1 DESCRIPTION OF PROJECT ACTIVITY

1.1	Work Lot	Work Lot 11 – Rouse Hill Potable Water Inlet Main
1.2	Introduction	The proposed changes to the design of the Water Inlet Main require a Consistency Assessment (CA) to be undertaken. This CA assesses a proposed realignment of the Inlet Main, and considers whether trenching is an appropriate construction technology. The proposed design changes occur between Ch.40 to Ch.960 on the Inlet Main.
1.3	Change/Reference No.	Rev 00 v.6
1.4	Description of the Approved Project	An Environmental Assessment (EA) was prepared (February 2008) and Project Approval granted by the Minister for Planning on 18 November 2008 for the 'Construction and operation of water related services for the North West Growth Centre First Release Precincts', consisting of drinking water, recycled water and wastewater pipelines. The approval is granted under Part 3A of the *Environmental Planning and Assessment Act 1979*. Final design and pre-construction works are progressing for Stage 1 of a new drinking water pipeline from Parklea to the new reservoir under construction at Cudgegong Rd, Rouse Hill. Construction of the pipeline is scheduled to be complete by mid 2010. The Rouse Hill Potable Water Inlet Main is approximately 12 km in length. Stage 1 of Construction as described in the Preferred Project Report (PPR) commences 'at Sunnyholt Rd, near Clarendon Drive and progresses northward within the drainage reserve along Caddies Creek' before entering Windsor Rd corridor on the Western side, and continuing northward along Windsor Road'. See PPR figure 1-4. The subject area, of this consistency assessment is located between Sunnyholt Road and Newbury Avenue, Stanhope Gardens. The construction of this pipeline will impact vegetation within Stanhope Gardens Reserve. Sydney Water made a commitment in the Preferred Project Report that the '*revised pipelines would be underbored to avoid identified vegetation at Caddies Creek, Stanhope Reserve and Second Ponds Creek'* (p4-8). The identified vegetation are those areas mapped as River-flat Eucalypt Forest EEC in figure 4-1of the PPR, which includes sections of this pipeline. See attached maps [Rothbury Tce CA Locality Map.jpg], [Rothbury Tce CA Survey Drawing.pdf], [Rothbury Tce CA Detail Map 1.jpg], and [Rothbury Tce CA Detail Map 2.jpg] for comparison of the concept and proposed realignment
1.5	Purpose of the Consistency Assessment	The purpose of the consistency assessment is to ensure the realignment of the Rouse Hill Inlet Main is consistent with the environmental objectives and project description of the project and fulfils the commitments made in the EA and PPR, in particular: ▪ *revised pipelines would be underbored to avoid identified vegetation at Caddies Creek, Stanhope Reserve and Second Ponds Creek (PPR, p4-8)* ▪ *in areas of* [Aboriginal] *significance… consideration would be given to pipeline realignment where practical*…[with] *further investigations and appropriate consultation with aboriginal stakeholders.* SOC #32

		The realignment has been proposed to: • avoid Aboriginal heritage sites of high significance • reduce vegetation and creek environmental impacts, as well as community impacts near Rothbury Terrace This consistency assessment also provides additional assessment on vegetation mapping in Stanhope Gardens Reserve.
1.6	Analysis	The proposed realignment will depart from the Project Approval corridor depicted in the PPR (figure 1-4 and 4-1) between Chainage (Ch) 250 and Ch.830, approximately, within Stanhope Gardens Reserve on Sydney Water's Trunk Drainage Land. The concept alignment between Ch.400 and Ch.960 runs adjacent to Caddies Creek and is dominated by grassy parkland. At Ch.390 the alignment crosses a small tributary (referred to as T1), and at Ch. 720 the concept alignment crosses a second tributary (referred to as T2), both of which are upper tributaries of Caddies Creek. The concept alignment, after crossing T2, turns and travels parallel to T2 for 50 to 60 metres. During this section of alignment the pipeline is constricted to a narrow strip of land between a pedestrian footpath and the tributary. The land available for the pipeline is in places as narrow as 2m (See Photo 01), in these locations the construction site will be forced to work within the tributary, creating the potential for serious water quality impacts, particularly during a rain event. Between Ch.300 and Ch.380 the concept pipeline passes through Potential Archaeological Deposit (PAD) PK/CD7, site A6, and between Ch.410 and Ch.830 the concept alignment passes through PAD PK/CD1. An AHIP has been issued for PAD PK/CD1, it is therefore considered destroyed and no further assessment required. PK/CD7 has high significance and should be avoided. **Realignment to avoid working in high significance Aboriginal archaeology sites:** The PPR identified the Potential Archaeology Deposit (PAD), PK/CD7 near the Stanhope Gardens sportsfield. The concept alignment for the Inlet Main traverses through this PAD. See attached drawing [Rothbury Tce CA Archaeology Sites.pdf (Australian Water (No.1) Drawings No. NW1SA-002-2, and NW1SA-002-3)] The PPR recommends *further assessment* of the PK/CD7 site, and *consideration would be given to moving the drinking water pipeline*. GML heritage consultants conducted this assessment. The proposed realignment avoids the part of PAD PK/CD7 that is of high significance. See attached GML Archaeology Report. **Realignment to reduce environmental and community impacts near Rothbury Terrace** At Ch. 720 the concept alignment crosses T2, turns and travels parallel to T2 for 50 to 60 metres. Along this section of alignment the pipeline is constricted to a narrow strip of land between a pedestrian footpath and the tributary. The land available for the pipeline is in places as narrow as 2m (See Photo 01), and in these locations the construction site will be forced to work within the tributary, creating the potential for serious water quality impacts, particularly during a rain event. The alternative is to move the alignment further to the west and work within the existing roadway (Rothbury Terrace), which would

		require the road (low traffic volume, residential road) to be closed down completely for the duration of the works (approximately 7 days). The proposed realignment avoids the potential for such serious water quality impacts, and community/traffic impacts, by relocating the pipeline into previously cleared floodplain lands. The proposed realignment primarily avoids the tributary (except where it crosses the tributary), as well as the existing roadway, and also reduces impact to riparian vegetation. The realignment also will have additional community benefits by locating the pipeline further away from existing houses on Rothbury Avenue, and keeping a screening of vegetation between the works and residences. **Reassessment of vegetation mapping from the PPR** PPR Figure 4.1 maps approximately 90% of the concept alignment between Ch.40 and Ch.960 as River Flat Eucalypt Forest EEC [See Rothbury Tce CA PPR Vegetation Communities Map.jpg]. The PPR recommends *pipelines would not impact identified vegetation … provided that these areas are underbored or avoided*. If Figure 4.1 in the PPR is used as a guide for vegetation cover, then approximately 800 metres of pipeline in the study area would need to be underbored. While the study area has been previously recorded as covered by River-flat Eucalypt Forest (UBM Ecological Consultants, *Ecological Assessment Riverstone Water Related Services Project*, March 2008), further assessment by Onsite Environmental Management (2010) indicates that much of this area is clear of remnant vegetation. Approximately 70% of the subject area is limited to fields covered only by pasture grasses and weeds (78% with the realignment), and these fields are regularly mown. 15% of the remaining subject area is comprised of landscaped species and/or planted revegetation species (20% with the realignment). Only the remaining 15% can be attributed to natural native vegetation (and this is reduced to 2% with the realignment). Following this further assessment as detailed in section 2.1 it is determined that much of the site does not represent any EEC vegetation. In summary, the realignment has been moved to avoid the high significance area of PAD PK/CD7. The realignment also avoids the potential for serious water quality impacts by locating the pipeline further away from T2, and reduces vegetation clearance by moving it into previously cleared land. The realignment also will have a significant community benefit by locating the pipeline further away from houses, and keeping a screening of vegetation between the works and residences.
1.7	Conclusion	The realignment does vary to the description in the PPR report however the environmental impacts are reduced (in particular water quality, flora and fauna, and community), and there are no additional affected landowner's. Therefore the realignment is consistent with the environmental objectives of the project and the further environmental assessment shows that the realignment would have a positive outcome without the need for additional environmental safeguards to the EA or PPR. The additional environmental assessment shows that there is minimal impact to vegetation, due to its degraded nature, and history of the site. It is proposed that trenching is the appropriate construction technology and that the site would be restored to its existing condition. This site is located in Sydney Water's Trunk Drainage Land, and will be managed under a rolling 5-year Vegetation Management Plan. It is considered that the following safeguard *'revised pipelines would be underbored to avoid identified vegetation at Caddies Creek, Stanhope Reserve and Second Ponds Creek' (PPR, p4-8)* is no longer applicable as the vegetation has been reclassified and the works would not have a significant impact on the vegetation.

		The realignment of the inlet main during detailed design has fulfilled SOC #32, that in *areas of* [Aboriginal] *significance… consideration would be given to pipeline realignment where practical*…[with] *further investigations and appropriate consultation with aboriginal stakeholders.* The realignment would avoid impacting areas of high aboriginal significance. It is considered that the realignment is consistent with the environmental objectives of the project. However it is considered that a modification is required due to differences in the realignment to that of the concept alignment as described and depicted in the Preferred Project Report.

2 ENVIRONMENTAL STUDY

2.1	Description of local vegetation (include photographs)	The concept alignment, between Ch.400 and Ch.960, travels through Sydney Water Trunk Drainage Land that is largely vacant park land, that is primarily cleared of native vegetation. The parkland is dotted with isolated mature Forest Red Gum (*Eucalyptus tereticornis)* [See Photo 02], with narrow bands of Swamp She-Oak (*Casuarina glauca)* fringing Caddies Creek (runs parallel to pipeline), and two small tributaries [See Photo 03]. The isolated Forest Red Gums that are present support the claim in UBM Ecological Consultants 2008 ecological study suggesting this area is vegetated with River Flat Eucalypt Forest. However, apart from these isolated trees there are no other key indicator species representative of this EEC, such as Broad-leaved Apple (*Angophora subvelutina*), and Boxthorn (*Bursaria spinosa*). The land is now covered by pasture grasses which are regularly mown, and used for recreational parkland by the surrounding residential neighbourhoods. Considering these factors it is unlikely that any surviving River Flat Eucalypt Forest seed bank could ever naturally re-establish. This is supported by photographic evidence from 1943 which shows the area has been cleared for at least 65 years [see Rothbury Tce CA Historical Reference Map.jpg], which further eliminates any prospect of a surviving seed bank. Given this information, the area could no longer be described as River Flat Eucalypt Forest. It is now urban parkland, with isolated Forest Red Gum, and a virtual monoculture of Swamp She-Oak surrounding the small creekline and tributaries. Swamp She-Oak, although a floristic component of River Flat Eucalypt Forest, is not a key indicator species. However it is a key indicator species of the Swamp Oak Floodplain Forest EEC, and in general the riparian vegetation of Caddies Creek and associated tributaries are somewhat representative of Swamp Oak Floodplain Forest, although this is questioned as the riparian vegetation is almost a monoculture (rather than community). Other native species are present in the riparian areas but in low numbers, and not all are floristic components of the Swamp Oak Forest Floodplain EEC. Mid-storey species include Prickly-leaved Paperbark (*Melaleuca stypheloides)*, and *Acacia falcata.* The understorey species include Common Mat-rush (*Lomandra longifolia)*, Typha (*Typha orientalis*), Common Rush (*Juncus usitatus),* Sand Couch (*Cynodon dactylon)*, and a profusion of exotic weed species including Poison Buttercup (*Ranunculus sceleratus)*, Crofton Weed (*Ageratina adenophora)*, Moth Vine (*Araujia sericifera)*, Common Sowthistle (*Sonchus oleraceus)*, Fireweed (*Senecio spp)*, Ribbed Cats Ear (*Hypochaeris radicata)*, Lambs Tongue (*Plantago spp)*, and Dandelion (*Taraxacum officinale)*. The riparian vegetation is heavily disturbed by urban impacts including: weed invasion, litter, garden waste, invasion of exotic pasture grasses and landscaping species, utilisation of parkland for recreational means, historical clearing and slashing, disturbance to the natural creek profile through installation of concrete structures including weirs, and changes to the creek dynamics from stormwater outlets. The Swamp Oak Floodplain Forest community has been severely altered from these urban impacts and exists almost as a monoculture of Swamp She-Oak, with many of the floristic

		components of the typical midstorey and understorey species absent. However, the vegetation should still be considered to be Swamp Oak Floodplain Forest as, unlike in the neighbouring parkland, the seed bank in the riparian areas could re-establish. The parkland floodplain areas are comprised of native and exotic grass species including Paspalum (*Paspalum dilatatum*), Sand Couch (*Cynodon dactylon)*, African Love Grass (*Eragrostis curvula)*, Rhodes Grass (*Chloris gayana)*, Kikuyu (*Pennisetum clandestinum)*, Pigeon Grass (*Setaria pumila)*, and Giant Parramatta Grass (*Sporobolus fertilis)*. The parklands also exhibit weeds including Cobblers Peg (*Bidens pilosa*), Crofton Weed (*Ageratina adenophora),* Common Sowthistle (*Sonchus oleraceus)*, Fireweed (*Senecio spp)*, Ribbed Cats Ear (*Hypochaeris radicata)*, Lambs Tongue (*Plantago spp)*, Spear Thistle (*Cirsium vulgare)*, Broad-leaved Dock (*Rumex obtusifolius)*, Paddy's Lucerne (*Sida rhombifolia)*, and Dandelion (*Taraxacum officinale).* The concept alignment also traverses through a section of roadside landscaping, adjacent to Rothbury Terrace. The landscaping includes trees up to 5 metres in height, including species: Stiff-leaved Paperbark (*Melaleuca stypheloides)*, Common Matrush (*Lomandra longifolia)*, Swamp She-oak (*Casuarina glauca*), Sydney Green Wattle (*Acacia parramattensis*), Crimson Bottlebrush (*Callistemon citrinus*), Tantoon (*Leptospermum polygalifolium*), *Acacia falcata*, Cootamundra Wattle (*Acacia baileyana* - not a local native species), Western Australian Golden Wattle *Acacia saligna* - not a local native species), and Snowy River Wattle (*Acacia boormanii* – not a local native species), There is no native aquatic vegetation present through the study site.
2.2	Any habitat for fauna?	There is valuable foraging habitat for birds in the stands of Swamp She-Oak, particularly for cockatoos during winter when flowering on Australian natives is less prolific. Nesting habitat for birds is limited due to the monoculture canopy layer of Swamp She-Oak, as this not a tree used commonly for nesting, due to its thin branches and sparse foliage. The trees may be used for foraging by arboreal mammals as well, but not for nesting as the Swamp She-Oak do not contain suitable hollows. Potential grazing habitat is available in the pasture grasses, however it is unlikely to be utilised by kangaroos and other herbivorous grazing mammals due to proximity to urban areas and roadways restricting any connectivity to any areas of undisturbed vegetation. Reptiles including common native snakes and lizards are likely to utilise the grassland and riparian vegetation. Common frog species, such as *Crinia signifera*, are likely to inhabit the swampy areas alongside the creekline. It is unknown if any native fish are present in the watercourse, however Mosquito Fish (*Gambusia holbrooki)*, a noxious pest, have been observed in the creek. The presence of Mosquito Fish in the creek is likely to exclude other native fish except for the Long-finned Eel.
2.3	Any threatened species?	Swamp Oak Floodplain Forest and River Flat Eucalypt Forest are both Endangered Ecological Communities, listed under the Threatened Species Act 1995 as Endangered. No threatened flora or fauna species have been recorded in the area.
2.4	Local geographical details (soil type, land formation, etc)	The study area is mapped as Blacktown Soil Landscape Unit, represented by gently undulating rises on Wianamatta Group shales. The local area is relatively flat and resembles floodplain. Immediately south of the pipeline are sports fields while to the east and west are highly urbanised low density housing developments. The creek and associated floodplain extend to the north.
2.5	Local waterways	The small waterways, T1 and T2, that are crossed by the pipeline are upper tributaries of Caddies Creek. Caddies Creek runs parallel to the pipeline at a distance varying between 1m to 50m. At the confluence of Caddies Creek and the second tributary a large concrete weir has been installed. The weir is used as a litter and sediment trap, and causes the creek to expand unnaturally into a large pool (detention basin).
2.6	Proximity to waterway	Between 0m and 50m.

3 INITIAL ENVIRONMENTAL ASSESSMENT – ASSESSMENT OF IMPACTS

		Assessment of Impacts	Additional Mitigation Measures	Consistent with EA Impacts	
				Yes	No
	Flora and Fauna				
3.1	Will the proposed activity have any effect (additional to those previously assessed in the EA) on any threatened flora species or endangered ecological communities listed pursuant to the *TSC Act* and the *EP&BC Act*?	There is no anticipated impact to threatened flora species. As discussed in Section 2.1 the vacant parkland the pipeline traverses adjacent to Caddies Creek should no longer be considered River Flat Eucalypt Forest, therefore there is no impact to the River Flat Eucalypt Forest EEC. The vegetation that is present, is somewhat representative of Swamp Oak Forest Floodplain EEC (more so in some areas, less so in others), however it is not considered significant or sensitive enough to warrant the requirement to underbore, considering the minor impact the of the proposed work. The construction corridor will also be restored and form part of the ongoing bush regeneration and maintenance contract for Sydney Water's Rouse Hill Trunk Drainage Lands. Therefore the study area does not need to be underbored, as recommended in the PPR. Subsequently, the following information will presuppose the site is being constructed via open trenching. Open trenching through the study area with the proposed realignment will cause a minor impact to the existing native vegetation, to a measure of the complete removal of 14 Swamp She-Oak, and the pruning of 1 further Swamp She-Oak. This impact is not regarded as significant considering the current level of disturbance of the vegetation, the modification of the vegetation (reduced to a monoculture in many places), the minor and temporary nature of the tree removal in perspective with the overall vegetation community in the area, and the proposed revegetation and embellishment of the disturbed riparian areas with an appropriate suite of Swamp Oak Floodplain Forest species of local provenance. A complete list of the native vegetation to be affected by the pipeline is provided below: **Ch.130:** **BOTH ALIGNMENTS:** pipeline passes through a stand of 6 Swamp She-Oak [See Photo 04]. All 6 Swamp She-Oak would likely need to be removed, although two Swamp She-Oak that are on the edge of the pipeline could possibly be retained. The Swamp She-Oak will be rehabilitated as per the requirements of the Reed VRMP. **Ch.220:** **BOTH ALIGNMENTS:** pipeline passes close to a single mature Forest Red Gum [See Photo 05]. This eucalypt is sufficiently far from the pipe centreline that the tree could be retained, however due to its tilted position, and due to the inherent danger of cutting its roots and structurally destabilising the tree, this tree would likely be removed as a safety precaution.		Impact of realignment to threatened flora species and EECs is reduced with the realignment	

		Ch.390: **CONCEPT ALIGNMENT:** pipeline crosses a narrow band of Swamp She-Oak bordering Tributary 1. 4 Swamp She-Oak would likely need to be removed. **PROPOSED REALIGNMENT:** realignment utilises a previously cleared path across the tributary, and only requires pruning back of 1 Swamp She-Oak that has fallen over. [See Photo 03]. **Ch.720 to Ch.830**: **CONCEPT ALIGNMENT:** pipeline enters a dense stand of riparian vegetation surrounding Tributary 2. This stand of vegetation is some of the most significant (although still heavily disturbed) in the study area, as the vegetation is denser, more extensive, and contains a greater mix of native species. This stand of vegetation is more representative of Swamp Oak Floodplain Forest, as described earlier. Approximately **760m^2** of this riparian vegetation, assuming the pipeline is located under the edge of the pedestrian footpath, would be affected by the concept alignment with open trenching (that is, unless the pipeline was located in the roadway of Rothbury Terrace). The concept alignment would also remove the existing landscaping to an order of approximately 100 Stiff-leaved Paperbark trees (planted in high density like a hedge), 2 Cootamundra Wattle trees (not a local species), 1 Western Australian Golden Wattle trees (not a local species), and approximately 200 Common Matrush grass clumps. **PROPOSED REALIGNMENT:** With the proposed realignment, the pipeline would primarily keep away from the riparian vegetation surrounding Tributary 2, traversing mostly through open parkland [See Photo 06], then a small stand of rehabilitated bushland that includes 20 juvenile eucalypts, 2 *Acacia falcata*, 20 Swamp She-oak, 6 Stiff Bottlebrush and approximately 20 Common Mat Rush grass clumps. The removal of these planted species, which are still juvenile (average height 1m to 2m) is much less significant than removing naturally revegetating species. The proposed realignment will then cross the small tributary, affecting 8 Swamp She-Oak trees. These trees will be replanted as per the commitments of the Reed Vegetation Reinstatement Plan, as well as additional replanting in the riparian corridor with suitable Swamp Oak Floodplain Forest species, sourced from stock of local provenance. The realignment will also have a small impact on the footpath landscaping, requiring removal of approximately 20 Swamp She-oak (average height 5m) (planted, not naturally revegetating). **Ch.830 to Ch.960:** **BOTH ALIGNMENTS:** concept alignment and realignment reconverge and traverse through roadside landscaping all the way to Newbury Avenue. The landscaping has mostly been planted approximately 5 years ago, with some newer landscaping mixed in. The landscaping is a mix of local native and non-local native species, as mentioned earlier. Total species affected equals approximately 200 Common Matrush grass clumps, 100 juvenile (between 2m and 5m height) *Casuarina glauca,* 27 Sydney Golden Wattle, 17 juvenile eucalypt (believed to be Forest Red Gum), 40 Snowy River Wattle (a more local native would be used to replace this species), 1 Stiff-leaved Paperbark, 6 Crimson Bottlebrush, 1 Tantoon, and 2 *Acacia falcata*. [See Rothbury Tce CA Landscaping Map.jpg]			
3.2	Will the activity have any effect (additional to those previously	Due to the dense urbanisation of the locality and serious disturbance of the site, it is unlikely any threatened fauna species or populations would rely on the vegetation mentioned in Section 3.1 for habitat, and therefore this impact is not considered significant. (PPR states *the*		Impact to threatened fauna species	

	assessed in the EA) on potential habitat for threatened fauna species or populations?	*impact on terrestrial flora and fauna is expected to be similar for the revised and original pipeline routes* – this statement can be applied to the realignment as well). The realignment will have a benefit for fauna through the preservation of approximately 685m^2 of riparian vegetation over the concept alignment		and populations is reduced with realignment	
3.3	Will the activity have any effect (additional to those previously assessed in the EA) on locally significant stands of vegetation/ remnant trees?	Significant vegetation is present, refer to Section 3.1 for full details. The proposed realignment will reduce the impact on local remnant vegetation by passing through open parkland and planted revegetation area (does not represent local significant vegetation). The realignment route has been chosen to avoid any mature remnant Eucalypts (apart from one tree at Ch.220 that would need to be removed for safety purposes), mature Swamp She-Oaks and hollow bearing trees.		Realignment avoids significant stands of vegetation that are impacted by concept alignment	
3.4	Will the activity result in the clearing of additional vegetation (additional to those previously assessed in the EA)?	The concept alignment would remove approximately **760m^2** of riparian vegetation that is somewhat representative of Swamp Oak Floodplain Forest EEC, as well as 10 other Swamp She-Oak, and one mature eucalypt that would be removed for safety purposes. The proposed alignment will require complete removal of 14 Swamp She-Oak, and the pruning of 1 further Swamp She-Oak (and the one mature eucalypt that would be removed for safety purposes). Therefore the realignment will result in a significant reduction in vegetation clearance compared to the concept alignment. The proposed additional vegetation to be cleared is not considered to be significant to the local ecology, refer to Section 2.1 and 3.1 for details.		Yes	
	Heritage				
3.5	Will the activity have any effect (additional to those previously assessed in the EA) on locally, regionally or State listed heritage items?	No impact on non-indigenous heritage items for concept alignment or proposed realignment.		Yes	
3.6	Will the activity have any effect (additional to those previously assessed in the EA) on any aboriginal artefacts or potential archaeological deposits (PADs)?	There are two known archaeological sites in the study area: PK/CD1+2, and PK/CD7 (also referred to as A6) See attached [Rothbury Tce CA Archaeology Map.pdf] for approximate locations of the archaeology sites and their conflict with the concept alignment. **PK/CD7** Both the concept alignment and the proposed realignment traverse through this archaeology site. The proposed realignment has been deliberately moved to traverse through a part of the site with low significance, avoiding the requirement for any further archaeological investigation work. The advice has been provided by Reed's heritage consultants and can be confirmed in the attached GML Archaeology Report. The realignment achieves the recommendation in the PPR (page 4-19) *to mov(e) the drinking water pipeline…to avoid impacting this site.*		Realignment avoids the high significance area of PK/CD7. Impact is permitted to PK/CD1+2.	
	Noise and Vibration				
3.7	Will the activity result in the generation of	CONCEPT ALIGNMENT: Noise impacts will be received at residences along Rothbury Terrace from a distance of		Noise reduced for residents	

	noise during either construction or operation (additional to those previously assessed in the EA)?	approximately 20m with no screening. Works to be conducted at this distance from houses include excavation (using excavator and possible rock-hammering or rock-sawing), concrete sawing, backfilling, and compaction. PROPOSED REALIGNMENT: Noise will be improved for residences as the construction works will be separated by a distance of 60m at #30 Rothbury Tce, 50m at #24 Rothbury Tce, and 25m at #12 Rothbury Tce.		along Rothbury Ave (adjacent to work site)	
3.8	Will the activity result in the generation of vibration impacts (additional to those previously assessed in the EA)?	CONCEPT ALIGNMENT: Vibration impacts will be received at residences along Rothbury Terrace from a distance of approximately 20m with no screening. Works to be conducted at this distance from houses include excavation (using excavator and possible rock-hammering or rock-sawing), concrete sawing, backfilling, and compaction. PROPOSED REALIGNMENT: Vibration will be improved for residences as the construction works will be separated by a distance of 60m at #30 Rothbury Tce, 50m at #24 Rothbury Tce, and 25m at #12 Rothbury Tce.		Vibration reduced for residents along Rothbury Ave (adjacent to work site)	
	Visual Amenity/Land Use				
3.9	Will the activity increase the building envelope of an approved above ground structure, involve a new above ground structure or involve relocation of an above ground structure to a new location?	Not applicable, there will be no above ground structures		Yes	
3.10	Will the activity result in impacts to private property access during construction or operation (additional to those previously assessed in the EA)?	The concept alignment would close down Rothbury Tce over a 60 metre distance for approximately 7 days. The realignment has the benefit of relocating the pipeline away from the roadway and eliminating the need to close down the roadway.		Yes	
	Traffic Management				
3.11	Will the activity result in the generation of additional traffic either during construction or operation (additional to those previously	CONCEPT ALIGNMENT: Concept alignment will require heavy vehicles to use Rothbury Terrace while the works along the study site are conducted. This will include temporary closures to the road for activities such as concrete pours and materials deliveries. It is expected that 10 trucks a day over a period of 3 days will be needed to construct the pipeline. Additional trucks and machinery will be required for tree removal.		Traffic impacts reduced overall with realignment	

	assessed in the EA)?	PROPOSED REALIGNMENT: The study site will primarily be accessed from the sports field on Stanhope Parkway. This will impact users of the sports field, particularly during baseball games or sports days, when large trucks drive through the sports field car park. It is expected there will be approximately 10 trucks accessing the site through the sports field each day over a period of 3 days. This impact is not considered to be significant however appropriate community consultation will need to be conducted including liaison with Council and sports field users. [Please note: the sports field is not a new community receiver that was not previously impacted by the works as construction vehicles will already be accessing through the sports field to construct CH410 to CH700 of the inlet main. However the sports field will be receiving extended construction impacts]			
	Air Quality				
3.12	Will the activity result in the emission of chemicals or odours (additional to those previously assessed in the EA) to the air either during construction or operation?	Negligible difference in air quality impacts between the concept alignment and the realignment.		Yes	
3.13	Will the activity result in the generation of additional dust (additional to those previously assessed in the EA)?	Negligible difference in dust generation between the concept alignment and the realignment.		Yes	
	Soil Contamination				
3.14	Will the activity result in the disturbance of contaminated land/ generation of ASS (additional to those previously assessed in the EA)?	No identified contamination in concept alignment No identified contamination in realignment No identified ASS in concept alignment No identified ASS in realignment		Yes	
	Water Quality				
3.15	Will the activity involve discharge of polluted waters (additional to those previously assessed in the EA) from the subject site(s) either during construction or operation of the project?	CONCEPT ALIGNMENT: The concept alignment has the potential to cause serious water quality impacts due to the proximity of the construction works to the creekline (unless it is located in the middle of Rothbury Tce). There are several long sections of construction where the work site would be immediately adjacent to the creekline (for approximately 60m) due to site constraints and the natural meandering structure of the creek. Erosion controls would need to be erected with the aim of keeping the creek out of the works, and in the event of rain to keep rising flood waters out of the works. Erosion controls would include lining the site with sediment fence and reinforcing the fence with sand bags. In some places it would be necessary to build dyke-like sandbag walls, to keep the creek out of the works, or otherwise resort to diverting the creek		Water quality impact is reduced with realignment	

		past the works using piping. It may also be required to reinforce the creek bank using sand bags where the alignment runs parallel to the creek. However in the event of heavy rain this would be likely to fail and the creek would flow into the work site and cause downstream water pollution. The works would be planned to avoid wet weather but there is no guarantee of avoiding rain. Pursuing this alignment would be poor environmental management from a water quality perspective, as the risks and potential impacts are high. PROPOSED REALIGNMENT: The potential risk of erosion and sediment for the proposed realignment will be significantly less than the original concept alignment. As a general measure, the creek side of the construction works would be lined with sediment fence (and a mulch windrow as appropriate). The proposed realignment retains one perpendicular creek crossing (consistent with the concept alignment). Other than the creek crossing the realignment keeps away from the riparian corridor and provides significant benefits for water quality impacts. Note: A consistency assessment has been endorsed by Sydney Water to open trench the two minor tributaries as the contractors have shown that boring would be of greater impact.			
	Waste/Hazardous Materials				
3.16	Will the activity result in the generation of waste (additional to those previously assessed in the EA) during either construction or operation of the project?	Negligible difference in waste impacts between the concept alignment and the realignment.		Yes	
3.17	Will the activity lead to an increase in the quantity or change in type of hazardous chemicals required for either construction or operation (additional to that previously assessed in the EA)?	Negligible difference in hazardous chemical impacts between the concept alignment and the realignment.		Yes	
	Community				
3.18	Are there any additional properties affected as a consequence of the activity?	CONCEPT ALIGNMENT: The concept alignment will have significant community impacts for the residences along Rothbury Tce as construction will be located only 20m from their properties, with no screening (apart from fence and shadecloth) between the construction work and the houses. The construction will also remove a 5m strip of landscaping and riparian vegetation (ie. the vegetation nearest to the houses) that will affect the residences visual amenity, and the aesthetics of the streetscape for users of the existing pedestrian footpath and public roadway.		Yes, reduced impacts to community with realignment.	

		The construction will require the pedestrian footpath to be closed and torn up for a period of time, pedestrians will have to cross the road and pass onto the opposite side of the road during this period. Rothbury Tce will also be subject to heavy vehicle movements and temporary full road closures as concrete trucks and delivery trucks access the site. The construction footprint may impede on the road, resulting in traffic management during the construction period, including complete road blockages or contra-flow type traffic control situations. PROPOSED REALIGNMENT: The proposed realignment will improve community impacts as the construction works would primarily be located well away from residences (60m from #30 Rothbury Tce, 50m from #24 Rothbury Tce, and 25m from #12 Rothbury Tce) and would be separated by a screen of dense vegetation. Rothbury Tce would also be alleviated of heavy vehicles as access would be through the Stanhope Parkway sports fields, although this will have an impact on recreational users of the sports field. The sports field is not a new community receiver, as construction vehicles would already be accessing through the sports field to construct CH410 to CH700 of the inlet main. However the sports field will be receiving extended construction impacts]			
3.19	Were there any specific submissions received during the EA exhibition relating to the proposed activity?	No submissions received relating specifically to these works		Yes	

4 CONSISTENCY ASSESSMENT

Consistency with Conditions of Approval		
Conditions of Approval	Consistent with CoA?	
	Yes	No
Condition 1 of the Ministers Conditions of Approval required the project be carried out consistent with the: a. project contained within the EA and Preferred Project Report b. procedures, safeguards and mitigation measures identified in the EA and Preferred Project Report c. Director General's Report d. conditions of approval granted by the Minister	 X X X	 X X (MCoA 1.1(c))
The proposed activity is consistent with the requirements in the Minister's Conditions of Approval		X (MCoA 1.1(c))
The proposed activity is consistent with the objectives of the project • EA objectives, • BCO objectives	 X X	
The proposed activity Is consistent with the description of the approved project		X
The proposed activity is consistent with the described impacts of the project	X	
No new conditions are required – the proposed activity is consistent and can be managed by the current conditions	X	

In assessing the impacts, the proposed activity is consistent with the approved project in terms of:		
• there are no significant impacts	X	
• the proposed impacts similar in scale to the approved impacts	X	
• there will be no new receivers affected by an impact who were not previously impacted	X	
• there are no new impacts	X	
Conclusion	Yes	No
Is preparation of an Environmental Assessment Addendum and modification to the Project Approval required? *Note - If the answer to any of the above questions is NO then preparation of an Environmental Assessment Addendum (see Table of Contents Template – Form 2) and a modification to the Project Approval will need to be sought from the Department of Planning.*	X	

5 CONCLUSION

Conclusion	
Consistent / Inconsistent with EA documents, PPR, MCoA, and SoC	The realignment of the Rouse Hill Potable Water Inlet Main is considered to be consistent with the approved project, comprising: • project and environment objectives contained within the EA and Preferred Project Report • procedures, safeguards and mitigation measures identified in the EA and Preferred Project Report The proposed realignment would provide a positive outcome by reducing the extent of vegetation to be cleared, this is consistent with the objectives of the Flora and Fauna Management Sub-plan that has been developed for SoC #28. The realignment of the Rouse Hill Potable Water Inlet Main is considered to be inconsistent with the project depicted in the Preferred Project Report, therefore it is recommended that a request to modify the Minister for Planning's project approval be lodged with the Department of Planning. Sign-off: Ibrahim Farag Works Inspector ~~or OHS and Environmental Manager~~ Australian Water Gill Fowler Senior Environmental Scientist 11/3/10. Sydney Water

CONSISTENCY REVIEW AND ENVIRONMENTAL ASSESSMENT COMPILED BY:
Ben White - Reed NWGC Project Environmental Representative
Senior Environmental Engineer/Experienced Ecologist of Onsite Environmental Management Pty Ltd

6 APPENDIX 1.

Environmental Risk Assessment – Rouse Hill Inlet Main Realignment

Note:	**This form is to be used to carry out Risk Assessment prior to and during Project Construction. The Project Risk Assessments are to be communicated to all persons working on site including subcontractors. The Project Risk Assessment is to be reviewed at least monthly during Project Construction.**

Reed Authorisation:	**Tom Burns**	Position:	**Project Manager**	Signature:		Date:	
Reed Representative:	**Ben White**	Position:	**Project Environmental Representative**	Signature:		Date:	

PROJECT RISK ASSESSMENT

Identification of Hazards

The purpose of this list is to assist with the identification of hazards associated with the works. This document is not intended to be a comprehensive or exhaustive list of all the hazards. The hazards identified reflect a subjective assessment based upon the knowledge of the works.

This Project Risk Assessment is carried out prior to works commencing on the project and will be reviewed at least monthly during the project construction stage. The following site specific hazards have been identified and assessed:

Warning to Subcontractors:

Subcontractors should not rely solely on the hazards identified by Reed. Subcontractors must undertake their own assessment of the hazards and risk associated with the work. Subcontractor's Safe Work Method Statements must identify the hazards associated with their works and describe the hazard control measures.

Site Managers and Site Supervisors must consider the hazards identified when reviewing the adequacy of the Subcontractor's Safe Work Method Statements.

Risk Score & Residual Risk Score Calculation Abbreviations:	**P – Probability**	**C –Consequence**	**RS – Risk Score**

Item No.	**6.1.1 Section A** **6.1.2 Issue/Hazard Identification/Impact** Identify the potential hazards of the work activity (i.e. what can cause harm/damage)	**6.1.3 Section B Risk Score (RS)** (No Controls in Place) Refer to Matrix			**6.1.4 Section C Risk Controls** Recommended OHS/Environmental/Quality Controls. (Eliminate Where Practicable. Refer to Hierarchy of Risk Controls)	**6.1.5 Section D Residual Risk Score(RS)** (Controls in Place) Refer to Matrix		
		6.1.	**6.1.**	**6.1.**		**6.1.**	**6.1.**	**6.1.**
1.	**Flora and Fauna: Vegetation Clearing** Destruction of: • EECs	**B**	**1**	**1 [H]**	• Follow measures in Flora and Fauna Management Plan • PER to inspect and approve trees to be felled and identify significant vegetation to be protected • Site staff informed there is to be no unapproved clearing of vegetation and made aware of significant vegetation and threatened fauna species • Minimise vegetation clearing by using existing cleared space for access tracks, compounds, etc	**D**	**3**	**5 [L]**
2.	**Air Quality** • Dust from excavation/ vehicle movements • Exhaust fumes from vehicles	**C**	**3**	**4 [M]**	• Follow measures in Air Quality Management Plan • Switch off plant when not in use • Suppress dust from high-generation activities by use of water cart and/or hose • Maintain plant • PER and site staff to do visual inspection/ pre-start checklist	**D**	**4**	**6 [L]**
3.	**Construction Noise** • Exceed guidelines for exposure limits to sensitive receivers/residents	**B**	**3**	**3 [M]**	• Follow measures in Noise (and Vibration) Management Plan • Observe regular working hours • Inform site staff of regular working hours • Community routinely consulted regarding upcoming works • Provide noise barriers where possible • Locate noisy machinery away from sensitive receivers	**C**	**4**	**5 [L]**

Risk Score & Residual Risk Score Calculation Abbreviations:	P – Probability	C –Consequence	RS – Risk Score

Item No.	6.1.1 Section A 6.1.2 Issue/Hazard Identification/Impact Identify the potential hazards of the work activity (i.e. what can cause harm/damage)	6.1.3 Section B Risk Score (RS) (No Controls in Place) Refer to Matrix			6.1.4 Section C Risk Controls Recommended OHS/Environmental/Quality Controls. (Eliminate Where Practicable. Refer to Hierarchy of Risk Controls)	6.1.5 Section D Residual Risk Score(RS) (Controls in Place) Refer to Matrix		
		6.1.(	6.1.'	6.1.{		6.1.'	6.1.	6.1.
4.	**Vibration** • Structural damage to residential or other buildings • Human discomfort to sensitive receivers	**B**	**1**	**1 [H]**	• Follow measures in Vibration (and Noise) Management Plan to manage vibration related issues • Community routinely consulted regarding upcoming works • Vibration kept below the guidelines provided in British Standard BS 6472 (1984 to 1992), International Standard ISO 2631:2-1989 and the Australian Standard AS 2670.2-1990	**D**	**3**	**5 [L]**
5.	**Indigenous Heritage** • Destruction of indigenous heritage items	**D**	**2**	**4 [M]**	• Follow measures in Heritage Management Plan • Site staff informed to stopwork if previously unidentified item be uncovered, fence off area, and contact PER	**D**	**4**	**6 [L]**
6.	**Non-Indigenous Heritage** • Destruction of non-indigenous heritage items	**D**	**4**	**6 [L]**	• Follow measures in Heritage Management Plan which includes management procedure for working inear non-indigenous heritage items • Site staff informed to stopwork if previously unidentified item be uncovered, fence off area, and contact PER	**D**	**4**	**6 [L]**

Risk Score & Residual Risk Score Calculation Abbreviations:	P – Probability	C –Consequence	RS – Risk Score

Item No.	6.1.1 Section A 6.1.2 Issue/Hazard Identification/Impact Identify the potential hazards of the work activity (i.e. what can cause harm/damage)	6.1.3 Section B Risk Score (RS) (No Controls in Place) Refer to Matrix 6.1.(	6.1.'	6.1.{	6.1.4 Section C Risk Controls Recommended OHS/Environmental/Quality Controls. (Eliminate Where Practicable. Refer to Hierarchy of Risk Controls)	6.1.5 Section D Residual Risk Score(RS) (Controls in Place) Refer to Matrix 6.1.(	6.1.'	6.1.
7.	**Soil and Water Quality** • Mobilisation of soils and pollution to local waterways • Breach of the POEO Act (1997)	**A**	**1**	**1 [H]**	• Follow measures in Soil and Water Management Plan • Prepare Erosion and Sedimentation Control Plans ahead of works to identify paths for clean and dirty water, controls required etc • Inspection and Maintenance regime to ensure controls retain capacity • Minimise exposed soils by progressive rehabilitation of site • Remove mud and dirt from roads • Provide work instructions to site staff for sensitive works such as creek crossings and work within riparian zones • General suite of environmental controls such as concrete wash outs (located away from waterways), stabilised access points, topsoil management, etc	**B**	**3**	**3 [M]**
8.	**Waste Management** • Contaminated soil • Asbestos • Illegal waste disposal	**B**	**2**	**2 [H]**	• Follow measures in Waste Management Plan • If asbestos is identified onsite inform workers not to break it, contact PER, follow appropriate removal process • Conduct waste tracking register • Identify appropriate waste disposal sites	**D**	**3**	**5 [L]**

NWGC First Release Precincts – Package 1 Works
Consistency Assessment
WL 11 - INLET MAIN – SunnyHolt Rd to Newbury Avenue, Stanhope Gardens

Risk Score & Residual Risk Score Calculation Abbreviations:	P – Probability	C –Consequence	RS – Risk Score

Item No.	6.1.1 Section A 6.1.2 Issue/Hazard Identification/Impact Identify the potential hazards of the work activity (i.e. what can cause harm/damage)	6.1.3 Section B Risk Score (RS) (No Controls in Place) Refer to Matrix			6.1.4 Section C Risk Controls Recommended OHS/Environmental/Quality Controls. (Eliminate Where Practicable. Refer to Hierarchy of Risk Controls)	6.1.5 Section D Residual Risk Score(RS) (Controls in Place) Refer to Matrix		
		6.1.(	6.1.'	6.1.8		6.1.'	6.1.	6.1.
9.	**Chemical/Fuel Spill** • Fuel/chemical spill • Fuel/chemical escape to creek	**A**	**3**	**2 [H]**	• Follow measures in Incident Management Plan • Train workers in use of spill kits • Track all spills on the project • Limit chemical use around creeks • Spill kits kept onsite at all times • Refuelling of vehicles/plants by mini-tanker • Chemicals kept in bunded area	**B**	**4**	**4 [M]**
10.	**Legal Compliance** • Breach of POEO Act (1997), TSC Act (1995), other legislation	**B**	**1**	**1 [H]**	• Obtain approvals ahead of time • Update legislation register quarterly • Train engineers and staff in laws applicable to the project	**C**	**4**	**5 [L]**

RISK SCORE MATRIX

		CONSEQUENCE [C]			
		[1] CATASTROPHIC	[2] MAJOR	[3] MODERATE	[4] MINOR
OHS		Fatality or permanent disability	Serious injury or temporary disability LTI > 7 days	Injury requiring medical attention LTI < 7 days	First aid treatment only
Environmental		Irreversible damage to environment	Long term reversible damage	Short term reversible damage to environment	Little consequence to environment
Industrial Relations		Actual industrial action	Threatened industrial action	Resolved by RCA Executive	Resolved on site
Financial		Loss > 5% of contract sum	Loss 1 – 5 % of contract sum	Loss 0.5 – 1% of contract sum	Loss < 0.5% of contract sum
PROBABILITY [P]	[A] Very Likely Expect to occur in most circumstances	1 [H]	1 [H]	2 [H]	3 [M]
	[B] Likely Will probably occur sometime	1 [H]	2 [H]	3 [M]	4 [M]
	[C] Unlikely May occur sometime	2 [H]	3 [M]	4 [M]	5 [L]
	[D] Rare Occurs only in exceptional circumstances	3 [M]	4 [M]	5 [L]	6 [L]

RISK SCORE	1-2 [H] – HIGH	3-4 [M] – MEDIUM	5-6 [L] – LOW

RISK HIERARCHY OF CONTROLS

The preferred risk control methods, starting from the most preferred methods, are:

1. **Try to eliminate the hazard.**

   e.g. use a machine to do a repetitive manual task, or completely removing asbestos from a workplace.

If this is not possible, prevent or minimise exposure to the risk by one or a combination of:

2. **Substituting a less hazardous material, process or equipment:**

   e.g. use less dangerous chemicals, substitute a flammable solvent with a water-based solvent, replace glass with plastic replacing an existing machine with one that has better guarding.

3. **Redesigning equipment or work processes:**

   e.g. modifying exhaust systems to reduce noise, installing lift equipment to reduce manual handling, fitting a roll over protective structure to a backhoe or roller, controlling chemicals through improved ventilation.

4. **Isolating the hazard:**

   e.g. installing screens or barriers around hazardous areas, enclosing or guarding dangerous equipment, using remote handling equipment for hazardous substances or procedures.

As a last resort, when exposure to the risk is not (or can not be) minimised by other means:

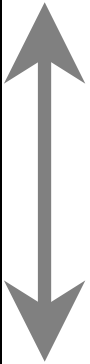
5. **Introduce administrative controls:**

   e.g. job rotation to reduce exposure, limited entry or limited time in hazardous areas, adequate supervision, Instruction and training in safe work procedures, preventive maintenance and housekeeping procedures, warning signs.

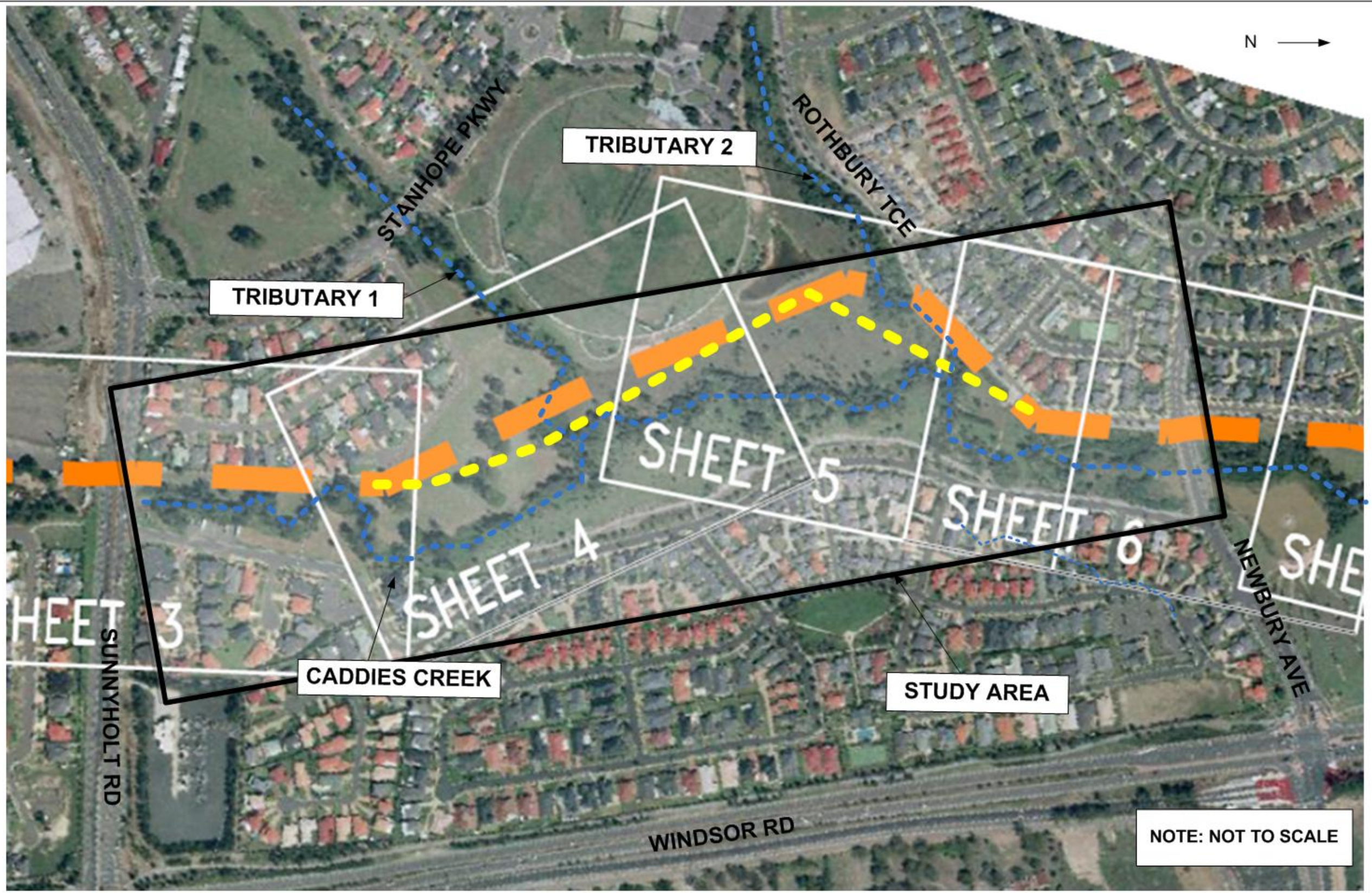
6. **Use of appropriate personal protective equipment:**

   e.g. gloves, ear plugs, ear muffs, goggles, face shields, hard hats, high visibility clothing, safety boots, sun hats, etc.

BEST



WORST



CONCEPT ALIGNMENT

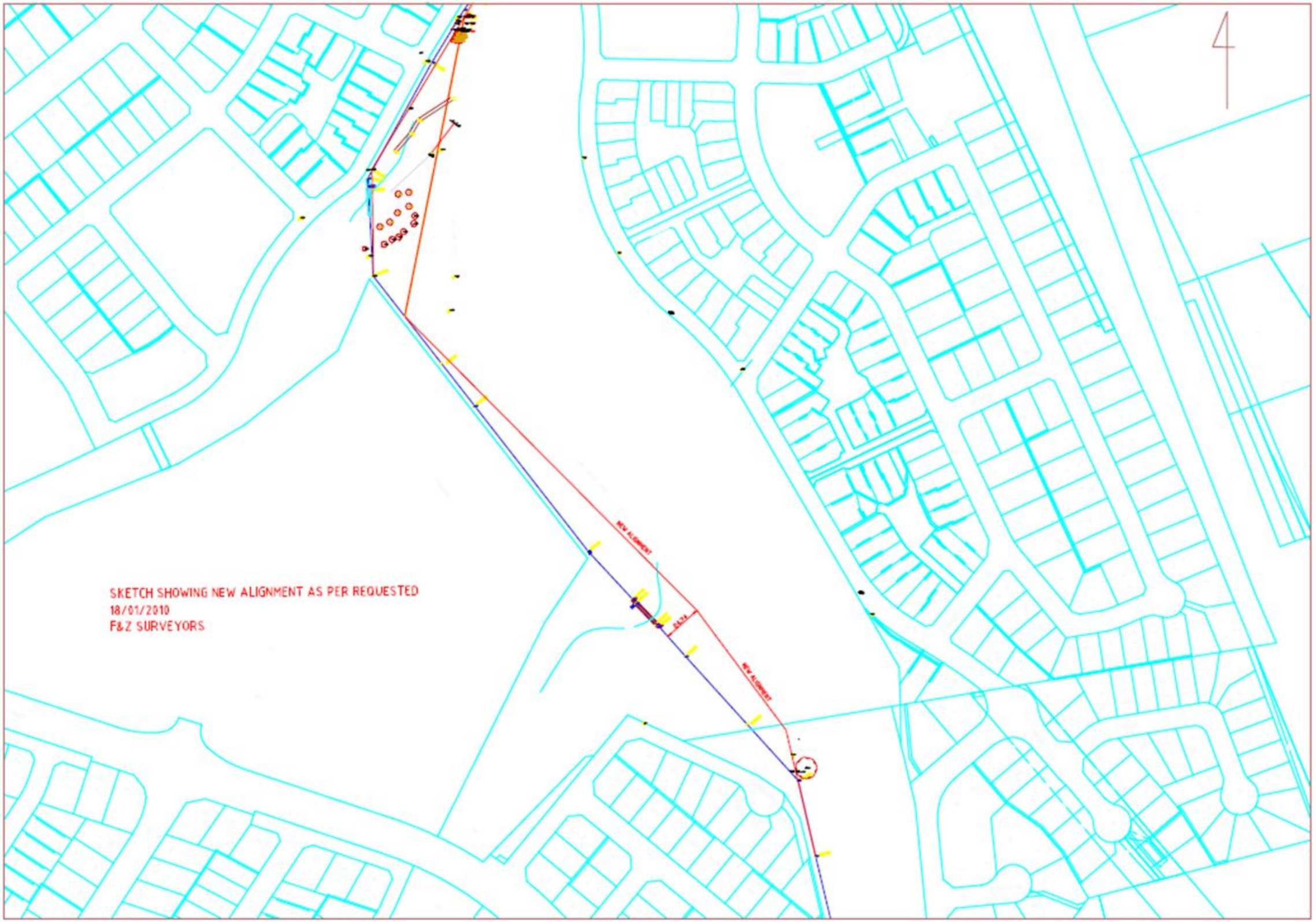
PROPOSED REALIGNMENT

REED

NWGC WATER RELATED INFRASTRUCTURE PROJECT

ROTHBURY TCE CA LOCALITY MAP –
ROUSE HILL POTABLE WATER INLET MAIN –

Rev 00	Date: 27/01/10	



REED	NWGC WATER RELATED INFRASTRUCTURE PROJECT	
	ROTHBURY TCE CA SURVEY DRAWING – ROUSE HILL POTABLE WATER INLET MAIN –	
	Rev 00	Date: 27/01/10

N

Ch.130
6 SWAMP SHE-OAK
TO BE REMOVED

Ch.220
1 MATURE FOREST RED
GUM TO BE REMOVED

Ch.390
4 SWAMP SHE-OAK TO
BE REMOVED UNDER
CONCEPT ALIGNMENT

Ch.390
1 SWAMP SHE-OAK TO BE
PRUNED UNDER
PROPOSED REALIGNMENT

PHOTO 2

PHOTO 3

PHOTO 4

PHOTO 5

CONCEPT ALIGNMENT

PROPOSED REALIGNMENT

NOTE: NOT TO SCALE

REED

NWGC WATER RELATED INFRASTRUCTURE PROJECT

ROTHBURY TCE CA DETAIL MAP 1–
ROUSE HILL POTABLE WATER INLET MAIN –

Rev 00	Date: 27/01/10	

N

CONCEPT ALIGNMENT

PROPOSED REALIGNMENT

NOTE: NOT TO SCALE

REED

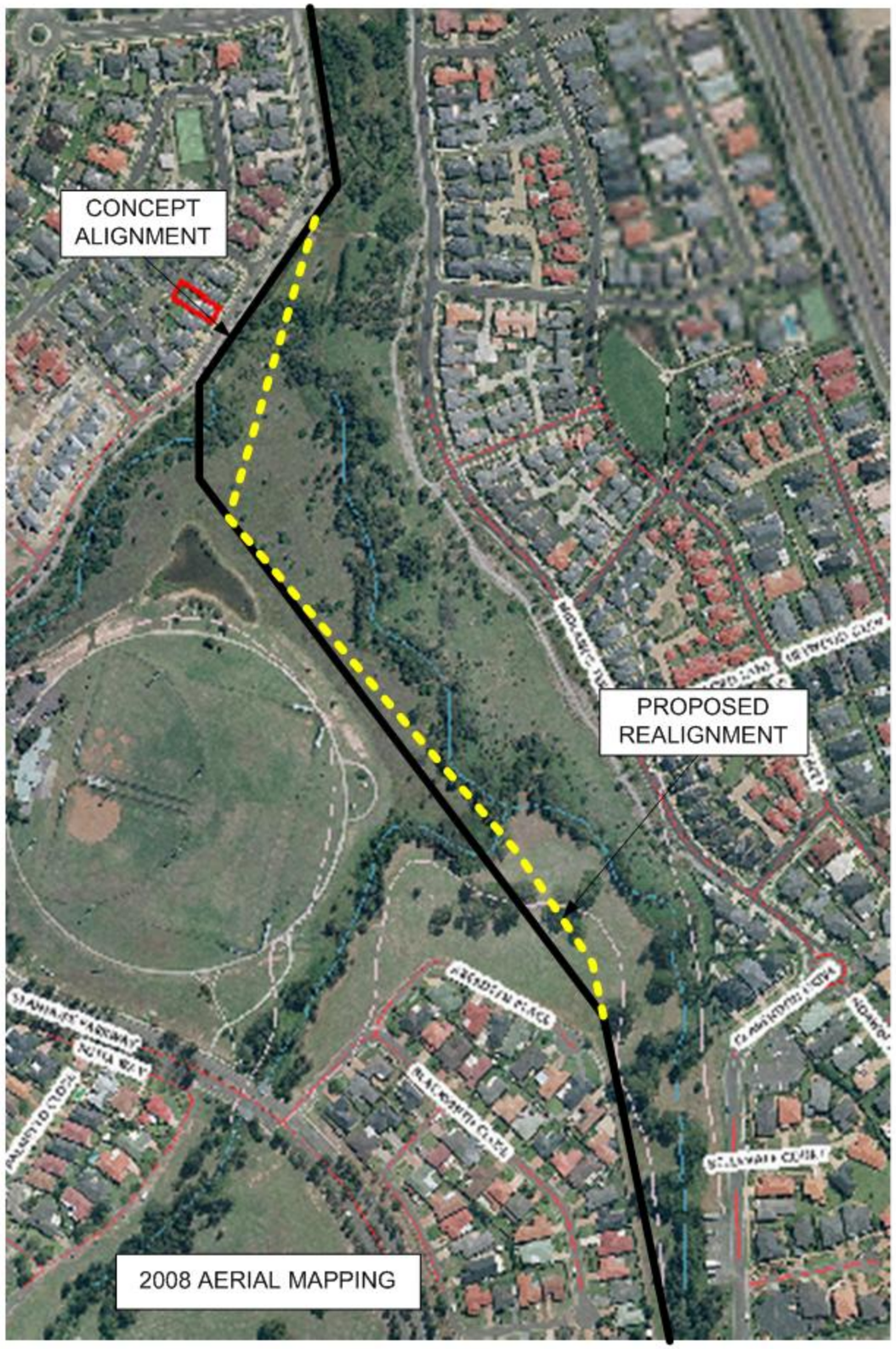
NWGC WATER RELATED INFRASTRUCTURE PROJECT

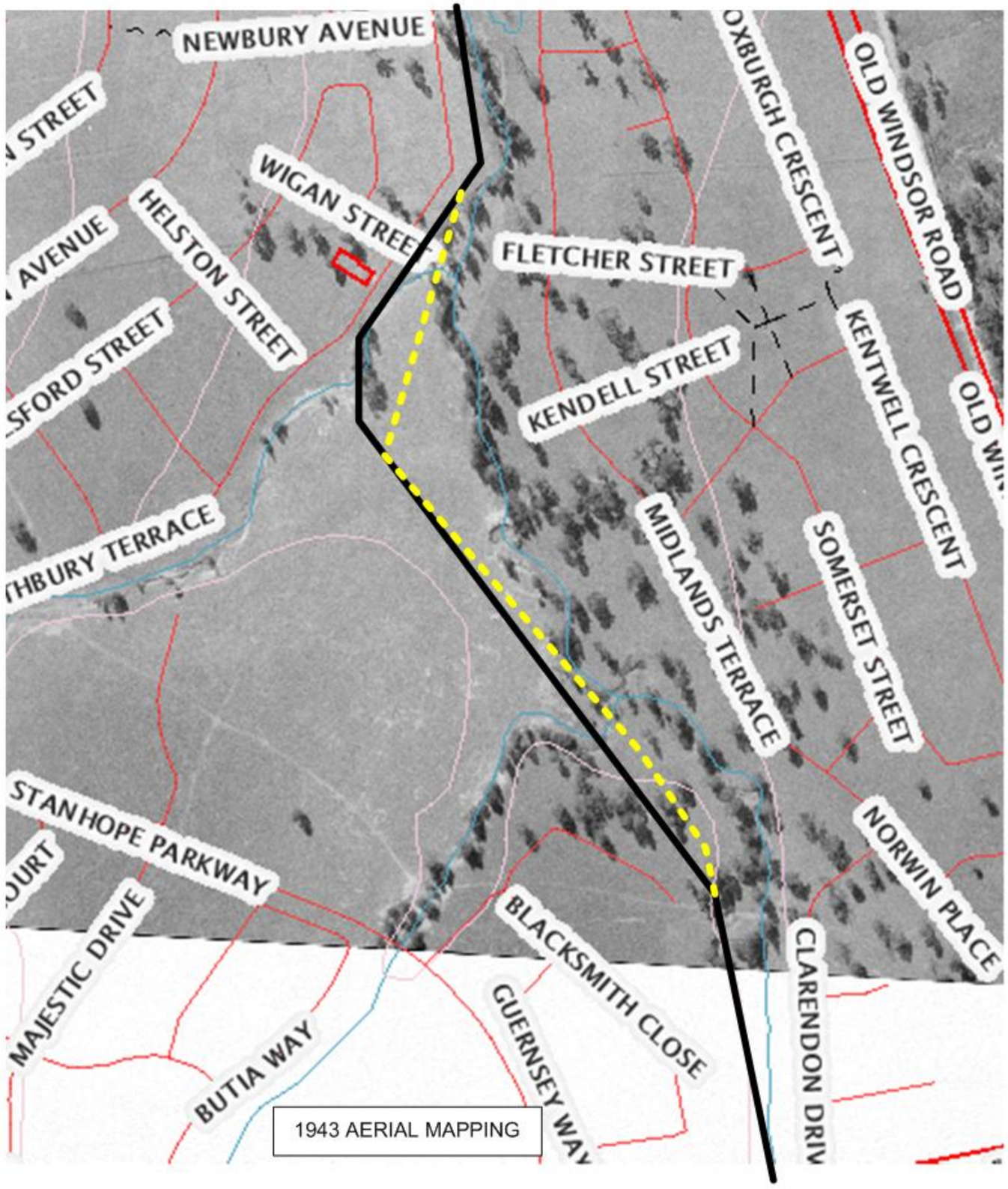
ROTHBURY TCE CA DETAIL MAP 2 –
ROUSE HILL POTABLE WATER INLET MAIN

Rev 00	Date: 27/01/10	

Figure 4-1 Vegetation communities within the revised Project – south

REED	NWGC WATER RELATED INFRASTRUCTURE PROJECT
	VEGETATION COMMUNITIES MAP SOURCED FROM THE PREFERRED PROJECT REPORT (PAGE 4-9)
	Date: 10/02/10





CONCEPT ALIGNMENT

PROPOSED REALIGNMENT

NOTE: NOT TO SCALE

REED

NWGC WATER RELATED INFRASTRUCTURE PROJECT

ROTHBURY TCE HISTORICAL REFERENCE MAP –
ROUSE HILL POTABLE WATER INLET MAIN –

Rev 00	Date: 27/01/10	

NOTE: NOT TO SCALE

Swamp She-Oak

Common Mat-Rush

Sydney Golden Wattle

Snowy Mountain Wattle

Crimson Bottlebrush

Forest Red Gum

Acacia falcata

Stiff-leaved Paperbark

Spotted Gum

Cootamundra Wattle

West Australian Golden Wattle

CONCEPT ALIGNMENT

PROPOSED REALIGNMENT

REED

NWGC WATER RELATED INFRASTRUCTURE PROJECT

ROTHBURY TCE CA LANDSCAPING MAP –
ROUSE HILL POTABLE WATER INLET MAIN –

Rev 00

Date: 27/01/10


PHOTO 1
T2 – TRIBUTARY 2
2m
CONCEPT ALIGNMENT


PHOTO 2
CONCEPT ALIGNMENT
PROPOSED REALIGNMENT
ISOLATED MATURE EUCALYPTS


PHOTO 3
SWAMP SHE-OAK
FRINGING
TRIBUTARY 1
PROPOSED REALIGNMENT


PHOTO 4
BOTH ALIGNMENTS
Ch.130
STAND OF
SWAMP SHE-OAK


PHOTO 5
BOTH ALIGNMENTS
Ch.220
EUCALYPT


PHOTO 6
CONCEPT ALIGNMENT
REALIGNMENT

22 February 2010

Mr Ben White
Project Environmental Representative
North West Growth Centre
Water Related Infrastructure Project
Reed Constructions Australia Pty. Ltd.
PO Box 6395
North Sydney NSW 2060

Our Ref: 09-0170bwc4

Re: North West Growth Centre First Release Precinct—Sewer Pipeline installation, Caddies Creek, Parklea.

Dear Ben,

I refer to the proposed sewer pipeline installation work in the vicinity of Caddies Creek, Parklea. As you are aware the proposed alignment will see the work impact upon areas of known archaeological interest; site PK/CD1+2 and site PK/CD7.

PK/CD1+2—This site was test excavated by Brayshaw MacDonald in 1993. It was found to be a significant and complex site with backed blade knapping areas, other low density artefact production areas and heat treatment pits. They concluded that it was an area of high archaeological significance but recommended that it be salvaged prior to any further development work—rather than a redesign of works proposed at the time.

Further salvage was then conducted in 1994 by the University of New England (UNE) and reported by J Balme, L Dagg, M David, I Davidson and J Ross 1999—2001 (after comments from NPWS), in a report entitled 'Archaeological Investigations Parklea, NSW: Salvage Excavations at PK/CD1+2 and PK/CD 4+6' Volumes 1, 2 and 3. Their report was prepared for Rouse Hill (Stage 1) Pty. Ltd.

This work was extensive and would appear to have been sufficient to meet the requirements of the salvage permit. Under the circumstances that the requirements of the salvage permit have been met by this work, the site ought to be deemed as 'destroyed' by the Department of the Environment, Climate Change and Water (DECCW) and therefore should not require any further archaeological work. On 18 January 2010 we sought confirmation of this status from one of DECCW's archaeologists. The request has been forwarded to the DECCW lawyers for confirmation yet an answer to this request is still pending.

Figure 1 shows the extent of the archaeological work with the approximate alignment of the current proposed pipeline marked on top for reference by your surveyors.

PK/CD7—This site was also test excavated by Brayshaw MacDonald in 1993 for the construction of Burdekin Road (now Stanhope Parkway). Nine testing areas were

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Godden Mackay Logan Pty Ltd
ABN 60 001 179 362
www.gml.com.au
heritage@gml.com.au

established for this project. The work included a test area (Area 3) through which the current proposed sewer line would run, if it is constructed along the preferred alignment.

Area 3 was found to have intact stratigraphy with a high number of artefacts. It was considered to be the focus of the cultural activity on site. This area was assessed as being of high archaeological significance.

By comparison, test excavations in Areas 4 and 5, located closer to Caddies Creek and to the east of Area 3, were found to contain artefacts deposited as a result of taphonomic as opposed to cultural processes. Areas 4 and 5 were therefore assessed as having low significance. All of these testing areas are shown on Figure 2.

At the conclusion of their testing program, Brayshaw MacDonald recommended that areas of low significance can be developed with no further archaeological works (although a Consent to Destroy Permit would be required under the NPW Act 1974 s90). Areas of high significance should be avoided however.

Based on these recommendations, minor alterations to the route of the pipeline would be appropriate. As discussed, realignment of the proposed pipeline by 25m to the east (Figure 3) would significantly reduce the impact of this work by aligning the impact corridor with areas of low significance and thus avoiding the areas of high significance.

The construction of the pipeline along the revised route (through Areas 4 and 5) would not require any further archaeological approvals. However, should you need to retain the existing alignment through Area 3, then a salvage excavation program would be necessary.

Yours sincerely
Godden Mackay Logan Pty Ltd

Martin Rowney, Senior Heritage Consultant

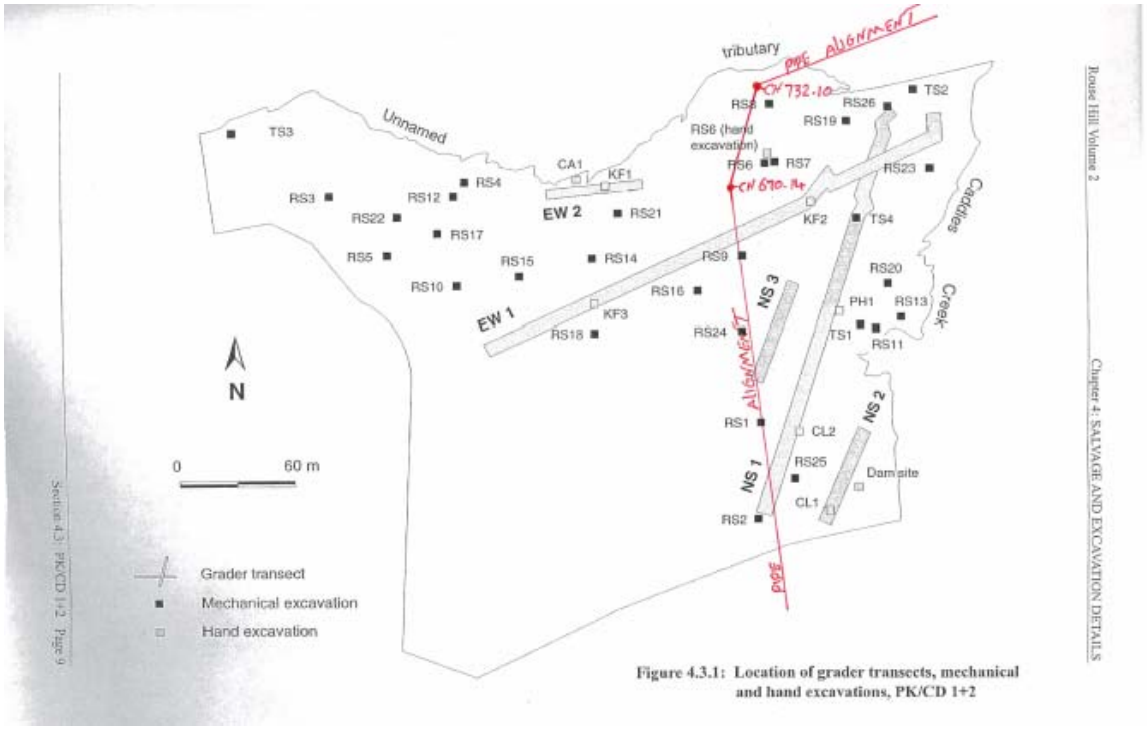


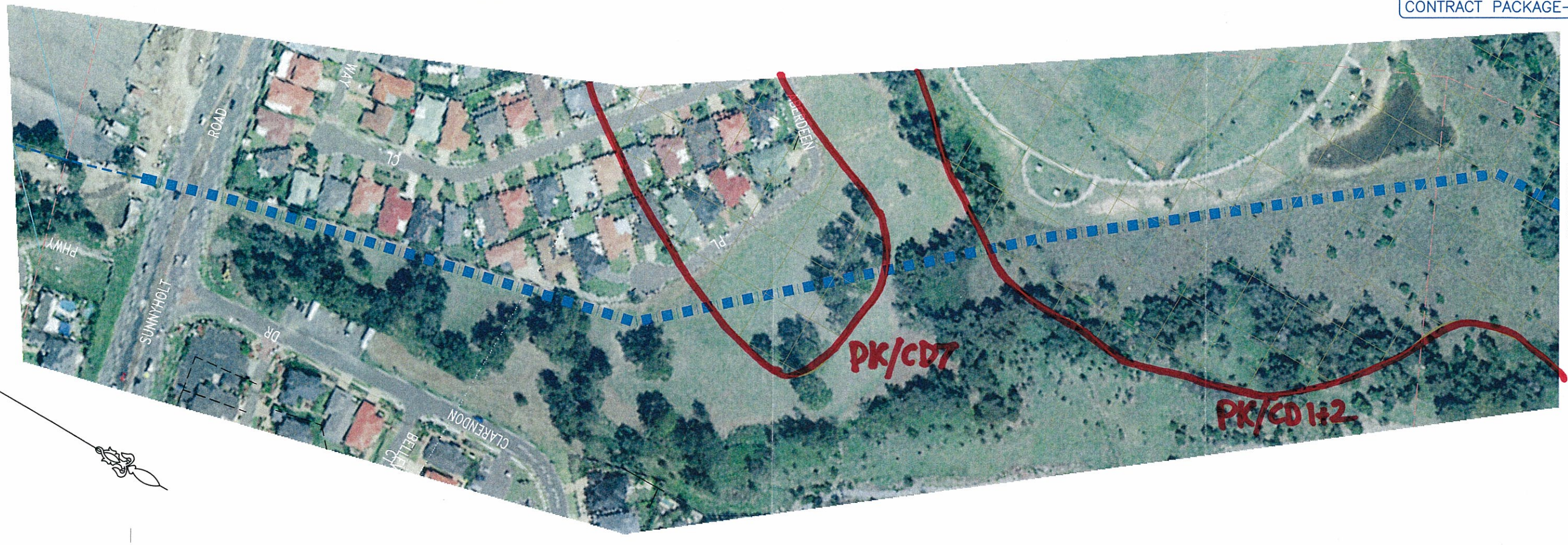
Figure 4.3.1: Location of grader transects, mechanical and hand excavations, PK/CD 1+2

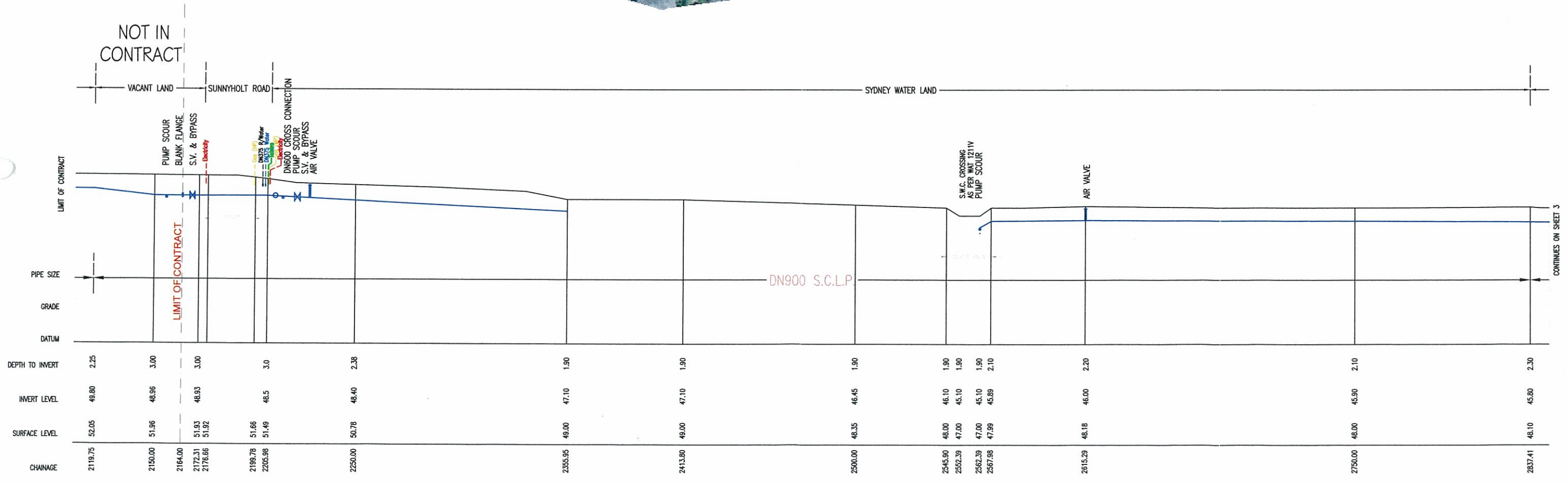
Figure 1: Site plan of PK/CD1+2 showing excavated areas and the alignment of the proposed sewer line. (Source: Balme, *et al,* 1999, with pipeline overlay from REED Construction surveyors)

Figure 2: PK/CD7 showing test excavation areas undertaken by Brayshaw MacDonald in 1993. (Source Brayshaw MacDonald 1993 Archaeological Investigation at PAD 21 (Site PK/CD7) at Parklea NSW, Test Excavation Report).

Figure 3: PK/CD7 with proposed (red) and realigned (blue) sewer pipeline route.

CONTRACT PACKAGE–1





AUSTRALIAN WATER
LEVEL 6, 5 CELEBRATION DRIVE
NORWEST BUSINESS PARK
BELLA VISTA NSW 2153
Phone: (02) 8884 7300 Fax: (02) 8884 3899
www.australianwater.com.au
E-mail: info@australianwater.com.au

UBD REF: MAP 129 C-14

0 5 10 20 30 40 50 100 METRES

CAD FILENAME: NW1SA002.DWG
THIS PLOT DATE: 9/01/09

DRAWN BY: CKB
ORIGINATED BY: BS

STATUS AS AT: DEC 2008

DRAFT

THIS DRAWING CORRESPONDS WITH SHEET 5 FROM TENDER DRAWING RIV–PW–W1

TITLE
NORTH WEST GROWTH CENTRE
FIRST RELEASE PRECINCTS - ARCHAELOGICAL SITES
PARKLEA WS0337 TO ROUSE HILL WS0476
DN750/DN900 POTABLE WATER INLET MAIN SHEET 2 OF 11

DRAWING No. NW1SA002-2
SIZE A1 SHEET
REVISION A

CONTRACT PACKAGE–1

AUSTRALIAN WATER
LEVEL 6, 5 CELEBRATION DRIVE
NORWEST BUSINESS PARK
BELLA VISTA NSW 2153
Phone: (02) 8884 7300 Fax: (02) 8884 3899
www.australianwater.com.au
E-mail: info@australianwater.com.au

UBD REF: MAP 129 C-14

0 5 10 20 30 40 50 100 METRES

CAD FILENAME: NW1SA002.DWG
THIS PLOT DATE: 9/01/09

DRAWN BY: CKB
ORIGINATED BY: BS

STATUS AS AT: DEC 2008

DRAFT

THIS DRAWING CORRESPONDS WITH SHEET 6 FROM TENDER DRAWING RIV–PW–W1

TITLE
NORTH WEST GROWTH CENTRE
FIRST RELEASE PRECINCTS - ARCHAELOGICAL SITES
PARKLEA WS0337 TO ROUSE HILL WS0476
DN750/DN900 POTABLE WATER INLET MAIN SHEET 3 OF 11

DRAWING No. NW1SA002-3

SIZE A1 SHEET

REVISION A