water quality and associated natural character, landscape and visual amenity values.

8.39 At all sites a CMP is to be prepared prior to the start of construction works which will finalise the detailed layout of all elements and structures. These plans will consider fencing and other screening mechanisms where practicable to mitigate adverse effects that would be more than minor from specific residential locations. A SRP will also be prepared for each site in conjunction with the landowners and the users of public open space. These plans will consider the detailed urban design aspects and landscape treatment relevant to the particular site, landownership and the users of public open space. These plans are required for each site as part of Watercare's Proposed Conditions.

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