Kings Hill Development Wastewater Servicing Strategy

January 2014

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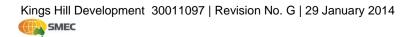


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ABBREVIATIONS

ADWF	Average Dry Weather Flow	
ASS	Acid Sulphate Soil	
AHD	Australian Height Datum	
ET	Equivalent Tenement	
HWC	Hunter Water Corporation	
kL	Kilolitre	
LEP	Local Environmental Plan	
ML	Megalitre	
PDWF	Peak Dry Weather Flow	
PWWF	Peak Wet Weather Flow	
WTP	Water Treatment Plant	
WWTP	Wastewater Treatment Plant	

EXECUTIVE SUMMARY

DEVELOPMENT BACKGROUND

The Kings Hill development was identified in the 2006 Lower Hunter Regional Strategy and covers approximately 810 hectares and incorporates 15 existing allotments in the Port Stephens Local Government Area. The current concept plan (Deike Richards, March 2007) will see Kings Hill ultimately developed into approximately 4,500 residential dwellings.

SMEC has been commissioned by Kings Hill Development (KHD) to prepare this wastewater servicing strategy for the Kings Hill Release Area as the major landowner.

This servicing strategy is intended to address Hunter Water Corporation (HWC) strategic planning requirements and determine infrastructure requirements to connect the total Release Area site to the Hunter Water wastewater network.

RECOMMENDED SERVICING OPTION

The recommended option for wastewater servicing is Option SE2, which is presented on **Exhibit G5**. We note that HWC provided in-principle acknowledgement & support for this option at the recent landowners meeting held 23 April 2013. The infrastructure required for this option is presented in **Table 1** "Proposed Works" below. A staged version of this alignment is recommended, with infrastructure requirements presented below in Proposed Works.

The development of KHD land holdings will commence in the south-eastern area based on proximity and efficiency for lead-in infrastructure, market & commercial drivers and ecological considerations. Hunter Land will commence development on its south-western boundary, based on similar factors for that site.

We note that Hunter Land is progressing development over the Windeyer land holdings (western area) and has advised that early development is expected to sequence in parallel with KHD.

Option Description	Cost Effectiveness Analysis	Pros	Cons	Risks
Option SE2 – Common Rising Main	Total Capital Cost (pre construction + construction) : \$15.8M O&M Costs, 30 yr NPV @ 7%: \$1.7M Lifecycle cost, 30 yr NPV @ 7%:	Alignment located in undeveloped nature reserve, just north of existing Raymond Terrace. Minimal conflict with services. Ability to stage infrastructure/ utilise capacity available in Raymond Terrace 8.	Odour generation / septicity management will be an issue with regard to development rollout over 20 years, however this is common to all options. We note this issue can be reduced through interim staging of works (i.e. smaller size rising main & pump station) and use of odour control technology (chemical dosing / flushing etc). This is to be further explored at concept	Acid sulphate soils, high groundwater level and poor ground conditions, however Alignment located in undeveloped nature reserve, just north of existing Raymond Terrace. Potential for ecology & heritage issues not identified by database search. These issues are common to all alignments. There is also potential

We note that the recommended servicing option provides flexibility for both eastern and western land holders to develop early.

but there is an
alternative option which
minimises the length of
infrastructure crossing
private .land.

It is noted that all options considered require septicity / odour management due to the long length and large diameter of the rising main, and the rollout of development. There are several technical solutions for the management of septicity / odour, including chemical dosing, flushing and oxygen injection. It is recommended that options for odour / septicity management are considered in more detail at the concept design stage.

PROPOSED WORKS

The table below presents the preferred option, with preliminary staging.

Work is still to be undertaken with regard to more detailed staging investigations, and staging will be further considered as part of the concept design of this infrastructure.

Further design development (to be undertaken at concept design stage) for both eastern and western lands will need to investigate the option of construction of a smaller diameter rising main to access capacity at Raymond Terrace 8 WWPS, for the initial release of lots at Kings Hill. The alignment for the initial rising main is shown as **Exhibit K**.

It is noted that HWC is undertaking optimisation analysis of capacity available at Raymond Terrace 8 WWPS, to ascertain if additional capacity can be made available for early stages of the development. This work will feed in to the staging developed as part of the concept design.

Year	ET	Recommended Infrastructure	Budget Cost
		Eastern connection	
		Connect to Raymond Terrace 8 WWPS	
		WWPS - 5.5m diameter, depth = 6m	
		241 L/s @ 32m, total station power of 502kW	\$1.9M
		RM - 4,430m of DN450	\$4.1M
2014	0-200	TOTAL	\$6.0M
		Western connection	
		WWPS – 3.8m diameter, depth = 6m	\$1.7M
		122 L/s @ 42m, total station power of 334kW	
		RM - 3,900m of DN300	\$2.4M
		TOTAL	\$4.0M
		Further upgrades downstream	
	200-4,500	RM - 2,600m of DN500	\$3.5M
2015		GM - 1,100m of DN600	\$2.4M
		TOTAL	\$5.8M
		GRAND TOTAL	\$15.8M

Table 1 – Proposed Works

1 INTRODUCTION

1.1 Background

SMEC has been commissioned by Kings Hill Development to prepare a wastewater servicing strategy for the Kings Hill development, located north of Raymond Terrace (*Exhibit A*). KHD are the major land owners and lead proponent for development of the Kings Hill Release Area.

The Kings Hill development was identified in the 2006 Lower Hunter Regional Strategy and covers approximately 810 hectares and incorporates 15 existing allotments in the Port Stephens Local Government Area. The current concept plan will see Kings Hill ultimately developed into approximately 4,500 residential dwellings.

This servicing strategy is intended to address Hunter Water Corporation (HWC) strategic planning requirements and determine infrastructure requirements to connect the site to the Hunter Water network.

1.2 Scope of Work

As required by the Hunter Water Servicing Strategy Template, the tasks undertaken in the preparation of this servicing strategy have included the following:-

- **Development Description** including a brief synopsis of the proposed development, anticipated staging and timing (Section 2.1)
- Planning Context details of land zonings with reference to Council Local Environment Plans (LEPs), Settlement Strategies and associated planning instruments (Section 2.2)
- **Development Assumptions** an assessment of assumptions associated with the development, including growth rates and an assessment of the potential for development of all land within the natural catchment boundaries adjoining the site (Section 2.3)
- **Study Area** The agreed extent of the servicing area, including the existing land use of the site, details of constraints to development such as flood plains, wetlands, national parks, topography, flora and fauna *(Section 2.4)*
- Projected Development in the Study Area an assessment of projected development to be considered in the strategy (Section 2.5)
- Liaison with Hunter Water
 including written correspondence and summaries of meetings with HWC (Section 2.6)
- Options Development (Section 3)
- Regional Servicing Options (Section 4)
- Local Servicing Options (Section 5)
- Plan documentation including cadastral, zoning, topographical, development layout and preliminary design (*Appendix B*)

1.3 A Note on Cost Estimates in the Study

Cost estimates within this study are based on the Hunter Water Cost Estimating Manual. Cost estimates cannot be guaranteed as SMEC has no control over contractor's prices, market forces and competitive bids from tenderers. The cost estimates may exclude items which should be considered in a cost plan. Examples of such items are design fees, project management fees, authority approval fees, contractors risk and project contingencies (e.g. to account for construction and site conditions, weather conditions, ground conditions and unknown services). Cost estimates are not to be relied upon in any way. If reliable cost estimates are required, then an appropriately qualified Quantity Surveyor should be engaged.

2 BACKGROUND

2.1 **Development Description**

The proposed Kings Hill development is bounded to the east by the Pacific Highway, to the north by Six Mile Road, to the west by Newline Road and the Williams River and to the south by a SEPP 14 wetland, which is located downstream of the spillway from nearby Grahamstown Lake. The site is shown in *Exhibit B*.

The topography of the site varies from low wetland areas in the south (RL<10m) through cleared undulating pasture to a series of wooded hills to the north. The highest of these hills is Kings Hill, with an elevation of 137m AHD.

Residential development will mainly take place on the flat areas and lower slopes. It is anticipated that developed areas will reach a maximum height of 55m AHD, however some isolated developments may be higher than this.

The proposed development is primarily residential, with some medium density lots located in the town centre areas, adjacent to a small commercial area. The development breakup is summarised below in **Table 2**.

	Area (ha)
Village and Town Centre	4.9
Medium Density Residential	72
Residential	328
Community uses, Schools etc	18.2
Mixed Use	8
Parks & Open Space	20.5
TOTAL	451.6

Table 2 – King Hill Development Rollout

2.2 Planning Context

The local planning instrument applicable to the study area is the Port Stephens Local Environmental Plan (LEP) (Kings Hill, North Raymond Terrace) 2010. This plan rezones certain land at Kings Hill, North Raymond Terrace to enable the development of this land to achieve the objectives of the Port Stephens Community Settlement and Infrastructure Strategy (published by the Council in 2007) and the Lower Hunter Regional Strategy (published by the NSW Government in 2006).

Under this LEP, the study area is zoned as follows:

- B2 Local centre
- B4 Mixed use
- E2 Environmental conservation
- E3 Environmental management
- R1 General residential

The proposal is not prohibited under the current zoning. The site zoning plan is shown in *Exhibit C*.

2.3 Development Assumptions

As is the case for all developments of this magnitude, development rollout is somewhat uncertain, depending on many externalities, such as market demand and constraints on other critical infrastructure. A preliminary lot rollout has been adopted, as summarised below in **Table 3**.

Year	ET Released	Cumulative ET
2014	200	200
2015	200	400
2016	200	600
2017	200	800
2018	200	1000
2019	200	1200
2020	200	1400
2021	200	1600
2022	200	1800
2023	200	2000
2024	200	2200
2025	200	2400
2026	200	2600
2027	200	2800
2028	200	3000
2029	200	3200
2030	200	3400
2031	200	3600
2032	200	3800
2033	200	4000
2034	200	4200
2035	200	4400
2036	100	4500

Table 3 – Kings Hill Development Rollout

2.4 Study Area

2.4.1 Definition of Proposed Study Area

The study area for this servicing strategy was agreed with Hunter Water during preparation of the Preliminary Water and Wastewater Servicing Advice (SMEC, April 2011).

This strategy investigates provision of wastewater services to the Kings Hill development site shown on **Exhibit B**.

2.4.2 Stormwater / Hunter Water Special Area

It is noted that a portion of the proposed development is located within a Hunter Water "Special Area", as it is in the catchment of Grahamstown Dam. Meetings have been held between Kings Hill and the Water Resources staff at Hunter Water. The stormwater management for the site is being considered as part of a study separate from this servicing strategy.

2.4.3 Existing Land Use

The Kings Hill development site has been rezoned to allow a new town centre and thousands of new homes to be built over the next 25 years.

The site is surrounded by low lying agricultural land that drains to the Williams River to the west of the site (this river joins the Hunter River west of Raymond Terrace), SEPP 14 wetland to the south of the site or to the Grahamstown Lake to the east of the site.

The existing Raymond Terrace township with the current local population of approximately 12,600 people is located south of the site and the wetlands.

The topography of the site varies from low wetland areas in the south (RL<10) through cleared undulating pasture to a series of wooded hills to the north. The highest of these hills is Kings Hill, with an elevation of 137m AHD.

The study area is not located within a proclaimed Mine Subsidence District.

It is not anticipated that the past land uses will impact the development of new assets.

2.5 **Projected Development in the Study Area**

The proposed development subject of this report forms the only development identified within the agreed study area. No additional development in surrounding areas has been identified.

The surrounding lands are zoned 1a - Rural Agriculture and 7c Environmental Protection – Water Catchment.

2.6 Liaison with Hunter Water

Significant / recent liaison to date with Hunter Water is summarised below, correspondence is provided in **Appendix A**.

Table 4 – Liaison with Hunter Water	Table 4 –	Liaison v	vith Hun	iter W	'ater
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Date	Correspondence /	Significant Details
Date	Meeting	Significant Details
23 July 2010	Letter from HWC	Wastewater Transportation
2010	to JW Planning	 Existing infrastructure does not have capacity to transport wastewater flows from the proposed development It is anticipated that development within the Kings Hill area will also be serviced independently via pumping stations, rising mains and a carrier main, feeding directly to Raymond Terrace WWTW. A developer-funded wastewater servicing strategy is required to determine suitable servicing options
		Wastewater Treatment
		 Raymond Terrace WWTW is currently at biological and hydraulic capacity (24,500 ET). An intermediate upgrade of the plant is programmed to be commissioned in 2010 (35,000 ET). There are hydraulic constraints at the inlet works. Future upgrades programmed for 2017 will address these restrictions, providing sufficient capacity to cater for the ultimate development potential of the Kings Hill site.
24 Aug	Preliminary	Wastewater Transportation
2011	Servicing Advice	Connection Point 1, Raymond Terrace 8 WWPS, is the nearest point with spare capacity for initial flows of up to 200 lots.
		There are no available locations in the existing pumping stations within Raymond Terrace to receive these additional flows. Connection of a pump station directly to Raymond Terrace WWTW would be required at this stage.
		There are restrictions on the biological and hydraulic capacity at the WWTW and Hunter Water does not guarantee capacity prior to completion of upgrade works in 2017.
		Wastewater Treatment
		Raymond Terrace WWTW had an intermediate upgrade of the plant is which was commissioned in 2010 (35,000ET). Biological capacity for this development may

Date	Correspondence / Meeting	Significant Details
		be available depending upon the staging and timing of the development. However, due to hydraulic capacity restrictions at the plant, the current inlet works are not capable of accepting the ultimate development flows directly from the Kings Hill area via the anticipated independent WWPS and carrier main. Future plant upgrades at Raymond Terrace will address these restrictions and, upon commissioning expected in 2017, will provide sufficient capacity to cater for the ultimate development potential of the Kings Hill site. At this stage, Raymond Terrace WWTW is not capable of catering for the entirety of the proposed rezoning prior to 2017/18. Any available capacity at the WWTW prior to 2017 will be given on a first come first served basis. It should be noted however, that a number of major developments at Williamtown and Tomago are planned for completion in the near future.
8 Sep 2011	Inception Meeting	 Development Background The proposed Kings Hill development area is located north of the existing Raymond Terrace area and is anticipated to yield in the order of 4,500 lots. The Kings Hill development area rezoning was gazetted by Port Stephens Council in December 2010. The proposed Kings Hill development area is made up of a number of land owners, Morgan Banks / Mondell Property Group to forward land ownership plan to Hunter Water HWC noted that one of the land owners on the western side of the development area had already commenced the preparation of a water and sewer servicing strategy for their portion of the development. CR noted that this decision was made by that particular land owner, not the overall landowner group. CR noted that MB/MPG own land on both the eastern and western portion of the site, as such it is their desired approach to develop a strategy that ensure the lowest life cycle cost for the overall site and that would be the objective of this strategy. MW noted that as the strategy study's progress it may be beneficial for both landholders and Hunter Water to meet in order to discuss the proposed strategies to ensure a consistent outcome for Hunter Water. Staging is still being investigated, broadly a rollout of approximately 200 lots per year anticipated.

Date	Correspondence / Meeting	Significant Details
		Wastewater – Internal
		SMEC plan to investigate options of a single regional WWPS with single rising main, along with dual regional WWPS (east and west) with the rising main joining in common along the alignment.
		Wastewater – External
		As outlined in the Preliminary Servicing Advice (PSA) the proposed ultimate wastewater connection point is the Raymond Terrace WWTW.
		Several rising main alignments will be considered through the existing Raymond terrace area.
		There are no other wastewater connection points that warrant investigation.
		As outlined in the PSA there is some initial capacity in the existing Raymond Terrace wastewater catchment within the Raymond Terrace WWPS #8 catchment, along with possible capacity in the Raymond Terrace #4 catchment pending outcomes of a risk assessment.
		Option of onsite treatment is being explored by the developer. MW indicated that HWC are not opposed to the idea of decentralised treatment, where it presents the lowest lifecycle cost to the community.
		Hunter Water noted that they are investigating approaches for Hunter Water (or subsidiaries) to be involved in the development of wastewater treatment infrastructure through the WICA approach, if interested it would be worthwhile discussing further with Geoff Stevenson from HWC.
		As part of the strategy if innovative initial servicing measures appear feasible these can be presented in the servicing strategy with pros, cons, risks, costs for consideration by Hunter Water, these could include flow balancing via detention structures, etc.
21 Sep 2011	Progress Meeting	Wastewater – Internal
		SMEC outlined options for the new sewer transportation system. Two bigger pump stations pumping into a common rising main have been proposed. The system would also include a number of internal pump stations pumping into these two regional pump stations.
		Wastewater - External
		Raymond Terrace WWTW is the nominated discharge point for the new sewer system. HWC to confirm spare

Date	Correspondence /	Significant Details
	Meeting	
		capacity available in this WWTW
		HWC requested two options for the rising main configuration to be included in the strategy:
		 Transfer from the western side of the development to the eastern, with one regional pump station
		 Transfer from the eastern side of the development to the western, with one regional pump station
		 A common rising main, connecting two regional stations located on the east and west of the ridge that divides the site.
		Recycled Water
		Inclusion of the recycled water system in the servicing strategy was discussed. It was agreed that due to the distance of the site from the nearest treatment plant (7 km) there is no viable opportunity for water recycling.
23 April	Meeting – ASF	Wastewater
2013	Group, Hunter Land, Hunter Water	 KHD advised they do NOT support the options for wastewater documented in HWC memo ref. 2010-678 3.005 dated 22/4/13. KHD advised they are moving forward with planning and design to progress development as a priority. KHD are finalising the preferred wastewater and servicing strategy and will submit to HWC shortly. The preferred servicing strategy will be based on a service corridor (wastewater and water) south to Raymond Terrace traversing the eastern side of the wetland through HWC land holdings. This is the preferred option for KHD considering: Shortest distance to service eastern development area as likely first stage Constraints on corridor alignment. Cost efficient solution considering HWC life cycle costing. HWC confirmed that the eastern corridor is a feasible and acceptable solution for water and wastewater. APP (MG) queried the interim capacity for wastewater. HWC (WJ) indicated approx. 200 ET nominally available at Raymond Terrace WWPS No. 8. HWC confirmed that constraining factor at WWPS No. 8 was the pump capacity. Additional interim capacity may be possible if pumps upgraded. Also, potential upgrade of WWPS 4 may provide additional interim capacity. HWC confirmed that any future upgrade to the inlet

Date	Correspondence / Meeting	Significant Details
		 works at the WWTP at Raymond Tce would be the responsibility of HWC and undertaken as required to meet demand. HWC confirmed no objection to staging of wastewater rising mains and that twin smaller diameter mains feasible in place of single large rising main. APP queried option of tanker pump-out for early stages of development as cost effective interim solution. HWC acknowledged that this is a feasible option but advised this would ultimately require HWC Board approval.
		 Water APP advised that the option for water documented in HWC memo ref. 20110-678 3.005 dated 22/4/13 is NOT preferred for Kings Hill Development (KHD). APP are finalising the preferred water servicing option and will submit to HWC shortly. The preferred option for water is likely to be a co-located service corridor / trench with the wastewater (refer point s above) traversing the eastern side of the wetland through HWC land holdings. HWC confirmed the eastern corridor is a feasible and acceptable solution for water. APP queried whether the water main sizing considered off-peak 'trickle' top-up of the proposed reservoir from the Raymond Terrace WPS. HWC confirmed they will investigate further and also advised that the Raymond Terrace WPS may be upgraded in the future by HWC.
23 September 2013	Letter from HWC to KHD	 Water/wastewater HWC advised the conditional approval was given on the basis that "Evidence of Hunter Land involvement in selection of the preferred arrangements for both waste water and water servicing strategies is to be provided". HWC received correspondence on 19/09/2013 from Hunter Land raising concerns about the strategy including: Hunter Land was not consulted in the development of the strategy. The proposed timing and sequencing of both water and sewer lead in infrastructure is unbalance across the development areas and incorrectly assumes that development requiring the western connection will

Date	Correspondence / Meeting	Significant Details
		 commence after 2028. HWC as a result of the above comments has withdrawn the conditional approval of the servicing strategies pending KHD liaising with Hunter Land to give consideration to growth occurring on two developments fronts concurrently. Strategy has been updated to address the above issues and provide flexibility for early development of western landholdings 7/11/13

3 OPTIONS DEVELOPMENT

3.1 Points of Connection and Available Capacity

The existing Raymond Terrace sewerage system is a conventional gravity system consisting of gravity pipelines, manholes and pump stations, which transport sewage to the Raymond Terrace Wastewater Treatment Works (WWTW). The WWTW is located to the south of the town, approximately 8 km from the Kings Hill site, and discharges the treated effluent to the Williams River.

A plan including Hunter Water's infrastructure in the area is included in Exhibit F.

Other nearby treatment works include Morpeth WWTW (approximately 14km distant from the site), Karuah WWTW (approximately 18km distant) and Tanilba Bay (approximately 22km distant). As these WWTW are significantly more remote from the site, connection to these WWTW has not been further considered.

3.2 Available Capacity at Connection Point

Hunter Water have indicated that there is excess biological capacity at the Raymond Terrace WWTW, but the inlet works are hydraulically constrained. Similarly, HWC has indicated that the sewer network is currently operating at capacity in several areas.

Hunter Water	Asset Type	Asset Conditions and Restrictions
Asset Description		
Raymond Terrace WWTW	Wastewater Treatment Works	Raymond Terrace WWTW has a total capacity of 35,000ET. Biological capacity for Kings Hill may be available depending upon the staging and timing of the development. There are hydraulic capacity restrictions at the plant and as such the current inlet works are not capable of accepting the ultimate development flows directly from the Kings Hill area via the anticipated independent WWPS and carrier main.
		Future plant upgrades at Raymond Terrace will address these restrictions and, upon commissioning expected in 2017, will provide sufficient capacity to cater for the ultimate development potential of the Kings Hill site. At this stage, Raymond Terrace WWTW is not capable of catering for the entirety of the proposed rezoning prior to 2017/18.
Raymond Terrace 4 WWPS*	Wastewater Pump Station	Connection of interim lots to Raymond Terrace 4 WWPS will be subject to the outcomes of a risk assessment.
Raymond Terrace 8 WWPS*	Wastewater Pump Station	There is currently spare capacity for approximately 15.5L/s.

3.3 Existing and Planned Hunter Water Assets

*Note: Hunter Water are currently revising the capacity available at Raymond Terrace 4 and 8 WWPS. This investigation is understood to consider the potential for minor mechanical / electrical upgrades to provide additional capacity. The results of this optimisation will be included as part of the upcoming concept design.

3.4 Design Wastewater Loadings

Previous investigations have assumed that the development will yield approximately 4,500 ET. **Table 5** summarises a first-principles calculations based on the latest Master Plan.

Description	Development Area (ha)	Development Density (ET/ha)	Ultimate Tenements (ET)
Village and Town Centre	4.9	15	74
Medium Density Residential	72	15	1,080
Residential	328	10	3,280
Community uses, Schools etc	18.2	10	182
Mixed Use	8	10	80
Parks & Open Space	20.5	0	0
TOTAL	451.6		4,696

Table 5 – Equivalent Tenement Estimation

Planning for the area is still in early stages and has been undertaken utilising a lot yield of 4,500 ET. Due to the nature of the site it is currently anticipated that per hectare loadings will be slightly lower than the conventional per hectare loading rates.

As such, calculations in this report are based on a lot yield of 4,500 ET.

The adopted loadings for the site are summarised below in Table 6.

Table 6 – Wastewater Loads

	ET	ADWF (I/s)	PDWF (I/s)	SA (I/s)	PWWF (l/s)
Village and Town Centre	70	1	3	4	7
Medium Density Residential	1035	11.4	26.0	60.0	86.1
Residential	3143	34.6	68.9	182.3	251.3
Community uses, Schools etc	174	1.9	5.7	10.1	15.8
Mixed Use	77	0.8	2.9	4.4	7.3
TOTAL	4500.0	49.5	106.2	261.0	367.2

3.5 **Option Assumptions**

The following parameters have been utilised in assessment of the servicing options.

Item	Source
Engineering Requirements	WSA 02-2002-2.3 Sewage Code of Australia Hunter Water Edition
Discount rates	Assessment of 7%, with sensitivity at 4% and 10%
Energy prices and inflation rates	As per "Operating and Maintenance Cost Estimating Guideline", Hunter Water Corporation, September 2010
Greenhouse gas abatement emission factors and certificate prices and inflation rates	As per "Operating and Maintenance Cost Estimating Guideline", Hunter Water Corporation, September 2010
Connection points nominated by Hunter Water	As discussed in Section 3.1
Maintenance and operating costs from guidance and information provided by Hunter Water manuals and guidelines	As per "Operating and Maintenance Cost Estimating Guideline", Hunter Water Corporation, September 2010.
Capital costs	As per HWC Cost Estimating Spreadsheet, provided by HWC via email (21/7/11)

4 SERVICING OPTIONS - REGIONAL

4.1 **Previous Investigations**

The following servicing strategies have been previously prepared for the site:

- North Raymond Terrace Draft Initial Water and Wastewater Servicing Options; Patterson Britton & Partners; August 2003.
- Kings Hill Water and Wastewater Servicing Study; Patterson Britton & Partners; August 2004.
- North Raymond Terrace Water and Wastewater Servicing Study Additional Investigations; Patterson Britton & Partners; December 2004
- Kings Hill North West Village Water and Wastewater Servicing Study; Patterson Britton & Partners; February 2005

The time elapsed from the prior investigations is beyond Hunter Water's 5 year approval horizon. Therefore, the Preliminary Water and Wastewater Servicing Advice *(SMEC, April 2011)* was prepared on the basis of the previous servicing strategies.

The study outlines two main approaches:

- Connection to the Raymond Terrace WWTW.
- Construction of an on-site wastewater treatment plant.

4.2 Constraints

A desktop constraints analysis has been undertaken for the options to be assessed, this covers technical constraints, community / stakeholder constraints and environmental constraints.

4.2.1 Technical Constraints

The proposed Kings Hill Development broadly requires a new wastewater system and thus there are limited technical constraints above the requirements of the Wastewater Supply Code of Australia (WSA 03) – Hunter Water Edition. It is considered that all infrastructure proposed is maintainable utilising standard maintenance practices and materials.

The site will require a long rising main to deliver flows to Hunter Water's nominated connection point (Raymond Terrace WWTW). Given the site will roll out over an estimated 20 years, detention time will be an issue, particularly in the early years. It is noted that dosing / flushing technologies exist to provide solutions for septicity / odours arising from long detention times.

Initial capacity for the development area has been identified at Raymond Terrace 8 WWPS (refer **Section 4.7**). It is considered there is opportunity to make use of this initial capacity by use of a smaller pump station and smaller rising main for an initial release of lots, followed by a parallel rising main(s) for the ultimate development.

4.2.2 Community / Stakeholder Constraints

All options require the construction of infrastructure within an area approved for residential development. The majority of the mains would be constructed in existing road easements.

There will be a minor visual impact and some increased noise during construction of the station, but this can be managed by engaging with relevant stakeholders at construction stage.

Construction of the infrastructure will require consumption of non-renewable resources for all options (concrete, PVC pipe etc), but it is considered that this disadvantage is more than offset by the health benefits realised by the installation of a sanitation system.

Overall, infrastructure proposed under this option is considered to have a relatively low impact on the community and stakeholders.

4.2.3 Environmental Constraints

A review of ecological investigation at the site by PEA Consulting (May, 2013) indicates that comprehensive ecological studies have been undertaken on the Kings Hill site and whilst there are areas of ecological significance within Kings Hill, these will only be slightly impacted by the servicing internal to the site. The extent of environmental impacts to be further defined at concept stage, with the outcome of environmental studies utilised in determining optimum infrastructure location.

The lands outside of the Kings Hill project area that are within the proposed options for servicing include a mixture of remnant vegetation and cleared areas with minimal ecological value. Ecological habitats identified in preliminary ecological constraint mapping identified three communities that have the greatest ecological value, these include:

- Swamp Oak Floodplain Forest of the NSW North Coast, Sydney Basin and South East Corner bioregions
- Seaham Spotted. Gum Ironbark Forest (LCHREMMS Map Unit 16)
- Freshwater Wetlands on Coastal Floodplains of the NSW North Coast, Sydney Basin and South East Corner bioregions

The habitats that will become the interest for future ecological surveys (including a buffer of 50 metres) are:

- 16 Hectares of She Oak forests and similar non-eucalypt wetland forests, such as Melaleuca forest;
- 20 Hectares of Eucalypt forest including Seaham Spotted gum Ironbark forest;
- 17 Hectares of Wetland that includes manmade dams and drains.

Only a small percentage of these habitats would be impacted, and at the concept design stage, re-alignment can be considered to minimise impacts.

A Search of the NPWS Atlas database for local significant species, populations, and communities identified that the local area supports a range of significant ecological issues that will require further research and possibly management. A comparison of these with Kings Hill Development 30011097 Revision No. G | 29 January 2014 Page | 16

the habitats identified in the constraint mapping shows that a range of species could potentially be present within the proposal area, including:

She Oak forests and similar non-eucalypt Fau	
wetland forests, such as Melaleuca forest	na
Gre	y-crowned Babbler (Eastern species)
All	ocal bats
<u>Flor</u>	<u>a</u>
Tall	Knotweed
Eucalypt forest including Seaham Spotted	
gum Ironbark forest	na
All I	ocal bats
Glos	ssy Black-cockatoo
	y-crowned Babbler (Eastern species)
Spo	tted-tailed Quoll
Vari	ed Sittella
Swi	ft Parrot
Squ	irrel Glider
Brus	sh-tailed Phascogale
Koa	la
Flor	<u>a</u>
Dwa	arf
Ker	rawang and
Wetland that includes manmade dams and Fau drains	na
	ck-necked Stork
All	ocal bats
Gre	en And Golden Bell Frog
Spo	tted Harrier (very marginal habitat)

<u>Flora</u>
Tall Knotweed

Whilst records of significant species at a locality provide background information on the habitat of the area it does not prove that there is not habitat for additional species, or that the distribution of species is not different to the historical records. This absence of evidence can only be rectified by detailed ecological survey of the proposed service alignments prior to undertaking concept design.

The potential for harm is considered to be a low to moderate risk, and the opportunity for realignment further reduces this risk. Future surveys may reduce the potential for impacts on significant ecological issues even further. Notwithstanding, the impact is small in nature and largely avoids areas containing important ecological habitats.

It is considered that all alignments considered are equally impacted by the presence of threatened flora & fauna, and that the risk will be mitigated by controls recommended in the REF at concept design stage.

Environmentally sensitive areas potentially categorised as SEPP 14 Wetlands are located adjacent to the proposed alignments.

Part of the development area drains into the Hunter Water Special Area for Grahamstown Dam. This is being considered as part of a separate investigation, refer Section 2.4.2.

Other potential environmental constraints include high groundwater levels and acid sulphate soils.

A search of the Aboriginal Heritage Information Management System (AHIMS) database was undertaken to identify any known artefacts in the area. The results of this search are presented on Exhibit D1. Further consideration will be given by the REF to the treatment for any artefacts uncovered during construction. The REF will be prepared during concept design stage.

4.3 Infrastructure Description

The options investigated in this report are based on the approach including the connection to the Raymond Terrace WWTW.

The new infrastructure would include the regional wastewater pumping station (WWPS) and rising main transporting wastewater to the Raymond WWTW.

The servicing options are summarised below and shown on Exhibit G1-G5.

It is noted that an on-site wastewater treatment was listed in the previous studies. Construction of an on-site wastewater treatment plant would require extended consultation and significant environmental approvals. This option was not considered a preferred option by Hunter Water and therefore was not investigated as part of this report.

4.3.1 Option SE1A

This option consists of a single regional WWPS located on the western side of the Kings Hill development, refer **Exhibit G1**. The wastewater from the eastern catchments is transferred via a single transfer pump station which delivers flows from these catchments to the west. Refer to **Section 5** for detailed discussion of the internal transfer options considered in this report.

This option pumps directly to the Raymond Terrace WWTW, with the rising main alignment following existing roads in the Raymond Terrace area. The majority of the alignment is rising main, with a short section of gravity main required for the final section which runs downhill. It is considered that the alignment is already disturbed from the natural state, which minimises the risk of encountering heritage items and threatened flora.

This alignment has one trenchless crossing, being under Adelaide St, Raymond Terrace.

The entire rising main alignment is identified on acid sulphate soil risk mapping as having a high probability of ASS. It is also assumed that due to the proximity of the river that dewatering will be required for the length of the alignment.

Given the site will roll out over an estimated 20 years, detention time will be an issue, particularly in the early years. It is noted that dosing / flushing technologies exist to provide solutions for septicity / odours arising from long detention times. For the DN500 rising main detention times range from 230 hr in the first year to 11.5 hr at ultimate development. However, the rising main would need to be reduced to DN300 to have a detention time less than 4 hours, and the dynamic head for this option would be 376m, which is more than can be handled by a single centrifugal wastewater pump and would also significantly increase the ongoing energy costs for the station. It would be possible to have more than one station staged in series, but this would significantly increase the capital cost, when compared to the cost of chemical dosing.

The ultimate infrastructure required for the recommended rising main size for this option would be:-

Trunk Infrastructure

- Wastewater pump station 363 L/s @ 39m, total station power of 465kW (2 pumps duty / standby arrangement)
- Wet well DN 7.0m, internal depth = 6m
- Rising main 8060m of DN500

Main Internal Transfer – Low-head option

- Wastewater pump station 241 L/s @ 18m, total station power of 288kW (2 pumps duty / standby arrangement)
- Wet well DN 5.5m, internal depth = 6m
- Rising main 4,000m of DN450

Table 8 – Option SE1A – Rising Main Size Comparison

	Length (m)	Static Head (m)	Design Flow (L/s)	Velocity (m/s)	Total Head (m)	Pump Power (kW/pump)
DN450				2.0	56.2	333.3
DN500	8060	7	363.1	1.6	39.2	232.5
DN600				1.1	21.5	127.7

Table 9 – Option SE1A – Cost Estimates

	Rising Main Cost	Pump Station Cost	Gravity Main Cost	Internal Transfer	Total Developer Capital PV	Total HWC Capital PV	Energy Cost PV	GHG Cost PV	Chemical Dosing PV	Maintenance PV	O&M Cost (30 years @ 7%)	NPV (30 years @ 7%)
DN450	Dynamic head too high											
DN500	\$9,700,000	\$2,350,000	\$0	\$4,350,000	\$16,400,000	\$100,000	\$1,000,000	\$150,000	\$650,000	\$350,000	\$2,150,000	\$18,650,000
DN600	\$11,600,000	\$2,200,000	\$0	\$4,350,000	\$18,150,000	\$100,000	\$650,000	\$100,000	\$700,000	\$350,000	\$1,850,000	\$20,100,000

Details of the cost estimates can be found in Appendix D.

4.3.2 Option SE1B

This option consists of a single regional WWPS located on the western side of the Kings Hill development, refer **Exhibit G2**. The wastewater from the eastern catchments is transferred via a single transfer pump station which delivers flows from these catchments to the west. Refer to **Section 5** for detailed discussion of the internal transfer options considered in this report.

This option pumps directly to the Raymond Terrace WWTW, with the rising main alignment following existing roads in the Raymond Terrace area. This alignment follows a more direct path to Raymond Terrace WWTW, but traverses a more urban area of Raymond Terrace. The alignment has the advantage of passing through Boomerang Park, which is relatively undeveloped.

The majority of the alignment is rising main, with a short section of gravity sewer required for the final section which runs downhill. This alignment follows Tod St and the existing treatment plant access road. It is considered that the alignment is already disturbed from the natural state, which minimises the risk of encountering heritage items and threatened flora.

It is noted that the details of the Raymond Terrace inlet works are unknown, but is likely elevated. It is noted that the section of gravity sewer at the end of the main may act as a variable grade sewer. Options for eliminating this could be deepening the section of rising main under the local hill at Boomerang Park. It is considered the cost of deepening this sewer would be approximately offset by the saving in the gravity main. This could be considered at concept design stage, when more details are known regarding the location of other services.

This alignment has one trenchless crossing, being under Adelaide St, Raymond Terrace.

Approximately 5300m of the rising main alignment is identified on acid sulphate soil risk mapping as having a high probability of ASS. It is also assumed that due to the proximity of the river that dewatering will be required for the length of the alignment.

Given the site will roll out over an estimated 20 years, detention time will be an issue, particularly in the early years. It is noted that dosing / flushing technologies exist to provide solutions for septicity / odours arising from long detention times. For the DN450 rising main detention times range from 137 hr in the first year to 6.8 hr at ultimate development. However, the rising main would need to be reduced to DN300 to have a detention time less than 4 hours, and the dynamic head for this option would be 274m, which is more than can be handled by a single centrifugal wastewater pump and would also significantly increase the ongoing energy costs for the station. It would be possible to have more than one station staged in series, but this would significantly increase the capital cost, when compared to the cost of chemical dosing.

The ultimate infrastructure required for the recommended rising main size for this option would be:-

Trunk Infrastructure

- Wastewater pump station 363 L/s @ 42.7m, total station power of 506kW (2 pumps duty / standby arrangement)
- Wet well DN 7.0m, internal depth = 6m

- Rising main 5,800m of DN450
- Gravity main 1,100m of DN600

Main Internal Transfer – Low-head option

- Wastewater pump station 241 L/s @ 18m, total station power of 288kW (2 pumps duty / standby arrangement)
- Wet well DN 5.5m, internal depth = 6m
- Rising main 4,000m of DN450

Table 10 – Option SE1B – Rising Main Size Comparison

	Length (m)	Static Head (m)	Design Flow (L/s)	Velocity (m/s)	Total Head (m)	Pump Power (kW/pump)
DN375				2.9	95.0	563.3
DN450	5800	7	363.1	2.0	42.7	253.2
DN500				1.6	30.4	180.1

Table 11 – Option SE1B – Cost Estimates

	Rising Main Cost	Pump Station Cost	Gravity Main Cost	Internal Transfer	Total Developer Capital PV	Total HWC Capital PV	Energy Cost PV	GHG Cost PV	Chemical Dosing PV	Maintenance PV	O&M Cost (30 years @ 7%)	NPV (30 years @ 7%)
DN375	Dynamic head too high											
DN450	\$6,750,000	\$2,350,000	\$2,350,000	\$4,350,000	\$15,800,000	\$100,000	\$1,050,000	\$150,000	\$600,000	\$350,000	\$2,150,000	\$18,050,000
DN500	\$7,650,000	\$2,200,000	\$2,350,000	\$4,350,000	\$16,550,000	\$100,000	\$850,000	\$100,000	\$600,000	\$350,000	\$1,900,000	\$18,550,000

Details of the cost estimates can be found in Appendix D.

4.3.3 Option SE1C

This option consists of a single regional WWPS located on the eastern side of the Kings Hill development, refer **Exhibit G3**. The wastewater from the western catchments is transferred via a single transfer pump station which delivers flows from these catchments to the east. Refer to **Section 5** for discussion of the internal transfer options considered in this report.

This option pumps directly to the Raymond Terrace WWTW, with the rising main alignment following existing roads in the Raymond Terrace area. The rising main alignment is located on the western side of the Pacific Highway and uses a trenchless crossing under the Irrawang Spillway. It then follows Rees James Rd, and uses a trenchless crossing under Adelaide St, and transfers flows to a gravity main at the high point, just after this crossing. The gravity main follows existing roads through Raymond Terrace, then follows a drainage easement and follows the edge of the golf course, before delivering flows to the WWTW. It is noted that this gravity main is through a developed urban area, and has significant length of main at depths greater than 3m.

The undulations along the alignment and intermediate high point at Adelaide St (approx. RL 30m AHD) means that the alignment cannot all be undertaken utilising a conventional rising main (i.e. intermediate high point higher than discharge point). This would required the introduction f both air release and air inlet valves along the line which would be critical to operation of the rising main, these valves introduce operation issues and risks into the system.

Due to the high static head, compared to other options this option requires an increased rising main diameter, to minimise dynamic head losses to keep the total head under 60m.

It is considered that the alignment is already disturbed from the natural state, which minimises the risk of encountering heritage items and threatened flora.

Approximately 500m of the rising main alignment is identified on acid sulphate soil risk mapping as having a high probability of ASS. It is also assumed that due to the proximity of the river that dewatering will be required for the length of the alignment.

Given the site will roll out over an estimated 20 years, detention time will be an issue, particularly in the early years. It is noted that dosing / flushing technologies exist to provide solutions for septicity / odours arising from long detention times. For the DN600 rising main detention times range from 144 hr in the first year to 7.2 hr at ultimate development. However, the rising main would need to be reduced to DN375 to have a detention time less than 4 hours, and the dynamic head for this option would be 90m, which is more than can be handled by a single centrifugal wastewater pump and would also significantly increase the ongoing energy costs for the station. It would be possible to have more than one station staged in series, but this would significantly increase the capital cost, when compared to the cost of chemical dosing.

The infrastructure required for the recommended rising main size for this option would be:-

Trunk Infrastructure

- Wastewater pump station 363 L/s @ 41.5m, total station power of 492kW (2 pumps duty / standby arrangement)
- Wet well DN 7.0m, internal depth = 6m
- Rising main 3,500m of DN600
- Gravity main 3,600m of DN600

Main Internal Transfer – Low-head option

- Wastewater pump station 122 L/s @ 31m, total station power of 244kW (2 pumps duty / standby arrangement)
- Wet well DN 3.8m, internal depth = 6m
- Rising main 4,000m of DN300

Table 12 – Option SE1C – Rising Main Size Comparison

	Length (m)	Static Head (m)	Design Flow (L/s)	Velocity (m/s)	Total Head (m)	Pump Power (kW/pump)
DN500				1.6	49.4	292.8
DN600	3500	35	363.1	1.1	41.5	246.1
DN750				0.7	37.2	220.8

Table 13 – Option SE1C – Cost Estimates

	Rising Main Cost	Pump Station Cost	Gravity Main Cost	Internal Transfer	Total Developer Capital PV	Total HWC Capital PV	Energy Cost PV	GHG Cost PV	Chemical Dosing PV	Maintenance PV	O&M Cost (30 years @ 7%)	NPV (30 years @ 7%)
DN500	Total station power too high											
DN600	\$5,750,000	\$2,350,000	\$7,400,000	\$3,300,000	\$18,800,000	\$100,000	\$1,000,000	\$150,000	\$600,000	\$400,000	\$2,100,000	\$21,000,000
DN750	\$7,500,000	\$2,200,000	\$7,400,000	\$3,300,000	\$20,400,000	\$100,000	\$900,000	\$150,000	\$600,000	\$400,000	\$2,050,000	\$22,550,000

Details of the cost estimates can be found in Appendix D.

4.3.4 Option SE1D

This option consists of a single regional WWPS located on the eastern side of the Kings Hill development, refer **Exhibit G4**. The wastewater from the western catchments is transferred via a single transfer pump station which delivers flows from these catchments to the east. Refer to **Section 5** for detailed discussion of the internal transfer options considered in this report.

This option pumps directly to the Raymond Terrace WWTW, with the rising main alignment following existing roads in the Raymond Terrace area, and following the northern extent of the existing Raymond Terrace area. The section of the alignment located to the north of the existing Raymond Terrace area has had preliminary route selection investigations undertaken for this study. The proposed alignment has been selected to be located within Hunter Water-owned lands. From here, it follows Newline Rd, then through the centre of Raymond Terrace, and then through Boomerang Park, which is relatively undeveloped. At the high point in Boomerang Park, the rising main delivers flows to a gravity sewer, which conveys sewage to the WWTW. This alignment follows Tod St and the existing treatment plant access road.

It is noted that the details of the Raymond Terrace inlet works are unknown, but is likely elevated. It is noted that the section of gravity sewer at the end of the main may act as a variable grade sewer. Options for eliminating this could be deepening the section of rising main under the local hill at Boomerang Park. It is considered the cost of deepening this sewer would be approximately offset by the saving in the gravity main. This could be considered at concept design stage, when more details are known regarding the location of other services.

It is considered that much of the alignment is already disturbed from the natural state, which minimises the risk of encountering heritage items and threatened flora. The section which is within the Irrawang Nature Reserve is not significantly disturbed, but searches of the NPWS Atlas and AHIMS database in this area only noted the presence of koalas, with the sitings more than 100m from the proposed alignment. It is considered this risk can be appropriately mitigated by measures which would be determined in the REF, at Concept Design stage.

Approximately 5,400m of the rising main alignment is identified on acid sulphate soil risk mapping as having a high probability of ASS. It is also assumed that due to the proximity of the river that dewatering will be required for the length of the alignment.

Given the site will roll out over an estimated 20 years, detention time will be an issue, particularly in the early years. It is noted that dosing / flushing technologies exist to provide solutions for septicity / odours arising from long detention times. For the DN450 rising main detention times range from 150 hr in the first year to 7.5 hr at ultimate development. However, the rising main would need to be reduced to DN300 to have a detention time less than 4 hours, and the dynamic head for this option would be 299m, which is more than can be handled by a single centrifugal wastewater pump and would also significantly increase the ongoing energy costs for the station. It would be possible to have more than one station staged in series, but this would significantly increase the capital cost, when compared to the cost of chemical dosing.

The ultimate infrastructure required for the recommended rising main size for this option would be:-

Trunk Infrastructure

- Wastewater pump station 363 L/s @ 46m, total station power of 585kW (2 pumps duty / standby arrangement)
- Wet well DN 7.0m, internal depth = 6m
- Rising main 6,350m of DN450
- Gravity main 1,100m of DN600

Main Internal Transfer – Low-head option

- Wastewater pump station 122 L/s @ 31m, total station power of 244kW (2 pumps duty / standby arrangement)
- Wet well DN 3.8m, internal depth = 6m
- Rising main 4,000m of DN300

Table 14 – Option 3	SE1D – Rising Main	Size Comparison
		0120 00111pa110011

	Length (m)	Static Head (m)	Design Flow (L/s)	Velocity (m/s)	Total Head (m)	Pump Power (kW/pump)
DN375	6350	7	363.1	2.9	103.1	611.6
DN450				2.0	46.0	272.6
DN500				1.6	32.5	192.8

Table 15 – Option SE1D – Cost Estimates

	Rising Main Cost	Pump Station Cost	Gravity Main Cost	Internal Transfer	Total Developer Capital PV	Total HWC Capital PV	Energy Cost PV	GHG Cost PV	Chemical Dosing PV	Maintenance PV	O&M Cost (30 years @ 7%)	NPV (30 years @ 7%)
DN375	Dynamic head too high											
DN450	\$7,400,000	\$2,350,000	\$2,350,000	\$3,300,000	\$15,400,000	\$100,000	\$1,100,000	\$150,000	\$600,000	\$350,000	\$2,200,000	\$17,700,000
DN500	\$8,250,000	\$2,200,000	\$2,350,000	\$3,300,000	\$16,100,000	\$100,000	\$800,000	\$100,000	\$650,000	\$350,000	\$1,900,000	\$18,100,000

Details of the cost estimates can be found in Appendix D.

4.3.5 Option SE2

This option consists of a WWPS in both eastern and western catchments, joined by a common rising main which delivers flows to Raymond Terrace WWTW (refer **Exhibit G5**). This option removes the need for long internal transfers, reduces the size of external trunk infrastructure, and increases the flexibility with regard to staging. This option provides flexibility for early development of eastern and western land holdings in parallel.

SMEC has been advised that Hunter Land is progressing development over the Windeyer land holdings (western area) and that early development of this site is expected to sequence in parallel with KHD.

The alignment is a combination of Options SE1B and SE1D. Trenchless crossings are required at the Irrawang Spillway (eastern alignment) and Adelaide St. It is considered that the alignment is already disturbed from the natural state, which minimises the risk of encountering heritage items and threatened flora. The alignment option located to the north of the existing Raymond Terrace area has had preliminary route selection investigations undertaken for this study. The proposed eastern alignment has been selected to be located within Hunter Water-owned lands. The proposed western alignment will be located within the Newline Road corridor. These alignments are shown in more detail on **Exhibit K**.

It is noted that the proposed eastern alignment shown on **Exhibit G5** traverses HWC-owned land, at the rear of the properties in Holwell Circuit / Dalyell Way and along the Pacific Highway. It is understood this private land is owned by Hunter Water Corporation. The section adjacent to the Pacific Highway can be located in either private lands, or the allocation for Pacific Highway, with the preferred location to be confirmed at concept design stage. For the section along the rear of the properties in the rear of Holwell Circuit / Dalyell Way, an alternate route which has similar overall length and uses road allocations is sketched on **Exhibit G5**. This alignment would have higher reinstatement costs, due to the alignment traversing a more developed area. The proposed western alignment will traverse the Newline Road corridor from the western boundary of the site back to Raymond Terrace 8 WWPS. There is a small section between Raymond Terrace 8 WWPS and Newline Rd is understood to be owned by HWC. The proposed alignment also crosses two parks, which are understood to be owned by Port Stephens Council. It would be possible to deviate around these parks at concept design stage, if required. It is recommended that the preferred alignment is further refined at the concept design stage, when more information is available on all constraints including geotechnical conditions, land ownership, flora / fauna, heritage etc.

Approximately 9,800m of the rising main alignment is identified on acid sulphate soil risk mapping as having a high probability of ASS. It is also assumed that due to the proximity of the river that dewatering will be required for the length of the alignment.

Given the site will roll out over an estimated 20 years, detention time will be an issue, particularly in the early years. It is noted that dosing / flushing technologies exist to provide solutions for septicity / odours arising from long detention times. For the proposed system detention times range from 92 hr in the first year to 8 hr at ultimate development. However, the rising main would need to be reduced to DN300 to have a detention time less than 4 hours, which would significantly increase the capital and ongoing energy costs for the station. It would be possible to have more than one station staged in series, but this would significantly increase the capital cost, when compared to the cost of chemical dosing.

The ultimate infrastructure required for the recommended rising main size for this option would be:-

Western

- Wastewater pump station 122 L/s @ 42m, total station power of 167kW (2 pumps duty / standby arrangement)
- Rising main 3,900m of DN300
- Wet well DN 3.8m, internal depth = 6m

Eastern

- Wastewater pump station 241 L/s @ 32m, total station power of 251kW (2 pumps duty / standby arrangement)
- Wet well DN 5.5m, internal depth = 6m
- Rising main 4,430m of DN450

Common

- Rising main 2,600m of DN500
- Gravity main 1,100m of DN600

Table 16 – Option SE2 – Cost Estimates

Rising Main Cost	Pump Station Cost	Gravity Main Cost	Internal Transfer	Total Developer Capital PV	Total HWC Capital PV	Energy Cost PV	GHG Cost PV	Chemical Dosing PV	Maintenance PV	O&M Cost (30 years @ 7%)	NPV (30 years @ 7%)
\$9,950,000	\$3,550,000	\$2,350,000	\$0	\$15,850,000	\$100,000	\$700,000	\$100,000	\$700,000	\$250,000	\$1,700,000	\$17,650,000

Details of the cost estimates can be found in Appendix D.

4.3.6 Option SE3

This option uses a variable grade sewer from the Kings Hill Development to the Raymond Terrace WWTW. The inlet of the pressure main is at approximately RL 60m, and the invert is at Raymond Terrace WWTW. The main grades broadly down from Kings Hill to an intermediate high point at Boomerang Park, then grade down under the drainage channel to the north of the WWTP, and up to the inlet of Raymond Terrace WWTW.

The approach is based on allowing the main to generate adequate head utilising the increased elevation at Kings Hill to overcome the undulating section of main from Boomerang Park to Raymond Terrace WWTW. The local pump stations would deliver flows to the collection point, which would be located on one of the high points on the site.

It is noted this option is not a conventional approach for trunk infrastructure, but is presented as an innovative approach that utilises site specific conditions.

The main will remain water-charged for the sections below the Raymond Terrace WWTW discharge point, approximately RL10m AHD. The main is sized to convey the ultimate PWWF, but is also required to achieve adequate flushing velocities at PDWF. This has the advantage of not requiring energy consumption over its lifecycle, as it required by the options with a WWPS (although the internal pump stations would be required to deliver to a higher head than if the pump is located at the bottom of the catchment). There is also a capital cost saving realised by not having a main transfer station. It is noted that variable grade sewers introduce a number of operational issues such as odour and corrosion potential.

Analysis was undertaken to determine the suitability of the vertical alignment at Kings Hill for a VGS system.

For ultimate flows, a pipe size with DN375 is required to achieve a velocity of 0.84m/s at PDWF. This is less than the minimum desirable velocity, but greater than minimum solids transport velocity. However, at PWWF the headloss is approximately 90-135m, which is significantly greater than the available headloss of approximately 50m.

The required maximum headloss would see the inlet of the VGS located at approximately RL100-145, noting the highest land at Kings Hill is RL 137m AHD. This would require all internal pump stations to deliver a much higher head, significantly increasing the lifecycle costs for these pump stations.

Alternately, to meet the maximum allowable headloss, a minimum internal diameter of approximately DN450 is required. However at the ultimate stage, the velocity at PDWF would be 0.59m/s which is less than the minimum solids transport velocity (0.66m/s). At velocities below minimum solids transport, the VGS has significant risk of operational issues due to solids deposition leading to odour generation and potential corrosion.

As such, the available physical configuration available at Kings Hill is not capable of transferring the required PWWF in a single pipeline, whilst meeting minimum flow requirements. There would also be issues in the early years, given the ultimate design flow is not anticipated for approximately 20 years. To flush this main and meet solids transport velocities would require 100-150L/s, which would be a significant flow to draw from the potable water network.

As such, the VGS has not been further considered.

4.4 Assessment of Non-Cost Criteria

The preliminary non-price assessment of each option is summarised below in **Table 17**.

Table 17 – Non-Cost Criteria

Option	Loading Assessment	Technical Constraints	Performance	Flexibility and Adaptability	Reliability & Maintainability	Potential odour / septicity generation	Community / Stakeholder Constraints	Environmental Constraints	OH&S Issues	Option recommendation							
SE1A		The longest rising main alignment Route takes advantage of parks close to river, only small section would be constructed within the built-up area.					Construction near HWC Special Area for Grahamstown dam – HWC approval in conjunction with Council required.	Construction the near environmentally sensitive areas. Approximately 8km of the alignment is identified as having high probability of ASS. Anticipated high groundwater levels.		Proceed with detailed analysis							
SE1B		One of the longest alignments. This route has the advantage of passing through a mostly green corridor of parks through Raymond Terrace.	Standard				Construction near HWC Special Area for Grahamstown dam – HWC approval in conjunction with Council required.	Construction the near environmentally sensitive areas. Approximately 5.3km of the alignment is identified as having high probability of ASS. Anticipated high groundwater levels.	- Infrastructure type	Proceed with detailed analysis							
SE1C	Capacity for all development within the study area	Majority of the alignment would be located within the existing road easements. Long rising mains with large vertical elevation changes could create a number of operation issues with existing variable grade sewers (and similar), including corrosion and odour.	infrastructure type within HWC's Area of Operations. Infrastructure will be designed to comply with relevant HWC design manuals / guidelines, to ensure that performance is	mechanical / electrical upgrade at the WWPS	Standard infrastructure type within HWC's Area of Operations. Infrastructure will be designed to comply with relevant HWC design manuals / guidelines, to ensure that performance is within HWC's Operating License.	type within HWC's Area of Operations. Infrastructure will be designed to comply with relevant HWC design manuals / guidelines, to ensure that performance is within HWC's	type within HWC's Area of Operations. Infrastructure will be designed to comply with relevant HWC design manuals / guidelines, to ensure that performance is within HWC's	type within HWC's Area of Operations. Infrastructure will be designed to comply with relevant HWC design manuals / guidelines, to ensure that performance is within HWC's	type within HWC's Area of Operations. Infrastructure will be designed to comply with relevant HWC design manuals / guidelines, to ensure that performance is within HWC's	type within HWC's Area of Operations. Infrastructure will be designed to comply with relevant HWC design manuals / guidelines, to ensure that performance is within HWC's	type within HWC's Area of Operations. Infrastructure will be designed to comply with relevant HWC design manuals / guidelines, to ensure that performance is within HWC's	type within HWC's Area of Operations. Infrastructure will be designed to comply with relevant HWC design manuals / guidelines, to ensure that performance is within HWC's	Detention time Gr exceeds 4 hours at Ultimate Co development re rollout. Cr	Construction near HWC Special Area for Grahamstown dam – HWC approval in conjunction with Council required. Crossing of Irrawang Spillway required.	Construction the near environmentally sensitive areas. Approximately 0.5km of the alignment is identified as having high probability of ASS. Anticipated high groundwater levels.	is standard within HWC area of operations. Standard OH&S issues associated with wastewater infrastructure anticipated i.e. confined spaces, working with electricity, safe	Proceed with detailed analysis
SE1D			within HWC's Operating License.				Construction near HWC Special Area for Grahamstown dam – HWC approval in conjunction with Council required. Crossing of Irrawang Spillway required.	Construction near environmentally sensitive areas. Approximately 5.4km of the alignment is identified as having high probability of ASS. Anticipated high groundwater levels.	 manual handling practices 	Proceed with detailed analysis							
SE2		Parallel operation of common rising main		Same as other options, but it is noted that an upgrade would require upgrade of pumps at both stations			Construction near HWC Special Area for Grahamstown dam – HWC appro val in conjunction with Council required. Crossing of Irrawang Spillway required.	Construction near environmentally sensitive areas. Approximately 9.8km of the alignment is identified as having high probability of ASS. Anticipated high groundwater levels.		Proceed with detailed analysis							

4.5 Option Discussion

The recommended size and key costs for each option is summarised below in **Table 18**. Cost estimates have only allowed for trenchless technologies at crossing of significant structures.

	Adopted Rising Main Diameter	Total Developer Capital PV	Total HWC Capital PV	O&M Cost (30 years @ 7%)	NPV (30 years @ 7%)
Option SE1A	DN500	\$16,400,000	\$100,000	\$2,150,000	\$18,650,000
Option SE1B	DN450	\$15,800,000	\$100,000	\$2,150,000	\$18,050,000
Option SE1C	DN600	\$18,800,000	\$100,000	\$2,100,000	\$21,000,000
Option SE1D	DN450	\$15,400,000	\$100,000	\$2,200,000	\$17,700,000
Option SE2	Refer figure	\$15,850,000	\$100,000	\$1,700,000	\$17,650,000

Table 18 – Option Comparison

Generally, the options with the transfer pump station located on the west (Options SE1A and 1B) have higher upfront and ongoing costs, as the eastern catchments are larger and hence the west to east system requires larger infrastructure.

Option SE1C is significantly more expensive, due to the length of gravity main required through a developed area, which is required due to the vertical alignment (refer **Section 4.3.3** for further discussion). As such, this option has not been considered further.

Option SE1D and SE2 have essentially the same lifecycle costs, with Option SE2 having slightly higher capital costs, but reduced lifecycle costs. Option SE2 also presents staging benefits, as only one side of the transfer network needs to be constructed at a time, allowing for potential deferral of significant capital costs.

Therefore, Option SE2 is the recommended as the preferred option.

It is noted that the cost estimates do not include an allowance for land acquisition. Preliminary route selection undertaken for Option SE2 as part of this investigation has sited the main in HWC-owned land, and it is understood no acquisition costs will apply for this alignment. If land acquisition costs prove unfavourable for the proposed alignment, or the timing is incompatible with the development rollout, there is potential to locate this rising main in the road reserve of the existing developed area.

It is noted that ultimately for all options a long, large diameter rising main is required to transfer flows to the Raymond Terrace WWTW. In all cases, there is an ultimate requirement for odour / septicity control. Decreasing the diameter of the proposed rising main to eliminate the ultimate need for odour / septicity management results in dynamic headlosses in the order of 200-300m, which is beyond the capability of a centrifugal wastewater pump. Additionally, the septicity issue is also impacted by the rollout of development (i.e. detention times will be long in the initial years, in the order of 200

hours). There are several technical solutions for the management of septicity / odour, including chemical dosing, flushing and oxygen injection. Reduction of the septicity issue will also be made with regard to staging of initial infrastructure (smaller diameter rising main and pump station), refer **Section 4.7**. It is recommended that options for odour / septicity management are considered in more detail at the concept design stage.

Additionally, at strategy stage, detailed consideration has not been given to the potential for energy savings provided by variable speed drive pumping. As the recommended option involves large dynamic headlosses and relatively high velocities, it is considered that there is significant potential for energy saving to result from installation of a VSD. As such, it is recommended that VSD pumping is considered on the preferred option at concept design stage.

4.6 Staging

The preferred option (SE2) lends itself to staging as separate arms of the common rising main can be constructed as development rolls out across the site. KHD as the major landowner in the release area are progressing their first stages of their development in the south-east corner of the release area.

We note that Hunter Land are progressing development over the Windeyer land holdings (western area) and have advised early development sequencing in parallel with KHD. The recommended option provides flexibility for early development of eastern and western land holdings.

It is noted that further staging opportunities exist, with regard to the initial capacity identified at Raymond Terrace 8 WWPS. To access this initial capacity in a cost-effective manner, it is considered that a suitable initial stage may be to construct a small WWPS and an initial rising main in (say) DN150 from the eastern or western portion of the Kings Hill Release Area, to Raymond Terrace 8 WWPS, as shown on **Exhibit K**.

Further investigation will be undertaken with regard to this as part of the concept design of the trunk infrastructure. Hunter Water is currently revising the capacity available at Raymond Terrace 4 and 8 WWPS. This investigation is understood to consider the potential for minor mechanical / electrical upgrades to provide additional capacity. The results of this optimisation will be included as part of the concept design of infrastructure.

It is noted that there would be technical constraints with regard to accessing this capacity, given that the flows would be pumped to Raymond Terrace 8. The minimum pump rate which meets HWC's minimum slime control requirements (velocity of 0.67m/s) for the proposed rising main (DN450) is approximately 120L/s. However, given the Kings Hill WWPS will be constructed for ultimate design flows (4,500 ET), there would be sufficient storage to hold flows during a wet weather event for approximately 200 ET. As such, operational controls of the Kings Hill pump station in the initial years of development could ensure that the Kings Hill WWPS does not pump during wet weather events at Raymond Terrace 8.

If it is likely that the development will utilise this interim connection, this option should be further discussed with Hunter Water at the concept design stage.

4.7 Servicing Initial Lots

Connection of the initial lots to the existing sewer infrastructure within Raymond Terrace is proposed, to defer significant upfront capital expenditure in transferring flow.

Hunter Water have indicated that there are 200ET of available capacity within the existing Raymond Terrace reticulation network, at Raymond Terrace 8 WWPS (refer **Exhibit F** for locations of this infrastructure). This WWPS is located adjacent to the alignment for the preferred option of SE2. This allows for easy staging, with rising mains constructed from either the east or the west, to Raymond Terrace 8 as a first stage, and then following the remaining SE2 alignment once more than 200ET are exceeded.

Hunter Water have indicated that additional interim capacity is possible at Raymond Terrace 8 WWPS if the pumps are upgraded, which would also necessitate a pump upgrade at Raymond Terrace 4 WWPS. Hunter Water has plans to upgrade Raymond Terrace 4 WWPS in 2025/26, however this may change depending on future demand and prioritisation. There is sufficient capacity within the gravity network downstream of RT8 to handle some increased flows. The available capacity from upgrade will require confirmation from Hunter Water as part of the concept design.

Depending on the capacity available at Raymond Terrace 4, after the 200ET is utilised at RT8, the alignment could be constructed between RT 4 and Mount Hall Rd. A temporary RM would be required along Mount Hall Rd, to deliver flows to RT4.

5 SERVICING OPTIONS - LOCAL

The Kings Hill site falls into two main catchments, divided by the ridge that runs through the site. For the wastewater transfer options with only one trunk pump station, allowance needs to be made for the internal transfer of wastewater from one side of the ridge to the other, to allow for comparison of equivalent options. The catchment is split broadly into one third of ETs on the west and two thirds of ETs on the east.

Two options considered for transfer for both sides, a low-level and high-level transfer. These are shown on Exhibit H1 and H2. The low-level transfer options run around the base of the dividing ridge line and have a longer rising main alignment, but a lower static head.

The high-level transfer options have a shorter alignment traversing more directly over the diving ridge, but a higher static head. Due to the high static head, the rising main diameter is increased to minimise dynamic losses and keep the total pump head below that allowable for a centrifugal pump.

The eastern transfer option is for transfer of flows from the eastern side of the site (**Exhibit H1**), and the western transfer is for transfer of flows to from the west (**Exhibit H2**).

The cost associated with the transfer options have been summarised below in **Table 19**. Full details can be found in **Appendix D**.

Option	Estimated Capital Cost
Low-head Eastern	\$3,300,000
High-head Eastern	\$4,500,000
Low-head Western	\$4,400,000
High-head Western	\$6,000,000

Table 19 – Option Comparison

As can be seen, the low-level transfer options are more cost-effective than the high-level transfer options. As such, these have been adopted as the preferred transfer options. The costs have been added to the appropriate options in **Section 4**.

Preliminary locations for internal pump stations are shown on **Exhibit J**. It is noted that some of these may be able to be eliminated by use of deep sewers. It is recommended this is further investigated at concept design stage, when the lot layout is developed, and more information is held on geotechnical conditions, such as groundwater levels and presence of rock.

6 RECOMMENDED OPTION

The recommended option for external wastewater servicing is Option SE2, which is presented on Exhibit G5. We note that HWC provided in-principle acknowledgement & support for this option at the recent landowners meeting held 23 April 2013. It is proposed to stage these works, to minimise upfront capital costs.

It is noted that the proposed alignment to service KHD traverses HWC-owned land, at the rear of the properties in Holwell Circuit / Dalyell Way. It is recommended that the preferred alignment is further investigated at concept design stage. If land matters prove complicated, an alternate route which has similar overall length and uses road allocations is possible.

Based on the investigations detailed in this report a staged approach is recommended for delivery of the wastewater infrastructure to the Kings Hill development site.

The development of KHD land holdings will commence in the south-eastern area based on proximity and efficiency for lead-in infrastructure, market & commercial drivers and ecological considerations.

We note that Hunter Land is progressing development over the Windeyer land holdings (western area) and has advised that early development is expected to sequence in parallel with KHD.

The recommended servicing option provides flexibility for both eastern and western land holders (Hunter Land) to develop early.

The construction would include the following stages:

- Stage 1: Initial connection servicing 200 lots consisting of interim parallel rising mains transporting flows to Raymond Terrace 8 WWPS. In relation to KHD land, the rising main would traverse the eastern side of the wetland to open up an eastern development front in the release area. In relation to the Hunter Land holding, this route would follow the Newline Road alignment onto Beaton Avenue, then to Raymond Terrace 8 WWPS.
- Stage 2: Further downstream upgrades constructed post 200 lots.

There is also potential to stage the WWPS construction, constructing smaller, interim pump stations (say 1.5m diameter), and then utilising these as part of the emergency storage requirements for the ultimate pump station.

The staged infrastructure required for this option is summarised below in **Table 20**. Work is still to be undertaken with regard to more detailed staging investigations, and this will be undertaken as part of the concept design. Investigations to be undertaken as part of the concept design will investigate the option of construction of a smaller pump station and smaller diameter rising main to access capacity at Raymond Terrace 8 WWPS, for the initial release of lots at Kings Hill. The proposed alignments for the initial rising main options are shown on **Exhibit K**.

It is noted that Hunter Water are currently revising the capacity available at Raymond Terrace 4 and 8 WWPS. This investigation is understood to consider the potential for minor mechanical / electrical upgrades to provide additional capacity. The results of this optimisation will be included as part of the concept design.

Preliminary advice has been received from Hunter Water that additional interim capacity is possible at Raymond Terrace 8 WWPS if the pumps are upgraded. This would also necessitate a pump upgrade at Raymond Terrace 4 WWPS. Hunter Water has plans to

upgrade Raymond Terrace 4 WWPS in 2025/26, however this may change depending on future demand and prioritisation. There is sufficient capacity within the gravity network downstream of RT8 to handle some increased flows. Hunter Water will need to confirm the additional capacity available and timing as part of the concept design of this infrastructure.

Table 20 – Infrastructure Requirements

Year	ET	Recommended Infrastructure	Budget Cost
		Eastern connection	
		Connect to Raymond Terrace 8 WWPS	
		WWPS - 5.5m diameter, depth = 6m	
		241 L/s @ 32m, total station power of 502kW	\$1.9M
		RM - 4,430m of DN450	\$4.1M
2014	0-200	TOTAL	\$6.0M
		Western connection	
		WWPS – 3.8m diameter, depth = 6m	\$1.7M
		122 L/s @ 42m, total station power of 334kW	
		RM - 3,900m of DN300	\$2.4M
		TOTAL	\$4.0M
		Further upgrades downstream	
		RM - 2,600m of DN500	\$3.5M
2015	200-4,500	GM - 1,100m of DN600	\$2.4M
		TOTAL	\$5.8M
		GRAND TOTAL	\$15.8M

It is noted that all options considered require septicity / odour management due to the long length and large diameter of the rising main, and the rollout of development. There are several technical solutions for the management of septicity / odour, including chemical dosing, flushing and oxygen injection. Reduction of the septicity issue will also be made with regard to staging of initial infrastructure (smaller diameter rising main and pump station), refer **Section 4.7**. It is recommended that options for odour / septicity management are considered in more detail at the concept design stage.

7 REFERENCES

- Kings Hill Development Preliminary Water and Wastewater Servicing Advice; SMEC; April 2011.
- Kings Hill North West Village Water and Wastewater Servicing Study; Patterson Britton & Partners; February 2005.
- North Raymond Terrace Water and Wastewater Servicing Study Additional Investigations; Patterson Britton & Partners; December 2004.
- Kings Hill Water and Wastewater Servicing Study; Patterson Britton & Partners; August 2004.
- North Raymond Terrace Draft Initial Water and Wastewater Servicing Options; Patterson Britton & Partners; August 2003.
- Operating and Maintenance Cost Estimating Guideline, Hunter Water Corporation, September 2010
- Wastewater Supply Code of Australia (WSA02) Hunter Water Edition, Version 1
- Water Supply Code of Australia (WSA03) Hunter Water Edition, Version 1

APPENDIX A – CORRESPONDENCE WITH HWC

Non-printing figures list

Figure	Description / layers
Exhibit A – Regional Plan	
Exhibit B – Local Plan	
Exhibit C – Zoning Plan	
Exhibit D1 –Aboriginal Heritage	
Exhibit D3 – Acid Sulphate Soils	
Exhibit E – Staging Plan	Land use plan?
Exhibit F – Wastewater Infrastructure – Regional Servicing Options	Existing HWC Infrastructure?
Exhibit G1 – Option SE1A	
Exhibit G2 – Option SE1B	
Exhibit G3 – Option SE1C	
Exhibit G4 – Option SE1D	
Exhibit G5 – Option SE2	
Exhibit H1 – Eastern Transfer Options	
Exhibit H2 – Western Transfer Options	
Exhibit K – Preliminary Servicing	

APPENDIX A – CORRESPONDENCE WITH HWC



Hunter Water Corporation ABN 46 228 513 446 Customer Enquiries 1300 657 657 enquiries@hunterwater.com.au PO Box 5171 HRMC NSW 2310 36 Honeysuckle Drive NEWCASTLE NSW 2300

23 September 2013

Ref: 2010-678/7/8.012

Kings Hill Development C/- APP Corporation Pty Limited PO Box 1573 North Sydney 2060

Attention: Kith Clark

Dear Kith

RE: AMMENDMENT OF CONDITIONAL APPROVAL STATUS OF KINGS HILL WATER AND WASTEWATER SERVICING STRATEGIES – REVISION D

I refer to Hunter Water's previous letter dated 29 August 2013 providing conditional approval of the Kings Hill Water and Wastewater Servicing Strategies Revision D – June 2013. The essential and primary item of the conditional approval was that;

1. Evidence of Hunter Land involvement in selection of the preferred arrangements for both waste water and water servicing strategies is to be provided.

This requirement was included in order to ensure that the water and wastewater servicing strategies are based on a balanced view of growth within the Kings Hill Release Area and provides an efficient arrangement of infrastructure to service growth on a number of development fronts.

On Wednesday 19 September 2013, Hunter Water received correspondence from Hunter Land raising concerns about the strategy including:

- Hunter Land was not consulted in the development of the strategy
- The proposed timing and sequencing of both water and sewer lead in infrastructure is unbalanced across the development areas and incorrectly assumes that development requiring the western connection will commence after 2028.

Upon assessing Hunter Land's concerns, Hunter Water has withdrawn the conditional approval of the servicing strategies and requires that both parties give consideration to growth occurring on two development fronts concurrently and encourages further discussion between both parties with a view to achieving a more equitable outcome.

Hunter Water remains available should you wish to meet to discuss this further. There would be benefit in including Hunter Land in any such meeting to confirm mutually agreeable outcomes and the pathway forward for finalising the water and wastewater servicing strategies for the Kings Hill Release Area.

Please do not hesitate to contact us to arrange a meeting or to raise any questions you may have. I will be on leave between 01 October, 2013 and 02 December, 2013. In my absence, please contact Senior Developer Services Engineer Malcolm Withers on 4979 9545.

Yours faithfully Paul McKoy Developer Services Engineer Hunter Land Pty. Ltd Copy to: 1. 2. SMEC

Beard, Kate

As discussed

Sent from my iPhone

Begin forwarded message:

From: "Davis, Amanda" <<u>amanda.davis@app.com.au</u>> Date: 9 July 2013 10:36:30 AM AEST To: "Clark, Kith" <<u>kith.clark@app.com.au</u>> Subject: FW: Kings Hill Development Area - Servicing Strategy Development - Hunter Water Responses

From: Paul McKoy [mailto:paul.mckoy@hunterwater.com.au]
Sent: Thursday, 27 June 2013 12:02 PM
To: Clark, Kith
Subject: Kings Hill Development Area - Servicing Strategy Development - Hunter Water Responses

Hi Kith,

Please see Hunter Waters comments regarding questions raised at our meeting Held on 23 April 2013;

Wastewater

Additional interim capacity is possible at Raymond Terrace 8 WWPS if the pumps are upgraded. This would also necessitate a pump upgrade at Raymond Terrace 4 WWPS. Hunter Water has plans to upgrade Raymond Terrace 4 WWPS in 2025/26, however this may change depending on future demand and prioritisation. There is sufficient capacity within the gravity network downstream of RT8 to handle some increased flows.

Water

Water main sizing is to be confirmed as part of the Servicing Strategy. Raymond Terrace WPS currently has sufficient capacity for a maximum of 15L/s for an off-peak (12am-5am) "trickle" feed. Upgrades of the WPS are currently planned for 2019/20, however this may change depending on future demand and prioritisation. The capacity of the upgraded WPS has not yet been determined.

Please let me know if you need any additional information.

Regards,



Paul McKoy | Developer Services Engineer | Hunter Water Corporation 36 Honeysuckle Drive Newcastle West NSW 2300 | PO Box 5171 HRMC 2310 T 02 4979 9476 | F 02 4979 9711 | M 0448 083 426 | paul.mckoy@hunterwater.com.au

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Hunter Water Corporation ABN 46 228 513 446 Customer Enquiries 1300 657 657 enquiries@hunterwater.com.au PO Box 5171 HRMC NSW 2310 36 Honeysuckle Drive NEWCASTLE NSW 2300

24 August 2011

Ref:2010-678

SMEC PO Box 1346 NEWCASTLE NSW 2300

Att: Kate Beard

Dear Kate

RE: PRELIMINARY SERVICING ADVICE FOR PROPOSED DEVELOPMENT at KINGS HILL

Thank you for your request for Hunter Water's preliminary advice for the provision of water and sewer services to your proposed development at Kings Hill (as described on your application).

General information on water and sewer issues relevant to the proposal is included in this correspondence. This information is based on Hunter Water's knowledge of its system performance and other potential development in the area at the present time.

As you will appreciate, there may be significant changes that occur by the time the development proceeds to the lodging of a development application, therefore this preliminary advice is not a commitment by Hunter Water and may be subject to significant change prior to the development proceeding.

When you proceed with a development application you will need to lodge a further application with Hunter Water to then determine the formal requirements that shall apply. Hunter Water will then issue a **Notice of Formal Requirements**. You will need to comply with each of the requirements in this Notice for the issue of a Section 50 Compliance Certificate for the specific development.

Hunter Water has assumed that the proposed development will place an additional loading of 5000ET on the water system and 5000ET on the wastewater system. As a result the following information is offered.

Water

The proposed development is located in the Raymond Terrace Water Supply System and is expected to result in an additional water demand of 5000ET.

Currently, the development site is remote from the existing infrastructure. As previously advised, the ultimate connection point for this development will be Tomago WPS, however interim arrangements may be made for early stages. It should be noted that Hunter Water currently considers all upgrades required for this development to be developer funded, therefore timing of the upgrade works will be determined entirely by this development.

Regarding the nominated initial connection point, Hunter Water does not support connecting into the Raymond Terrace High Level system. It is considered preferable that the connection point is into the low level system (i.e. supplied directly from Tomago WPS).

In response to the specific questions asked in your letter dated 6 July 2011, the following advice is offered:

1. Based on a staged approach, can HWC indicate estimated timeframe of when the reservoir would be required?

It will be the objective of the developer funded strategy to determine the timeframe for the reservoir. The strategy will need to ensure sufficient security such that no more than 100 properties are left without security of supply, even in the initial stages. This may be achieved in the form of dual mains or a reservoir. In practice, Hunter Water may allow a relatively small number of properties to exceed the 100 lot security of supply requirement subject to the assessment of potential risk, however, the strategy should assume that this requirement must be met at all times.

2. Capacity of the water main in the Pacific Highway at Connection Point 1 to service initial lots, prior to construction of the reservoir?

As stated above, the preference is for the initial stages to not be connected to the existing high level system, therefore the nominated connection point 1 is considered unacceptable. The suggested interim connection point is to the DN200 in Richardson Rd (see attachment 1). It may be possible to allow an initial 20 ET from this connection point, however this is not considered preferable as further lots will not be able to connect into this high level system, therefore, any lead-in main from this connection point will only be able to serve 20 ET.

3&4. Location and capacity of nearest trunk main for initial stage release of 200 lots.

It can be confirmed that the nominated connection point above has capacity for 200 ET. The minimum HGL at the connection point with the 200 ET on a peak day will be approximately 55 m.

5. Location and capacity of nearest trunk main for stage release of 500 lots.

500 ET has been modelled at the same connection point above and shown that there is still capacity. The modelling also shows that even in the event of a break in the DN200 in Richardson Rd, there will still be sufficient capacity with the HGL dropping to 38m. However, it is considered that a second connection should be made. The suggestion is that the DN150 in Newline Rd should be able to provide additional security.

Wastewater Transportation

The Kings Hill site is located within the Raymond Terrace WWTW catchment and is expected to yield an additional loading of 5000ET which will ultimately be delivered directly to the treatment works.

Due to the size of the North Raymond Terrace Development Area, existing infrastructure will not be able to cater for flows from development in the area without significant upgrade. However, there is some spare capacity in the existing system which can be utilized in the initial stages of the development. As such, the above proposal will not significantly impact on existing wastewater collection and transfer systems.

In response to the specific questions asked in your letter dated 6 July 2011, the following advice is offered:

- 1. Capacity of the wastewater network at the nominated Connection Points 1-4.
 - Raymond Terrace 8 WWPS this pump station currently has spare capacity for approximately 15.5L/s until upgrade works at an upstream WWPS. These are not scheduled to take place until after the next price path (ending 2016/17) and could be a temporary connection point during initial stages of the development.
 - MH F105 this is the receiving manhole of Raymond Terrace 8 WWPS which is part of the Raymond Terrace 4 catchment. Connection at this point will be subject to the outcomes of the risk assessment of RT4 WWPS.
 - MH C2133 this section is in the Raymond Terrace 3 catchment which has no spare capacity. Connection at this point is not an option.
 - Raymond Terrace 4 WWPS connection directly to RT4 will be subject to the outcomes of the risk assessment.
- 2. Location and capacity of nearest point for initial stage release of 200 lots.

Connection Point 1, Raymond Terrace 8 WWPS, is the nearest point with spare capacity for initial flows.

3. Location and capacity of nearest point for stage release of 500 lots.

There are no available locations in the existing pumping stations within Raymond Terrace to receive these additional flows. Connection of a pump station directly to Raymond Terrace WWTW would be required at this stage. There are restrictions on the biological and hydraulic capacity at the WWTW and Hunter Water does not guarantee capacity prior to completion of upgrade works in 2017. More detail can be found below.

Wastewater Treatment

Raymond Terrace WWTW had an intermediate upgrade of the plant is which was commissioned in 2010 (35,000ET). Biological capacity for this development may be available depending upon the staging and timing of the development. However, due to hydraulic capacity restrictions at the plant, the current inlet works are not capable of accepting the ultimate development flows directly from the Kings Hill area via the anticipated independent WWPS and carrier main. Future plant upgrades at Raymond Terrace will address these restrictions and, upon commissioning expected in 2017, will provide sufficient capacity to cater for the ultimate development potential of the Kings Hill site. At this stage, Raymond Terrace WWTW is not capable of catering for the entirety of the proposed rezoning prior to 2017/18. Any available capacity at the WWTW prior to 2017 will be given on a first come first served basis. It should be noted however, that a number of

major developments at Williamtown and Tomago are planned for completion in the near future. Hunter Water does not guarantee capacity at Raymond Terrace WWTW prior to the completion of upgrade works in 2017. The developer should liaise with Hunter Water, as necessary, to determine interim servicing options for the Kings Hill site.

A developer funded servicing strategy will be required to identify the optimal method of providing water and sewerage services the proposed development. These strategies, although being prepared for the eastern portion of the Kings Hill site, should consider opportunities for a common solution to servicing the overall site (including the western catchment). It will be a necessary part of development of these strategies for consultation to take place with the consultant preparing servicing strategies for the western portion of this site. Hunter Water will be happy to facilitate this consultation.

It should be noted that the expected dates of upgrade completion are indicative only and may be subject to change at any time.

Should you require further clarification or assistance please do not hesitate to contact me on 4979 9545.

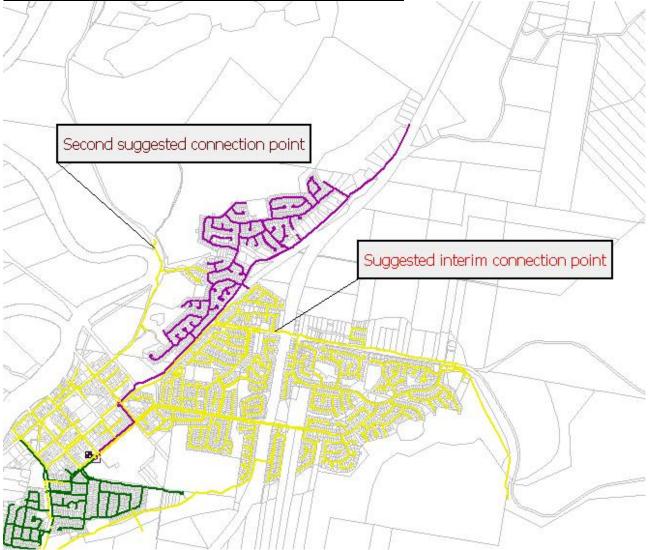
Yours Sincerely

7. Uttes

MALCOLM WITHERS Senior Account Executive Major Development

Att: Suggested Interim Water Connection Point







Hunter Water Corporation ABN 46 228 513 446 Customer Enquirles 1300 657 657 enquiries@hunterwater.com.au

PO Box 5171 HRMC NSW 2310 36 Honeysuckle Drive NEWCASTLE NSW 2300

2 November 2011

Ref:2010-678

SMEC PO Box 1346 NEWCASTLE NSW 2300

Att: Kate Beard

Dear Kate

RE: Raymond Terrace (Kings Hill) System Strategy Analysis

The purpose of this letter is to update you with Hunter Water's investigations that have been undertaken with respect to the Kings Hill development. A draft strategy has been determined to allow capacity in the Raymond Terrace trunk network for the Kings Hill development. It is expected that you will consider these upgrades; however, this does not restrict you from determining an alternate strategy.

The draft strategy has been developed to gain an understanding of Hunter Water's costs to service this growth area in the future. It is expected that the strategy will be refined and amended as necessary in consultation with the developer-funded strategy. Internal servicing options have not been considered in the draft strategy. The impacts of the internal servicing options on the regional strategy will need to be considered further.

Analysis of the system augmentation and staging is summarised in the table on the following page. Please also see attached schematics for details.

Should you require further clarification or assistance please do not hesitate to contact me on 4979 9545.

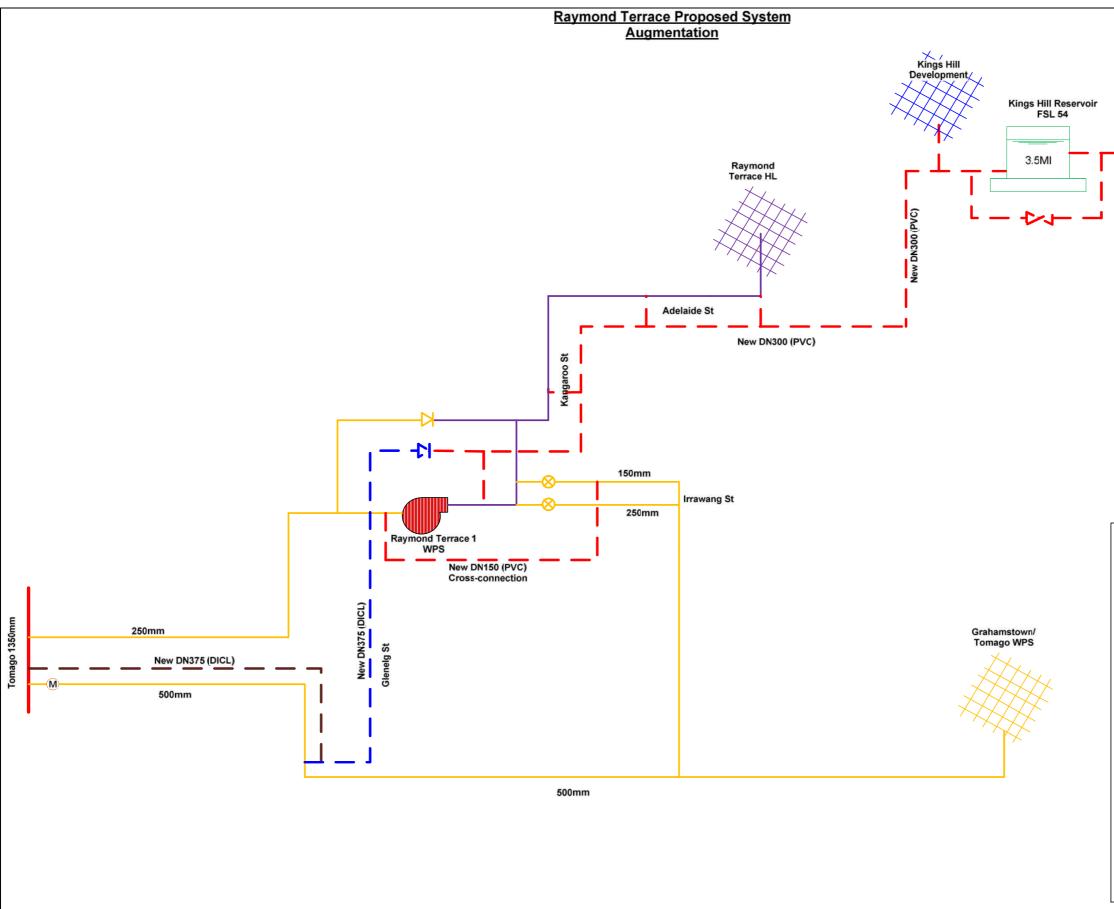
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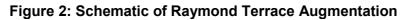
MALCOLM WITHERS Senior Account Executive Major Development

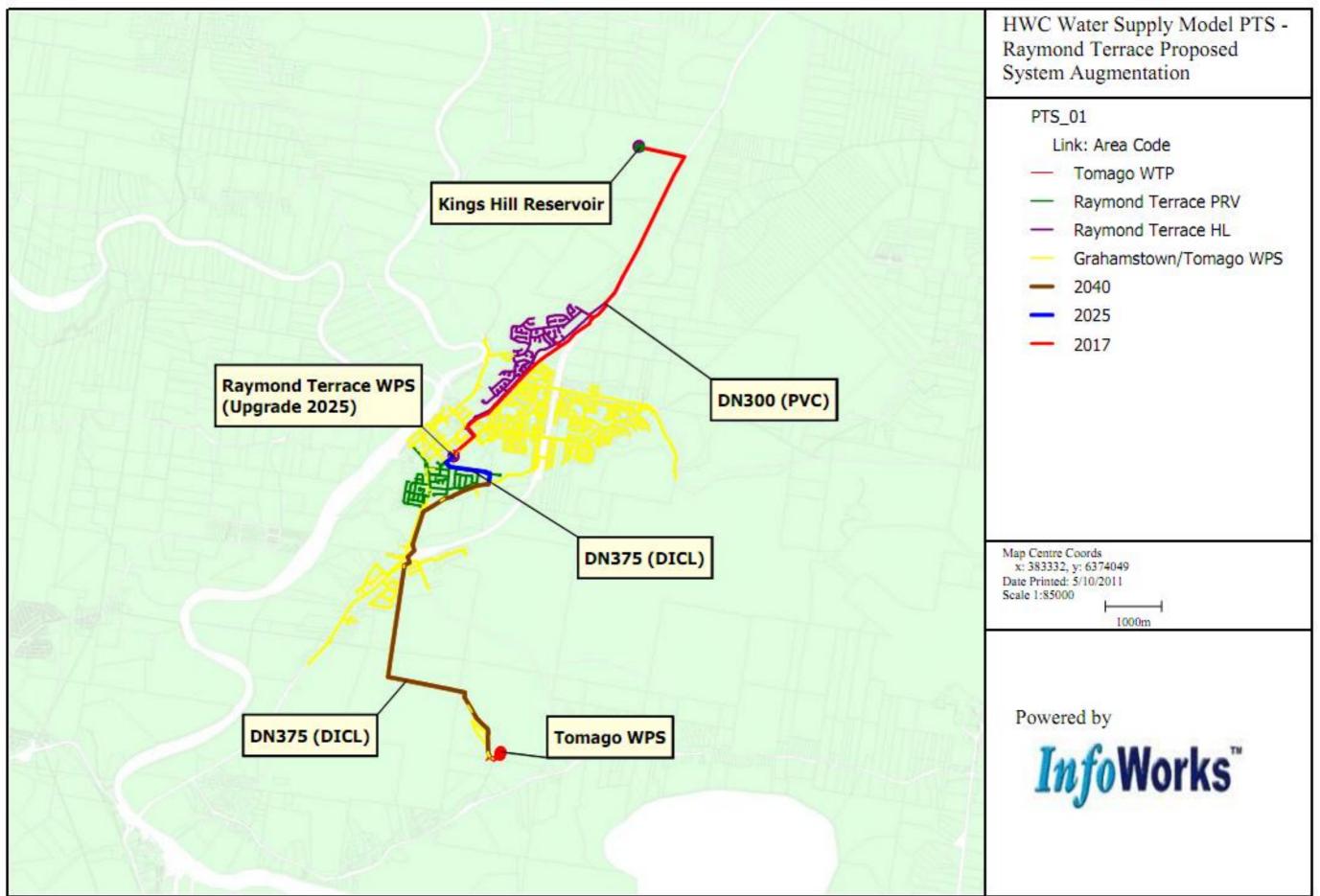
Att: Table – System Augmentation Summary Figure 1: Concept Design of Raymond Terrace Augmentation Figure 2: Schematic of Raymond Terrace Augmentation

_	Capital Works	0		Length	Additic	onal ET from	n 2011
Period	Description	Size	Material	(m)	D/stream Tomago	HL system	Kings Hill
2011	No Augmentation Required				184	15	-
2013	No Augmentation Required				363	76	-
	Connect the DN150 and DN250 from the delivering end of Raymond Terrace WPS to the suction main of the pumping station.	300mm	PVC	75			
2017	Connect a DN300 from the suction side of Raymond Terrace WPS along the existing DN200/DN250/DN300 to the Conner of Adelaide St and Bellevue St	300mm	PVC	2,850	733	259	400
	Continue the DN300 main from the Conner of Adelaide St and Bellevue St along Ress James Rd to Kings Hill Development	300mm	PVC	4,900			
	Cross-connect the existing main to the new main with a DN 250 at every 1 kilometre	250mm	PVC	195			
	Construct a new Reservoir at the location of Kings Hill development	3.5MI					
??	Construct a PS at Kings Hill development to service the high elevated areas						
2025	Construct a DN375 main from the existing DN500 (close to Elizabeth St) to the suction main of Raymond Terrace WPS	375mm	DICL-PN20	1,210	1,298	476	1,500
	Construct a new pump unit at Raymond Terrace WPS		ne standby pump et point 54m HC				
2035	Connect a new DN375 from the existing DN1350 to the DN500 close to Elizabeth St.	375mm	DICL-PN20	7,050	1,653	476	4,000
2040	Ultimate Development assessed in strategy				1,853	476	4,500



Kings Hill HL Development	
LEGEND Development Stages	
2017	
<u> </u>	
<u> </u>	
AIV	
Flow Meter (M)	
Existing Main	
Water Pumping Station	
Reflux Valve	
Fixed Head	
Reticulation	
Reservoirs	







Meeting:			
Meeting Title:	Kings Hill Development Area Water and Wastewater Servicing Strategy	Date:	21 September 2011
Subject:	Progress Meeting 1	Time:	2.00pm
Location:	Hunter Water Head Office		
Copies:	File HWC Mondell Property Group		
Project No:	30011097		
HWC TRIM No:	2010-678		
Attendees:	Malcolm Withers (HWC) Anthony Gentle (HWC) Peter Smith (HWC) Wesley Jones (HWC) Michael Breedon (HWC) Kate Beard (SMEC) Marketa McCarthy (SMEC)		
Apologies:	Nil		

Agenda/Minutes:			
ltem	Item Details	Actions (by who & date)	
1.	Welcome, Introduction of Attendees, Apologies & Meeting Agenda		
2.	Background to development		
	Calculations have been undertaken to determine the anticipated lot yield along with corresponding water and wastewater demands/loads.	For information	
	The total lot yield of the Kings Hill Urban Development Area is anticipated to be 4500 lots. Flow and demand calculations are attached to these minutes for review by HWC to ensure that the factors include HWC's latest requirements.	HWC; 14 Oct, 2011	
	Staging is still to be as previously advised, with a rollout of approximately 200 lots per year anticipated, with development commencing in 2013.	For information	
	Two individual servicing strategies are being prepared by two consultants – SMEC and HSO for two sites adjacent to each other.	For information	
	HWC will organise a meeting between HWC and both consultants before the second progress meeting.	For information	



	Potential development of land south of the proposal was discussed (Rees James Rd development, identified by the HWC water servicing strategy). HWC is to provide loadings from this land for inclusion in the strategy.	HWC; 14 Oct, 2011
3.	Wastewater	
	Internal Servicing	
	SMEC outlined options for the new sewer transportation system. Two bigger pump stations pumping into a common rising main have been proposed. The system would also include a number of internal pump stations pumping into these two regional pump stations.	For information
	External Servicing	
	Raymond Terrace WWTW is the nominated discharge point for the new sewer system. HWC to confirm spare capacity available in this WWTW.	HWC; 14 Oct, 2011
	HWC requested two options for the rising main configuration to be included in the strategy:	For information
	Transfer from the western side of the development to the eastern, with one regional pump station	
	 Transfer from the eastern side of the development to the western, with one regional pump station 	
	 A common rising main, connecting two regional stations located on the east and west of the ridge that divides the site. 	
	HWC is to confirm if there is a spare capacity in Raymond Terrace No. 4 WWPS, for an interim connection.	HWC; 14 Oct, 2011
	HWC noted that there will be a barometric loop required on the new sewer transportation system	For information
4.	Water	
	There are two broad options being considered for water servicing – connection to the Tomago system, or the Chichester Trunk Gravity Main. It is likely that both options would require a reservoir for pressure and security of supply requirements.	For information
	HWC to check the overall impact of the proposed developments on the existing system and provide flow rates in the existing water main.	HWC; 14 Oct, 2011
	SMEC to work collaboratively with HWC to undertake water modelling for the site, to determine required upgrades for development scenarios.	For information
5.	Recycled Water	
	Inclusion of the recycled water system in the servicing strategy was discussed. It was agreed that due to the distance of the site from the nearest treatment plant (7 km) there is no real opportunity for water recycling.	



6.	Water Resources	
	HWC questioned draining of the site – specifically if the stormwater system proposed for the site will have any impact on the nearby Grahamstown Dam. SMEC noted that part of the site is within the Grahamstown Special Area. SMEC is to provide a plan of the proposed development to HWC. HWC's Water Resources Department will look at this issue.	SMEC, 22 Sept 2011
	Pending discussions with the Water Resources team, a decision will be made if the stormwater component will be included in the water and wastewater servicing strategy, or if the matter will be considered separately.	For information
7.	General	
	HWC has recently built a bound to protect a new road south of the proposed development against flooding. HWC offered SMEC the survey plans issued for these works.	HWC; 14 Oct, 2011
8.	Next meeting date and location	
	ТВА	
9.	Close Meeting	



Meeting:			
Meeting Title:	Kings Hill Development Area Water and Wastewater Servicing Strategy	Date:	8 September 2011
Subject:	Inception Meeting	Time:	10:00am
Location:	Hunter Water Head Office		
Copies:	File HWC Morgan Banks / Mondell Property Group		
Project No:	30011097		
HWC TRIM No:	2010-678		
Attendees:	Malcolm Withers (HWC)Anthony Gentle (HWC)Wesley Jones (HWC)Chris Russell (Mondell Property Group)Emily Scivetti (Morgan Banks)Graham Brand (Morgan Banks)Ross Blancato (Property Advisory Pty Ltd)Matthew Rose (SMEC)Kate Beard (SMEC)		
Apologies:	Peter Smith (HWC)		

Agenda/Minutes:

ltem	Item Details	Actions (by who & date)
1.	Welcome, Introduction of Attendees, Apologies & Meeting Agenda	
2.	Background to development	
	The proposed Kings Hill development area is located north of the existing Raymond Terrace area and is anticipated to yield in the order of 5,000 lots.	For information
	The Kings Hill development area rezoning was gazetted by Port Stephens Council in December 2010.	For information
	The proposed Kings Hill development area is made up of a number of land owners, Morgan Banks / Mondell Property Group to forward land ownership plan to Hunter Water	Attached



	MW noted that one of the land owners on the western side of the development area had already commenced the preparation of a water and sewer servicing strategy for their portion of the development. CR noted that this decision was made by that particular land owner, not the overall landowner group. CR noted that MB/MPG own land on both the eastern and western portion of the site, as such it is their desired approach to develop a strategy that ensure the lowest life cycle cost for the overall site and that would be the objective of this strategy.	For information
	MW noted that as the strategy study's progress it may be beneficial for both landholders and Hunter Water to meet in order to discuss the proposed strategies to ensure a consistent outcome for Hunter Water.	For information
	Staging is still being investigated, broadly a rollout of approximately 200 lots per year anticipated.	For information
3.	Wastewater	
	Internal Servicing	
	SMEC plan to investigate options of a single regional WWPS with single rising main, along with dual regional WWPS (east and west) with the rising main joining in common along the alignment.	For information
	External Servicing	
	As outlined in the Preliminary Servicing Advice (PSA) the proposed ultimate wastewater connection point is the Raymond Terrace WWTW.	For information
	Several rising main alignments will be considered through the existing Raymond terrace area.	For information
	There are no other wastewater connection points that warrant investigation.	For information
	As outlined in the PSA there is some initial capacity in the existing Raymond Terrace wastewater catchment within the Raymond Terrace WWPS #8 catchment, along with possible capacity in the Raymond Terrace #4 catchment pending outcomes of a risk assessment.	For information
	Option of onsite treatment is being explored by the developer. MW indicated that HWC are not opposed to the idea of decentralised treatment, where it presents the lowest lifecycle cost to the community.	For information
	Hunter Water noted that they are investigating approaches for Hunter Water (or subsidiaries) to be involved in the development of wastewater treatment infrastructure through the WICA approach, if interested it would be worthwhile discussing further with Geoff Stevenson from HWC.	
	As part of the strategy if innovative initial servicing measures appear feasible these can be presented in the servicing strategy with pros, cons, risks, costs for consideration by Hunter Water, these could include flow balancing via detention structures, etc.	For information
4.	Water	
7.	As outlined in the PSA the proposed ultimate water connection point is the Tomago Water Pumping Station (WPS).	For information



	Several rising main alignments will be considered through the existing Raymond terrace area.	For information
	As outlined in the PSA there is some initial capacity in the existing Raymond Terrace water system.	For information
5.	Servicing Strategy Inputs	
	Lands covered in the servicing strategy will be the rezoned areas of the Kings Hill development area.	For information.
	Hunter Water provided a hard copy of the regional water servicing strategy for information. This will be reviewed and returned by SMEC.	KB, 14/9/11.
	Discount rate for life-cycle analysis - agreed at 7%, with sensitivities at 4 and 10% to be performed	For information.
	Energy price series over the life of the project – agreed to be as per HWC Operating and Maintenance Cost Estimating Guideline (Sept 2010). Costs require escalating via CPI to 2011 dollars.	For information.
	GHG conversion factors over the life of the project – agreed to be as per HWC Operating and Maintenance Cost Estimating Guideline (Sept 2010).	For information.
	Cost effectiveness analysis period conversion factors over the life of the project. – Agreed to be 30 years.	For information.
	Cost estimating manual Agreed that HWC would provide most recent cost manual	HWC, 23/9/11
	O & M costs (e.g. chemical dosing, pump station & pipeline maintenance	For information.
	Agreed to be as per HWC Operating and Maintenance Cost Estimating Guideline (Sept 2010).	
6.	Next meeting date and location	
	ТВА	
7.	Close Meeting	





Hunter Water Corporation ABN 46 228 513 446 Customer Enquiries 1300 657 657 enquiries@hunterwater.com au PO Box 5171 HRMC NSW 2310 36 Honeysuckie Drive NEWCASTLE NSW 2300

23 July 2010

Ref:2010-678

Various Ownerships C/- J W Planning Pty Ltd P O Box 3252 Valentine NSW 2280

Dear Sir/Madam

RE INDICATIVE REQUIREMENTS FOR PROPOSED DEVELOPMENT subdivision of 16 lots into 5000 lots at Lot 41 DP 1037411, Lot 51 DP 839722, Lot 4821 DP 852073 etc, Pacific Highway, Ferodale

Hunter Water has considered your request for our requirements for the provision of water and sewer services to your proposed development.

As the development is subject to rezoning and approval by Local Council, any information at this point is indicative only and maybe subject to significant change prior to your development proceeding.

These indicative requirements are not commitments by Hunter Water. Once rezoning has been approved and the decision is made to proceed with the development application you will need to lodge an Application under Section 49 with Hunter Water.

On receipt of the Section 49 Application Hunter Water will forward a **Notice of Formal Requirements**. You will need to comply with each of the requirements for the issue of a Section 50 compliance certificate.

Hunter Water's Indicative Requirements provide general information on water and sewer issues relevant to the proposed development. The information provided is based on Hunter Water's knowledge of its system performance and other potential development in the area at the present time. As you will appreciate there could be significant change by the time the development proceeds to the lodging of a Development Application and therefore these indicative requirements maybe different to the Notice of Formal Requirements provided in the future.

Hunter Water's Indicative Requirements for the provision of water and sewerage facilities to the preliminary enquiry are as follows:

WATER DELIVERY

The proposed development is located in the Raymond Terrace Water Supply System and is expected to result in an additional water demand of 5000ET.

Currently there is no infrastructure capable of servicing the Kings Hill site. However, options for staged augmentation works necessary to service the North Raymond Terrace Development area are proposed in the existing Raymond Terrace Water Supply Servicing Strategy.

It is expected that the North Raymond Terrace Development Area will be serviced via proposed lead in mains located to the south-east of the site. Augmentation works detailed in

www.hunterwater.com.au

the current Servicing Strategy include the upsizing of an existing DN150mm watermain, located in the Pacific Highway, to DN250mm and extension of the main along the Pacific Highway to the boundary of the site. The Strategy also proposes that security of supply will ultimately be provided via the construction of a DN450 delivery pipeline from Tomago WPS to two 3.5ML reservoirs at North Raymond Terrace.

It is anticipated that development within the Kings Hill area will be serviced from these lead in trunk mains. However, due to the size of the proposed rezoning a developer funded Water Supply Servicing Strategy will be required to determine suitable servicing options.

The developer will be required to submit a Servicing Strategy addressing, but not limited to, the following: Lot layout; Staging of development; Investigation of alternative options; Identification of least community cost option; Security of supply; Minimum pressure requirement; Fire – fighting flow requirement.

WASTEWATER TRANSPORTATION

The Kings Hill site is located within the Raymond Terrace WWTW catchment and is expected to yield an additional loading of 5000ET which will be delivered directly to the treatment works.

Due to the size of the North Raymond Terrace Development Area, existing infrastructure will not be able to cater for flows from development in the area without significant works. The Strategy identifies no advantage in augmenting the existing infrastructure within Raymond Terrace and proposes that development within the North Raymond Terrace area be serviced by infrastructure independent of the existing Raymond Terrace wastewater transportation system. As such, the above proposal will not impact on existing wastewater collection and transfer systems.

The proposed rezoning will ultimately yield an additional residential loading of 5000 ET. It is anticipated that development within the Kings Hill area will also be serviced independently via pumping stations, rising main and a carrier main, feeding directly to Raymond Terrace WWTW. A developer funded Wastewater Servicing Strategy will be required to determine the infrastructure necessary to service development in the area.

The developer will be required to submit a detailed Wastewater Servicing Strategy addressing, but not limited to, the following: Lot layout; Staging of development; Accurate loading information; Proposed Pump Station and infrastructure detail and connection options; Timing of connection; Emergency storage; Surrounding potential future developments.

WASTEWATER TREATMENT

Raymond Terrace WWTW is currently at biological and hydraulic capacity (24,500ET). An intermediate upgrade of the plant is programmed to be commissioned in 2010 (35,000ET). Therefore, biological capacity for this development is expected to be available after 2011. However, due to hydraulic capacity restrictions at the plant, the current inlet works are not capable of accepting the ultimate development flows directly from the Kings Hill area via the anticipated independent WWPS and carrier main. Future plant upgrades at Raymond Terrace will address these restrictions and, upon commissioning expected in 2017, will provide sufficient capacity to cater for the ultimate development potential of the Kings Hill site.

At this stage, Raymond Terrace WWTW is not capable of catering for the entirety of the proposed rezoning prior to 2017/18. Any available capacity at the WWTW prior to 2017 will be given on a first come first served basis. It should be noted however, that a number of major developments at Williamtown and Tomago are planned for completion in the near future. Hunter Water does not guarantee capacity at Raymond Terrace WWTW prior to the completion of upgrade works in 2017. The developer should liaise with Hunter Water, as necessary, to determine interim servicing options for the Kings Hill site.

It should be noted that the expected dates of upgrade completion are indicative only and may be subject to change at any time.

General

It is a requirement of Hunter Water that application for a Section 50 "Notice of Requirements" be made for specific development proposals. Hunter Water would then formally assess the development, determine system capacity and nominate actual connection points to water and sewer. The Notice of Requirements would also nominate a number of actions to be completed by the developer. Completion of all actions in the Notice of Requirements triggers release of the Section 50 Compliance Certificate for the development.

The completion of Hunter Water's requirements (usually works and payment of fees) is best achieved prior to issue of Subdivision Certificate by Council or private certifier for other associated construction works. To this end Hunter Water requests that Council continue to include appropriate wording in its development consent conditions to reflect our needs.

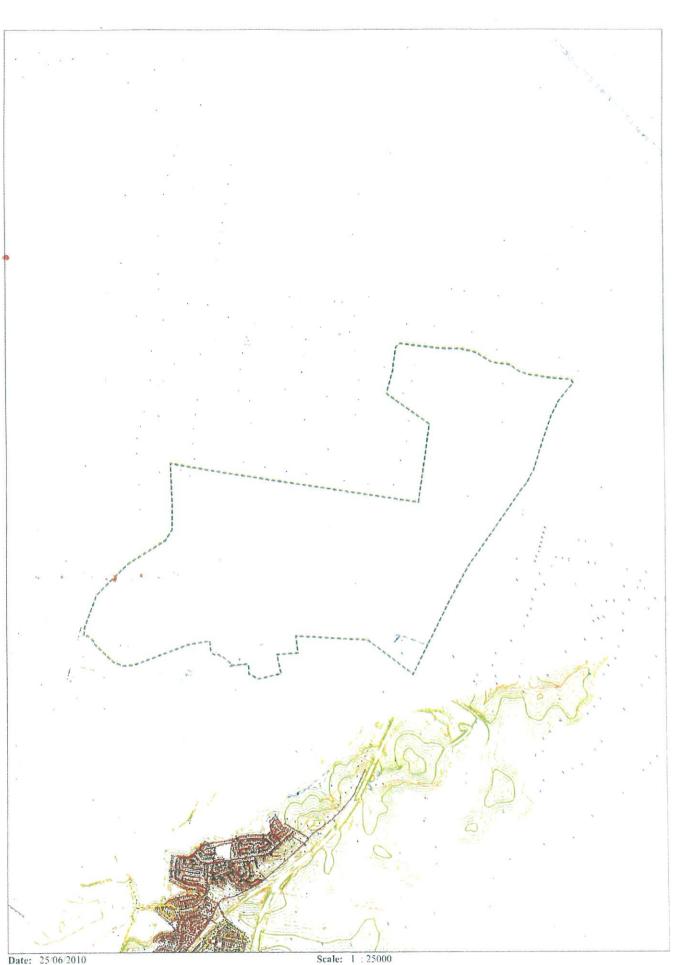
Our Sales and Business Development team is available at short notice to discuss with the Department or the development community their water and sewer servicing needs and I would encourage open communication between all stakeholders.

Should you require further clarification or assistance please contact the enquiries officer listed below. These indicative requirements are not commitments by Hunter Water and maybe subject to significant change prior to this development proceeding.

Yours faithfully

Belinda Jones Manager Business Operations

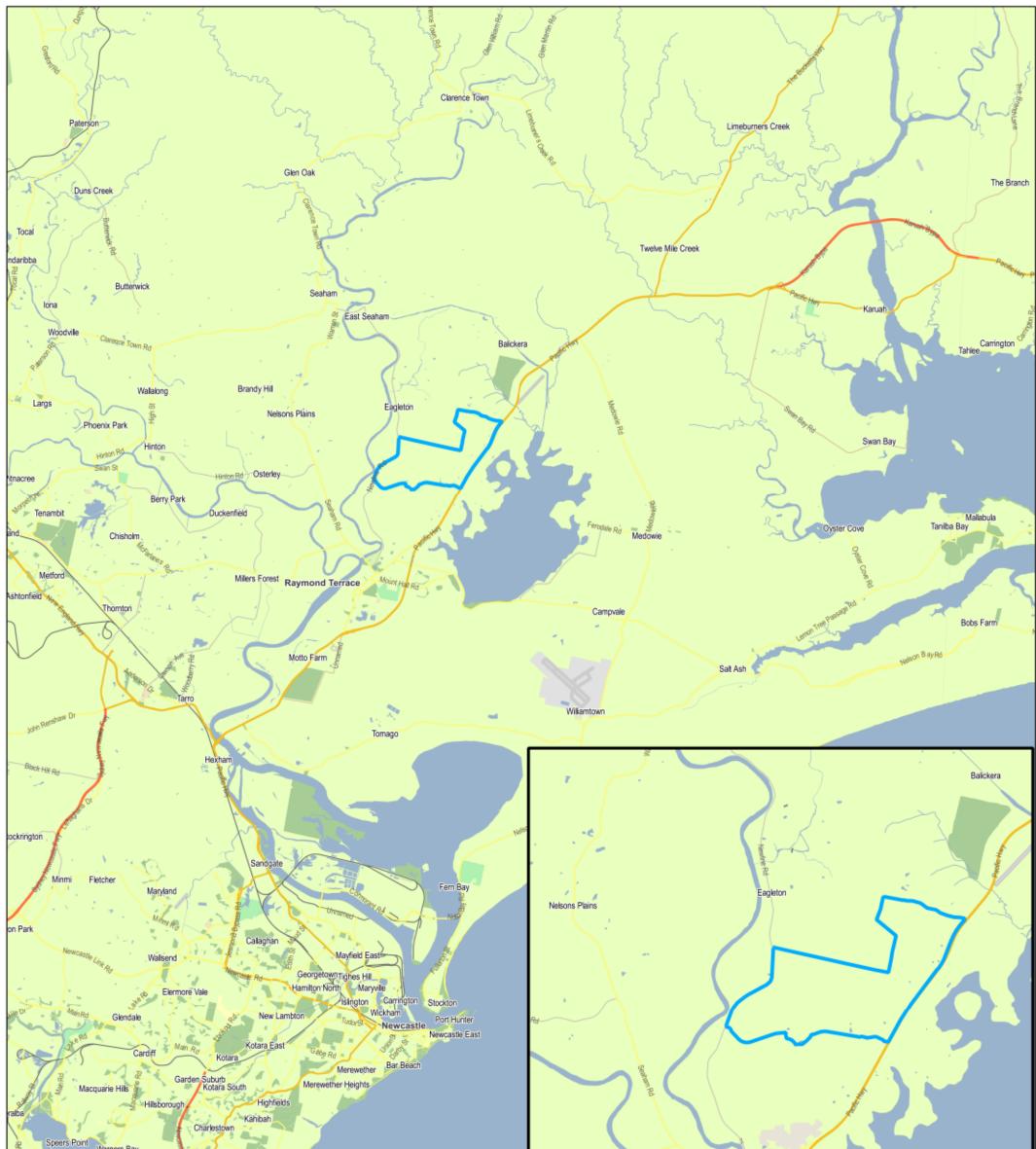
Enquiries:	Robert Daniels
Tel:	1300 657 657
Fax:	(02) 4979-9711



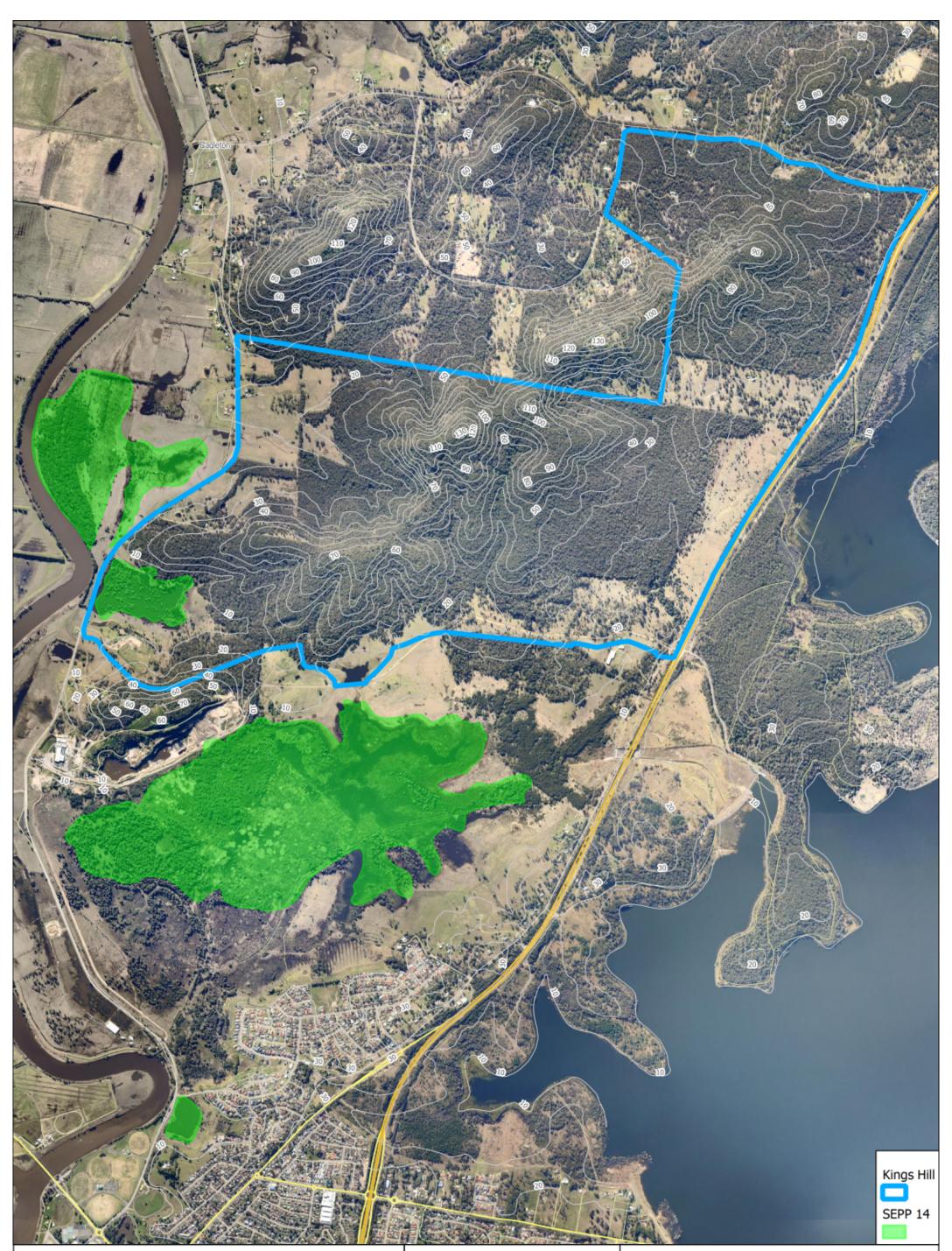
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 PACIFIC HIGHWAY, FERODALE
 FERODALE
 HUNTER WATER DOES NOT GUARANTEE THE ACCURACY OF THIS PLAN

APPENDIX B – EXHIBITS



Warmong Point Eleebana Solion Point Valentine Bermont North Bermont South Bermont South	Raymond Te	rrace may hour har Ref
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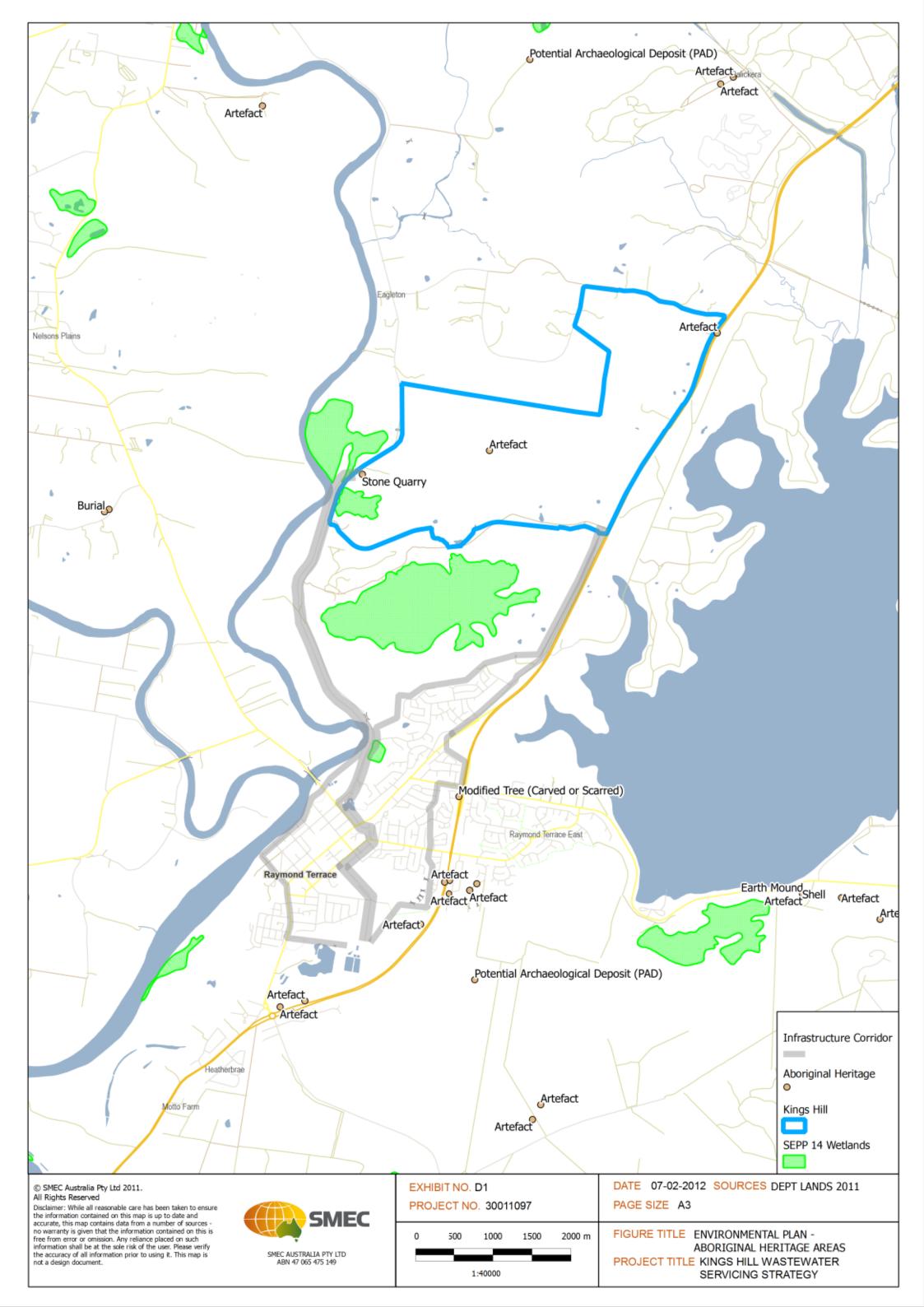


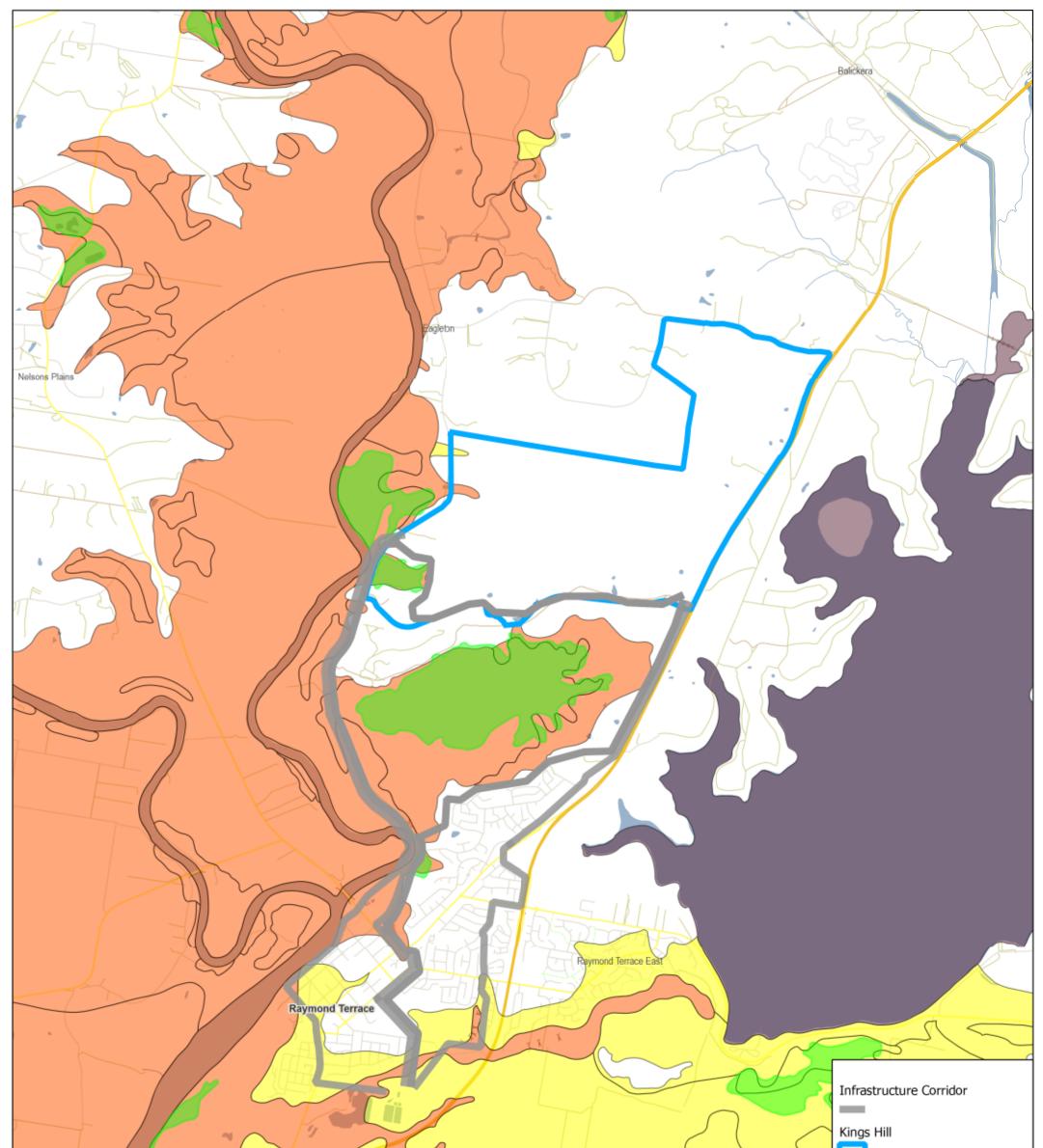
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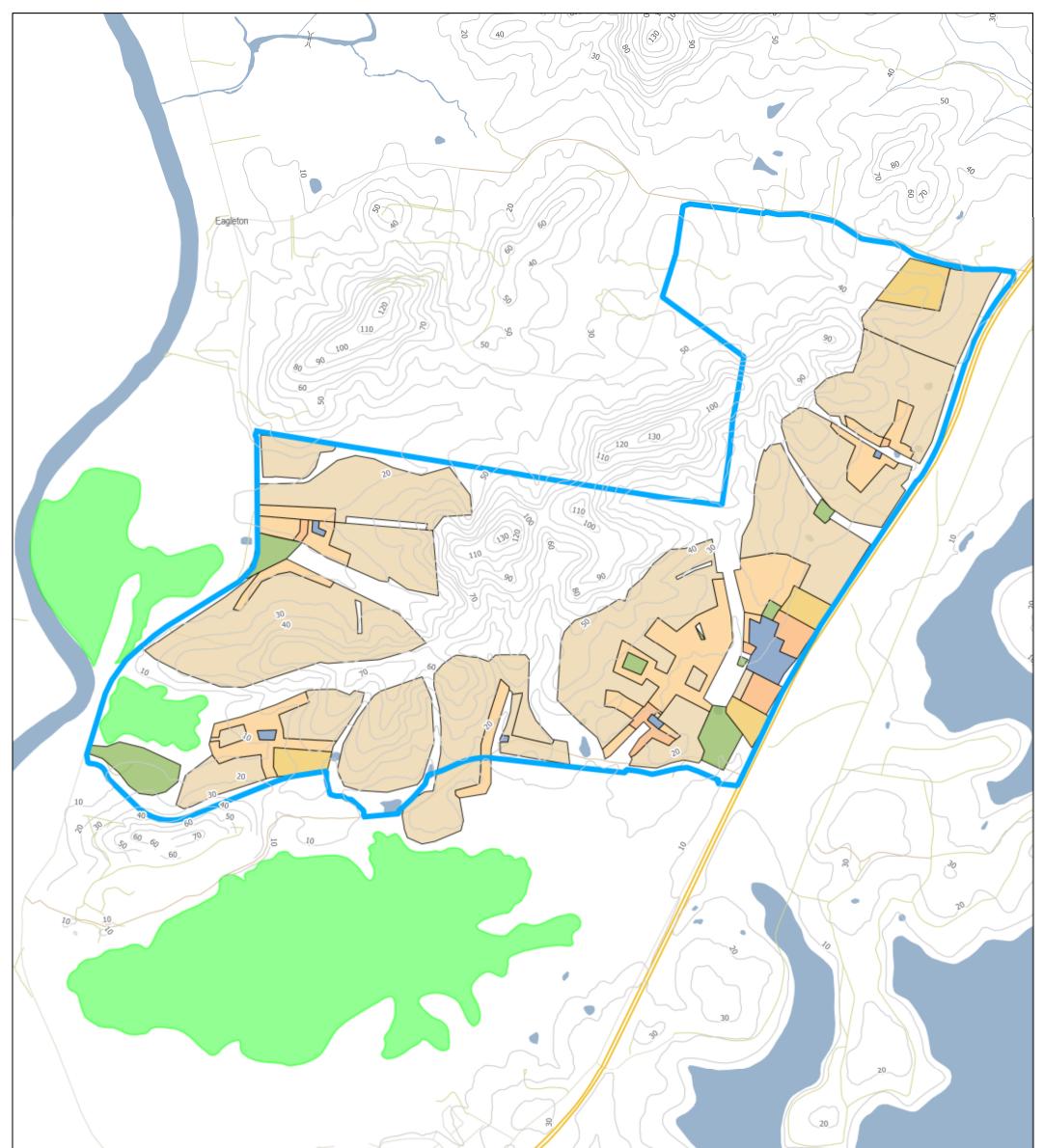
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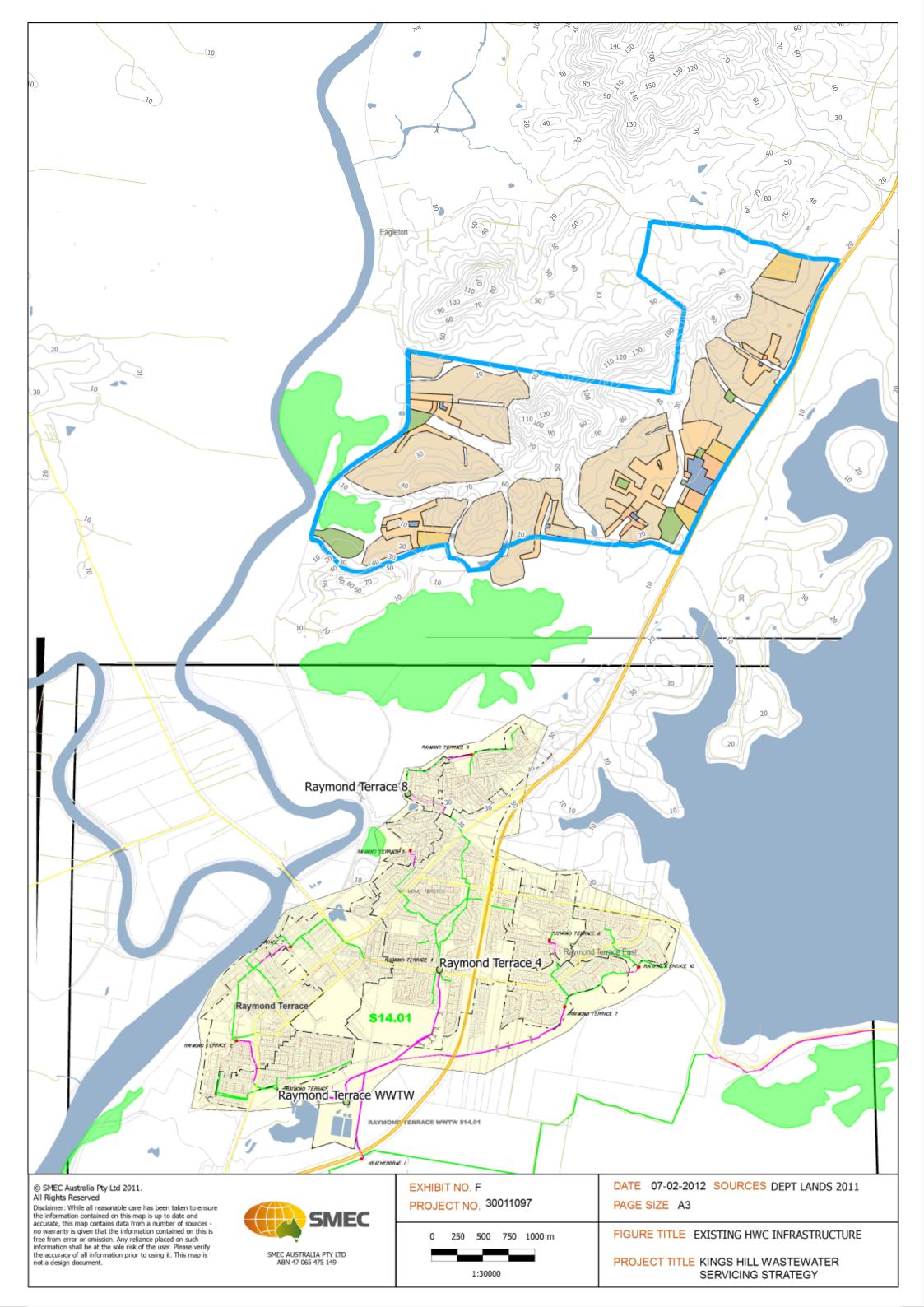


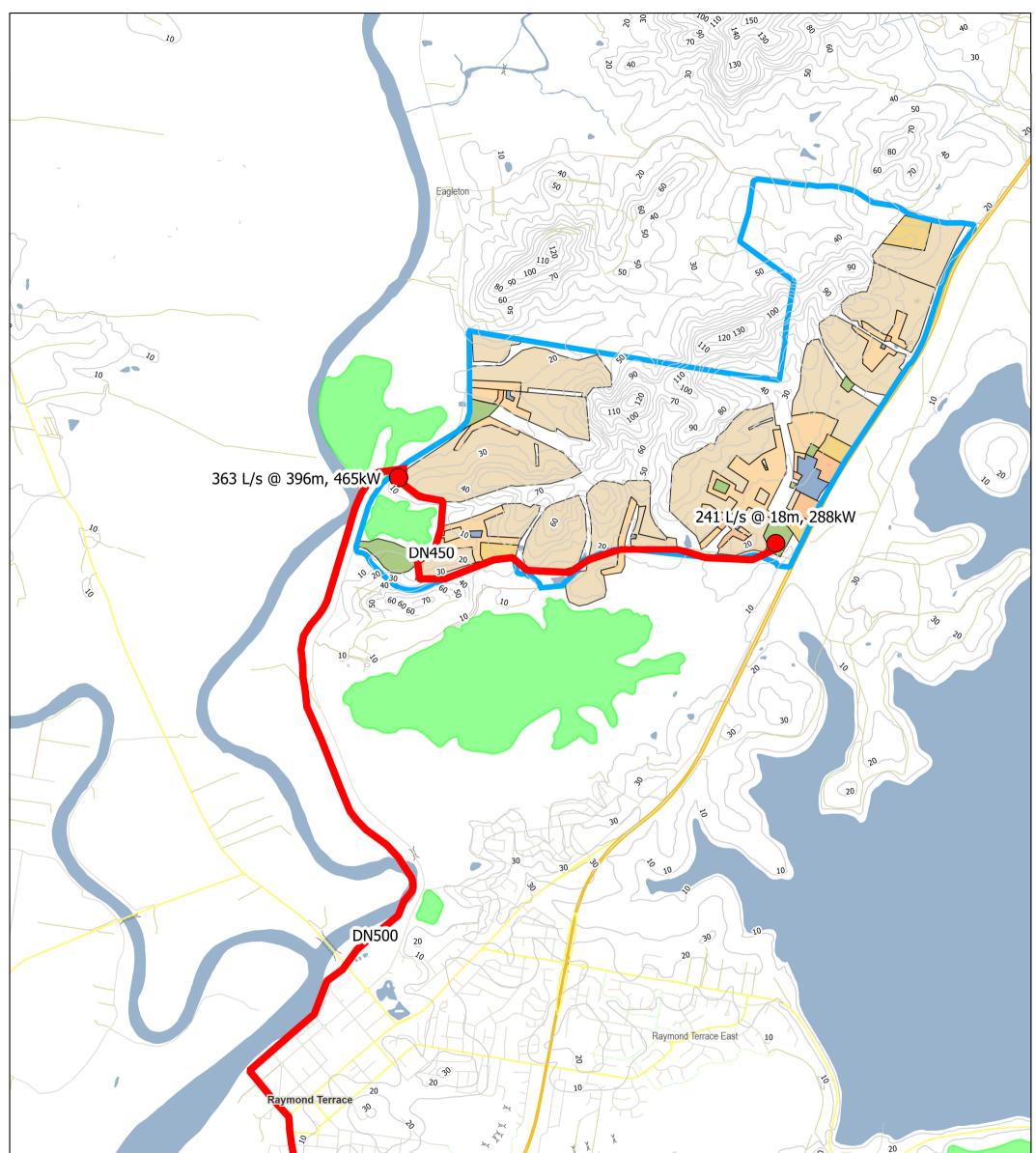


Heatherbrae Motto Farm		SEPP 14 Wetlands Acid Sulfate Risk Acid Sulfate Risk Beach Disturbed Disturbed High probability of occurrence Low probability of occurrence No known occurrence
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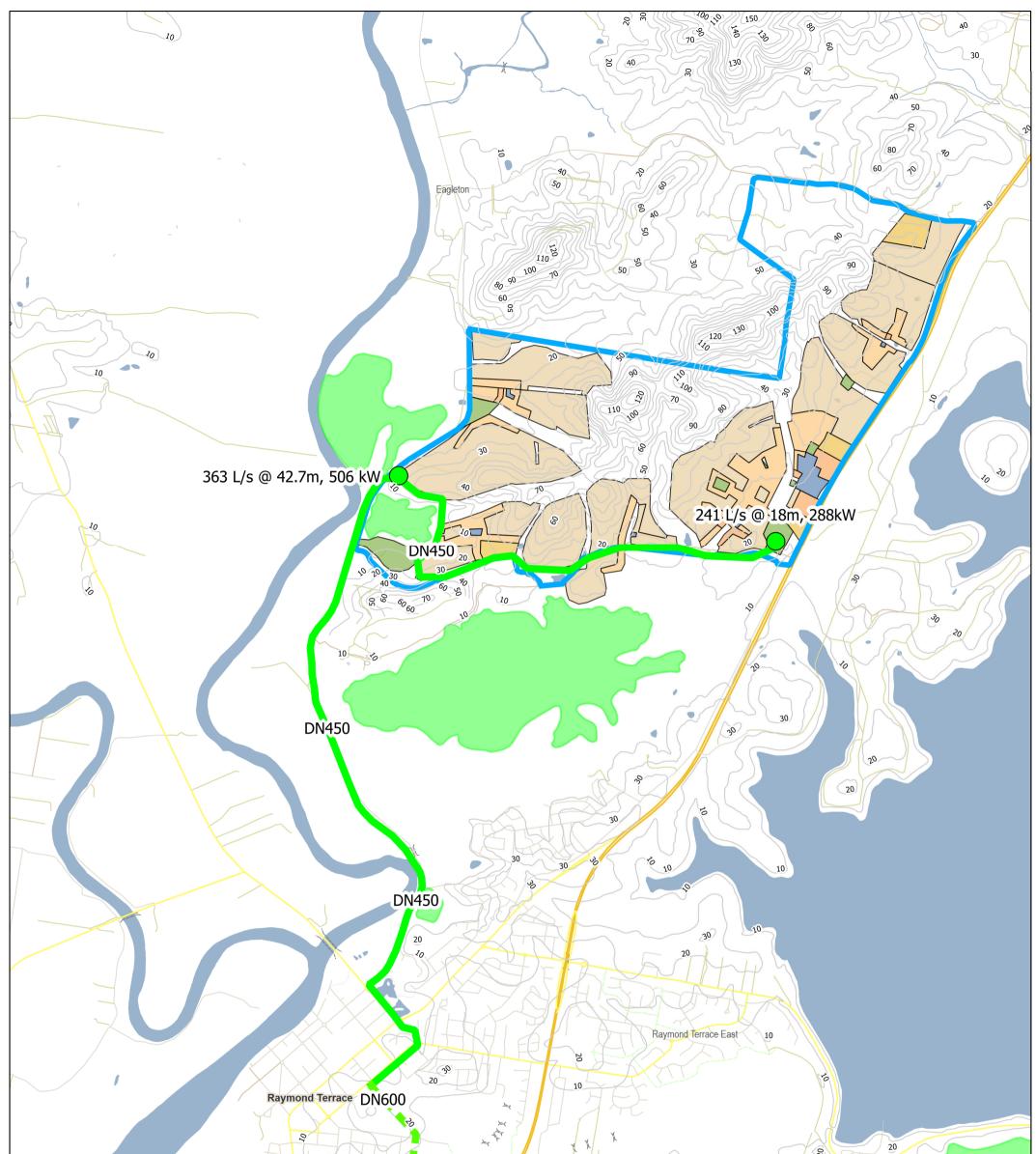


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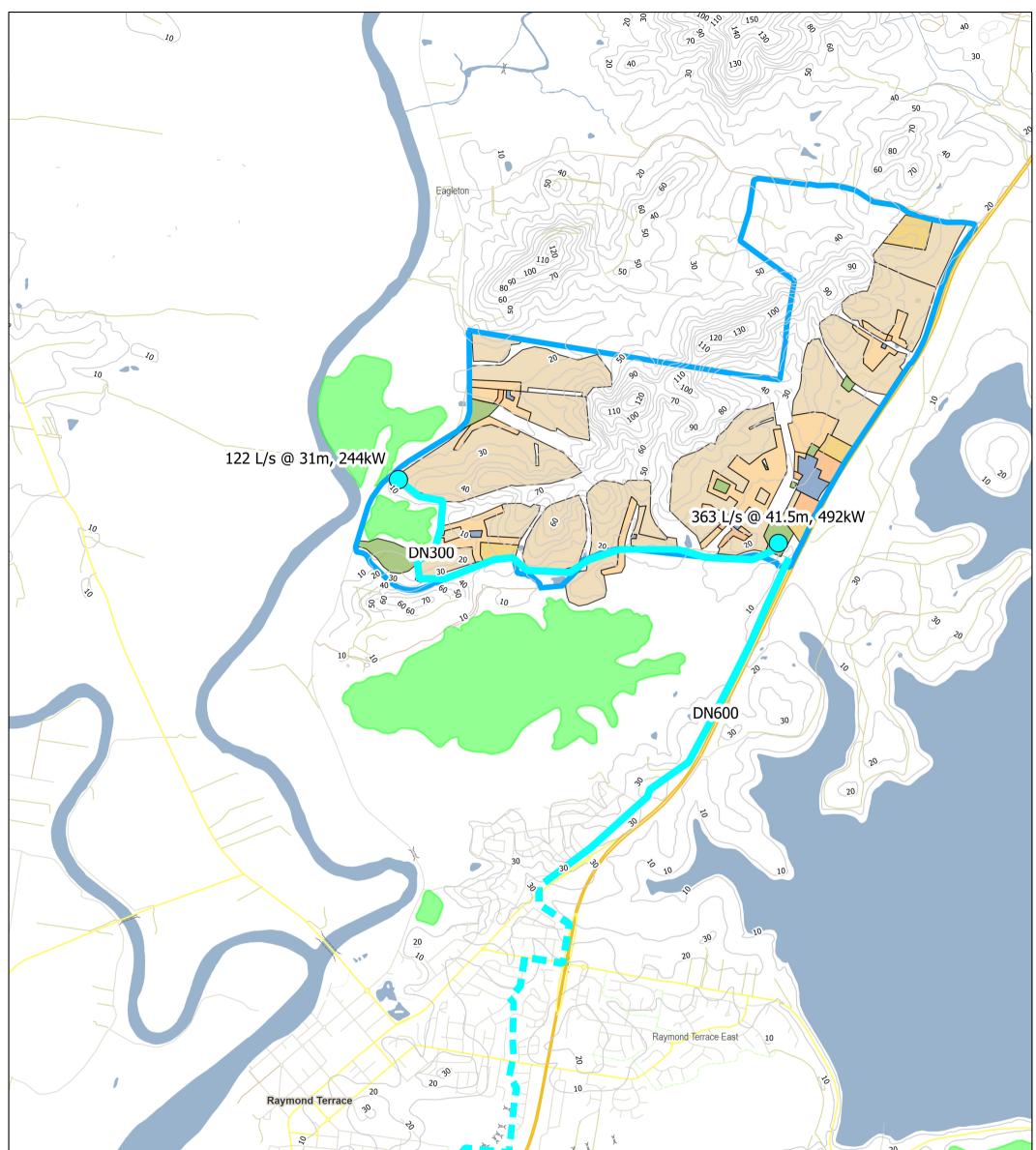




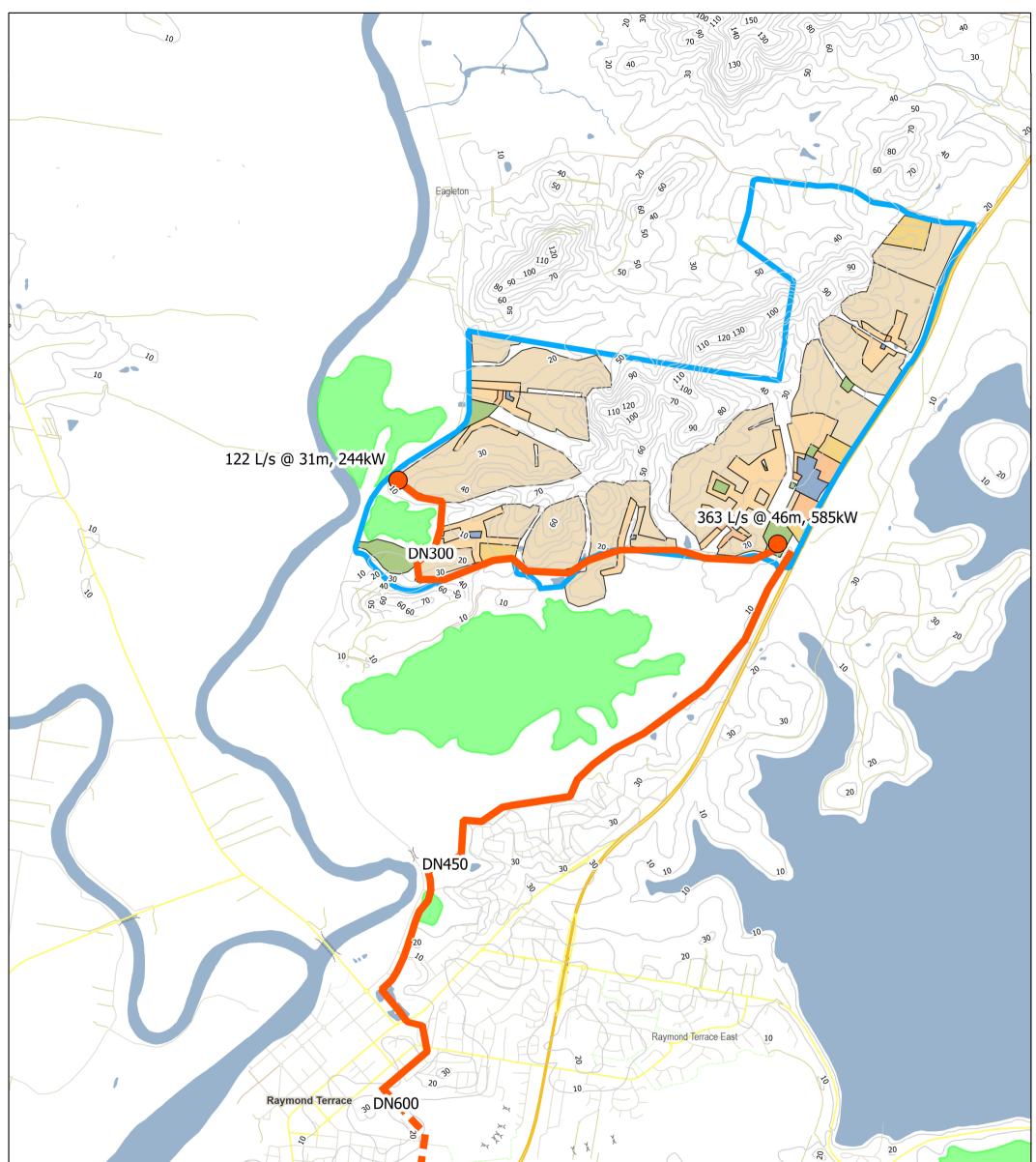
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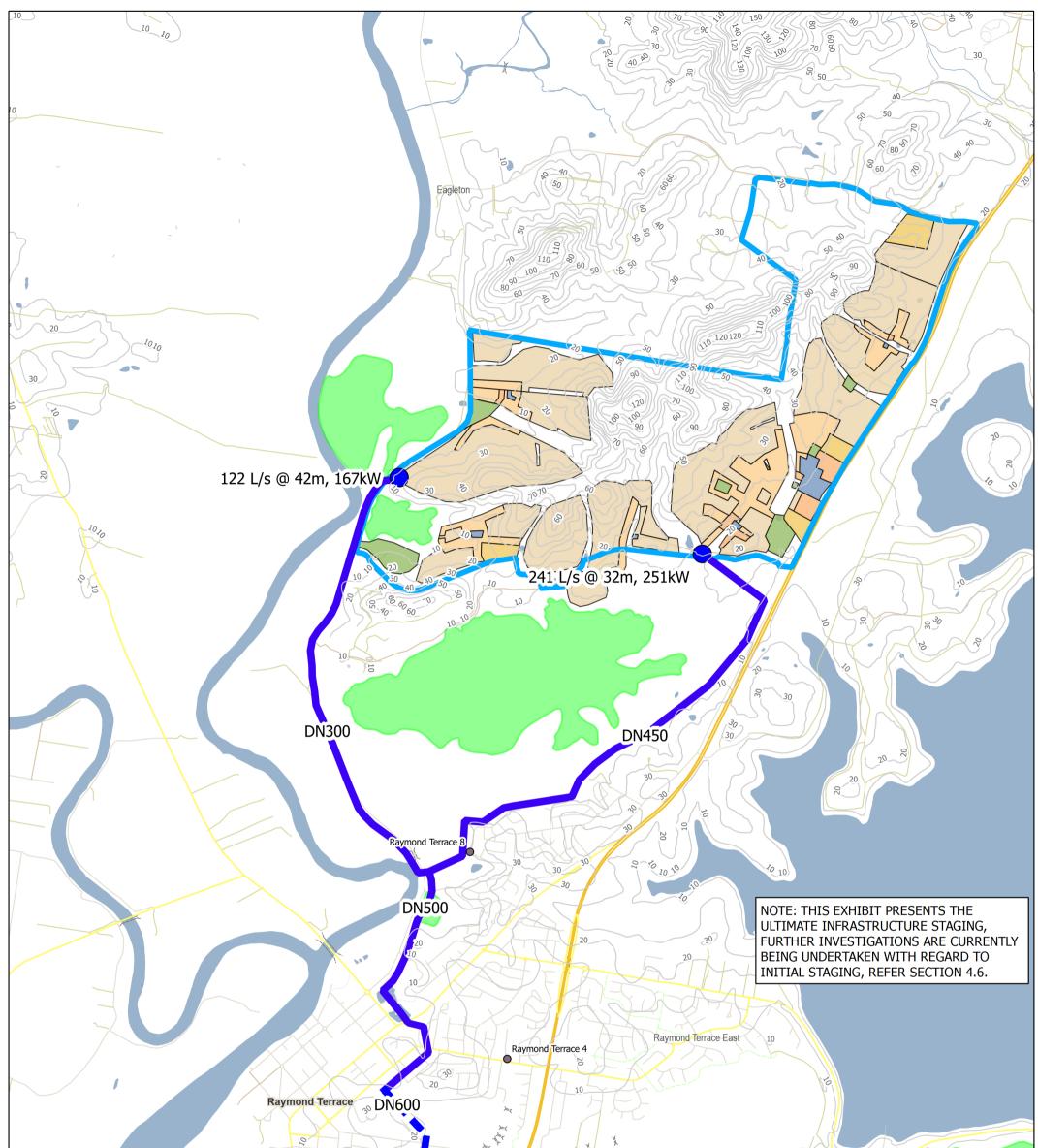
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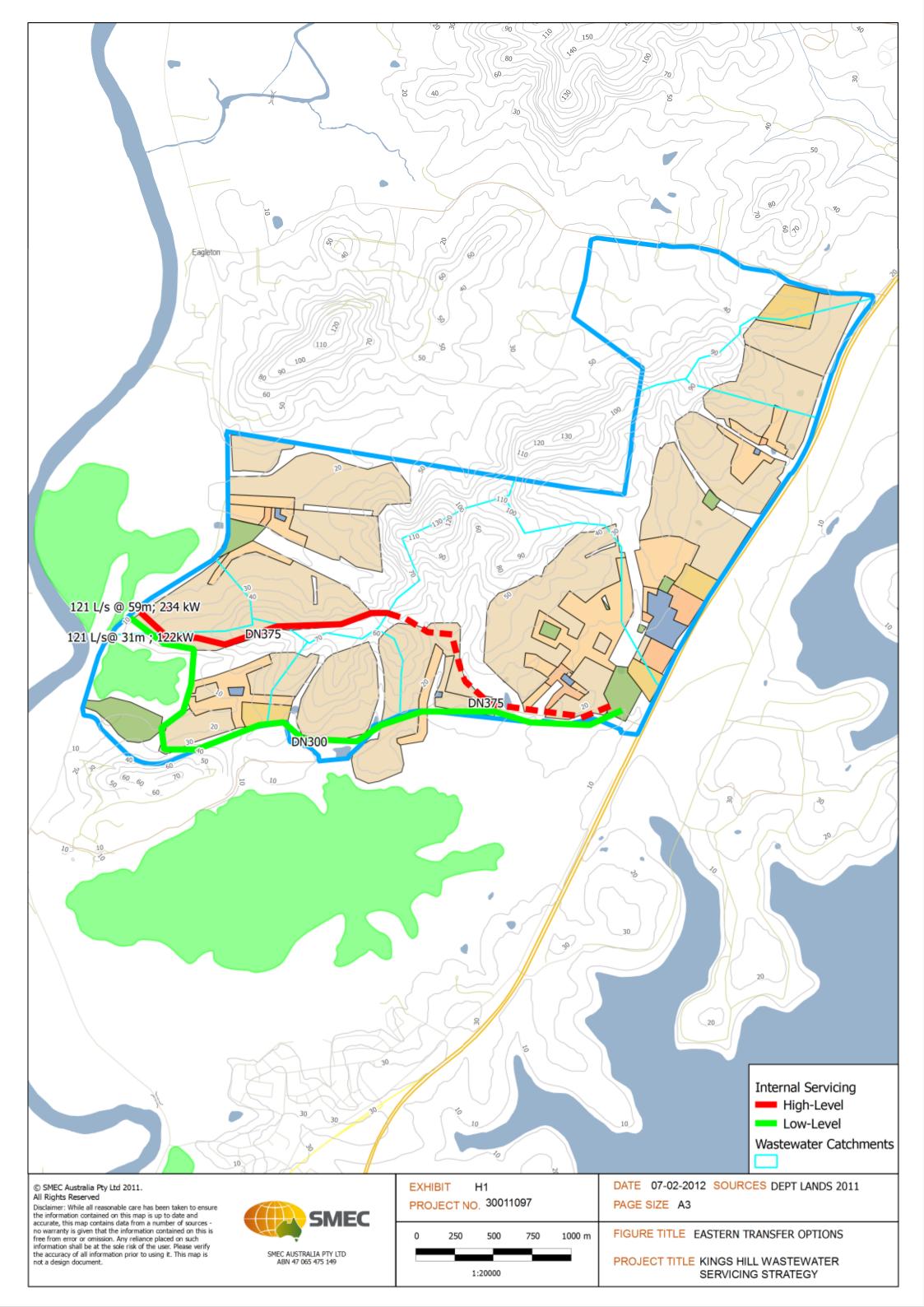
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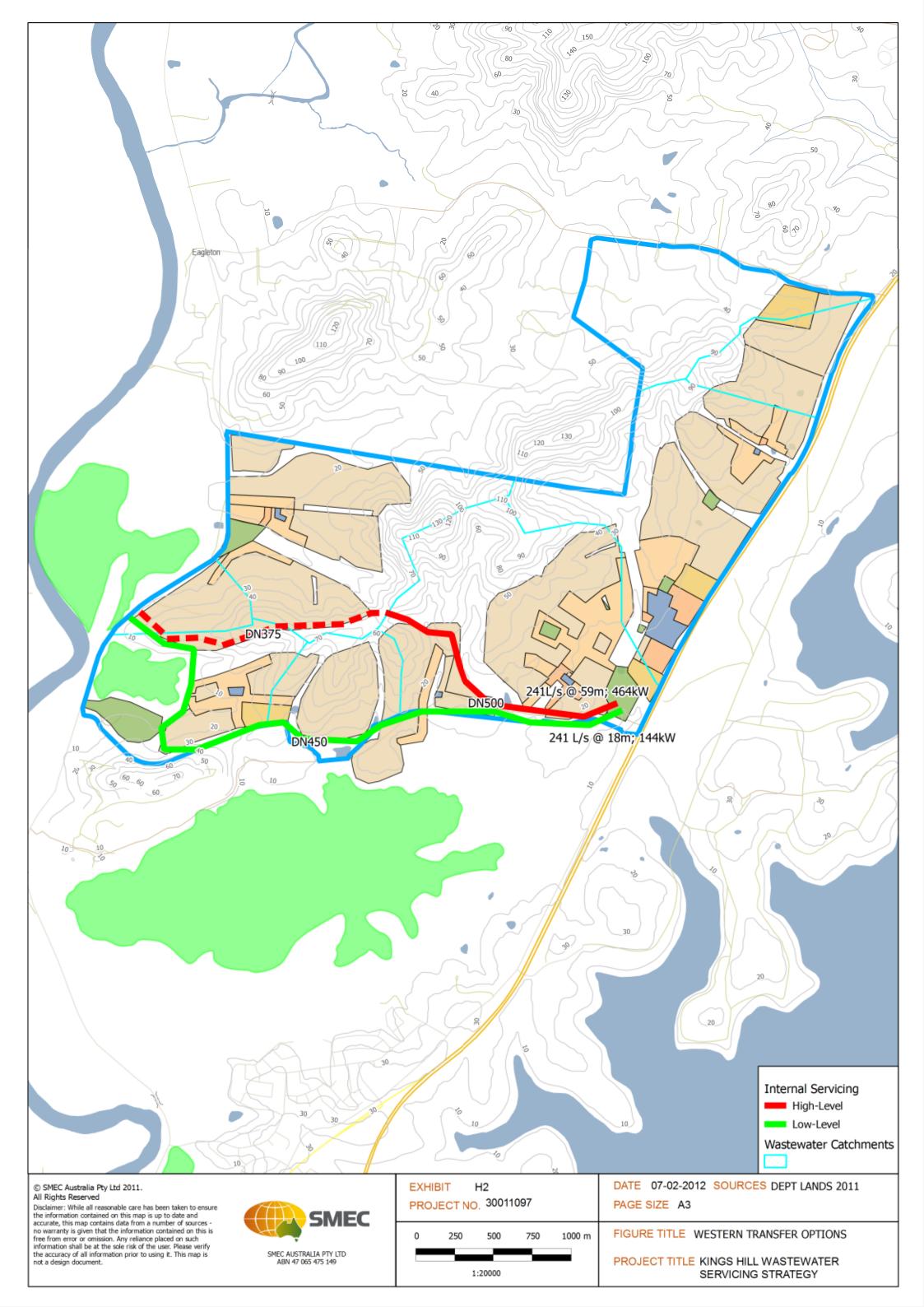


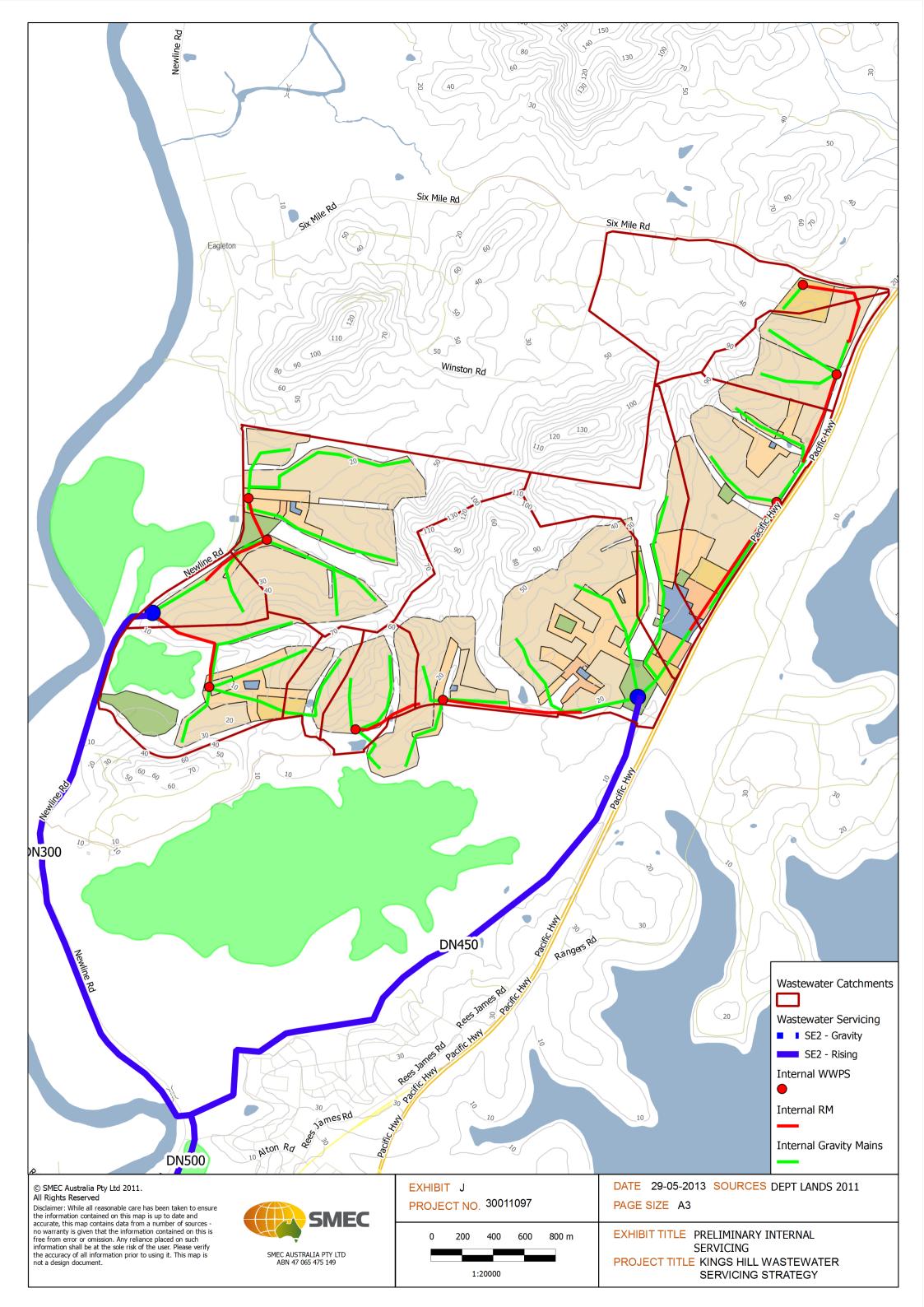
		20 20 20 20 Legend Gravity Rising
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accurate, this map contains data from a number of sources - no warranty is given that the information contained on this is free from error or omission. Any reliance placed on such information shall be at the sole risk of the user. Please verify the accuracy of all information prior to using it. This map is not a design document. SMEC AUSTRALIA PTY LTD ABN 47 065 475 149	0 250 500 750 1000 m 1:30000	EXHIBIT TITLE OPTION SE1D PROJECT TITLE KINGS HILL WASTEWATER SERVICING STRATEGY

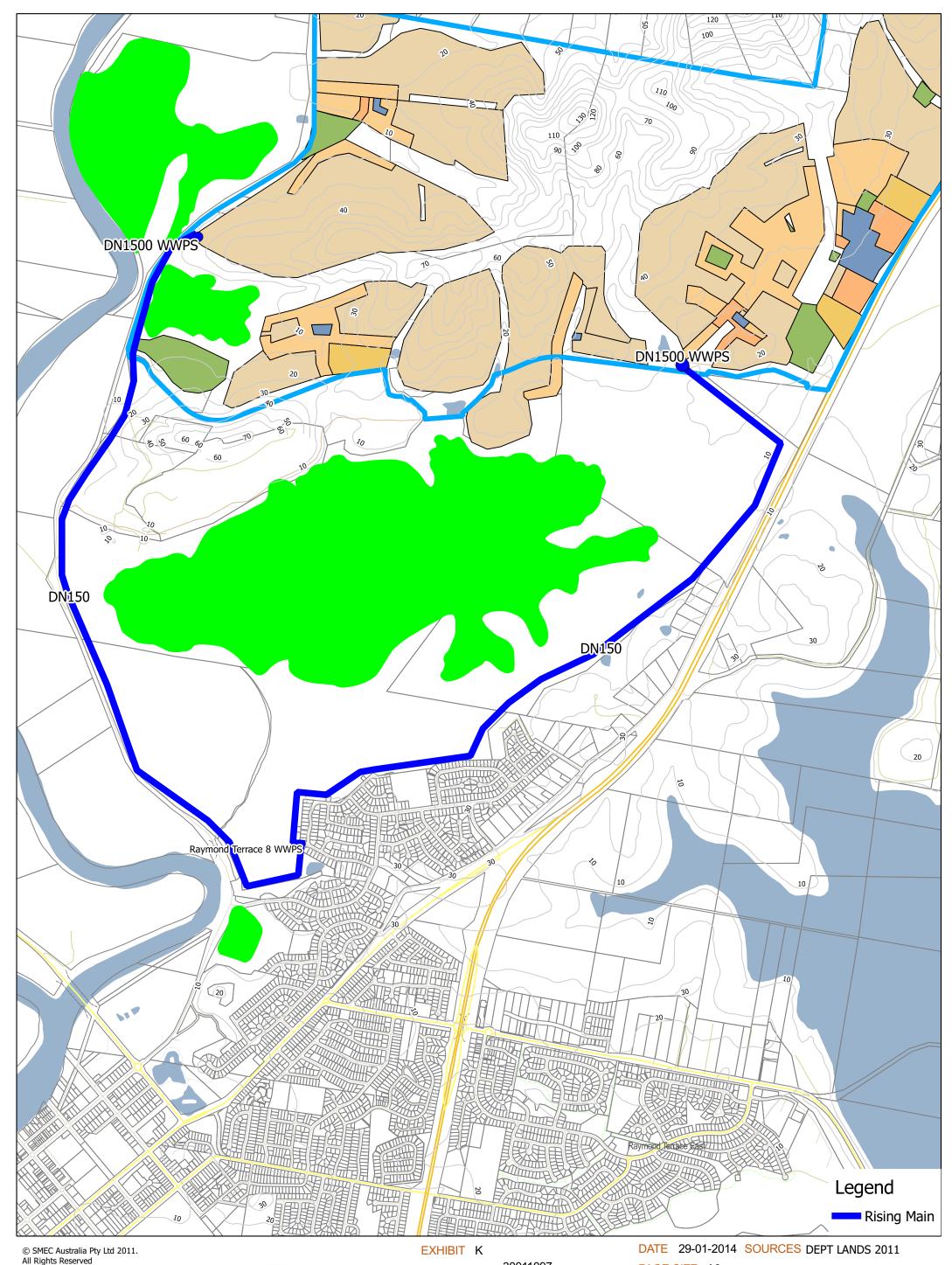


10 to Raymond Terrace WWT		Legend Bising
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accurate, this map contains data from a number of sources - no warranty is given that the information contained on this is free from error or omission. Any reliance placed on such information shall be at the sole risk of the user. Please verify the accuracy of all information prior to using it. This map is not a design document. SMEC AUSTRALIA PTY LTD ABN 47 065 475 149	0 250 500 750 1000 m 1:30000	EXHIBIT TITLE OPTION SE2 PROJECT TITLE KINGS HILL WASTEWATER SERVICING STRATEGY









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SMEC AUSTRALIA PTY LTD ABN 47 065 475 149

EXHIBIT K PROJECT NO. 30011097



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DATE 29-01-2014 SOURCES DEPT LANDS 2011 PAGE SIZE A3

EXHIBIT TITLE PRELIMINARY SERVICING

PROJECT TITLE KINGS HILL WASTEWATER SERVICING STRATEGY

APPENDIX C – OPTIONS REVIEW

Included as Section 4.4

APPENDIX D – COST ESTIMATES

PROJECT DESCRIPTION:

Option 1A Pump Station DN500

Item No.	Item Description	Qty	Unit	Rate \$/Unit	Amount	Application of Schedule of Rates
					\$	
HW0001	All work not included elsewhere in this	Item	Lump Sum	\$ 22,165.00	\$ 22,165.00	Payment: Maximum of 10% shall be due each month until 70% of the
	schedule					amount has been paid. Remainder at Practical Completion.
HW0002	Site Establishment <insert \$="" max=""></insert>	Item	Lump Sum	\$ 30,000.00	\$ 30,000.00	Payment: 100% after completion.
HW0003	Site Disestablishment <insert \$="" min=""></insert>	Item	Lump Sum	\$ 30,000.00	\$ 30,000.00	Payment: 100% after completion.
HW0004	Preparation and implementation of the	Item	Lump Sum	\$ 3,000.00	\$ 3,000.00	Payment: Maximum of 30% on submission of complying Construction
	Construction EMP					EMP, then 10% per month up to maximum of 80%. Remainder at
						Practical Completion.
						Submit: Construction EMP.
HW0005	Preparation and implementation of the Safety	Item	Lump Sum	\$ 5,000.00	\$ 5,000.00	Payment: Maximum of 30% on submission of complying plan, then
	Management Plan.					10% per month up to maximum of 80%. Remainder at Practical
						Completion.
						Submit: Safety Management Plan.
HW0006	Preparation and implementation of the Traffic	Item	Lump Sum	\$ 4,200.00	\$ 4,200.00	Payment: Maximum of 30% on submission of complying Traffic Control
	Control Plan.					Plan, then 10% per month up to maximum of 80%. Remainder at
						Practical Completion.
HW0007	Preparation and Implementation of Quality	Item	Lump Sum	\$ 11,882.60	\$ 11,882.60	Payment: Maximum of 30% on submission of complying Quality
	Management Plan					Management Plan, then 10% per month up to maximum of 80%.
						Remainder at Practical Completion.
HW0008	Community Consultation	Item	Lump Sum	\$-	\$	Payment: 10% per month up to maximum of 70%. Remainder at
						Practical Completion.

Item		-	Unit	Rate \$/Unit		Amount	Application of Schedule of Rates
	Pump Station - Name	Qty	Unit	\$/Unit		\$	
HW0101	Sewer Pumping Station 450kW 7m dia 2 Pump(s)						
	Clear, excavate & backfill in OTR conditions, supply and construct pipework, pump station, includes sitting aduminium hatch covers, screens & ancillary metal work & fittings. Supply & place formwork, reinforcement, concrete, roof siab, thrust blocks.	ltem	Lump Sum	\$ 369,000.0	00 \$	369,000.0	Payment: <insert appropriate="" of="" percentages="" reflect="" the="" to="" value="" wor<br="">at key milestones eg excavation, pump well, metalwork etc>. Submit: Relevant Quality Records.</insert>
HW0102	Pumps for Pumping Stations - Supply and install pumps and associated fittings, connection to pipework, testing and commissioning.	2	Lump Sum	\$ 109,162.5	50 \$	218,325.0	Payment: <insert appropriate="" eg<br="" for="" key="" milestones="" percentages="">installation, precommissioning, commissioning>. Submit: Relevant Quality Records including those for pump test.</insert>
HW0103	Pumping Station Electricals						
HW0103.01	Pit and Conduit System	Item	Lump Sum	\$ 15,500.0	0\$	15,500.0	Payment: Percentage of work completed. Submit: Relevant Quality Records.
HW0103.02	LV Station Power Supply	Item	Lump Sum	\$ 32,000.0	0\$	32,000.00	Payment: Percentage of work completed. Submit: Relevant Quality Records.
HW0103.03	Station By-Pass arrangements	Item	Lump Sum		\$		Payment: Percentage of work completed. Submit: Relevant Quality Records.
HW0103.04	Electrical Demolition works	Item	Lump Sum		\$		Payment: Percentage of work completed. Submit: Relevant Quality Records.
HW0103.05	Switchboard	Item	Lump Sum	\$ 299,000.0	0\$	299,000.0	Payment: Percentage of work completed. Submit: Relevant Quality Records.
HW0103.06	PLC / Telemetry Hardware	Item	Lump Sum	\$ 14,437.5	0\$	14,437.5	Payment: Percentage of work completed. Submit: Relevant Quality Records.
HW0103.07	PLC / Telemetry / Scada Engineering and Software Development	Item	Lump Sum	\$ 28,450.0	0\$	28,450.0	Payment: Percentage of work completed. Submit: Relevant Quality Records.
HW0103.08	Stainless Steel Generator Box Cable Tray & Metering Box	Item	Lump Sum	\$ 26,462.5	0\$	26,462.5	Payment: Percentage of work completed. Submit: Relevant Quality Records.
HW0103.09	Building Services (Electrical)	Item	Lump Sum	\$ 20,625.0	0\$	20,625.0	Payment: Percentage of work completed
HW0103.10	Pressure Transmitter/Gauge Board	Item	Lump Sum	s	- \$		Payment: Percentage of work completed. Submit: Relevant Quality Records.
HW0103.11	Installation/Cabling (Electrical)	Item	Lump Sum	\$ 31,000.0	0\$	31,000.0	Payment: Percentage of work completed. Submit: Relevant Quality Records.
HW0104	Empty						
HW0105	Empty						
HW0106	Service Location	Item	Lump Sum	\$ 2,940.0)C \$	2,940.0	Payment: Maximum of 10% shall be due each month until 70% of the amount has been paid. Remainder at Practical Completion.
HW0107	Excavation below design depth including disposal of excavated material (Contingent Item)	0	m3	\$ 70.1	00 \$		Measurement: Cubic metres excavated based on thickness of excavation by design cross section of the structure for which excavation has been undertaken. Submit: Relevant Quality Records. Limits of Accuracy: CTo be inserted:
HW0108	Extra over Civil Works for excavation in rock:	0	m3	\$ 120.0			Measurement: Actual cubic metres of rock excavated within the des dimensions of the structure. Submit: Relevant Quality Records. Limits of Accuracy: STo he inserted>
HW0109	Cut and fill earthworks including compaction:	0	m3	\$ 25.0	oc s		Neasurement: Actual cubic metres of earthworks completed in accordance with the design. Submit: Relevant Quality Records. Limits of Accuracy: STo be inserted>

HW0110	Supply & place ballast (Contingent Item)	0	tonne	\$ 90.0	C \$	Measurement: Actual tonnes placed as directed. Submit: Relevant Quality Records including certified weighbridge dockets. Limits of Accuracy: <to be="" inserted="">.</to>
HW0111	Import and place select fill including compaction <may be="" contingent="" item=""></may>	0	m3	\$ 65.0	c s	Measurement: Actual cubic metres placed as directed by the Superintendent or placed in accordance with the design. Submit: Relevant Quality Records.
HW0112	Construct access road and hardstand					Limits of Accuracy: <to be="" inserted="">.</to>
HW0112.01	Prepare subgrade		m2	\$ 4.2		Measurement: Actual square metres in accordance with the design.
						Submit: Relevant Quality Records. Limits of Accuracy: <to be="" inserted="">.</to>
HW0112.02	Supply, place and compact 150mm thick basecourse Supply, place and compact 200mm thick		m2 m2	\$ 37.0 \$ 47.0	c	Measurement: Actual square metres in accordance with the design. Submit: Relevant Quality Records. Limits of Accuracy: <to be="" inserted="">. Measurement: Actual square metres in accordance with the design.</to>
	basecourse					Submit: Relevant Quality Records. Limits of Accuracy: <to be="" inserted="">.</to>
HW0112.04	Supply, place and compact 250mm thick basecourse		m2	\$ 51.0	G	Measurement: Actual square metres in accordance with the design. Submit: Relevant Quality Records. Limits of Accuracy: <to be="" inserted="">.</to>
HW0112.05	Supply, place and compact two coat bitumen seal		m2	\$ 26.0	c	Measurement: Actual square metres in accordance with the design. Submit: Relevant Quality Records. Limits of Accuracy: <to be="" inserted="">.</to>
HW0112.06	Supply, place and compact 30mm thick asphalt bitumen seal		m2	\$ 37.0	G	Measurement: Actual square metres in accordance with the design. Submit: Relevant Quality Records. Limits of Accuracy: <to be="" inserted="">.</to>
HW0112.07	Concrete kerb & gutter	0	m	\$ 110.00		Measurement: Actual metres in accordance with the design. Submit: Relevant Quality Records. Limits of Accuracy: <to be="" inserted="">.</to>
HW0112.08	Concrete driveway	0	m2	\$ 178.00) \$	Measurement: Actual square metres in accordance with the design. Submit: Relevant Quality Records. Limits of Accuracy: <to be="" inserted="">.</to>
HW0113	Supply all plant, material and labour to					
HW0113.01	undertake the following Piling works: Treated timber mini piles		m			Measurement: Actual metres in accordance with the design. Submit: Relevant Quality Records. Limits of Accuracy: <to be="" inserted="">.</to>
HW0113.02	Reinforced concrete bored piles	Item	Lump Sum		s	Payment: Percentage of work completed. <consider %="" at<br="" payments="">milestones> Submit: Relevant Quality Records.</consider>
HW0114	Supply all plant, material and labour to undertake the following Retaining Wall works:					Measurement: Actual square metres in accordance with the design. Submit: Relevant Quality Records.
HW0114.01	Timber(Koppers Log) up to 1.5m high		m2	\$ 300.0	d	Limits of Accuracy: <to be="" inserted="">.</to>
HW0114.02	Concrete Keystone up to 1m high		m2	\$ 380.0	d	Limits of Accuracy: <to be="" inserted="">.</to>
HW0114.03	Concrete Keystone between 1m and 3m high		m2	\$ 560.0	c	Limits of Accuracy: <to be="" inserted="">.</to>
HW0114.04	Concrete Keystone greater than 3m high Concrete Crib Block up to 2m high		m2 m2	\$ 560.0 \$ 630.0	c	Limits of Accuracy: <to be="" inserted="">.</to>
HW0114.05	Concrete Crib Block up to 2m high Concrete Crib Block between 2m and 3m		m2 m2	\$ 630.0		Limits of Accuracy: <to be="" inserted="">. Limits of Accuracy: <to be="" inserted="">.</to></to>
HW0114.06	Acid sulphate soil		m2	\$ 704.0		Limits of Accuracy: <10 be inserted>.
HW0115.01	Initial testing for acid sulphate soils and	5	per test	\$ 110.00	\$ 550.0	Submit: Result for each test.
	prepare and submit report		perteat	• 110.00	÷ 555.01	Limits of Accuracy: <to be="" inserted=""></to>
HW0115.02	Establish treatment facility	Item	Lump Sum		\$	Payment: 100% after completion of treatment facility.
HW0115.03	Handling, treatment and testing of acid sulphate soils		m3	\$ 60.00	0	Measurement: Cubic metres within the design cross section of the structure for which excavation has been undertaken. Submit: Test results confirming satisfactory treatment.
HW0115.04	Disposal off site of acid sulphate soil		tonne	\$ 122.00		Limits of Accuracy: <to be="" inserted=""> Measurement: Tonnes transported from the site. Submit: Weighbridge dockets.</to>
HW0116	Series Pump Pit Structure	Item	Lump Sum		s	Limits of Accuracy: <to be="" inserted=""> Payment: <insert appropriate="" at="" key<br="" of="" percentages="" reflect="" the="" to="" value="" work="">milestones eg excavation, reinforced concrete, metalwork etc>.</insert></to>
HW0117	Supply and Install valve pit concrete formwork, reinforced concrete complete with aluminium tread plate covers and including excavation and backfill	ltem	Lump Sum	s	s	Submit: Relevant Quality Records. Payment: <insert appropriate="" of="" percentages="" reflect="" the="" to="" value="" work<br="">at key milestones eg excavation, reinforced concrete, metalwork etc>. Submit: Relevant Quality Records.</insert>
HW0118	Supply and install pipework items inside valve pit	Item	Lump Sum	\$ 19,270.0	\$ 19,270.0	Payment: Valued at percentage of work completed. Retention of 20% <or other="" percentage=""> until satisfactory testing. Submit: Relevant Quality Records.</or>
HW0119	Supply and Install additional pipe Items outside station	Item	Lump Sum	s	s	Payment: Valued at percentage of work completed. Retention of 20% <or other="" percentage=""> until satisfactory testing. Submit: Relevant Quality Records.</or>
HW0120	Supply and install pipework items inside station	Item	Lump Sum	S	S	Payment: Valued at percentage of work completed. Retention of 20% <or other="" percentage=""> until satisfactory testing. Submit: Relevant Quality Records.</or>
HW0121	Supply and install Type 2 or 4 flow relief structures in accordance with Drgs SCP-502 and SCP-505	Item	Lump Sum		s	Payment: Valued at percentage of work completed. Retention of 20% <or other="" percentage=""> until satisfactory testing. Submit: Relevant Quality Records.</or>
HW0122	Supply and install emergency storage structures		L/m			Payment: Valued at percentage of work completed. Retention of 20% <or other="" percentage=""> until satisfactory testing. Submit: Relevant Quality Records.</or>

HW0123	Supply and install fan forced ventilation	Item	Lump Sum		\$	Payment: Valued at percentage of work completed. Retention of 20% <or other="" percentage=""> until satisfactory testing.</or>
						Submit: Relevant Quality Records.
HW0124	Supply and install Soil Bed Filter	Item	Lump Sum		\$	Payment: Valued at percentage of work completed. Retention of 20%
						<or other="" percentage=""> until satisfactory testing.</or>
						Submit: Relevant Quality Records.
HW0125	Supply and Install Strainers	Item	Lump Sum		\$	Payment: Valued at percentage of work completed. Retention of 20%
						<or other="" percentage=""> until satisfactory testing.</or>
						Submit: Relevant Quality Records.
HW0126	Supply and Install Series Bypass	Item	Lump Sum		\$	Payment: Valued at percentage of work completed up to 80%.
						Remainder at Practical Completion.
						Submit: Relevant Quality Records.
HW0127	Landscaping	Item	Lump Sum	\$	S	Payment: 100% at completion.
						Submit: Relevant Quality Records.
HW0128	Miscellaneous					
HW0129	Preparation and submission of Operation and	Item	Lump Sum		ş -	Payment: 100% at Practical Completion.
	Maintenance Information		-			Submit: Complying Work As Constructed Information.
HW0130	Pre commissioning and commissioning	Item	Lump Sum	\$ 8,000.00	\$ 8,000.00	Payment: 50% at completion of satisfactory precommissioning.
						Remainder at Practical Completion.
						Submit: Relevant Quality Records.
HW0131	Preparation and submission of Work as	Item	Lump Sum	\$ 6,000.00	\$ 6,000.00	Payment: 100% at Practical Completion.
	Constructed Information					Submit: Complying Work As Constructed Information.
HW1SP	Sub Total				\$1,091,560	

Item No.	Item Description	Qty	Unit	Amount \$	Application of Schedule of Rates
HW0009	Restoration - Pipelines:				Payment: 100% after completion.
HW0009.01	Concrete kerb & gutter		m		Measurement: Lineal metres restored within Minimum Trench Width. Limits of Accuracy: <to be="" inserted="">.</to>
HW0009.02	Concrete driveway		m2		Measurement: Square metres restored based on actual length by Minimum Trench Width. Limits of Accuracy: -To be inserted>
HW0009.03	Exposed aggregate & stamped driveway		m2		Measurement: Square metres restored based on actual length by Minimum Trench Width. Limits of Accuracy: ≤To be inserted>
HW0009.04	Concrete footpath		m2		Measurement: Square metres restored based on actual length by Minimum Trench Width. Limits of Accuracy: -To be inserted>
HW0009.05	Bitumen footpath		m2		Measurement: Square metres restored based on actual length by Minimum Trench Width. Limits of Accuracy: <to be="" inserted=""></to>
HW0009.06	Gravel pavement		m2		Measurement: Square metres restored based on actual length by Minimum Trench Width. Limits of Accuracy: <to be="" inserted=""></to>
HW0009.07	Bitumen pavement		m2		Measurement: Square metres restored based on actual length by Minimum Trench Width. Limits of Accuracy: -To be inserted>
HW0009.08	AC pavement		m2		Measurement: Square metres restored based on actual length by Minimum Trench Width. Limits of Accuracy: CTo he inserted>
HW0009.09	Pavers		m2		Measurement: Square metres restored based on actual length by Minimum Trench Width. Limits of Accuracy: -To be inserted>
HW0009.10	Turf		m2		Measurement: Square metres restored based on actual length by Minimum Trench Width. Limits of Accuracy: <to be="" inserted=""></to>
HW0009.11	Grass seeding		m2		Measurement: Square metres restored based on actual length by Minimum Trench Width. Limits of Accuracy: ≤To be inserted>
HW0009.12	Hydromulch		m2		Measurement: Square metres restored based on actual length by Minimum Trench Width. Limits of Accuracy: -To be inserted>
HW0010	Extra over item for Excavation in rock and disposal of excess excavated material		m3		Measurement: Cubic metres excavated based on thickness of rock by actual length by Minimum Trench Width. Limits of Accuracy: -To be inserted>.
HW0011	Acid sulphate soil				
HW0011.01	Initial testing for acid sulphate soils and prepare and submit report		per test		Submit: Result for each test. Limits of Accuracy: <to be="" inserted="">.</to>
HW0011.02	Establish treatment facility		Item		Payment: 100% after completion of treatment facility.
HW0011.03	Handling, treatment and testing of acid sulphate soils		m3		Measurement: Cubic metres excavated based on thickness of ASS by actual length by Minimum Trench Width. Submit: Test results confirming satisfactory treatment. Limits of Accuracy: Cto be inserted?
HW0011.04	Disposal off site of acid sulphate soil		tonne		Measurement: Tonnes transported from the site. Submit: Weighbridge dockets. Limits of Accuracy: <to be="" inserted≻<="" td=""></to>
HW0012	Preconstruction record				
HW0012.01	Photographic	Item	Lump Sum	\$	- Payment: 70% on submission of the Photographic record. Remainder at Practical Completion.
HW0012.02	Video	Item	Lump Sum	\$	Payment: 70% on submission of the Video record. Remainder at Practical Completion.
HW0012.03	CCTV	Item	Lump Sum	\$	Payment: 70% on submission of the CCTV record. Remainder at Practical Completion.
HW0013	Work as Constructed Information <insert min<br="">\$></insert>	ltem	Lump Sum	\$	Payment: 100% at Practical Completion.

ι.	TOTAL ESTIMATED CONTRACT AWARD SUM	\$	1,197,807.60
8.	PRE-CONSTRUCTION COST (Table 10)		
HW0016	Design	\$	143,736.91
HW0017	Project Management of Design	\$	38,747.38
HW0018	Land Matters	\$	-
HW0024	Community Consultation		
	Sub Total(B1)	\$	182,484.29
	Pre construction contingency (30% of B1)	\$	54,745.29
	TOTAL PRE-CONSTRUCTION COST (B)	\$	237,229.58
	CONSTRUCTION COST	1	
	CONSTRUCTION COST Total Estimated Contract Award Sum (A)	s	1,197,807.60
HW0019	Total Estimated Contract Award Sum (A)	s s	1,197,807.60
HW0019 HW0020			1,197,807.60 - -
	Total Estimated Contract Award Sum (A) Principal Supplied Pipe (as applicable)	\$	1,197,807.60 - - -
HW0020	Total Estimated Contract Award Sum (A) Principal Supplied Pipe (as applicable) Principal Supplied Valves and Flowmeters (as applicable)	\$	1,197,807.60 - - - 187,500.00
HW0020 HW0021	Total Estimated Contract. Award Sum (A) Principal Supplied Pipe (as applicable) Principal Supplied Valves and Flowmeters (as applicable) Principal Supplied Fittings (as applicable) Pump Station IV Power Supply	s s s	- - 187,500.00
HW0020 HW0021 HW0022	Total Estimated Contract Award Sum (A) Principal Supplied Pipe (as applicable) Principal Supplied Valves and Flowmeters (as applicable) Principal Supplied Fittings (as applicable)	s s s	-
HW0020 HW0021 HW0022	Total Estimated Contract Award Sum (A) Principal Supplied Pipe (as applicable) Principal Supplied Valves and Flowneters (as applicable) Principal Supplied Fittings (as applicable) Pump Station HV Power Supply Construction Management (Table 11)	\$ \$ \$ \$ \$	- - 187,500.00 119,780.76
HW0020 HW0021 HW0022	Total Elimitated Contract Award Sum (A) Principal Supplied Pie (as applicable) Principal Supplied Valves and Flowmeters (as applicable) Principal Supplied Fittings (as applicable) Pump Station HY Nover Supply Construction Management (Table 11) Sub Total (C1)	* * * * * * *	187,500.00 119,780.76 1,505,088.36

PROJECT DESCRIPTION:

Option 1A Pump Station DN600

Item No.	Item Description	Qty	Unit	Rate \$/Unit	Amount	Application of Schedule of Rates
					\$	
HW0001	All work not included elsewhere in this	Item	Lump Sum	\$ 17,555.00	\$ 17,555.00	Payment: Maximum of 10% shall be due each month until 70% of the
	schedule					amount has been paid. Remainder at Practical Completion.
HW0002	Site Establishment <insert \$="" max=""></insert>	Item	Lump Sum	\$ 15,000.00	\$ 15,000.00	Payment: 100% after completion.
HW0003	Site Disestablishment <insert \$="" min=""></insert>	Item	Lump Sum	\$ 15,000.00	\$ 15,000.00	Payment: 100% after completion.
HW0004	Preparation and implementation of the	Item	Lump Sum	\$ 3,000.00	\$ 3,000.00	Payment: Maximum of 30% on submission of complying Construction
	Construction EMP					EMP, then 10% per month up to maximum of 80%. Remainder at
						Practical Completion.
						Submit: Construction EMP.
HW0005	Preparation and implementation of the Safety	Item	Lump Sum	\$ 5,000.00	\$ 5,000.00	Payment: Maximum of 30% on submission of complying plan, then
	Management Plan.					10% per month up to maximum of 80%. Remainder at Practical
						Completion.
						Submit: Safety Management Plan.
HW0006	Preparation and implementation of the Traffic	Item	Lump Sum	\$ 4,200.00	\$ 4,200.00	Payment: Maximum of 30% on submission of complying Traffic Control
	Control Plan.					Plan, then 10% per month up to maximum of 80%. Remainder at
						Practical Completion.
HW0007	Preparation and Implementation of Quality	Item	Lump Sum	\$ 9,577.48	\$ 9,577.48	Payment: Maximum of 30% on submission of complying Quality
	Management Plan					Management Plan, then 10% per month up to maximum of 80%.
						Remainder at Practical Completion.
HW0008	Community Consultation	Item	Lump Sum	s -	s -	Payment: 10% per month up to maximum of 70%. Remainder at
						Practical Completion.

Sewer Pun	nping Station 250kW			Rate			
Item	Pump Station - Name	Qty	Unit	Kate \$/Unit		Amount \$	Application of Schedule of Rates
HW0101	Sewer Pumping Station 250kW 7m dia 2 Pump(s)						
	Clear, excavate & backfill in OTR conditions, supply and construct pipework, nump station, includes silding aluminium hatch covers, screens & ancillary metal work & fittings. Supply & place formwork, reinforcement, concrete, roof slab, thrust blocks.	ltem	Lump Sum	\$ 369,000.00	\$	369,000.0	[Payment: <insert appropriate="" of="" percentages="" reflect="" the="" to="" value="" work<br="">at key milestones eg excavator, pump well, metalwork etc>. Submit: Relevant Quality Records.</insert>
HW0102	Pumps for Pumping Stations - Supply and install pumps and associated fittings, connection to pipework, testing and commissioning.	2	Lump Sum	\$ 65,437.50	\$	130,875.0	Payment: <insert appropriate="" eg<br="" for="" key="" milestones="" percentages="">installation, precommissioning, commissioning>. Submit: Relevant Quality Records including those for pump test.</insert>
HW0103	Pumping Station Electricals						
HW0103.01	Pit and Conduit System	Item	Lump Sum	\$ 10,975.00	\$	10,975.00	Payment: Percentage of work completed. Submit: Relevant Quality Records.
HW0103.02	LV Station Power Supply	Item	Lump Sum	\$ 23,437.50	\$	23,437.50	Payment: Percentage of work completed. Submit: Relevant Quality Records.
HW0103.03	Station By-Pass arrangements	Item	Lump Sum		\$	-	Payment: Percentage of work completed. Submit: Relevant Quality Records.
HW0103.04	Electrical Demolition works	Item	Lump Sum		\$	-	Payment: Percentage of work completed. Submit: Relevant Quality Records.
HW0103.05	Switchboard	Item	Lump Sum	\$ 183,000.00	\$	183,000.00	Payment: Percentage of work completed. Submit: Relevant Quality Records.
HW0103.06	PLC / Telemetry Hardware	Item	Lump Sum	\$ 14,437.50	\$	14,437.50	Payment: Percentage of work completed. Submit: Relevant Quality Records.
HW0103.07	PLC / Telemetry / Scada Engineering and Software Development	Item	Lump Sum	\$ 28,450.00	\$	28,450.00	Payment: Percentage of work completed. Submit: Relevant Quality Records.
HW0103.08	Stainless Steel Generator Box Cable Tray 8 Metering Box	Item	Lump Sum	\$ 22,362.50	\$	22,362.50	Payment: Percentage of work completed. Submit: Relevant Quality Records.
HW0103.09	Building Services (Electrical)	Item	Lump Sum	\$ 13,125.00	\$	13,125.00	Payment: Percentage of work completed. Submit: Relevant Quality Records.
HW0103.10	Pressure Transmitter/Gauge Board	Item	Lump Sum	s -	\$	-	Payment: Percentage of work completed. Submit: Relevant Quality Records.
HW0103.11	Installation/Cabling (Electrical)	Item	Lump Sum	\$ 28,625.00	\$	28,625.00	Payment: Percentage of work completed. Submit: Relevant Quality Records.
HW0104	Empty						
HW0105	Empty						
HW0106	Service Location	Item	Lump Sum	\$ 2,940.00	\$	2,940.0	Payment: Maximum of 10% shall be due each month until 70% of the amount has been paid. Remainder at Practical Completion.
HW0107	Excavation below design depth including disposal of excavated material (Contingent Item)	0	m3	\$ 70.00	\$		Measurement: Cubic metres excavated based on Mickness of excavation by design cross section of the structure for which excavation has been undertaken. Submit: Relevant Quality Records. Limits of Accuracy.: STo be insertedb.
HW0108	Extra over Civil Works for excavation in rock:	0	m3	\$ 120.00	\$		Measurement: Actual cubic metres of rock excavated within the design dimensions of the structure. Submit: Relevant Quality Records. Limits of Accuracy: Cto be inserted.
HW0109	Cut and fill earthworks including compaction:	0	m3	\$ 25.00	w		Measurement: Actual cubic metres of earthworks completed in accordance with the design. Submit: Relevant Quality Records. Limits of Accuracy: Cto be inserted.

HW0110	Supply & place ballast (Contingent Item)	0	tonne	\$ 90.0	C \$	Measurement: Actual tonnes placed as directed. Submit: Relevant Quality Records including certified weighbridge dockets. Limits of Accuracy: <to be="" inserted="">.</to>
HW0111	Import and place select fill including compaction <may be="" contingent="" item=""></may>	0	m3	\$ 65.0	c s	Measurement: Actual cubic metres placed as directed by the Superintendent or placed in accordance with the design. Submit: Relevant Quality Records.
HW0112	Construct access road and hardstand					Limits of Accuracy: <to be="" inserted="">.</to>
HW0112.01	Prepare subgrade		m2	\$ 4.2		Measurement: Actual square metres in accordance with the design.
						Submit: Relevant Quality Records. Limits of Accuracy: <to be="" inserted="">.</to>
HW0112.02	Supply, place and compact 150mm thick basecourse Supply, place and compact 200mm thick		m2 m2	\$ 37.0 \$ 47.0	c	Measurement: Actual square metres in accordance with the design. Submit: Relevant Quality Records. Limits of Accuracy: <to be="" inserted="">. Measurement: Actual square metres in accordance with the design.</to>
	basecourse					Submit: Relevant Quality Records. Limits of Accuracy: <to be="" inserted="">.</to>
HW0112.04	Supply, place and compact 250mm thick basecourse		m2	\$ 51.0	G	Measurement: Actual square metres in accordance with the design. Submit: Relevant Quality Records. Limits of Accuracy: <to be="" inserted="">.</to>
HW0112.05	Supply, place and compact two coat bitumen seal		m2	\$ 26.0	c	Measurement: Actual square metres in accordance with the design. Submit: Relevant Quality Records. Limits of Accuracy: <to be="" inserted="">.</to>
HW0112.06	Supply, place and compact 30mm thick asphalt bitumen seal		m2	\$ 37.0	G	Measurement: Actual square metres in accordance with the design. Submit: Relevant Quality Records. Limits of Accuracy: <to be="" inserted="">.</to>
HW0112.07	Concrete kerb & gutter	0	m	\$ 110.00		Measurement: Actual metres in accordance with the design. Submit: Relevant Quality Records. Limits of Accuracy: <to be="" inserted="">.</to>
HW0112.08	Concrete driveway	0	m2	\$ 178.00) \$	Measurement: Actual square metres in accordance with the design. Submit: Relevant Quality Records. Limits of Accuracy: <to be="" inserted="">.</to>
HW0113	Supply all plant, material and labour to					
HW0113.01	undertake the following Piling works: Treated timber mini piles		m			Measurement: Actual metres in accordance with the design. Submit: Relevant Quality Records. Limits of Accuracy: <to be="" inserted="">.</to>
HW0113.02	Reinforced concrete bored piles	Item	Lump Sum		s	Payment: Percentage of work completed. <consider %="" at<br="" payments="">milestones> Submit: Relevant Quality Records.</consider>
HW0114	Supply all plant, material and labour to undertake the following Retaining Wall works:					Measurement: Actual square metres in accordance with the design. Submit: Relevant Quality Records.
HW0114.01	Timber(Koppers Log) up to 1.5m high		m2	\$ 300.0	d	Limits of Accuracy: <to be="" inserted="">.</to>
HW0114.02	Concrete Keystone up to 1m high		m2	\$ 380.0	d	Limits of Accuracy: <to be="" inserted="">.</to>
HW0114.03	Concrete Keystone between 1m and 3m high		m2	\$ 560.0	c	Limits of Accuracy: <to be="" inserted="">.</to>
HW0114.04	Concrete Keystone greater than 3m high Concrete Crib Block up to 2m high		m2 m2	\$ 560.0 \$ 630.0	c	Limits of Accuracy: <to be="" inserted="">.</to>
HW0114.05	Concrete Crib Block up to 2m high Concrete Crib Block between 2m and 3m		m2 m2	\$ 630.0		Limits of Accuracy: <to be="" inserted="">. Limits of Accuracy: <to be="" inserted="">.</to></to>
HW0114.06	Acid sulphate soil		m2	\$ 704.0		Limits of Accuracy: <10 be inserted>.
HW0115.01	Initial testing for acid sulphate soils and	5	per test	\$ 110.00	\$ 550.0	Submit: Result for each test.
	prepare and submit report		perteat	• 110.00	÷ 555.01	Limits of Accuracy: <to be="" inserted=""></to>
HW0115.02	Establish treatment facility	Item	Lump Sum		\$	Payment: 100% after completion of treatment facility.
HW0115.03	Handling, treatment and testing of acid sulphate soils		m3	\$ 60.00	0	Measurement: Cubic metres within the design cross section of the structure for which excavation has been undertaken. Submit: Test results confirming satisfactory treatment.
HW0115.04	Disposal off site of acid sulphate soil		tonne	\$ 122.00		Limits of Accuracy: <to be="" inserted=""> Measurement: Tonnes transported from the site. Submit: Weighbridge dockets.</to>
HW0116	Series Pump Pit Structure	Item	Lump Sum		s	Limits of Accuracy: <to be="" inserted=""> Payment: <insert appropriate="" at="" key<br="" of="" percentages="" reflect="" the="" to="" value="" work="">milestones eg excavation, reinforced concrete, metalwork etc>.</insert></to>
HW0117	Supply and Install valve pit concrete formwork, reinforced concrete complete with aluminium tread plate covers and including excavation and backfill	ltem	Lump Sum	s	s	Submit: Relevant Quality Records. Payment: <insert appropriate="" of="" percentages="" reflect="" the="" to="" value="" work<br="">at key milestones eg excavation, reinforced concrete, metalwork etc>. Submit: Relevant Quality Records.</insert>
HW0118	Supply and install pipework items inside valve pit	Item	Lump Sum	\$ 19,270.0	\$ 19,270.0	Payment: Valued at percentage of work completed. Retention of 20% <or other="" percentage=""> until satisfactory testing. Submit: Relevant Quality Records.</or>
HW0119	Supply and Install additional pipe Items outside station	Item	Lump Sum	s	s	Payment: Valued at percentage of work completed. Retention of 20% <or other="" percentage=""> until satisfactory testing. Submit: Relevant Quality Records.</or>
HW0120	Supply and install pipework items inside station	Item	Lump Sum	s	S	Payment: Valued at percentage of work completed. Retention of 20% <or other="" percentage=""> until satisfactory testing. Submit: Relevant Quality Records.</or>
HW0121	Supply and install Type 2 or 4 flow relief structures in accordance with Drgs SCP-502 and SCP-505	Item	Lump Sum		s	Payment: Valued at percentage of work completed. Retention of 20% <or other="" percentage=""> until satisfactory testing. Submit: Relevant Quality Records.</or>
HW0122	Supply and install emergency storage structures		L/m			Payment: Valued at percentage of work completed. Retention of 20% <or other="" percentage=""> until satisfactory testing. Submit: Relevant Quality Records.</or>

HW0123	Supply and install fan forced ventilation	Item	Lump Sum		\$	Payment: Valued at percentage of work completed. Retention of 20%
						<or other="" percentage=""> until satisfactory testing.</or>
						Submit: Relevant Quality Records.
HW0124	Supply and install Soil Bed Filter	Item	Lump Sum		\$	Payment: Valued at percentage of work completed. Retention of 20%
						<or other="" percentage=""> until satisfactory testing.</or>
						Submit: Relevant Quality Records.
HW0125	Supply and Install Strainers	Item	Lump Sum		\$	Payment: Valued at percentage of work completed. Retention of 20%
						<or other="" percentage=""> until satisfactory testing.</or>
						Submit: Relevant Quality Records.
HW0126	Supply and Install Series Bypass	Item	Lump Sum		\$	Payment: Valued at percentage of work completed up to 80%.
						Remainder at Practical Completion.
						Submit: Relevant Quality Records.
HW0127	Landscaping	Item	Lump Sum	\$	\$	Payment: 100% at completion.
						Submit: Relevant Quality Records.
HW0128	Miscellaneous					
HW0129	Preparation and submission of Operation and	Item	Lump Sum		ş -	Payment: 100% at Practical Completion.
	Maintenance Information		-			Submit: Complying Work As Constructed Information.
HW0130	Pre commissioning and commissioning	Item	Lump Sum	\$ 8,000.00	\$ 8,000.00	Payment: 50% at completion of satisfactory precommissioning.
						Remainder at Practical Completion.
						Submit: Relevant Quality Records.
HW0131	Preparation and submission of Work as	Item	Lump Sum	\$ 6,000.00	\$ 6,000.00	Payment: 100% at Practical Completion.
	Constructed Information					Submit: Complying Work As Constructed Information.
HW1SP	Sub Total				\$861,048	

Item No.	Item Description	Qty	Unit	Amount \$	Application of Schedule of Rates
HW0009	Restoration - Pipelines:				Payment: 100% after completion.
HW0009.01	Concrete kerb & gutter		m		Measurement: Lineal metres restored within Minimum Trench Width. Limits of Accuracy: <to be="" inserted="">.</to>
HW0009.02	Concrete driveway		m2		Measurement: Square metres restored based on actual length by Minimum Trench Width. Limits of Accuracy: -To be inserted>
HW0009.03	Exposed aggregate & stamped driveway		m2		Measurement: Square metres restored based on actual length by Minimum Trench Width. Limits of Accuracy: <to be="" inserted=""></to>
HW0009.04	Concrete footpath		m2		Measurement: Square metres restored based on actual length by Minimum Trench Width. Limits of Accuracy: -To be inserted>
HW0009.05	Bitumen footpath		m2		Measurement: Square metres restored based on actual length by Minimum Trench Width. Limits of Accuracy: <to be="" inserted=""></to>
HW0009.06	Gravel pavement		m2		Measurement: Square metres restored based on actual length by Minimum Trench Width. Limits of Accuracy: <to be="" inserted=""></to>
HW0009.07	Bitumen pavement		m2		Measurement: Square metres restored based on actual length by Minimum Trench Width. Limits of Accuracy: -To be inserted>
HW0009.08	AC pavement		m2		Measurement: Square metres restored based on actual length by Minimum Trench Width. Limits of Accuracy: CTo he inserted>
HW0009.09	Pavers		m2		Measurement: Square metres restored based on actual length by Minimum Trench Width. Limits of Accuracy: -To be inserted>
HW0009.10	Turf		m2		Measurement: Square metres restored based on actual length by Minimum Trench Width. Limits of Accuracy: <to be="" inserted=""></to>
HW0009.11	Grass seeding		m2		Measurement: Square metres restored based on actual length by Minimum Trench Width. Limits of Accuracy: ≤To be inserted>
HW0009.12	Hydromulch		m2		Measurement: Square metres restored based on actual length by Minimum Trench Width. Limits of Accuracy: -To be inserted>
HW0010	Extra over item for Excavation in rock and disposal of excess excavated material		m3		Measurement: Cubic metres excavated based on thickness of rock by actual length by Minimum Trench Width. Limits of Accuracy: -To be inserted>.
HW0011	Acid sulphate soil				
HW0011.01	Initial testing for acid sulphate soils and prepare and submit report		per test		Submit: Result for each test. Limits of Accuracy: <to be="" inserted="">.</to>
HW0011.02	Establish treatment facility		Item		Payment: 100% after completion of treatment facility.
HW0011.03	Handling, treatment and testing of acid sulphate soils		m3		Measurement: Cubic metres excavated based on thickness of ASS by actual length by Minimum Trench Width. Submit: Test results confirming satisfactory treatment. Limits of Accuracy: Cto be inserted?
HW0011.04	Disposal off site of acid sulphate soil		tonne		Measurement: Tonnes transported from the site. Submit: Weighbridge dockets. Limits of Accuracy: <to be="" inserted≻<="" td=""></to>
HW0012	Preconstruction record				
HW0012.01	Photographic	Item	Lump Sum	\$	- Payment: 70% on submission of the Photographic record. Remainder at Practical Completion.
HW0012.02	Video	Item	Lump Sum	\$	Payment: 70% on submission of the Video record. Remainder at Practical Completion.
HW0012.03	CCTV	Item	Lump Sum	\$	Payment: 70% on submission of the CCTV record. Remainder at Practical Completion.
HW0013	Work as Constructed Information <insert min<br="">\$></insert>	ltem	Lump Sum	\$	Payment: 100% at Practical Completion.

	TOTAL ESTIMATED CONTRACT AWARD SUM	\$	930,379.98
	PRE-CONSTRUCTION COST (Table 10)		
HW0016	Design	s	139.557.00
HW0017	Project Management of Design	ŝ	37,911,4
HW0018	Land Matters	ŝ	37,911.44
HW0024	Community Consultation	Ť	
1111002.4	Sub Total(B1)	s	177.468.4
	Pre construction contingency (30% of B1)	ŝ	53.240.5
	TOTAL PRE-CONSTRUCTION COST (B)	s	230,708.9
	CONSTRUCTION COST		
		s	930,379.9
HW0019	CONSTRUCTION COST	s	930,379.9
HW0019 HW0020	CONSTRUCTION COST Total Estimated Contract Award Sum (A)		930,379.9 - -
	CONSTRUCTION COST Total Estimated Contract Award Sum (A) Principal Supplied Pipe (as applicable)	\$	930,379.9 - - -
HW0020	CONSTRUCTION COST Total Estimated Contract Award Sum (A) Principal Supplied Pipe (as applicable) Principal Supplied Valves and Flowmeters (as applicable)	\$	930,379.9 - - - 187,500.0
HW0020 HW0021	CONSTRUCTION COST Total Estimated Contract Award Sum (A) Principal Supplied Pipe (as applicable) Principal Supplied Avares and Flowmeters (as applicable) Principal Supplied Fittings (as applicable)	s s s	- - 187,500.0
HW0020 HW0021 HW0022	CONSTRUCTION COST Total Estimated Contract Award Sum (A) Principal Supplied Pipe (as applicable) Principal Supplied Valves and Flormeters (as applicable) Principal Supplied Fittings (as applicable) Pump Station HY Dever Supply	s s s	- - 187,500.0 93,038.0
HW0020 HW0021 HW0022	CONSTRUCTION COST Total Estimated Contract Award Sum (A) Principal Supplied Pipe (as applicable) Principal Supplied Valves and Flowmeters (as applicable) Principal Supplied Fittings (as applicable) Pump Station HV Power Supply Construction Management (Table 11)	\$ \$ \$ \$ \$	-
HW0020 HW0021 HW0022	CONSTRUCTION COST Total Estimated Contract Award Sum (A) Principal Supplied Pipe (as applicable) Principal Supplied Valves and Hommeters (as applicable) Principal Supplied Fittings (as applicable) Pump Station Hower Supply Construction Management (Table 11) Sub Total (C1)	* * * * * * *	- 187,500.0 93,038.0 1,210,917.9

PROJECT DESCRIPTION:

Option 1B Pump Station DN600

Item No.	Item Description	Qty	Unit	Rate \$/Unit	Amount	Application of Schedule of Rates
					\$	
HW0001	All work not included elsewhere in this	Item	Lump Sum	\$ 16,537.00	\$ 16,537.00	Payment: Maximum of 10% shall be due each month until 70% of the
	schedule					amount has been paid. Remainder at Practical Completion.
HW0002	Site Establishment <insert \$="" max=""></insert>	Item	Lump Sum	\$ 15,000.00	\$ 15,000.00	Payment: 100% after completion.
HW0003	Site Disestablishment <insert \$="" min=""></insert>	Item	Lump Sum	\$ 15,000.00	\$ 15,000.00	Payment: 100% after completion.
HW0004	Preparation and implementation of the	Item	Lump Sum	\$ 3,000.00	\$ 3,000.00	Payment: Maximum of 30% on submission of complying Construction
	Construction EMP					EMP, then 10% per month up to maximum of 80%. Remainder at
						Practical Completion.
						Submit: Construction EMP.
HW0005	Preparation and implementation of the Safety	Item	Lump Sum	\$ 5,000.00	\$ 5,000.00	Payment: Maximum of 30% on submission of complying plan, then
	Management Plan.					10% per month up to maximum of 80%. Remainder at Practical
						Completion.
						Submit: Safety Management Plan.
HW0006	Preparation and implementation of the Traffic	Item	Lump Sum	\$ 4,200.00	\$ 4,200.00	Payment: Maximum of 30% on submission of complying Traffic Control
	Control Plan.					Plan, then 10% per month up to maximum of 80%. Remainder at
						Practical Completion.
HW0007	Preparation and Implementation of Quality	Item	Lump Sum	\$ 9,068.48	\$ 9,068.48	Payment: Maximum of 30% on submission of complying Quality
	Management Plan					Management Plan, then 10% per month up to maximum of 80%.
						Remainder at Practical Completion.
HW0008	Community Consultation	Item	Lump Sum	s -	s -	Payment: 10% per month up to maximum of 70%. Remainder at
						Practical Completion.

Sewer Pun	nping Station 200kW			Rate			
Item	Pump Station - Name	Qty	Unit	Kate \$/Unit		Amount \$	Application of Schedule of Rates
HW0101	Sewer Pumping Station 200kW 7m dia 2 Pump(s)						
	Clear, excavate & backfill in OTR conditions, supply and construct pipework, pump station, includes siding aluminium hatch covers, screens & ancillary metal work & fittings. Supply & place formwork, reinforcement, concrete, roof slab, thrust blocks.	Item	Lump Sum	\$ 369,000.00	\$	369,000.0	(Payment: <insert appropriate="" of="" percentages="" reflect="" the="" to="" value="" work<br="">at key milestones og excavator, pump vell, metalwork etc>. Submit: Relevant Quality Records.</insert>
HW0102	Pumps for Pumping Stations - Supply and install pumps and associated fittings, connection to pipework, testing and commissioning.	2	Lump Sum	\$ 54,000.00	\$	108,000.0	Payment: <insert appropriate="" eg<br="" for="" key="" milestones="" percentages="">installation, precommissioning, commissioning>. Submit: Relevant Quality Records including those for pump test.</insert>
HW0103	Pumping Station Electricals						
HW0103.01	Pit and Conduit System	Item	Lump Sum	\$ 10,975.00	\$	10,975.00	Payment: Percentage of work completed. Submit: Relevant Quality Records.
HW0103.02	LV Station Power Supply	Item	Lump Sum	\$ 14,375.00	\$	14,375.00	Payment: Percentage of work completed. Submit: Relevant Quality Records.
HW0103.03	Station By-Pass arrangements	Item	Lump Sum		\$	-	Payment: Percentage of work completed. Submit: Relevant Quality Records.
HW0103.04	Electrical Demolition works	Item	Lump Sum		\$		Payment: Percentage of work completed. Submit: Relevant Quality Records.
HW0103.05	Switchboard	Item	Lump Sum	\$ 166,037.50	ŵ	166,037.50	Payment: Percentage of work completed. Submit: Relevant Quality Records.
HW0103.06	PLC / Telemetry Hardware	Item	Lump Sum	\$ 14,437.50	ŵ	14,437.50	Payment: Percentage of work completed. Submit: Relevant Quality Records.
HW0103.07	PLC / Telemetry / Scada Engineering and Software Development	Item	Lump Sum	\$ 28,450.00	\$	28,450.00	Submit: Relevant Quality Records.
HW0103.08	Stainless Steel Generator Box Cable Tray & Metering Box	Item	Lump Sum	\$ 22,362.50	\$	22,362.50	Payment: Percentage of work completed. Submit: Relevant Quality Records.
HW0103.09	Building Services (Electrical)	Item	Lump Sum	\$ 13,125.00	\$	13,125.00	Payment: Percentage of work completed. Submit: Relevant Quality Records.
HW0103.10	Pressure Transmitter/Gauge Board	Item	Lump Sum	s -	\$		Payment: Percentage of work completed. Submit: Relevant Quality Records.
HW0103.11	Installation/Cabling (Electrical)	Item	Lump Sum	\$ 26,625.00	\$	26,625.00	Payment: Percentage of work completed. Submit: Relevant Quality Records.
HW0104	Empty						
HW0105	Empty						
HW0106	Service Location	Item	Lump Sum	\$ 2,940.00	\$	2,940.0	Payment: Maximum of 10% shall be due each month until 70% of the amount has been paid. Remainder at Practical Completion.
HW0107	Excavation below design depth including disposal of excavated material (Contingent Item)	0	m3	\$ 70.00	\$		Bindum rass deer practice and visit actual of the second s
HW0108	Extra over Civil Works for excavation in rock:	0	m3	\$ 120.00	\$		Measurement: Actual cubic metres of rock excavated within the desig dimensions of the structure. Submit: Relevant Quality Records. Limits of Accuracy: Cto be inserted.
HW0109	Cut and fill earthworks including compaction:	0	m3	\$ 25.00	w		Measurement: Actual cubic metres of earthworks completed in accordance with the design. Submit: Relevant Quality Records. Limits of Accuracy: Cto be inserted.

HW0110	Supply & place ballast (Contingent Item)	0	tonne	\$ 90.0	C \$	Measurement: Actual tonnes placed as directed. Submit: Relevant Quality Records including certified weighbridge dockets. Limits of Accuracy: <to be="" inserted=""></to>
HW0111	Import and place select fill including compaction <may be="" contingent="" item=""></may>	0	m3	\$ 65.0	c s	Measurement: Actual cubic metres placed as directed by the Superintendent or placed in accordance with the design. Submit: Relevant Quality Records.
HW0112	Construct access road and hardstand					Limits of Accuracy: <to be="" inserted="">.</to>
HW0112.01	Prepare subgrade		m2	\$ 4.2		Measurement: Actual square metres in accordance with the design.
						Submit: Relevant Quality Records. Limits of Accuracy: <to be="" inserted="">.</to>
HW0112.02	Supply, place and compact 150mm thick basecourse Supply, place and compact 200mm thick		m2 m2	\$ 37.0 \$ 47.0	c	Measurement: Actual square metres in accordance with the design. Submit: Relevant Quality Records. Limits of Accuracy: <to be="" inserted="">. Measurement: Actual square metres in accordance with the design.</to>
	basecourse					Submit: Relevant Quality Records. Limits of Accuracy: <to be="" inserted="">.</to>
HW0112.04	Supply, place and compact 250mm thick basecourse		m2	\$ 51.0	G	Measurement: Actual square metres in accordance with the design. Submit: Relevant Quality Records. Limits of Accuracy: <to be="" inserted="">.</to>
HW0112.05	Supply, place and compact two coat bitumen seal		m2	\$ 26.0	c	Measurement: Actual square metres in accordance with the design. Submit: Relevant Quality Records. Limits of Accuracy: <to be="" inserted="">.</to>
HW0112.06	Supply, place and compact 30mm thick asphalt bitumen seal		m2	\$ 37.0	G	Measurement: Actual square metres in accordance with the design. Submit: Relevant Quality Records. Limits of Accuracy: <to be="" inserted="">.</to>
HW0112.07	Concrete kerb & gutter	0	m	\$ 110.00		Measurement: Actual metres in accordance with the design. Submit: Relevant Quality Records. Limits of Accuracy: <to be="" inserted="">.</to>
HW0112.08	Concrete driveway	0	m2	\$ 178.00) \$	Measurement: Actual square metres in accordance with the design. Submit: Relevant Quality Records. Limits of Accuracy: <to be="" inserted="">.</to>
HW0113	Supply all plant, material and labour to					
HW0113.01	undertake the following Piling works: Treated timber mini piles		m			Measurement: Actual metres in accordance with the design. Submit: Relevant Quality Records. Limits of Accuracy: <to be="" inserted="">.</to>
HW0113.02	Reinforced concrete bored piles	Item	Lump Sum		s	Payment: Percentage of work completed. <consider %="" at<br="" payments="">milestones> Submit: Relevant Quality Records.</consider>
HW0114	Supply all plant, material and labour to undertake the following Retaining Wall works:					Measurement: Actual square metres in accordance with the design. Submit: Relevant Quality Records.
HW0114.01	Timber(Koppers Log) up to 1.5m high		m2	\$ 300.0	d	Limits of Accuracy: <to be="" inserted="">.</to>
HW0114.02	Concrete Keystone up to 1m high		m2	\$ 380.0	d	Limits of Accuracy: <to be="" inserted="">.</to>
HW0114.03	Concrete Keystone between 1m and 3m high		m2	\$ 560.0	c	Limits of Accuracy: <to be="" inserted="">.</to>
HW0114.04	Concrete Keystone greater than 3m high Concrete Crib Block up to 2m high		m2 m2	\$ 560.0 \$ 630.0		Limits of Accuracy: <to be="" inserted="">.</to>
HW0114.05	Concrete Crib Block up to 2m high Concrete Crib Block between 2m and 3m		m2 m2	\$ 630.0		Limits of Accuracy: <to be="" inserted="">. Limits of Accuracy: <to be="" inserted="">.</to></to>
HW0114.06	Acid sulphate soil		m2	\$ 704.0		Limits of Accuracy: <10 be inserted>.
HW0115.01	Initial testing for acid sulphate soils and	5	per test	\$ 110.00	\$ 550.0	Submit: Result for each test.
	prepare and submit report		perteat	• 110.00	÷ 555.01	Limits of Accuracy: <to be="" inserted=""></to>
HW0115.02	Establish treatment facility	Item	Lump Sum		\$	Payment: 100% after completion of treatment facility.
HW0115.03	Handling, treatment and testing of acid sulphate soils		m3	\$ 60.00		Measurement: Cubic metres within the design cross section of the structure for which excavation has been undertaken. Submit: Test results confirming satisfactory treatment.
HW0115.04	Disposal off site of acid sulphate soil		tonne	\$ 122.00		Limits of Accuracy: <to be="" inserted=""> Measurement: Tonnes transported from the site. Submit: Weighbridge dockets.</to>
HW0116	Series Pump Pit Structure	ltem	Lump Sum		s	Limits of Accuracy: <to be="" inserted=""> Payment: <insert appropriate="" at="" key<br="" of="" percentages="" reflect="" the="" to="" value="" work="">milestones eg excavation, reinforced concrete, metalwork etc>.</insert></to>
HW0117	Supply and Install valve pit concrete formwork, reinforced concrete complete with aluminium tread plate covers and including excavation and backfill	ltem	Lump Sum	s	· \$	Submit: Relevant Quality Records. Payment: <inset appropriate="" of="" percentages="" reflect="" the="" to="" value="" work<br="">at key milestones eg excavation, reinforced concrete, metalwork etc>. Submit: Relevant Quality Records.</inset>
HW0118	Supply and install pipework items inside valve pit	Item	Lump Sum	\$ 19,270.0	\$ 19,270.0	Payment: Valued at percentage of work completed. Retention of 20% <or other="" percentage=""> until satisfactory testing. Submit: Relevant Quality Records.</or>
HW0119	Supply and Install additional pipe Items outside station	ltem	Lump Sum	S	s	Payment: Valued at percentage of work completed. Retention of 20% <or other="" percentage=""> until satisfactory testing. Submit: Relevant Quality Records.</or>
HW0120	Supply and install pipework items inside station	Item	Lump Sum	s	· s	Payment: Valued at percentage of work completed. Retention of 20% <or other="" percentages=""> until satisfactory testing. Submit: Relevant Quality Records.</or>
HW0121	Supply and install Type 2 or 4 flow relief structures in accordance with Drgs SCP-502 and SCP-505	Item	Lump Sum		s	Payment: Valued at percentage of work completed. Retention of 20% <or other="" percentage=""> until satisfactory testing. Submit: Relevant Quality Records.</or>
HW0122	Supply and install emergency storage structures		L/m			Payment: Valued at percentage of work completed. Retention of 20% <or other="" percentage=""> until satisfactory testing. Submit: Relevant Quality Records.</or>

HW0123	Supply and install fan forced ventilation	Item	Lump Sum		\$	Payment: Valued at percentage of work completed. Retention of 20% <or other="" percentage=""> until satisfactory testing.</or>
						Submit: Relevant Quality Records.
HW0124	Supply and install Soil Bed Filter	Item	Lump Sum		\$	Payment: Valued at percentage of work completed. Retention of 20%
						<or other="" percentage=""> until satisfactory testing.</or>
						Submit: Relevant Quality Records.
HW0125	Supply and Install Strainers	Item	Lump Sum		s	Payment: Valued at percentage of work completed. Retention of 20%
						<or other="" percentage=""> until satisfactory testing.</or>
						Submit: Relevant Quality Records.
HW0126	Supply and Install Series Bypass	Item	Lump Sum		\$	Payment: Valued at percentage of work completed up to 80%.
						Remainder at Practical Completion.
						Submit: Relevant Quality Records.
HW0127	Landscaping	Item	Lump Sum	\$	S	Payment: 100% at completion.
						Submit: Relevant Quality Records.
HW0128	Miscellaneous					
HW0129	Preparation and submission of Operation and	Item	Lump Sum		ş -	Payment: 100% at Practical Completion.
	Maintenance Information		-			Submit: Complying Work As Constructed Information.
HW0130	Pre commissioning and commissioning	Item	Lump Sum	\$ 8,000.00	\$ 8,000.00	Payment: 50% at completion of satisfactory precommissioning.
						Remainder at Practical Completion.
						Submit: Relevant Quality Records.
HW0131	Preparation and submission of Work as	Item	Lump Sum	\$ 6,000.00	\$ 6,000.00	Payment: 100% at Practical Completion.
	Constructed Information					Submit: Complying Work As Constructed Information.
HW1SP	Sub Total				\$810,148	

Item No.	Item Description	Qty	Unit	Amount \$	Application of Schedule of Rates
HW0009	Restoration - Pipelines:				Payment: 100% after completion.
HW0009.01	Concrete kerb & gutter		m		Measurement: Lineal metres restored within Minimum Trench Width. Limits of Accuracy: <to be="" inserted="">.</to>
HW0009.02	Concrete driveway		m2		Measurement: Square metres restored based on actual length by Minimum Trench Width. Limits of Accuracy: <to be="" inserted=""></to>
HW0009.03	Exposed aggregate & stamped driveway		m2		Measurement: Square metres restored based on actual length by Minimum Trench Width. Limits of Accuracy: <to be="" inserted=""></to>
HW0009.04	Concrete footpath		m2		Measurement: Square metres restored based on actual length by Minimum Trench Width. Limits of Accuracy: <to be="" inserted=""></to>
HW0009.05	Bitumen footpath		m2		Measurement: Square metres restored based on actual length by Minimum Trench Width. Limits of Accuracy: <to be="" inserted=""></to>
HW0009.06	Gravel pavement		m2		Measurement: Square metres restored based on actual length by Minimum Trench Width. Limits of Accuracy: <to be="" inserted=""></to>
HW0009.07	Bitumen pavement		m2		Measurement: Square metres restored based on actual length by Minimum Trench Width. Limits of Accuracy: <to be="" inserted=""></to>
HW0009.08	AC pavement		m2		Measurement: Square metres restored based on actual length by Minimum Trench Width. Limits of Accuracy: CTo be inserted>
HW0009.09	Pavers		m2		Measurement: Square metres restored based on actual length by Minimum Trench Width. Limits of Accuracy: <to be="" inserted=""></to>
HW0009.10	Turf		m2		Measurement: Square metres restored based on actual length by Minimum Trench Width. Limits of Accuracy: <to be="" inserted=""></to>
HW0009.11	Grass seeding		m2		Measurement: Square metres restored based on actual length by Minimum Trench Width. Limits of Accuracy: <to be="" inserted=""></to>
HW0009.12	Hydromulch		m2		Measurement: Square metres restored based on actual length by Minimum Trench Width. Limits of Accuracy: <to be="" inserted=""></to>
HW0010	Extra over item for Excavation in rock and disposal of excess excavated material		m3		Measurement: Cubic metres excavated based on thickness of rock by actual length by Minimum Trench Width. Limits of Accuracy: <to be="" inserted="">.</to>
HW0011	Acid sulphate soil				
HW0011.01	Initial testing for acid sulphate soils and prepare and submit report		per test		Submit: Result for each test. Limits of Accuracy: <to be="" inserted="">.</to>
HW0011.02	Establish treatment facility		Item		Payment: 100% after completion of treatment facility.
HW0011.03	Handling, treatment and testing of acid sulphate soils		m3		Measurement: Cubic metres excavated based on thickness of ASS by actual length by Minimum Trench Width. Submit: Test results confirming satisfactory treatment. Limits of Accuracy: Cho lengerted?
HW0011.04	Disposal off site of acid sulphate soil		tonne		Measurement: Tonnes transported from the site. Submit: Weighbridge dockets. Limits of Accuracy: <to be="" inserted=""></to>
HW0012	Preconstruction record				
HW0012.01	Photographic	Item	Lump Sum	\$	- Payment: 70% on submission of the Photographic record. Remainder at Practical Completion.
HW0012.02	Video	Item	Lump Sum	\$	Payment: 70% on submission of the Video record. Remainder at
HW0012.03	CCTV	Item	Lump Sum	 \$	Practical Completion. Payment: 70% on submission of the CCTV record. Remainder at Practical Completion.
HW0013	Work as Constructed Information <insert min<br="">\$></insert>	Item	Lump Sum	\$	Payment: 100% at Practical Completion.

	TOTAL ESTIMATED CONTRACT AWARD SUM	\$	877,952.98
	PRE-CONSTRUCTION COST (Table 10)		
HW0016	Design	\$	131,692.95
HW0017	Project Management of Design	\$	36,338.59
HW0018	Land Matters	\$	-
HW0024	Community Consultation		
	Sub Total(B1)	\$	168,031.5
	Pre construction contingency (30% of B1)	\$	50,409.46
	TOTAL PRE-CONSTRUCTION COST (B)	s	218,441.0
	CONSTRUCTION COST		
-			077.050.0
HW1019	Total Estimated Contract Award Sum (A)	s	877,952.9
	Total Estimated Contract Award Sum (A) Principal Supplied Pipe (as applicable)	\$	877,952.9
HW0020	Total Estimated Contract Award Sum (A) Principal Supplied Pipe (as applicable) Principal Supplied Valves and Flowmeters (as applicable)	\$	877,952.9
HW0020 HW0021	Total Estimated Contract Award Sum (A) Principal Supplied Pipe (as applicable) Principal Supplied Valves and Flowmeters (as applicable) Principal Supplied Fittings (as applicable)	s s s	877,952.98 - - - 187,500.00
HW0020	Total Estimated Contract. Award Sum (A) Principal Supplied Pipe (as applicable) Principal Supplied Valves and Flowmeters (as applicable) Principal Supplied Fittings (as applicable) Pump Station IV Power Supply	s s s	- - 187,500.00
HW0020 HW0021 HW0022	Total Estimated Contract Award Sum (A) Principal Supplied Pipe (as applicable) Principal Supplied Valves and Flowmeters (as applicable) Principal Supplied Fittings (as applicable) Pump Station HV Power Supply Construction Management (Table 11)	s s s	- - 187,500.01 87,795.31
HW0020 HW0021 HW0022	Total Elimitatel Contract Award Sum (A) Principal Supplied Pale (as applicable) Principal Supplied Valves and Flowmeters (as applicable) Principal Supplied Fittings (as applicable) Pump Station HY Power Supply Construction Management (Table 11) Sub Total (C1)	****	187,500.01 87,795.31 1,153,248.21
HW0020 HW0021 HW0022	Total Estimated Contract Award Sum (A) Principal Supplied Pipe (as applicable) Principal Supplied Valves and Flowmeters (as applicable) Principal Supplied Fittings (as applicable) Pump Station HV Power Supply Construction Management (Table 11)	s s s s	- - 187,500.01 87,795.31

PROJECT DESCRIPTION:

Option 1c Pump Station DN750

Item No.	Item Description	Qty	Unit	Rate \$/Unit	Amount	Application of Schedule of Rates
					\$	
HW0001	All work not included elsewhere in this	Item	Lump Sum	\$ 22,165.00	\$ 22,165.00	Payment: Maximum of 10% shall be due each month until 70% of the
	schedule					amount has been paid. Remainder at Practical Completion.
HW0002	Site Establishment <insert \$="" max=""></insert>	Item	Lump Sum	\$ 30,000.00	\$ 30,000.00	Payment: 100% after completion.
HW0003	Site Disestablishment <insert \$="" min=""></insert>	Item	Lump Sum	\$ 30,000.00	\$ 30,000.00	Payment: 100% after completion.
HW0004	Preparation and implementation of the	Item	Lump Sum	\$ 3,000.00	\$ 3,000.00	Payment: Maximum of 30% on submission of complying Construction
	Construction EMP					EMP, then 10% per month up to maximum of 80%. Remainder at
						Practical Completion.
						Submit: Construction EMP.
HW0005	Preparation and implementation of the Safety	Item	Lump Sum	\$ 5,000.00	\$ 5,000.00	Payment: Maximum of 30% on submission of complying plan, then
	Management Plan.					10% per month up to maximum of 80%. Remainder at Practical
						Completion.
						Submit: Safety Management Plan.
HW0006	Preparation and implementation of the Traffic	Item	Lump Sum	\$ 4,200.00	\$ 4,200.00	Payment: Maximum of 30% on submission of complying Traffic Control
	Control Plan.					Plan, then 10% per month up to maximum of 80%. Remainder at
						Practical Completion.
HW0007	Preparation and Implementation of Quality	Item	Lump Sum	\$ 11,882.60	\$ 11,882.60	Payment: Maximum of 30% on submission of complying Quality
	Management Plan					Management Plan, then 10% per month up to maximum of 80%.
						Remainder at Practical Completion.
HW0008	Community Consultation	Item	Lump Sum	\$-	\$	Payment: 10% per month up to maximum of 70%. Remainder at
						Practical Completion.

				Rate		Amount		Application of Schedule of Rates
Item	Pump Station - Name	Qty	Unit	\$	/Unit		\$	
HW0101	Sewer Pumping Station 450kW 7m dia 2 Pump(s)							
	Clear, excavate & backfil in OTR conditions, supply and construct pipework, pump station, includes siding aluminium hatch covers, screens & ancillary metal work & fittings. Supply & picae formwork, reinforcement, concrete, roof slab, thrust blocks.	Item	Lump Sum	\$	369,000.00	\$	369,000.01	Payment: <linsert appropriate="" of="" percentages="" reflect="" the="" to="" value="" word<br="">at key milestones eg excavation, pump well, metalwork etc>. Submit: Relevant Quality Records.</linsert>
HW0102	Pumps for Pumping Stations - Supply and install pumps and associated fittings, connection to pipework, testing and commissioning.	2	Lump Sum	s	109,162.50	\$	218,325.0	Payment: <insert appropriate="" eg<br="" for="" key="" milestones="" percentages="">installation, precommissioning, commissioning>. Submit: Relevant Quality Records including those for pump test.</insert>
HW0103	Pumping Station Electricals							
HW0103.01	Pit and Conduit System	Item	Lump Sum	\$	15,500.00	\$	15,500.00	Payment: Percentage of work completed. Submit: Relevant Quality Records.
HW0103.02	LV Station Power Supply	Item	Lump Sum	\$	32,000.00	\$	32,000.00	Payment: Percentage of work completed. Submit: Relevant Quality Records.
HW0103.03	Station By-Pass arrangements	Item	Lump Sum			\$	-	Payment: Percentage of work completed. Submit: Relevant Quality Records.
HW0103.04	Electrical Demolition works	Item	Lump Sum			\$	-	Payment: Percentage of work completed. Submit: Relevant Quality Records.
HW0103.05	Switchboard	Item	Lump Sum	\$	299,000.00	\$	299,000.00	Payment: Percentage of work completed. Submit: Relevant Quality Records.
HW0103.06	PLC / Telemetry Hardware	Item	Lump Sum	\$	14,437.50	\$	14,437.50	Payment: Percentage of work completed. Submit: Relevant Quality Records.
HW0103.07	PLC / Telemetry / Scada Engineering and Software Development	Item	Lump Sum	\$	28,450.00	\$	28,450.00	Payment: Percentage of work completed. Submit: Relevant Quality Records.
HW0103.08	Stainless Steel Generator Box Cable Tray 8 Metering Box	Item	Lump Sum	\$	26,462.50	\$	26,462.50	Payment: Percentage of work completed. Submit: Relevant Quality Records.
HW0103.09	Building Services (Electrical)	Item	Lump Sum	\$	20,625.00	\$	20,625.00	Payment: Percentage of work completed. Submit: Relevant Quality Records.
HW0103.10	Pressure Transmitter/Gauge Board	Item	Lump Sum	\$		\$	-	Payment: Percentage of work completed. Submit: Relevant Quality Records.
HW0103.11	Installation/Cabling (Electrical)	Item	Lump Sum	\$	31,000.00	\$	31,000.00	Payment: Percentage of work completed. Submit: Relevant Quality Records.
HW0104	Empty							
HW0105	Empty							
HW0106	Service Location	Item	Lump Sum	\$	2,940.00	\$	2,940.0	Payment: Maximum of 10% shall be due each month until 70% of the amount has been paid. Remainder at Practical Completion.
HW0107	Excavation below design depth including disposal of excavated material (Contingent Item)	0	m3	\$	70.00	ŝ		Measurement: Cubic metres excavated based on thickness of excavation by design cross section of the structure for which excavation has been undertaken. Submit: Relevant Quality Records. Limits of Accuracy: CA be inserted.
HW0108	Extra over Civil Works for excavation in rock:	0	m3	\$	120.00	ŵ		Measurement: Actual cubic metres of rock excavated within the desi dimensions of the structure. Submit: Relevant Quality Records. Limits of Accuracy: <to he="" inserted=""></to>
HW0109	Cut and fill earthworks including compaction:	0	m3	s	25.00	\$		Measurement: Actual cubic metres of earthworks completed in accordance with the design. Submit: Relevant Quality Records. Limits of Accuracy: <to be="" inserted=""></to>

HW0110	Supply & place ballast (Contingent Item)	0	tonne	\$ 90.0	C \$	Measurement: Actual tonnes placed as directed. Submit: Relevant Quality Records including certified weighbridge dockets. Limits of Accuracy: <to be="" inserted=""></to>
HW0111	Import and place select fill including compaction <may be="" contingent="" item=""></may>	0	m3	\$ 65.0	c s	Measurement: Actual cubic metres placed as directed by the Superintendent or placed in accordance with the design. Submit: Relevant Quality Records.
HW0112	Construct access road and hardstand					Limits of Accuracy: <to be="" inserted="">.</to>
HW0112.01	Prepare subgrade		m2	\$ 4.2		Measurement: Actual square metres in accordance with the design.
						Submit: Relevant Quality Records. Limits of Accuracy: <to be="" inserted="">.</to>
HW0112.02	Supply, place and compact 150mm thick basecourse Supply, place and compact 200mm thick		m2 m2	\$ 37.0 \$ 47.0	c	Measurement: Actual square metres in accordance with the design. Submit: Relevant Quality Records. Limits of Accuracy: <to be="" inserted="">. Measurement: Actual square metres in accordance with the design.</to>
	basecourse					Submit: Relevant Quality Records. Limits of Accuracy: <to be="" inserted="">.</to>
HW0112.04	Supply, place and compact 250mm thick basecourse		m2	\$ 51.0	G	Measurement: Actual square metres in accordance with the design. Submit: Relevant Quality Records. Limits of Accuracy: <to be="" inserted="">.</to>
HW0112.05	Supply, place and compact two coat bitumen seal		m2	\$ 26.0	c	Measurement: Actual square metres in accordance with the design. Submit: Relevant Quality Records. Limits of Accuracy: <to be="" inserted="">.</to>
HW0112.06	Supply, place and compact 30mm thick asphalt bitumen seal		m2	\$ 37.0	G	Measurement: Actual square metres in accordance with the design. Submit: Relevant Quality Records. Limits of Accuracy: <to be="" inserted="">.</to>
HW0112.07	Concrete kerb & gutter	0	m	\$ 110.00		Measurement: Actual metres in accordance with the design. Submit: Relevant Quality Records. Limits of Accuracy: <to be="" inserted="">.</to>
HW0112.08	Concrete driveway	0	m2	\$ 178.00) \$	Measurement: Actual square metres in accordance with the design. Submit: Relevant Quality Records. Limits of Accuracy: <to be="" inserted="">.</to>
HW0113	Supply all plant, material and labour to					
HW0113.01	undertake the following Piling works: Treated timber mini piles		m			Measurement: Actual metres in accordance with the design. Submit: Relevant Quality Records. Limits of Accuracy: <to be="" inserted="">.</to>
HW0113.02	Reinforced concrete bored piles	Item	Lump Sum		s	Payment: Percentage of work completed. <consider %="" at<br="" payments="">milestones> Submit: Relevant Quality Records.</consider>
HW0114	Supply all plant, material and labour to undertake the following Retaining Wall works:					Measurement: Actual square metres in accordance with the design. Submit: Relevant Quality Records.
HW0114.01	Timber(Koppers Log) up to 1.5m high		m2	\$ 300.0	d	Limits of Accuracy: <to be="" inserted="">.</to>
HW0114.02	Concrete Keystone up to 1m high		m2	\$ 380.0	d	Limits of Accuracy: <to be="" inserted="">.</to>
HW0114.03	Concrete Keystone between 1m and 3m high		m2	\$ 560.0	c	Limits of Accuracy: <to be="" inserted="">.</to>
HW0114.04	Concrete Keystone greater than 3m high Concrete Crib Block up to 2m high		m2 m2	\$ 560.0 \$ 630.0		Limits of Accuracy: <to be="" inserted="">.</to>
HW0114.05	Concrete Crib Block up to 2m high Concrete Crib Block between 2m and 3m		m2 m2	\$ 630.0		Limits of Accuracy: <to be="" inserted="">. Limits of Accuracy: <to be="" inserted="">.</to></to>
HW0114.06	high Acid sulphate soil		m2	\$ 704.0		Limits of Accuracy: <10 be inserted>.
HW0115.01	Initial testing for acid sulphate soils and	5	per test	\$ 110.00	\$ 550.0	Submit: Result for each test.
	prepare and submit report		perteat	• 110.00	÷ 555.01	Limits of Accuracy: <to be="" inserted=""></to>
HW0115.02	Establish treatment facility	Item	Lump Sum		\$	Payment: 100% after completion of treatment facility.
HW0115.03	Handling, treatment and testing of acid sulphate soils		m3	\$ 60.00		Measurement: Cubic metres within the design cross section of the structure for which excavation has been undertaken. Submit: Test results confirming satisfactory treatment.
HW0115.04	Disposal off site of acid sulphate soil		tonne	\$ 122.00		Limits of Accuracy: <to be="" inserted=""> Measurement: Tonnes transported from the site. Submit: Weighbridge dockets.</to>
HW0116	Series Pump Pit Structure	ltem	Lump Sum		s	Limits of Accuracy: <to be="" inserted=""> Payment: <insert appropriate="" at="" key<br="" of="" percentages="" reflect="" the="" to="" value="" work="">milestones eg excavation, reinforced concrete, metalwork etc>.</insert></to>
HW0117	Supply and Install valve pit concrete formwork, reinforced concrete complete with aluminium tread plate covers and including excavation and backfill	ltem	Lump Sum	s	· \$	Submit: Relevant Quality Records. Payment: <inset appropriate="" of="" percentages="" reflect="" the="" to="" value="" work<br="">at key milestones eg excavation, reinforced concrete, metalwork etc>. Submit: Relevant Quality Records.</inset>
HW0118	Supply and install pipework items inside valve pit	Item	Lump Sum	\$ 19,270.0	\$ 19,270.0	Payment: Valued at percentage of work completed. Retention of 20% <or other="" percentage=""> until satisfactory testing. Submit: Relevant Quality Records.</or>
HW0119	Supply and Install additional pipe Items outside station	ltem	Lump Sum	S	s	Payment: Valued at percentage of work completed. Retention of 20% <or other="" percentage=""> until satisfactory testing. Submit: Relevant Quality Records.</or>
HW0120	Supply and install pipework items inside station	Item	Lump Sum	s	· s	Payment: Valued at percentage of work completed. Retention of 20% <or other="" percentages=""> until satisfactory testing. Submit: Relevant Quality Records.</or>
HW0121	Supply and install Type 2 or 4 flow relief structures in accordance with Drgs SCP-502 and SCP-505	Item	Lump Sum		s	Payment: Valued at percentage of work completed. Retention of 20% <or other="" percentage=""> until satisfactory testing. Submit: Relevant Quality Records.</or>
HW0122	Supply and install emergency storage structures		L/m			Payment: Valued at percentage of work completed. Retention of 20% <or other="" percentage=""> until satisfactory testing. Submit: Relevant Quality Records.</or>

HW0123	Supply and install fan forced ventilation	Item	Lump Sum		\$	Payment: Valued at percentage of work completed. Retention of 20% <or other="" percentage=""> until satisfactory testing.</or>
						Submit: Relevant Quality Records.
HW0124	Supply and install Soil Bed Filter	Item	Lump Sum		\$	Payment: Valued at percentage of work completed. Retention of 20%
						<or other="" percentage=""> until satisfactory testing.</or>
						Submit: Relevant Quality Records.
HW0125	Supply and Install Strainers	Item	Lump Sum		\$	Payment: Valued at percentage of work completed. Retention of 20%
						<or other="" percentage=""> until satisfactory testing.</or>
						Submit: Relevant Quality Records.
HW0126	Supply and Install Series Bypass	Item	Lump Sum		\$	Payment: Valued at percentage of work completed up to 80%.
						Remainder at Practical Completion.
						Submit: Relevant Quality Records.
HW0127	Landscaping	Item	Lump Sum	\$	S	Payment: 100% at completion.
						Submit: Relevant Quality Records.
HW0128	Miscellaneous					
HW0129	Preparation and submission of Operation and	Item	Lump Sum		ş -	Payment: 100% at Practical Completion.
	Maintenance Information		-			Submit: Complying Work As Constructed Information.
HW0130	Pre commissioning and commissioning	Item	Lump Sum	\$ 8,000.00	\$ 8,000.00	Payment: 50% at completion of satisfactory precommissioning.
						Remainder at Practical Completion.
						Submit: Relevant Quality Records.
HW0131	Preparation and submission of Work as	Item	Lump Sum	\$ 6,000.00	\$ 6,000.00	Payment: 100% at Practical Completion.
	Constructed Information					Submit: Complying Work As Constructed Information.
HW1SP	Sub Total				\$1,091,560	

Item No.	Item Description	Qty	Unit	Amount \$	Application of Schedule of Rates
HW0009	Restoration - Pipelines:				Payment: 100% after completion.
HW0009.01	Concrete kerb & gutter		m		Measurement: Lineal metres restored within Minimum Trench Width. Limits of Accuracy: <to be="" inserted="">.</to>
HW0009.02	Concrete driveway		m2		Measurement: Square metres restored based on actual length by Minimum Trench Width. Limits of Accuracy: <to be="" inserted=""></to>
HW0009.03	Exposed aggregate & stamped driveway		m2		Measurement: Square metres restored based on actual length by Minimum Trench Width. Limits of Accuracy: -To be inserted>
HW0009.04	Concrete footpath		m2		Measurement: Square metres restored based on actual length by Minimum Trench Width. Limits of Accuracy: <to be="" inserted=""></to>
HW0009.05	Bitumen footpath		m2		Measurement: Square metres restored based on actual length by Minimum Trench Width. Limits of Accuracy: <to be="" inserted=""></to>
HW0009.06	Gravel pavement		m2		Measurement: Square metres restored based on actual length by Minimum Trench Width. Limits of Accuracy: <to be="" inserted=""></to>
HW0009.07	Bitumen pavement		m2		Measurement: Square metres restored based on actual length by Minimum Trench Width. Limits of Accuracy: -To be inserted>
HW0009.08	AC pavement		m2		Measurement: Square metres restored based on actual length by Minimum Trench Width. Limits of Accuracy: <to be="" inserted=""></to>
HW0009.09	Pavers		m2		Measurement: Square metres restored based on actual length by Minimum Trench Width. Limits of Accuracy: <to be="" inserted=""></to>
HW0009.10	Turf		m2		Measurement: Square metres restored based on actual length by Minimum Trench Width. Limits of Accuracy: <to be="" inserted=""></to>
HW0009.11	Grass seeding		m2		Measurement: Square metres restored based on actual length by Minimum Trench Width. Limits of Accuracy: -To be inserted>
HW0009.12	Hydromulch		m2		Measurement: Square metres restored based on actual length by Minimum Trench Width. Limits of Accuracy: -To be inserted>
HW0010	Extra over item for Excavation in rock and disposal of excess excavated material		m3		Measurement: Cubic metres excavated based on thickness of rock by actual length by Minimum Trench Width. Limits of Accuracy: -To be inserted>.
HW0011	Acid sulphate soil				
HW0011.01	Initial testing for acid sulphate soils and prepare and submit report		per test		Submit: Result for each test.
HW0011.02	Establish treatment facility		ltem		Limits of Accuracy: <to be="" inserted="">. Payment: 100% after completion of treatment facility.</to>
HW0011.03	Handling, treatment and testing of acid sulphate soils		m3		Measurement: Tools after competition readment admity. Measurement: Cubic metrics excavated based on thickness of ASS by actual length by Minimum Trench Width. Submit: Test results confirming satisfactory treatment. Limits of Accuracy: Sch be inserted.
HW0011.04	Disposal off site of acid sulphate soil		tonne		Measurement: Tonnes transported from the site. Submit: Weighbridge dockets. Limits of Accuracy: <to be="" inserted=""></to>
HW0012	Preconstruction record				
HW0012.01	Photographic	Item	Lump Sum	\$	 Payment: 70% on submission of the Photographic record. Remainder at Practical Completion.
HW0012.02	Video	ltem	Lump Sum	\$	 Payment: 70% on submission of the Video record. Remainder at Practical Completion.
HW0012.03	CCTV	Item	Lump Sum	\$	 Payment: 70% on submission of the CCTV record. Remainder at Practical Completion.
HW0013	Work as Constructed Information <insert min<br="">\$></insert>	Item	Lump Sum	s	Payment: 100% at Practical Completion.

ι.	TOTAL ESTIMATED CONTRACT AWARD SUM	\$	1,197,807.60
8.	PRE-CONSTRUCTION COST (Table 10)		
HW0016	Design	\$	143,736.91
HW0017	Project Management of Design	\$	38,747.38
HW0018	Land Matters	\$	-
HW0024	Community Consultation		
	Sub Total(B1)	\$	182,484.29
	Pre construction contingency (30% of B1)	\$	54,745.29
	TOTAL PRE-CONSTRUCTION COST (B)	\$	237,229.58
	CONSTRUCTION COST	1	
	CONSTRUCTION COST Total Estimated Contract Award Sum (A)	s	1,197,807.60
HW0019	Total Estimated Contract Award Sum (A)	s s	1,197,807.60
HW0019 HW0020			1,197,807.60 - -
	Total Estimated Contract Award Sum (A) Principal Supplied Pipe (as applicable)	\$	1,197,807.60 - - -
HW0020	Total Estimated Contract Award Sum (A) Principal Supplied Pipe (as applicable) Principal Supplied Valves and Flowmeters (as applicable)	\$	1,197,807.60 - - - 187,500.00
HW0020 HW0021	Total Estimated Contract. Award Sum (A) Principal Supplied Pipe (as applicable) Principal Supplied Valves and Flowmeters (as applicable) Principal Supplied Fittings (as applicable) Pump Station IV Power Supply	s s s	- - 187,500.00
HW0020 HW0021 HW0022	Total Estimated Contract Award Sum (A) Principal Supplied Pipe (as applicable) Principal Supplied Valves and Flowmeters (as applicable) Principal Supplied Fittings (as applicable)	s s s	-
HW0020 HW0021 HW0022	Total Estimated Contract Award Sum (A) Principal Supplied Pipe (as applicable) Principal Supplied Valves and Flowneters (as applicable) Principal Supplied Fittings (as applicable) Pump Station HV Power Supply Construction Management (Table 11)	\$ \$ \$ \$ \$	- - 187,500.00 119,780.76
HW0020 HW0021 HW0022	Total Elimitated Contract Award Sum (A) Principal Supplied Pie (as applicable) Principal Supplied Valves and Flowmeters (as applicable) Principal Supplied Fittings (as applicable) Pump Station HY Nover Supply Construction Management (Table 11) Sub Total (C1)	* * * * * * *	187,500.00 119,780.76 1,505,088.36

PROJECT DESCRIPTION:

Option 1D Pump Station DN450

Item No.	Item Description	Qty	Unit	Rate \$/Unit	Amount	Application of Schedule of Rates
					\$	
HW0001	All work not included elsewhere in this	Item	Lump Sum	\$ 8,449.00	\$ 8,449.00	Payment: Maximum of 10% shall be due each month until 70% of the
	schedule					amount has been paid. Remainder at Practical Completion.
HW0002	Site Establishment <insert \$="" max=""></insert>	Item	Lump Sum	\$ 15,000.00	\$ 15,000.00	Payment: 100% after completion.
HW0003	Site Disestablishment <insert \$="" min=""></insert>	Item	Lump Sum	\$ 15,000.00	\$ 15,000.00	Payment: 100% after completion.
HW0004	Preparation and implementation of the	Item	Lump Sum	\$ 3,000.00	\$ 3,000.00	Payment: Maximum of 30% on submission of complying Construction
	Construction EMP					EMP, then 10% per month up to maximum of 80%. Remainder at
						Practical Completion.
						Submit: Construction EMP.
HW0005	Preparation and implementation of the Safety	Item	Lump Sum	\$ 5,000.00	\$ 5,000.00	Payment: Maximum of 30% on submission of complying plan, then
	Management Plan.					10% per month up to maximum of 80%. Remainder at Practical
						Completion.
						Submit: Safety Management Plan
HW0006	Preparation and implementation of the Traffic	Item	Lump Sum	\$ 4,200.00	\$ 4,200.00	Payment: Maximum of 30% on submission of complying Traffic Control
	Control Plan.					Plan, then 10% per month up to maximum of 80%. Remainder at
						Practical Completion.
HW0007	Preparation and Implementation of Quality	Item	Lump Sum	\$ 5,024.60	\$ 5,024.60	Payment: Maximum of 30% on submission of complying Quality
	Management Plan					Management Plan, then 10% per month up to maximum of 80%.
						Remainder at Practical Completion.
HW0008	Community Consultation	Item	Lump Sum	s -	s -	Payment: 10% per month up to maximum of 70%. Remainder at
						Practical Completion.

				Rate	A	mount	Application of Schedule of Rates
Item	Pump Station - Name	Qty	Unit	\$/Unit		\$	
HW0101	Sewer Pumping Station 500kW 7m dia Pump(s)						
	Clear, excavate & backfill in OTR conditions, supply and construct pipework, pump station, includes siding aluminium hatch covers, screens & ancillary metal work & fittings. Supply & place formwork, reinforcement, concrete, roof slab, thrust blocks.	Item	Lump Sum	\$ 369,000.	oc s	369,000.0	(Payment: <insert appropriate="" of="" percentages="" reflect="" the="" to="" value="" word<br="">at key milestones eg excavation, pump well, metalwork etc>. Submit: Relevant Quality Records.</insert>
HW0102	Pumps for Pumping Stations - Supply and install pumps and associated fittings, connection to pipework, testing and commissioning.	ltem	Lump Sum		\$		Payment: <insert appropriate="" eg<br="" for="" key="" milestones="" percentages="">installation, precommissioning, commissioning>. Submit: Relevant Quality Records including those for pump test.</insert>
HW0103	Pumping Station Electricals						
HW0103.01	Pit and Conduit System	Item	Lump Sum		\$		Payment: Percentage of work completed. Submit: Relevant Quality Records.
HW0103.02	LV Station Power Supply	Item	Lump Sum		s		Payment: Percentage of work completed. Submit: Relevant Quality Records.
HW0103.03	Station By-Pass arrangements	Item	Lump Sum		\$		Payment: Percentage of work completed. Submit: Relevant Quality Records.
HW0103.04	Electrical Demolition works	Item	Lump Sum		\$		Payment: Percentage of work completed. Submit: Relevant Quality Records.
HW0103.05	Switchboard	Item	Lump Sum		\$		Payment: Percentage of work completed. Submit: Relevant Quality Records.
HW0103.06	PLC / Telemetry Hardware	Item	Lump Sum		\$		Payment: Percentage of work completed. Submit: Relevant Quality Records.
HW0103.07	PLC / Telemetry / Scada Engineering and Software Development	Item	Lump Sum		\$		Payment: Percentage of work completed. Submit: Relevant Quality Records.
HW0103.08	Stainless Steel Generator Box Cable Tray & Metering Box	Item	Lump Sum		\$		Payment: Percentage of work completed. Submit: Relevant Quality Records.
HW0103.09	Building Services (Electrical)	Item	Lump Sum		\$		Payment: Percentage of work completed. Submit: Relevant Quality Records.
HW0103.10	Pressure Transmitter/Gauge Board	Item	Lump Sum		\$		Payment: Percentage of work completed. Submit: Relevant Quality Records.
HW0103.11	Installation/Cabling (Electrical)	Item	Lump Sum		\$		Payment: Percentage of work completed. Submit: Relevant Quality Records.
HW0104	Empty						
HW0105	Empty						
HW0106	Service Location	Item	Lump Sum	\$ 2,940.	x \$	2,940.0	Payment: Maximum of 10% shall be due each month until 70% of the amount has been paid. Remainder at Practical Completion.
HW0107	Excavation below design depth including disposal of excavated material (Contingent Item)	0	m3	\$ 70.	oc s		Resourcement: Cubic metres excavated based on thickness of excavation by design cross section of the structure for which excavation has been undertaken. Submit: Relevant Quality Records. Limits of Accuracy: Can be inserted>
HW0108	Extra over Civil Works for excavation in rock:	0	m3	\$ 120.	DC \$		Limits of accuracy: ≤ in an inserted> Measurement: Actual cubic metres of rock excavated within the des dimensions of the structure. Submit: Relevant Quality Records. Limits of Accuracy: ≤ To be inserted>
HW0109	Cut and fill earthworks including compaction:	0	m3	\$ 25.	DC \$		Measurement: Actual cubic metres of earthworks completed in accordance with the design. Submit: Relevant Quality Records. Limits of Accuracy: STo be inserted>

HW0110	Supply & place ballast (Contingent Item)	0	tonne	\$ 90.0	C \$	Measurement: Actual tonnes placed as directed. Submit: Relevant Quality Records including certified weighbridge dockets. Limits of Accuracy: <to be="" inserted="">.</to>
HW0111	Import and place select fill including compaction <may be="" contingent="" item=""></may>	0	m3	\$ 65.0	c s	Measurement: Actual cubic metres placed as directed by the Superintendent or placed in accordance with the design. Submit: Relevant Quality Records.
HW0112	Construct access road and hardstand					Limits of Accuracy: <to be="" inserted="">.</to>
HW0112.01	Prepare subgrade		m2	\$ 4.2		Measurement: Actual square metres in accordance with the design.
						Submit: Relevant Quality Records. Limits of Accuracy: <to be="" inserted="">.</to>
HW0112.02	Supply, place and compact 150mm thick basecourse Supply, place and compact 200mm thick		m2 m2	\$ 37.0 \$ 47.0	c	Measurement: Actual square metres in accordance with the design. Submit: Relevant Quality Records. Limits of Accuracy: <to be="" inserted="">. Measurement: Actual square metres in accordance with the design.</to>
	basecourse					Submit: Relevant Quality Records. Limits of Accuracy: <to be="" inserted="">.</to>
HW0112.04	Supply, place and compact 250mm thick basecourse		m2	\$ 51.0	G	Measurement: Actual square metres in accordance with the design. Submit: Relevant Quality Records. Limits of Accuracy: <to be="" inserted="">.</to>
HW0112.05	Supply, place and compact two coat bitumen seal		m2	\$ 26.0	c	Measurement: Actual square metres in accordance with the design. Submit: Relevant Quality Records. Limits of Accuracy: <to be="" inserted="">.</to>
HW0112.06	Supply, place and compact 30mm thick asphalt bitumen seal		m2	\$ 37.0	G	Measurement: Actual square metres in accordance with the design. Submit: Relevant Quality Records. Limits of Accuracy: <to be="" inserted="">.</to>
HW0112.07	Concrete kerb & gutter	0	m	\$ 110.00		Measurement: Actual metres in accordance with the design. Submit: Relevant Quality Records. Limits of Accuracy: <to be="" inserted="">.</to>
HW0112.08	Concrete driveway	0	m2	\$ 178.00) \$	Measurement: Actual square metres in accordance with the design. Submit: Relevant Quality Records. Limits of Accuracy: <to be="" inserted="">.</to>
HW0113	Supply all plant, material and labour to					
HW0113.01	undertake the following Piling works: Treated timber mini piles		m			Measurement: Actual metres in accordance with the design. Submit: Relevant Quality Records. Limits of Accuracy: <to be="" inserted="">.</to>
HW0113.02	Reinforced concrete bored piles	Item	Lump Sum		s	Payment: Percentage of work completed. <consider %="" at<br="" payments="">milestones> Submit: Relevant Quality Records.</consider>
HW0114	Supply all plant, material and labour to undertake the following Retaining Wall works:					Measurement: Actual square metres in accordance with the design. Submit: Relevant Quality Records.
HW0114.01	Timber(Koppers Log) up to 1.5m high		m2	\$ 300.0	d	Limits of Accuracy: <to be="" inserted="">.</to>
HW0114.02	Concrete Keystone up to 1m high		m2	\$ 380.0	d	Limits of Accuracy: <to be="" inserted="">.</to>
HW0114.03	Concrete Keystone between 1m and 3m high		m2	\$ 560.0	c	Limits of Accuracy: <to be="" inserted="">.</to>
HW0114.04	Concrete Keystone greater than 3m high Concrete Crib Block up to 2m high		m2 m2	\$ 560.0 \$ 630.0		Limits of Accuracy: <to be="" inserted="">.</to>
HW0114.05	Concrete Crib Block up to 2m high Concrete Crib Block between 2m and 3m		m2 m2	\$ 630.0		Limits of Accuracy: <to be="" inserted="">. Limits of Accuracy: <to be="" inserted="">.</to></to>
HW0114.06	Acid sulphate soil		m2	\$ 704.0		Limits of Accuracy: <10 be inserted>.
HW0115.01	Initial testing for acid sulphate soils and	5	per test	\$ 110.00	\$ 550.0	Submit: Result for each test.
	prepare and submit report		perteat	• 110.00	÷ 555.01	Limits of Accuracy: <to be="" inserted=""></to>
HW0115.02	Establish treatment facility	Item	Lump Sum		\$	Payment: 100% after completion of treatment facility.
HW0115.03	Handling, treatment and testing of acid sulphate soils		m3	\$ 60.00	0	Measurement: Cubic metres within the design cross section of the structure for which excavation has been undertaken. Submit: Test results confirming satisfactory treatment.
HW0115.04	Disposal off site of acid sulphate soil		tonne	\$ 122.00		Limits of Accuracy: <to be="" inserted=""> Measurement: Tonnes transported from the site. Submit: Weighbridge dockets.</to>
HW0116	Series Pump Pit Structure	Item	Lump Sum		s	Limits of Accuracy: <to be="" inserted=""> Payment: <insert appropriate="" at="" key<br="" of="" percentages="" reflect="" the="" to="" value="" work="">milestones eg excavation, reinforced concrete, metalwork etc>.</insert></to>
HW0117	Supply and Install valve pit concrete formwork, reinforced concrete complete with aluminium tread plate covers and including excavation and backfill	ltem	Lump Sum	s	s	Submit: Relevant Quality Records. Payment: <insert appropriate="" of="" percentages="" reflect="" the="" to="" value="" work<br="">at key milestones eg excavation, reinforced concrete, metalwork etc>. Submit: Relevant Quality Records.</insert>
HW0118	Supply and install pipework items inside valve pit	Item	Lump Sum	\$ 19,270.0	\$ 19,270.0	Payment: Valued at percentage of work completed. Retention of 20% <or other="" percentage=""> until satisfactory testing. Submit: Relevant Quality Records.</or>
HW0119	Supply and Install additional pipe Items outside station	Item	Lump Sum	s	s	Payment: Valued at percentage of work completed. Retention of 20% <or other="" percentage=""> until satisfactory testing. Submit: Relevant Quality Records.</or>
HW0120	Supply and install pipework items inside station	Item	Lump Sum	s	· S	Payment: Valued at percentage of work completed. Retention of 20% <or other="" percentage=""> until satisfactory testing. Submit: Relevant Quality Records.</or>
HW0121	Supply and install Type 2 or 4 flow relief structures in accordance with Drgs SCP-502 and SCP-505	Item	Lump Sum		s	Payment: Valued at percentage of work completed. Retention of 20% <or other="" percentage=""> until satisfactory testing. Submit: Relevant Quality Records.</or>
HW0122	Supply and install emergency storage structures		L/m			Payment: Valued at percentage of work completed. Retention of 20% <or other="" percentage=""> until satisfactory testing. Submit: Relevant Quality Records.</or>

HW0123	Supply and install fan forced ventilation	Item	Lump Sum		\$	Payment: Valued at percentage of work completed. Retention of 20% <or other="" percentage=""> until satisfactory testing.</or>
						Submit: Relevant Quality Records.
HW0124	Supply and install Soil Bed Filter	Item	Lump Sum		\$	Payment: Valued at percentage of work completed. Retention of 20%
						<or other="" percentage=""> until satisfactory testing.</or>
						Submit: Relevant Quality Records.
HW0125	Supply and Install Strainers	Item	Lump Sum		s	Payment: Valued at percentage of work completed. Retention of 20%
						<or other="" percentage=""> until satisfactory testing.</or>
						Submit: Relevant Quality Records.
HW0126	Supply and Install Series Bypass	Item	Lump Sum		\$	Payment: Valued at percentage of work completed up to 80%.
						Remainder at Practical Completion.
						Submit: Relevant Quality Records.
HW0127	Landscaping	Item	Lump Sum	\$	S	Payment: 100% at completion.
						Submit: Relevant Quality Records.
HW0128	Miscellaneous					
HW0129	Preparation and submission of Operation and	Item	Lump Sum		ş -	Payment: 100% at Practical Completion.
	Maintenance Information		-			Submit: Complying Work As Constructed Information.
HW0130	Pre commissioning and commissioning	Item	Lump Sum	\$ 8,000.00	\$ 8,000.00	Payment: 50% at completion of satisfactory precommissioning.
						Remainder at Practical Completion.
						Submit: Relevant Quality Records.
HW0131	Preparation and submission of Work as	Item	Lump Sum	\$ 6,000.00	\$ 6,000.00	Payment: 100% at Practical Completion.
	Constructed Information					Submit: Complying Work As Constructed Information.
HW1SP	Sub Total				\$405,760	

Item No.	Item Description	Qty	Unit	Amount \$	Application of Schedule of Rates
HW0009	Restoration - Pipelines:				Payment: 100% after completion.
HW0009.01	Concrete kerb & gutter		m		Measurement: Lineal metres restored within Minimum Trench Width. Limits of Accuracy: <to be="" inserted="">.</to>
HW0009.02	Concrete driveway		m2		Measurement: Square metres restored based on actual length by Minimum Trench Width. Limits of Accuracy: -To be inserted>
HW0009.03	Exposed aggregate & stamped driveway		m2		Measurement: Square metres restored based on actual length by Minimum Trench Width. Limits of Accuracy: ≤To be inserted>
HW0009.04	Concrete footpath		m2		Measurement: Square metres restored based on actual length by Minimum Trench Width. Limits of Accuracy: -To be inserted>
HW0009.05	Bitumen footpath		m2		Measurement: Square metres restored based on actual length by Minimum Trench Width. Limits of Accuracy: <to be="" inserted=""></to>
HW0009.06	Gravel pavement		m2		Measurement: Square metres restored based on actual length by Minimum Trench Width. Limits of Accuracy: <to be="" inserted=""></to>
HW0009.07	Bitumen pavement		m2		Measurement: Square metres restored based on actual length by Minimum Trench Width. Limits of Accuracy: -To be inserted>
HW0009.08	AC pavement		m2		Measurement: Square metres restored based on actual length by Minimum Trench Width. Limits of Accuracy: CTo he inserted>
HW0009.09	Pavers		m2		Measurement: Square metres restored based on actual length by Minimum Trench Width. Limits of Accuracy: -To be inserted>
HW0009.10	Turf		m2		Measurement: Square metres restored based on actual length by Minimum Trench Width. Limits of Accuracy: <to be="" inserted=""></to>
HW0009.11	Grass seeding		m2		Measurement: Square metres restored based on actual length by Minimum Trench Width. Limits of Accuracy: ≤To be inserted>
HW0009.12	Hydromulch		m2		Measurement: Square metres restored based on actual length by Minimum Trench Width. Limits of Accuracy: -To be inserted>
HW0010	Extra over item for Excavation in rock and disposal of excess excavated material		m3		Measurement: Cubic metres excavated based on thickness of rock by actual length by Minimum Trench Width. Limits of Accuracy: -To be inserted>.
HW0011	Acid sulphate soil				
HW0011.01	Initial testing for acid sulphate soils and prepare and submit report		per test		Submit: Result for each test. Limits of Accuracy: <to be="" inserted="">.</to>
HW0011.02	Establish treatment facility		Item		Payment: 100% after completion of treatment facility.
HW0011.03	Handling, treatment and testing of acid sulphate soils		m3		Measurement: Cubic metres excavated based on thickness of ASS by actual length by Minimum Trench Width. Submit: Test results confirming satisfactory treatment. Limits of Accuracy: Cto be inserted?
HW0011.04	Disposal off site of acid sulphate soil		tonne		Measurement: Tonnes transported from the site. Submit: Weighbridge dockets. Limits of Accuracy: <to be="" inserted≻<="" td=""></to>
HW0012	Preconstruction record				
HW0012.01	Photographic	Item	Lump Sum	\$	- Payment: 70% on submission of the Photographic record. Remainder at Practical Completion.
HW0012.02	Video	Item	Lump Sum	\$	Payment: 70% on submission of the Video record. Remainder at Practical Completion.
HW0012.03	CCTV	Item	Lump Sum	\$	Payment: 70% on submission of the CCTV record. Remainder at Practical Completion.
HW0013	Work as Constructed Information <insert min<br="">\$></insert>	ltem	Lump Sum	\$	Payment: 100% at Practical Completion.

	TOTAL ESTIMATED CONTRACT AWARD SUM	\$	461,433.60
HW1016	PRE-CONSTRUCTION COST (Table 10)		
	Design	\$	92,286.72
HW0017	Project Management of Design	\$	28,457.3
HW0018	Land Matters	\$	-
HW0024	Community Consultation		
	Sub Total(B1)	\$	120,744.0
	Pre construction contingency (30% of B1)	\$	36,223.23
			156,967,20
	TOTAL PRE-CONSTRUCTION COST (B) CONSTRUCTION COST	\$	156,967.2
		s	
	CONSTRUCTION COST		
 HW0019 HW0020	CONSTRUCTION COST Total Estimated Contract Award Sum (A)	s	461,433.6
	CONSTRUCTION COST Total Estimated Contract Award Sum (A) Principal Supplied Pipe (as applicable)	s	
HW0020	CONSTRUCTION COST Total Estimated Contract Award Sum (A) Principal Supplied Pipe (as applicable) Principal Supplied Valves and Flowmeters (as applicable)	s s s	
HW0020 HW0021	CONSTRUCTION COST Total Estimated Contract Award Sum (A) Principal Supplied Pipe (as applicable) Principal Supplied Valves and Flowmeters (as applicable) Principal Supplied Fitting (as applicable)	* * * *	461,433.6I - - -
HW0020 HW0021 HW0022	CONSTRUCTION COST Total Estimated Contract Award Sum (A) Principal Supplied Pipe (as applicable) Principal Supplied Valves and Powneters (as applicable) Principal Supplied Fitting (as applicable) Pump Station VPower Supply	\$ \$ \$ \$ \$	
HW0020 HW0021 HW0022	CONSTRUCTION COST Total Estimated Contract Awar (A) Principal Supplied Pipe (as applicable) Principal Supplied Valves and Foxometers (a applicable) Principal Supplied Hitting (as applicable) Pump Station HV Power Supply Construction Management (Table 11)	\$ \$ \$ \$ \$ \$	461,433.60 - - - 46,143.30
HW0020 HW0021 HW0022	CONSTRUCTION COST Total Estimated Contract Award Sum (A) Principal Supplied Pipe (as applicable) Principal Supplied Valves and Folomaters (as applicable) Principal Supplied Fittings (as applicable) Pump Station VPower Supply Construction Management (Table 11) Sub Total (C1)	\$ \$ \$ \$ \$ \$ \$	461,433.6 - - 46,143.3 507,576.9

PROJECT DESCRIPTION:

Option 1A DN500 Rising Main

Item No.	Item Description	Qty	Unit	Rate \$/Unit	Amount	Application of Schedule of Rates
HW0001	All work not included elsewhere in this schedule	Item	Lump Sum	\$ 101,992.00	\$ 101,992.00	Payment: Maximum of 10% shall be due each month until 70% of the amount has been paid. Remainder at Practical Completion.
HW0002	Site Establishment <insert \$="" max=""></insert>	Item	Lump Sum	\$ 30,000.00	\$ 30,000.00	Payment: 100% after completion.
HW0003	Site Disestablishment <insert \$="" min=""></insert>	Item	Lump Sum	\$ 30,000.00	\$ 30,000.00	Payment: 100% after completion.
HW0004	Preparation and implementation of the Construction EMP	ltem	Lump Sum	\$ 4,000.00	\$ 4,000.00	Payment: Maximum of 30% on submission of complying Construction EMP, then 10% per month up to maximum of 80%. Remainder at Practical Completion. Submit: Construction EMP.
HW0005	Preparation and implementation of the Safety Management Plan.	Item	Lump Sum	\$ 9,000.00	\$ 9,000.00	Payment: Maximum of 30% on submission of complying plan, then 10% per month up to maximum of 80%. Remainder at Practical Completion. Submit: Safety Management Plan.
HW0006	Preparation and implementation of the Traffic Control Plan.	Item	Lump Sum	\$ 2,000.00	\$ 2,000.00	Payment: Maximum of 30% on submission of complying Traffic Control Plan, then 10% per month up to maximum of 80%. Remainder at Practical Completion.
HW0007	Preparation and Implementation of Quality Management Plan	Item	Lump Sum	\$ 51,795.95	\$ 51,795.95	Payment: Maximum of 30% on submission of complying Quality Management Plan, then 10% per month up to maximum of 80%. Remainder at Practical Completion.
HW0008	Community Consultation	Item	Lump Sum	s -	\$ -	Payment: 10% per month up to maximum of 70%. Remainder at Practical Completion.

Item	eline - Rising - section will be present if o Construction of Sewer Rising Mains	Qty	Unit	Rate \$/Unit	Amount \$	Application of Schedule of Rates
HWR001	Service Location			\$ 7,254.00	\$ 7,254.00	
		Item	Lump Sum			amount has been paid. Remainder at Practical Completion. Payment: Percentage of valves and flowmeters supplied.
HWR002	Supply all valves	Item	Lump Sum		\$ -	Submit: Relevant Quality Records including Compliance Certificates.
HWR003	Supply all fittings	Item	Lump Sum		\$	Payment: Percentage or ntrings supplied. Submit: Relevant Quality Records including Compliance Certificates.
HWR004	Supply all pipe materials including detector tape, pipe protection wrapping, rubber rings and lubricant for following pipe sizes:					Measurement: Actual metres (effective length) of pipe delivered to site. Submit: Relevant Quality Records including Compliance Certificates. Note: Limits of Accuracy to be inserted for each pipe size.
132DSS	Nominal DN500 DICL pipe	8060	m	\$ 394.00	\$ 3,175,640.00	
HWR005	Clear, excavate, lay, join, bed, backfill & test pipelines (installation). Up to 1.5 m depth to invert in OTR.					Measurement: Actual metres of pipe installed with design depth of accaration up to and including 1.5m. percentage- until satisfactory testing. Submit: Relevant Quality Records including as constructed lengths, levels Limits of Accuracy: <to be="" inserted<="" td=""></to>
132003	Nominal DN500 DICL (Trench type 3)	8060	m	\$ 130.10	\$ 1,048,606.00	
HWR006	Clear, excavate, lay, join, bed, backfiil & test pipelines (installation). Nominal depth >1.5m to 3.0m to invert in OTR.					Measurement: Actual metres of pipe installed with design depth of excavation > 1.5m to and including 3.0m. Retention: 10%-conther appropriate percentage- until satisfactory testing. Submit: Relevant Quality Records including as constructed lengths, levels and coordinates. Limits of Accuracy, <to be="" inserted="">.</to>
HWR007	Clear, excavate, lay, join, bed, backfill & test pipelines (installation). Nominal depth >3.0m to 4.5m to invert in OTR.					Measurement: Actual metres of pipe installed with design depth of excavation > 3.0m to and including 4.5m. Retention: 10% - contere appropriate percentage> until satisfactory testing. Submit: Relevant Quality Records including as constructed lengths, levels and coordinates. Limits of Accuracy. <to be="" inserted="">.</to>
HWR008	Clear, excavate, lay, join, bed, backfill & test pipelines (installation). Nominal depth >4.5m to invert in OTR.					Measurement, Achail metres of pipe installed with design depth of accoretion > 4.2 more than a partopriate partoentage- until satisfactory testing. Submit: Relevant Quality Records including as constructed lengths, levels Limits of Accuracy: <10 be inserted
HWR009	EMPTY					
HWR010	Extra over rate for installation for Additional compaction		m3	\$ 22.95		measurement. Cuote menes or aductorial compaction dased on discrites of length by Minimum Trench Width. Submit: Relevant Quality Records. Limits of Accuracy: <to be="" inserted="">.</to>
HWR011	Excavate below specified design depth where directed including disposal of excess excavated material		m3	\$ 94.50		Neasurement: Cubic metres of excavation directed based on Inickness by length by Minimum Trench Width. Submit: Relevant Quality Records. Limits of Accuracy: <to be="" inserted="">.</to>
HWR012	Extra over rate for installation to Supply & place & compact non cohesive material.		m3			Measurement: Cubic metres of non conesive material based on thickness by length by Minimum Trench Width. Submit: Relevant Quality Records. Limits of Accuracy: <to be="" inserted="">.</to>

	(14:1) backfill							Submit: Relevant Quality Records.
								Limits of Accuracy: <to be="" inserted="">.</to>
HWR014	Extra over rate for installation for Supply,		m3					Weasurement: Coold metres of aggregate based on trickness by length by Minimum Trench Width.
	place and compact aggregate							Submit: Relevant Quality Records.
								Limits of Accuracy: <to be="" inserted="">.</to>
HWR015	Supply & place ballast		tonnes	\$	90.00			Measurement: Actual tonnes placed as directed.
								Submit: Relevant Quality Records including certified weighbridge dockets.
								Limits of Accuracy: <to be="" inserted="">.</to>
HWR016	External Dewatering of trench including	8060	m			\$	806,000.00	measurement: Length of pipeline for which external dewatering is
	establishment & disestablishment							agreed with the Superintendent and provided, measured along the axis of the pipeline between the first and last spear point.
								Submit: Relevant Quality Records.
HWR017	Supply and place treated timber piling for		m					Measurement: Actual metres from pipe invert to toe of pile.
	pipe support							Submit: Relevant Quality Records.
HWR018								Limits of Accuracy: <to be="" inserted="">. Measurement: Length in metres of casing installed.</to>
HWRU 10	Road / creek crossings							Submit: Relevant Quality Records.
								Limits of Accuracy: <to be="" inserted="">.</to>
HWR018.01	Adelaide St	80	m	\$	1,449.06	\$	115,925.00	
HWR019	Extra over rate for installation of trenchless		m					Measurement: Length in metres of casing installed. Submit: Relevant Quality Records.
	technique under existing rail line							Limits of Accuracy: <to be="" inserted="">.</to>
HWR020	Supply and installation of pipe aerial creek							measurement: Length in metres or crossing installed in accordance with
	crossing including supply of MSCL pipe with							design.
	protection coating, internal and external welding, testing of welds. For the following							Retention: 10% <or appropriate="" other="" percentage=""> until satisfactory testing. Note: Consider other milestone retentions.</or>
	MSCL pipe sizes:							Submit: Relevant Quality Records.
								Limits of Accuracy: <to be="" inserted="">.</to>
HWR021	Supply and installation of pipe river crossing							
	including supply of MSCL pipe, internal and external welding, testing of welds and 150							
	thick concrete encasement. Also includes							
	mobilisation and demobilisation of dredge(if							Measurement: Length in metres of casing installed.
	required) excavation & disposal of excavated							Retention: 10% <or appropriate="" other="" percentage=""> until satisfactory testing.</or>
	material, backfilling, lay, bed and test for the following MSCL pipe sizes:							Note: Consider other milestone retentions.
								Submit: Relevant Quality Records. Limits of Accuracy: <to be="" inserted="">.</to>
HWR022	Bulkheads and Trenchstops in accordance	ltem	Lump Sum			s		Payment: Number of bulkheads & trenchstops constructed.
	with WSAA drawing SEW-1206							Submit: Relevant Quality Records.
								Limits of Accuracy: <to be="" inserted="">. Payment: number of valve pits constructed.</to>
HWR023	Supply and Install valve pits (excluding valves and fittings)	0	Each	s	-	\$	-	Retention: <to be="" determined="">.</to>
	valves and ittings)							Submit: Relevant Quality Records.
								Limits of Accuracy: <to be="" inserted="">.</to>
HWR024	Flow Relief Structures		Each					Payment: number or now relier structures constructed.
				1				Retention: <to be="" determined="">. Submit: Relevant Quality Records.</to>
1								Limits of Accuracy: <to be="" inserted="">.</to>
HWR025	EMPTY							
HWR026	Supply and construct vent stacks		each	1				Payment: Number of vent stacks constructed. Retention: <to be="" determined="">.</to>
				1				Retention: <1o be determined>. Submit: Relevant Quality Records.
				1				Limits of Accuracy: <to be="" inserted="">.</to>
HWR027	Preparation of line sheets	8060	m	\$	1.00	\$	8,060.00	Measurement: Length of pipelines constructed as per design.
					-			Limits of Accuracy: <to be="" inserted="">.</to>
HWR028	Acceptance testing - rising main		m					Measurement: Lengtn or pipelines constructed as per design. Submit: Satisfactory test records
								Limits of Accuracy: <to be="" inserted="">.</to>
HWR029	Miscellaneous							
HWR029	Miscellaneous							
HWR029 HWR000	Miscellaneous Sub Total					s	5,161,485	

Item No.	Item Description	Qty	Unit		Amount \$	Application of Schedule of Rates
HW0009	Restoration - Pipelines:					Payment: 100% after completion.
HW0009.01	Concrete kerb & gutter	0	m	\$ 110.00		Measurement: Lineal metres restored within Minimum Trench Width. Limits of Accuracy: <to be="" inserted="">.</to>
HW0009.02	Concrete driveway	0	m2	\$ 178.00	\$-	Measurement: Square metres restored based on actual length by Minimum Trench Width. Limits of Accuracy: <to be="" inserted=""></to>
HW0009.03	Exposed aggregate & stamped driveway	0	m2	\$ 220.00		Measurement: Square metres restored based on actual length by Minimum Trench Width. Limits of Accuracy: <to be="" inserted=""></to>
HW0009.04	Concrete footpath	0	m2	\$ 155.00		Measurement: Square metres restored based on actual length by Minimum Trench Width. Limits of Accuracy: <to be="" inserted=""></to>
HW0009.05	Bitumen footpath	0	m2	\$ 117.00		Measurement: Square metres restored based on actual length by Minimum Trench Width. Limits of Accuracy: <to be="" inserted=""></to>

HW0009.06	Gravel pavement	0	m2	s	69.00	s		Measurement: Square metres restored based on actual length by
HM0009.06	Graver pavement	0	mz	\$	69.00	\$	-	Measurement: Square metres restored based on actual length by Minimum Trench Width.
HW0009.07	Bitumen pavement		m2			-		Limits of Accuracy: <to be="" inserted=""></to>
HW0009.07	bitumen pavement		m2					Measurement: Square metres restored based on actual length by
								Minimum Trench Width.
								Limits of Accuracy: <to be="" inserted=""></to>
80.6000MH	AC pavement		m2					Measurement: Square metres restored based on actual length by
								Minimum Trench Width.
								Limits of Accuracy: <to be="" inserted=""></to>
HW0009.09	Pavers		m2					Measurement: Square metres restored based on actual length by
								Minimum Trench Width.
								Limits of Accuracy: <to be="" inserted=""></to>
HW0009.10	Turf		m2					Measurement: Square metres restored based on actual length by
								Minimum Trench Width.
								Limits of Accuracy: <to be="" inserted=""></to>
HW0009.11	Grass seeding	14472	m2	\$	7.00	\$	101,304.00	Measurement: Square metres restored based on actual length by
								Minimum Trench Width.
								Limits of Accuracy: <to be="" inserted=""></to>
HW0009.12	Hydromulch		m2					Measurement: Square metres restored based on actual length by
								Minimum Trench Width.
								Limits of Accuracy: <to be="" inserted=""></to>
HW0010	Extra over item for Excavation in rock and		m3			-		Measurement: Cubic metres excavated based on thickness of rock by
	disposal of excess excavated material		1110					actual length by Minimum Trench Width.
	disposal of excess excavated material							Limits of Accuracy: <to be="" inserted="">.</to>
HW0011	Acid sulphate soil					-		Limits of Accuracy: <10 be inserted>.
HW0011 01	Initial testing for acid sulphate soils and	107	per test	s	110.00	s	44 770 00	Submit: Result for each test
11110011.01	prepare and submit report	107	pertest	5	110.00	\$	11,770.00	Limits of Accuracy: <to be="" inserted="">.</to>
HW0011.02	Establish treatment facility		ltem					
								Payment: 100% after completion of treatment facility.
HW0011.03	Handling, treatment and testing of acid	10881	m3	\$	60.00	\$	652,860.00	
	sulphate soils							actual length by Minimum Trench Width.
								Submit: Test results confirming satisfactory treatment.
								Limits of Accuracy: <to be="" inserted=""></to>
HW0011.04	Disposal off site of acid sulphate soil	0	tonne	s	122.00	\$	-	Measurement: Tonnes transported from the site.
								Submit: Weighbridge dockets.
								Limits of Accuracy: <to be="" inserted=""></to>
HW0012	Preconstruction record							
HW0012.01	Photographic	Item	Lump Sum			\$	-	Payment: 70% on submission of the Photographic record. Remainder
								at Practical Completion.
HW0012.02	Video	Item	Lump Sum			s		Payment: 70% on submission of the Video record. Remainder at
						Ľ		Practical Completion.
HW0012.03	CCTV	Item	Lump Sum			s		Payment: 70% on submission of the CCTV record. Remainder at
						Ľ		Practical Completion.
HW0013	Work as Constructed Information <insert min<="" td=""><td>Item</td><td>Lump Sum</td><td>\$ 6</td><td>4 480 00</td><td>s</td><td>64.480.0</td><td></td></insert>	Item	Lump Sum	\$ 6	4 480 00	s	64.480.0	
	S>	ing the	camp dum	Ť ů	,00.00	1 *	04,400.01	Payment: 100% at Practical Completion.
	φ-					-		
								1

A. TOTAL ESTIMATED CONTRACT AWARD SUM

\$ 6,220,686.95

В.	PRE-CONSTRUCTION COST (Table 10)		
HW0016	Design	\$	622,068.70
HW0017	Project Management of Design	\$	116,267.66
HW0018	Land Matters	\$	-
HW0024	Community Consultation		
	Sub Total(B1)	\$	738,336.35
	Pre construction contingency (30% of B1)	\$	221,500.91
	TOTAL PRE-CONSTRUCTION COST (B)	\$	959,837.26
c.	CONSTRUCTION COST		
	Total Estimated Contract Award Sum (A)	\$	6,220,686.95
HW0019	Principal Supplied Pipe (as applicable)	\$	-
HW0020	Principal Supplied Valves and Flowmeters (as applicable)	\$	-
HW0021	Principal Supplied Fittings (as applicable)	\$	-
HW0022	Pump Station HV Power Supply	\$	-
HW0023	Construction Management (Table 11)	\$	497,654.96
	Sub Total (C1)	\$	6,718,341.91
	Construction contingency	\$	2,015,502.57
	(Table 12) (30% of C1) Preliminary Estimate		
	TOTAL CONSTRUCTION COST (C)	\$	8,733,844.48
		_	
	TOTAL PRELIMINARY PROJECT ESTIMATE (B+C) (Preliminary Estimate)	\$	9,693,681.74

PROJECT DESCRIPTION:

Option 1A DN600 Rising Main

Item No.	Item Description	Qty	Unit	Rate \$/Unit	Amount	Application of Schedule of Rates
HW0001	All work not included elsewhere in this	Item	Lump Sum	\$ 125,540.00	\$ 125,540.00	Payment: Maximum of 10% shall be due each month until 70% of the
	schedule					amount has been paid. Remainder at Practical Completion.
HW0002	Site Establishment <insert \$="" max=""></insert>	Item	Lump Sum	\$ 30,000.00	\$ 30,000.00	Payment: 100% after completion.
HW0003	Site Disestablishment <insert \$="" min=""></insert>	Item	Lump Sum	\$ 30,000.00	\$ 30,000.00	Payment: 100% after completion.
	Preparation and implementation of the Construction EMP	ltem	Lump Sum			Payment: Maximum of 30% on submission of complying Construction EMP, then 10% per month up to maximum of 80%. Remainder at Practical Completion. Submit: Construction EMP.
HW0005	Preparation and implementation of the Safety Management Plan.	Item	Lump Sum	\$ 9,000.00	\$ 9,000.00	Payment: Maximum of 30% on submission of complying plan, then 10% per month up to maximum of 80%. Remainder at Practical Completion. Submit: Safety Management Plan.
HW0006	Preparation and implementation of the Traffic Control Plan.	ltem	Lump Sum	\$ 2,000.00		Payment: Maximum of 30% on submission of complying Traffic Control Plan, then 10% per month up to maximum of 80%. Remainder at Practical Completion.
HW0007	Preparation and Implementation of Quality Management Plan	ltem	Lump Sum		\$ 63,570.05	Payment: Maximum of 30% on submission of complying Quality Management Plan, then 10% per month up to maximum of 80%. Remainder at Practical Completion.
HW0008	Community Consultation	Item	Lump Sum	s -	\$ -	Payment: 10% per month up to maximum of 70%. Remainder at Practical Completion.

Item	eline - Rising - section will be present if o Construction of Sewer Rising Mains	Qty	Unit	Rate \$/Unit	Amount \$	Application of Schedule of Rates
HWR001	Service Location			\$ 8,463.00	\$ 8,463.00	Payment: Maximum of 10% shall be due each month until 70% of the
		Item	Lump Sum			amount has been paid. Remainder at Practical Completion. Payment: Percentage of valves and flowmeters supplied.
HWR002	Supply all valves	Item	Lump Sum		\$ -	Submit: Relevant Quality Records including Compliance Certificates.
HWR003	Supply all fittings	Item	Lump Sum		\$	Payment: Percentage of nittings supplied. Submit: Relevant Quality Records including Compliance Certificates.
HWR004	Supply all pipe materials including detector tape, pipe protection wrapping, rubber rings and lubricant for following pipe sizes:					Measurement: Actual metres (effective length) of pipe delivered to site. Submit: Relevant Quality Records including Compliance Certificates. Note: Limits of Accuracy to be inserted for each pipe size.
13CDSS	Nominal DN600 DICL pipe	8060	m	\$ 514.00	\$ 4,142,840.00	
HWR005	Clear, excavate, lay, join, bed, backfill & test pipelines (installation). Up to 1.5 m depth to invert in OTR.					Measurement: Actual metres of pipe installed with design depth of excavation up to and including 1.5m. percentage- until satisfactory testing. Submit: Relevand Quality Records including as constructed lengths, levels Limits of Accuracy: <to be="" inserted<="" td=""></to>
13CD03	Nominal DN600 DICL (Trench type 3)	8060	m	\$ 139.95	\$ 1,127,997.00	
HWR006	Clear, excavate, lay, join, bed, backfiil & test pipelines (installation). Nominal depth >1.5m to 3.0m to invert in OTR.					Measurement: Actual metres of pipe installed with design depth of excavation > 1.5m to and including 3.0m. Retention: 10%-contex appropriate percentage- until satisfactory testing, Submit: Relevant Quality Records including as constructed lengths, levels and coordinates. Units of Accuracy, <10 be inserted>.
HWR007	Clear, excavate, lay, join, bed, backfill & test pipelines (installation). Nominal depth >3.0m to 4.5m to invert in OTR.					Measurement: Actual metres of pipe installed with design depth of excavation > 3.0m to and including 4.5m. Retention: 10% - conther appropriate percentage- until satisfactory testing. Submit: Relevant Quality Records including as constructed lengths, levels and coordinates. Limits of Acouracy, <10 be inserted>.
HWR008	Clear, excavate, lay, join, bed, backfill & test pipelines (installation). Nominal depth >4.5m to invert in OTR.					Measurement: Actual metres of pipe installed with design depth of meansates -> 4.5m Potention: 10%, c-r other appropriate percentages until satisfactory testing. Submit: Relevant Quality Records including as constructed lengths, levels Limits of Accuracy: <to be="" inserted="">.</to>
HWR009	EMPTY					
HWR010	Extra over rate for installation for Additional compaction		m3	\$ 26.78		measurement, could menes of additional compaction based on mickness of length by Minimum Trench With. Submit: Relevant Quality Records. Limits of Accuracy: <to be="" inserted="">.</to>
HWR011	Excavate below specified design depth where directed including disposal of excess excavated material		m3	\$ 110.25		Measurement: Cubic metres of excavation directed based on thickness by length by Minimum Trench Width. Submit: Relevant Quality Records. Limits of Accuracy: <to be="" inserted="">.</to>
HWR012	Extra over rate for installation to Supply & place & compact non cohesive material.		m3			Measurement: cubic metres of non conesive material based on thickness by length by Minimum Trench Width. Submit: Relevant Quality Records. Limits of Accuracy: <to be="" inserted="">.</to>

							Limits of Accuracy: <to be="" inserted="">.</to>
HWR014	Extra over rate for installation for Supply, place and compact aggregate		m3				measurement. Cource mentes or aggregate based on mickness by lengur by Minimum Trench Width. Submit: Relevant Quality Records. Limits of Accuracy: <to be="" inserted="">.</to>
HWR015	Supply & place ballast		tonnes	\$ 90.	00		Measurement: Actual tonnes placed as directed. Submit: Relevant Quality Records including certified weighbridge dockets. Limits of Accuracy: <to be="" inserted="">.</to>
HWR016	External Dewatering of trench including establishment & disestablishment	8060	m		\$	806,000.00	agreed with the Superintendent and provided, measured along the axis of the pipeline between the first and last spear point. Submit: Relevant Quality Records.
HWR017	Supply and place treated timber piling for pipe support		m				Measurement: Actual metres from pipe invert to toe of pile. Submit: Relevant Quality Records. Limits of Accuracy: <to be="" inserted="">.</to>
HWR018	Road / creek crossings						Measurement: Length in metres of casing installed. Submit: Relevant Quality Records. Limits of Accuracy: <to be="" inserted="">.</to>
HWR018.01	Adelaide St	80	m	\$ 1,709.	06 \$	136,725.00	Measurement: Length in metres of casing installed.
HWRD19	Extra over rate for installation of trenchless technique under existing rail line		m				Submit: Relevant Quality Records. Limits of Accuracy: <to be="" inserted="">.</to>
HWR020	Supply and installation of pipe aerial creek crossing including supply of MSCL pipe with protection coating, internal and external welding, testing of welds. For the following MSCL pipe sizes:						measurement. Lenger in meres of ucessing instantion in accordance were design. Retention: 10% < or other appropriate percentage> until satisfactory testing. Note: Consider other milestone retentions. Submit: Relevant Quality Records. Limits of Accuracy: <10 be inserted>.
HWR021	Supply and installation of pipe river crossing including supply of MSCL pipe. Internal and external welding, testing of welds and 150 thick concrete encasement. Also includes mobilisation and demobilisation of dredge(ff reguled) exclusion 8. disposal of exclosuled material, backfilling, lay, bed and test for the following MSCL pipe sizes:						Measurement: Length in metres of casing installed Retention: 10% -cord other appropriate percentages- until satisfactory testing. Note: Consider down millistone retentions. Submit: Retervant Quality Records. Limits of Accurancy: of bo in isented>.
HWR022	Bulkheads and Trenchstops in accordance with WSAA drawing SEW-1206	Item	Lump Sum		\$		Payment: Number or buikneads & trenchstops constructed. Submit: Relevant Quality Records. Limits of Accuracy: <to be="" inserted="">.</to>
HWR023	Supply and Install valve pits (excluding valves and fittings)	0	Each	\$-	\$		Payment: Number of valve pits constructed. Retention: <to be="" determined="">. Submit: Relevant Quality Records. Limits of Accuracy: <to be="" inserted="">.</to></to>
HWR024	Flow Relief Structures		Each				Payment: Numper or now reiter structures constructed. Retention: <to be="" determined="">. Submit: Relevant Quality Records. Limits of Accuracy: <to be="" inserted="">.</to></to>
HWR025	EMPTY						
HWR026	Supply and construct vent stacks		each				regment, reunder or vent stacks constructed. Retention: <to be="" determined="">. Submit: Relevant Quality Records. Limits of Accuracy: <to be="" inserted="">.</to></to>
HWR027	Preparation of line sheets	8060	m	\$ 1.	\$ 00	8,060.00	Limits of Accuracy: <to be="" inserted="">.</to>
HWR028	Acceptance testing - rising main		m				Measurement: Lengtn of pipelines constructed as per design. Submit: Satisfactory test records Limits of Accuracy: <to be="" inserted="">.</to>
HWR029	Miscellaneous						
	Sub Total					\$6.230.085	
HWR000	Sub Total					\$0,200,000	

Item No.	Item Description	Qty	Unit		Amount \$	Application of Schedule of Rates
HW0009	Restoration - Pipelines:					Payment: 100% after completion.
HW0009.01	Concrete kerb & gutter	0	m	\$ 110.00		Measurement: Lineal metres restored within Minimum Trench Width. Limits of Accuracy: <to be="" inserted="">.</to>
HW0009.02	Concrete driveway	0	m2	\$ 178.00	\$-	Measurement: Square metres restored based on actual length by Minimum Trench Width. Limits of Accuracy: <to be="" inserted=""></to>
HW0009.03	Exposed aggregate & stamped driveway	0	m2	\$ 220.00		Measurement: Square metres restored based on actual length by Minimum Trench Width. Limits of Accuracy: <to be="" inserted=""></to>
HW0009.04	Concrete footpath	0	m2	\$ 155.00		Measurement: Square metres restored based on actual length by Minimum Trench Width. Limits of Accuracy: <to be="" inserted=""></to>
HW0009.05	Bitumen footpath	0	m2	\$ 117.00		Measurement: Square metres restored based on actual length by Minimum Trench Width. Limits of Accuracy: <to be="" inserted=""></to>

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HW0009.06	Gravel pavement	0	m2	\$	69.00	\$	-	Measurement: Square metres restored based on actual length by
								Minimum Trench Width.
								Limits of Accuracy: <to be="" inserted=""></to>
HW0009.07	Bitumen pavement		m2					Measurement: Square metres restored based on actual length by
								Minimum Trench Width.
								Limits of Accuracy: <to be="" inserted=""></to>
HW0009.08	AC pavement		m2					Measurement: Square metres restored based on actual length by
								Minimum Trench Width.
								Limits of Accuracy: <to be="" inserted=""></to>
HW0009.09	Pavers		m2					Measurement: Square metres restored based on actual length by
								Minimum Trench Width.
								Limits of Accuracy: <to be="" inserted=""></to>
HW0009.10	Turf		m2					Measurement: Square metres restored based on actual length by
								Minimum Trench Width
								Limits of Accuracy: <to be="" inserted=""></to>
HW0009.11	Grass seeding	14508	m2	s	7.00	s	101.556.00	Measurement: Square metres restored based on actual length by
								Minimum Trench Width.
								Limits of Accuracy: <to be="" inserted=""></to>
HW0009 12	Hydromulch		m2					Measurement: Square metres restored based on actual length by
								Minimum Trench Width.
								Limits of Accuracy: <to be="" inserted=""></to>
HW0010	Extra over item for Excavation in rock and		m3					Measurement: Cubic metres excavated based on thickness of rock by
	disposal of excess excavated material		1110					actual length by Minimum Trench Width.
	disposal of excess excavated material							Limits of Accuracy: <to be="" inserted="">.</to>
HW0011	Acid sulphate soil							Limits of Accuracy: <10 be inserted>.
HW0011.01	Initial testing for acid sulphate soils and	107	per test	s	110.00	s	44 770 00	Submit: Result for each test.
11110011.01	prepare and submit report	107	pertest	\$	110.00	\$	11,770.00	Limits of Accuracy: <to be="" inserted="">.</to>
HW0011.02	Establish treatment facility		ltem			_		Payment: 100% after completion of treatment facility.
HW0011.03	Handling, treatment and testing of acid	12694.5	m3	\$	60.00	\$	761,670.00	Measurement: Cubic metres excavated based on thickness of ASS by
	sulphate soils							actual length by Minimum Trench Width.
								Submit: Test results confirming satisfactory treatment.
								Limits of Accuracy: <to be="" inserted=""></to>
HW0011.04	Disposal off site of acid sulphate soil	0	tonne	\$	122.00	\$	-	Measurement: Tonnes transported from the site.
								Submit: Weighbridge dockets.
								Limits of Accuracy: <to be="" inserted=""></to>
HW0012	Preconstruction record							
HW0012.01	Photographic	Item	Lump Sum			s		Payment: 70% on submission of the Photographic record. Remainder
						L É .		at Practical Completion.
HW0012.02	Video	ltem	Lump Sum			s		Payment: 70% on submission of the Video record. Remainder at
			aang dan			Ĩ.		Practical Completion.
HW0012.03	CCTV	ltem	Lump Sum			s		Payment: 70% on submission of the CCTV record. Remainder at
11110012.03	0011	in a line	comp Sull			<u>с</u>		Practical Completion.
HW0013	Work as Constructed Information <insert min<="" td=""><td>ltem</td><td>Lump Sum</td><td>s</td><td>64.480.00</td><td>s</td><td>64,480.0</td><td></td></insert>	ltem	Lump Sum	s	64.480.00	s	64,480.0	
midula	es	nem	cump Sum	3	04,400.00	Ŷ	04,460.01	Payment: 100% at Practical Completion.
	a-					-		

A. TOTAL ESTIMATED CONTRACT AWARD SUM

\$ 7,433,671.05

В.	PRE-CONSTRUCTION COST (Table 10)		
HW0016	Design	s	743,367.11
HW0017	Project Management of Design	s	140,522.30
HW0018	Land Matters	s	-
HW0024	Community Consultation		
	Sub Total(B1)	\$	883,889.41
	Pre construction contingency (30% of B1)	\$	265,166.82
	TOTAL PRE-CONSTRUCTION COST (B)	\$	1,149,056.23
C.	CONSTRUCTION COST		
	Total Estimated Contract Award Sum (A)	\$	7,433,671.05
HW0019	Principal Supplied Pipe (as applicable)	\$	-
HW0020	Principal Supplied Valves and Flowmeters (as applicable)	\$	-
HW0021	Principal Supplied Fittings (as applicable)	\$	-
HW0022	Pump Station HV Power Supply	\$	-
HW0023	Construction Management (Table 11)	s	594,693.68
	Sub Total (C1)	s	8,028,364.73
	Construction contingency	s	2,408,509.42
	(Table 12) (30% of C1) Preliminary Estimate		
	TOTAL CONSTRUCTION COST (C)	\$	10,436,874.15
	TOTAL PRELIMINARY PROJECT ESTIMATE (B+C) (Preliminary Estimate)	\$	11,585,930.3

PROJECT DESCRIPTION:

Option 1B DN450 Rising Main

Item No.	Item Description	Qty	Unit	Rate \$/Unit	Amount	Application of Schedule of Rates
HW0001	All work not included elsewhere in this	ltem	Lump Sum	\$ 67.940.00	\$	Payment: Maximum of 10% shall be due each month until 70% of the
HWOODI	schedule	illern	cump Sum	\$ 67,940.00	\$ 07,940.0	amount has been paid. Remainder at Practical Completion.
HW0002	Site Establishment <insert \$="" max=""></insert>	Item	Lump Sum	\$ 30,000.00	\$ 30,000.0	⁰ Payment: 100% after completion.
HW0003	Site Disestablishment <insert \$="" min=""></insert>	Item	Lump Sum	\$ 30,000.00	\$ 30,000.0	⁰ Payment: 100% after completion.
HW0004	Preparation and implementation of the Construction EMP	ltem	Lump Sum	\$ 8,000.00	\$ 8,000.0	⁰ Payment: Maximum of 30% on submission of complying Construction EMP, then 10% per month up to maximum of 80%. Remainder at Practical Completion. Submit: Construction FMP.
HW0005	Preparation and implementation of the Safety Management Plan.	Item	Lump Sum	\$ 18,000.00	\$ 18,000.0	⁰ Payment: Maximum of 30% on submission of complying plan, then 10% per month up to maximum of 80%. Remainder at Practical Completion. Submit: Safety Management Plan.
HW0006	Preparation and implementation of the Traffic Control Plan.	Item	Lump Sum	\$ 4,000.00	\$ 4,000.0	¹⁰ Payment: Maximum of 30% on submission of complying Traffic Control Plan, then 10% per month up to maximum of 80%. Remainder at Practical Completion.
	Preparation and Implementation of Quality Management Plan	ltem	Lump Sum	\$ 34,769.75	\$ 34,769.7	⁵ Payment: Maximum of 30% on submission of complying Quality Management Plan, then 10% per month up to maximum of 80%. Remainder at Practical Completion.
HW0008	Community Consultation	Item	Lump Sum	\$.	\$	 Payment: 10% per month up to maximum of 70%. Remainder at Practical Completion.

Item	Construction of Sewer Rising Mains	Qty	Unit	\$/Unit		Amount \$	Application of Schedule of Rates	
HWR001	Service Location	ltem	Lumo Sum	\$ 14,040.0	0\$	14,040.00	Payment: Maximum of 10% shall be due each month until 70% of the	
							amount has been paid. Remainder at Practical Completion. Payment: Percentage or valves and lowmeters supplied	
HWR002	Supply all valves	Item	Lump Sum		\$	-	Submit: Relevant Quality Records including Compliance Certificates.	
HWR003	Supply all fittings	Item	Lump Sum		s		Payment: Percentage or mongs supplied.	
	ooppry an nunga	inc.ini	comp com		Ť		Submit: Relevant Quality Records including Compliance Certificates.	
HWR004	Supply all pipe materials including detector tape, pipe protection wrapping, rubber rings						Measurement: Actual metres (effective length) of pipe delivered to site.	
	and lubricant for following pipe sizes:						Submit: Relevant Quality Records including Compliance Certificates. Note:	
							Limits of Accuracy to be inserted for each pipe size.	
12DDSS	Nominal DN450 DICL pipe	6000	m	\$ 304.0	0\$	1,824,000.00		
HWR005	Clear, excavate, lay, join, bed, backfil & test						Measurement: Actual metres of pipe installed with design depth of	
	pipelines (installation).						excavation up to and including 1.5m.	
	Up to 1.5 m depth to invert in OTR.						Retention: 10% <or appropriate="" other="" percentage=""> until satisfactory testing.</or>	
							Submit: Relevant Quality Records including as constructed lengths, levels	
							and coordinates.	
							Limits of Accuracy: <to be="" inserted="">.</to>	
120003	Nominal DN450 DICL (Trench type 3)	6000	m	\$ 155.2	5.5	931.500.00	Linits of Accuracy. < to be inserted.	
		0000	m	¢ 155.4		931,500.00		Pipeline 2 - area allow
HWH:06	Clear, excavate, lay, join, bed, backfil & test pipelines (installation).				1		Measurement: Actual metres of pipe installed with design depth of	
	Nominal depth >1.5m to 3.0m to invert in						excavation > 1.5m to and including 3.0m.	
	OTR.						Retention: 10% <or appropriate="" other="" percentage=""> until satisfactory testing.</or>	
							Submit: Relevant Quality Records including as constructed lengths, levels	
							and coordinates.	
							Limits of Accuracy: <to be="" inserted="">.</to>	
HWR007	Clear, excavate, lay, join, bed, backfil & test						Measurement: Actual metres of pipe installed with design depth of	
	pipelines (installation).						excavation > 3.0m to and including 4.5m.	
	Nominal depth >3.0m to 4.5m to invert in						Retention: 10% <or appropriate="" other="" percentage=""> until satisfactory testing.</or>	
	OTR.						Submit: Relevant Quality Records including as constructed lengths, levels	
							and coordinates.	
							Limits of Accuracy: <to be="" inserted="">.</to>	
HWR008	Clear, excavate, lay, join, bed, backfil & test				+			
	pipelines (installation).						Measurement: Actual metres of pipe installed with design depth of	
	Nominal depth >4.5m to invert in OTR.						excavation > 4.5m.	
							Retention: 10% <or appropriate="" other="" percentage=""> until satisfactory testing.</or>	
							Submit: Relevant Quality Records including as constructed lengths, levels	
							and coordinates.	
							Limits of Accuracy: <to be="" inserted="">.</to>	
HWR009	EMPTY						measurement, cubic metres of automotial compaction based on mickness	
HWR010	Extra over rate for installation for Additional		m3	\$ 22.95	1		by length by Minimum Trench Width.	
	compaction				1		Submit: Relevant Quality Records.	
							Limits of Accuracy: <to be="" inserted="">.</to>	
HWR011	Excavate below specified design depth when		m3	\$ 94.50	_		Limits of Accuracy. < 10 be inserted>. measurement. Guor. metres of excavation directed based on trickness by	
11000011	Excavate below specified design depth when directed including disposal of excess		m3	o 94.50	1		length by Minimum Trench Width.	
	excavated material						Submit: Relevant Quality Records.	
							Limits of Accuracy: <to be="" inserted="">.</to>	
			m3		+		measurement. Cubic metres or non conesive material based on mickness	
HWR012	Extra over rate for installation to Supply &				1		by length by Minimum Trench Width.	
HWR012	Extra over rate for installation to Supply & place & compact non cohesive material.							
HWR012							Submit: Relevant Quality Records.	
							Submit: Relevant Quality Records. Limits of Accuracy: <to be="" inserted="">.</to>	
	place & compact non cohesive material.		m3	\$ 405.00			Submit: Relevant Quality Records. Limits of Accuracy: <to be="" inserted="">. measurement: copic metres of stabilised sand cement based on unconess.</to>	
	place & compact non cohesive material. Extra over rate for installation for supply, place and compact stabilised sand cement			\$ 405.00	1		Submit: Relevant Quality Records. Limits of Accuracy: <to be="" inserted="">. measurement: cuore meres or sacanses and cement based on uncortess by length by Minimum Trench Width.</to>	
	place & compact non cohesive material.			\$ 405.00	'		Submit: Relevant Quality Records. Limits of Accuracy: <to be="" inserted="">. measurement: - uoun interes or assumed sand centerin based on unconsist by length by Minimum Thench Width. Submit: Relevant Quality Records.</to>	
HWR013	place & compact non cohesive material. Extra over rate for installation for supply, place and compact stabilised sand cement (14:1) backfill		m3	\$ 405.00	1		Submit: Relevant Quality Records. Limits of Accuracy: <to be="" inserted="">. measurement: cuore meres or sacanses and cement based on uncortess by length by Minimum Trench Width.</to>	
HWR013	place & compact non cohesive material. Extra over rate for installation for supply, place and compact stabilised sand cement (14:1) backfill Extra over rate for installation for Supply,			\$ 405.00			Submit: Relevant Quality Records. Limits of Accuracy: 450 be inserted->. missioneman - course in a set advanced same centerin based on transcriets by length by Minimum Trench Width. Submit: Relevant Quality Records. Limits of Accuracy: 470 be inserted->.	
HWR013	place & compact non cohesive material. Extra over rate for installation for supply, place and compact stabilised sand cement (14:1) backfill		m3	\$ 405.00			Submit: Relevant Quality Records. Limits of Accuracy: <to be="" inserted="">. measurement: - uoun interes or assumed sand centerin based on unconsist by length by Minimum Thench Width. Submit: Relevant Quality Records.</to>	

HWR015	Supply & place ballast		tonnes	\$	90.00		Measurement: Actual tonnes placed as directed. Submit: Relevant Quality Records including certified weighbridge dockets. Limits of Accuracy: <10 be inserted>. weasurement: Length of planme for which external dewatering is
	External Dewatering of trench including establishment & disestablishment	6000	m			\$ 600,000.00	measurement: Length of pipeline for which external dewatering is agreed with the Superintendent and provided, measured along the axis of the pipeline between the first and last spear point. Submit: Relevant Quality Records.
	Supply and place treated timber piling for pip support		E				Submit: Relevant Quality Records. Limits of Accuracy: <to be="" inserted="">.</to>
	Road / creek crossings						Measurement: Length in metres of casing installed Submit: Relevant Quality Records. Limits of Accuracy: <to be="" inserted="">.</to>
HWR018.01	Adelaide St	80	m	\$	1,329.06	\$ 106,325.00	
HWR019	Extra over rate for installation of trenchless technique under existing rail line		m				Submit: Relevant Quality Records. Limits of Accuracy: <to be="" inserted="">.</to>
	Supply and installation of pipe aerial creek crossing including supply of MSCL pipe with protection coating, internal and external welding, testing of welds. For the following MSCL pipe sizes:						design. Retention: 10% -or other appropriate percentage> until satisfactory testing. Note: Consider other milestone retentions. Submit: Retevent Quality Records. Limits of Accuracy: <to be="" inserted="">.</to>
	Supply and installation of pipe river crossing including supply of MSCL pipe, internal and external welding, testing of welds and 150 thick concrete encasement. Also includes mobilisation and demobilisation of dredgelf required jexcavation & disposal of excavated material, backfilling, lay, bed and test for the following MSCL pipe sizes:						Measurement: Length in metres of casing installed. Retertion: 10% or other appropriate percentage- until satisfactory testing. Notic: Consider of the millestone retertion. Submit: Retervant Quality Records. Limits of Accuracy: or be inserted->
	Bulkheads and Trenchstops in accordance with WSAA drawing SEW-1206	ltem	Lump Sum			\$	Payment: Number of builkneads & trenchstops constructed Submit: Relevant Quality Records. Limits of Accuracy: <to be="" inserted="">.</to>
HWR023	Supply and install valve pits (excluding valve and fittings)	: 0	Each	s		\$	rayment, reunier or varie pro consoluteu Retention: «To be determined». Submit: Relevant Quality Records. Limits of Accuracy: «To be inserted».
HWR024	Flow Relief Structures		Each				raymen: numer or now rener souccares consouced Retention: <to be="" determined="">. Submit: Relevant Quality Records. Limits of Accuracy: <to be="" inserted="">.</to></to>
HWR025	EMPTY						
HWR026	Supply and construct vent stacks		each				Retention: <to be="" determined="">. Submit: Relevant Quality Records. Limits of Accuracy: <to be="" inserted="">.</to></to>
HWR027	Preparation of line sheets	6000	m	\$	1.00	\$ 6,000.00	Measurement: Length of pipelines constructed as per design Limits of Accuracy: <to be="" inserted="">.</to>
HWR028	Acceptance testing - rising main		E				Measurement: Length of pipelines constructed as per design Submit: Satisfactory test records Limits of Accuracy: <to be="" inserted="">.</to>
HWR029	Miscellaneous						
HWR000	Sub Total					\$ 3,481,865	

Item No.	Item Description	Qty	Unit		Amount \$	Application of Schedule of Rates
HW0009	Restoration - Pipelines:					Payment: 100% after completion.
HW0009.01	Concrete kerb & gutter	0	m	\$ 110.00	\$.	Messurement: Lineal metres restored within Minimum Trench Width. Limits of Accuracy: <to be="" inserted="">.</to>
HW0009.02	Concrete driveway	0	m2	\$ 178.00		Measurement: Square metres restored based on actual length by Minimum Trench Width. Limits of Accuracy: <to be="" inserted=""></to>
HW0009.03	Exposed aggregate & stamped driveway	0	m2	\$ 220.00	*	Messurement: Square metres restored based on actual length by Minimum Trench Width. Limits of Accuracy: <to be="" inserted=""></to>
HW0009.04	Concrete footpath	0	m2	\$ 155.00	-	Measurement: Square metres restored based on actual length by Minimum Trench Width. Limits of Accuracy: <to be="" inserted=""></to>
HW0009.05	Bitumen footpath	0	m2	\$ 117.00	\$-	Measurement: Square metres restored based on actual length by Minimum Trench Width. Limits of Accuracy: <to be="" inserted=""></to>
HW0009.06	Gravel pavement	0	m2	\$ 69.00	\$.	Measurement: Square metres restored based on actual length by Minimum Trench Width. Limits of Accuracy: <to be="" inserted=""></to>
HW0009.07	Bitumen pavement		m2			Measurement: Square metres restored based on actual length by Minimum Trench Width. Limits of Accuracy: <to be="" inserted=""></to>
HW0009.08	AC pavement		m2			Measurement: Square metres restored based on actual length by Minimum Trench Width. Limits of Accuracy: <to be="" inserted=""></to>
HW0009.09	Pavers		m2			Measurement: Square metres restored based on actual length by Minimum Trench Width. Limits of Accuracy: <to be="" inserted=""></to>
HW0009.10	Turf		m2			Measurement: Square metres restored based on actual length by Minimum Trench Width. Limits of Accuracy: <to be="" inserted=""></to>
HW0009.11	Grass seeding	10800	m2	\$ 7.00	\$ 75,600.00	Measurement: Square metres restored based on actual length by Minimum Trench Width. Limits of Accuracy: <to be="" inserted=""></to>

HW0009.12	Hydromulch		m2				Measurement: Square metres restored based on actual length by Minimum Trench Width. Limits of Accuracy: <to be="" inserted=""></to>
	Extra over item for Excavation in rock and disposal of excess excavated material		m3				Measurement: Cubic metres excavated based on thickness of rock by actual length by Minimum Trench Width. Limits of Accuracy: <to be="" inserted="">.</to>
HW0011	Acid sulphate soil						
HW0011.01	Initial testing for acid sulphate soils and prepare and submit report	71	per test	\$	110.00	\$ 7,810.00	Submit: Result for each test. Limits of Accuracy: <to be="" inserted="">.</to>
HW0011.02	Establish treatment facility		Item				Payment: 100% after completion of treatment facility.
HW0011.03	Handling, treatment and testing of acid sulphate soils	7155	m3	ş	60.00	\$ 429,300.00	Measurement: Cubic metres excavated based on thickness of ASS by actual length by Minimum Trench Width. Submit: Test results confirming satisfactory treatment. Limits of Accuracy: Limits of Accuracy: commons.org Limits of Accuracy:
HW0011.04	Disposal off site of acid sulphate soil	0	tonne	\$	122.00	\$	Measurement: Tonnes transported from the site. Submit: Weighbridge dockets. Limits of Accuracy: <to be="" inserted=""></to>
HW0012	Preconstruction record						
HW0012.01	Photographic	Item	Lump Sum			\$	Payment: 70% on submission of the Photographic record. Remainder at Practical Completion.
HW0012.02	Video	Item	Lump Sum			\$ -	Payment: 70% on submission of the Video record. Remainder at Practical Completion.
HW0012.03	CCTV	ltem	Lump Sum			\$ -	Payment: 70% on submission of the CCTV record. Remainder at Practical Completion.
HW0013	Work as Constructed Information <insert min<br="">\$></insert>	Item	Lump Sum	\$	48,000.00	\$ 48,000.00	Payment: 100% at Practical Completion.

	TOTAL ESTIMATED CONTRACT AWARD SUM		\$	4,235,284.75
	PRE-CONSTRUCTION COST (Table 10)		T	
HW0016	Design		\$	508,234.1
HW0017	Project Management of Design		\$	95,432.43
HW0018	Land Matters	\$	-	
HW0024	Community Consultation			
	Sub Total(B1)		\$	603,666.60
	Pre construction contingency (30% of B1)		\$	181,099.9
	TOTAL PRE-CONSTRUCTION COST (B)		\$	784,766.5
	Total Estimated Contract Award Sum (A)		\$	4,235,284.7
	CONSTRUCTION COST			
HW0019	Principal Supplied Pipe (as applicable)			
HW0020	Principal Supplied Valves and Flowmeters (as	applicable)	s	
HW0020 HW0021		applicable)	5 5 5	-
	Principal Supplied Valves and Flowmeters (as	applicable)	* * *	-
HW0021	Principal Supplied Valves and Flowmeters (as Principal Supplied Fittings (as applicable)	applicable)	5 5 5 5 5	338,822.78
HW0021 HW0022	Principal Supplied Valves and Flowmeters (as Principal Supplied Fittings (as applicable) Pump Station HV Power Supply	applicable)	5 5 5 5 5 5	- - - - - - - - - - - - - - - - - - -
HW0021 HW0022	Principal Supplied Valves and Flowmeters (as Principal Supplied Fittings (as applicable) Pump Station HV Power Supply Construction Management (Table 11)	applicable)	* * * * * * *	4,574,107.5
HW0021 HW0022	Principal Supplied Valves and Flowmeters (as. Principal Supplied Tittings (as.applicable) Pump Station NV Power Supply Construction Management (Table 11) Sub Total (C1) Construction contingency	applicable) Iminary Estimate	* * * * * *	

PROJECT DESCRIPTION:

Option 1B DN500 Rising Main

Item No.	Item Description	Qty	Unit	Rate \$/Unit	Amount \$	Application of Schedule of Rates
	All work not included elsewhere in this schedule	Item	Lump Sum			Payment: Maximum of 10% shall be due each month until 70% of the amount has been paid. Remainder at Practical Completion.
	Site Establishment <insert \$="" max=""></insert>	ltem	Lump Sum	\$ 30,000.00	\$ 30,000.00	Payment: 100% after completion.
	Site Disestablishment <insert \$="" min=""></insert>	Item	Lump Sum	\$ 30,000.00	\$ 30,000.00	Payment: 100% after completion.
	Preparation and implementation of the Construction EMP	ltem	Lump Sum	\$ 8,000.00		Payment: Maximum of 30% on submission of complying Construction EMP, then 10% per month up to maximum of 80%. Remainder at Practical Completion. Submit: Construction EMP.
HW0005	Preparation and implementation of the Safety Management Plan.	ltem	Lump Sum	\$ 18,000.00	\$ 18,000.00	Payment: Maximum of 30% on submission of complying plan, then 10% per month up to maximum of 80%. Remainder at Practical Completion. Submit: Safety Management Plan.
HW0006	Preparation and implementation of the Traffic Control Plan.	ltem	Lump Sum	\$ 4,000.00	\$ 4,000.00	^D Payment: Maximum of 30% on submission of complying Traffic Control Plan, then 10% per month up to maximum of 80%. Remainder at Practical Completion.
	Preparation and Implementation of Quality Management Plan	ltem	Lump Sum	\$ 40,566.35	\$ 40,566.35	⁵ Payment: Maximum of 30% on submission of complying Quality Management Plan, then 10% per month up to maximum of 80%. Remainder at Practical Completion.
HW0008	Community Consultation	Item	Lump Sum	s -	\$	 Payment: 10% per month up to maximum of 70%. Remainder at Practical Completion.

Item	Construction of Sewer Rising Mains	Qty	Unit	\$/Unit		Amount \$	Application of Schedule of Rates	
HWR001	Service Location	ltem	Lumo Sum	\$ 14,040.0	0\$	14,040.00	Payment: Maximum of 10% shall be due each month until 70% of the	
							amount has been paid. Remainder at Practical Completion. Payment: Percentage of valves and nowmeters supplied	
HWR002	Supply all valves	Item	Lump Sum		\$	-	Submit: Relevant Quality Records including Compliance Certificates.	
HWR003	Supply all fittings	Item	Lump Sum		s		Payment: Percentage of intrings supplied.	
	coppiy an intriga		comp com		Ť		Submit: Relevant Quality Records including Compliance Certificates.	
HWR004	Supply all pipe materials including detector						Measurement: Actual metres (effective length) of pipe delivered to site.	
	tape, pipe protection wrapping, rubber rings and lubricant for following pipe sizes:						Submit: Relevant Quality Records including Compliance Certificates. Note:	
	and identian to renowing pipe aces.						Limits of Accuracy to be inserted for each pipe size.	
132DSS	Nominal DN500 DICL pipe	6000	m	\$ 394.0	0\$	2,364,000.00		
HWR005	Clear, excavate, lay, join, bed, backfill & test						Measurement: Actual metres of pipe installed with design depth of	
	pipelines (installation).						excavation up to and including 1.5m.	
	Up to 1.5 m depth to invert in OTR.						Retention: 10% <or appropriate="" other="" percentage=""> until satisfactory testing</or>	
							Submit: Relevant Quality Records including as constructed lengths, levels	
							and coordinates.	
							Limits of Accuracy: <to be="" inserted="">.</to>	
132003	Nominal DN500 DICL (Trench type 3)	6000	m	\$ 160.2	65	961.560.00	citilis of Acculacy. < to be inseried >.	Disalino 2 ama -T
132D03 HWR006	Clear, excavate, lay, join, bed, backfil & test	0000			~ *	201,000,100		Pipeline 2 - area allow
HWR000	pipelines (installation).						Measurement: Actual metres of pipe installed with design depth of	
	Nominal depth >1.5m to 3.0m to invert in						excavation > 1.5m to and including 3.0m.	
	OTR.						Retention: 10% <or appropriate="" other="" percentage=""> until satisfactory testing</or>	
							Submit: Relevant Quality Records including as constructed lengths, levels	
							and coordinates.	
							Limits of Accuracy: <to be="" inserted="">.</to>	
HWR007	Clear, excavate, lay, join, bed, backfil & test						Measurement: Actual metres of pipe installed with design depth of	
	pipelines (installation).						excavation > 3.0m to and including 4.5m.	
	Nominal depth >3.0m to 4.5m to invert in						Retention: 10% <or appropriate="" other="" percentage=""> until satisfactory testing</or>	
	OTR.							
							Submit: Relevant Quality Records including as constructed lengths, levels	
							and coordinates. Limits of Accuracy: <to be="" inserted="">.</to>	
HWR008	Clear, excavate, lay, join, bed, backfill & test				_			
HWN000	pipelines (installation).						Measurement: Actual metres of pipe installed with design depth of	
	Nominal depth >4.5m to invert in OTR.						excavation > 4.5m.	
							Retention: 10% <or appropriate="" other="" percentage=""> until satisfactory testing</or>	
							Submit: Relevant Quality Records including as constructed lengths, levels	
							and coordinates.	
							Limits of Accuracy: <to be="" inserted="">.</to>	
HWR009	EMPTY							
HWR010	Extra over rate for installation for Additional		m3	\$ 22.95			measurement. Coold metres or additional compaction based on mickness	
	compaction						by length by Minimum Trench Width.	
							Submit: Relevant Quality Records.	
							Limits of Accuracy: <to be="" inserted="">.</to>	
HWR011	Excavate below specified design depth when		m3	\$ 94.50	1		length by Minimum Trench Width.	
	directed including disposal of excess							
	excavated material						Submit: Relevant Quality Records. Limits of Accuracy: <to be="" inserted="">.</to>	
HWR012			m3		_		Limits of Accuracy. < 10 be inserted>.	
HWR012	Extra over rate for installation to Supply & place & compact non cohesive material.		m3				by length by Minimum Trench Width.	
	place & compact non conesive material.						Submit: Relevant Quality Records.	
							Limits of Accuracy: <to be="" inserted="">.</to>	
HWR013	Extra over rate for installation for supply.		m3	\$ 405.00	1		measurement. Coold metres or stabilised sand cement based on trickness	1
	place and compact stabilised sand cement		13	¥ 405.00	1		by length by Minimum Trench Width.	
	(14:1) backfill				1		Submit: Relevant Quality Records.	
			1		1		Limits of Accuracy: <to be="" inserted="">.</to>	
HWR014	Extra over rate for installation for Supply,		m3		+		measurement. Output meanes or aggregate bases on anothers by length by	
	place and compact aggregate			1	1		Minimum Trench Width.	1
					1		Submit: Relevant Quality Records.	1
							Limits of Accuracy: <to be="" inserted="">.</to>	

HWR015								
HWHUTS	Supply & place ballast		tonnes	s	90.00			Measurement: Actual tonnes placed as directed. Submit: Relevant Quality Records including certified weighbridge dockets. Limits of Accuracy: <to be="" inserted="">.</to>
	External Dewatering of trench including establishment & disestablishment	6000	E			Ş	600,000.00	measurement: Length of pipeline for which external dewatering is agreed with the Superintendent and provided, measured along the axis of the pipeline between the first and last spear point. Submit: Relevant Quality Records.
	Supply and place treated timber piling for pip support		m					Submit: Relevant Quality Records. Limits of Accuracy: <to be="" inserted="">.</to>
HWR018	Road / creek crossings							Measurement: Lengin in metres or casing installed Submit: Relevant Quality Records. Limits of Accuracy: <to be="" inserted="">.</to>
HWR018.01	Adelaide St	80	m	\$	1,449.06	\$	115,925.00	
HWR019	Extra over rate for installation of trenchless technique under existing rail line		m					Submit: Relevant Quality Records. Limits of Accuracy: <to be="" inserted="">.</to>
	Supply and installation of pipe aerial creek crossing including supply of MSCL pipe with protection coating, internal and external welding, testing of welds. For the following MSCL pipe sizes:							design: Retention: 10% -orr other appropriate percentage> until satisfactory testing. Note: Consider other milestone retentions. Submit: Retevant Quality Records. Umbit of Accuracy: <to be="" inserted="">.</to>
	Supply and installation of pipe river crossing including supply of MSCL pipe, internal and external welding, testing of welds and 150 thick concrete encasement. Also includes mobilisation and demobilisation of dredge[f] required ;excavation & disposal of excavated material, backfilling, lay, bed and test for the following MSCL pipe sizes:							Measurement: Length in metres of casing installed. Retention: 10% or other appropriate percentages- until satisfactory testing. Notic: Consider of the milestone retention: Submit: Retenvant Quality Records. Limits of Accuracy: or be insented
	Bulkheads and Trenchstops in accordance with WSAA drawing SEW-1206	ltem	Lump Sum			\$	-	Payment: Number of builtneads & trenchstops constructed Submit: Relevant Quality Records. Limits of Accuracy: <to be="" inserted="">.</to>
HWR023	Supply and install valve pits (excluding valve and fittings)	. 0	Each	\$		\$		Paymen: Number or valve pris consorcies Retention: <to be="" determined="">. Submit: Relevant Quality Records. Limits of Accuracy: <to be="" inserted="">.</to></to>
HWR024	Flow Relief Structures		Each					Paymen: Number or now relies socialities constructed Retention: <to be="" determined="">. Submit: Relevant Quality Records. Limits of Accuracy: <to be="" inserted="">.</to></to>
HWR025	EMPTY							
HWR026	Supply and construct vent stacks		each					Retention: <to be="" determined="">. Submit: Relevant Quality Records. Limits of Accuracy: <to be="" inserted="">.</to></to>
HWR027	Preparation of line sheets	6000	m	\$	1.00	\$	6,000.00	Measurement: Length of pipelines constructed as per design Limits of Accuracy: <to be="" inserted="">.</to>
HWR028	Acceptance testing - rising main		m					Measurement: Length of pipelines constructed as per design Submit: Satisfactory test records Limits of Accuracy: <to be="" inserted="">.</to>
HWR029	Miscellaneous							
_		_						
HWR000	Sub Total					\$	4,061,525	

Item No.	Item Description	Qty	Unit		Amount \$	Application of Schedule of Rates
HW0009	Restoration - Pipelines:					Payment: 100% after completion.
HW0009.01	Concrete kerb & gutter	0	m	\$ 110.00	\$.	Measurement: Lineal metres restored within Minimum Trench Width. Limits of Accuracy: <to be="" inserted="">.</to>
HW0009.02	Concrete driveway	0	m2	\$ 178.00	\$.	Measurement: Square metres restored based on actual length by Minimum Trench Width. Limits of Accuracy: <to be="" inserted=""></to>
HW0009.03	Exposed aggregate & stamped driveway	0	m2	\$ 220.00		Measurement: Square metres restored based on actual length by Minimum Trench Width. Limits of Accuracy: <to be="" inserted=""></to>
HW0009.04	Concrete footpath	0	m2	\$ 155.00	\$ -	Measurement: Square metres restored based on actual length by Minimum Trench Width. Limits of Accuracy: <to be="" inserted=""></to>
HW0009.05	Bitumen footpath	0	m2	\$ 117.00	\$.	Measurement: Square metres restored based on actual length by Minimum Trench Width.
HW0009.06	Gravel pavement	0	m2	\$ 69.00	\$-	Measurement: Square metres restored based on actual length by Minimum Trench Width. Limits of Accuracy: <to be="" inserted=""></to>
HW0009.07	Bitumen pavement		m2			Measurement: Square metres restored based on actual length by Minimum Trench Width. Limits of Accuracy: <to be="" inserted=""></to>
HW0009.08	AC pavement		m2			Measurement: Square metres restored based on actual length by Minimum Trench Width. Limits of Accuracy: <to be="" inserted=""></to>
HW0009.09	Pavers		m2			Measurement: Square metres restored based on actual length by Minimum Trench Width. Limits of Accuracy: <to be="" inserted=""></to>
HW0009.10			m2			Measurement: Square metres restored based on actual length by Minimum Trench Width. Limits of Accuracy: <to be="" inserted=""></to>
HW0009.11	Grass seeding	10200	m2	\$ 7.00	\$ 71,400.00	Measurement: Square metres restored based on actual length by Minimum Trench Width. Limits of Accuracy: <to be="" inserted=""></to>

HW0009.12	Hydromulch		m2				Measurement: Square metres restored based on actual length by Minimum Trench Width. Limits of Accuracy: <to be="" inserted=""></to>
	Extra over item for Excavation in rock and disposal of excess excavated material		m3				Measurement: Cubic metres excavated based on thickness of rock by actual length by Minimum Trench Width. Limits of Accuracy: <to be="" inserted="">.</to>
HW0011	Acid sulphate soil						
HW0011.01	Initial testing for acid sulphate soils and prepare and submit report	71	per test	\$	110.00	\$ 7,810.00	Submit: Result for each test. Limits of Accuracy: <to be="" inserted="">.</to>
HW0011.02	Establish treatment facility		Item				Payment: 100% after completion of treatment facility.
HW0011.03	Handling, treatment and testing of acid sulphate soils	7155	m3	ş	60.00	\$ 429,300.00	Measurement: Cubic metres excavated based on thickness of ASS by actual length by Minimum Trench Width. Submit: Test results confirming satisfactory treatment. Limits of Accuracy: Limits of Accuracy: commons.org Limits of Accuracy:
HW0011.04	Disposal off site of acid sulphate soil	0	tonne	\$	122.00	\$	Measurement: Tonnes transported from the site. Submit: Weighbridge dockets. Limits of Accuracy: <to be="" inserted=""></to>
HW0012	Preconstruction record						
HW0012.01	Photographic	Item	Lump Sum			\$	Payment: 70% on submission of the Photographic record. Remainder at Practical Completion.
HW0012.02	Video	Item	Lump Sum			\$ -	Payment: 70% on submission of the Video record. Remainder at Practical Completion.
HW0012.03	CCTV	ltem	Lump Sum			\$ -	Payment: 70% on submission of the CCTV record. Remainder at Practical Completion.
HW0013	Work as Constructed Information <insert min<br="">\$></insert>	Item	Lump Sum	\$	48,000.00	\$ 48,000.00	Payment: 100% at Practical Completion.

	TOTAL ESTIMATED CONTRACT AWARD S	UM	\$	4,828,134.3
	PRE-CONSTRUCTION COST (Table 10)		T	
HW0016	Design		\$	579,376.12
HW0017	Project Management of Design		\$	109,761.63
HW0018	Land Matters	\$	-	
HW0024	Community Consultation			
	Sub Total(B1)		\$	689,137.75
	Pre construction contingency (30% of	B1)	\$	206,741.3
	TOTAL PRE-CONSTRUCTION COST (B)		\$	895,879.03
	Total Estimated Contract Award Sum (A)		s	4.828.134.3
	CONSTRUCTION COST			
HW0019	Principal Supplied Pipe (as applicable)		s	
HW0020	Principal Supplied Valves and Flowmete	rs (as annlicable)	\$	
HW0020 HW0021	Principal Supplied Valves and Flowmete Principal Supplied Fittings (as applicable		s	
	Principal Supplied Fittings (as applicable		\$ \$ \$	
HW0021	Principal Supplied Fittings (as applicable Pump Station HV Power Supply		\$ \$ \$ \$	- - - 386,250.75
HW0021 HW0022	Principal Supplied Fittings (as applicable		s s s s	386,250.75 5,214,385.10
HW0021 HW0022	Principal Supplied Fittings (as applicable Pump Station HV Power Supply Construction Management (Table 11)		s s s s s	
HW0021 HW0022	Principal Supplied Fittings (as applicable Pump Station HV Power Supply Construction Management (Table 11) Sub Total (C1)		* * * * *	5,214,385.10

PROJECT DESCRIPTION:

Option 1B DN600 Rising Main

Item No.	Item Description	Qty	Unit	Rate \$/Unit	Amount \$	Application of Schedule of Rates
	All work not included elsewhere in this schedule	Item	Lump Sum			Payment: Maximum of 10% shall be due each month until 70% of the amount has been paid. Remainder at Practical Completion.
	Site Establishment <insert \$="" max=""></insert>	ltem	Lump Sum	\$ 30,000.00	\$ 30,000.00	Payment: 100% after completion.
	Site Disestablishment <insert \$="" min=""></insert>	Item	Lump Sum	\$ 30,000.00	\$ 30,000.00	Payment: 100% after completion.
	Preparation and implementation of the Construction EMP	ltem	Lump Sum	\$ 8,000.00		Payment: Maximum of 30% on submission of complying Construction EMP, then 10% per month up to maximum of 80%. Remainder at Practical Completion. Submit: Construction EMP.
HW0005	Preparation and implementation of the Safety Management Plan.	ltem	Lump Sum	\$ 18,000.00	\$ 18,000.00	Payment: Maximum of 30% on submission of complying plan, then 10% per month up to maximum of 80%. Remainder at Practical Completion. Submit: Safety Management Plan.
HW0006	Preparation and implementation of the Traffic Control Plan.	ltem	Lump Sum	\$ 4,000.00	\$ 4,000.00	^D Payment: Maximum of 30% on submission of complying Traffic Control Plan, then 10% per month up to maximum of 80%. Remainder at Practical Completion.
HW0007	Preparation and Implementation of Quality Management Plan	ltem	Lump Sum	\$ 49,289.85	\$ 49,289.85	⁵ Payment: Maximum of 30% on submission of complying Quality Management Plan, then 10% per month up to maximum of 80%. Remainder at Practical Completion.
HW0008	Community Consultation	Item	Lump Sum	s -	\$	Payment: 10% per month up to maximum of 70%. Remainder at Practical Completion.

Item	Construction of Sewer Rising Mains	Qty	Unit	\$/Unit		Amount \$	Application of Schedule of Rates	
fWR001	Service Location	ltem	Lumo Sum	\$ 16,380.	00 \$	16,380.00	Payment: Maximum of 10% shall be due each month until 70% of the	
							amount has been paid. Remainder at Practical Completion. Payment: Percentage of valves and nowmeters supplied	
HWR002	Supply all valves	Item	Lump Sum		4	-	Submit: Relevant Quality Records including Compliance Certificates.	
HWR003	Supply all fittings	Item	Lump Sum		5		Payment: Percentage of intrings supplied.	
	coppiy an intriga		comp com		1		Submit: Relevant Quality Records including Compliance Certificates.	
HWR004	Supply all pipe materials including detector tape, pipe protection wrapping, rubber rings						Measurement: Actual metres (effective length) of pipe delivered to site.	
	and lubricant for following pipe sizes:						Submit: Relevant Quality Records including Compliance Certificates. Note: Limits of Accuracy to be inserted for each pipe size.	
13CDSS	Nominal DN600 DICL pipe	6000	m	\$ 514.	00 \$	3,084,000.00		
HWR005	Clear, excavate, lay, join, bed, backfil & test						Measurement: Actual metres of pipe installed with design depth of	
	pipelines (installation).						excavation up to and including 1.5m.	
	Up to 1.5 m depth to invert in OTR.						Retention: 10% <or appropriate="" other="" percentage=""> until satisfactory testing</or>	
							Submit: Relevant Quality Records including as constructed lengths, levels	
							and coordinates.	
							Limits of Accuracy: <to be="" inserted="">.</to>	
13CD03	Nominal DN600 DICL (Trench type 3)	6000	m	\$ 169.	87 \$	1,019,220.00		Pipeline 2 - area allow
HWR006	Clear, excavate, lay, join, bed, backfil & test pipelines (installation).						Measurement: Actual metres of pipe installed with design depth of	
	Nominal depth >1.5m to 3.0m to invert in						excavation > 1.5m to and including 3.0m.	
	Nominal depth >1.5m to 3.0m to invert in OTR.						Retention: 10% <or appropriate="" other="" percentage=""> until satisfactory testing</or>	
	UIR.						Submit: Relevant Quality Records including as constructed lengths, levels	
							and coordinates.	
							Limits of Accuracy: <to be="" inserted="">.</to>	
HWR007	Clear, excavate, lay, join, bed, backfil & test pipelines (installation).						Measurement: Actual metres of pipe installed with design depth of	
	Nominal depth >3.0m to 4.5m to invert in						excavation > 3.0m to and including 4.5m.	
	Nominal depth >3.0m to 4.5m to invert in OTR.						Retention: 10% <or appropriate="" other="" percentage=""> until satisfactory testing</or>	
	UIR.						Submit: Relevant Quality Records including as constructed lengths, levels	
							and coordinates.	
HWR008					_		Limits of Accuracy: <to be="" inserted="">.</to>	
HWHUUG	Clear, excavate, lay, join, bed, backfil & test pipelines (installation).						Measurement: Actual metres of pipe installed with design depth of	
	Nominal depth >4.5m to invert in OTR.						excavation > 4.5m.	
	Homman depart - 4.5m to intert in Orne.						Retention: 10% <or appropriate="" other="" percentage=""> until satisfactory testing</or>	
							Submit: Relevant Quality Records including as constructed lengths, levels	
							and coordinates.	
							Limits of Accuracy: <to be="" inserted="">.</to>	
HWR009	EMPTY				-			
HWR010	Extra over rate for installation for Additional		m3	\$ 26.7	8		measurement. Cubic metres or auditional compaction based on mickness	
	compaction						by length by Minimum Trench Width.	
	-						Submit: Relevant Quality Records.	
							Limits of Accuracy: <to be="" inserted="">.</to>	
HWR011	Excavate below specified design depth when		m3	\$ 110.2	5		measurement. Coold metres or excavation directed based on thickness by	
	directed including disposal of excess				-		length by Minimum Trench Width.	
	excavated material						Submit: Relevant Quality Records.	
							Limits of Accuracy: <to be="" inserted="">.</to>	
HWR012	Extra over rate for installation to Supply &		m3		-		measurement. Coold metres of non conesive material based on trickness	
	place & compact non cohesive material.						by length by Minimum Trench Width.	
							Submit: Relevant Quality Records.	
			1		1		Limits of Accuracy: <to be="" inserted="">.</to>	
HWR013	Extra over rate for installation for supply,		m3	\$ 472.5	0		measurement. Cubic metres or stabilised sand cement based on thickness	1
	place and compact stabilised sand cement				1		by length by Minimum Trench Width.	1
	(14:1) backfill				1		Submit: Relevant Quality Records.	1
			Ì	1	1		Limits of Accuracy: <to be="" inserted="">.</to>	1
HWR014	Extra over rate for installation for Supply,		m3		1		Mediatrement: Ouble metres or aggregate bases on anothers by length by	1
	place and compact aggregate				1		Minimum Trench Width.	1
					1		Submit: Relevant Quality Records. Limits of Accuracy: <to be="" inserted="">.</to>	1

HWR015								
HWHUTS	Supply & place ballast		tonnes	s	90.00			Measurement: Actual tonnes placed as directed. Submit: Relevant Quality Records including certified weighbridge dockets. Limits of Accuracy: <to be="" inserted="">.</to>
	External Dewatering of trench including establishment & disestablishment	6000	E			Ş	600,000.00	measurement: Length of pipeline for which external dewatering is agreed with the Superintendent and provided, measured along the axis of the pipeline between the first and last spear point. Submit: Relevant Quality Records.
	Supply and place treated timber piling for pip support		m					Submit: Relevant Quality Records. Limits of Accuracy: <to be="" inserted="">.</to>
HWR018	Road / creek crossings							Measurement: Lengin in metres or casing installed Submit: Relevant Quality Records. Limits of Accuracy: <to be="" inserted="">.</to>
HWR018.01	Adelaide St	80	m	\$	1,709.06	\$	136,725.00	
HWR019	Extra over rate for installation of trenchless technique under existing rail line		m					Submit: Relevant Quality Records. Limits of Accuracy: <to be="" inserted="">.</to>
	Supply and installation of pipe aerial creek crossing including supply of MSCL pipe with protection coating, internal and external welding, testing of welds. For the following MSCL pipe sizes:							design: Retention: 10% cor other appropriate percentage> until satisfactory testing. Note: Consider other milestone retentions. Submit: Retevant Quality Records. Umbit of Accuracy: <to be="" inserted="">.</to>
	Supply and installation of pipe river crossing including supply of MSCL pipe, internal and external welding, testing of welds and 150 thick concrete encasement. Also includes mobilisation and demobilisation of dredge[f] required ;excavation & disposal of excavated material, backfilling, lay, bed and test for the following MSCL pipe sizes:							Measurement: Length in metres of casing installed. Retention: 10% or other appropriate percentages- until satisfactory testing. Notic: Consider of the milestone retention: Submit: Retenvant Quality Records. Limits of Accuracy: or bio instrets-
	Bulkheads and Trenchstops in accordance with WSAA drawing SEW-1206	ltem	Lump Sum			\$	-	Payment: Number of builtneads & trenchstops constructed Submit: Relevant Quality Records. Limits of Accuracy: <to be="" inserted="">.</to>
HWR023	Supply and install valve pits (excluding valve and fittings)	. 0	Each	\$		\$		Paymen: Number or valve pris consorcies: Retention: <to be="" determined="">. Submit: Relevant Quality Records. Limits of Accuracy: <to be="" inserted="">.</to></to>
HWR024	Flow Relief Structures		Each					Paymen: Number or now relies socialities constructed Retention: <to be="" determined="">. Submit: Relevant Quality Records. Limits of Accuracy: <to be="" inserted="">.</to></to>
HWR025	EMPTY							
HWR026	Supply and construct vent stacks		each					Retention: <to be="" determined="">. Submit: Relevant Quality Records. Limits of Accuracy: <to be="" inserted="">.</to></to>
HWR027	Preparation of line sheets	6000	m	\$	1.00	\$	6,000.00	Measurement: Length of pipelines constructed as per design Limits of Accuracy: <to be="" inserted="">.</to>
HWR028	Acceptance testing - rising main		m					Measurement: Length of pipelines constructed as per design Submit: Satisfactory test records Limits of Accuracy: <to be="" inserted="">.</to>
HWR029	Miscellaneous							
HWR000	Sub Total					\$	4,862,325	

Item No.	Item Description	Qty	Unit		Amount \$	Application of Schedule of Rates
HW0009	Restoration - Pipelines:					Payment: 100% after completion.
HW0009.01	Concrete kerb & gutter	0	m	\$ 110.00	\$.	Measurement: Lineal metres restored within Minimum Trench Width. Limits of Accuracy: <to be="" inserted="">.</to>
HW0009.02	Concrete driveway	0	m2	\$ 178.00	\$.	Measurement: Square metres restored based on actual length by Minimum Trench Width. Limits of Accuracy: <to be="" inserted=""></to>
HW0009.03	Exposed aggregate & stamped driveway	0	m2	\$ 220.00		Measurement: Square metres restored based on actual length by Minimum Trench Width. Limits of Accuracy: <to be="" inserted=""></to>
HW0009.04	Concrete footpath	0	m2	\$ 155.00	\$ -	Measurement: Square metres restored based on actual length by Minimum Trench Width. Limits of Accuracy: <to be="" inserted=""></to>
HW0009.05	Bitumen footpath	0	m2	\$ 117.00	\$.	Measurement: Square metres restored based on actual length by Minimum Trench Width. Limits of Accuracy: <to be="" inserted=""></to>
HW0009.06	Gravel pavement	0	m2	\$ 69.00	\$-	Measurement: Square metres restored based on actual length by Minimum Trench Width. Limits of Accuracy: <to be="" inserted=""></to>
HW0009.07	Bitumen pavement		m2			Measurement: Square metres restored based on actual length by Minimum Trench Width. Limits of Accuracy: <to be="" inserted=""></to>
HW0009.08	AC pavement		m2			Measurement: Square metres restored based on actual length by Minimum Trench Width. Limits of Accuracy: <to be="" inserted=""></to>
HW0009.09	Pavers		m2			Measurement: Square metres restored based on actual length by Minimum Trench Width. Limits of Accuracy: <to be="" inserted=""></to>
HW0009.10	Turf		m2			Measurement: Square metres restored based on actual length by Minimum Trench Width. Limits of Accuracy: <to be="" inserted=""></to>
HW0009.11	Grass seeding	11100	m2	\$ 7.00	\$ 77,700.00	Measurement: Square metres restored based on actual length by Minimum Trench Width. Limits of Accuracy: <to be="" inserted=""></to>

HW0009.12	Hydromulch		m2				Measurement: Square metres restored based on actual length by Minimum Trench Width. Limits of Accuracy: <to be="" inserted=""></to>
	Extra over item for Excavation in rock and disposal of excess excavated material		m3				Measurement: Cubic metres excavated based on thickness of rock by actual length by Minimum Trench Width. Limits of Accuracy: <to be="" inserted="">.</to>
HW0011	Acid sulphate soil						
HW0011.01	Initial testing for acid sulphate soils and prepare and submit report	71	per test	\$	110.00	\$ 7,810.00	Submit: Result for each test. Limits of Accuracy: <to be="" inserted="">.</to>
HW0011.02	Establish treatment facility		Item				Payment: 100% after completion of treatment facility.
HW0011.03	Handling, treatment and testing of acid sulphate soils	8347.5	m3	ş	60.00	\$ 500,850.00	Measurement: Cubic metres excavated based on thickness of ASS by actual length by Minimum Trench Width. Submit: Test results confirming satisfactory treatment. Limits of Accuracy: Limits of Accuracy: commons.org Limits of Accuracy:
HW0011.04	Disposal off site of acid sulphate soil	0	tonne	\$	122.00	\$	Measurement: Tonnes transported from the site. Submit: Weighbridge dockets. Limits of Accuracy: <to be="" inserted=""></to>
HW0012	Preconstruction record						
HW0012.01	Photographic	Item	Lump Sum			\$	Payment: 70% on submission of the Photographic record. Remainder at Practical Completion.
HW0012.02	Video	Item	Lump Sum			\$	Payment: 70% on submission of the Video record. Remainder at Practical Completion.
HW0012.03	CCTV	ltem	Lump Sum			\$	Payment: 70% on submission of the CCTV record. Remainder at Practical Completion.
HW0013	Work as Constructed Information <insert min<br="">\$></insert>	Item	Lump Sum	s	48,000.00	\$ 48,000.00	Payment: 100% at Practical Completion.

	TOTAL ESTIMATED CONTRACT AWARD SUM		\$	5,732,954.8
	PRE-CONSTRUCTION COST (Table 10)			
HW0016	Design		\$	573,295.49
HW0017	Project Management of Design		\$	111,105.10
HW0018	Land Matters	\$	-	
HW0024	Community Consultation			
	Sub Total(B1)		\$	684,400.58
	Pre construction contingency (30% of B1)		\$	205,320.1
	TOTAL PRE-CONSTRUCTION COST (B)		\$	889,720.76
	Total Estimated Contract Award Sum (A)		\$	5,732,954.8
	CONSTRUCTION COST			
HW0019	Principal Supplied Pipe (as applicable)		\$	
HW0020	Principal Supplied Valves and Flowmeters (a:	s applicable)	e	
HW0021	Principal Supplied Fittings (as applicable)	(approace)	s	
		upproduct)	\$ \$	
HW0021	Principal Supplied Fittings (as applicable)	suppression,	\$ \$ \$ \$	458,636.3
HW0021 HW0022	Principal Supplied Fittings (as applicable) Pump Station HV Power Supply	suppressed	s s s s	458,636.3 6,191,591.2
HW0021 HW0022	Principal Supplied Fittings (as applicable) Pump Station HV Power Supply Construction Management (Table 11)	suppressed)	\$ \$ \$ \$ \$ \$	
HW0021 HW0022	Principal Supplied Fittings (as applicable) Pump Station HV Power Supply Construction Management (Table 11) Sub Total (C1) Construction contingency	reliminary Estimate	-	6,191,591.24

PROJECT DESCRIPTION:

Option 1C DN450 Rising Main

Item No.	Item Description	Qty	Unit	Rate \$/Unit		iount \$	Application of Schedule of Rates
	All work not included elsewhere in this schedule	Item	Lump Sum		Ť		Payment: Maximum of 10% shall be due each month until 70% of the amount has been paid. Remainder at Practical Completion.
	Site Establishment <insert \$="" max=""></insert>	Item	Lump Sum	\$ 30,000.00			Payment: 100% after completion.
	Site Disestablishment <insert \$="" min=""></insert>	Item	Lump Sum	\$ 30,000.00	s	30,000.00	Payment: 100% after completion.
	Preparation and implementation of the Construction EMP	Item	Lump Sum	\$ 4,000.00			Payment: Maximum of 30% on submission of complying Construction EMP, then 10% per month up to maximum of 80%. Remainder at Practical Completion. Submit: Construction EMP.
HW0005	Preparation and implementation of the Safety Management Plan.	ltem	Lump Sum	\$ 9,000.00	s		Payment: Maximum of 30% on submission of complying plan, then 10% per month up to maximum of 80%. Remainder at Practical Completion. Submit: Safety Management Plan.
	Preparation and implementation of the Traffic Control Plan.	Item	Lump Sum	\$ 2,000.00			Payment: Maximum of 30% on submission of complying Traffic Control Plan, then 10% per month up to maximum of 80%. Remainder at Practical Completion.
HW0007	Preparation and Implementation of Quality Management Plan	ltem	Lump Sum	\$ 22,759.55	\$		Payment: Maximum of 30% on submission of complying Quality Management Plan, then 10% per month up to maximum of 80%. Remainder at Practical Completion.
HW0008	Community Consultation	Item	Lump Sum	s -	\$		Payment: 10% per month up to maximum of 70%. Remainder at Practical Completion.

Item	Construction of Sewer Rising Mains	Qty	Unit	\$/Unit		Amount \$	Application of Schedule of Rates	
HWR001	Service Location	ltem	Lumo Sum	\$ 4,410.0	0\$	4,410.00	Payment: Maximum of 10% shall be due each month until 70% of the	
							amount has been paid. Remainder at Practical Completion. Payment: Percentage of valves and nowmeters supplied	
HWR002	Supply all valves	Item	Lump Sum		\$	-	Submit: Relevant Quality Records including Compliance Certificates.	
HWR003	Supply all fittings	Item	Lump Sum		s		Payment: Percentage of mongs supplied.	
	coppiy an intriga		comp com		Ť		Submit: Relevant Quality Records including Compliance Certificates.	
HWR004	Supply all pipe materials including detector						Measurement: Actual metres (effective length) of pipe delivered to site.	
	tape, pipe protection wrapping, rubber rings and lubricant for following pipe sizes:						Submit: Relevant Quality Records including Compliance Certificates. Note:	
	and identian to renowing pipe aces.						Limits of Accuracy to be inserted for each pipe size.	
12DDSS	Nominal DN450 DICL pipe	3500	m	\$ 304.0	10 \$	1,064,000.00		
HWR005	Clear, excavate, lay, join, bed, backfil & test						Management Ask at some of stars to define the design of stars	
	pipelines (installation).						Measurement: Actual metres of pipe installed with design depth of	
	Up to 1.5 m depth to invert in OTR.						excavation up to and including 1.5m. Retention: 10% <or appropriate="" other="" percentage=""> until satisfactory testing.</or>	
							Submit: Relevant Quality Records including as constructed lengths, levels	
					1		and coordinates.	
10000		3500					Limits of Accuracy: <to be="" inserted="">.</to>	L
120003	Nominal DN450 DICL (Trench type 3)	3500	m	\$ 161.9	15 \$	566,825.00		Pipeline 1 - area allow
HWR006	Clear, excavate, lay, join, bed, backfil & test pipelines (installation).						Measurement: Actual metres of pipe installed with design depth of	
	pipelines (installation). Nominal depth >1.5m to 3.0m to invert in						excavation > 1.5m to and including 3.0m.	
	OTR.						Retention: 10% <or appropriate="" other="" percentage=""> until satisfactory testing.</or>	
	one						Submit: Relevant Quality Records including as constructed lengths, levels	
							and coordinates.	
							Limits of Accuracy: <to be="" inserted="">.</to>	
HWR007	Clear, excavate, lay, join, bed, backfil & test				-			
	pipelines (installation).						Measurement: Actual metres of pipe installed with design depth of	
	Nominal depth >3.0m to 4.5m to invert in						excavation > 3.0m to and including 4.5m.	
	OTR.						Retention: 10% <or appropriate="" other="" percentage=""> until satisfactory testing.</or>	
							Submit: Relevant Quality Records including as constructed lengths, levels	
							and coordinates.	
							Limits of Accuracy: <to be="" inserted="">.</to>	
HWR008	Clear, excavate, lay, join, bed, backfil & test						Measurement: Actual metres of pipe installed with design depth of	
	pipelines (installation). Nominal deoth >4.5m to invert in OTR.						excavation > 4.5m.	
	Nominal depth >4.5m to invert in UTR.						Retention: 10% <or appropriate="" other="" percentage=""> until satisfactory testing</or>	
							Submit: Relevant Quality Records including as constructed lengths, levels	
							and coordinates.	
							Limits of Accuracy: <to be="" inserted="">.</to>	
HWR009	EMPTY		1		1			1
HWR010	Extra over rate for installation for Additional		m3	\$ 22.9	5		measurement. Gubic metres of autobular compaction based on mickness	1
	compaction				1		by length by Minimum Trench Width.	1
							Submit: Relevant Quality Records.	
							Limits of Accuracy: <to be="" inserted="">.</to>	
HWR011	Excavate below specified design depth when		m3	\$ 94.50)		measurement. Goold metres of excavation directed based on thickness by	1
	directed including disposal of excess				1		length by Minimum Trench Width.	1
	excavated material				1		Submit: Relevant Quality Records.	1
							Limits of Accuracy: <to be="" inserted="">.</to>	1
HWR012	Extra over rate for installation to Supply &		m3		1		by length by Minimum Trench Width.	
	place & compact non cohesive material.				1		Submit: Relevant Quality Records.	
			1		1		Limits of Accuracy: <to be="" inserted="">.</to>	
HWR013	Extra over rate for installation for supply.		m3	\$ 405.00			measurement. Gubic metres of stabilised sand cement based on thickness	-
	extra over rate for installation for supply, place and compact stabilised sand cement		103	a 405.00	1		by length by Minimum Trench Width.	
	(14:1) backfill				1		Submit: Relevant Quality Records.	1
					1		Limits of Accuracy: <to be="" inserted="">.</to>	1
HWR014	Extra over rate for installation for Supply,		m3		+		measurement. Ouble meace or aggregate based on anothers by length by	1
	place and compact aggregate				1		Minimum Trench Width.	1
					1		Submit: Relevant Quality Records.	1
							Limits of Accuracy: <to be="" inserted="">.</to>	

HWR015	Supply & place ballast		tonnes	\$ 90.00		Measurement: Actual tonnes placed as directed. Submit: Relevant Quality Records including certified weighbridge dockets. Limits of Accuracy: <to be="" inserted="">.</to>
HWR016	External Dewatering of trench including establishment & disestablishment		m			nessurement: Length of pipeline hor which external dewatering is agreed with the Superintendent and provided, measured along the asks of the pipeline between the first and last spear point. Submit: Relevant Quality Records. measurement, cluckan means a non-super ment or use of the measurement.
HWR017	Supply and place treated timber piling for pip support		m			Submit: Relevant Quality Records. Limits of Accuracy: <to be="" inserted="">.</to>
HWR018	Road / creek crossings					Measurement: Lengen in menes or casing installed Submit: Relevant Quality Records. Limits of Accuracy: <to be="" inserted="">.</to>
HWR018.01	Adelaide St	80	m	\$ 1,329.06	\$ 106,325.00	
HWR018.02	Irrawang	90	m	\$ 1,324.72	\$ 119,225.00	
HWR019	Extra over rate for installation of trenchless technique under existing rail line		m			Measurement: Length in metres of casing installed Submit: Relevant Quality Records. Limits of Accuracy: «To be inserted».
HWR020	Supply and installation of pipe aerial creek crossing including supply of MSCL pipe with protection coating, internal and external welding, testing of welds. For the following MSCL pipe sizes:					design. Retention: 10% <or appropriate="" other="" percentage=""> until satisfactory testing. Note: Consider other milestone retentions. Submit: Retevant Quality Records. Limits of Accuracy: <ri e="" inserted="" ob="">.</ri></or>
HWR021	Supply and installation of pipe river crossing including supply of MSCL pipe. Internal and external welding, testing of welds and 150 thick concrete encastement. Also includes mobilisation and demobilisation of dredgel(f required) excuvation & disposal of excuvated material, backfilling, lay, bed and test for the following MSCL pipe sizes:					Measurement: Length in metres of casing installed. Retertion: 10% or other appropriate percentage- until satisfactory testing. Note: Consider of the milestone retertion. Submit: Retervant Quality Records. Limits of Accuracy: of be inserted->
HWR022	Bulkheads and Trenchstops in accordance with WSAA drawing SEW-1206	Item	Lump Sum		\$	Payment, Number of dumineaus a menchslops constructed Submit: Relevant Quality Records. Limits of Accuracy: <to be="" inserted="">.</to>
HWR023	Supply and install valve pits (excluding valve and fittings)	. 0	Each	\$	\$	Payment, Namber of valve proconsoluteu Retention: <to be="" determined="">. Submit: Relevant Quality Records. Limits of Accuracy: <to be="" inserted="">.</to></to>
HWR024	Flow Relief Structures		Each			rayment, reunder on nov rener souccares consoucceu Retention: «To be determined». Submit: Relevant Quality Records. Limits of Accuracy: «To be inserted».
HWR025	EMPTY					
HWR026	Supply and construct vent stacks		each			raymen, romber or ven stacks consolcada Retention: <to be="" determined="">. Submit: Relevant Quality Records. Limits of Accuracy: <to be="" inserted="">.</to></to>
HWR027	Preparation of line sheets	3500	m	\$ 1.00	\$ 3,500.00	Measurement: Length of pipelines constructed as per design Limits of Accuracy: <to be="" inserted="">.</to>
HWR028	Acceptance testing - rising main		m			Reasurement: Lengtr of planmes constructed as per design Submit: Satisfactory test records Limits of Accuracy: <to be="" inserted="">.</to>
HWR029	Miscellaneous					
HWR000	Sub Total				\$ 1,864,285	

Item No.	Item Description	Qty	Unit			Amount	Application of Schedule of Rates
						\$	
	Restoration - Pipelines:						Payment: 100% after completion.
HW0009.01	Concrete kerb & gutter	0	m	\$ 1	10.00	\$	Measurement: Lineal metres restored within Minimum Trench Width. Limits of Accuracy: <to be="" inserted="">.</to>
HW0009.02	Concrete driveway	0	m2	\$ 13	78.00	\$	Measurement: Square metres restored based on actual length by Minimum Trench Width. Limits of Accuracy: <to be="" inserted=""></to>
HW0009.03	Exposed aggregate & stamped driveway	0	m2		20.00		Measurement: Square metres restored based on actual length by Minimum Trench Width. Limits of Accuracy: <to be="" inserted=""></to>
HW0009.04	Concrete footpath	0	m2	\$ 1!	55.00	\$	Measurement: Square metres restored based on actual length by Minimum Trench Width. Limits of Accuracy: <to be="" inserted=""></to>
HW0009.05	Bitumen footpath	0	m2	\$ 1	17.00	\$	Measurement: Square metres restored based on actual length by Minimum Trench Width. Limits of Accuracy: <to be="" inserted=""></to>
HW0009.06	Gravel pavement	0	m2	s	69.00	\$	Measurement: Square metres restored based on actual length by Minimum Trench Width. Limits of Accuracy: <to be="" inserted=""></to>
HW0009.07	Bitumen pavement		m2				Measurement: Square metres restored based on actual length by Minimum Trench Width. Limits of Accuracy: <to be="" inserted=""></to>
HW0009.08	AC pavement		m2				Measurement: Square metres restored based on actual length by Minimum Trench Width. Limits of Accuracy: <to be="" inserted=""></to>
HW0009.09	Pavers		m2				Measurement: Square metres restored based on actual length by Minimum Trench Width. Limits of Accuracy: <to be="" inserted=""></to>
HW0009.10	Turf		m2				Measurement: Square metres restored based on actual length by Minimum Trench Width. Limits of Accuracy: <to be="" inserted=""></to>

HW0009.11	Grass seeding		m2			Measurement: Square metres restored based on actual length by Minimum Trench Width. Limits of Accuracy: <to be="" inserted=""></to>
HW0009.12	Hydromulch		m2			Measurement: Square metres restored based on actual length by Minimum Trench Width. Limits of Accuracy: <to be="" inserted=""></to>
	Extra over item for Excavation in rock and disposal of excess excavated material		m3			Measurement: Cubic metres excavated based on thickness of rock by actual length by Minimum Trench Width. Limits of Accuracy: <to be="" inserted="">.</to>
HW0011	Acid sulphate soil					
HW0011.01	Initial testing for acid sulphate soils and prepare and submit report	47	per test	\$ 110.00	\$ 5,170.00	Submit: Result for each test. Limits of Accuracy: <to be="" inserted="">.</to>
HW0011.02	Establish treatment facility		Item			Payment: 100% after completion of treatment facility.
HW0011.03	Handling, treatment and testing of acid sulphate soils	4725	m3	\$ 60.00	\$ 283,500.00	Deasurement: Cubic metres excavated based on thickness of ASS by actual length by Minimum Trench Width. Submit: Test results confirming satisfactory treatment. Limits of Accuracy: <to be="" inserted=""></to>
HW0011.04	Disposal off site of acid sulphate soil	0	tonne	\$ 122.00	\$	Measurement: Tonnes transported from the site. Submit: Weighbridge dockets. Limits of Accuracy: <to be="" inserted=""></to>
HW0012	Preconstruction record					
HW0012.01	Photographic	Item	Lump Sum		\$	Payment: 70% on submission of the Photographic record. Remainder at Practical Completion.
HW0012.02	Video	ltem	Lump Sum		\$	Payment: 70% on submission of the Video record. Remainder at Practical Completion.
HW0012.03	CCTV	ltem	Lump Sum		\$	 Payment: 70% on submission of the CCTV record. Remainder at Practical Completion.
HW0013	Work as Constructed Information <insert min<br="">\$></insert>	Item	Lump Sum	\$ 28,000.00	\$ 28,000.0	⁰ Payment: 100% at Practical Completion.

	TOTAL ESTIMATED CONTRACT AWARD SUM	\$	2,322,633.55
3.	PRE-CONSTRUCTION COST (Table 10)		
HW0016	Design	\$	278,716.03
HW0017	Project Management of Design	\$	65,743.21
HW0018	Land Matters	\$	-
HW0024	Community Consultation		
	Sub Total(B1)	\$	344,459.23
	Pre construction contingency (30% of B1)	\$	103,337.77
	TOTAL PRE-CONSTRUCTION COST (B)	\$	447,797.00
	CONSTRUCTION COST		
	Total Estimated Contract Award Sum (A)	\$	2,322,633.55
HW0019	Total Estimated Contract Award Sum (A) Principal Supplied Pipe (as applicable)	\$ \$	2,322,633.55
HW0019 HW0020		s s	2,322,633.55
	Principal Supplied Pipe (as applicable)	s s s	2,322,633.55
HW0020	Principal Supplied Pipe (as applicable) Principal Supplied Valves and Flowmeters (as applicable)	\$ \$ \$ \$ \$ \$	2,322,633.55
HW0020 HW0021	Principal Supplied Pipe (as applicable) Principal Supplied Valves and Flowmeters (as applicable) Principal Supplied Fittings (as applicable)	* * * * *	2,322,633.55
HW0020 HW0021 HW0022	Principal Supplied Pipe (as applicable) Principal Supplied Valves and Flowmeters (as applicable) Principal Supplied Fittings (as applicable) Pump Station NV Power Supply	\$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$	
HW0020 HW0021 HW0022	Principal Supplied Pipe (as applicable) Principal Supplied Yalves and Flowmeters (as applicable) Principal Supplied Fittings (as applicable) Pump Station HV Power Supply Construction Management (Table 11)	-	- - 185,810.68
HW0020 HW0021 HW0022	Principal Supplied Pipe (as applicable) Principal Supplied Valves and Rowmeters (as applicable) Principal Supplied Fittings (as applicable) Pump Station HV Power Supply Construction Management (Table 11) Sub Total (C1)	s	185,810.68

TOTAL PRELIMINARY PROJECT ESTIMATE (B+C) (Preliminary Estimate) \$ 3.708.774.50

PROJECT DESCRIPTION:

Option 1C DN500 Rising Main

Item No.	Item Description	Qty	Unit	Rate \$/Unit	Amount	Application of Schedule of Rates
HW0001	All work not included elsewhere in this schedule	Item	Lump Sum	\$ 48,432.00	\$ 48,432.00	Payment: Maximum of 10% shall be due each month until 70% of the amount has been paid. Remainder at Practical Completion.
HW0002	Site Establishment <insert \$="" max=""></insert>	Item	Lump Sum	\$ 30,000.00	\$ 30,000.00	Payment: 100% after completion.
HW0003	Site Disestablishment <insert \$="" min=""></insert>	Item	Lump Sum	\$ 30,000.00	\$ 30,000.00	Payment: 100% after completion.
HW0004	Preparation and implementation of the Construction EMP	ltem	Lump Sum	\$ 4,000.00	\$ 4,000.00	Payment: Maximum of 30% on submission of complying Construction EMP, then 10% per month up to maximum of 80%. Remainder at Practical Completion. Submit: Construction FMP
HW0005	Preparation and implementation of the Safety Management Plan.	ltem	Lump Sum	\$ 9,000.00	\$	Payment: Maximum of 30% on submission of complying plan, then 10% per month up to maximum of 80%. Remainder at Practical Completion. Submit: Safety Management Plan.
HW0006	Preparation and implementation of the Traffic Control Plan.	ltem	Lump Sum	\$ 2,000.00	\$ 2,000.00	Payment: Maximum of 30% on submission of complying Traffic Control Plan, then 10% per month up to maximum of 80%. Remainder at Practical Completion.
	Preparation and Implementation of Quality Management Plan	ltem	Lump Sum	\$ 25,015.95	\$ 25,015.95	Payment: Maximum of 30% on submission of complying Quality Management Plan, then 10% per month up to maximum of 80%. Remainder at Practical Completion.
HW0008	Community Consultation	Item	Lump Sum	\$.	\$ -	Payment: 10% per month up to maximum of 70%. Remainder at Practical Completion.

ewer Pin	eline - Rising - section will be present if o	ne or more	risina mair	s are specified				
Item	Construction of Sewer Rising Mains	Qty	Unit	Kate \$/Unit		s	Application of Schedule of Rates	1
HWR001	Service Location	Item	Lump Sum	\$ 4,410.00	\$	4,410.00	Payment: Maximum of 10% shall be due each month until 70% of the amount has been paid. Remainder at Practical Completion.	
HWR002	Supply all valves	Item	Lump Sum		\$		Submit: Relevant Quality Records including Compliance Certificates.	
HWR003	Supply all fittings	Item	Lump Sum		\$		Payment: Percentage or mongs supplied. Submit: Relevant Quality Records including Compliance Certificates.	
HWR004	Supply all pipe materials including detector tape, pipe protection wrapping, rubber rings and lubricant for following pipe sizes:						Measurement: Actual metres (effective length) of pipe delivered to site. Submit: Relevant Quality Records including Compliance Certificates. Note: Limits of Accuracy to be inserted for each pipe size.	
132DSS	Nominal DN500 DICL pipe	3500	m	\$ 394.00	0\$1,3	379,000.00		
HWR005	Clear, excavate, lay, join, bed, backfil & test pipelines (installation). Up to 1.5 m depth to invert in OTR.						Measurement: Actual metres of pipe installed with design depth of excavation up to and including 1.5m. Reterrition: 10% - or other appropriate percentage> until satisfactory testing Submit: Relevant Quality Records including as constructed lengths, levels and coordinates. Limits of Accuracy: <10 be inserted>.	
132D03	Nominal DN500 DICL (Trench type 3)	3500	m	\$ 167.74	\$ 5	587,090.00		Pipeline 1 - area allowa
HWR006	Clear, excarvate, lay, join, bed, backfil & test pipelines (instaltation). Nominal depth >1.5m to 3.0m to invert in OTR.						Measurement: Actual metres of pipe installed with design depth of excavation > 1.5m to and including 30m. Relettion: 10%- conther appropriate percentage> until satisfactory testing Submit: Relevant Quality Records including as constructed lengths, levels and coordinates. Limits of Accuracy: <to be="" inserted="">.</to>	
HWR007	Clear, excavate, lay, join, bed, backfil & test pipelines (instaltation). Nominal depth >3.0m to 4.5m to invert in OTR.						Measurement: Actual metres of pipe installed with design depth of excavation > 3.0 m to and including 4.5m. Retention: 10% row of the appropriate percentage> untl satisfactory testing Submit: Relevant Quality Records including as constructed lengths, levels and coordinates. Limits of Accuracy: <1 to be inserted>. 	
HWR008	Clear, excavate, lay, join, bed, backfill & test pipelines (installation). Nominal depth >4.5m to invert in OTR.						Measurement: Actual metres of pipe installed with design depth of excavation > 4.5m. Retention: 10% - or other appropriate percentage> until satisfactory testing Submit: Relevand Quality Records including as constructed lengths, levels and coordinates. Limits of Accuracy: <to be="" inserted="">.</to>	
HWR009	EMPTY							
HWR010	Extra over rate for installation for Additional compaction		m3	\$ 22.95			measurement, could metres of administration paction based on birchness by length by Minimum Trench Width. Submit: Relevant Quality Records. Limits of Accuracy: <to be="" inserted="">.</to>	
HWR011	Excavate below specified design depth when directed including disposal of excess excavated material		m3	\$ 94.50			measurement, could metres of excavation or even based on mickness by length by Minimum Trench Width. Submit: Relevant Quality Records. Limits of Accuracy: <to be="" inserted="">.</to>	
HWR012	Extra over rate for installation to Supply & place & compact non cohesive material.		m3				measurement. Cutor, menes on non-conesive materiar based on onconesa- by length by Minimum Trench Width. Submit: Relevant Quality Records. Limits of Accuracy: <to be="" inserted="">.</to>	
HWR013	Extra over rate for installation for supply, place and compact stabilised sand cement (14:1) backfill		m3	\$ 405.00			measurement, coub, menes of saturated sand cement based on unconess by length by Minimum Trench Width. Submit: Relevant Quality Records. Limits of Accuracy: <to be="" inserted="">.</to>	
HWR014	Extra over rate for installation for Supply, place and compact aggregate		m3				Minimum Trench Width. Submit: Relevant Quality Records. Limits of Accuracy: <to be="" inserted="">.</to>	

HWR015								
HWHUTS	Supply & place ballast		tonnes	s	90.00			Measurement: Actual tonnes placed as directed. Submit: Relevant Quality Records including certified weighbridge dockets. Limits of Accuracy: <to be="" inserted="">.</to>
	External Dewatering of trench including establishment & disestablishment	3500	E			Ş	350,000.00	measurement: Length of pipeline for which external dewatering is agreed with the Superintendent and provided, measured along the axis of the pipeline between the first and last spear point. Submit: Relevant Quality Records.
	Supply and place treated timber piling for pip support		m					Submit: Relevant Quality Records. Limits of Accuracy: <to be="" inserted="">.</to>
HWR018	Road / creek crossings							Measurement: Lengin in metres or casing installed Submit: Relevant Quality Records. Limits of Accuracy: <to be="" inserted="">.</to>
HWR018.01	Adelaide St	80	m	\$	1,449.06	\$	115,925.00	
HWR019	Extra over rate for installation of trenchless technique under existing rail line		m					Submit: Relevant Quality Records. Limits of Accuracy: <to be="" inserted="">.</to>
	Supply and installation of pipe aerial creek crossing including supply of MSCL pipe with protection coating, internal and external welding, testing of welds. For the following MSCL pipe sizes:							design: Retention: 10% -orr other appropriate percentage> until satisfactory testing. Note: Consider other milestone retentions. Submit: Retevant Quality Records. Umbit of Accuracy: <to be="" inserted="">.</to>
	Supply and installation of pipe river crossing including supply of MSCL pipe, internal and external welding, testing of welds and 150 thick concrete encasement. Also includes mobilisation and demobilisation of dredge[f] required ;excavation & disposal of excavated material, backfilling, lay, bed and test for the following MSCL pipe sizes:							Measurement: Length in metres of casing installed. Retention: 10% or other appropriate percentages- until satisfactory testing. Notic: Consider of the milestone retention: Submit: Retenvant Quality Records. Limits of Accuracy: or be insented
	Bulkheads and Trenchstops in accordance with WSAA drawing SEW-1206	ltem	Lump Sum			\$		Payment: Number of builkneads & trenchstops constructed Submit: Relevant Quality Records. Limits of Accuracy: <to be="" inserted="">.</to>
HWR023	Supply and install valve pits (excluding valve and fittings)	. 0	Each	\$		\$		Paymen: Number or valve pris consorcies: Retention: <to be="" determined="">. Submit: Relevant Quality Records. Limits of Accuracy: <to be="" inserted="">.</to></to>
HWR024	Flow Relief Structures		Each					Paymen: Number or now relies socialities constructed Retention: <to be="" determined="">. Submit: Relevant Quality Records. Limits of Accuracy: <to be="" inserted="">.</to></to>
HWR025	EMPTY							
HWR026	Supply and construct vent stacks		each					Retention: <to be="" determined="">. Submit: Relevant Quality Records. Limits of Accuracy: <to be="" inserted="">.</to></to>
HWR027	Preparation of line sheets	3500	m	\$	1.00	\$	3,500.00	Measurement: Length of pipelines constructed as per design Limits of Accuracy: <to be="" inserted="">.</to>
HWR028	Acceptance testing - rising main		m					Measurement: Length of pipelines constructed as per design Submit: Satisfactory test records Limits of Accuracy: <to be="" inserted="">.</to>
HWR029	Miscellaneous							
HWR000	Sub Total					\$	2,439,925	

Item No.	Item Description	Qty	Unit		Amount \$	Application of Schedule of Rates
HW0009	Restoration - Pipelines:					Payment: 100% after completion.
HW0009.01	Concrete kerb & gutter	0	m	\$ 110.00	\$.	Messurement: Lineal metres restored within Minimum Trench Width. Limits of Accuracy: <to be="" inserted="">.</to>
HW0009.02	Concrete driveway	0	m2	\$ 178.00	\$.	Measurement: Square metres restored based on actual length by Minimum Trench Width. Limits of Accuracy: <to be="" inserted=""></to>
HW0009.03	Exposed aggregate & stamped driveway	0	m2	\$ 220.00		Messurement: Square metres restored based on actual length by Minimum Trench Width. Limits of Accuracy: <to be="" inserted=""></to>
HW0009.04	Concrete footpath	0	m2	\$ 155.00	\$ -	Measurement: Square metres restored based on actual length by Minimum Trench Width. Limits of Accuracy: <to be="" inserted=""></to>
HW0009.05	Bitumen footpath	0	m2	\$ 117.00	\$.	Measurement: Square metres restored based on actual length by Minimum Trench Width. Limits of Accuracy: <to be="" inserted=""></to>
HW0009.06	Gravel pavement	0	m2	\$ 69.00	\$-	Measurement: Square metres restored based on actual length by Minimum Trench Width. Limits of Accuracy: <to be="" inserted=""></to>
HW0009.07	Bitumen pavement		m2			Measurement: Square metres restored based on actual length by Minimum Trench Width. Limits of Accuracy: <to be="" inserted=""></to>
HW0009.08	AC pavement		m2			Measurement: Square metres restored based on actual length by Minimum Trench Width. Limits of Accuracy: <to be="" inserted=""></to>
HW0009.09	Pavers		m2			Measurement: Square metres restored based on actual length by Minimum Trench Width. Limits of Accuracy: <to be="" inserted=""></to>
HW0009.10			m2			Measurement: Square metres restored based on actual length by Minimum Trench Width. Limits of Accuracy: <to be="" inserted=""></to>
HW0009.11	Grass seeding	6475	m2	\$ 7.00	\$ 45,325.00	Measurement: Square metres restored based on actual length by Minimum Trench Width. Limits of Accuracy: <to be="" inserted=""></to>

HW0009.12	Hydromulch		m2				Measurement: Square metres restored based on actual length by Minimum Trench Width. Limits of Accuracy: <to be="" inserted=""></to>
	Extra over item for Excavation in rock and disposal of excess excavated material		m3				Measurement: Cubic metres excavated based on thickness of rock by actual length by Minimum Trench Width. Limits of Accuracy: <to be="" inserted="">.</to>
HW0011	Acid sulphate soil						
HW0011.01	Initial testing for acid sulphate soils and prepare and submit report	47	per test	\$	110.00	\$ 5,170.00	Submit: Result for each test. Limits of Accuracy: <to be="" inserted="">.</to>
HW0011.02	Establish treatment facility		Item				Payment: 100% after completion of treatment facility.
HW0011.03	Handling, treatment and testing of acid sulphate soils	4725	m3	ş	60.00	\$ 283,500.00	Measurement: Cubic metres excavated based on thickness of ASS by actual length by Minimum Trench Width. Submit: Test results confirming satisfactory treatment. Limits of Accuracy:

	TOTAL ESTIMATED CONTRACT AWARD SU	ЛМ	\$	2,950,367.9						
	PRE-CONSTRUCTION COST (Table 10)		1							
HW0016	Design		\$	354,044.1						
HW0017	Project Management of Design		\$	71,321.03						
HW0018	Land Matters	and Matters								
HW0024	Community Consultation									
	Sub Total(B1)		\$	425,365.18						
	Pre construction contingency (30% of I	31)	\$	127,609.5						
	TOTAL PRE-CONSTRUCTION COST (B)		\$	552,974.7						
	Total Estimated Contract Award Sum (A)		\$	2,950,367.9						
	CONSTRUCTION COST		1							
HW0019	Principal Supplied Pipe (as applicable)		\$							
HW0019 HW0020	Principal Supplied Pipe (as applicable) Principal Supplied Valves and Flowmeter	s (as applicable)	\$ \$							
	Principal Supplied Valves and Flowmeter		s s s							
HW0020			\$ \$ \$	-						
HW0020 HW0021	Principal Supplied Valves and Flowmeter Principal Supplied Fittings (as applicable		\$ \$ \$ \$ \$	236,029.44						
HW0020 HW0021 HW0022	Principal Supplied Valves and Flowmeter Principal Supplied Fittings (as applicable Pump Station HV Power Supply		\$ \$ \$ \$ \$ \$ \$ \$	- 236,029.44 3,186,397.35						
HW0020 HW0021 HW0022	Principal Supplied Valves and Flowmeter Principal Supplied Fittings (as applicable Pump Station HV Power Supply Construction Management (Table 11)		-							
HW0020 HW0021 HW0022	Principal Supplied Valves and Flowmeter Principal Supplied Fittings (as applicable) Pump Station HV Power Supply Construction Management (Table 11) Sub Total (C1)		-	3,186,397.3						

PROJECT DESCRIPTION:

Option 1C DN600 Rising Main

Item No.	Item Description	Qty	Unit	Rate \$/Unit	Amou	unt	Application of Schedule of Rates
HW0001	All work not included elsewhere in this schedule	Item	Lump Sum	\$ 61,891.00	\$ 61		Payment: Maximum of 10% shall be due each month until 70% of the amount has been paid. Remainder at Practical Completion.
HW0002	Site Establishment <insert \$="" max=""></insert>	Item	Lump Sum	\$ 30,000.00	\$ 30	0,000.00	Payment: 100% after completion.
HW0003	Site Disestablishment <insert \$="" min=""></insert>	Item	Lump Sum	\$ 30,000.00	\$ 30	0,000.00	Payment: 100% after completion.
HW0004	Preparation and implementation of the Construction EMP	ltem	Lump Sum	\$ 4,000.00	\$ 4		Payment: Maximum of 30% on submission of complying Construction EMP, then 10% per month up to maximum of 80%. Remainder at Practical Completion. Submit: Construction FMP
HW0005	Preparation and implementation of the Safety Management Plan.	ltem	Lump Sum	\$ 9,000.00	\$ 9	9,000.00	Payment: Maximum of 30% on submission of complying plan, then 10% per month up to maximum of 80%. Remainder at Practical Completion. Submit: Safety Management Plan.
HW0006	Preparation and implementation of the Traffic Control Plan.	ltem	Lump Sum	\$ 2,000.00	\$ 2		Payment: Maximum of 30% on submission of complying Traffic Control Plan, then 10% per month up to maximum of 80%. Remainder at Practical Completion.
	Preparation and Implementation of Quality Management Plan	ltem	Lump Sum	\$ 31,745.70	\$ 31		Payment: Maximum of 30% on submission of complying Quality Management Plan, then 10% per month up to maximum of 80%. Remainder at Practical Completion.
HW0008	Community Consultation	Item	Lump Sum	\$.	\$		Payment: 10% per month up to maximum of 70%. Remainder at Practical Completion.

Item	Construction of Sewer Rising Mains	Qty	Unit	\$/Unit	Amount \$	Application of Schedule of Rates	
HWR001	Service Location	ltem	Lumo Sum	\$ 5,145.00	\$ 5,145.0	Payment: Maximum of 10% shall be due each month until 70% of the	
						amount has been paid. Remainder at Practical Completion. Payment: Percentage of valves and nowmeters supplied	
HWR002	Supply all valves	Item	Lump Sum		\$	Submit: Relevant Quality Records including Compliance Certificates.	
HWR003	Supply all fittings	Item	Lump Sum		s	Payment: Percentage of mongs supplied.	
	coppiy an inunga	The first	comp com		÷	Submit: Relevant Quality Records including Compliance Certificates.	
HWR004	Supply all pipe materials including detector tape, pipe protection wrapping, rubber rings and lubricant for following pipe sizes:					Measurement: Actual metres (effective length) of pipe delivered to site. Submit: Relevant Quality Records including Compliance Certificates. Note: Limits of Accuracy to be inserted for each pipe size.	
13CDSS	Nominal DN600 DICL pipe	3500	m	\$ 514.00	\$ 1,799,000.0		
HWR005	Clear, excavate, lay, join, bed, backfill & test pipelines (installation). Up to 1.5 m depth to invert in OTR.					Measurement: Actual metres of pipe installed with design depth of excavation up to and including 1.5m. Relettion: 10% confler appropriate percentages until satisfactory testing, Submit: Relevant Quality Records including as constructed lengths, levels and coordinates. Limits of Accuracy: <10 be inserted>.	
13CD03	Nominal DN600 DICL (Trench type 3)	3500	m	\$ 176.53	\$ 617,855.0		Pipeline 1 - area allowa
HWR006	Clear, excavate, lay, join, bed, backfil & test pipelines (installation). Nominal depth >1.5m to 3.0m to invert in OTR.					Measurement: Actual metres of pipe installed with design depth of excavation > 1.5m to and including 3.0m. Retention: 10%-confler appropriate percentage> until satisfactory testing. Submit: Relevant Quality Records including as constructed lengths, levels and coordinates. Limits of Accuracy: <to be="" inserted="">.</to>	
HWR007	Clear, excanate, lay, join, bed, backfill & test pipelines (instaltation). Nominal depth >3.0m to 4.5m to invert in OTR.					Measurement: Actual metres of pipe installed with design depth of excavation > 3 not and including 4 5m. Retention: 10% row of the appropriate percentages until satisfactory testing. Submit: Relevant Quality Records including as constructed lengths, levels and coordinates. Limits of Accuracy: <t b="" inserted="" is="">.</t> 	
HWR008	Clear, excavate, lay, join, bed, backfil & test pipelines (installation). Nominal depth >4.5m to invert in OTR.					Measurement: Actual metres of pipe installed with design depth of excavation > 4.4 cm. Retention: 10% cor other appropriate percentage> until satisfactory testing. Submit: Relevant Quality Records including as constructed lengths, levels and coordinates. Limits of Accuracy: <1 be inserted	
HWR009	EMPTY						
HWR010	Extra over rate for installation for Additional compaction		m3	\$ 26.78		measurement. Good menes of additional compaction based of anothess by length by Minimum Trench Width. Submit: Relevant Quality Records. Limits of Accuracy: <to be="" inserted="">.</to>	
HWR011	Excavate below specified design depth when directed including disposal of excess excavated material		m3	\$ 110.25		measurement. Cube menes or excavation unected based on mickness by length by Minimum Trench Width. Submit: Relevant Quality Records. Limits of Accuracy: <to be="" inserted="">.</to>	
HWR012	Extra over rate for installation to Supply &		m3			measurement. Coold metres of non-conesive material based on mickness	1
	place & compact non cohesive material.					by length by Minimum Trench Width. Submit: Relevant Quality Records. Limits of Accuracy: <to be="" inserted="">.</to>	
HWR013	Extra over rate for installation for supply, place and compact stabilised sand cement (14:1) backfill		m3	\$ 472.50		measurement. Source meters of additional said center based of mickness by length by Minimum Trench Width. Submit: Relevant Quality Records. Limits of Accuracy: <to be="" inserted="">.</to>	
HWR014	Extra over rate for installation for Supply, place and compact aggregate		m3			Minimum Trench Width. Submit: Relevant Quality Records. Limits of Accuracy: <to be="" inserted="">.</to>	

HWR015				*			
	Supply & place ballast		tonnes	2	90.00		Measurement: Actual tonnes placed as directed. Submit: Relevant Quality Records including certified weighbridge dockets. Limits of Accuracy: <to be="" inserted="">.</to>
HWR016	External Dewatering of trench including establishment & disestablishment	3500	m			\$ 350,000.00	measurement: Length of pipeline for which external dewatering is agreed with the Superintendent and provided, measured along the axis of the pipeline between the first and last spear point. Submit: Relevant Quality Records. measurement, Audant memory and submit to the or one measurement.
HWR017	Supply and place treated timber piling for pip support		m				Submit: Relevant Quality Records. Limits of Accuracy: <to be="" inserted="">.</to>
HWR018	Road / creek crossings						measurement: Length in metres of casing installed Submit: Relevant Quality Records. Limits of Accuracy: <to be="" inserted="">.</to>
HWR018.01	Adelaide St	80	m	\$	1,709.06	\$ 136,725.00	
HWR018.02	Irrawang	90	m	\$	1,704.72	\$ 153,425.00	
HWR019	Extra over rate for installation of trenchless technique under existing rail line		m				Measurement: Length in metres of casing installed Submit: Relevant Quality Records. Limits of Accuracy: «To be inserted».
HWR020	Supply and installation of pipe aerial creek crossing including supply of MSCL pipe with protection coating, internal and external welding, testing of welds. For the following MSCL pipe sizes:						design. Retention: 10% <or appropriate="" other="" percentage=""> until satisfactory testing. Note: Consider other milestone retentions. Submit: Retevant Quality Records. Limits of Accuracy: <ri e="" inserted="" ob="">.</ri></or>
HWR021	Supply and installation of pipe river crossing including supply of MSCL pipe. Internal and external welding, testing of welds and 150 thick concrete encastement. Also includes mobilisation and demobilisation of dredgelf enguired) exervation 8. disposal of decayated material, backfilling, lay, bed and test for the following MSCL pipe sizes:						Measurement: Length in metres of casing installed. Retertion: 10% or other appropriate percentage- until satisfactory testing. Note: Consider of the milestone retertion. Submit: Retervant Quality Records. Limits of Accuracy: of be inserted->
HWR022	Bulkheads and Trenchstops in accordance with WSAA drawing SEW-1206	Item	Lump Sum			\$	Payment, Number of dumineaus a menchslops constructed Submit: Relevant Quality Records. Limits of Accuracy: <to be="" inserted="">.</to>
HWR023	Supply and install valve pits (excluding valve and fittings)	: 0	Each	\$		\$	Payment, Namber of valve proconsoluteu Retention: <to be="" determined="">. Submit: Relevant Quality Records. Limits of Accuracy: <to be="" inserted="">.</to></to>
HWR024	Flow Relief Structures		Each				rayment, reunder on nov rener souccares consoucceu Retention: «To be determined». Submit: Relevant Quality Records. Limits of Accuracy: «To be inserted».
HWR025	EMPTY						
HWR026	Supply and construct vent stacks		each				raymen, reunder or rein status constructed. Retention: <to be="" determined="">. Submit: Retevant Quality Records. Limits of Accuracy: <to be="" inserted="">.</to></to>
HWR027	Preparation of line sheets	3500	m	\$	1.00	\$ 3,500.00	Measurement: Length of pipelines constructed as per design Limits of Accuracy: <to be="" inserted="">.</to>
HWR028	Acceptance testing - rising main		m				weasurement: Lengun or prperimes constructed as per design Submit: Satisfactory test records Limits of Accuracy: <to be="" inserted="">.</to>
HWR029	Miscellaneous						
HWR000	Sub Total			•		\$ \$3,065,650	

Item No.	Item Description	Qty	Unit		Amount	Application of Schedule of Rates
					\$	
	Restoration - Pipelines:					Payment: 100% after completion.
HW0009.01	Concrete kerb & gutter	0	m	\$ 110.0	0 \$	Measurement: Lineal metres restored within Minimum Trench Width. Limits of Accuracy: <to be="" inserted="">.</to>
HW0009.02	Concrete driveway	0	m2	\$ 178.0	0 \$	Measurement: Square metres restored based on actual length by Minimum Trench Width. Limits of Accuracy: <to be="" inserted=""></to>
HW0009.03	Exposed aggregate & stamped driveway	0	m2	-	0 \$	Measurement: Square metres restored based on actual length by Minimum Trench Width. Limits of Accuracy: <to be="" inserted=""></to>
HW0009.04	Concrete footpath	0	m2	\$ 155.0	0 \$	Measurement: Square metres restored based on actual length by Minimum Trench Width. Limits of Accuracy: <to be="" inserted=""></to>
HW0009.05	Bitumen footpath	0	m2	\$ 117.0	0 \$	Measurement: Square metres restored based on actual length by Minimum Trench Width.
HW0009.06	Gravel pavement	0	m2	\$ 69.0	0 \$	Measurement: Square metres restored based on actual length by Minimum Trench Width. Limits of Accuracy: <to be="" inserted=""></to>
HW0009.07	Bitumen pavement		m2			Measurement: Square metres restored based on actual length by Minimum Trench Width. Limits of Accuracy: <to be="" inserted=""></to>
HW0009.08	AC pavement		m2			Measurement: Square metres restored based on actual length by Minimum Trench Width. Limits of Accuracy: <to be="" inserted=""></to>
HW0009.09	Pavers		m2			Measurement: Square metres restored based on actual length by Minimum Trench Width. Limits of Accuracy: <to be="" inserted=""></to>
HW0009.10	Turf		m2			Measurement: Square metres restored based on actual length by Minimum Trench Width. Limits of Accuracy: <to be="" inserted=""></to>

HW0009.11	Grass seeding	6300	m2	\$ 7.0		Measurement: Square metres restored based on actual length by Minimum Trench Width. Limits of Accuracy: <to be="" inserted=""></to>
HW0009.12	Hydromulch		m2			Measurement: Square metres restored based on actual length by Minimum Trench Width. Limits of Accuracy: <to be="" inserted=""></to>
	Extra over item for Excavation in rock and disposal of excess excavated material		m3			Measurement: Cubic metres excavated based on thickness of rock by actual length by Minimum Trench Width. Limits of Accuracy: <to be="" inserted="">.</to>
HW0011	Acid sulphate soil					
HW0011.01	Initial testing for acid sulphate soils and prepare and submit report	47	per test	\$ 110.00	\$ 5,170.00	Submit: Result for each test. Limits of Accuracy: <to be="" inserted="">.</to>
HW0011.02	Establish treatment facility		Item			Payment: 100% after completion of treatment facility.
HW0011.03	Handling, treatment and testing of acid sulphate soils	5512.5	m3	\$ 60.00	\$ 330,750.00	Deasurement: Cubic metres excavated based on thickness of ASS by actual length by Minimum Trench Width. Submit: Test results confirming satisfactory treatment. Limits of Accuracy: <to be="" inserted=""></to>
HW0011.04	Disposal off site of acid sulphate soil	0	tonne	\$ 122.00	5	Measurement: Tonnes transported from the site. Submit: Weighbridge dockets. Limits of Accuracy: <to be="" inserted=""></to>
HW0012	Preconstruction record					
HW0012.01	Photographic	Item	Lump Sum		\$	Payment: 70% on submission of the Photographic record. Remainder at Practical Completion.
HW0012.02	Video	Item	Lump Sum		s	 Payment: 70% on submission of the Video record. Remainder at Practical Completion.
HW0012.03	CCTV	ltem	Lump Sum		\$	 Payment: 70% on submission of the CCTV record. Remainder at Practical Completion.
HW0013	Work as Constructed Information <insert min<br="">\$></insert>	Item	Lump Sum	\$ 28,000.00	\$ 28,000.0	Payment: 100% at Practical Completion.

	TOTAL ESTIMATED CONTRACT AWARD SUM	\$	3,598,206.70
L. HW0016	PRE-CONSTRUCTION COST (Table 10)		
	Design	\$	431,784.80
HW0017	Project Management of Design	\$	87,956.96
HW0018	Land Matters	\$	-
HW0024	Community Consultation		
	Sub Total(B1)	\$	519,741.76
	Pre construction contingency (30% of B1)	\$	155,922.53
	TOTAL PRE-CONSTRUCTION COST (B)	\$	675,664.25
	CONSTRUCTION COST		
	Total Estimated Contract Award Sum (A)	\$	3,598,206.70
HW0019		s s	3,598,206.70
HW0019 HW0020	Total Estimated Contract Award Sum (A)	\$ \$ \$	3,598,206.70
	Total Estimated Contract Award Sum (A) Principal Supplied Pipe (as applicable)	\$ \$ \$ \$	3,598,206.70 - -
HW0020	Total Estimated Contract Award Sum (A) Principal Supplied Pipe (as applicable) Principal Supplied Valves and Flowmeters (as applicable)	8 8 8 8 8 8	3,598,206.70
HW0020 HW0021	Total Estimated Contract Award Sum (A) Principal Supplied Pipe (as applicable) Principal Supplied Valves and Flowmeters (as applicable) Principal Supplied Fittings (as applicable)	\$ \$ \$ \$ \$	3,598,206.70
HW0020 HW0021 HW0022	Total Estimated Contract Award Sum (A) Principal Supplied Pice (sa applicable) Principal Supplied Valves and Pokometers (as applicable) Principal Supplied Fittings (as applicable) Principal Supplied Fittings (as applicable) Pump Station NV Power Supply	\$ \$ \$ \$ \$ \$ \$	287,856.5
HW0020 HW0021 HW0022	Total Estimated Contract Award Sum (A) Principal Supplied Pipe (as applicable) Principal Supplied Valves and Rowmeters (as applicable) Principal Supplied Fittings (as applicable) Pump Station HV Potmers Supply Construction Management (Table 11)		:
HW0020 HW0021 HW0022	Total Simitated Contract Award Sum (A) Principal Supplied Pipe (as applicable) Principal Supplied Valves and Rownetters (as applicable) Principal Supplied Fittings (as applicable) Pump Station VPoerd'Supply Construction Management (Table 11) Sub Total (C1)	s	287,856.5- 3,886,063.2-

TOTAL PRELIMINARY PROJECT ESTIMATE (B+C) (Preliminary Estimate) \$ 5,727,546.50

PROJECT DESCRIPTION:

Option 1C DN750 Rising Main

Item No.	Item Description	Qty	Unit	Rate \$/Unit		Amount	Application of Schedule of Rates
HW0001	All work not included elsewhere in this	Item	Lump Sum	\$ 82,732.00	\$	\$ 82,732.00	Payment: Maximum of 10% shall be due each month until 70% of the
HW0002	schedule Site Establishment <insert \$="" max=""></insert>	ltem	Lump Sum	\$ 30,000,00	e	30.000.00	amount has been paid. Remainder at Practical Completion.
							Payment: 100% after completion.
HW0003	Site Disestablishment <insert \$="" min=""></insert>	Item	Lump Sum	\$ 30,000.00	\$	30,000.00	Payment: 100% after completion.
HW0004	Preparation and implementation of the Construction EMP	Item	Lump Sum	\$ 4,000.00	\$		Payment: Maximum of 30% on submission of complying Construction EMP, then 10% per month up to maximum of 80%. Remainder at Practical Completion. Submit: Construction EMP.
HW0005	Preparation and implementation of the Safety Management Plan.	ltem	Lump Sum	\$ 9,000.00	ş		Payment: Maximum of 30% on submission of complying plan, then 10% per month up to maximum of 80%. Remainder at Practical Completion. Submit: Safety Management Plan.
	Preparation and implementation of the Traffic Control Plan.	ltem	Lump Sum	\$ 2,000.00			Payment: Maximum of 30% on submission of complying Traffic Control Plan, then 10% per month up to maximum of 80%. Remainder at Practical Completion.
	Preparation and Implementation of Quality Management Plan	Item	Lump Sum	\$ 42,166.20	\$		Payment: Maximum of 30% on submission of complying Quality Management Plan, then 10% per month up to maximum of 80%. Remainder at Practical Completion.
HW0008	Community Consultation	Item	Lump Sum	s -	\$		Payment: 10% per month up to maximum of 70%. Remainder at Practical Completion.

Item	Construction of Sewer Rising Mains	Qty	Unit	\$/Unit	Amount \$	Application of Schedule of Rates	
HWR001	Service Location	ltem	Lumo Sum	\$ 5,880.00	\$ 5,880.0	Payment: Maximum of 10% shall be due each month until 70% of the	
HWR002	Supply all valves	Item	Lump Sum		s	amount has been paid. Remainder at Practical Completion. Payment: Percentage of valves and nowmeters supplied	
			cump sum		3	Submit: Relevant Quality Records including Compliance Certificates.	
HWR003	Supply all fittings	Item	Lump Sum		s	Payment: Percentage or nungs supplied. Submit: Relevant Quality Records including Compliance Certificates.	
HWR004	Supply all pipe materials including detector tape, pipe protection wrapping, rubber rings and lubricant for following pipe sizes:					Measurement: Actual metres (effective length) of pipe delivered to site. Submit: Relevant Quality Records including Compliance Certificates. Note: Limits of Accuracy to be inserted for each pipe size.	
14BDSS	Nominal DN750 DICL pipe	3500	m	\$ 729.00	\$ 2,551,500.00		
HWR005	Clear, excavate, lay, join, bed, backfill & test pipelines (installation). Up to 1.5 m depth to invert in OTR.					Measurement: Actual metres of pipe installed with design depth of excavation up to and including 1.5m. Retention: 10% confler appropriate percentages- until satisfactory testing. Submit: Relevant Quality Records including as constructed lengths, levels and coordinates. Limits of Accuracy: <10 be inserted>.	
14BD03	Nominal DN750 DICL (Trench type 3)	3500	m	\$ 218.33	\$ 764,120.00		Pipeline 1 - area allowa
HWR006	Clear, excavate, lay, join, bed, backfil & test pipelines (installation). Nominal depth >1.5m to 3.0m to invert in OTR.					Measurement: Actual metres of pipe installed with design depth of excavation > 1.5m to and including 3.0m. Retention: 10%-confler appropriate percentage> until satisfactory testing. Submit: Relevant Quality Records including as constructed lengths, levels and coordinates. Limits of Accuracy: <10 be inserted>.	
HWR007	Clear, excavate, lay, join, bed, backfil & test pipelines (installation). Nominal depth >3.0m to 4.5m to invert in OTR.					Measurement: Actual metres of pipe installed with design depth of excavation > 3 not and including 4 5m. Retention: 10% row of the appropriate percentage> until satisfactory testing. Submit: Relevant Quality Records including as constructed lengths, levels and coordinates. Umits of Accuracy. <t b="" inserted="" is="">.</t> 	
HWR008	Clear, excavate, lay, join, bed, backfil & test pipelines (installation). Nominal depth >4.5m to invert in OTR.					Measurement: Actual metres of pipe installed with design depth of excavation > 4.4 cm. Retention: 10% -cor other appropriate percentage- until satisfactory testing. Submit: Relevant Quality Records including as constructed lengths, levels and coordinates. Limits of Accuracy: <to be="" inserted<="" td=""><td></td></to>	
HWR009	EMPTY						
HWR010	Extra over rate for installation for Additional compaction		m3	\$ 30.60		measurement. Cube menes or admontan compaction based on anconess by length by Minimum Trench Width. Submit: Relevant Quality Records. Limits of Accuracy: <to be="" inserted="">.</to>	
HWR011	Excavate below specified design depth when directed including disposal of excess excavated material		m3	\$ 126.00		measurement. Cube menes or excavation unclear based on michness by length by Minimum Trench Width. Submit: Relevant Quality Records. Limits of Accuracy: <to be="" inserted="">.</to>	
HWR012	Extra over rate for installation to Supply &		m3			measurement. Coold metres of non conesive material based on mickness	1
	place & compact non cohesive material.					by length by Minimum Trench Width. Submit: Relevant Quality Records. Limits of Accuracy: <to be="" inserted="">.</to>	
HWR013	Extra over rate for installation for supply, place and compact stabilised sand cement (14:1) backfill		m3	\$ 540.00		measurement. Source metres of satisfied sand center based of mickness by length by Minimum Trench Width. Submit: Relevant Quality Records. Limits of Accuracy: <to be="" inserted="">.</to>	
HWR014	Extra over rate for installation for Supply, place and compact aggregate		m3			Minimum Trench Width. Submit: Relevant Quality Records. Limits of Accuracy: <to be="" inserted="">.</to>	

HMR015								
	Supply & place ballast		tonnes	\$	90.00			Measurement: Actual tonnes placed as directed. Submit: Relevant Quality Records including certified weighbridge dockets. Limits of Accuracy: <to be="" inserted="">.</to>
HWR016	External Dewatering of trench including establishment & disestablishment	3500	m			\$	350,000.00	measurement: Length of pipeline for which external dewatering is agreed with the Superintendent and provided, measured along the axis of the pipeline between the first and last spear point. Submit: Relevant Quality Records. measurement, Audual measure and upde ment or use of the measurement.
HWR017	Supply and place treated timber piling for pip support		m					Submit: Relevant Quality Records. Limits of Accuracy: <to be="" inserted="">.</to>
HWR018	Road / creek crossings							Measurement: Lengen in menes or casing installed Submit: Relevant Quality Records. Limits of Accuracy: <to be="" inserted="">.</to>
HWR018.01	Adelaide St	80	m	\$	2,409.06	\$	192,725.00	
HWR018.02	Irrawang	80	m	\$	2,409.06	\$	192,725.00	
HWR019	Extra over rate for installation of trenchless technique under existing rail line		m					Measurement: Length in metres of casing installed Submit: Relevant Quality Records. Limits of Accuracy: «To be inserted».
HWR020	Supply and installation of pipe aerial creek crossing including supply of MSCL pipe with protection coating, internal and external welding, testing of welds. For the following MSCL pipe sizes:							design. Retention: 10% <or appropriate="" other="" percentage=""> until satisfactory testing. Note: Consider other milestone retentions. Submit: Retevant Quality Records. Limits of Accuracy: <ri e="" inserted="" ob="">.</ri></or>
HWR021	Supply and installation of pipe river crossing including supply of MSCL pipe. Internal and external welding, testing of welds and 150 thick concrete encastement. Also includes mobilisation and demobilisation of dredgelf enguired) exervation 8. disposal of decayated material, backfilling, lay, bed and test for the following MSCL pipe sizes:							Measurement: Length in metres of casing installed. Retertion: 10% or other appropriate percentage- until satisfactory testing. Note: Consider of the milestone retertion. Submit: Retervant Quality Records. Limits of Accuracy: of be inserted->
HWR022	Bulkheads and Trenchstops in accordance with WSAA drawing SEW-1206	Item	Lump Sum			\$		Payment, Number of dumineaus a menchslops constructed Submit: Relevant Quality Records. Limits of Accuracy: <to be="" inserted="">.</to>
HWR023	Supply and install valve pits (excluding valve and fittings)	: 0	Each	s		\$		Payment, Namber of valve proconsoluteu Retention: <to be="" determined="">. Submit: Relevant Quality Records. Limits of Accuracy: <to be="" inserted="">.</to></to>
HWR024	Flow Relief Structures		Each					rayment, reunder on nov rener souccares consoucceu Retention: «To be determined». Submit: Relevant Quality Records. Limits of Accuracy: «To be inserted».
HWR025	EMPTY							
HWR026	Supply and construct vent stacks		each					raymen, reunder or rein status constructed. Retention: <to be="" determined="">. Submit: Retevant Quality Records. Limits of Accuracy: <to be="" inserted="">.</to></to>
HWR027	Preparation of line sheets	3500	m	\$	1.00	ş	3,500.00	Measurement: Length of pipelines constructed as per design Limits of Accuracy: <to be="" inserted="">.</to>
HWR028	Acceptance testing - rising main		m					weasurement: Lengun or prperimes constructed as per design Submit: Satisfactory test records Limits of Accuracy: <to be="" inserted="">.</to>
HWR029	Miscellaneous							
HWR000	Sub Total					\$	\$4,060,450	

Item No.	Item Description	Qty	Unit		Amount	Application of Schedule of Rates	
					\$		
	Restoration - Pipelines:					Payment: 100% after completion.	
HW0009.01	Concrete kerb & gutter	0	m	\$ 110.0	0 \$	Measurement: Lineal metres restored within Minimum Trench Width. Limits of Accuracy: <to be="" inserted="">.</to>	
HW0009.02	Concrete driveway	0	m2	\$ 178.0	0 \$	Measurement: Square metres restored based on actual length by Minimum Trench Width. Limits of Accuracy: <to be="" inserted=""></to>	
HW0009.03	Exposed aggregate & stamped driveway	0	m2	-	0 \$	Measurement: Square metres restored based on actual length by Minimum Trench Width. Limits of Accuracy: <to be="" inserted=""></to>	
HW0009.04	Concrete footpath	0	m2	\$ 155.0	0 \$	Measurement: Square metres restored based on actual length by Minimum Trench Width. Limits of Accuracy: <to be="" inserted=""></to>	
HW0009.05	Bitumen footpath	0	m2	\$ 117.0	0 \$ ·	Measurement: Square metres restored based on actual length by Minimum Trench Width.	
HW0009.06	Gravel pavement	0	m2	\$ 69.0	0 \$	Measurement: Square metres restored based on actual length by Minimum Trench Width. Limits of Accuracy: <to be="" inserted=""></to>	
HW0009.07	Bitumen pavement		m2			Measurement: Square metres restored based on actual length by Minimum Trench Width. Limits of Accuracy: <to be="" inserted=""></to>	
HW0009.08	AC pavement		m2			Measurement: Square metres restored based on actual length by Minimum Trench Width. Limits of Accuracy: <to be="" inserted=""></to>	
HW0009.09	Pavers		m2			Limits of Accuracy, <10 be inserted> Measurement: Square metres restored based on actual length by Minimum Trench Width. Limits of Accuracy, <to be="" inserted=""></to>	
HW0009.10	Turf		m2			Measurement: Square metres restored based on actual length by Minimum Trench Width. Limits of Accuracy: <to be="" inserted=""></to>	

HW0009.11	Grass seeding	6300	m2	\$ 7.0	\$ 44,100.00	Measurement: Square metres restored based on actual length by Minimum Trench Width. Limits of Accuracy: <to be="" inserted=""></to>
HW0009.12	Hydromulch		m2			Measurement: Square metres restored based on actual length by Minimum Trench Width. Limits of Accuracy: <to be="" inserted=""></to>
	Extra over item for Excavation in rock and disposal of excess excavated material		m3			Measurement: Cubic metres excavated based on thickness of rock by actual length by Minimum Trench Width. Limits of Accuracy: <to be="" inserted="">.</to>
	Acid sulphate soil					
HW0011.01	Initial testing for acid sulphate soils and prepare and submit report	47	per test	\$ 110.0	\$	Submit: Result for each test. Limits of Accuracy: <to be="" inserted="">.</to>
HW0011.02	Establish treatment facility		Item			Payment: 100% after completion of treatment facility.
HW0011.03	Handling, treatment and testing of acid sulphate soils	6300	m3	\$ 60.0	\$ 378,000.00	Measurement: Cubic metres excavated based on thickness of ASS by actual length by Minimum Trench Width. Submit: Test results confirming satisfactory treatment. Limits of Accuracy: <to be="" inserted=""></to>
HW0011.04	Disposal off site of acid sulphate soil	0	tonne	\$ 122.0	\$	Measurement: Tonnes transported from the site. Submit: Weighbridge dockets. Limits of Accuracy: <to be="" inserted=""></to>
HW0012	Preconstruction record					
HW0012.01	Photographic	Item	Lump Sum		\$	Payment: 70% on submission of the Photographic record. Remainder at Practical Completion.
HW0012.02	Video	Item	Lump Sum		\$	Payment: 70% on submission of the Video record. Remainder at Practical Completion.
HW0012.03	CCTV	ltem	Lump Sum		\$	Payment: 70% on submission of the CCTV record. Remainder at Practical Completion.
HW0013	Work as Constructed Information <insert min<br="">\$></insert>	Item	Lump Sum	\$ 28,000.0	\$ 28,000.00	Payment: 100% at Practical Completion.

L.	TOTAL ESTIMATED CONTRACT AWARD S	SUM	\$ 4,715,618.20
 HW0016 	PRE-CONSTRUCTION COST (Table 10)		
	Design		\$ 565,874.18
HW0017	Project Management of Design		\$ 113,716.44
HW0018	Land Matters		\$ -
HW0024	Community Consultation		
	Sub Total(B1)		\$ 679,590.62
	Pre construction contingency (30% of	f B1)	\$ 203,877.19
	TOTAL PRE-CONSTRUCTION COST (B)		\$ 883,467.81
	CONSTRUCTION COST		
	Total Estimated Contract Award Sum (A)		\$ 4,715,618.20
HW0019	Principal Supplied Pipe (as applicable)		\$ -
HW0020	Principal Supplied Valves and Flowmet	ers (as applicable)	\$
HW0021	Principal Supplied Fittings (as applicabl	e)	\$ -
HW0022	Pump Station HV Power Supply		\$
HW0023	Construction Management (Table 11)		\$ 377,249.46
	Sub Total (C1)		\$ 5,092,867.66
	Construction contingency		\$ 1,527,860.30
	Construction contingency (Table 12) (30% of C1)	Preliminary Estimate	\$ 1,527,860.30

TOTAL PRELIMINARY PROJECT ESTIMATE (B+C) (Preliminary Estimate) \$ 7,504,195.76

PROJECT DESCRIPTION:

Option 1D DN450 Rising Main

Item No.	Item Description	Qty	Unit	Rate \$/Unit	Amount \$	Application of Schedule of Rates
	All work not included elsewhere in this schedule	ltem	Lump Sum	\$ 75,196.00	\$ 75,196.00	Payment: Maximum of 10% shall be due each month until 70% of the amount has been paid. Remainder at Practical Completion.
HW0002	Site Establishment <insert \$="" max=""></insert>	ltem	Lump Sum	\$ 30,000.00	\$ 30,000.00	Payment: 100% after completion.
HW0003	Site Disestablishment <insert \$="" min=""></insert>	ltem	Lump Sum	\$ 30,000.00	\$ 30,000.00	Payment: 100% after completion.
	Preparation and implementation of the Construction EMP	ltem	Lump Sum	\$ 12,000.00	\$ 12,000.00	Payment: Maximum of 30% on submission of complying Construction EMP, then 10% per month up to maximum of 80%. Remainder at Practical Completion. Submit: Construction EMP.
	Preparation and implementation of the Safety Management Plan.	ltem	Lump Sum	\$ 27,000.00	\$ 27,000.00	Payment: Maximum of 30% on submission of complying plan, then 10% per month up to maximum of 80%. Remainder at Practical Completion.
HW0006	Preparation and implementation of the Traffic Control Plan.	ltem	Lump Sum	\$ 6,000.00	\$ 6,000.00	Payment: Maximum of 30% on submission of complying Traffic Control Plan, then 10% per month up to maximum of 80%. Remainder at Practical Completion.
	Preparation and Implementation of Quality Management Plan	ltem	Lump Sum		\$ 38,398.21	Payment: Maximum of 30% on submission of complying Quality Management Plan, then 10% per month up to maximum of 80%. Remainder at Practical Completion.
HW0008	Community Consultation	ltem	Lump Sum	s -	\$ ·	Payment: 10% per month up to maximum of 70%. Remainder at Practical Completion.

Item	Construction of Sewer Rising Mains	Construction of Sewer Rising Mains Qty Unit \$Unit \$		Application of Schedule of Rates				
HWR001	Service Location	ltem	Lump Sum	\$	15,003.00	\$	15,003.00	Payment: Maximum of 10% shall be due each month until 70% of the amount has been paid. Remainder at Practical Completion.
HWR002	Supply all valves	ltem	Lump Sum			\$		Payment: Percentage of valves and flowmeters supplied. Submit: Relevant Quality Records including Compliance Certificates.
HWR003	Supply all fittings	ltem	Lump Sum			\$	-	Payment: Percentage or nitrings supplied. Submit: Relevant Quality Records including Compliance Certificates.
HWR004	Supply all pipe materials including detector tape, pipe protection wrapping, rubber rings and lubricant for following pipe sizes:							Measurement: Actual metres (effective length) of pipe delivered to site. Submit: Relevant Quality Records including Compliance Certificates. Note: Limits of Accuracy to be inserted for each pipe size.
12DDSS	Nominal DN450 DICL pipe	6350	m	ŝ	304.00	\$	1,930,400.00	
HWR005	Clear, excavate, lay, join, bed, backfill & test pipelines (installation). Up to 1.5 m depth to invert in OTR.							excertation up to and including 1.5m. Retention: 10% or other appropriate percentage> until satisfactory testing. Submit: Relevant Quality Records including as constructed lengths, levels and coordinates. Limits of Accuracy: <10 be inserted>.
120003	Nominal DN450 DICL (Trench type 3)	6350	m	s	164.00	s	1,041,397.50	
HWR006	Clear, excavate, lay, join, bed, backfill & test pipelines (installation). Nominal depth >1.5m to 3.0m to invert in OTR.							According to the second
HWR007	Clear, excavate, lay, join, bed, backfill & test pipelines (installation). Nominal depth >3.0m to 4.5m to invert in OTR.							measurement, incluar meres or pipe instance win design depin or exervation 3 30 tho and including 45m. Retention: 10% cor other appropriate percentage> until satisfactory testing. Submit: Relevant Quality Records including as constructed lengths, levels and coordinates. Limits of Accuracy: <to be="" inserted="">.</to>
HWR008	Clear, excavate, lay, join, bed, backfill & test pipelines (installation). Nominal depth >4.5m to invert in OTR.							measurement. Actuar meres or pipe reasence win design depin or exervation > 4.5m. Retention: 10% <or appropriate="" other="" percentage=""> until satisfactory testing. Submit: Relevant Quality Records including as constructed lengths, levels and coordinates. Limits of Accuracy. <to be="" inserted="">.</to></or>
HWR009	EMPTY							
HWR010	Extra over rate for installation for Additional compaction		m3	\$	22.95			weasurement. Concernences of administration paction based on blickness- by length by Minimum Trench Width. Submit: Relevant Quality Records. Limits of Accuracy: <to be="" inserted="">.</to>
HWR011	Excavate below specified design depth where directed including disposal of excess excavated material		m3	\$	94.50			weasurement. Cabic metres or excavation directed based on mickness by length by Minimum Trench Width. Submit: Relevant Quality Records. Limits of Accuracy: <to be="" inserted="">.</to>
HWR012	Extra over rate for installation to Supply & place & compact non cohesive material.		m3					weasurement. concernences on non-concerve material based on mickness- by length by Minimum Trench Width. Submit: Relevant Quality Records. Limits of Accuracy: <to be="" inserted="">.</to>

	Extra over rate for installation for supply, place and compact stabilised sand cement		m3	\$	405.00			Measurement: Cubic metres of stabilised sand cement based on thickness by length by Minimum Trench Width.
	(14:1) backfill							Submit: Relevant Quality Records.
	(14.1) Dubin							Limits of Accuracy: <to be="" inserted="">.</to>
HWR014	Extra over rate for installation for Supply.		m3	_		-		measurement. Cubic metres or aggregate based on thickness by length by
	place and compact aggregate		1113					Minimum Trench Width.
								Submit: Relevant Quality Records.
								Limits of Accuracy: <to be="" inserted="">.</to>
HWR015	Supply & place ballast		tonnes	\$	90.00			Measurement: Actual tonnes placed as directed.
								Submit: Relevant Quality Records including certified weighbridge dockets.
								Limits of Accuracy: <to be="" inserted="">.</to>
								ennis or recorded. To be inserted.
HWR016	External Dewatering of trench including	6350	m			s	635.000.00	measurement. Length of pipeline for which external dewatering is
PTWIKU ID	establishment & disestablishment	6300	m			2	635,000.00	agreed with the Superintendent and provided, measured along the
	catabiannen tit discatabiannen							axis of the pipeline between the first and last spear point.
								Submit: Relevant Quality Records.
HWR017	Supply and place treated timber piling for		m					measurement. Actual metres from pipe invent to toe of pile.
	pipe support							Submit: Relevant Quality Records.
								Limits of Accuracy: <to be="" inserted="">.</to>
HWR018	Road / creek crossings							Measurement: Length in metres of casing installed.
		1						Submit: Relevant Quality Records. Limits of Accuracy: <to be="" inserted="">.</to>
HWR018.01	Adelaide St	80	m		1.329.06		106 325 00	Limits of Accuracy. S to be inserted 2.
				ه		3		
HWR018.02	Irrawang	90	m	\$	1,324.72	\$	119,225.00	Measurement: Length in metres of casing installed.
HWR019	Extra over rate for installation of trenchless		m					Submit: Relevant Quality Records.
	technique under existing rail line							Limits of Accuracy: <to be="" inserted="">.</to>
HWR020	Supply and installation of pipe aerial creek					_		weasurement. Length in metres of crossing installed in accordance with
	crossing including supply of MSCL pipe							design.
	with protection coating, internal and							Retention: 10% <or appropriate="" other="" percentage=""> until satisfactory</or>
	external welding, testing of welds. For the							testing. Note: Consider other milestone retentions.
	following MSCL pipe sizes:							Submit: Relevant Quality Records.
								Limits of Accuracy: <to be="" inserted="">.</to>
HWR021	Supply and installation of pipe river							
	crossing including supply of MSCL pipe, internal and external welding, testing of							
	welds and 150 thick concrete							
	encasement. Also includes mobilisation							Measurement: Length in metres of casing installed.
	and demobilisation of dredge(if required)							Retention: 10% <or appropriate="" other="" percentage=""> until satisfactory</or>
	excavation & disposal of excavated							testing. Note: Consider other milestone retentions.
	material, backfilling, lay, bed and test for the following MSCL pipe sizes:							Submit: Relevant Quality Records.
	the following mode pipe sizes.							Limits of Accuracy: <to be="" inserted="">.</to>
HWR022	Bulkheads and Trenchstops in accordance	Item	Lump Sum			\$		Payment: Number of buikneads & trenchstops constructed.
	with WSAA drawing SEW-1206	1						Submit: Relevant Quality Records.
		1						Limits of Accuracy: <to be="" inserted="">.</to>
HWR023	Supply and Install valve pits (excluding	0	Each	\$		\$	-	Payment: Number of valve pits constructed. Retention: <to be="" determined="">.</to>
	valves and fittings)	1						Retention: <10 be determined>. Submit: Relevant Quality Records.
								Limits of Accuracy: <to be="" inserted="">.</to>
HWR024	Flow Relief Structures	—	Each	L		L		Limits of Accuracy: <10 be inserted>. Payment: Numper of flow relief structures constructed.
mmeu24	now react Structures		Each					Retention: <to be="" determined="">.</to>
		1						Submit: Relevant Quality Records.
		1						Limits of Accuracy: <to be="" inserted="">.</to>
HWR025	EMPTY							
HWR026	Supply and construct vent stacks		each					Payment, Number of Vent stacks constructed.
		1						Retention: <to be="" determined="">.</to>
								Submit: Relevant Quality Records.
								Limits of Accuracy: <to be="" inserted="">.</to>
HWR027	Preparation of line sheets	6350	m	s	1.00	s	6,350.00	Measurement: Length of pipelines constructed as per design. Limits of Accuracy: <to be="" inserted="">.</to>
1000000	A construction of a first state of a second							Limits of Accuracy: <10 be inserted>. Measurement: Length of pipelines constructed as per design.
HWR028	Acceptance testing - rising main	1	m					Submit: Satisfactory test records
		1						Limits of Accuracy: <to be="" inserted="">.</to>
HWR029	Miscellaneous			-		-		······································
						-		
HWR000				L		L .	\$3.853.701	
mark000	Sub Total	1				-	3,003,701	

Item No.	Item Description	Qty	Unit			Amount	Application of Schedule of Rates
						\$	
HW0009	Restoration - Pipelines:						Payment: 100% after completion.
HW0009.01	Concrete kerb & gutter	0	m	s	110.00	\$-	Measurement: Lineal metres restored within Minimum Trench Width.
							Limits of Accuracy: <to be="" inserted="">.</to>
HW0009.02	Concrete driveway	0	m2	s	178.00	s -	Measurement: Square metres restored based on actual length by
							Minimum Trench Width.
							Limits of Accuracy: <to be="" inserted=""></to>
HW0009.03	Exposed aggregate & stamped driveway	0	m2	s	220.00	ş -	Measurement: Square metres restored based on actual length by
							Minimum Trench Width.
							Limits of Accuracy: <to be="" inserted=""></to>
HW0009.04	Concrete footpath	0	m2	s	155.00	ş -	Measurement: Square metres restored based on actual length by
							Minimum Trench Width.
							Limits of Accuracy: <to be="" inserted=""></to>
HW0009.05	Bitumen footpath	0	m2	s	117.00	ş -	Measurement: Square metres restored based on actual length by
							Minimum Trench Width.
							Limits of Accuracy: <to be="" inserted=""></to>
HW0009.06	Gravel pavement	0	m2	s	69.00	ş -	Measurement: Square metres restored based on actual length by
							Minimum Trench Width.
				1			Limits of Accuracy: <to be="" inserted=""></to>

HW0009.07	Bitumen pavement		m2			_		
HW0009.07	Bitumen pavement		m2					Measurement: Square metres restored based on actual length by
								Minimum Trench Width.
HW0009.08	AC pavement					_		Limits of Accuracy: <to be="" inserted=""></to>
HW0009.06	AC pavement		m2					Measurement: Square metres restored based on actual length by
								Minimum Trench Width.
HW0009.09	Pavers					_		Limits of Accuracy: <to be="" inserted=""></to>
HM0009.09	Pavers		m2					Measurement: Square metres restored based on actual length by
								Minimum Trench Width.
HW0009 10	Turf		m2			_		Limits of Accuracy: <to be="" inserted=""></to>
HW0009.10	Turr		m2					Measurement: Square metres restored based on actual length by
								Minimum Trench Width.
				_		_		Limits of Accuracy: <to be="" inserted=""></to>
HW0009.11	Grass seeding	10795	m2	s	7.00	\$	75,565.00	Measurement: Square metres restored based on actual length by
								Minimum Trench Width.
								Limits of Accuracy: <to be="" inserted=""></to>
HW0009.12	Hydromulch		m2					Measurement: Square metres restored based on actual length by
								Minimum Trench Width.
								Limits of Accuracy: <to be="" inserted=""></to>
	Extra over item for Excavation in rock and		m3					Measurement: Cubic metres excavated based on thickness of rock
	disposal of excess excavated material							by actual length by Minimum Trench Width.
								Limits of Accuracy: <to be="" inserted="">.</to>
	Acid sulphate soil							
HW0011.01	Initial testing for acid sulphate soils and	72	per test	s	110.00	\$	7,920.00	Submit: Result for each test.
	prepare and submit report							Limits of Accuracy: <to be="" inserted="">.</to>
HW0011.02	Establish treatment facility		Item					Payment: 100% after completion of treatment facility.
HW0011.03	Handling, treatment and testing of acid	7290	m3	s	60.00	s	437.400.00	Measurement: Cubic metres excavated based on thickness of ASS
	sulphate soils					÷ .		by actual length by Minimum Trench Width.
								Submit: Test results confirming satisfactory treatment.
								Limits of Accuracy: <to be="" inserted=""></to>
HW0011.04	Disposal off site of acid sulphate soil	0	tonne	s	122.00	s		Measurement: Tonnes transported from the site.
						÷ .		Submit: Weighbridge dockets.
								Limits of Accuracy: <to be="" inserted=""></to>
HW0012	Preconstruction record							LINUS OF ACCUPACY: STO BE INSPIRED
HW0012.01	Photographic	llem	Lump Sum			s	-	Payment: 70% on submission of the Photographic record.
	i notograpino	walli	comp Sulli			С.		Remainder at Practical Completion.
HW0012.02	Video	llem	Lump Sum			s		Payment: 70% on submission of the Video record. Remainder at
mmod12.02	Video	wern	Lump Sum			Ŷ	-	Payment: 70% on submission of the video record. Remainder at Practical Completion.
HW0012.03	CCTV	llem	Lump Sum			s		Practical Completion. Payment: 70% on submission of the CCTV record. Remainder at
mwoJ12.03	GUIV	nem	Lump Sum			\$	-	
HW0013	Work as Constructed Information <insert< td=""><td>Item</td><td>Lump Sum</td><td>s</td><td>50.800.00</td><td>s</td><td>50.800.00</td><td>Practical Completion.</td></insert<>	Item	Lump Sum	s	50.800.00	s	50.800.00	Practical Completion.
	Min \$>	nem	cump Sum	Ŷ	00,000.00	٠	00,800.00	Payment: 100% at Practical Completion.

A. TOTAL ESTIMATED CONTRACT AWARD SUM \$ 4,643,979.71

в.	PRE-CONSTRUCTION COST (Table 10)	-	
HW0016	Design	s	557,277.57
HW0017	Project Management of Design	s	104,401.95
HW0018	Land Matters	s	-
HW0024	Community Consultation		
	Sub Total(B1)	s	661,679.52
	Pre construction contingency (30% of B1)	s	198,503.86
	TOTAL PRE-CONSTRUCTION COST (B)	\$	860,183.37

с.	CONSTRUCTION COST		
	Total Estimated Contract Award Sum (A)	s	4,643,979.71
HW0019	Principal Supplied Pipe (as applicable)	s	-
HW0020	Principal Supplied Valves and Flowmeters (as applicable)	s	
HW0021	Principal Supplied Fittings (as applicable)	s	-
HW0022	Pump Station HV Power Supply	s	
HW0023	Construction Management (Table 11)	s	371,518.38
	Sub Total (C1)	s	5,015,498.09
	Construction contingency (Table 12) (30% of C1) Preliminary Estimate	s	1,504,649.43
	TOTAL CONSTRUCTION COST (C)	s	6,520,147.51
	TOTAL PRELIMINARY PROJECT ESTIMATE (B+C) (Preliminary Estimate	s) s	7,380,330.89

PROJECT DESCRIPTION:

Option 1D DN500 Rising Main

Item No.	Item Description	Qty	Unit	Rate \$/Unit	Amount \$	Application of Schedule of Rates
	All work not included elsewhere in this schedule	ltem	Lump Sum	\$ 87,421.00	\$ 87,421.00	Payment: Maximum of 10% shall be due each month until 70% of the amount has been paid. Remainder at Practical Completion.
HW0002	Site Establishment <insert \$="" max=""></insert>	ltem	Lump Sum	\$ 30,000.00	\$ 30,000.00	Payment: 100% after completion.
HW0003	Site Disestablishment <insert \$="" min=""></insert>	ltem	Lump Sum	\$ 30,000.00	\$ 30,000.00	Payment: 100% after completion.
	Preparation and implementation of the Construction EMP	ltem	Lump Sum	\$ 12,000.00	\$ 12,000.00	Payment: Maximum of 30% on submission of complying Construction EMP, then 10% per month up to maximum of 80%. Remainder at Practical Completion. Submit: Construction EMP.
	Preparation and implementation of the Safety Management Plan.	ltem	Lump Sum	\$ 27,000.00	\$ 27,000.00	Payment: Maximum of 30% on submission of complying plan, then 10% per month up to maximum of 80%. Remainder at Practical Completion.
HW0006	Preparation and implementation of the Traffic Control Plan.	ltem	Lump Sum	\$ 6,000.00	\$ 6,000.00	Payment: Maximum of 30% on submission of complying Traffic Control Plan, then 10% per month up to maximum of 80%. Remainder at Practical Completion.
	Preparation and Implementation of Quality Management Plan	ltem	Lump Sum		\$ 44,510.70	Payment: Maximum of 30% on submission of complying Quality Management Plan, then 10% per month up to maximum of 80%. Remainder at Practical Completion.
HW0008	Community Consultation	ltem	Lump Sum	s -	\$	Payment: 10% per month up to maximum of 70%. Remainder at Practical Completion.

Item	Construction of Sewer Rising Mains	Qty	Unit	\$/Un	it		\$	Application of Schedule of Rates
fWR001	Service Location	Item	Lump Sum	\$ 15	,003.00	\$	15,003.00	Payment: Maximum of 10% shall be due each month until 70% of the amount has been paid. Remainder at Practical Completion.
HWR002	Supply all valves	ltem	Lump Sum			\$		Payment: Percentage of values and flowmeters supplied. Submit: Relevant Quality Records including Compliance Certificates.
HWR003	Supply all fittings	ltem	Lump Sum			\$		Payment: Percentage of httings supplied. Submit: Relevant Quality Records including Compliance Certificates.
fWR004	Supply all pipe materials including detector tape, pipe protection wrapping, rubber rings and lubricant for following pipe sizes:							Measurement: Actual metres (effective length) of pipe delivered to site. Submit: Relevant Quality Records including Compliance Certificates. Note Limits of Accuracy to be inserted for each pipe size.
132DSS	Nominal DN500 DICL pipe	6350	m	\$	394.00	\$	2,501,900.00	
HWR005	Clear, excavate, lay, join, bed, backfill & test pipelines (installation). Up to 1.5 m depth to invert in OTR.							execution up to and including 1:5. Retention: 10%, cor other appropriate percentage> until satisfactory testing. Submit: Relevant Quality Records including as constructed lengths, levels and coordinates. Limits of Accuracy, <to be="" inserted="">.</to>
132D03	Nominal DN500 DICL (Trench type 3)	6350	m	s	169.27	s	1,074,847.00	
-fWR006	Clear, excavate, lay, join, bed, backfill & test pipelines (installation). Nominal depth >1.5m to 3.0m to invert in OTR.							execution - 1 clean meters of pipe formed with design reports Retention: 10% cor other appropriate percentage> until satisfactory testing. Submit: Relevant Quality Records including as constructed lengths, levels and coordinates. Limits of Accuracy: <to be="" inserted-<br="">metagement Accuracy.</to>
HWR007	Clear, excavate, lay, join, bed, backfill & test pipelines (installation). Nominal depth >3.0m to 4.5m to invert in OTR.							excavation > 3.0m to and including 4.5m. Retention: 10% or other appropriate percentage> until satisfactory testing. Submit: Relevant Quality Records including as constructed lengths, levels and coordinates. Limits of Accuracy: <10 be inserted>.
HWR008	Clear, excavate, lay, join, bed, backfill & test pipelines (installation). Nominal depth >4.5m to invert in OTR.							weasurement incluse meres or pipe resense way being oppin or execution > 4.5 m. Retention: 10% cor other appropriate percentage> until satisfactory testing. Submit: Relevant Quality Records including as constructed lengths, levels and coordinates. Limits of Accuracy. <to be="" inserted="">.</to>
HWR009	EMPTY							
HWR010	Extra over rate for installation for Additional compaction		m3	s	22.95			Measurement. Cubic menes or administration pased on mickness by length by Minimum Trench Width. Submit: Relevant Quality Records. Limits of Accuracy: <to be="" inserted="">.</to>
HWR011	Excavate below specified design depth where directed including disposal of excess excavated material		m3	s	94.50			Measurement Cubic mentes or excavation directed based on mickness by length by Minimum Trench Width. Submit: Relevant Quality Records. Limits of Accuracy: <to be="" inserted="">. Measurement: Cubic mentes or Indirectessve material based on mickness</to>
HWR012	Extra over rate for installation to Supply & place & compact non cohesive material.		m3					weasurement. Cuor menes of hon consister material based on mickness by length by Minimum Trench Width. Submit: Relevant Quality Records. Limits of Accuracy: <to be="" inserted="">.</to>

	Extra over rate for installation for supply, place and compact stabilised sand cement		m3	s	405.00			Measurement: Cubic metres of stabilised sand cement based on thickness by length by Minimum Trench Width.
	(14:1) backfill							Submit: Relevant Quality Records.
	(14.1) bubkin							Limits of Accuracy: <to be="" inserted="">.</to>
HWR014	Extra over rate for installation for Supply.		m3					measurement. Cubic metres or aggregate based on thickness by length by
	place and compact aggregate		1113					Minimum Trench Width.
								Submit: Relevant Quality Records.
								Limits of Accuracy: <to be="" inserted="">.</to>
HWR015	Supply & place ballast		tonnes	\$	90.00			Measurement: Actual tonnes placed as directed.
								Submit: Relevant Quality Records including certified weighbridge dockets.
								Limits of Accuracy: <to be="" inserted="">.</to>
								ennis or recorded.
HWR016	External Dewatering of trench including	6350	m			s	635.000.00	measurement. Length of pipeline for which external dewatering is
PTWIKU ID	establishment & disestablishment	6300	m			2	635,000.00	agreed with the Superintendent and provided, measured along the
	couplianment & discatabilianment							axis of the pipeline between the first and last spear point.
								Submit: Relevant Quality Records.
HWR017	Supply and place treated timber piling for		m	-			-	measurement. Actual metres from pipe invent to toe of pile.
	pipe support							Submit: Relevant Quality Records.
								Limits of Accuracy: <to be="" inserted="">.</to>
HWR018	Road / creek crossings							Measurement: Length in metres of casing installed.
	1			1				Submit: Relevant Quality Records. Limits of Accuracy: <to be="" inserted="">.</to>
HWR018.01	Adelaide St	80	m		1.449.06		115.925.00	Limits of Accuracy. S to be inserted 2.
				0		•		
HWR018.02	Irrawang	80	m	\$	1,449.06	\$	115,925.00	Measurement: Length in metres of casing installed.
HWR019	Extra over rate for installation of trenchless		m					Submit: Relevant Quality Records.
	technique under existing rail line							Limits of Accuracy: <to be="" inserted="">.</to>
HWR020	Supply and installation of pipe aerial creek							weasurement. Length in metres of crossing installed in accordance with
	crossing including supply of MSCL pipe							design.
	with protection coating, internal and							Retention: 10% <or appropriate="" other="" percentage=""> until satisfactory</or>
	external welding, testing of welds. For the							testing. Note: Consider other milestone retentions.
	following MSCL pipe sizes:							Submit: Relevant Quality Records.
								Limits of Accuracy: <to be="" inserted="">.</to>
HWR021	Supply and installation of pipe river							
	crossing including supply of MSCL pipe, internal and external welding, testing of							
	welds and 150 thick concrete							
	encasement. Also includes mobilisation							Measurement: Length in metres of casing installed.
	and demobilisation of dredge(if required)							Retention: 10% <or appropriate="" other="" percentage=""> until satisfactory</or>
	excavation & disposal of excavated							testing. Note: Consider other milestone retentions.
	material, backfilling, lay, bed and test for the following MSCL pipe sizes:							Submit: Relevant Quality Records.
	the following Mooc pipe sizes.							Limits of Accuracy: <to be="" inserted="">.</to>
HWR022	Bulkheads and Trenchstops in accordance	Item	Lump Sum	-		s		Payment: Number of bulkneads & trenchstops constructed.
	with WSAA drawing SEW-1206							Submit: Relevant Quality Records.
	1							Limits of Accuracy: <to be="" inserted="">.</to>
HWR023	Supply and Install valve pits (excluding	0	Each	s		\$	-	Payment: Number of valve pits constructed. Retention: <to be="" determined="">.</to>
	valves and fittings)			1				Retention: <10 be determined>. Submit: Relevant Quality Records.
	1			1				Limits of Accuracy: <to be="" inserted="">.</to>
HWR024	Flow Relief Structures		Each			-		Limits of Accuracy: <10 be inserted>. Payment: Numper of flow relief structures constructed.
mmeu24	riuw rveiici Structures		Each	1				Retention: <to be="" determined="">.</to>
	1			1				Submit: Relevant Quality Records.
	1			1				Limits of Accuracy: <to be="" inserted="">.</to>
HWR025	EMPTY			t				
HWR026	Supply and construct vent stacks		each	t				Payment, Number of Vent stacks constructed.
				1				Retention: <to be="" determined="">.</to>
	1			1				Submit: Relevant Quality Records.
	1							Limits of Accuracy: <to be="" inserted="">.</to>
HWR027	Preparation of line sheets	6350	m	s	1.00	\$	6,350.00	Measurement: Length of pipelines constructed as per design. Limits of Accuracy: <to be="" inserted="">.</to>
1000000	la contra de la co			<u> </u>				Limits of Accuracy: <10 be inserted>. Measurement: Length of pipelines constructed as per design.
HWR028	Acceptance testing - rising main		m	1				Submit: Satisfactory test records
	1			1				Limits of Accuracy: <to be="" inserted="">.</to>
HWR029	Miscellaneous			+				······································
				<u> </u>		-		
HWR000			I	L			\$4,464,950	
	Sub Total							

Item No.	Item Description	Qty	Unit			Amount	Application of Schedule of Rates
						\$	
HW0009	Restoration - Pipelines:						Payment: 100% after completion.
HW0009.01	Concrete kerb & gutter	0	m	s	110.00	\$-	Measurement: Lineal metres restored within Minimum Trench Width.
							Limits of Accuracy: <to be="" inserted="">.</to>
HW0009.02	Concrete driveway	0	m2	s	178.00	s -	Measurement: Square metres restored based on actual length by
							Minimum Trench Width.
							Limits of Accuracy: <to be="" inserted=""></to>
HW0009.03	Exposed aggregate & stamped driveway	0	m2	s	220.00	s -	Measurement: Square metres restored based on actual length by
							Minimum Trench Width.
							Limits of Accuracy: <to be="" inserted=""></to>
HW0009.04	Concrete footpath	0	m2	s	155.00	ş -	Measurement: Square metres restored based on actual length by
							Minimum Trench Width.
							Limits of Accuracy: <to be="" inserted=""></to>
HW0009.05	Bitumen footpath	0	m2	s	117.00	ş -	Measurement: Square metres restored based on actual length by
							Minimum Trench Width.
							Limits of Accuracy: <to be="" inserted=""></to>
HW0009.06	Gravel pavement	0	m2	s	69.00	ş -	Measurement: Square metres restored based on actual length by
							Minimum Trench Width.
							Limits of Accuracy: <to be="" inserted=""></to>

HW0009.07	Bitumen pavement		m2					
HW0009.07	Bitumen pavement		m2					Measurement: Square metres restored based on actual length by Minimum Trench Width.
HW0009.08	AC pavement							Limits of Accuracy: <to be="" inserted=""></to>
HM0009.06	AC pavement		m2					Measurement: Square metres restored based on actual length by
								Minimum Trench Width.
HW0009.09	Pavers							Limits of Accuracy: <to be="" inserted=""></to>
HM0009.09	Pavers		m2					Measurement: Square metres restored based on actual length by
								Minimum Trench Width.
HW0009 10	Turf		m2					Limits of Accuracy: <to be="" inserted=""></to>
PTW0009.10	Turr		m2					Measurement: Square metres restored based on actual length by
								Minimum Trench Width.
				-		_		Limits of Accuracy: <to be="" inserted=""></to>
HW0009.11	Grass seeding	11430	m2	s	7.00	\$	80,010.00	Measurement: Square metres restored based on actual length by
								Minimum Trench Width.
								Limits of Accuracy: <to be="" inserted=""></to>
HW0009.12	Hydromulch		m2					Measurement: Square metres restored based on actual length by
								Minimum Trench Width.
								Limits of Accuracy: <to be="" inserted=""></to>
	Extra over item for Excavation in rock and		m3					Measurement: Cubic metres excavated based on thickness of rock
	disposal of excess excavated material							by actual length by Minimum Trench Width.
								Limits of Accuracy: <to be="" inserted="">.</to>
	Acid sulphate soil							
HW0011.01	Initial testing for acid sulphate soils and	72	per test	\$ 1	10.00	\$	7,920.00	Submit: Result for each test.
	prepare and submit report							Limits of Accuracy: <to be="" inserted="">.</to>
HW0011.02	Establish treatment facility		Item					Payment: 100% after completion of treatment facility.
HW0011.03	Handling, treatment and testing of acid	7290	m3	s	60.00	\$	437,400.00	Measurement: Cubic metres excavated based on thickness of ASS
	sulphate soils							by actual length by Minimum Trench Width.
								Submit: Test results confirming satisfactory treatment.
								Limits of Accuracy: <to be="" inserted=""></to>
HW0011.04	Disposal off site of acid sulphate soil	0	tonne	\$ 1	22.00	\$	-	Measurement: Tonnes transported from the site.
								Submit: Weighbridge dockets.
								Limits of Accuracy: <to be="" inserted=""></to>
HW0012	Preconstruction record							
HW0012.01	Photographic	Item	Lump Sum			s	-	Payment: 70% on submission of the Photographic record.
								Remainder at Practical Completion.
HW0012.02	Video	ltem	Lump Sum			\$	-	Payment: 70% on submission of the Video record. Remainder at
								Practical Completion.
HW0012.03	CCTV	Item	Lump Sum			s	-	Payment: 70% on submission of the CCTV record. Remainder at
						1.1		Practical Completion.
HW0013	Work as Constructed Information <insert< td=""><td>Item</td><td>Lump Sum</td><td>\$ 50.8</td><td>800.00</td><td>s</td><td>50.800.00</td><td></td></insert<>	Item	Lump Sum	\$ 50.8	800.00	s	50.800.00	
	Min \$>							Payment: 100% at Practical Completion.

A. TOTAL ESTIMATED CONTRACT AWARD SUM \$ 5,278,011.70

	TOTAL PRE-CONSTRUCTION COST (B)	\$	841,507.1
	Pre construction contingency (30% of B1)	s	194,193.9
	Sub Total(B1)	s	647,313.2
HW0024	Community Consultation		
HW0018	Land Matters	s	-
HW0017	Project Management of Design	s	119,512.0
HW0016	Design	s	527,801.
i	PRE-CONSTRUCTION COST (Table 10)		

ι.	CONSTRUCTION COST										
	Total Estimated Contract Award Sum (A		\$	5,278,011.70							
HW0019	Principal Supplied Pipe (as applicable)		\$	-							
HW0020	HW0020 Principal Supplied Valves and Flowmeters (as applicable)										
HW0021	HW0021 Principal Supplied Fittings (as applicable)										
HW0022	Pump Station HV Power Supply		\$	-							
HW0023	Construction Management (Table 11)		s	422,240.94							
	Sub Total (C1)		\$	5,700,252.64							
	Construction contingency		s	1,710,075.79							
	(Table 12) (30% of C1)	Preliminary Estimate									
	TOTAL CONSTRUCTION COST (C)		\$	7,410,328.43							
	TOTAL PRELIMINARY PROJECT ESTIMAT	E (B+C) (Preliminary Estimate)	S	8,251,835.60							

PROJECT DESCRIPTION:

Option 1A - Gravity Main

Item No.	Item Description	Qty	Unit	Rate \$/Unit	Amount \$	Application of Schedule of Rates
HW0001	All work not included elsewhere in this schedule	Item	Lump Sum	\$ 32,159.00		Payment: Maximum of 10% shall be due each month until 70% of th amount has been paid. Remainder at Practical Completion.
HW0002	Site Establishment <insert \$="" max=""></insert>	Item	Lump Sum	\$ 30,000.00	\$ 30,000.0	Payment: 100% after completion.
HW0003	Site Disestablishment <insert \$="" min=""></insert>	Item	Lump Sum	\$ 30,000.00	\$ 30,000.0	Payment: 100% after completion.
HW0004	Preparation and implementation of the Construction EMP	ltem	Lump Sum	\$ 4,000.00	\$ 4,000.0	Payment: Maximum of 30% on submission of complying Construction EMP, then 10% per month up to maximum of 80%. Remainder at Practical Completion. Submit: Construction FMP.
	Preparation and implementation of the Safety Management Plan.	Item	Lump Sum	\$ 9,000.00		Payment: Maximum of 30% on submission of complying plan, then 10% per month up to maximum of 80%. Remainder at Practical Completion. Submit: Safety Management Plan.
HW0006	Preparation and implementation of the Traffic Control Plan.	Item	Lump Sum	\$ 2,000.00	\$ 2,000.0	Payment: Maximum of 30% on submission of complying Traffic Control Plan, then 10% per month up to maximum of 80%. Remainder at Practical Completion.
	Preparation and Implementation of Quality Management Plan	ltem	Lump Sum	\$ 16,879.70	\$ 16,879.7	Payment: Maximum of 30% on submission of complying Quality Management Plan, then 10% per month up to maximum of 80%. Remainder at Practical Completion.
HW0008	Community Consultation	Item	Lump Sum	\$.	\$	 Payment: 10% per month up to maximum of 70%. Remainder at Practical Completion.

							Practical Completion.	
nuer Din	eline - Gravity - section will be present if	one or mo	e aravity a	ains are specif	ied			
Item	Construction of Sewer Gravity Mains	Qtv	Unit	Rate \$/Unit		Amount \$	Application of Schedule of Rates	
HWG001	Service Location	Item	Lump Sum	\$ 3,64	0.00	\$ 3,640.00	Payment: Maximum of 10% shall be due each month until 70% of the amount has been paid. Remainder at Practical Completion.	
HWG002	Supply all valves	Item	Lump Sum			\$-	Payment: Percentage of valves and flowmeters supplied. Submit: Relevant Quality Records including Compliance Certificates.	
HWG003	Supply all fittings	Item	Lump Sum			\$-	Payment: Percentage of fittings supplied. Submit: Relevant Quality Records including Compliance Certificates.	
HWG004	Supply all pipe materials including detector tape, pipe protection wrapping, rubber rings and lubricant for following pipe sizes:						Measurement: Actual metres (effective length) of pipe delivered to site. Submit: Relevant Quality Records including Compliance Certificates. Note: Limits of Accuracy to be inserted for each pipe size.	
03CSS	Nominal DN600 RC pipe	2000	m	\$ 23	5.00	\$ 470,000.00		
HWG005	Clear, excavate, lay, join, bed, backfil & test pipelines (installation). Up to 1.5 m depth to invert in OTR.						Measurement: Actual metres of pipe installed with design depth of exervation up to and including 13.m. Retention: 10% - or other appropriate percentages- until satisfactory testing Submit: Relevant Quality Records including as constructed lengths, levels and coordinates. Limits of Accuracy: c1 ob te inserted>.	
03003	Nominal DN600 RC (Trench type 3)	900	m	\$ 29	8.53	\$ 268,677.00		Pipeline 1 - a
HWG006	Clear, excavate, lay, join, bed, backfill & test pipelines (installation). Nominal depth >1.5m to 3.0m depth to invert in OTR						Measument: Actual metres of pipe installed with design depth of excavation >1.5 mio and including a 0.m. Retention: 10% vor other appropriate percentage> until satisfactory testing Submit: Retevent Duality Records including as constructed lengths, levels and coordinates. Limits of Accuracy: <1 be inserted>.	
03003	Nominal DN600 RC (Trench type 3)	1100	m	\$ 42	4.53	\$ 466,983.00		Pipeline 1 - :
HWG007	Clear, excavate, lay, join, bed, backfill & test pipelines (installation). Nominal depth >3.0m to 4.5m depth to invert in OTR						Measument: Actual metres of pipe installed with design depth of excavation > 3 on to and including 4 5m. Retention: 10% vor other appropriate percentage> until satisfactory testing Submit: Retevent Quality Records including as constructed lengths, levels and coordinates. Limits of Accuracy: <to be="" inserted="">.</to>	
HWG008	Clear, excavate, lay, join, bed, backfill & test pipelines (installation). Nominal depth >4.5m depth to invert in OTR						Messurement: Actual metres of pipe installed with design depth of excavation > 4.5m. Retention: 10% con their appropriate percentage> until satisfactory testing Submit: Retevant Quality Records including as constructed lengths, levels and coordinates. Limits of Accuracy: <to be="" inserted="">.</to>	
HWG009	Excavate, backfill, supply and instal access chambers including base, chamber, cover & surround and access ladder for the following nominal diameter access chambers:						Measurement: Actual metres of access chamber installed measured from surface level to invert of outlet pipe. Retention: 10% confler appropriate percentage> until satisfactory testing Submit: Retevant Quality Records including as constructed lengths, levels and coordinates. Limits of Accuracy <70 be inserted>.	
HWG010	Extra over rate for installation for Additional compaction		m3	\$ 5	1.38		measurement, could menes or administration pased on anothese by length by Minimum Trench Width. Submit: Relevant Quality Records. Limits of Accuracy: <to be="" inserted="">.</to>]
HWG011	Excavate below specified design depth when directed including disposal of excess excavated material		m3	\$ 13	6.50		measurement. Cube menes or excavation precise based on mickness by length by Minimum Trench Width. Submit: Relevant Quality Records. Limits of Accuracy: <to be="" inserted="">.</to>	
HWG012	Extra over rate for installation to supply, place & compact non cohesive material.		m3				by length by Minimum Trench Width. Submit: Relevant Quality Records. Limits of Accuracy: <to be="" inserted="">.</to>	1

	Extra over rate for installation for supply, place and compact stabilised sand cement (14:1) backfill		m3	\$ 585.00		Measurement. Cubic metres of standards and cement dated of iniconess by length by Minimum Trench Width. Submit: Relevant Quality Records. Limits of Accuracy: <to be="" inserted="">. Limits of Accuracy: <to be="" inserted="">.</to></to>
	Extra over rate for installation for Supply, place and compact aggregate		m3			Minimum Trench Width. Submit: Relevant Quality Records. Limits of Accuracy: <to be="" inserted="">.</to>
	Supply & place ballast		tonnes	\$ 90.00		Neasurement: Actual Ionnes placed as directed. Submit: Relevant Quality Records including certified weighbridge dockets. Limits of Accuracy: <to be="" inserted="">.</to>
HWG016	External Dewatering of trench including establishment & disestablishment	2000	m3		\$ 200,000.00	Measurement: Measurement: Length of pipeline for which external dewatering is agreed with the Superintendent and provided, measured along the axis of the pipeline between the first and last spear point. Submit: Relevant Quality Records.
	Supply and place treated timber piling for pip support		m			Limits of Accuracy: <to be="" inerted?<br="">Measurements Accurate itom pipe invert to toe or pite Submit: Relevant Quality Records. Limits of Accuracy: <to be="" inserted="">.</to></to>
	Road / creek crossings					Measurement. Cengurin menes of casing instaneo Submit: Relevant Quality Records. Limits of Accuracy: <to be="" inserted="">.</to>
	Extra over rate for installation of trenchless technique under existing rail line		m			Measurement: Lengur III metres of casing instaned Submit: Relevant Quality Records. Limits of Accuracy: <to be="" inserted="">.</to>
	Supply & installation of river crossing includes supply of MSCL pipe, webling, testing of webds, 150mm concrete encasement, mobilication of demobilisation of dredge, excavation & disposal of excavated material, backfilling, lay, bed & test:					Measurement: Length in metres of casing installed. Retention: 10% - cor other appropriate percentage- until satisfactory testing. Note: Consider other milestone retentions. Submit: Relevant Quality Records.
	Supply and installation of pipe aerial creek crossing including supply of MSCL pipe with protection coating, internal and external welding, testing of welds. For the following MSCL pipe sizes:					design. Retention: 10% <or appropriate="" other="" percentage=""> until satisfactory testing. Note: Consider other milestone retentions. Submit: Relevant Quality Records. Limits of Accuracy <to be="" inserted="">.</to></or>
	Bulkheads and Trenchstops in accordance with WSAA drawing SEW-1206		Each			Payment, Number of builkneads a trencisiops considured Submit: Relevant Quality Records. Limits of Accuracy: <to be="" inserted="">.</to>
	Supply and install valve pits (excluding valve and fittings)	: 0	Each	\$		raymen, reamber or varie pie consolucieu Retention: <to be="" determined="">. Submit: Retevant Quality Records. Limits of Accuracy: <to be="" inserted="">. Payment. reumber or may reme subcures constructeu</to></to>
	Flow Relief Structures		Each			Retention: <to be="" determined="">. Submit: Relevant Quality Records. Limits of Accuracy: <to be="" inserted="">.</to></to>
HWG025	EMPTY					
	Supply and construct vent stacks		each			raymen, reunize or veni saose consolucio Retention: «To be determined». Submit: Retevant Quality Records. Limits of Accuracy: «To be inserted».
	Preparation of line sheets	2000	each	\$ 1.00	\$ 2,000.00	Limits of Accuracy: <to be="" inserted="">.</to>
HWIG028	Acceptance testing - gravity main		m			Measurement: Lengin of pipelines constructed as per design Submit: Staisfactory test records Limits of Accuracy: <to be="" inserted="">.</to>
HWG029	Miscellaneous					
HWG000	Sub Total				\$1,411,300	

Item No.	Item Description	Qty	Unit		Amount	Application of Schedule of Rates
					\$	
HW0009	Restoration - Pipelines:					Payment: 100% after completion.
HW0009.01	Concrete kerb & gutter	0	m	\$ 110.0		Measurement: Lineal metres restored within Minimum Trench Width. Limits of Accuracy: <to be="" inserted="">.</to>
HW0009.02	Concrete driveway	0	m2	\$ 178.0	os.	Measurement: Square metres restored based on actual length by Minimum Trench Width. Limits of Accuracy: <to be="" inserted=""></to>
HW0009.03	Exposed aggregate & stamped driveway	0	m2	\$ 220.0		Measurement: Square metres restored based on actual length by Minimum Trench Width. Limits of Accuracy: <to be="" inserted=""></to>
HW0009.04	Concrete footpath	0	m2	\$ 155.0	0\$.	Measurement: Square metres restored based on actual length by Minimum Trench Width. Limits of Accuracy: <to be="" inserted=""></to>
HW0009.05	Bitumen footpath	0	m2	\$ 117.0	0\$.	Measurement: Square metres restored based on actual length by Minimum Trench Width. Limits of Accuracy: <to be="" inserted=""></to>
HW0009.06	Gravel pavement	0	m2	\$ 69.0	0\$.	Measurement: Square metres restored based on actual length by Minimum Trench Width. Limits of Accuracy: <to be="" inserted=""></to>
HW0009.07	Bitumen pavement		m2			Measurement: Square metres restored based on actual length by Minimum Trench Width. Limits of Accuracy: <to be="" inserted=""></to>
HW0009.08	AC pavement		m2			Measurement: Square metres restored based on actual length by Minimum Trench Width. Limits of Accuracy: <to be="" inserted=""></to>
HW0009.09	Pavers		m2			Measurement: Square metres restored based on actual length by Minimum Trench Width. Limits of Accuracy: <to be="" inserted=""></to>

HW0009.10	Turf		m2					Measurement: Square metres restored based on actual length by Minimum Trench Width.
HW0009.11	Grass seeding	2000	m2	\$	7.00	\$		Limits of Accuracy: <1o be inserted> Measurement: Square metres restored based on actual length by Minimum Trench Width.
								Limits of Accuracy: <to be="" inserted=""></to>
HW0009.12	Hydromulch		m2					Measurement: Square metres restored based on actual length by
								Minimum Trench Width.
HW0010	Extra over item for Excavation in rock and		m3		_	_		Limits of Accuracy: <to be="" inserted=""> Measurement: Cubic metres excavated based on thickness of rock by</to>
	disposal of excess excavated material		1113					actual length by Minimum Trench Width.
								Limits of Accuracy: <to be="" inserted="">.</to>
HW0011	Acid sulphate soil							Elinits of Accuracy. <10 be inserted>:
HW0011.01	Initial testing for acid sulphate soils and	27	per test	\$ 1	10.00	s	2.970.00	Submit: Besult for each test
	prepare and submit report			1		÷		Limits of Accuracy: <to be="" inserted="">.</to>
HW0011.02	Establish treatment facility		Item					Payment: 100% after completion of treatment facility.
HW0011.03	Handling, treatment and testing of acid	6045	m3	\$	60.00	\$	362,700.00	Measurement: Cubic metres excavated based on thickness of ASS by
	sulphate soils							actual length by Minimum Trench Width.
								Submit: Test results confirming satisfactory treatment.
HW0011.04	Disposal off site of acid sulphate soil	0	tonne		22.00			Limits of Accuracy: <to be="" inserted=""> Measurement: Tonnes transported from the site.</to>
PHUDDIT.04	Disposal off site of acid submate sol	0	torne	о I	22.00	*	-	Submit: Weighbridge dockets.
								Submit: Weighbridge dockets. Limits of Accuracy: <to be="" inserted=""></to>
HW0012	Preconstruction record				-	-		Ellinits of Accuracy. < To be inserted>
HW0012.01	Photographic	Item	Lumo Sum			s		Payment: 70% on submission of the Photographic record.
						-		Remainder at Practical Completion.
HW0012.02	Video	ltem	Lump Sum			s		Payment: 70% on submission of the Video record. Remainder at
						1		Practical Completion.
HW0012.03	CCTV	Item	Lump Sum			\$		Payment: 70% on submission of the CCTV record. Remainder at
								Practical Completion.
HW0013	Work as Constructed Information <insert min<br="">\$></insert>	Item	Lump Sum	\$ 16,0	00.00	\$	16,000.00	Payment: 100% at Practical Completion.
	p-					-		

L	TOTAL ESTIMATED CONTRACT AWARD SUM	\$	1,931,008.70
l.	PRE-CONSTRUCTION COST (Table 10)	1	
HW0016	Design	s	231,721.04
HW0017	Project Management of Design	\$	51,208.21
HW0018	Land Matters	\$	
HW0024	Community Consultation		
	Sub Total(B1)	\$	282,929.25
	Pre construction contingency (30% of B1)	\$	84,878.78
	TOTAL PRE-CONSTRUCTION COST (B)	\$	367,808.03
	CONSTRUCTION COST		
2	CONSTRUCTION COST Total Estimated Contract Award Sum (A)	s	1,931,008.70
HW0019	Total Estimated Contract Award Sum (A)	s	1,931,008.70
 HW0019 HW0020	Total Estimated Contract Award Sum (A) Principal Supplied Pipe (as applicable)	s s	1,931,008.70 - -
	Total Estimated Contract Award Sum (A) Principal Supplied Pipe (as applicable) Principal Supplied Valves and Flowmeters (as applicable)	\$ \$ \$ \$	1,931,008.70 - -
HW0020	Total Estimated Contract Award Sum (A) Principal Supplied Pipe (as applicable) Principal Supplied Valves and Flowmeters (as applicable) Principal Supplied Fittings (as applicable)	* * * * *	1,931,008.70 - - - 187,500.00
HW0020 HW0021	Total Estimated Contract Award Sum (A) Principal Supplied Pipe (as applicable) Principal Supplied Valves and Flowmeters (as applicable)	s s	:
HW0020 HW0021 HW0022	Total Estimated Contract Award Sum (A) Principal Supplied Yalves and Flowmeters (as applicable) Principal Supplied Yalves and Flowmeters (as applicable) Principal Supplied Fittings (as applicable) Pump Station NV Power Supply	s s s s	- - 187,500.00
HW0020 HW0021 HW0022	Total Estimated Contract Award Sum (A) Principal Supplied Pipe (as applicable) Principal Supplied Valves and Powmeters (as applicable) Principal Supplied Fittings (as applicable) Pump Station HV Power Supply Construction Management (Table 11)	\$ \$ \$ \$ \$ \$ \$ \$ \$ \$	- - 187,500.00 193,100.87
HW0020 HW0021 HW0022	Total Estimated Contract Award Sum (A) Principal Supplied Pipe (as applicable) Principal Supplied Valves and Rowmetters (as applicable) Principal Supplied Fittings (as applicable) Pump Station VPower'Supply Construction Management (Table 11) Sub Total (C1)	* * * * * * * * *	- 187,500.00 193,100.87 2,311,609.57

PROJECT DESCRIPTION:

Option 1B - Gravity Main

item No.	Item Description	Qty	Unit	Rate \$/Unit	Amount \$	Application of Schedule of Rates
HW0001	All work not included elsewhere in this schedule	Item	Lump Sum	\$ 21,705.00	\$ 21,705.0	Payment: Maximum of 10% shall be due each month until 70% of th amount has been paid. Remainder at Practical Completion.
HW0002	Site Establishment <insert \$="" max=""></insert>	Item	Lump Sum	\$ 30,000.00	\$ 30,000.0	⁰ Payment: 100% after completion.
HW0003	Site Disestablishment <insert \$="" min=""></insert>	Item	Lump Sum	\$ 30,000.00	\$ 30,000.0	Payment: 100% after completion.
HW0004	Preparation and implementation of the Construction EMP	ltem	Lump Sum	\$ 4,000.00	\$ 4,000.0	⁰ Payment: Maximum of 30% on submission of complying Construction EMP, then 10% per month up to maximum of 80%. Remainder at Practical Completion. Submit: Construction EMP.
HW0005	Preparation and implementation of the Safety Management Plan.	Item	Lump Sum	\$ 9,000.00	\$ 9,000.0	⁰ Payment: Maximum of 30% on submission of complying plan, then 10% per month up to maximum of 80%. Remainder at Practical Completion. Submit: Safety Management Plan.
HW0006	Preparation and implementation of the Traffic Control Plan.	ltem	Lump Sum	\$ 2,000.00		⁰ Payment: Maximum of 30% on submission of complying Traffic Control Plan, then 10% per month up to maximum of 80%. Remainder at Practical Completion.
	Preparation and Implementation of Quality Management Plan	ltem	Lump Sum		\$ 11,652.7	³ Payment: Maximum of 30% on submission of complying Quality Management Plan, then 10% per month up to maximum of 80%. Remainder at Practical Completion.
HW0008	Community Consultation	Item	Lump Sum	\$	s	 Payment: 10% per month up to maximum of 70%. Remainder at Practical Completion.

								Practical Completion.	
ewer Pip	eline - Gravity - section will be present if	one or mo	re aravitv n	ains are	specified				
Item	Construction of Sewer Gravity Mains	Qty	Unit		Kate (Unit		Amount \$	Application of Schedule of Rates	
HWG001	Service Location	Item	Lump Sum	\$	18,590.00	\$	18,590.00	Payment: Maximum of 10% shall be due each month until 70% of the amount has been paid. Remainder at Practical Completion.	
HWG002	Supply all valves	Item	Lump Sum			\$		Payment: Percentage of valves and flowmeters supplied. Submit: Relevant Quality Records including Compliance Certificates.	
HWG003	Supply all fittings	Item	Lump Sum			\$		Payment: Percentage of fittings supplied. Submit: Relevant Quality Records including Compliance Certificates.	
HWG004	Supply all pipe materials including detector tape, pipe protection wrapping, rubber rings and lubricant for following pipe sizes:							Measurement: Actual metres (effective length) of pipe delivered to site. Submit: Relevant Quality Records including Compliance Certificates. Note: Limits of Accuracy to be inserted for each pipe size.	
03CSS	Nominal DN600 RC pipe	1100	m	\$	235.0	\$	258,500.00		
HWG005	Clear, excavate, lay, join, bed, backfill & test pipelines (installation). Up to 1.5 m depth to invert in OTR.							Measurement: Actual metres of pipe installed with design depth of excervation up to and including 1.5m. Reletrition: 10% - or other appropriate percentage> until satisfactory testing, Submit: Relevant Quality Records including as constructed lengths, levels and coordinates. Limits of Accuracy: <to be="" inserted="">.</to>	
03003	Nominal DN600 RC (Trench type 3)	500	m	\$	536.3	5 \$	268,175.00		Pipeline 1 - area allowar
HWG006	Clear, excavate, lay, join, bed, backfill & test pipelines (installation). Nominal depth >1.5m to 3.0m depth to invert in OTR							Measurement: Actual metres of pipe installed with design depth of excavation > 1.5m to and including 30m. Relention: 10% -or other appropriate percentage> until satisfactory testing, Submit: Relevent Quality Records including as constructed lengths, levels and coordinates. Limits of Accuracy: <to be="" inserted="">.</to>	
03003	Nominal DN600 RC (Trench type 3)	600	m	\$	762.8	5 \$	457,710.00		Pipeline 1 - area allowar
HWG007	Clear, excavate, lay, join, bed, backfill & test pipelines (installation). Nominal depth >3.0m to 4.5m depth to invert in OTR							Measurement: Actual metres of pipe installed with design depth of excavation > 3 tim to and including 4 5m. Referition: 10% cor other appropriate percentages until satisfactory testing. Submit: Relevant Quality Records including as constructed lengths, levels and coordinates. Limits of Accuracy: <to be="" inserted<="" td=""><td></td></to>	
HWG008	Clear, excavate, lay, join, bed, backfill & test pipelines (installation). Nominal depth >4.5m depth to invert in OTR							Measurement: Actual metres of pipe installed with design depth of excavation > 4.5m. elevition: 10% - or other appropriate percentage> until satisfactory testing. Submit: Relevant Quality Records including as constructed lengths, levels and coordinates. Limits of Accuracy: <to be="" inserted="">.</to>	
HWG009	Excavate, backfill, supply and instal access chambers including base, chamber, cover & surround and access ladder for the following nominal diameter access chambers:							Measurement: Actual metres of access chamber installed measured from surface level to invert of outlet pipe. Relettion: 10%-conflex appropriate percentage> until satisfactory testing, Submit: Relevant Quality Records including as constructed lengths, levels and coordinates. Limits of Accuracy: <to be="" inserted="">.</to>	
HWG010	Extra over rate for installation for Additional compaction		m3	\$	51.2	3		measurement. Cube menes or admonarcompaction based on bitchness by length by Minimum Trench Width. Submit: Relevant Quality Records. Limits of Accuracy: <to be="" inserted="">.</to>	
HWG011	Excavate below specified design depth when directed including disposal of excess excavated material		m3	ş	136.5	0		measurement. Cube menes or excavation precise based on mickness by length by Minimum Trench Width. Submit: Relevant Quality Records. Limits of Accuracy: <to be="" inserted="">.</to>	
HWG012	Extra over rate for installation to supply, place & compact non cohesive material.		m3					by length by Minimum Trench Width. Submit: Relevant Quality Records. Limits of Accuracy: <to be="" inserted="">.</to>	

HWG013	Extra over rate for installation for supply, place and compact stabilised sand cement (14:1) backfill		m3	\$ 585.00		Measurement. Cubic menes of stabilised sand center based of mickness by length by Minimum Trench Width. Submit: Relevant Quality Records. Limits of Accuracy: <to be="" inserted="">.</to>
HWG014	Extra over rate for installation for Supply, place and compact aggregate		m3			measurement. Cub. meres or aggregate based on anconess by lengin by Minimum Trench Width. Submit: Relevant Quality Records. Limits of Accuracy: <to be="" inserted="">.</to>
	Supply & place ballast		tonnes	\$ 90.00		Measurement: Actual Ionnes placed as directed. Submit: Relevant Quality Records including certified weighbridge dockets. Limits of Accuracy: <to be="" inserted="">.</to>
HWG016	External Dewatering of trench including establishment & disestablishment	1100	m3		\$ 110,000.00	Measurement: Measurement: Length of pipeline for which external devatering is agreed with the Superintendent and provided, measured along the axis of the pipeline between the first and last spear point. Submit: Relevant Quality Records. <u>Holdis of Acryotics: Sin be instruction</u> where to use or pre
HWG017	Supply and place treated timber piling for pip support		m			Submit: Relevant Quality Records. Limits of Accuracy: <to be="" inserted="">.</to>
	Road / creek crossings					Neasorement: Lengur in menes of casing instaned Submit: Relevant Quality Records. Limits of Accuracy: <to be="" inserted="">.</to>
HWG019	Extra over rate for installation of trenchless technique under existing rail line		m			Measurement: Length in metres of casing installed Submit: Relevant Quality Records. Limits of Accuracy: «To be inserted».
	Supply & installation of river crossing includes supply of MSCL pipe, welding, testing of welds, 150mm concrete encasement, mobilisation & demobilisation or dredge, excavation & disposal of excavated material, backfiling, lay, bed & test:					Measurement: Length in metres of casing installed. Retention: 10% «or other appropriate percentage> until satisfactory testing. Note: Consider other milestone retentions. Submit: Retevant Quality Records. Limits of Accuracy, «To be inserted».
	Supply and installation of pipe aerial creek crossing including supply of MSCL pipe with protection coating, internal and external welding, testing of welds. For the following MSCL pipe sizes:					design. Retention: 10% <or appropriate="" other="" percentage=""> until satisfactory testing. Note: Consider other milestone retentions. Submit: Retervant Quality Records. Limits of Accuracy: <to be="" inserted="">.</to></or>
	Bulkheads and Trenchstops in accordance with WSAA drawing SEW-1206		Each			Submit: Relevant Quality Records. Limits of Accuracy: <to be="" inserted="">.</to>
	Supply and install valve pits (excluding valve and fittings)	. 0	Each	\$-		raymen, wanter or vare pro consociau Retention: «To be determinet». Submit: Relevant Quality Records. Limits of Accuracy: «To be inserted».
HWG024	Flow Relief Structures		Each			rayment, reamer of nov relief sociales Retention: «To be determined». Submit: Relevant Quality Records. Limits of Accuracy: «To be inserted».
HWG025	EMPTY					
HWG026	Supply and construct vent stacks		each			raymen, wanner oven stacks cursuicled Retention: «To be determined». Submit: Relevant Quality Records. Limits of Accuracy: «To be inserted».
HWG027	Preparation of line sheets	1100	each	\$ 1.00	\$ 1,100.00	Limits of Accuracy: <to be="" inserted="">.</to>
HWG028	Acceptance testing - gravity main		m			Measurement: Length of pipelines constructed as per design Submit: Staisfactory test records Limits of Accuracy: <to be="" inserted="">.</to>
HWG029	Miscellaneous					
HWG000	Sub Total				\$1,114,075	

Item No.	Item Description	Qty	Unit		Amount	Application of Schedule of Rates
					\$	
HW0009	Restoration - Pipelines:					Payment: 100% after completion.
HW0009.01	Concrete kerb & gutter	0	m	\$ 110.0		Measurement: Lineal metres restored within Minimum Trench Width. Limits of Accuracy: <to be="" inserted="">.</to>
HW0009.02	Concrete driveway	0	m2	\$ 178.0	os.	Measurement: Square metres restored based on actual length by Minimum Trench Width. Limits of Accuracy: <to be="" inserted=""></to>
HW0009.03	Exposed aggregate & stamped driveway	0	m2	\$ 220.0		Measurement: Square metres restored based on actual length by Minimum Trench Width. Limits of Accuracy: <to be="" inserted=""></to>
HW0009.04	Concrete footpath	0	m2	\$ 155.0	0\$.	Measurement: Square metres restored based on actual length by Minimum Trench Width. Limits of Accuracy: <to be="" inserted=""></to>
HW0009.05	Bitumen footpath	0	m2	\$ 117.0	0\$.	Measurement: Square metres restored based on actual length by Minimum Trench Width. Limits of Accuracy: <to be="" inserted=""></to>
HW0009.06	Gravel pavement	0	m2	\$ 69.0	0\$.	Measurement: Square metres restored based on actual length by Minimum Trench Width. Limits of Accuracy: <to be="" inserted=""></to>
HW0009.07	Bitumen pavement		m2			Measurement: Square metres restored based on actual length by Minimum Trench Width. Limits of Accuracy: <to be="" inserted=""></to>
HW0009.08	AC pavement		m2			Measurement: Square metres restored based on actual length by Minimum Trench Width. Limits of Accuracy: <to be="" inserted=""></to>
HW0009.09	Pavers		m2			Measurement: Square metres restored based on actual length by Minimum Trench Width. Limits of Accuracy: <to be="" inserted=""></to>

HW0009.10	Turf		m2					Measurement: Square metres restored based on actual length by Minimum Trench Width.
HW0009.11	Grass seeding	1980	m2	\$	7.00	\$		Measurement: Square metres restored based on actual length by Minimum Trench Width.
HW0009.12	Hydromulch		m2					Limits of Accuracy: <to be="" inserted=""> Measurement: Square metres restored based on actual length by Minimum Trench Width.</to>
HW0010	Extra over item for Excavation in rock and disposal of excess excavated material		m3					Limits of Accuracy: <to be="" inserted=""> Measurement: Cubic metres excavated based on thickness of rock by actual length by Minimum Trench Width. Limits of Accuracy: <to be="" inserted="">.</to></to>
HW0011	Acid sulphate soil							ching of Accorder. He be inserted.
HW0011.01	Initial testing for acid sulphate soils and prepare and submit report	4	per test	\$	110.00	\$	440.00	Submit: Result for each test. Limits of Accuracy: <to be="" inserted="">.</to>
HW0011.02	Establish treatment facility		Item					Payment: 100% after completion of treatment facility.
HW0011.03	Handling, treatment and testing of acid sulphate soils	949.29545	m3	\$	60.00	ş	56,957.73	Measurement: Cubic metres excavated based on thickness of ASS by actual length by Minimum Trench Width. Submit: Test results confirming satisfactory treatment. Limits of Accuracy: <to be="" inserted?<="" td=""></to>
HW0011.04	Disposal off site of acid sulphate soil	0	tonne	ŵ	122.00	\$		Measurement: Tonnes transported from the site. Submit: Weighbridge dockets. Limits of Accuracy: <to be="" inserted=""></to>
HW0012	Preconstruction record							
HW0012.01	Photographic	Item	Lump Sum			\$		Payment: 70% on submission of the Photographic record. Remainder at Practical Completion.
HW0012.02	Video	Item	Lump Sum			\$		Payment: 70% on submission of the Video record. Remainder at Practical Completion.
HW0012.03	CCTV	Item	Lump Sum			\$		Payment: 70% on submission of the CCTV record. Remainder at Practical Completion.
HW0013	Work as Constructed Information <insert min<="" td=""><td>Item</td><td>Lump Sum</td><td>\$</td><td>8,800.00</td><td>\$</td><td>8,800.00</td><td>Payment: 100% at Practical Completion.</td></insert>	Item	Lump Sum	\$	8,800.00	\$	8,800.00	Payment: 100% at Practical Completion.

L	TOTAL ESTIMATED CONTRACT AWARD SUM	\$	1,302,490.46
	PRE-CONSTRUCTION COST (Table 10)	-	
HW0016	Design	s	156,298.85
HW0017	Project Management of Design	\$	38,287.13
HW0018	Land Matters	\$	-
HW0024	Community Consultation		
	Sub Total(B1)	\$	194,585.99
	Pre construction contingency (30% of B1)	\$	58,375.80
	TOTAL PRE-CONSTRUCTION COST (B)	\$	252,961.78
	CONSTRUCTION COST		4 202 402 48
	Total Estimated Contract Award Sum (A)	s	1,302,490.46
HW0019	Total Estimated Contract Award Sum (A) Principal Supplied Pipe (as applicable)	\$	1,302,490.46
HW0020	Total Estimated Contract Award Sum (A) Principal Supplied Pipe (as applicable) Principal Supplied Valves and Flowmeters (as applicable)	s s	1,302,490.46
HW0020 HW0021	Total Estimated Contract Award Sum (A) Principal Supplied Pipe (as applicable)	s s s	:
HW0020	Total Estimated Contract Award Sum (A) Principal Supplied Pipe (as applicable) Principal Supplied Valves and Flowmeters (as applicable)	\$ \$ \$ \$ \$ \$ \$	- - 187,500.00
HW0020 HW0021	Total Estimated Contract Award Sum (A) Principal Supplied Pipe (as applicable) Principal Supplied Valves and Flowmeters (as applicable) Principal Supplied Fittings (as applicable)	s s s	:
HW0020 HW0021 HW0022	Total Estimated Contract Award Sum (A) Principal Supplied Pipe (as applicable) Principal Supplied Valves and Flowmeters (as applicable) Principal Supplied Fittings (as applicable) Pump Station AVP Power Supply	s s s	- - 187,500.00
HW0020 HW0021 HW0022	Total Estimated Contract Award Sum (A) Principal Supplied Pipe (as applicable) Principal Supplied Valves: and Fourweters (as applicable) Principal Supplied Fittings (as applicable) Pump Station HV Power Supply Construction Management (Table 11)	\$ \$ \$ \$ \$ \$	- - 187,500.00 130,249.05
HW0020 HW0021 HW0022	Total Estimated Contract Award Sum (A) Principal Supplied Paye (as applicable) Principal Supplied Valves and Flowmeters (as applicable) Principal Supplied Friting (as applicable) Pump Station VP Neore'Supply Construction Management (Table 11) Sub Total (C1)	* * * * * *	187,500.00 130,249.05 1,620,239.50

PROJECT DESCRIPTION:

Option 1D - Gravity Main

Item No.	Item Description	Qty	Unit	Rate \$/Unit	Amount \$	Application of Schedule of Rates
	All work not included elsewhere in this schedule	Item	Lump Sum		+	Payment: Maximum of 10% shall be due each month until 70% of the amount has been paid. Remainder at Practical Completion.
	Site Establishment <insert \$="" max=""></insert>	Item	Lump Sum			Payment: 100% after completion.
HW0003	Site Disestablishment	Item	Lump Sum	\$ 30,000.00	\$ 30,000.00	Payment: 100% after completion.
HW0004	Preparation and implementation of the Construction EMP	Item	Lump Sum	\$ 4,000.00	\$ 4,000.00	Payment: Maximum of 30% on submission of complying Construction EMP, then 10% per month up to maximum of 80%. Remainder at Practical Completion. Submit: Construction EMP
HW0005	Preparation and implementation of the Safety Management Plan.	ltem	Lump Sum	\$ 9,000.00	\$ 9,000.00	Payment: Maximum of 30% on submission of complying plan, then 10% per month up to maximum of 80%. Remainder at Practical Completion. Submit: Safety Management Plan.
HW0006	Preparation and implementation of the Traffic Control Plan.	ltem	Lump Sum	\$ 2,000.00	\$ 2,000.00	Payment: Maximum of 30% on submission of complying Traffic Control Plan, then 10% per month up to maximum of 80%. Remainder at Practical Completion.
HW0007	Preparation and Implementation of Quality Management Plan	ltem	Lump Sum	\$ 40,121.83	\$ 40,121.83	Payment: Maximum of 30% on submission of complying Quality Management Plan, then 10% per month up to maximum of 80%. Remainder at Practical Completion
HW0008	Community Consultation	Item	Lump Sum	s .	\$	Payment: 10% per month up to maximum of 70%. Remainder at Practical Completion.

								Completion.	
ewer Pip	eline - Gravity - section will be present if	one or mo	re gravity m	ains are so	ecified				
ltem	Construction of Sewer Gravity Mains	Qtv	Unit	Rai \$/Ur	:e	1	Amount	Application of Schedule of Rates	1
WG001	Service Location	Item	Lump Sum		9,100.00	\$		Payment: Maximum of 10% shall be due each month until 70% of the	
-WG002	Supply all valves	Item	Lump Sum			s		amount has been paid. Remainder at Practical Completion. Payment: Percentage of valves and flowmeters supplied.	
						· ·		Submit: Relevant Quality Records including Compliance Certificates.	
HWG003	Supply all fittings	Item	Lump Sum			\$	-	Payment: Percentage of fittings supplied. Submit: Relevant Quality Records including Compliance Certificates.	
HWG004	Supply all pipe materials including detector							Measurement: Actual metres (effective length) of pipe delivered to site.	
	tape, pipe protection wrapping, rubber rings and lubricant for following pipe sizes:							Submit: Relevant Quality Records including Compliance Certificates. Note: Limits of Accuracy to be inserted for each pipe size.	
03CSS	Nominal DN600 RC pipe	3500	m	\$	235.00	\$	822,500.00		
HWG005	Clear, excavate, lay, join, bed, backfil & test pipelines (Installation). Up to 1.5 m depth to invert in OTR.							excevation up to and including 1.5m. Retention: 10% <or appropriate="" other="" percentage=""> until satisfactory testing. Submit: Relevant Quality Records including as constructed lengths, levels and coordinates.</or>	
								Limits of Accuracy: <to be="" inserted="">.</to>	
03003	Nominal DN600 RC (Trench type 3)	800	m	\$	347.90	\$	278,320.00		Pipeline 1 - area allowa
HWG006	Clear, excavate, lay, join, bed, backfil & test pipelines (installation). Nominal depth>1.5m to 3.0m depth to invert in OTR							excavation > 1.5m to and including 3.0m. Retention: 10% < or other appropriate percentage> until satisfactory testing. Submit: Retevant Quality Records including as constructed lengths, levels and coordinates. Limits of Accuracy: <to be="" inserted="">.</to>	
03003	Nominal DN600 RC (Trench type 3)	900	m	\$	476.90	\$	429,210.00		Pipeline 1 - area allowa
HWG007	Clear, excavate, lay, join, bed, backfil & test pipelines (installation). Nominal depth>3.0m to 4.5m depth to invert in OTR							excevation > 3.0m to and including 4.5m. Retention: 10% < or other appropriate percentage> until satisfactory testing. Submit: Retevant Quality Records including as constructed lengths, levels and coordinates. Limits of Accuracy: <to be="" inserted="">.</to>	
03C03	Nominal DN600 RC (Trench type 3)	900	m	\$	782.90	\$	704,610.00		Pipeline 1 - area allowa
HWG008	Clear, excavate, lay, join, bed, backfil & test pipelines (installation). Nominal depth>4.5m depth to invert in OTR							excavation > 4.5m. Retention: 10% <or appropriate="" other="" percentage=""> until satisfactory testing. Submit: Relevant Quality Records including as constructed lengths, levels and coordinates. Limits of Accuracy: <to be="" inserted="">.</to></or>	
03003	Nominal DN600 RC (Trench type 3)	900	m	\$	1,292.90	\$	1,163,610.00		Pipeline 1 - area allowa
HWG009	Excavet, backfil, supply and instal access chambers including base, chamber, cover & surround and access ladder for the following nominal diameter access chambers:							surface level to invert of outlet pipe. Retention: 10% <or appropriate="" other="" percentages="" satisfactory<br="" until="">testing. Submit: Relevant Quality Records including as constructed lengths, levels and coordinates. Limits of Accuracy: <to be="" inserted="">.</to></or>	
HWG010	Extra over rate for installation for Additional compaction		m3	ş	84.30			measurement. Cubic menes of aduational compaction based on bickness by length by Minimum Trench Width. Submit: Relevant Quality Records. Limits of Accuracy: <to be="" inserted="">.</to>	
HWG011	Excavate below specified design depth when directed including disposal of excess excavated material		m3	\$	136.50			Intestruentent. Cube menes of exclavation directed based on interness by length by Minimum Trench Width. Submit: Relevant Quality Records. Limits of Accuracy: https://www.example.com Limits of Accuracy: https://www.example.com Limits of Accuracy: https://www.example.com Limits of Accuracy: https://www.example.com	
HWG012	Extra over rate for installation to supply, place & compact non cohesive material.		m3					by length by Minimum Trends Wildh. Submit: Relevant Quality Records. Limits of Accuracy: <to be="" inserted="">.</to>	

HWG013	Extra over rate for installation for supply,		m3	\$ 585.00		by length by Minimum Trench Width.
	place and compact stabilised sand cement (14:1) backfill					
	(14:1) backnii					Submit: Relevant Quality Records.
						Limits of Accuracy: <to be="" inserted="">.</to>
HWG014	Extra over rate for installation for Supply,		m3			Measurement. Coold metres or aggregate based on mickness by length by Minimum Trench Width.
	place and compact aggregate					Submit: Relevant Quality Records.
						Limits of Accuracy: <to be="" inserted="">.</to>
HWG015	Supply & place ballast		tonnes	\$ 90.00		Measurement: Actual tonnes placed as directed.
						Submit: Relevant Quality Records including certified weighbridge dockets.
						Limits of Accuracy: <to be="" inserted="">.</to>
HWG016	External Dewatering of trench including	3500	m3		\$ 350,000.00	Measurement: Measurement: Length of pipeline for which external
	establishment & disestablishment					dewatering is agreed with the Superintendent and provided, measured
						along the axis of the pipeline between the first and last spear point.
						Submit: Relevant Quality Records.
HWG017						heatsurement: Actuar Thebes from pipe invent to toe of pile.
HWGU17	Supply and place treated timber piling for pip support	2	m			Submit: Relevant Quality Records.
	support					Limits of Accuracy: <to be="" inserted="">.</to>
1000000						measurement, Lengur in metres of casing installed.
HWG018	Road / creek crossings					Submit: Relevant Quality Records.
						Limits of Accuracy: <to be="" inserted="">.</to>
1000000			m			measurement: Length in metres of casing installed.
HWG019	Extra over rate for installation of trenchless technique under existing rail line		m			Submit: Relevant Quality Records.
	technique under existing rail line					Limits of Accuracy: <to be="" inserted="">.</to>
HWG020						Limits of Accuracy. STo be inserted.
HWG020	Supply & installation of river crossing includes supply of MSCL pipe, welding,					
	testing of welds. 150mm concrete					Measurement: Length in metres of casing installed.
	encasement, mobilisation & demobilisation of					Retention: 10% <or appropriate="" other="" percentage=""> until satisfactory</or>
	dredge. excavation & disposal of excavated					testing. Note: Consider other milestone retentions.
	material, backfiling, lay, bed & test:					Submit: Relevant Quality Records.
						Limits of Accuracy: <to be="" inserted="">.</to>
HWG021	Supply and installation of pipe aerial creek					design.
	crossing including supply of MSCL pipe with					Retention: 10% <or appropriate="" other="" percentage=""> until satisfactory</or>
	protection coating, internal and external					testing. Note: Consider other milestone retentions.
	welding, testing of welds. For the following MSCL pipe sizes:					
	MSCL pipe sizes:					Submit: Relevant Quality Records.
						Limits of Accuracy: <to be="" inserted="">.</to>
HWG022	Bulkheads and Trenchstops in accordance		Each			Payment: Number of buikneads & trenchstops constructed.
	with WSAA drawing SEW-1206					Submit: Relevant Quality Records.
						Limits of Accuracy: <to be="" inserted="">.</to>
HWG023	Supply and Install valve pits (excluding valve	: 0	Each	\$ -	\$ -	Retention: <to be="" determined="">.</to>
	and fittings)					
						Submit: Relevant Quality Records.
						Limits of Accuracy: <to be="" inserted="">.</to>
HWG024	Flow Relief Structures		Each			Retention: <to be="" determined="">.</to>
						Submit: Relevant Quality Records.
						Limits of Accuracy: <to be="" inserted="">.</to>
HWG025	EMPTY					
HWG026	Supply and construct vent stacks		each			Payment. Number of vent stacks constructed.
						Retention: <to be="" determined="">.</to>
						Submit: Relevant Quality Records.
						Limits of Accuracy: <to be="" inserted="">.</to>
HWG027	Preparation of line sheets		each	\$ 1.00	\$ 3,500.00	
		3500				Limits of Accuracy: <to be="" inserted="">.</to>
HWG028	Acceptance testing - gravity main		m			measurement: Length or pipelines constructed as per design.
						Submit: Staisfactory test records
						Limits of Accuracy: <to be="" inserted="">.</to>
HWG029	Miscellaneous					
HWG000	Sub Total				\$3,760,850	

Item No.	Item Description	Qty	Unit		Amount	Application of Schedule of Rates
					\$	
	Restoration - Pipelines:					Payment: 100% after completion.
HW0009.01	Concrete kerb & gutter	0	m	\$ 110.00	\$.	Measurement: Lineal metres restored within Minimum Trench Width.
						Limits of Accuracy: <to be="" inserted="">.</to>
HW0009.02	Concrete driveway	0	m2	\$ 178.00	\$	Measurement: Square metres restored based on actual length by Minimum
						Trench Width.
						Limits of Accuracy: <to be="" inserted=""></to>
HW0009.03	Exposed aggregate & stamped driveway	0	m2	\$ 220.00	\$.	Measurement: Square metres restored based on actual length by Minimum
						Trench Width.
						Limits of Accuracy: <to be="" inserted=""></to>
HW0009.04	Concrete footpath	0	m2	\$ 155.00	\$-	Measurement: Square metres restored based on actual length by Minimum
						Trench Width.
						Limits of Accuracy: <to be="" inserted=""></to>
HW0009.05	Bitumen footpath	0	m2	\$ 117.00	\$ -	Measurement: Square metres restored based on actual length by Minimum
						Trench Width.
						Limits of Accuracy: <to be="" inserted=""></to>
HW0009.06	Gravel pavement	0	m2	\$ 69.00	\$.	Measurement: Square metres restored based on actual length by Minimum
						Trench Width.
						Limits of Accuracy: <to be="" inserted=""></to>
HW0009.07	Bitumen pavement		m2			Measurement: Square metres restored based on actual length by Minimum
						Trench Width.
HW0009.08						Limits of Accuracy: <to be="" inserted=""></to>
HW0009.08	AC pavement		m2			Measurement: Square metres restored based on actual length by Minimum
						Trench Width.
HW0009.09	Payers		m2			Limits of Accuracy: <to be="" inserted=""></to>
HW0009.09	Pavers		m2			Measurement: Square metres restored based on actual length by Minimum
						Trench Width.
HW0009 10	Turf					Limits of Accuracy: <to be="" inserted=""></to>
HW0009.10	TUIT		m2			Measurement: Square metres restored based on actual length by Minimum
						Trench Width.
						Limits of Accuracy: <to be="" inserted=""></to>

HW0009.11	Grass seeding	6300	m2	\$ 7	:00 \$	44,100.00	Measurement: Square metres restored based on actual length by Minimun Trench Wirdth
							Limits of Accuracy: <to be="" inserted?<="" td=""></to>
HW0009.12	Hydromulch		m2		_		Measurement: Square metres restored based on actual length by Minimum
	.,						Trench Width
							Limits of Accuracy: <to be="" inserted=""></to>
HW0010	Extra over item for Excavation in rock and		m3				Measurement: Cubic metres excavated based on thickness of rock by
	disposal of excess excavated material						actual length by Minimum Trench Width.
							Limits of Accuracy: <to be="" inserted="">.</to>
HW0011	Acid sulphate soil				_		CITIES OF ACCORACY, STODE INSERTED.
HW0011.01	Initial testing for acid sulphate soils and	21	per test	\$ 110	00 5	2 310 00	Submit: Result for each test
	prepare and submit report			• ···			Limits of Accuracy: <to be="" inserted="">.</to>
HW0011.02	Establish treatment facility		ltem				Payment: 100% after completion of treatment facility.
HW001103	Handling, treatment and testing of acid	7933 7143	m3	e eo	00.5		Measurement: Cubic metres excavated based on thickness of ASS by
11110011.00	subhate solis	/933./143	1113	ə 60	00 3		actual length by Minimum Trench Width.
							Submit: Test results confirming satisfactory treatment.
HW001104	Disposal off site of acid sulphate soil	0	toone	\$ 122	00 \$		Measurement: Tonnes transported from the site.
		-		•			Submit: Weighbridge dockets.
							Limits of Accuracy: <to be="" inserted=""></to>
HW0012	Preconstruction record				_		Limits of Accuracy: <10 be inserted>
HW0012.01	Photographic	ltem	Lump Sum				Payment: 70% on submission of the Photographic record. Remainder at
11110012.01	1 notographic	104111	cump ourn		Ť		Payment: 70% on submission of the Photographic record. Remainder at Practical Completion
HW0012.02	Video	ltem	Lump Sum		s		Practical Completion. Payment: 70% on submission of the Video record. Remainder at Practical
PW0012.02	VIGED	ILCIII	cump dum		*		Completion
HW0012.03	CCTV	ltem	Lump Sum		\$		Payment: 70% on submission of the CCTV record. Remainder at Practical
11110012-00	0011	104111	cump ourn		Ť		Payment: 70% on submission of the CCTV record. Remainder at Practical Completion
HW0013	Work as Constructed Information <insert min<="" td=""><td>ltem</td><td>Lump Sum</td><td>\$ 28.000</td><td>- CO</td><td>28.000.00</td><td></td></insert>	ltem	Lump Sum	\$ 28.000	- CO	28.000.00	
	S>	rediti	camp dam	¥ 20,000	*	10,000.00	Payment: 100% at Practical Completion.
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L.	TOTAL ESTIMATED CONTRACT AWARD SUM	\$	4,505,048.69
l.	PRE-CONSTRUCTION COST (Table 10)		
HW0016	Design	\$	540,605.84
HW0017	Project Management of Design	\$	108,662.77
HW0018	Land Matters	\$	
HW0024	Community Consultation		
	Sub Total(B1)	\$	649,268.61
	Pre construction contingency (30% of B1)	\$	194,780.58
	TOTAL PRE-CONSTRUCTION COST (B)	\$	844,049.19
L.	CONSTRUCTION COST		
c.	CONSTRUCTION COST Total Estimated Contract Award Sum (A)	\$	4,505,048.69
нwоо19		s s	4,505,048.69
HW0019 HW0020	Total Estimated Contract Award Sum (A)	* *	4,505,048.69
	Total Estimated Contract Award Sum (A) Principal Supplied Pipe (as applicable)	\$ \$ \$ \$ \$	4,505,048.69 - - -
HW0020	Total Estimated Contract Award Sum (A) Principal Supplied Pipe (as applicable) Principal Supplied Valves and Flowmeters (as applicable)	* * * * *	4,505,048.65
HW0020 HW0021	Total Estimated Contract Award Sum (A) Principal Supplied Pipe (as applicable) Principal Supplied Valves and Flowmeters (as applicable) Principal Supplied Fittings (as applicable)	\$ \$ \$ \$ \$ \$ \$	
HW0020 HW0021 HW0022	Total Estimated Contract Award Sum (A) Principal Supplied Yuleys and Rowmeters (as applicable) Principal Supplied Yuleys and Rowmeters (as applicable) Principal Supplied Fittings (as applicable) Pump Station HV Power Supply	÷	- - 187,500.00
HW0020 HW0021 HW0022	Total Estimated Contract Award Sum (A) Principal Supplied Pipe (as applicable) Principal Supplied Valves and Folowmeters (as applicable) Principal Supplied Fittings (as applicable) Pump Station HV Power Supply Construction Management (Table 11)	s	- - 187,500.00 360,403.85
HW0020 HW0021 HW0022	Total Estimated Contract Award Sum (A) Principal Supplied Pipe (as applicable) Principal Supplied Valves and Rowmeters (as applicable) Principal Supplied Fittings (as applicable) Pump Station VPower'Supply Construction Management (Table 11) Sub Total (C1)	\$	- 187,500.01 360,403.85 5,052,952.55

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TOTAL PRELIMINARY PROJECT ESTIMATE (B+C) (Preliminary Estimate) \$ 7.412.887.55

PROJECT DESCRIPTION:

Pump Station & Rising Main - Low Head Eastern Transfer

Item No.	Item Description	Qty	Unit	Rate \$/Unit	Amount	Application of Schedule of Rates
					\$	
HW0001	All work not included elsewhere in this	Item	Lump Sum	\$ 35,692.00	\$ 35,692.00	Payment: Maximum of 10% shall be due each month until 70% of the
	schedule					amount has been paid. Remainder at Practical Completion.
HW0002	Site Establishment <insert \$="" max=""></insert>	Item	Lump Sum	\$ 30,000.00	\$ 30,000.00	Payment: 100% after completion.
HW0003	Site Disestablishment <insert \$="" min=""></insert>	Item	Lump Sum	\$ 30,000.00	\$ 30,000.00	Payment: 100% after completion.
HW0004	Preparation and implementation of the	Item	Lump Sum	\$ 7,000.00	\$ 7,000.00	Payment: Maximum of 30% on submission of complying Construction
	Construction EMP					EMP, then 10% per month up to maximum of 80%. Remainder at
						Practical Completion.
						Submit: Construction EMP.
HW0005	Preparation and implementation of the Safety	Item	Lump Sum	\$ 14,000.00	\$ 14,000.00	Payment: Maximum of 30% on submission of complying plan, then
	Management Plan.					10% per month up to maximum of 80%. Remainder at Practical
						Completion.
						Submit: Safety Management Plan.
HW0006	Preparation and implementation of the Traffic	Item	Lump Sum	\$ 6,200.00	\$ 6,200.00	Payment: Maximum of 30% on submission of complying Traffic Control
	Control Plan.					Plan, then 10% per month up to maximum of 80%. Remainder at
						Practical Completion.
HW0007	Preparation and Implementation of Quality	Item	Lump Sum	\$ 18,645.84	\$ 18,645.84	Payment: Maximum of 30% on submission of complying Quality
	Management Plan					Management Plan, then 10% per month up to maximum of 80%.
						Remainder at Practical Completion.
HW0008	Community Consultation	Item	Lump Sum	s -	s -	Payment: 10% per month up to maximum of 70%. Remainder at
						Practical Completion.

Item	eline - Rising - section will be present if o Construction of Sewer Rising Mains	Qty	Unit	Rate \$/Unit	Amount \$	Application of Schedule of Rates
HWR001	Service Location	Item	Lump Sum	\$ 3,000.00	\$ 3,000.00	Payment: Maximum of 10% shall be due each month until 70% of the
HWR002	Supply all valves	Item	Lump Sum		\$	amount has been paid. Remainder at Practical Completion. Payment: Percentage of valves and flowmeters supplied. Submit: Relevant Quality Records including Compliance Certificates.
HWR003	Supply all fittings	Item	Lump Sum		\$ -	Payment: Percentage or nungs supplied. Submit: Relevant Quality Records including Compliance Certificates.
HWR004	Supply all pipe materials including detector tape, pipe protection wrapping, rubber rings and lubricant for following pipe sizes:					Measurement: Actual metres (effective length) of pipe delivered to site. Submit: Relevant Quality Records including Compliance Certificates. Note: Limits of Accuracy to be inserted for each pipe size.
11EDSS	Nominal DN300 DICL pipe	4000	m	\$ 178.00	\$ 712,000.00	
HWR005	Clear, excavate, lay, join, bed, backfill & test pipelines (installation). Up to 1.5 m depth to invert in OTR.					Measurement: Actual metres of pipe installed with design depth of excavation up to and including 1.5m. Relention: 10% cor other appropriate percentage> until satisfactory testing Submit: Relevant Quality Records including as constructed lengths, levels and coordinates. Limits of Accuracy:

HWR013	Extra over rate for installation for supply,		m3	\$	337.50		Measurement: Cubic metres of stabilised sand cement based on thickness by length by Minimum Trench Width.
	place and compact stabilised sand cement						
	(14:1) backfill						Submit: Relevant Quality Records.
							Limits of Accuracy: <to be="" inserted="">.</to>
HWR014	Extra over rate for installation for Supply,		m3				measurement. Coold metres or aggregate based on unckness by length by Minimum Trench Width.
	place and compact aggregate						Submit: Relevant Quality Records.
							Limits of Accuracy: <to be="" inserted="">.</to>
HWR015	Supply & place ballast		tonnes	\$	90.00		Measurement: Actual tonnes placed as directed.
							Submit: Relevant Quality Records including certified weighbridge dockets.
							Limits of Accuracy: <to be="" inserted="">.</to>
							Linits of Acculacy. <10 be inserted>.
HWR016	External Dewatering of trench including		m				measurement: Length of pipeline for which external dewatering is
	establishment & disestablishment						agreed with the Superintendent and provided, measured along the axis
							of the pipeline between the first and last spear point.
							Submit: Relevant Quality Records.
HWR017	Supply and place treated timber piling for		m				Measurement: Actual metres from pipe invert to toe of pile.
	pipe support						Submit: Relevant Quality Records.
				1		1	Limits of Accuracy: <to be="" inserted="">.</to>
HWR018	Road / creek crossings						Measurement: Length in metres of casing installed.
	-						Submit: Relevant Quality Records.
				l l			Limits of Accuracy: <to be="" inserted="">.</to>
HWR019	Extra over rate for installation of trenchless		m	1			Measurement: Length in metres of casing installed.
	technique under existing rail line						Submit: Relevant Quality Records.
							Limits of Accuracy: <to be="" inserted="">.</to>
HWR020	Supply and installation of pipe aerial creek						weasurement. Length in metres of crossing installed in accordance with
	crossing including supply of MSCL pipe with						design.
	protection coating, internal and external						Retention: 10% <or appropriate="" other="" percentage=""> until satisfactory testing.</or>
	welding, testing of welds. For the following						Note: Consider other milestone retentions.
	MSCL pipe sizes:						Submit: Relevant Quality Records.
							Limits of Accuracy: <to be="" inserted="">.</to>
HWR021	Supply and installation of pipe river crossing						
HWH021	including supply of MSCL pipe, internal and						
	external welding, testing of welds and 150						
	thick concrete encasement. Also includes						
	mobilisation and demobilisation of dredge(if						Measurement: Length in metres of casing installed.
	required) excavation & disposal of excavated						
	material, backfilling, lay, bed and test for the						Retention: 10% <or appropriate="" other="" percentage=""> until satisfactory testing.</or>
	following MSCL pipe sizes:						Note: Consider other milestone retentions.
	norming mode pipe sizes.						Submit: Relevant Quality Records.
							Limits of Accuracy: <to be="" inserted="">.</to>
HWR022	Bulkheads and Trenchstops in accordance	Item	Lump Sum			ş -	Payment: Number of bulkneads & trenchstops constructed.
	with WSAA drawing SEW-1206						Submit: Relevant Quality Records.
							Limits of Accuracy: <to be="" inserted="">.</to>
HWR023	Supply and Install valve pits (excluding	0	Each	\$	-	s -	Payment, Number of Valve pits constructed.
	valves and fittings)			l l			Retention: <to be="" determined="">.</to>
				1		1	Submit: Relevant Quality Records.
							Limits of Accuracy: <to be="" inserted="">.</to>
HWR024	Flow Relief Structures		Each				Payment: Number of flow relief structures constructed.
							Retention: <to be="" determined="">.</to>
							Submit: Relevant Quality Records.
							Limits of Accuracy: <to be="" inserted="">.</to>
HWR025	EMPTY			-			
HWR026			each				Payment: Number of vent stacks constructed.
.1111020	Supply and construct vent stacks		eacn	l l			Retention: <to be="" determined="">.</to>
				1		1	Submit: Relevant Quality Records.
							Limits of Accuracy: <to be="" inserted="">.</to>
UNITED	Descention of the shorts	1000	m	s	4.67	\$ 4.000.00	
HWR027	Preparation of line sheets	4000	m	\$	1.00	> 4,000.00	Limits of Accuracy: <to be="" inserted="">.</to>
100000							Measurement: Length of pipelines constructed as per design.
HWR028	Acceptance testing - rising main		m				Submit: Satisfactory test records
				l l			
							Limits of Accuracy: <to be="" inserted="">.</to>
HWR029	Miscellaneous						
HWR000	Sub Total					\$1,076,000	

Sewer Pun	nping Station 120kW					
Item	Pump Station - Name	Qty	Unit	Kate \$/Unit	Amount \$	Application of Schedule of Rates
HW0201	Sewer Pumping Station 120kW 3.8m dia 2 Pump(s)					
	Clear, excavate & backfill in OTR conditions, supply and construct pipework, pump station, includes sliding aluminium hatch covers, screens & ancillary metal work & fittings. Supply & piace formwork, reinforcement, concrete, roof slab, thrust blocks.	Item	Lump Sum	\$ 369,000.00	\$ 369,000.0	Payment: <insert appropriate="" of="" percentages="" reflect="" the="" to="" value="" work<br="">at key milestones og excavation, pump vell, metalwork etc>. Submit: Relevant Quality Records.</insert>
HW0202	Pumps for Pumping Stations - Supply and install pumps and associated fittings, connection to pipework, testing and commissioning.	2	Lump Sum	\$ 35,700.00	\$ 71,400.0	Payment: <insert appropriate="" eg<br="" for="" key="" milestones="" percentages="">installation, precommissioning, commissioning>. Submit: Relevant Quality Records including those for pump test.</insert>
HW0203	Pumping Station Electricals					
HW0203.01	Pit and Conduit System	Item	Lump Sum	\$ 10,812.50	\$ 10,812.50	Payment: Percentage of work completed. Submit: Relevant Quality Records.
HW0203.02	LV Station Power Supply	Item	Lump Sum	\$ 14,375.00	\$ 14,375.00	Payment: Percentage of work completed. Submit: Relevant Quality Records.

Billion By-Pass arrangements Item Lung Sun S Submit: Relevant Datability Records. 10000306 Bedrical Dendition works Billion Lung Sun \$ Payment: Percentage of work completed. 10000306 Subtraboard Item Lung Sun \$ Payment: Percentage of work completed. 10000306 PLC / Telenetry Hartware Item Lung Sun \$ 14.437.55 \$ 14.437.55 Payment: Percentage of work completed. 10000307 PLC / Telenetry Hartware Item Lung Sun \$ 2.8.450.00 \$ 2.8.450.00 Payment: Percentage of work completed. 10000307 Sources Stead Exploration and Sund Completed. Building Services (Electrical) Item Lung Sun \$ Payment: Percentage of work completed. 10000307 Building Services (Electrical) Item Lung Sun \$ Payment: Percentage of work completed. 10000307 Building Services (Electrical) Item Lung Sun \$ Payment: Percentage of work completed. 10000307 Percentage of work completed. Submit: Relevant Ouality Records. Submit: Relevant Ouality						-	. . .
MINIDES Beckel Consistion wask Ben Lung Sun 9 Preprint Processing of work completed. MINIDES Build construction	HW0203.03	Station By-Pass arrangements	Item	Lump Sum		s -	Payment: Percentage of work completed. Submit: Relevant Quality Records.
MINDEDIG Subschool Lum Lum Subschool Permit Preventing of work completed. MINDERIG PLC / Toleneyry Roads Engenering and Subschool Image: Subschool Sub	HW0203.04	Electrical Demolition works	Item	Lump Sum		s -	Payment: Percentage of work completed.
memory memory memory memory memory status memory status memory memory<	HW0203.05					-	
PLC / Teaching House Im Land 20 Substrate Substrae <		Switchboard	Item	Lump Sum	\$ 90,125.00	\$ 90,125.0	Submit: Relevant Quality Records.
IMMODE PLC / Tearrenty / Stand Engineering are part June Day Stand 2 84.600 9 Junct / Tearrent of ever completed. IMMODE Mattering Box Immode Day Stand Processing Day Stand Da	HW0203.06	PLC / Telemetry Hardware	Item	Lump Sum	\$ 14,437.50	\$ 14,437.5	Payment: Percentage of work completed.
Software Development Amount	HW0203.07	PLC / Telemetry / Scada Engineering and	li e ere	1			Payment: Percentage of work completed.
Internet to m. Items to m. Items to m. Items to m. Items to m. 140003 building Sinces (Biccitual) Item to m. 5 Spenner. Rescurge of work completed. 140003 building Sinces (Biccitual) Item to m. 5 Spenner. Rescurge of work completed. 140003 building Sinces (Biccitual) Item to m. 5 Spenner. Rescurge of work completed. 140003 building Sinces (Biccitual) Item to m. 1 24.477.6 5 24.477.6 140003 building Sinces (Biccitual) Item to m. 1 24.477.6 5 24.477.6 140003 building Sinces (Biccitual) Item to m. 1 24.477.6 5 24.477.6 140003 building Sinces (Biccitual) Item to m. 1 24.477.6 5 Stendard Chick (Biccitual) 1 1 24.477.6 5 Stendard Chick (Biccitual) 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 <	1000000.00		item	Lunp Sun	\$ 20,400.00	\$ 28,450.01	Submit: Relevant Quality Records.
MINDED Multing Services (Electrical) Item Lung Sun \$ Payment: Precentage of work completed. MINDED Personal Transmitter/Control Rem Lung Sun \$ Subbinit: Relevant Quality Records. MINDED Personal Transmitter/Control Rem Lung Sun \$ 2.4.4776 Subbinit: Relevant Quality Records. MINDED Personal Transmitter/Control Rem Lung Sun \$ 2.4.4776 Subbinit: Relevant Quality Records. MINDED Personal Transmitter/Control Rem Lung Sun \$ 2.4.4776 Personal: Remainder at Practical Completed. MINDED Service Location Inem Lung Sun \$ 8.66.4 8.66.4 Personal: Remainder at Practical Completion. MINDED Excandora basic region reg	HW0203.06		Item	Lump Sum	s -	s -	Submit: Relevant Quality Records.
NUMBOR 10 Presure Transmitter/Gauge Board Res Lung Sun \$ Department Presentage of early constrained. NUMBOR 11 Headuary Cablurg (Bechrical) Item Lung Sun \$ 24,477.6 \$ 24,477.6 \$ Submits. Relevant Quality. Records. NUMBOR 11 Headuary Cablurg (Bechrical) Item Lung Sun \$ 24,477.6 \$ Submits. Relevant Quality. Records. NUMBOR 11 Headuary Cablurg (Bechrical) Item Lung Sun \$ 0.664.4 \$ 0.664 \$ Payment: Maximum of 10% shall be due each month until 70% of the month has been paid. Remainder af Parcial Completion. NUMBOR 11 Headuary Cablurg (Bechrical) m m 70.80 \$ 0.664.4 <td< td=""><td>HW0203.09</td><td>Building Services (Electrical)</td><td>ltem</td><td>Lump Sum</td><td>s .</td><td>s .</td><td>Payment: Percentage of work completed.</td></td<>	HW0203.09	Building Services (Electrical)	ltem	Lump Sum	s .	s .	Payment: Percentage of work completed.
Presult Instantial Instantial Control Calify (Electrical) Item Lung Sum 3 Summit: Relevant Guality Records. 199000 Instruction Calify (Electrical) Item Lung Sum 3 24.4375 Bymit: Relevant Guality Records. 199000 Instruction Calify (Electrical) Item Lung Sum 8 66.4 9 199000 Berrice Lacation Item Lung Sum 8 66.4 9 Med.4 9 199000 Berrice Lacation Item Lung Sum 8 66.4 9 Med.4 9 199000 Expendio lediour design depth including thing including thing including and the second calify the design. 190000 Calify the second calify the design. 0 m3 5 62.0 5 Buseric talify the design. <	HW0203 10			-	-		Submit: Relevant Quality Records. Payment: Percentage of work completed
InstitutionCable (Electrical) Item Lurp Sun \$ 2.4.47.50 Submit: Relevant Guality Records. 199020 Engly Image: Secondary Legislation (Configent Legis		Pressure Transmitter/Gauge Board	Item	Lump Sum	s -	\$.	Submit: Relevant Quality Records.
INVERSE Employ Image	HW0203.11	Installation/Cabling (Electrical)	Item	Lump Sum	\$ 24,437.50	\$ 24,437.5	
Intent Every Location Item Lump Sum \$ 8 66.4 \$ 666.4 \$ 666.4 \$ 666.4 \$ 666.4 \$ 666.4 \$ 666.4 \$ 666.4 \$ 666.4 \$ Maximum of 10% and 10% of	HW0204	Empty					Subint, Relevant Guanty Records.
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Hindbox Cut and III earthworks including compaction: 0 m3 2 2 1 Limits of Accuracy: "Ch be inserted?. HW0000 Cut and III earthworks including compaction: 0 m3 \$ 25:00 \$ Measurement: Actual cobine metres of earthworks completed in accordance with the design. HW0210 Supply & place ballad (Contingent Rem) 0 tone \$ 0 Measurement: Actual cobine metres of a including cortified weighbridge dockets. HW0211 mont and place select III including compaction range be continued in accordance with the design. Subprintement or Cit be inserted?. HW0212 Construct access read and handstand m2 4 4 Hantimeter Actual cobine metres in accordance with the design. HW0212 Prepare subgrade m2 \$ 4.22 Heasurement: Actual square metres in accordance with the design. HW0212 Subply, place and compact 150mm thick m2 \$ 3.70 Measurement: Actual square metres in accordance with the design. HW0212 Subply, place and compact 250mm thick m2 \$ 5.10 Measurement: Actual square metres in accordance with the design. HW02120 Subply, place and compact 2							
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Internation Internation Internation Internation PHV0211 Import and place select fill including import and place select fill i	HW0210	Supply & place ballast (Contingent item)	U	tonne	\$ 90.0		Submit: Relevant Quality Records including certified weighbridge
HW011 Import and place self. Il including constant and place self. Il including constant access read and handsland 0 m3 5 65.0 5 Measurement. Accutal cubic metres placed as directed by the Superintermeter and and handsland HW012120 Prepare subgrade m2 5 4.22 HW012120 Prepare subgrade m2 5 4.22 HW012120 Supply, place and compact 150mm thick m2 5 4.70 HW012120 Supply, place and compact 150mm thick m2 5 4.70 HW012120 Supply, place and compact 150mm thick m2 5 4.70 HW012120 Supply, place and compact 150mm thick m2 5 4.70 HW012120 Supply, place and compact 150mm thick m2 5 1.01 HW012120 Supply, place and compact 250mm thick m2 5 1.01 HW012120 Supply, place and compact 250mm thick m2 5 1.02 HW012120 Supply, place and compact 250mm thick m2 5 3.02 HW012120 Supply, place and compact 30mm thick <							dockets.
Superintendent or placed in accordance with the design. Superintendent or placed in accordance with the design. HM02120 Construct access modes and and hardstand Immediate access modes and and hardstand Immediate access modes and and hardstand HM02120 Prepare subgrade m2 \$ 4.2 Immediate access modes and and hardstand HM02120 Prepare subgrade m2 \$ 4.2 Immediate access modes and the design. Subplic place and compact 150mm thick m2 \$ 3.70 Measurement: Actual square metres in accordance with the design. Subplic place and compact 250mm thick m2 \$ 5.10 Measurement: Actual square metres in accordance with the design. Subplic place and compact 250mm thick m2 \$ 5.10 Measurement: Actual square metres in accordance with the design. Subplic place and compact 250mm thick m2 \$ 5.10 Measurement: Actual square metres in accordance with the design. Subplic place and compact 250mm thick m2 \$ 5.10 Measurement: Actual square metres in accordance with the design. Subplic place and compact 250mm thick m2 \$ 5.10 Measurement: Actual square metres in accordance w	HW0211	Import and place select fill including	0	m3	\$ 65.0	s	Limits of Accuracy: <to be="" inserted="">. Measurement: Actual cubic metres placed as directed by the</to>
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WW01201 Construct access road and hardstand m2 Submit: Relevant Quality Records. Limits of Accuracy: C10 be inserted>. MW01202 Supply, place and compact 150mm thick basecurse m2 \$ 4.22 Measurement: Actual square metres in accordance with the design. Submit: Relevant Quality Records. Limits of Accuracy: C10 be inserted>. MW01202 Supply, place and compact 150mm thick basecurse m2 \$ 470 Neasurement: Actual square metres in accordance with the design. Submit: Relevant Quality Records. Limits of Accuracy: C10 be inserted>. MW01202 Supply, place and compact 250mm thick basecurse m2 \$ 470 Measurement: Actual square metres in accordance with the design. Submit: Relevant Quality Records. Limits of Accuracy: C10 be inserted>. MW01202 Supply, place and compact 250mm thick basecurse m2 \$ 280 Measurement: Actual square metres in accordance with the design. Submit: Relevant Quality Records. Limits of Accuracy: C10 be inserted>. MW01202 Supply, place and compact 30mm thick assocurse m2 \$ 270 Measurement: Actual square metres in accordance with the design. Submit: Relevant Quality Records. Limits of Accuracy: C10 be inserted>. MW01202 Concrete kent & gutter 0 m \$ 110.00 Submit: Relevant Quality Records. Limits of Accuracy: C1							Submit: Relevant Quality Records.
NM021201 Prepare subgrade nn2 \$ 4.22 Neasurement Actual square metres in accordance with the design Submit: Relevant Quality Records. Limits of Accuracy: <10 be inserted>. NM021201 Supply, place and compact 150mm thick basecourse m2 \$ 37.00 Measurement Actual square metres in accordance with the design. Submit: Relevant Quality Records. Limits of Accuracy: <10 be inserted>. NM021201 Supply, place and compact 250mm thick basecourse m2 \$ 47.00 NM021202 Supply, place and compact 250mm thick basecourse m2 \$ 51.00 NM021203 Supply, place and compact 250mm thick basecourse m2 \$ 51.00 NM021203 Supply, place and compact 250mm thick basecourse m2 \$ 51.00 NM021203 Supply, place and compact 150mm thick basecourse m2 \$ 51.00 Measurement: Actual square metres in accordance with the design. Submit: Relevant Quality Records. Limits of Accuracy. <10 be inserted>. NM021203 Supply, place and compact 150mm thick apply blace and compact 150mm thick apply blace and compact 30mm thick apply	HW0212	Construct access road and hardstand					Limits of Accuracy: <to be="" inserted="">.</to>
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NW02120 Supply, place and compact 200mm thick basecourse m2 \$ 47.0 Measurement: Actual square metres in accordance with the design. Submit: Relevant Quality Records. NV02120 Supply, place and compact 250mm thick basecourse m2 \$ 51.0 Measurement: Actual square metres in accordance with the design. NV02120 Supply, place and compact 14w coal basecourse m2 \$ 51.0 Measurement: Actual square metres in accordance with the design. NV02120 Supply, place and compact two coal balance seal m2 \$ 25.0 Measurement: Actual square metres in accordance with the design. NV02120 Supply, place and compact two coal balance seal m2 \$ 37.0 Measurement: Actual square metres in accordance with the design. NV02120 Supply, place and compact two coal m2 \$ 37.0 Measurement: Actual square metres in accordance with the design. NV02120 Concrete kers & guiter 0 m \$ 110.00 \$ Measurement: Actual square metres in accordance with the design. NV02120 Concrete kers & guiter 0 m2 \$ 178.00 \$ Measurement: Actual square metres in accordance with the d		Supply, place and compact 150mm thick					Submit: Relevant Quality Records. Limits of Accuracy: <to be="" inserted="">. Measurement: Actual square metres in accordance with the design.</to>
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NWEET 20. Intercenter Supply, place and compact 250mm thick balance source m2 \$ \$1:0 Measurement: Actual square metres in accordance with the design. Submit: Relevant Quality Records. NWEET205 Supply, place and compact 250mm thick asphale balance seal m2 \$ 26:0 Limits of Accuracy. ("To be inserted."). NWEET205 Supply, place and compact 250mm thick asphale balance seal m2 \$ 26:0 Submit: Relevant Quality Records. NWEET205 Supply, place and compact 250mm thick asphale balance seal m2 \$ 37:0C Measurement: Actual square metres in accordance with the design. NWEET205 Supply, place and compact 250mm thick asphale balance seal m2 \$ 110:00 \$ Measurement: Actual square metres in accordance with the design. NWEET207 Concrete skris & guiter 0 m \$ 110:00 \$ Measurement: Actual square metres in accordance with the design. NWEET207 Concrete driveway 0 m2 \$ 1178:00 \$ Measurement: Actual square metres in accordance with the design. NWEET207 Concrete driveway 0 m2 \$ 1178:00 \$	HW0212.02	Supply, place and compact 150mm thick basecourse Supply, place and compact 200mm thick		m2	\$ 37.0		Submit: Relevant Quality Records. Limits of Accuracy: <-To be inserted>. Measurement: Actual equare methes in accordance with the design. Jumits of Accuracy. <-To be inserted>. Measurement: Actual equare methes in accordance with the design.
Limits of Accuracy. <10 be inserted>. HW02120 Supply, place and compact two coat bitumer seal m2 \$ 26.0 Measurement: Actual square metries in accordance with the design. Submit: Relevant Quality Records. HW02120 Supply, place and compact Some thick expland bitumers seal m2 \$ 37.0 Measurement: Actual square metries in accordance with the design. Submit: Relevant Quality Records. HW02120 Concrete Kerb & guiter 0 m \$ 110.00 \$ Measurement: Actual square metries in accordance with the design. Submit: Relevant Quality Records. HW02120 Concrete Kerb & guiter 0 m \$ 110.00 \$ Measurement: Actual square metries in accordance with the design. Submit: Relevant Quality Records. HW02120 Concrete Kerb & guiter 0 m \$ 118.00 \$ Measurement: Actual square metries in accordance with the design. Submit: Relevant Quality Records. HW02120 Concrete driveway 0 m \$ Measurement: Actual square metries in accordance with the design. Submit: Relevant Quality Records. HW02130 Treated the for diverse provides m Measurement: Actual square metries in accordance with the design. Submit: Relevant Quality Records.	HW0212.02	Supply, place and compact 150mm thick basecourse Supply, place and compact 200mm thick		m2	\$ 37.0		Subnit: Relevant Quality Records. Limits of Accuracy: «To be inserted». Measurement: Actual square metres in accordance with the design. Subnit: Relevant Quality Records. Limits of Accuracy.«To be inserted». Measurement: Actual square metres in accordance with the design. Subnit: Relevant Quality Records.
NWET250 Supply, place and compact two coat builting said m2 \$ 28.02 Measurement: Actual square metres in accordance with the design. Submit: Relevant Quality Records. NWET268 Supply, place and compact Some block asptat blumm seal m2 \$ 37.02 Limits of Accuracy. (To be inserted). NWET267 Concrete kerk & gutter 0 m \$ 37.02 Supply, place and compact Some block asptat blumm seal 0 m \$ 1100.0 \$ Measurement: Actual metres in accordance with the design. Submit: Relevant Quality Records. NWET267 Concrete kerk & gutter 0 m \$ 1100.0 \$ Measurement: Actual metres in accordance with the design. Submit: Relevant Quality Records. NWET267 Concrete kerk & gutter 0 m \$ 1176.00 \$ Measurement: Actual metres in accordance with the design. NWET267 Concrete Asset and labour to used table blockmorp Plan and/s m Immetre in accordance with the design. NWET268 Concrete Source Bord plas m Submit: Relevant Quality Records. Immetre. NWET268 Trade Boloknorp Plan and/s m Submit: Relevant Quality Records. <td>HW0212.02 HW0212.03</td> <td>Supply, place and compact 150mm thick basecourse Supply, place and compact 200mm thick basecourse</td> <td></td> <td>m2 m2</td> <td>\$ 37.0 \$ 47.0</td> <td></td> <td>Subnit: Relevant Quality Records. Limits of Accuracy: «To be inserted». Measurement: Actual square metres in accordance with the design. Subnit: Relevant Quality Records. Limits of Accuracy: «To be inserted». Measurement: Actual square metres in accordance with the design. Subnit: Relevant Quality Records. Limits of Accuracy. «To be inserted».</td>	HW0212.02 HW0212.03	Supply, place and compact 150mm thick basecourse Supply, place and compact 200mm thick basecourse		m2 m2	\$ 37.0 \$ 47.0		Subnit: Relevant Quality Records. Limits of Accuracy: «To be inserted». Measurement: Actual square metres in accordance with the design. Subnit: Relevant Quality Records. Limits of Accuracy: «To be inserted». Measurement: Actual square metres in accordance with the design. Subnit: Relevant Quality Records. Limits of Accuracy. «To be inserted».
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HW02127 Concrete kerb & gutter 0 m \$ Measurement: Actual metries in accordance with the design. Submit: Relevant Quality Records. Limits of Accuracy: <to be="" inserted?.<="" td=""> HW02128 Concrete difference of the interference of the</to>	HW0212.02 HW0212.03 HW0212.04 HW0212.05	Supply, place and compact 150mm thick basecourse Supply, place and compact 200mm thick basecourse Supply, place and compact 250mm thick basecourse supply, place and compact two coat bitumen seal		m2 m2 m2 m2	\$ 37.0 \$ 47.0 \$ 51.0 \$ 26.0		Subnit: Relevant Quality Records. Limits of Accuracy: <1o be inserted>. Measurement: Actual square metres in accordance with the design. Subnit: Relevant Quality Records. Limits of Accuracy.<1o be inserted>. Measurement: Actual square metres in accordance with the design. Subnit: Relevant Quality Records. Limits of Accuracy.<1o be inserted>. Measurement: Actual square metres in accordance with the design. Measurement: Actual square metres in accordance with the design. Limits of Accuracy.<1o be inserted>. Limits of Accuracy.<1o be inserted>. Measurement: Actual square metres in accordance with the design. Subnit: Relevant Quality Records. Limits of Accuracy.<1o be inserted>.
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NV02120 Concrete driveway 0 m2 \$ 118.00 \$ Measurement: Actual square meets in accordance with the design. Submit: Relevant Quality Records. Limits of Accuracy. <10 be inserted>. M0021201 Trealed time in and tabour to indertate the following Plino works m Measurement: Actual square meets in accordance with the design. Submit: Relevant Quality Records. Limits of Accuracy. <10 be inserted>. M0021301 Trealed time in and tabour to indertate the following Plino works m Measurement: Actual meeters in accordance with the design. Submit: Relevant Quality Records. Limits of Accuracy. <10 be inserted>. M0021301 Reinforced concrete bored piles m Seguity at plant, meters in accordance with the design. Submit: Relevant Quality Records. M0021401 Trebel Kowing Plino works m Seguity at plant, meters and tabour to undertate the following Relevant Quality Records. M0021401 Trebel Kowing Plino works m Submit: Relevant Quality Records. M0021401 Trebel Kowing Plino works Measurement: Actual square meters in accordance with the design. M0021401 Trebel Kowing Plino works m Submit: Relevant Quality Records. M0021402 Trebel Kowing Plino works m Submit: Relevant Quality Records. M0021403	HW0212.02 HW0212.03 HW0212.04 HW0212.05 HW0212.06	Supply, place and compact 150mm thick basecourse Supply, place and compact 200mm thick basecourse Supply, place and compact 250mm thick basecourse Supply, place and compact two cost bitumen seal Supply, place and compact 30mm thick asphalt bitumen seal		m2 m2 m2 m2 m2	\$ 37.0 \$ 47.0 \$ 51.0 \$ 26.0 \$ 37.0		Submit: Relevant Quality Records. Limits of Accuracy: <1 be inserted>. Measurement: Actual square metres in accordance with the design. Submit: Relevant Quality Records. Limits of Accuracy: <1 be inserted>. Measurement: Actual square metres in accordance with the design. Submit: Relevant Quality Records. Limits of Accuracy: <10 be inserted>. Measurement: Actual square metres in accordance with the design. Submit: Relevant Quality Records. Limits of Accuracy: <10 be inserted>. Submit: Relevant Quality Records. Limits of Accuracy: <10 be inserted>. Submit: Relevant Quality Records. Limits of Accuracy: <10 be inserted>. Submit: Relevant Quality Records. Limits of Accuracy: <10 be inserted>.
1990213 Subbrit: Relevant Guilty Records. Limits of Accuracy. <10 be inserted>. 1990213 Stappy at plant, meterial and tabour to insertiate the filterion Plane work: m Measurement: Actual meterial and Subbrit: Relevant Quilty Records. Limits of Accuracy. <10 be inserted>. 19902131 Tetate Endowing Plane work: m Measurement: Actual meterial and tabour to insertial? 19902132 Reinforced concrete bored plas m Measurement: Actual meterial and tabour to insertial? 19902140 Subbrit: Relevant Quality Records. Limits of Accuracy: <10 be inserted>. 19902140 Subbrit: Relevant Quality Records. Submit: Relevant Quality Records. 199021401 Timbel(Koppen Log) up to 15m high m2 199021402 Timbel(Koppen Log) up to 15m high m2 \$ 300.00 199021403 Concrete Reystone up to m high m2 \$ 300.00 Limits of Accuracy: <10 be inserted>. 199021403 Concrete Reystone up to m high m2 \$ 500.00 Limits of Accuracy: <10 be inserted>. 199021403 Concrete Reystone up to m high m2 \$ 500.00 Limits of Accuracy: <10 be inserted>. 199021403 Concrete Reystone up to m high m2 \$ 500.00 Limits of Accura	HW0212.02 HW0212.03 HW0212.04 HW0212.05 HW0212.06	Supply, place and compact 150mm thick basecourse Supply, place and compact 200mm thick basecourse Supply, place and compact 250mm thick basecourse Supply, place and compact two cost bitumen seal Supply, place and compact 30mm thick asphalt bitumen seal	0	m2 m2 m2 m2 m2	\$ 37.0 \$ 47.0 \$ 51.0 \$ 26.0 \$ 37.0	\$	Submit: Relevant Quality Records. Limits of Accuracy: <1 be inserted>. Measurement: Actual square metres in accordance with the design. Submit: Relevant Quality Records. Limits of Accuracy: <1 be inserted>. Submit: Relevant Quality Records. Limits of Accuracy: <1 be inserted>. Measurement: Actual square metres in accordance with the design. Submit: Relevant Quality Records. Limits of Accuracy: <1 be inserted>. Measurement: Actual square metres in accordance with the design. Submit: Relevant Quality Records. Limits of Accuracy: <1 be inserted>. Measurement: Actual square metres in accordance with the design. Submit: Relevant Quality Records. Limits of Accuracy: <1 be inserted>. Submit: Relevant Quality Records. Limits of Accuracy: <1 be inserted>. Measurement: Actual square metres in accordance with the design. Submit: Relevant Quality Records. Limits of Accuracy: <1 be inserted>. Measurement: Actual metres in accordance with the design. Submit: Relevant Quality Records.
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HW0214.04 Concrete Keystone greater than 3m high m2 \$ 560.00 Limits of Accuracy: <to be="" inserted="">.</to>	HW0212.02 HW0212.03 HW0212.04 HW0212.05 HW0212.06 HW0212.07 HW0212.08 HW0213.01 HW0213.01 HW0213.01 HW0214.01	Bupply, place and compact 150mm thick basecourse Supply, place and compact 250mm thick basecourse Supply, place and compact 250mm thick basecourse Supply, place and compact 550mm thick asphal buttern seal Concrete Antone and compact 50mm thick asphal buttern seal Concrete Anieway Supply apart, material and labour to undertake the Golowing Patientian Reinforced concrete bored piles Supply apart, material and labour to undertake the following Relaming Wall works:	0	m2 m2 m2 m2 m2 m2 m2 m2 m2 m2 Lump Sum	\$ 37.0 \$ 47.0 \$ 51.0 \$ 26.0 \$ 37.0 \$ 110.00 \$ 178.00 \$ 178.00 \$ 300.0	\$	Submit: Relevant Quality Records. Limits of Accuracy: 17 be inserted>. Heasurement: Actual square metres in accordance with the design. Submit: Relevant Quality Records. Limits of Accuracy: 47 be inserted>. Measurement: Actual square metres in accordance with the design. Submit: Relevant Quality Records. Limits of Accuracy: 47 be inserted>. Measurement: Actual square metres in accordance with the design. Submit: Relevant Quality Records. Limits of Accuracy: 47 be inserted>. Measurement: Actual square metres in accordance with the design. Submit: Relevant Quality Records. Limits of Accuracy: 47 be inserted>. Measurement: Actual equipment and accordance with the design. Submit: Relevant Quality Records. Limits of Accuracy: 47 be inserted>. Measurement: Actual metres in accordance with the design. Submit: Relevant Quality Records. Limits of Accuracy: 47 be inserted>. Measurement: Actual metres in accordance with the design. Submit: Relevant Quality Records. Limits of Accuracy: 47 be inserted>. Measurement: Actual metres in accordance with the design. Limits of Accuracy: 47 be inserted>. Measurement: Actual metres in accordance with the design. Limits of Accuracy: 45 be inserted>. Measurement: Actual metres in accordance with the design. Limits of Accuracy: 45 be inserted>. Measurement: Actual square metres in accordance with the design. Limits of Accuracy: 45 be inserted>. Measurement: Actual square metres in accordance with the design. Limits of Accuracy: 45 be inserted>. Measurement: Actual square metres in accordance with the design. Measurement: Actual square metres in accordance with the design. Measurement: Actual square metres in accordance with the design. Limits of Accuracy: 45 be inserted>. Measurement: Actual square metres in accordance with the design. Limits of Accuracy: 45 be inserted>.
	HW0212.02 HW0212.03 HW0212.04 HW0212.04 HW0212.05 HW0212.05 HW0212.07 HW0212.07 HW0212.07 HW0212.07 HW0213.07 HW0213.07 HW0214.07 HW0214.07	Supply, place and compact 150mm thick basecourse Supply, place and compact 200mm thick basecourse Supply, place and compact 200mm thick basecourse Supply, place and compact two coat bitumen seal Supply, place and compact Somm thick aspirat bitumen seal Concrete driveway Supply all plant, material and tabour to undertake the Souther Treated Ember min ples Reinforced concrete bored plies Supply all plant, material and tabour to undertake the following Relaming Vial materials and tabour to undertake the source to plies Supply all plant, material and tabour to undertake the following Relaming Vial meterifying the top top 1.5 m high Concrete Keylstone up to 1 m high Concrete Keylstone stores 1 m d m	0	m2 m2 m2 m2 m2 m2 m2 m2 m2 m2 m2 m2 m2	\$ 37.0 \$ 47.0 \$ 51.0 \$ 28.0 \$ 110.00 \$ 110.00 \$ 178.00 \$ 178.00 \$ 178.00 \$ 178.00 \$ 178.00 \$ 178.00 \$ 178.00 \$ 178.00 \$ 188.00 \$ 380.00	\$	Submit: Relevant Quality Records. Limits of Accuracy: <1 be inserted>. Measurement: Actual square metres in accordance with the design. Junit of Accuracy: <10 be inserted>. Measurement: Actual square metres in accordance with the design. Submit: Relevant Quality Records. Imits of Accuracy: <10 be inserted>. Measurement: Actual square metres in accordance with the design. Submit: Relevant Quality Records. Limits of Accuracy: <10 be inserted>. Measurement: Actual square metres in accordance with the design. Submit: Relevant Quality Records. Limits of Accuracy: <10 be inserted>. Measurement: Actual square metres in accordance with the design. Submit: Relevant Quality Records. Limits of Accuracy: <10 be inserted>. Measurement: Actual square metres in accordance with the design. Submit: Relevant Quality Records. Limits of Accuracy: <10 be inserted>. Measurement: Actual square metres in accordance with the design. Submit: Relevant Quality Records. Limits of Accuracy: <10 be inserted>. Measurement: Actual angles metres. Submit: Relevant Quality Records. Limits of Accuracy: <10 be inserted>. Measurement: Actual metres in accordance with the design. Submit: Relevant Quality Records. Limits of Accuracy: <10 be inserted>. Measurement: Actual metres in accordance with the design. Submit: Relevant Quality Records. Limits of Accuracy: <10 be inserted>. Limits of Accuracy: <10 be inserted>.
HW0214.05 Concrete Crib Block up to 2m high m2 \$ 630.00 Limits of Accuracy: <to be="" inserted="">.</to>	HW0212.02 HW0212.03 HW0212.04 HW0212.04 HW0212.05 HW0212.05 HW0212.07 HW0212.07 HW0212.07 HW0213.01 HW0213.01 HW0214.03 HW0214.03	Bugshy place and compact 150mm thick basescourse. Supply, place and compact 250mm thick basecourse bugshy place and compact 250mm thick basecourse bugshy place and compact 250mm thick basecourse. The second second bugshy place and compact 250mm thick basepty place and compact 30mm thick asphat bilumen seal Concrete kerk & gutter: Concrete kerk & gutter: Concrete kerk & gutter: Concrete kerk & gutter: Reinforced concrete bored piles Supply all plant, meterial and labour to undertake the following Retaining Vall works. Supply all plant, meterial and tabour to undertake the following Retaining Vall works. Concrete kerks up to 15 m high Concrete Kerystone between tim and 3m high.	0	m2 m2 m2 m2 m2 m2 m2 m2 m2 m2 m2 m2 m2 m	\$ 37.0 \$ 47.0 \$ 51.0 \$ 26.0 \$ 27.0 \$ 110.00 \$ 178.00 \$ 178.00 \$ 178.00 \$ 300.00 \$ 3900.00 \$ 3900.00	\$	Subnit: Relevant Quality Records. Limits of Accuracy: 17 be innertab Resumment: Actual square metres in accordance with the design. Subnit: Relevant Quality Records. Limits of Accuracy: 15 be inserteb- mits of Accuracy: 15 be inserteb- mits of Accuracy: 15 be inserteb- Resumment: Actual square metres in accordance with the design. Subnit: Relevant Quality Records. Limits of Accuracy: 15 be inserteb- Measurement: Actual square metres in accordance with the design. Subnit: Relevant Quality Records. Limits of Accuracy: 15 be inserteb- Measurement: Actual square metres in accordance with the design. Subnit: Relevant Quality Records. Limits of Accuracy: 15 be inserteb- Measurement: Actual metres in accordance with the design. Subnit: Relevant Quality Records. Limits of Accuracy: 15 be inserteb- Measurement: Actual square metres in accordance with the design. Subnit: Relevant Quality Records. Limits of Accuracy: 15 be inserteb- Measurement: Actual square metres in accordance with the design. Subnit: Relevant Quality Records. Limits of Accuracy: 15 be inserteb- Measurement: Actual square metres in accordance with the design. Subnit: Relevant Quality Records. Limits of Accuracy: 15 be inserteb- Measurement: Actual square metres in accordance with the design. Subnit: Relevant Quality Records. Limits of Accuracy: 15 be inserteb- Limits of Accuracy: 15 be inserted- Limits of Accuracy: 15 be inserted- Limits of Accuracy: 15 be inserted-
	HW0212.02 HW0212.03 HW0212.03 HW0212.04 HW0212.05 HW0212.05 HW0212.05 HW0212.07 HW0213.01 HW0213.01 HW0213.01 HW0214.01 HW0214.01 HW0214.01 HW0214.01	Bupply, place and compact 150mm thick basecourse Bupply, place and compact 250mm thick basecourse Bupply, place and compact 250mm thick basecourse Bupply, place and compact 550mm thick asphale buttern seal Concrete Network Concrete Network Treated three and compact 50mm thick asphale buttern seal Concrete Network Reinforced concrete bored piles Bupply at plant, material and tabour to undertake the following Relaming Wall address Concrete Neyslone between the might Concrete Neyslone between the and Sm Concrete Neyslone greater than 3m high Concrete Neyslone greater than 3m high Concret	0	m2 m2 m2 m2 m2 m2 m2 m2 m2 m2 m2 m2 m2 m	\$ 37.0 \$ 47.0 \$ 51.0 \$ 26.0 \$ 37.0 \$ 110.00 \$ 178.00 \$ 178.00 \$ 178.00 \$ 178.00 \$ 178.00 \$ 178.00 \$ 188.00 \$ 560.00 \$ 570.00 \$ 570.000 \$ 570.000 \$ 570.0000 \$ 570.0000 \$ 570.0000	\$	Subnit: Relevant Quality Records. Limits of Accuracy: <to be="" inserted="">. Ideasument: Actual square metres in accordance with the design. Subnit: Relevant Quality Records. Limits of Accuracy: <to be="" inserted="">. Measurement: Actual square metres in accordance with the design. Subnit: Relevant Quality Records. Limits of Accuracy: <to be="" inserted="">. Measurement: Actual square metres in accordance with the design. Subnit: Relevant Quality Records. Limits of Accuracy: <to be="" inserted="">. Measurement: Actual square metres in accordance with the design. Subnit: Relevant Quality Records. Limits of Accuracy: <to be="" inserted="">. Measurement: Actual metres in accordance with the design. Subnit: Relevant Quality Records. Limits of Accuracy: <to be="" inserted="">. Measurement: Actual metres in accordance with the design. Subnit: Relevant Quality Records. Limits of Accuracy: <to be="" inserted="">. Reasurement: Actual metres in accordance with the design. Subnit: Relevant Quality Records. Limits of Accuracy: <to be="" inserted="">. Reasurement: Actual metres in accordance with the design. Subnit: Relevant Quality Records. Limits of Accuracy: <to be="" inserted="">. Limits of Accuracy: <to be="" inserted="">.</to></to></to></to></to></to></to></to></to></to></to></to></to></to></to></to></to></to></to></to></to></to></to></to></to></to></to></to>

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HW0214.06	Concrete Crib Block between 2m and 3m high		m2	\$ 704.00		Limits of Accuracy: <to be="" inserted="">.</to>
HW0215	Acid sulphate soil					
HW0215.01	Initial testing for acid sulphate soils and prepare and submit report	5	per test	\$ 110.00	\$ 550.00	Submit: Result for each test. Limits of Accuracy: <to be="" inserted=""></to>
HW0215.02	Establish treatment facility	Item	Lump Sum		\$ -	Payment: 100% after completion of treatment facility.
HW0215.03	Handling, treatment and testing of acid		m3	\$ 60.00		Measurement: Cubic metres within the design cross section of the structure
	sulphate soils					for which excavation has been undertaken.
						Submit: Test results confirming satisfactory treatment.
						Limits of Accuracy: <to be="" inserted=""></to>
HW0215.04	Disposal off site of acid sulphate soil		tonne	\$ 122.00		Measurement: Tonnes transported from the site.
						Submit: Weighbridge dockets.
HW0216	Series Pump Pit Structure	Item	Lump Sum		s	Limits of Accuracy: <to be="" inserted=""></to>
mwu216	Series Pump Pit Structure	item	Lump Sum		3	Payment: <insert appropriate="" at="" key<br="" of="" percentages="" reflect="" the="" to="" value="" work="">milestones eg excavation, reinforced concrete, metalwork etc>.</insert>
						Submit: Relevant Quality Records
HW0217	Supply and Install valve pit concrete	Item	Lump Sum	s	s	Payment: <insert appropriate="" of="" percentages="" reflect="" td="" the="" to="" value="" work<=""></insert>
	formwork, reinforced concrete complete with			•	•	at key milestones eg excavation, reinforced concrete, metalwork etc>.
	aluminium tread plate covers and including					Submit: Relevant Quality Records.
	excavation and backfill					dabinit. Helevant quanty heedras.
HW0218	Supply and install pipework items inside	Item	Lump Sum	\$ 6,430.00	\$ 6,430.01	Payment: Valued at percentage of work completed. Retention of 20%
	valve pit					<or other="" percentage=""> until satisfactory testing.</or>
						Submit: Relevant Quality Records.
HW0219	Supply and Install additional pipe Items	Item	Lump Sum	\$	\$	Payment: Valued at percentage of work completed. Retention of 20%
	outside station					<or other="" percentage=""> until satisfactory testing.</or>
						Submit: Relevant Quality Records.
HW0220	Supply and install pipework items inside station	Item	Lump Sum	s ·	s	Payment: Valued at percentage of work completed. Retention of 20%
	station					<or other="" percentage=""> until satisfactory testing.</or>
HW0221	Supply and install Type 2 or 4 flow relief	Item	Lump Sum		s	Submit: Relevant Quality Records. Payment: Valued at percentage of work completed. Retention of 20%
11110221	structures in accordance with Dros SCP-502	item	Lump Sum		3	or other percentage> until satisfactory testing.
	and SCP-505					Submit: Relevant Quality Records.
HW0222	Supply and install emergency storage		L/m			Payment: Valued at percentage of work completed. Retention of 20%
	structures					<pre><or other="" percentage=""> until satisfactory testing.</or></pre>
						Submit: Relevant Quality Records.
HW0223	Supply and install fan forced ventilation	Item	Lump Sum		\$	Payment: Valued at percentage of work completed. Retention of 20%
						<or other="" percentage=""> until satisfactory testing.</or>
						Submit: Relevant Quality Records.
HW0224	Supply and install Soil Bed Filter	Item	Lump Sum		\$	Payment: Valued at percentage of work completed. Retention of 20%
						<or other="" percentage=""> until satisfactory testing.</or>
HW0225						Submit: Relevant Quality Records.
HW0225	Supply and Install Strainers	Item	Lump Sum		\$	Payment: Valued at percentage of work completed. Retention of 20%
						<or other="" percentage=""> until satisfactory testing.</or>
HW0226	Supply and Install Series Bypass	Item	Lump Sum		s	Submit: Relevant Quality Records. Payment: Valued at percentage of work completed up to 80%.
IIIIGEEG	ouppiy and matal ocnes bypass	in a line in a l	cump oum		Ŷ	Remainder at Practical Completion.
						Submit: Relevant Quality Records.
HW0227	Landscaping	Item	Lump Sum	s	s	Payment: 100% at completion.
				-		Submit: Relevant Quality Records.
HW0228	Miscellaneous					
HW0229	Preparation and submission of Operation and	Item	Lump Sum		s -	Payment: 100% at Practical Completion.
HW0230	Maintenance Information	Marca.	Lunna Curr	\$ 8.000.00	a	Submit: Complying Work As Constructed Information.
11110230	Pre commissioning and commissioning	Item	Lump Sum	\$ 8,000.00	\$ 8,000.00	Payment: 50% at completion of satisfactory precommissioning. Remainder at Practical Completion.
					1	Remainder at Practical Completion. Submit: Relevant Quality Records.
HW0231	Preparation and submission of Work as	ltem	Lump Sum	\$ 6.000.00	\$ 6.000.00	
	Constructed Information	102111	comp Sum	\$ 0,000.00	÷ 0,000.00	Submit: Complying Work As Constructed Information.
HW2SP	Sub Total				\$644.884	

Item No.	Item Description	Qty	Unit		Amount \$	Application of Schedule of Rates
HW0009	Restoration - Pipelines:					Payment: 100% after completion.
HW0009.01	Concrete kerb & gutter	0	m	\$ 110.00	s -	Measurement: Lineal metres restored within Minimum Trench Width. Limits of Accuracy: <to be="" inserted="">.</to>
HW0009.02	Concrete driveway	0	m2	\$ 178.00	\$-	Measurement: Square metres restored based on actual length by Minimum Trench Width. Limits of Accuracy: <to be="" inserted=""></to>
HW0009.03	Exposed aggregate & stamped driveway	0	m2	\$ 220.00	\$-	Measurement: Square metres restored based on actual length by Minimum Trench Width. Limits of Accuracy: <to be="" inserted=""></to>
HW0009.04	Concrete footpath	0	m2	\$ 155.00	\$-	Measurement: Square metres restored based on actual length by Minimum Trench Width. Limits of Accuracy: <to be="" inserted=""></to>
HW0009.05	Bitumen footpath	0	m2	\$ 117.00	\$-	Measurement: Square metres restored based on actual length by Minimum Trench Width. Limits of Accuracy: <to be="" inserted=""></to>
HW0009.06	Gravel pavement	0	m2	\$ 69.00	\$-	Measurement: Square metres restored based on actual length by Minimum Trench Width. Limits of Accuracy: <to be="" inserted=""></to>
HW0009.07	Bitumen pavement		m2			Measurement: Square metres restored based on actual length by Minimum Trench Width. Limits of Accuracy: <to be="" inserted=""></to>
HW0009.08	AC pavement		m2			Measurement: Square metres restored based on actual length by Minimum Trench Width. Limits of Accuracy: <to be="" inserted=""></to>

HW0011.04	Disposal off site of acid sulphate soil	tonne		Measurement: Tonnes transported from the site. Submit: Weighbridge dockets.
	sulphate soils			actual length by Minimum Trench Width. Submit: Test results confirming satisfactory treatment. Limits of Accuracy: CTo be inserted>
HW0011.03	Handling, treatment and testing of acid	m3		Measurement: Cubic metres excavated based on thickness of ASS by
HW0011.02		Item		Payment: 100% after completion of treatment facility.
HW0011.01	Initial testing for acid sulphate soils and prepare and submit report	per test		Submit: Result for each test. Limits of Accuracy: <to be="" inserted="">.</to>
HW0011	Acid sulphate soil			
HW0010	Extra over item for Excavation in rock and disposal of excess excavated material	m3		Measurement: Cubic metres excavated based on thickness of rock by actual length by Minimum Trench Width. Limits of Accuracy: <to be="" inserted="">.</to>
				Minimum Trench Width.
HW0009 12	Hydromulch	m2		Minimum Trench Width. Limits of Accuracy: <to be="" inserted=""> Measurement: Square metres restored based on actual length by</to>
HW0009.10	Turf Grass seeding	m2 m2		Measurement: Square metres restored based on actual length by Minimum Trench Width. Limits of Accuracy: <to be="" inserted=""> Measurement: Square metres restored based on actual length by</to>
IW0009.09	Pavers	m2		Measurement: Square metres restored based on actual length by Minimum Trench Width. Limits of Accuracy: <to be="" inserted=""></to>

	TOTAL ESTIMATED CONTRACT AWARD SUM	\$	1,894,421.74
В.	PRE-CONSTRUCTION COST (Table 10)		
HW0016	Design	\$	227,330.61
HW0017	Project Management of Design	\$	55,466.12
HW0018	Land Matters	\$	-
HW0024	Community Consultation		
	Sub Total(B1)	\$	282,796.73
	Pre construction contingency (30% of B1)	\$	84,839.02
	TOTAL PRE-CONSTRUCTION COST (B)	\$	367,635.75
c.	CONSTRUCTION COST		
C.	CONSTRUCTION COST Total Estimated Contract Award Sum (A)	s	1,894,421.74
с. HW0019		s	1,894,421.74
C. HW0019 HW0020	Total Estimated Contract Award Sum (A) Principal Supplied Pipe (as applicable)	\$ \$ \$	1,894,421.74 - -
	Total Estimated Contract Award Sum (A)	\$ \$ \$ \$	1,894,421.74 - - -
HW0020	Total Estimated Contract Award Sum (A) Principal Supplied Pipe (as applicable) Principal Supplied Valves and Flowmeters (as applicable)	\$ \$ \$ \$ \$	1,894,421.74 - - - 187,500.00
HW0020 HW0021	Total Estimated Contract Award Sum (A) Principal Supplied Pipe (as applicable) Principal Supplied Valves and Flowmeters (as applicable) Principal Supplied Fittings (as applicable)	\$ \$ \$ \$ \$ \$ \$ \$	- - 187,500.00
HW0020 HW0021 HW0022	Total Estimated Contract Award Sum (A) Principal Supplied Pipe (as applicable) Principal Supplied Valves and Flowmeters (as applicable) Principal Supplied Fitting (as applicable) Pump Station HV Power Supply	\$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$	- - 187,500.00 189,442.17
HW0020 HW0021 HW0022	Total Estimated Contract Award Sum (A) Principal Supplied Pipe (as applicable) Principal Supplied Valves and Flowmeters (as applicable) Principal Supplied Fittings (as applicable) Pump Station HV Power Supply Construction Management (Table 11)		187,500.00 189,442.17 2,271,363.91
HW0020 HW0021 HW0022	Total Estimated Contract Award Sum (A) Principal Supplied Pipe (as applicable) Principal Supplied Yalvas and Flowmeters (as applicable) Principal Supplied Fittings (as applicable) Pump Station HV Power Supply Construction Management (Table 11) Sub Total (C1)	s	187,500.00 189,442.17 2,271,363.91

\$ 3,320,408.84 TOTAL PRELIMINARY PROJECT ESTIMATE (B+C) (Preliminary Estimate)

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PROJECT DESCRIPTION:

Pump Station & Rising Main - High Head Eastern Transfer

Item No.	Item Description	Qty	Unit	Rate \$/Unit	Amount \$	Application of Schedule of Rates
HW0001	All work not included elsewhere in this schedule	Item	Lump Sum	\$ 51,107.00	\$ 51,107.00	Payment: Maximum of 10% shall be due each month until 70% of the amount has been paid. Remainder at Practical Completion.
HW0002	Site Establishment <insert \$="" max=""></insert>	ltem	Lump Sum	\$ 30,000.00	\$ 30,000.00	Payment: 100% after completion.
HW0003	Site Disestablishment <insert \$="" min=""></insert>	Item	Lump Sum	\$ 30,000.00	\$ 30,000.00	Payment: 100% after completion.
	Preparation and implementation of the Construction EMP	ltem	Lump Sum	\$ 11,000.00	\$ 11,000.00	Payment: Maximum of 30% on submission of complying Construction EMP, then 10% per month up to maximum of 80%. Remainder at Practical Completion. Submit: Construction FMP
HW0005	Preparation and implementation of the Safety Management Plan.	Item	Lump Sum	\$ 23,000.00	\$ 23,000.00	Payment: Maximum of 30% on submission of complying plan, then 10% per month up to maximum of 80%. Remainder at Practical Completion. Submit: Safety Management Plan.
HW0006	Preparation and implementation of the Traffic Control Plan.	Item	Lump Sum	\$ 8,200.00	\$ 8,200.00	Payment: Maximum of 30% on submission of complying Traffic Control Plan, then 10% per month up to maximum of 80%. Remainder at Practical Completion.
	Preparation and Implementation of Quality Management Plan	ltem	Lump Sum	\$ 26,353.74	\$ 26,353.74	Payment: Maximum of 30% on submission of complying Quality Management Plan, then 10% per month up to maximum of 80%. Remainder at Practical Completion.
HW0008	Community Consultation	Item	Lump Sum	\$.	\$	Payment: 10% per month up to maximum of 70%. Remainder at Practical Completion.

Item	Construction of Sewer Rising Mains	Qty	Unit	\$/Unit	1 1	s s	Application of Schedule of Rates	
fWR001	Service Location	ltem	Lump Sum	\$ 1,200.00	\$	1,200.00	Payment: Maximum of 10% shall be due each month until 70% of the	
							amount has been paid. Remainder at Practical Completion.	
fWR002	Supply all valves	Item	Lump Sum		\$		Payment: Percentage of valves and nowmeters supplied Submit: Relevant Quality Records including Compliance Certificates.	
-fWR003	Supply all fittings	Item	Lumo Sum		s		Payment: Percentage of intrings supplied.	
	coppiy an inunga		comp oam		*		Submit: Relevant Quality Records including Compliance Certificates.	
HWR004	Supply all pipe materials including detector						Measurement: Actual metres (effective length) of pipe delivered to site.	
	tape, pipe protection wrapping, rubber rings and lubricant for following pipe sizes:						Submit: Relevant Quality Records including Compliance Certificates. Note:	
	and iddition of following pipe sizes.						Limits of Accuracy to be inserted for each pipe size.	
126DSS	Nominal DN375 DICL pipe	1600	m	\$ 252.0	\$	403,200.00		
HWR005	Clear, excavate, lay, join, bed, backfill & test						Measurement: Actual metres of pipe installed with design depth of	
	pipelines (installation).						excavation up to and including 1.5m.	
	Up to 1.5 m depth to invert in OTR.						Retention: 10% <or appropriate="" other="" percentage=""> until satisfactory testing</or>	
							Submit: Relevant Quality Records including as constructed lengths, levels	
							and coordinates.	
							Limits of Accuracy: <to be="" inserted="">.</to>	
126D03		1600	m	\$ 171.2		274.000.00	Limits of Accuracy: <10 be inserted>.	
126D03 HWR006	Nominal DN375 DICL (Trench type 3)	1600	m	\$ 171.2	5\$	2/4,000.00		Pipeline 1 - terrain allo
HWRUUS	Clear, excavate, lay, join, bed, backfil & test pipelines (installation).						Measurement: Actual metres of pipe installed with design depth of	
	Nominal depth >1.5m to 3.0m to invert in						excavation > 1.5m to and including 3.0m.	
	OTR.						Retention: 10% <or appropriate="" other="" percentage=""> until satisfactory testing</or>	
							Submit: Relevant Quality Records including as constructed lengths, levels	
							and coordinates.	
							Limits of Accuracy: <to be="" inserted="">.</to>	
HWR007	Clear, excavate, lay, join, bed, backfil & test				1			
	pipelines (installation).						Measurement: Actual metres of pipe installed with design depth of	
	Nominal depth >3.0m to 4.5m to invert in						excavation > 3.0m to and including 4.5m.	
	OTR.						Retention: 10% <or appropriate="" other="" percentage=""> until satisfactory testing</or>	
							Submit: Relevant Quality Records including as constructed lengths, levels	
							and coordinates.	
							Limits of Accuracy: <to be="" inserted="">.</to>	
HWR008	Clear, excavate, lay, join, bed, backfil & test pipelines (installation).						Measurement: Actual metres of pipe installed with design depth of	
	Nominal depth >4.5m to invert in OTR.						excavation > 4.5m.	
	Nominal depth >4.5m to invert in UTR.						Retention: 10% <or appropriate="" other="" percentage=""> until satisfactory testing</or>	
							Submit: Relevant Quality Records including as constructed lengths, levels	
							and coordinates.	
							Limits of Accuracy: <to be="" inserted="">.</to>	
HWR009	EMPTY				1			
HWR010	Extra over rate for installation for Additional		m3	\$ 19.13	1		measurement. Coold metres of additional compaction based on mickness	
	compaction						by length by Minimum Trench Width.	
							Submit: Relevant Quality Records.	
							Limits of Accuracy: <to be="" inserted="">.</to>	
HWR011	Excavate below specified design depth when		m3	\$ 78.75			measurement. Cubic metres or excavation directed based on trickness by	
	directed including disposal of excess						length by Minimum Trench Width.	
	excavated material						Submit: Relevant Quality Records. Limits of Accuracy: <to be="" inserted="">.</to>	
							Limits of Accuracy. < 10 be inserted>.	
HWR012	Extra over rate for installation to Supply &		m3				by length by Minimum Trench Width.	
	place & compact non cohesive material.						Submit: Relevant Quality Records.	
					1		Limits of Accuracy: <to be="" inserted="">.</to>	
HWR013	Extra over rate for installation for supply,		m3	\$ 337.50	<u> </u>		measurement. Cubic metres or stabilised sand cement based on thickness	1
	place and compact stabilised sand cement		13	÷ 337.50	1		by length by Minimum Trench Width.	1
	(14:1) backfill				1		Submit: Relevant Quality Records.	
					1		Limits of Accuracy: <to be="" inserted="">.</to>	
HWR014	Extra over rate for installation for Supply,		m3		1		measurement. Oable meares or aggregate based on anothers by length by	
	place and compact aggregate				1		Minimum Trench Width.	1
					1		Submit: Relevant Quality Records.	1
							Limits of Accuracy: <to be="" inserted="">.</to>	

HW8015	Supply & place ballast		toppes	e .	90.00		
	ouppiy a place ballast		101117-03	÷	50.00		Measurement: Actual tonnes placed as directed.
							Submit: Relevant Quality Records including certified weighbridge dockets.
							Limits of Accuracy: <to be="" inserted="">.</to>
HWR016							measurement: Length of pipeline for which external dewatering is
HWW010	External Dewatering of trench including establishment & disestablishment		m				agreed with the Superintendent and provided, measured along the
	California di Gacaliona Incin						axis of the pipeline between the first and last spear point.
							Submit: Relevant Quality Records.
HWR017	Supply and place treated timber piling for pip		m				Submit: Relevant Quality Records.
	support						Limits of Accuracy: <to be="" inserted="">.</to>
HWR018	Road / creek crossings						measurement: Length in metres of casing installed
HWWWIG	Road / creek crossings						Submit: Relevant Quality Records.
							Limits of Accuracy: <to be="" inserted="">.</to>
	Extra over rate for installation of trenchless		m				measurement: Length in metres of casing installed
	technique under existing rail line						Submit: Relevant Quality Records.
							Limits of Accuracy: <to be="" inserted="">.</to>
	Supply and installation of pipe aerial creek crossing including supply of MSCL pipe with						design.
	protection coating, internal and external						Retention: 10% <or appropriate="" other="" percentage=""> until satisfactory testing.</or>
	welding, testing of welds. For the following						Note: Consider other milestone retentions.
	MSCL pipe sizes:						Submit: Relevant Quality Records.
							Limits of Accuracy: <to be="" inserted="">.</to>
	Supply and installation of pipe river crossing						
	including supply of MSCL pipe, internal and external welding, testing of welds and 150						
	thick concrete encasement. Also includes						
	mobilisation and demobilisation of dredge(if						Measurement: Length in metres of casing installed.
	required) excavation & disposal of excavated material, backfilling, lay, bed and test for the						Retention: 10% <or appropriate="" other="" percentage=""> until satisfactory testing.</or>
	following MSCL pipe sizes:						Note: Consider other milestone retentions.
	coloning mode pipe area.						Submit: Relevant Quality Records.
							Limits of Accuracy: <to be="" inserted="">.</to>
HWR022	Bulkheads and Trenchstops in accordance	Item	Lump Sum			s -	Payment: Number of buildneads & trenchstops constructed Submit: Relevant Quality Records.
	with WSAA drawing SEW-1206						Limits of Accuracy: <to be="" inserted="">.</to>
HWR123	Supply and Install valve pits (excluding valve	. 0	Fach				ravinent, ivunder of valve dis constructed.
	and fittings)		Each	\$		۰ ·	Retention: <to be="" determined="">.</to>
							Submit: Relevant Quality Records.
							Limits of Accuracy: <to be="" inserted="">.</to>
HWR024	Flow Relief Structures		Each				Payment, Number of now relief structures constructed
							Retention: <to be="" determined="">. Submit: Relevant Quality Records.</to>
	1						Submit: Relevant Quality Records. Limits of Accuracy: <to be="" inserted="">.</to>
HWR025	EMPTY						criss or recordey. To be interior .
	Supply and construct vent stacks		each				rayment, number or vent stacks constructed.
	And another states						Retention: <to be="" determined="">.</to>
							Submit: Relevant Quality Records.
							Limits of Accuracy: <to be="" inserted="">.</to>
HWR027	Preparation of line sheets	1600	m	\$	1.00	\$ 1,600.00	Measurement: Length of pipelines constructed as per design Limits of Accuracy: <to be="" inserted="">.</to>
HWR028	Acceptance testing - rising main		m				measurement: Length of pipelines constructed as per design
							Submit: Satisfactory test records
							Limits of Accuracy: <to be="" inserted="">.</to>
HWR029	Miscellaneous						
HWR000	Sub Total					\$680,000	

Item	Pump Station - Name	Qtv	Unit	Kate S/Unit		Amount	Application of Schedule of Rates
HW0201	Sewer Pumping Station 250kW 3.8m dia 2 Pump(s)					-	
	Clear, exervate & backfill in OTR conditions, supply and construct pipework, pump station includes stilling aluminium hatch covers, screens & ancillary metal work & fittings. Supply & place formwork, reinforcement, concrete, roof slab, thrust blocks.	ltem	Lump Sum	\$ 369,000.00	s	369,000.00	Payment: -tinsert appropriate percentages to reflect the value of work at key milestones eg occavation, pump well, metalwork etc.>. Submit: Relevant Quality Records.
HW0202	Pumps for Pumping Stations - Supply and install pumps and associated fittings, connection to pipework, testing and commissioning.	2	Lump Sum	\$ 65,437.50	\$	130,875.00	Payment: <insert appropriate="" eg<br="" for="" key="" milestones="" percentages="">installation, precommissioning, commissioning>. Submit: Relevant Quality Records including those for pump test.</insert>
HW0203	Pumping Station Electricals						
HW0203.01	Pit and Conduit System	Item	Lump Sum	\$ 10,975.00	\$	10,975.00	Payment: Percentage of work completed. Submit: Relevant Quality Records.
HW0203.02	LV Station Power Supply	Item	Lump Sum	\$ 23,437.50	\$	23,437.50	Payment: Percentage of work completed. Submit: Relevant Quality Records.
HW0203.03	Station By-Pass arrangements	Item	Lump Sum		\$	-	Payment: Percentage of work completed. Submit: Relevant Quality Records.
HW0203.04	Electrical Demolition works	Item	Lump Sum		\$	-	Payment: Percentage of work completed. Submit: Relevant Quality Records.
HW0203.05	Switchboard	Item	Lump Sum	\$ 183,000.00	\$	183,000.00	Payment: Percentage of work completed. Submit: Relevant Quality Records.
HW0203.06	PLC / Telemetry Hardware	Item	Lump Sum	\$ 14,437.50	\$	14,437.50	Payment: Percentage of work completed. Submit: Relevant Quality Records.
HW0203.07	PLC / Telemetry / Scada Engineering and Software Development	Item	Lump Sum	\$ 28,450.00	\$	28,450.00	Payment: Percentage of work completed. Submit: Relevant Quality Records.
HW0203.08	Stainless Steel Generator Box Cable Tray & Metering Box	Item	Lump Sum	\$ 22,362.50	\$	22,362.50	Payment: Percentage of work completed. Submit: Relevant Quality Records.
HW0203.09	Building Services (Electrical)	Item	Lump Sum	\$ 13,125.00	\$	13,125.00	Payment: Percentage of work completed. Submit: Relevant Quality Records.
HW0203.10	Pressure Transmitter/Gauge Board	Item	Lump Sum	s -	\$		Payment: Percentage of work completed. Submit: Relevant Quality Records.
HW0203.11	Installation/Cabling (Electrical)	Item	Lump Sum	\$ 28,625.00	\$	28,625.00	Payment: Percentage of work completed. Submit: Relevant Quality Records.

HW0204	Empty							
HW0205	Empty							
HW0206	Service Location	ltem	Lump Sum	\$	866.40	\$	866.40	Payment: Maximum of 10% shall be due each month until 70% of the
HW0207	Excavation below design depth including disposal of excavated material (Contingent Item)	0	m3	\$	70.00	s		amount has been paid. Remainder at Practical Completion. Measurement: Cubic metres excavate based on thickness of excavation by design cross section of the structure for which excavation has been undertaken. Submit: Relevant Quality Records.
								Limits of Accuracy: <to be="" inserted=""> Measurement: Actual cubic metres of rock excavated within the</to>
HW0208	Extra over Civil Works for excavation in rock:	0	m3	\$	120.00	\$		Measurement: Actual cubic metres of rock excavated within the design dimensions of the structure.
								Submit: Relevant Quality Records.
HW0209	Cut and fill earthworks including compaction:	0	m3	s	25.00	e		Limits of Accuracy: <to be="" inserted="">. Measurement: Actual cubic metres of earthworks completed in</to>
1110205	out and in car shorts inclosing compactori.	0	110	•	20.00	,		accordance with the design. Submit: Relevant Quality Records.
HW0210	Supply & place ballast (Contingent Item)	0	tonne	\$	90.00	\$		Limits of Accuracy: <cn be="" inserted=""> Measurement: Actual tonnes placed as directed. Submit: Relevant Quality Records including certified weighbridge dockets.</cn>
HW0211	Import and place select fill including compaction <may be="" contingent="" item=""></may>	0	m3	s	65.00	\$		Limits of Accuracy: <to be="" inserted="">. Measurement: Actual cubic metres placed as directed by the Superintendent or placed in accordance with the design. Submit: Relevant Quality Records.</to>
HW0212	Construct access road and hardstand							Limits of Accuracy: <to be="" inserted="">.</to>
HW0212 HW0212.01	Construct access road and hardstand Prepare subgrade		m2	e	4.20			Measurement: Actual square metres in accordance with the design.
				÷				Submit: Relevant Quality Records. Limits of Accuracy: <to be="" inserted="">.</to>
HW0212.02	Supply, place and compact 150mm thick basecourse		m2	s	37.00			Measurement: Actual square metres in accordance with the design. Submit: Relevant Quality Records. Limits of Accuracy: STo be inserted:
HW0212.03	Supply, place and compact 200mm thick basecourse		m2	s	47.00			Neasurement: Actual square metres in accordance with the design. Submit: Relevant Quality Records. Limits of Accuracy: <to be="" inserted=""></to>
HW0212.04	Supply, place and compact 250mm thick basecourse		m2	\$	51.00			Measurement: Actual square metres in accordance with the design. Submit: Relevant Quality Records.
HW0212.05	Supply, place and compact two coat bitumen seal		m2	s	26.00			Measurement: Actual square metres in accordance with the design. Submit: Relevant Quality Records. Limits of Accuracy: <to be="" inserted="">.</to>
HW0212.06	Supply, place and compact 30mm thick asphalt bitumen seal		m2	s	37.00			Measurement: Actual square metres in accordance with the design. Submit: Relevant Quality Records.
HW0212.07	Concrete kerb & gutter	0	m	\$	110.00	\$		Measurement: Actual metres in accordance with the design. Submit: Relevant Quality Records. Limits of Accuracy: <to be="" inserted=""></to>
HW0212.08	Concrete driveway	0	m2	s	178.00	s		Measurement: Actual square metres in accordance with the design. Submit: Relevant Quality Records. Limits of Accuracy: <to be="" inserted="">.</to>
HW0213	Supply all plant, material and labour to undertake the following Piling works:							
HW0213.01	Treated timber mini piles		m					Measurement: Actual metres in accordance with the design. Submit: Relevant Quality Records.
HW0213.02	Reinforced concrete bored piles	Item	Lump Sum			s		Linits of Accuracy: <to be="" inserted=""> Payment: Percentage of work completed. <consider %="" at<br="" payments="">milestones> Submit: Relevant Quality Records.</consider></to>
HW0214	Supply all plant, material and labour to undertake the following Retaining Wall works							Massurement: Actual square metres in accordance with the design. Submit: Relevant Quality Records.
HW0214.01	Timber(Koppers Log) up to 1.5m high		m2		300.00			Limits of Accuracy: <to be="" inserted="">.</to>
HW0214.02 HW0214.03	Concrete Keystone up to 1m high Concrete Keystone between 1m and 3m		m2 m2		380.00			Limits of Accuracy: <to be="" inserted="">. Limits of Accuracy: <to be="" inserted="">.</to></to>
	high			-				· · · · · · · · · · · · · · · · · · ·
HW0214.04	Concrete Keystone greater than 3m high		m2		560.00		_	Limits of Accuracy: <to be="" inserted="">.</to>
HW0214.05	Concrete Crib Block up to 2m high		m2	÷	630.00			Limits of Accuracy: <to be="" inserted="">.</to>
HW0214.06	Concrete Crib Block between 2m and 3m high		m2	\$	704.00			Limits of Accuracy: <to be="" inserted="">.</to>
HW0215	Acid sulphate soil							
HW0215.01	Initial testing for acid sulphate soils and prepare and submit report	5	per test	\$	110.00	\$	550.00	Submit: Result for each test. Limits of Accuracy: <to be="" inserted=""></to>
HW0215.02	Establish treatment facility Handling, treatment and testing of acid	Item	Lump Sum	\$	60.00	\$		Payment: 100% after completion of treatment facility. Measurement: Cubic metres within the design cross section of the structure
	sulphate soils			•				Measurement: Cubic metres within the design cross section of the structure for which excavation has been undertaken. Submit: Test results confirming satisfactory treatment. Limits of Acruracy: 4To he insertiefts Measurement: Tomes transported from the site.
HW0215.04	Disposal off site of acid sulphate soil		tonne	\$	122.00			Submit: Weighbridge dockets.
HW0216	Series Pump Pit Structure	ltem	Lump Sum			s		Payment: <insert appropriate="" at="" ke<br="" of="" percentages="" reflect="" the="" to="" value="" work="">milestones eg excavation, reinforced concrete, metalwork etc>. Submit: Relevant Quality Records.</insert>
HW0217	Supply and Install valve pit concrete formwork, reinforced concrete complete with aluminium tread plate covers and including excavation and backfill	ltem	Lump Sum	\$		\$		Submit: Relevant Quality Records. Payment: -Insert appropriate percentages to reflect the value of work at key milestones eg excavation, reinforced concrete, metalwork etc>. Submit: Relevant Quality Records.
HW0218	Supply and install pipework items inside valv pit	e Item	Lump Sum	\$ 6,	430.00	\$		Payment: Valued at percentage of work completed. Retention of 20% <or other="" percentage=""> until satisfactory testing. Submit: Relevant Quality Records.</or>
HW0219	Supply and Install additional pipe Items outside station	ltem	Lump Sum	\$		\$		Payment: Valued at percentage of work completed. Retention of 20% <or other="" percentage=""> until satisfactory testing. Submit: Relevant Quality Records.</or>

HW0220	Supply and install pipework items inside	ltem	Lump Sum	\$	\$		Payment: Valued at percentage of work completed. Retention of 20%
	station						<or other="" percentage=""> until satisfactory testing.</or>
							Submit: Relevant Quality Records.
HW0221	Supply and install Type 2 or 4 flow relief	Item	Lump Sum		\$		Payment: Valued at percentage of work completed. Retention of 20%
	structures in accordance with Drgs SCP-502 and SCP-505						<or other="" percentage=""> until satisfactory testing.</or>
							Submit: Relevant Quality Records.
HW0222	Supply and install emergency storage		L/m				Payment: Valued at percentage of work completed. Retention of 20%
	structures						<or other="" percentage=""> until satisfactory testing.</or>
							Submit: Relevant Quality Records.
HW0223	Supply and install fan forced ventilation	Item	Lump Sum		\$		Payment: Valued at percentage of work completed. Retention of 20%
							<or other="" percentage=""> until satisfactory testing.</or>
							Submit: Relevant Quality Records.
HW0224	Supply and install Soil Bed Filter	Item	Lump Sum		\$		Payment: Valued at percentage of work completed. Retention of 20%
							<or other="" percentage=""> until satisfactory testing.</or>
							Submit: Relevant Quality Records.
HW0225	Supply and Install Strainers	Item	Lump Sum		\$		Payment: Valued at percentage of work completed. Retention of 20%
							<or other="" percentage=""> until satisfactory testing.</or>
							Submit: Relevant Quality Records.
HW0226	Supply and Install Series Bypass	Item	Lump Sum		\$		Payment: Valued at percentage of work completed up to 80%.
							Remainder at Practical Completion.
							Submit: Relevant Quality Records.
HW0227	Landscaping	Item	Lump Sum	\$	\$		Payment: 100% at completion.
							Submit: Relevant Quality Records.
	Miscellaneous						
HW0229	Preparation and submission of Operation	ltem	Lump Sum		\$		Payment: 100% at Practical Completion.
	and Maintenance Information						Submit: Complying Work As Constructed Information.
HW0230	Pre commissioning and commissioning	Item	Lump Sum	\$ 8,000.00	\$	8,000.00	Payment: 50% at completion of satisfactory precommissioning.
							Remainder at Practical Completion.
							Submit: Relevant Quality Records.
HW0231	Preparation and submission of Work as	ltem	Lump Sum	\$ 6,000.00	\$	6,000.00	Payment: 100% at Practical Completion.
	Constructed Information						Submit: Complying Work As Constructed Information.
HW2SP	Sub Total				\$84	16,134	

	eline - Gravity - section will be present if a		1	Rate	,	Amount	Application of Schedule of Rates	1
Item	Construction of Sewer Gravity Mains	Qty	Unit	\$/Unit		\$		
-WG001	Service Location	Item	Lump Sum	\$ 1,2	75.00	\$ 1,275.00	Payment: Maximum of 10% shall be due each month until 70% of the amount has been paid. Remainder at Practical Completion.	
4WG002	Supply all valves	Item	Lump Sum			\$	Payment: Percentage of valves and flowmeters supplied. Submit: Relevant Quality Records including Compliance Certificates.	
-WG003	Supply all fittings	Item	Lump Sum			\$	Payment: Percentage of fittings supplied. Submit: Relevant Quality Records including Compliance Certificates.	
HWG004	Supply all pipe materials including detector tape, pipe protection wrapping, rubber rings and lubricant for following pipe sizes:						Measurement: Actual metres (effective length) of pipe delivered to site. Submit: Relevant Quality Records including Compliance Certificates. Note: Limits of Accuracy to be inserted for each pipe size.	
026GSS	Nominal DN375 GRP pipe	1700	m	\$ 2	90.00	\$ 493,000.00		
HWG005	Clear, excavate, lay, join, bed, backfil & test pipelines (installation). Up to 1.5 m depth to invert in OTR.						Measurement: Actual metres of pipe installed with design depth of excavation up to and including 1.5m. Retention: 10% con other appropriate percentage> until satisfactory testing Submit: Relevant Quality Records including as constructed lengths, levels and coordinates. Limits of Accuracy: <10 be inserted>.	
025G03	Nominal DN375 GRP (Trench type 3)	580	m	\$ 1	39.25	\$ 80,765.00		
HWG006	Clear, excavate, lay, join, bed, backfil & test pipelines (installation). Nominal depth >1.5m to 3.0m depth to invert in OTR						Measurement: Actual metres of pipe installed with design depth of excervation > 1.5m to and including 30m. Retention: 10% confler appropriate percentage> until satisfactory testing Submit: Retevant Quality Records including as constructed lengths, levels and coordinates. Limits of Accuracy: <to be="" inserted="">.</to>	-
026G03	Nominal DN375 GRP (Trench type 3)	560	m	\$ 2	20.25	\$ 123,340.00		Pipeline 3 - depth allow
HWG007	Clear, excavate, lay, join, bed, backfil & test pipelines (installation). Nominal depth >3.0m to 4.5m depth to invert in OTR						Measurement: Actual metres of pipe installed with design depth of excavation > 3.0m to and including 4.5m. Reletrition: 10%-confler appropriate percentage> until satisfactory testing Submit: Relevant Quality Records including as constructed lengths, levels and coordinates. Limits of Accuracy: <to be="" inserted="">.</to>	-
026G03	Nominal DN375 GRP (Trench type 3)	560	m	\$ 4	57.25	\$ 256,060.00		Pipeline 3 - depth allow
HWG08	Clear, excavate, lay, join, bed, backfil & test pipelines (installation). Nominal depth >4.5m depth to invert in OTR						Measurement: Actual metres of pipe installed with design depth of excavation > 4.5m. Retention: 10% con their appropriate percentage> until satisfactory testing Submit: Retevant Quality Records including as constructed lengths, levels and coordinates. Limits of Accuracy- <to be="" inserted="">.</to>	-
HWG009	Excavate, backfill, supply and instal access chambers including base, chamber, cover & surround and access ladder for the following nominal diameter access chambers:						Measurement: Actual metres of access chamber installed measured from surface level to invert of outlet pipe. Retention: 10% con other appropriate percentage> until satisfactory testing Submit: Retevant Quality Records including as constructed lengths, levels and coordinates. Limits of Accuracy: <to be="" inserted="">.</to>	
HWG010	Extra over rate for installation for Additional compaction		m3	-	38.03		measurement, cour, menes or aduntonar compaction dased or mickness- by length by Minimum Trench Width. Submit: Relevant Quality Records. Limits of Accuracy: <to be="" inserted="">.</to>]
HWG011	Excavate below specified design depth when directed including disposal of excess excavated material		m3	\$	78.75		length by Minimum Trench Width. Submit: Relevant Quality Records. Limits of Accuracy: <to be="" inserted="">.</to>]

							Interspectively. Gub, menes or non concerve material based on unchness
HWG012	Extra over rate for installation to supply,		m3				by length by Minimum Trench Width.
	place & compact non cohesive material.					1	Submit: Relevant Quality Records.
							Limits of Accuracy: <to be="" inserted="">.</to>
HWG013			m3		337 50		Limits of Accuracy. < To be inserted>. measurement, copic metres of stabilised sand cement based on trickness.
HWGU13	Extra over rate for installation for supply, place and compact stabilised sand cement		ma	° 3	337.50	1	by length by Minimum Trench Width.
	(14:1) backfill						Submit: Relevant Quality Records.
	,					1	Limits of Accuracy: <to be="" inserted="">.</to>
HWG014	Extra over rate for installation for Supply,		m3				measurement. Cobic metres or aggregate based on trickness by length by
	place and compact aggregate						Minimum Trench Width.
							Submit: Relevant Quality Records.
							Limits of Accuracy: <to be="" inserted="">.</to>
HWG015	Supply & place ballast		tonnes	\$ 9	90.00		
							Measurement: Actual tonnes placed as directed.
							Submit: Relevant Quality Records including certified weighbridge dockets.
							Limits of Accuracy: <to be="" inserted="">.</to>
HWG016	External Dewatering of trench including		m3				Measurement: Measurement: Length of pipeline for which external
	establishment & disestablishment						dewatering is agreed with the Superintendent and provided,
							measured along the axis of the pipeline between the first and last
						1	spear point.
						1	Submit: Relevant Quality Records.
HWG017	Supply and place treated timber piling for pip		m				Limite of Accuracy: To be inserted?
	suppry and place treated timber plling for pip support					1	Submit: Relevant Quality Records.
							Limits of Accuracy: <to be="" inserted="">.</to>
HWG018	Road / creek crossings						measurement: Length in metres of casing installed
							Submit: Relevant Quality Records.
							Limits of Accuracy: <to be="" inserted="">.</to>
HWG019	Extra over rate for installation of trenchless		m				measurement: Length in metres of casing installed
	technique under existing rail line						Submit: Relevant Quality Records.
							Limits of Accuracy: <to be="" inserted="">.</to>
HWG020	Supply & installation of river crossing						
	includes supply of MSCL pipe, welding,						Measurement: Length in metres of casing installed.
	testing of welds, 150mm concrete						Retention: 10% <or appropriate="" other="" percentage=""> until satisfactory testing.</or>
	encasement, mobilisation & demobilisation or dredge, excavation & disposal of excavated						Note: Consider other milestone retentions.
	dredge, excavation & disposal of excavated material, backfilling, lay, bed & test:					1	Submit: Relevant Quality Records.
							Limits of Accuracy: <to be="" inserted="">.</to>
HWG021	Supply and installation of pipe aerial creek						measurement, conger in metros or crossing instance in accordance war
	crossing including supply of MSCL pipe with					1	design.
	protection coating, internal and external					1	Retention: 10% <or appropriate="" other="" percentage=""> until satisfactory testing.</or>
	welding, testing of welds. For the following MSCL pipe sizes:					1	Note: Consider other milestone retentions.
	moul pipe sizes:					1	Submit: Relevant Quality Records.
							Limits of Accuracy: <to be="" inserted="">. Payment: number or buikneads & trencristops constructed</to>
HWG022	Bulkheads and Trenchstops in accordance		Each				Submit: Relevant Quality Records.
	with WSAA drawing SEW-1206						Limits of Accuracy: <to be="" inserted="">.</to>
HWG023			Each				Limits of Accuracy. < 10 be inserted>.
HWGu23	Supply and Install valve pits (excluding valve and fittings)	. 0	Each	3		\$-	Retention: <to be="" determined="">.</to>
						1	Submit: Relevant Quality Records.
						1	Limits of Accuracy: <to be="" inserted="">.</to>
HWG124	Flow Relief Structures		Each				r dyment. Namber of now rener structures constructed
			Larun			1	Retention: <to be="" determined="">.</to>
						1	Submit: Relevant Quality Records.
							Limits of Accuracy: <to be="" inserted="">.</to>
HWG025	EMPTY						
HWG026	Supply and construct vent stacks	_	each				Payment, Number of Vent Stacks Constructed.
						1	Retention: <to be="" determined="">.</to>
						1	Submit: Relevant Quality Records.
						1	Limits of Accuracy: <to be="" inserted="">.</to>
HWG027	Preparation of line sheets		each	\$	1.00	\$ 1,700.00	
		1700					Limits of Accuracy: <to be="" inserted="">.</to>
HWG028	Acceptance testing - gravity main		m				measurement. Lengur or pipennes constructed as per design
							Submit: Staisfactory test records
							Limits of Accuracy: <to be="" inserted="">.</to>
HWG029	Miscellaneous				_		
HWG000	Sub Total					\$956,140	

Item No.	Item Description	Qty	Unit		Amount	Application of Schedule of Rates
					\$	
HW0009	Restoration - Pipelines:					Payment: 100% after completion.
HW0009.01	Concrete kerb & gutter	0	m	\$ 110.0	\$.	Measurement: Lineal metres restored within Minimum Trench Width. Limits of Accuracy: <to be="" inserted="">.</to>
HW0009.02	Concrete driveway	0	m2	\$ 178.0	S .	Measurement: Square metres restored based on actual length by Minimum Trench Width. Limits of Accuracy: <to be="" inserted=""></to>
HW0009.03	Exposed aggregate & stamped driveway	0	m2	\$ 220.0	S .	Measurement: Square metres restored based on actual length by Minimum Trench Width. Limits of Accuracy: <to be="" inserted=""></to>
HW0009.04	Concrete footpath	0	m2	\$ 155.0	S .	Measurement: Square metres restored based on actual length by Minimum Trench Width. Limits of Accuracy: <to be="" inserted=""></to>
HW0009.05	Bitumen footpath	0	m2	\$ 117.0	\$.	Measurement: Square metres restored based on actual length by Minimum Trench Width. Limits of Accuracy: <to be="" inserted=""></to>
HW0009.06	Gravel pavement	0	m2	\$ 69.0	S .	Measurement: Square metres restored based on actual length by Minimum Trench Width. Limits of Accuracy: <to be="" inserted=""></to>
HW0009.07	Bitumen pavement		m2			Measurement: Square metres restored based on actual length by Minimum Trench Width. Limits of Accuracy: <to be="" inserted=""></to>
HW0009.08	AC pavement		m2			Measurement: Square metres restored based on actual length by Minimum Trench Width. Limits of Accuracy: <to be="" inserted=""></to>

HW0009.09	Pavers		m2			Measurement: Square metres restored based on actual length by
						Minimum Trench Width.
						Limits of Accuracy: <to be="" inserted=""></to>
HW0009.10	Turf		m2			Measurement: Square metres restored based on actual length by
						Minimum Trench Width.
						Limits of Accuracy: <to be="" inserted=""></to>
HW0009.11	Grass seeding		m2			Measurement: Square metres restored based on actual length by
						Minimum Trench Width.
						Limits of Accuracy: <to be="" inserted=""></to>
HW0009.12	Hydromulch		m2			Measurement: Square metres restored based on actual length by
						Minimum Trench Width.
						Limits of Accuracy: <to be="" inserted=""></to>
HW0010	Extra over item for Excavation in rock and		m3			Measurement: Cubic metres excavated based on thickness of rock by
	disposal of excess excavated material					actual length by Minimum Trench Width.
						Limits of Accuracy: <to be="" inserted="">.</to>
HW0011	Acid sulphate soil					
HW0011.01	Initial testing for acid sulphate soils and		per test			Submit: Result for each test.
	prepare and submit report					Limits of Accuracy: <to be="" inserted="">.</to>
HW0011.02	Establish treatment facility		Item			Payment: 100% after completion of treatment facility.
HW0011.03	Handling, treatment and testing of acid		m3			Measurement: Cubic metres excavated based on thickness of ASS by
	sulphate soils					actual length by Minimum Trench Width.
						Submit: Test results confirming satisfactory treatment.
						Limits of Accuracy: <to be="" inserted=""></to>
HW0011.04	Disposal off site of acid sulphate soil		tonne			Measurement: Tonnes transported from the site.
						Submit: Weighbridge dockets.
						Limits of Accuracy: <to be="" inserted=""></to>
HW0012	Preconstruction record					
HW0012.01	Photographic	Item	Lump Sum		\$-	Payment: 70% on submission of the Photographic record.
						Remainder at Practical Completion.
HW0012.02	Video	Item	Lump Sum		\$ -	Payment: 70% on submission of the Video record. Remainder at
						Practical Completion.
HW0012.03	CCTV	ltem	Lump Sum		\$-	Payment: 70% on submission of the CCTV record. Remainder at
						Practical Completion.
HW0013	Work as Constructed Information <insert min<="" td=""><td>Item</td><td>Lump Sum</td><td>\$ 26,400.00</td><td>\$ 26,400.00</td><td>Payment: 100% at Practical Completion.</td></insert>	Item	Lump Sum	\$ 26,400.00	\$ 26,400.00	Payment: 100% at Practical Completion.
	\$>					Payment. 100 / at Plactical Completion.
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А.	TOTAL ESTIMATED CONTRACT AWARD SOM	9	2,000,034.04
в.	PRE-CONSTRUCTION COST (Table 10)		
HW0016	Design	\$	322,600.16
HW0017	Project Management of Design	\$	74,520.03
HW0018	Land Matters	\$	
HW0024	Community Consultation		
	Sub Total(B1)	\$	397,120.19
	Pre construction contingency (30% of B1)	\$	119,136.0
	TOTAL PRE-CONSTRUCTION COST (B)	\$	516,256.24
с.	CONSTRUCTION COST		
	Total Estimated Contract Award Sum (A)	\$	2,688,334.64
HW0019	Principal Supplied Pipe (as applicable)	\$	-
HW0020	Principal Supplied Valves and Flowmeters (as applicable)	\$	
HW0021	Principal Supplied Fittings (as applicable)	\$	-
HW0022	Pump Station HV Power Supply	\$	187,500.00
HW0023	Construction Management (Table 11)	\$	215,066.77
	Sub Total (C1)	\$	3,090,901.4
	Construction contingency	\$	927,270.42
	(Table 12) (30% of C1) Preliminary Estimate		
	TOTAL CONSTRUCTION COST (C)	\$	4,018,171.83
	TOTAL PRELIMINARY PROJECT ESTIMATE (B+C) (Preliminary Estimate)	\$	4,534,428.08

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PROJECT DESCRIPTION:

Pump Station & Rising Main - High Head Western Transfer

Item No.	Item Description	Qty	Unit	Rate \$/Unit	Amount \$	Application of Schedule of Rates
	All work not included elsewhere in this schedule	Item	Lump Sum	\$ 67,379.00	\$	Payment: Maximum of 10% shall be due each month until 70% of th amount has been paid. Remainder at Practical Completion.
HW0002	Site Establishment <insert \$="" max=""></insert>	Item	Lump Sum	\$ 30,000.00	\$ 30,000.00	Payment: 100% after completion.
HW0003	Site Disestablishment <insert \$="" min=""></insert>	Item	Lump Sum	\$ 30,000.00	\$ 30,000.00	Payment: 100% after completion.
HW0004	Preparation and implementation of the Construction EMP	ltem	Lump Sum	\$ 11,000.00	\$ 11,000.00	Payment: Maximum of 30% on submission of complying Construction EMP, then 10% per month up to maximum of 80%. Remainder at Practical Completion. Submit: Construction FMP.
HW0005	Preparation and implementation of the Safety Management Plan.	ltem	Lump Sum	\$ 23,000.00	\$	Payment: Maximum of 30% on submission of complying plan, then 10% per month up to maximum of 80%. Remainder at Practical Completion. Submit: Safetv Management Plan.
HW0006	Preparation and implementation of the Traffic Control Plan.	ltem	Lump Sum	\$ 8,200.00	\$ 8,200.00	Payment: Maximum of 30% on submission of complying Traffic Control Plan, then 10% per month up to maximum of 80%. Remainder at Practical Completion.
	Preparation and Implementation of Quality Management Plan	ltem	Lump Sum	\$ 34,489.27	\$ 34,489.27	Payment: Maximum of 30% on submission of complying Quality Management Plan, then 10% per month up to maximum of 80%. Remainder at Practical Completion.
HW0008	Community Consultation	Item	Lump Sum	s -	\$ -	Payment: 10% per month up to maximum of 70%. Remainder at Practical Completion.

							Practical Completion.	
awar Din	eline - Rising - section will be present if o	a or more	ricina mai	n are merifi	ed.			
Item	Construction of Sewer Rising Mains	Qty	Unit	Kate \$/Unit		Amount \$	Application of Schedule of Rates	
HWR001	Service Location	Item	Lump Sum	\$ 1,6	\$20.00	\$ 1,620.00	amount has been naid. Remainder at Practical Completion.	
HWR002	Supply all valves	Item	Lump Sum			\$	Payment: Percentage or valves and nowineters supplied Submit: Relevant Quality Records including Compliance Certificates.	
HWR003	Supply all fittings	Item	Lump Sum			\$	Payment: Percentage or mongs supplied. Submit: Relevant Quality Records including Compliance Certificates.	
HWR004	Supply all pipe materials including detector tape, pipe protection wrapping, rubber rings and lubricant for following pipe sizes:						Measurement: Actual metres (effective length) of pipe delivered to site. Submit: Relevant Quality Records including Compliance Certificates. Note: Limits of Accuracy to be inserted for each pipe size.	
132DSS	Nominal DN500 DICL pipe	1800	m	\$	394.00	\$ 709,200.00		
HWR005	Clear, excavate, lay, join, bed, backfil & test pipelines (installation). Up to 1.5 m depth to invert in OTR.						Messurement: Actual metres of pipe installed with design depth of excavation up to and including 1.5m. Retention: 10% confler appropriate percentage> until satisfactory testing. Submit: Retevant Quality Records including as constructed lengths, levels and coordinates. Limits of Accuracy: <to be="" inserted="">.</to>	
132D03	Nominal DN500 DICL (Trench type 3)	1800	m	\$	212.10	\$ 381,780.00		Pipeline 1 - terrain allowar
HWR006	Clear, excavate, lay, join, bed, backfil & test pipelines (installation). Nominal depth >1.5m to 3.0m to invert in OTR.						Messurement: Actual metres of pipe installed with design depth of excavation > 1.5m to and including 3.0m. Retention: 10%- confler appropriate percentage> until satisfactory testing. Submit: Retevant Quality Records including as constructed lengths, levels and coordinates. Limits of Accuracy: <to be="" inserted="">.</to>	
HWR007	Clear, excavate, lay, join, bed, backfil & test pipelines (installation). Nominal depth >3.0m to 4.5m to invert in OTR.						Measurement: Actual metres of pipe installed with design depth of excavation > 3 cm to and including 4 5m. Retention: 10% vor other appropriate percentagev until satisfactory testing. Submit: Retevent Quality Records including as constructed lengths, levels and coordinates. Limits of Accuracy: <1 or be inserted	
HWR008	Clear, excavate, lay, join, bed, backfil & test pipelines (installation). Nominal depth >4.5m to invert in OTR.						Measurement: Actual metres of pipe installed with design depth of excavation > 4.5m. Relention: 10% con ther appropriate percentages until satisfactory testing, Submit: Relevant Quality Records including as constructed lengths, levels and coordinates. Limits of Accuracy: <to be="" inserted="">.</to>	
HWR009	EMPTY							
HWR010	Extra over rate for installation for Additional compaction		m3	\$	22.95		measurement, coub menes or admonarcompaction based on mickness- by length by Minimum Trench Width. Submit: Relevant Quality Records. Limits of Accuracy: <to be="" inserted="">.</to>	
HWR011	Excavate below specified design depth when directed including disposal of excess excavated material		m3	\$	94.50		measurement, coub meters of excavation directed based on mickness by length by Minimum Trench Width. Submit: Relevant Quality Records. Limits of Accuracy: <to be="" inserted="">.</to>	
	Extra over rate for installation to Supply & place & compact non cohesive material.		m3				measurement, coub meres of non-conesive material based on inconesa- by length by Minimum Trench Width. Submit: Relevant Quality Records. Limits of Accuracy: <to be="" inserted="">.</to>	
HWR013	Extra over rate for installation for supply, place and compact stabilised sand cement (14:1) backfill		m3	\$ 4	05.00		measurement. Cubic metres of stabilised sand cement based of mickness by length by Minimum Trench Width. Submit: Relevant Quality Records. Limits of Accuracy: <to be="" inserted="">.</to>	
HWR014	Extra over rate for installation for Supply, place and compact aggregate		m3				Minimum Trench Width. Submit: Relevant Quality Records. Limits of Accuracy: <to be="" inserted="">.</to>	

10000000							
HWR015	Supply & place ballast		tonnes	\$ 9	10.00		Measurement: Actual tonnes placed as directed. Submit: Relevant Quality Records including certified weighbridge dockets. Limits of Accuracy: <to be="" inserted="">.</to>
	External Dewatering of trench including establishment & disestablishment		m				measurement: Length of pipeline for which external dewatering is agreed with the Superintendent and provided, measured along the axis of the pipeline between the first and last spear point. Submit: Relevant Quality Records. measurement, Audamments and under any to be on the measurement.
	Supply and place treated timber piling for pip support		E				Submit: Relevant Quality Records. Limits of Accuracy: <to be="" inserted="">.</to>
HWR018	Road / creek crossings						Measurement: Length in metres of casing installed Submit: Relevant Quality Records. Limits of Accuracy: <to be="" inserted="">.</to>
HWR019	Extra over rate for installation of trenchless technique under existing rail line		m				weasurement: Length in metres of casing installed Submit: Relevant Quality Records. Limits of Accuracy: <to be="" inserted="">.</to>
	Supply and installation of pipe aerial creek crossing including supply of MSCL pipe with protection coating, internal and external welding, testing of welds. For the following MSCL pipe sizes:						design. Retention: 10% <or appropriate="" other="" percentage=""> until satisfactory testing. Note: Consider other milestone retentions. Submit: Relevant Quality Records. Umbit of Accuracy: <to be="" inserted="">.</to></or>
	Supply and installation of pipe river crossing including supply of MSCL pipe, internal and external welding, testing of welds and 150 thick concrete encastement. Also includes mobilisation and demobilisation of dredgelf required) execution 8. disposed of executed material, backfilling, lay, bed and test for the following MSCL pipe sizes:						Measurement: Length in metres of casing installed. Retention: 10% or other appropriate percentages until satisfactory testing. Noth: Consider of wine millestone retentions. Sahmit: Retervant Quality Records. Limits of Accuracys: To be insented
HWR022	Bulkheads and Trenchstops in accordance with WSAA drawing SEW-1206	Item	Lump Sum			\$.	Payment: Number or builded as a trenchstops constructed Submit: Relevant Quality Records. Limits of Accuracy: <to be="" inserted="">.</to>
HWR023	Supply and Install valve pits (excluding valve and fittings)	. 0	Each	\$		\$-	raymen: numer or vare pro consoluted Retention: <to be="" determined="">. Submit: Relevant Quality Records. Limits of Accuracy: <to be="" inserted="">.</to></to>
HWR024	Flow Relief Structures		Each				raymen: numer or now rener souccures consouceu Retention: <to be="" determined="">. Submit: Relevant Quality Records. Limits of Accuracy. <to be="" inserted="">.</to></to>
HWR025	EMPTY						
HWR026	Supply and construct vent stacks		each				rayment, reuniter or ven status constructed Retention: «To be determined». Submit: Relevant Quality Records. Limits of Accuracy: «To be inserted».
HWR027	Preparation of line sheets	1800	m	\$	1.00	\$ 1,800.00	Measurement: Length of pipelines constructed as per design Limits of Accuracy: <to be="" inserted="">.</to>
	Acceptance testing - rising main		E				Measurement: Length of pipelines constructed as per design Submit: Satisfactory test records Limits of Accuracy: <to be="" inserted="">.</to>
HWR029	Miscellaneous						
HWR000	Sub Total			1	-	\$1 094 400	
	300 101ai					+-,4,400	

Sewer Pur	nping Station 500kW						
Item	Pump Station - Name	Qtv	Unit	Kate S/Unit	,	4mount S	Application of Schedule of Rates
	Sewer Pumping Station 500kW 5.5m dia	ay	Unix		_		
111102.01	2 Pump(s)						
	Clear, excavate & backfill in OTR conditions, supply and construct pipework, pump station includes sliding aluminium hatch covers, screens & ancillary metal work & fittings. Supply & place formwork, reinforcement, concrete, roof slab, thrust blocks.	Item	Lump Sum	\$ 369,000.00	s	369,000.00	Payment: -insert appropriate percentages to reflect the value of work at key milestones og excavator, pump vell, metalwork etc Submit: Relevant Quality Records.
	Pumps for Pumping Stations - Supply and install pumps and associated fittings, connection to pipework, testing and commissioning.	2	Lump Sum	\$ 119,475.00	s	238,950.00	Payment: <insert appropriate="" eg<br="" for="" key="" milestones="" percentages="">installation, precommissioning, commissioning>. Submit: Relevant Quality Records including those for pump test.</insert>
	Pumping Station Electricals						
HW0203.01	Pit and Conduit System	Item	Lump Sum	\$ 15,500.00	\$	15,500.00	Payment: Percentage of work completed. Submit: Relevant Quality Records.
HW0203.02	LV Station Power Supply	Item	Lump Sum	\$ 38,125.00	\$	38,125.00	Payment: Percentage of work completed. Submit: Relevant Quality Records.
HW0203.03	Station By-Pass arrangements	Item	Lump Sum		\$		Payment: Percentage of work completed. Submit: Relevant Quality Records.
HW0203.04	Electrical Demolition works	Item	Lump Sum		\$		Payment: Percentage of work completed. Submit: Relevant Quality Records.
HW0203.05	Switchboard	Item	Lump Sum	\$ 299,000.00	\$	299,000.00	Payment: Percentage of work completed. Submit: Relevant Quality Records.
HW0203.06	PLC / Telemetry Hardware	Item	Lump Sum	\$ 14,437.50	\$	14,437.50	Payment: Percentage of work completed. Submit: Relevant Quality Records.
HW0203.07	PLC / Telemetry / Scada Engineering and Software Development	Item	Lump Sum	\$ 28,450.00	\$	28,450.00	Payment: Percentage of work completed. Submit: Relevant Quality Records.
HW0203.08	Stainless Steel Generator Box Cable Tray & Metering Box	Item	Lump Sum	\$ 39,437.50	\$	39,437.50	Payment: Percentage of work completed. Submit: Relevant Quality Records.
HW0203.09	Building Services (Electrical)	Item	Lump Sum	\$ 20,625.00	\$	20,625.00	Payment: Percentage of work completed. Submit: Relevant Quality Records.
HW0203.10	Pressure Transmitter/Gauge Board	Item	Lump Sum	s -	\$		Payment: Percentage of work completed. Submit: Relevant Quality Records.
HW0203.11	Installation/Cabling (Electrical)	Item	Lump Sum	\$ 31,000.00	\$	31,000.00	Payment: Percentage of work completed. Submit: Relevant Quality Records.

HW0204	Empty			1				
HW0205	Empty							
HW0206	Service Location	ltem	Lump Sum	\$	1,815.00	\$	1,815.00	Payment: Maximum of 10% shall be due each month until 70% of the
HW0207	Excavation below design depth including	0	m3	s	70.00	s		amount has been paid. Remainder at Practical Completion. Measurement: Cubic metres excavated based on thickness of
	disposal of excavated material (Contingent Item)			-				excavation by design cross section of the structure for which
	ltem)							excavation has been undertaken.
								Submit: Relevant Quality Records.
HW0208	Extra over Civil Works for excavation in rock:	0	m3	\$	120.00	\$		I imits of Accuracy: <to be="" inserted=""> Measurement: Actual cubic metres of rock excavated within the</to>
								design dimensions of the structure.
								Submit: Relevant Quality Records.
HW0209	Cut and fill earthworks including compaction:	0	m3	\$	25.00	\$		Limits of Accuracy: <to be="" inserted="">. Measurement: Actual cubic metres of earthworks completed in</to>
								accordance with the design.
								Submit: Relevant Quality Records.
HW0210	Supply & place ballast (Contingent Item)	0	tonne	\$	90.00	\$		Measurement: Actual tonnes placed as directed.
								Submit: Relevant Quality Records including certified weighbridge dockets.
								dockets. Limits of Accuracy: <to be="" inserted="">.</to>
HW0211	Import and place select fill including	0	m3	\$	65.00	\$		Measurement: Actual cubic metres placed as directed by the
	compaction <may be="" contingent="" item=""></may>							Superintendent or placed in accordance with the design.
								Submit: Relevant Quality Records. Limits of Accuracy: <to be="" inserted="">.</to>
HW0212	Construct access road and hardstand							child of Accuracy, sho be inserted.
HW0212.01	Prepare subgrade		m2	\$	4.20			Measurement: Actual square metres in accordance with the design.
								Submit: Relevant Quality Records. Limits of Accuracy: <to be="" inserted="">.</to>
				1				
HW0212.02	Supply, place and compact 150mm thick		m2	\$	37.00			Measurement: Actual square metres in accordance with the design.
	basecourse			1				Submit: Relevant Quality Records.
HW0212.03	Supply, place and compact 200mm thick		m2	s	47.00			Limits of Accuracy: <to be="" inserted=""> Measurement: Actual square metres in accordance with the design.</to>
	basecourse			Ĺ				Submit: Relevant Quality Records.
HW0212.04	Supply, place and compact 250mm thick		m2		51.00			i mits of Accuracy: <to be="" inserted=""></to>
HW0212.04	Supply, place and compact 250mm thick basecourse		mz	°	51.00			Measurement: Actual square metres in accordance with the design. Submit: Relevant Quality Records.
								Limits of Accuracy: <to be="" inserted=""></to>
HW0212.05	Supply, place and compact two coat bitumen seal		m2	s	26.00			Measurement: Actual square metres in accordance with the design.
	bitumen seal							Submit: Relevant Quality Records.
HW0212.06	Supply, place and compact 30mm thick		m2	s	37.00			Limits of Accuracy: <to be="" inserted="">. Measurement: Actual square metres in accordance with the design.</to>
	asphalt bitumen seal							Submit: Relevant Quality Records.
HW0212.07	Concrete kerb & gutter	0	m	s	110.00	s		Limits of Accuracy: <to be="" inserted=""></to>
HW0212.07	Concrete kerb & gutter	U	m	2	110.00	2		Measurement: Actual metres in accordance with the design. Submit: Relevant Quality Records.
								Limits of Accuracy: <to be="" inserted=""></to>
HW0212.08	Concrete driveway	0	m2	\$	178.00	\$		Measurement: Actual square metres in accordance with the design.
								Submit: Relevant Quality Records. Limits of Accuracy: <to be="" inserted="">.</to>
HW0213	Supply all plant, material and labour to							Limits of Accuracy. < to be inserted>.
HW0213.01	undertake the following Piling works: Treated timber mini piles		m					
HW0213.01	Treated timper mini piles		m					Measurement: Actual metres in accordance with the design. Submit: Relevant Quality Records.
								Limits of Accuracy: <to be="" inserted=""></to>
HW0213.02	Reinforced concrete bored piles	Item	Lump Sum			\$		Payment: Percentage of work completed. <consider %="" at<="" payments="" td=""></consider>
								milestones> Submit: Relevant Quality Records.
HW0214	Supply all plant, material and labour to undertake the following Retaining Wall works							Measurement: Actual square metres in accordance with the design.
	undertake the following Retaining Wall works							Submit: Relevant Quality Records.
HW0214.01	Timber(Koppers Log) up to 1.5m high	-	m2	s	300.00			Limits of Accuracy: <to be="" inserted="">.</to>
HW0214.02	Concrete Keystone up to 1m high	-	m2	\$	380.00			Limits of Accuracy: <to be="" inserted="">.</to>
HW0214.03	Concrete Keystone between 1m and 3m		m2	\$	560.00			Limits of Accuracy: <to be="" inserted="">.</to>
HW0214.04	high Concrete Keystone greater than 3m high		m2	6	560.00			I factor of Annuar and a∀a backage
			mz	\$				Limits of Accuracy: <to be="" inserted="">.</to>
HW0214.05	Concrete Crib Block up to 2m high		m2	\$	630.00			Limits of Accuracy: <to be="" inserted="">.</to>
HW0214.06	Concrete Crib Block between 2m and 3m		m2	\$	704.00			Limits of Accuracy: <to be="" inserted="">.</to>
HW0215	high Acid suitchate soil							
HW0215.01	Initial testing for acid sulphate soils and	5	per test	s	110.00	ŝ	550.00	Submit: Result for each test.
	prepare and submit report			L		Ľ.		Limits of Accuracy: <to be="" inserted=""></to>
HW0215.02	Establish treatment facility	Item	Lump Sum			\$		Payment: 100% after completion of treatment facility.
HW0215.03	Handling, treatment and testing of acid		m3	s	60.00			Measurement: Cubic metres within the design cross section of the structure
	sulphate sols			Ĩ	00.00			for which excavation has been undertaken.
				1				Submit: Test results confirming satisfactory treatment.
HW0215.04	Disposal off site of acid sulphate soil		tonne	s	122.00			Limits of Accuracy: <to be="" inserted=""> Measurement: Tonnes transported from the site.</to>
max. no. 64	a specie of and or acro adjoined 501		0,000	Ĩ.	144.00			Submit: Weighbridge dockets.
1								Limits of Accuracy: <to be="" inserted=""></to>
HW0216	Series Pump Pit Structure	Item	Lump Sum			\$	_	Payment: <insert appropriate="" at="" ke<="" of="" percentages="" reflect="" td="" the="" to="" value="" work=""></insert>
				1				milestones eg excavation, reinforced concrete, metalwork etc>. Submit: Relevant Quality Recorde
HW0217	Supply and install valve pit concrete	Item	Lump Sum	\$	-	\$		Submit: Relevant Quality Records Payment: <insert appropriate="" of="" percentages="" reflect="" td="" the="" to="" value="" work<=""></insert>
	formwork, reinforced concrete complete with aluminium tread plate covers and including			1				at key milestones eg excavation, reinforced concrete, metalwork etc>
	excavation and backfil			1				Submit: Relevant Quality Records.
HW0218	Supply and install pipework items inside valve	Item	Lump Sum	\$	6,430.00	\$	6,430.00	Payment: Valued at percentage of work completed. Retention of 20%
	pit			1				sor other percentages until satisfactory testing
HW0219	Supply and Install additional pipe Items	ltem	Lump Sum	s	55.207.00	s	55 207 00	Submit: Relevant Quality Records. Payment: Valued at percentage of work completed. Retention of 20%
	Supply and install additional pipe items outside station	ILCIII	camp adm	°	55,207.00	*	35,207.00	Payment: Valued at percentage of work completed. Retention of 20% <or other="" percentage=""> until satisfactory testing.</or>

HW0220	Supply and install pipework items inside	ltem	Lump Sum	\$ 540	0.00		E 400.00	Description of the second s
	supply and install pipework items inside station	item	Lump Sum	\$ 5,40	0.00	\$	5,400.00	Payment: Valued at percentage of work completed. Retention of 20%
	stauon							<or other="" percentage=""> until satisfactory testing.</or>
HW0221					_			Submit: Relevant Quality Records, Payment: Valued at percentage of work completed, Retention of 20%
	Supply and install Type 2 or 4 flow relief structures in accordance with Drgs SCP-502	Item	Lump Sum			s		
	and SCP-505							<or other="" percentage=""> until satisfactory testing.</or>
					_			Submit: Relevant Quality Records.
	Supply and install emergency storage		L/m					Payment: Valued at percentage of work completed. Retention of 20%
	structures							<or other="" percentage=""> until satisfactory testing.</or>
								Submit: Relevant Quality Records.
HW0223	Supply and install fan forced ventilation	Item	Lump Sum			\$		Payment: Valued at percentage of work completed. Retention of 20%
								<or other="" percentage=""> until satisfactory testing.</or>
					_			Submit: Relevant Quality Records.
HW0224	Supply and install Soil Bed Filter	Item	Lump Sum			\$		Payment: Valued at percentage of work completed. Retention of 20%
								<or other="" percentage=""> until satisfactory testing.</or>
								Submit: Relevant Quality Records.
HW0225	Supply and Install Strainers	Item	Lump Sum			\$		Payment: Valued at percentage of work completed. Retention of 20%
								<or other="" percentage=""> until satisfactory testing.</or>
								Submit: Relevant Quality Records.
HW0226	Supply and Install Series Bypass	Item	Lump Sum			\$		Payment: Valued at percentage of work completed up to 80%.
								Remainder at Practical Completion.
								Submit: Relevant Quality Records.
HW0227	Landscaping	Item	Lump Sum	\$		\$		Payment: 100% at completion.
								Submit: Relevant Quality Records.
	Miscellaneous							
HW0229	Preparation and submission of Operation	Item	Lump Sum			\$		Payment: 100% at Practical Completion.
	and Maintenance Information							Submit: Complying Work As Constructed Information.
HW0230	Pre commissioning and commissioning	Item	Lump Sum	\$ 8,00	0.00	\$	8,000.00	Payment: 50% at completion of satisfactory precommissioning.
	-							Remainder at Practical Completion.
								Submit: Relevant Quality Records.
HW0231	Preparation and submission of Work as	ltem	Lump Sum	\$ 6,00	0.00	\$		Payment: 100% at Practical Completion.
	Constructed Information							Submit: Complying Work As Constructed Information.
HW2SP	Sub Total					\$1,1	77,927	

	eline - Gravity - section will be present if a			Rate	<u> </u>	Amount	Application of Schedule of Rates	1
Item	Construction of Sewer Gravity Mains	Qty	Unit	\$/Unit		\$		
HWG001	Service Location	Item	Lump Sum	\$ 1,125.0		1,125.00	Payment: Maximum of 10% shall be due each month until 70% of the amount has been paid. Remainder at Practical Completion.	
HWG002	Supply all valves	Item	Lump Sum		\$		Payment: Percentage of valves and flowmeters supplied. Submit: Relevant Quality Records including Compliance Certificates.	
HWG003	Supply all fittings	Item	Lump Sum		\$		Payment: Percentage of fittings supplied. Submit: Relevant Quality Records including Compliance Certificates.	
HWG004	Supply all pipe materials including detector tape, pipe protection wrapping, rubber rings and lubricant for following pipe sizes:						Measurement: Actual metres (effective length) of pipe delivered to site. Submit: Relevant Quality Records including Compliance Certificates. Note: Limits of Accuracy to be inserted for each pipe size.	
026GSS	Nominal DN375 GRP pipe	1500	m	\$ 290.0	\$	435,000.00		
HWG005	Clear, excavate, lay, join, bed, backfil & test pipelines (installation). Up to 1.5 m depth to invert in OTR.						Measurement: Actual metres of pipe installed with design depth of excavation up to and including 1.5m. Retention: 10% cor other appropriate percentage> until satisfactory testing Submit: Retevant Quality Records including as constructed lengths, levels and coordinates. Limits of Accuracy-<70 be inserted>.	-
025G03	Nominal DN375 GRP (Trench type 3)	500	m	\$ 233.	25 \$	116,625.00		Pipeline 3 - terrain allowan
HWG006	Clear, excavate, lay, join, bed, backfil & test pipelines (installation). Nominal depth >1.5m to 3.0m depth to invert in OTR						Measurement: Actual metres of pipe installed with design depth of excervation > 1.5m to and including 30m. Retention: 10% confler appropriate percentage> until satisfactory testing Submit: Retevant Quality Records including as constructed lengths, levels and coordinates. Limits of Accuracy: <to be="" inserted="">.</to>	-
025G03	Nominal DN375 GRP (Trench type 3)	500	m	\$ 329.3	25 \$	164,625.00		Pipeline 3 - terrain allowan
HWG007	Clear, excavate, lay, join, bed, backfil & test pipelines (installation). Nominal depth >3.0m to 4.5m depth to invert in OTR						Measurement: Actual metres of pipe installed with design depth of excavation > 3.0m to and including 4.5m. Reletrition: 10% confler appropriate percentage> until satisfactory testing Submit: Relevant Quality Records including as constructed lengths, levels and coordinates. Limits of Accuracy	-
026G03	Nominal DN375 GRP (Trench type 3)	500	m	\$ 609.3	25 \$	304,625.00		Pipeline 3 - terrain allowan
HWG008	Clear, excavate, lay, join, bed, backfil & test pipelines (installation). Nominal depth >4.5m depth to invert in OTR						Measurement: Actual metres of pipe installed with design depth of excavation > 4.5m. electricion: 10% -cor other appropriate percentage> until satisfactory testing Submit: Retevant Quality Records including as constructed lengths, levels and coordinates. Limits of Accuracy- <to be="" inserted="">.</to>	-
HWG009	Excavate, backfill, supply and install access chambers including base, chamber, cover & surround and access ladder for the following nominal diameter access chambers:						Measurement: Actual metres of access chamber installed measured from surface level to invert of outlet pipe. Retention: 10% confler appropriate percentage> until satisfactory testing Submit: Relevant Quality Records including as constructed lengths, levels and coordinates. Limits of Accuracy: <to be="" inserted="">.</to>	
HWG010	Extra over rate for installation for Additional compaction		m3	\$ 38.			measurement, cour, menes or aduntonar compaction dased or mickness- by length by Minimum Trench Width. Submit: Relevant Quality Records. Limits of Accuracy: <to be="" inserted="">.</to>]
HWG011	Excavate below specified design depth when directed including disposal of excess excavated material		m3	\$ 78.	15		length by Minimum Trench Width. Submit: Relevant Quality Records. Limits of Accuracy: <to be="" inserted="">.</to>]

HWG012	Extra over rate for installation to supply, place & compact non cohesive material.		m3				by length by Minimum Trench Width.
							Submit: Relevant Quality Records. Limits of Accuracy: <to be="" inserted="">.</to>
HWG013	Extra over rate for installation for supply, place and compact stabilised sand cement		m3	\$	337.50		by length by Minimum Trench Width.
	(14:1) backfill						Submit: Relevant Quality Records.
							Limits of Accuracy: <to be="" inserted="">.</to>
HWG014	Extra over rate for installation for Supply,		m3				Measurement. Cobic metres of aggregate based on sinckness by length by Minimum Trench Width.
	place and compact aggregate						Submit: Relevant Quality Records.
							Limits of Accuracy: <to be="" inserted="">.</to>
HWG015	Supply & place ballast		tonnes	\$	90.00		Measurement: Actual tonnes placed as directed.
							Submit: Relevant Quality Records including certified weighbridge dockets.
							Limits of Accuracy: <to be="" inserted="">.</to>
HWG016	External Dewatering of trench including		m3				Measurement: Measurement: Length of pipeline for which external
	establishment & disestablishment						dewatering is agreed with the Superintendent and provided,
							measured along the axis of the pipeline between the first and last spear point.
							Submit: Relevant Quality Records.
HWG017	Supply and place treated timber piling for pip		m				Limite of Accuracy: To be inserted
·····	support						Submit: Relevant Quality Records.
							Limits of Accuracy: <to be="" inserted="">.</to>
HWG018	Road / creek crossings						Measurement: Length in metres of casing installed Submit: Relevant Quality Records.
							Limits of Accuracy: <to be="" inserted="">.</to>
HWG019	Extra over rate for installation of trenchless		m				measurement: Length in metres of casing installed
	technique under existing rail line						Submit: Relevant Quality Records.
HWG020	Supply & installation of river crossing						Limits of Accuracy: <to be="" inserted="">.</to>
HWIGU20	includes supply of MSCL pipe, welding,						Measurement: Length in metres of casing installed.
	testing of welds, 150mm concrete						Retention: 10% <or appropriate="" other="" percentage=""> until satisfactory testing.</or>
	encasement, mobilisation & demobilisation or dredge, excavation & disposal of excavated						Note: Consider other milestone retentions.
	material, backfilling, lay, bed & test:						Submit: Relevant Quality Records.
HWG121	Supply and installation of pipe aerial creek						Limits of Accuracy: <to be="" inserted="">.</to>
HWG021	crossing including supply of MSCL pipe with						design.
	protection coating, internal and external						Retention: 10% <or appropriate="" other="" percentage=""> until satisfactory testing. Note: Consider other milestone retentions.</or>
	welding, testing of welds. For the following MSCL pipe sizes:						Note: Consider other milestone retentions. Submit: Relevant Quality Records.
							Limits of Accuracy: <to be="" inserted="">.</to>
HWG022	Bulkheads and Trenchstops in accordance		Each				Payment: Number of builkneads & trenchistops constructed
	with WSAA drawing SEW-1206						Submit: Relevant Quality Records. Limits of Accuracy: <to be="" inserted="">.</to>
HWG023	Supply and Install valve pits (excluding valve	. 0	Each	\$		s -	Payment, rumber or valve pits constructed.
	and fittings)						Retention: <to be="" determined="">.</to>
							Submit: Relevant Quality Records. Limits of Accuracy: <to be="" inserted="">.</to>
HWG024	Flow Relief Structures	-	Each		-		r dyment. Number of now rener structures constructed
							Retention: <to be="" determined="">.</to>
							Submit: Relevant Quality Records. Limits of Accuracy: <to be="" inserted="">.</to>
HWG025	EMPTY						crime or recordey. STO be interredy.
HWG026	Supply and construct vent stacks		each		-		rayment, wurnder of vent stacks constructed.
							Retention: <to be="" determined="">.</to>
							Submit: Relevant Quality Records. Limits of Accuracy: <to be="" inserted="">.</to>
HWG027	Preparation of line sheets		each	s	1.00	\$ 1.500.00	Measurement: Length of pipelines constructed as per design
		1500					Limits of Accuracy: <to be="" inserted="">.</to>
HWG028	Acceptance testing - gravity main		m				Submit: Staisfactory test records
							Limits of Accuracy: <to be="" inserted="">.</to>
HWG029	Miscellaneous						
HWG000	Sub Total					\$1,023,500	

Item No.	Item Description	Qty	Unit		Amount	Application of Schedule of Rates
					\$	
HW0009	Restoration - Pipelines:					Payment: 100% after completion.
HW0009.01	Concrete kerb & gutter	0	m	\$ 110.00	\$	Measurement: Lineal metres restored within Minimum Trench Width. Limits of Accuracy: <to be="" inserted="">.</to>
HW0009.02	Concrete driveway	0	m2	\$ 178.00	•	Measurement: Square metres restored based on actual length by Minimum Trench Width. Limits of Accuracy: <to be="" inserted=""></to>
HW0009.03	Exposed aggregate & stamped driveway	0	m2	\$ 220.00	\$	Measurement: Square metres restored based on actual length by Minimum Trench Width. Limits of Accuracy: <to be="" inserted=""></to>
HW0009.04	Concrete footpath	0	m2	\$ 155.00	\$	Measurement: Square metres restored based on actual length by Minimum Trench Width. Limits of Accuracy: <to be="" inserted=""></to>
HW0009.05	Bitumen footpath	0	m2	\$ 117.00	\$	Measurement: Square metres restored based on actual length by Minimum Trench Width. Limits of Accuracy: <to be="" inserted=""></to>
HW0009.06	Gravel pavement	0	m2	\$ 69.00	\$	Measurement: Square metres restored based on actual length by Minimum Trench Width. Limits of Accuracy: <to be="" inserted=""></to>
HW0009.07	Bitumen pavement		m2			Measurement: Square metres restored based on actual length by Minimum Trench Width. Limits of Accuracy: <to be="" inserted=""></to>
HW0009.08	AC pavement		m2			Measurement: Square metres restored based on actual length by Minimum Trench Width. Limits of Accuracy: <to be="" inserted=""></to>

HW0009.09	Pavers		m2			Measurement: Square metres restored based on actual length by
						Minimum Trench Width.
						Limits of Accuracy: <to be="" inserted=""></to>
HW0009.10	Turf		m2			Measurement: Square metres restored based on actual length by
						Minimum Trench Width.
						Limits of Accuracy: <to be="" inserted=""></to>
HW0009.11	Grass seeding		m2			Measurement: Square metres restored based on actual length by
						Minimum Trench Width.
						Limits of Accuracy: <to be="" inserted=""></to>
HW0009.12	Hydromulch		m2			Measurement: Square metres restored based on actual length by
						Minimum Trench Width.
						Limits of Accuracy: <to be="" inserted=""></to>
HW0010	Extra over item for Excavation in rock and		m3			Measurement: Cubic metres excavated based on thickness of rock by
	disposal of excess excavated material					actual length by Minimum Trench Width.
						Limits of Accuracy: <to be="" inserted="">.</to>
HW0011	Acid sulphate soil					
HW0011.01	Initial testing for acid sulphate soils and		per test			Submit: Result for each test.
	prepare and submit report					Limits of Accuracy: <to be="" inserted="">.</to>
HW0011.02	Establish treatment facility		Item			Payment: 100% after completion of treatment facility.
HW0011.03	Handling, treatment and testing of acid		m3			Measurement: Cubic metres excavated based on thickness of ASS by
	sulphate soils					actual length by Minimum Trench Width.
						Submit: Test results confirming satisfactory treatment.
						Limits of Accuracy: <to be="" inserted=""></to>
HW0011.04	Disposal off site of acid sulphate soil		tonne			Measurement: Tonnes transported from the site.
						Submit: Weighbridge dockets.
						Limits of Accuracy: <to be="" inserted=""></to>
HW0012	Preconstruction record					
HW0012.01	Photographic	Item	Lump Sum		\$-	Payment: 70% on submission of the Photographic record.
						Remainder at Practical Completion.
HW0012.02	Video	Item	Lump Sum		\$ -	Payment: 70% on submission of the Video record. Remainder at
						Practical Completion.
HW0012.03	CCTV	ltem	Lump Sum		\$-	Payment: 70% on submission of the CCTV record. Remainder at
						Practical Completion.
HW0013	Work as Constructed Information <insert min<="" td=""><td>Item</td><td>Lump Sum</td><td>\$ 26,400.00</td><td>\$ 26,400.00</td><td>Payment: 100% at Practical Completion.</td></insert>	Item	Lump Sum	\$ 26,400.00	\$ 26,400.00	Payment: 100% at Practical Completion.
	\$>					Payment. 100 / at Plactical Completion.
1						

м.	TOTAL ESTIMATED CONTRACT AWARD SOM	÷	3,520,295.24
 HW0016 	PRE-CONSTRUCTION COST (Table 10)		
	Design	\$	423,155.43
HW0017	Project Management of Design	\$	94,631.0
HW0018	Land Matters	\$	-
HW0024	Community Consultation		
	Sub Total(B1)	\$	517,786.5
	Pre construction contingency (30% of B1)	\$	155,335.98
	TOTAL PRE-CONSTRUCTION COST (B)	\$	673,122.43
с.	CONSTRUCTION COST		
	Total Estimated Contract Award Sum (A)	\$	3,526,295.23
HW0019	Principal Supplied Pipe (as applicable)	\$	
HW0020	Principal Supplied Valves and Flowmeters (as applicable)	\$	-
HW0021	Principal Supplied Fittings (as applicable)	\$	
HW0022	Pump Station HV Power Supply	\$	275,000.00
HW0023	Construction Management (Table 11)	\$	282,103.62
	Sub Total (C1)	\$	4,083,398.89
	Construction contingency	\$	1,225,019.63
	(Table 12) (30% of C1) Preliminary Estimate		
	TOTAL CONSTRUCTION COST (C)	\$	5,308,418.5
	TOTAL PRELIMINARY PROJECT ESTIMATE (B+C) (Preliminary Estimate)	l e	5.981.541.03

A. TOTAL ESTIMATED CONTRACT AWARD SUM \$ 3,526,295.27

PROJECT DESCRIPTION:

Pump Station & Rising Main - High Head Western Transfer

Item No.	Item Description	Qty	Unit	Rate \$/Unit	Amount \$	Application of Schedule of Rates
HW0001	All work not included elsewhere in this schedule	Item	Lump Sum	\$ 48,883.00	\$ 48,883.00	Payment: Maximum of 10% shall be due each month until 70% of the amount has been paid. Remainder at Practical Completion.
HW0002	Site Establishment <insert \$="" max=""></insert>	Item	Lump Sum	\$ 30,000.00	\$ 30,000.00	Payment: 100% after completion.
HW0003	Site Disestablishment <insert \$="" min=""></insert>	Item	Lump Sum	\$ 30,000.00	\$ 30,000.00	Payment: 100% after completion.
HW0004	Preparation and implementation of the Construction EMP	ltem	Lump Sum	\$ 7,000.00	\$ 7,000.00	Payment: Maximum of 30% on submission of complying Construction EMP, then 10% per month up to maximum of 80%. Remainder at Practical Completion. Submit: Construction EMP.
	Preparation and implementation of the Safety Management Plan.	ltem	Lump Sum	\$ 14,000.00	\$ 14,000.00	Payment: Maximum of 30% on submission of complying plan, then 10% per month up to maximum of 80%. Remainder at Practical Completion. Submit: Safety Management Plan.
HW0006	Preparation and implementation of the Traffic Control Plan.	Item	Lump Sum	\$ 6,200.00	\$ 6,200.00	Payment: Maximum of 30% on submission of complying Traffic Control Plan, then 10% per month up to maximum of 80%. Remainder at Practical Completion.
HW0007	Preparation and Implementation of Quality Management Plan	ltem	Lump Sum			Payment: Maximum of 30% on submission of complying Quality Management Plan, then 10% per month up to maximum of 80%. Remainder at Practical Completion.
HW0008	Community Consultation	Item	Lump Sum	s -	\$-	Payment: 10% per month up to maximum of 70%. Remainder at Practical Completion.

Item	eline - Rising - section will be present if o Construction of Sewer Rising Mains	Qty	Unit	Rate \$/Unit	Amount \$	Application of Schedule of Rates
HWR001	Service Location	Item	Lump Sum	\$ 3,600.00	\$ 3,600.00	
HWR002	Supply all valves	Item	Lump Sum		\$ -	amount has been paid. Remainder at Practical Completion. Payment: Percentage of valves and flowmeters supplied. Submit: Relevant Quality Records including Compliance Certificates.
HWR003	Supply all fittings	Item	Lump Sum		\$	Payment: Percentage of ntrings supplied. Submit: Relevant Quality Records including Compliance Certificates.
HWR004	Supply all pipe materials including detector tape, pipe protection wrapping, rubber rings and lubricant for following pipe sizes:					Measurement: Actual metres (effective length) of pipe delivered to site. Submit: Relevant Quality Records including Compliance Certificates. Note: Limits of Accuracy to be inserted for each pipe size.
12DDSS	Nominal DN450 DICL pipe	4000	m	\$ 304.00	\$ 1,216,000.00	
HWR005	Clear, excavate, lay, join, bed, backfill & test pipelines (installation). Up to 1.5 m depth to invert in OTR.					Measurement: Actual metres of pipe installed with design depth of accaration up to and including 1.5m. percentage- until satisfactory testing. Submit: Relevant Quality Records including as constructed lengths, levels Limits of Accuracy: <to be="" inserted<="" td=""></to>
12DD03	Nominal DN450 DICL (Trench type 3)	4000	m	\$ 125.25	\$ 501,000.00	
HWR006	Clear, excavate, lay, join, bed, backfiil & test pipelines (installation). Nominal depth >1.5m to 3.0m to invert in OTR.					Measurement: Actual metres of pipe installed with design depth of excavation > 1.5m to and including 3.0m. Retention: 10%-contex-appropriate percentage- until satisfactory testing, Submit: Relevant Quality Records including as constructed lengths, levels and coordinates. Limits of Accuracy, <to be="" inserted="">.</to>
HWR007	Clear, excavate, lay, join, bed, backfill & test pipelines (installation). Nominal depth >3.0m to 4.5m to invert in OTR.					Nessummeri: Actual metres of pipe Installed with design depth of excandion > 3 who no and including 4 sin. Refention: 10% or other appropriate percentage> until satisfactory testing. Submit: Relevant Quality Records including as constructed lengths, levels Limits of Accuracy: <10 be inserted>.
HWR008	Clear, excavate, lay, join, bed, backfill & test pipelines (installation). Nominal depth >4.5m to invert in OTR.					Measurement: Actual metres of pipe installed with design depth of accaration > 4.5m. Submit: Relevant Quality Records including as constructed lengths, levels Submit: Relevant Quality Records including as constructed lengths, levels Limits of Accuracy: <to be="" inserted<="" td=""></to>
HWR009	EMPTY					
HWRD10	Extra over rate for installation for Additional compaction		m3	\$ 22.95		measurement. Cuolo menes or additionar compaction dased on mickness of length by Minimum Trench Width. Submit: Relevant Quality Records. Limits of Accuracy: <to be="" inserted="">.</to>
HWR011	Excavate below specified design depth where directed including disposal of excess excavated material		m3	\$ 94.50		Measurement: Cubic metres of excavation directed based on thickness by length by Minimum Trench Width. Submit: Relevant Quality Records. Limits of Accuracy: <to be="" inserted="">.</to>
HWR012	Extra over rate for installation to Supply & place & compact non cohesive material.		m3			Ineasurement: Cubic metres of non conesive material based on thickness of length by Minimum Trench Width. Submit: Relevant Quality Records. Limits of Accuracy: <to be="" inserted="">.</to>

HWR013	Extra over rate for installation for supply,		m3	\$ 405	5.00		Measurement: Cubic metres of stabilised sand cement based on thickness by length by Minimum Trench Width.
	place and compact stabilised sand cement	i i					Submit: Relevant Quality Records.
	(14:1) backfill	Í					Limits of Accuracy: <to be="" inserted="">.</to>
							measurement. Coold metres of aggregate based on unickness by length by
HWR014	Extra over rate for installation for Supply,	Í	m3				Minimum Trench Width.
	place and compact aggregate	i i					Submit: Relevant Quality Records.
		i i					
							Limits of Accuracy: <to be="" inserted="">.</to>
HWR015	Supply & place ballast	Í	tonnes	\$ 90	0.00		Measurement: Actual tonnes placed as directed.
		i i					Submit: Relevant Quality Records including certified weighbridge dockets.
		i i					Limits of Accuracy: <to be="" inserted="">.</to>
		i i					Linits of Accuracy. <10 be inserted >.
HWR016	External Dewatering of trench including	i i	m				measurement: Length of pipeline for which external dewatering is
	establishment & disestablishment	Í					agreed with the Superintendent and provided, measured along the axis of the pipeline between the first and last spear point.
		i i					
							Submit: Relevant Quality Records.
HWR017	Supply and place treated timber piling for	Í	m				Measurement: Actual metres from pipe invert to toe of pile.
	pipe support	i i					Submit: Relevant Quality Records.
							Limits of Accuracy: <to be="" inserted="">.</to>
HWR018	Road / creek crossings	1					Measurement: Length in metres of casing installed.
		i i	l l	1			Submit: Relevant Quality Records.
		i i	l l	1			Limits of Accuracy: <to be="" inserted="">.</to>
HWR019	Extra over rate for installation of trenchless		m				Measurement: Length in metres of casing installed.
	technique under existing rail line	i i	l l	1			Submit: Relevant Quality Records.
	-	1					Limits of Accuracy: <to be="" inserted="">.</to>
HWR020	Supply and installation of pipe aerial creek						measurement. Length in metres of crossing installed in accordance with
	crossing including supply of MSCL pipe with	i i	l l	1			design.
	protection coating, internal and external	i i					Retention: 10% <or appropriate="" other="" percentage=""> until satisfactory testing.</or>
	welding, testing of welds. For the following	Í					Note: Consider other milestone retentions.
	MSCL pipe sizes:	i i					Submit: Relevant Quality Records.
		Í					Limits of Accuracy: <to be="" inserted="">.</to>
HWR021	Supply and installation of pipe river crossing						
	including supply of MSCL pipe, internal and	i i					
	external welding, testing of welds and 150	i i					
	thick concrete encasement. Also includes	i i					
	mobilisation and demobilisation of dredge(if	i i					Measurement: Length in metres of casing installed.
	required) excavation & disposal of excavated	i i					Retention: 10% <or appropriate="" other="" percentage=""> until satisfactory testing.</or>
	material, backfilling, lay, bed and test for the	i i					Note: Consider other milestone retentions.
	following MSCL pipe sizes:	i i					Submit: Relevant Quality Records.
		i i					Limits of Accuracy: <to be="" inserted="">.</to>
HWR022							Payment: Number of bulkneads & trenchstops constructed.
PIWR022	Bulkheads and Trenchstops in accordance	Item	Lump Sum			s -	Submit: Relevant Quality Records.
	with WSAA drawing SEW-1206	i i					Limits of Accuracy: <to be="" inserted="">.</to>
		<u> </u>		L			Payment, Number of Valve pils constructed.
HWR023	Supply and Install valve pits (excluding	0	Each	s	-	\$-	Retention: <to be="" determined="">.</to>
	valves and fittings)	i i	l l	1			Submit: Relevant Quality Records.
		1					Limits of Accuracy: <to be="" inserted="">.</to>
							Limits of Accuracy: <10 be inserted>. Payment: Number of now relief structures constructed.
HWR024	Flow Relief Structures	1	Each				
		i i	l l	1			Retention: <to be="" determined="">.</to>
		i					Submit: Relevant Quality Records.
							Limits of Accuracy: <to be="" inserted="">.</to>
HWR025	EMPTY	1			Т		
HWR026	Supply and construct vent stacks		each		1		Payment: Number of vent stacks constructed.
		i i	l l	1			Retention: <to be="" determined="">.</to>
		i i	l l	1			Submit: Relevant Quality Records.
		i i	l l	1			Limits of Accuracy: <to be="" inserted="">.</to>
HWR027	Preparation of line sheets	4000	m	\$ 1	1.00	\$ 4,000.00	
		i					Limits of Accuracy: <to be="" inserted="">.</to>
HWR028	Acceptance testing - rising main		m				Measurement: Length or pipelines constructed as per design.
		i i	l l	1			Submit: Satisfactory test records
		i i	l l	1			Limits of Accuracy: <to be="" inserted="">.</to>
HWR029	Miscellaneous	<u> </u>					
		l			-		
HWR000	Sub Total			·	_	\$1.724.600	

Sewer Pun	nping Station 150kW					
Item	Pump Station - Name	Qty	Unit	Kate \$/Unit	Amount \$	Application of Schedule of Rates
HW0201	Sewer Pumping Station 150kW 5.5m dia Pump(s)					
	Clear, excavate & backfill in OTR conditions, supply and construct pipework, pump station, includes siding aluminium hatch covers, screens & ancillary metal work & fittings. Supply & place formwork, reinforcement, concrete, roof slab, thrust blocks.	Item	Lump Sum	\$ 369,000.00	\$ 369,000.0	Payment: <insert appropriate="" of="" percentages="" reflect="" the="" to="" value="" work<br="">at key milestones eg excavation, pump well, metalwork etc>. Submit: Relevant Quality Records.</insert>
HW0202	Pumps for Pumping Stations - Supply and install pumps and associated fittings, connection to pipework, testing and commissioning.	Item	Lump Sum		Ş	Payment: <insert appropriate="" eg<br="" for="" key="" milestones="" percentages="">installation, precommissioning, commissioning>. Submit: Relevant Quality Records including those for pump test.</insert>
HW0203	Pumping Station Electricals					
HW0203.01	Pit and Conduit System	Item	Lump Sum	\$ 10,812.50		Payment: Percentage of work completed. Submit: Relevant Quality Records.
HW0203.02	LV Station Power Supply	Item	Lump Sum	\$ 14,375.00	\$ 14,375.00	Payment: Percentage of work completed. Submit: Relevant Quality Records.

HW0203.03					-		
HW0203.03	Station By-Pass arrangements	Item	Lump Sum		\$	-	Payment: Percentage of work completed. Submit: Relevant Quality Records.
HW0203.04	Electrical Demolition works	Item	Lump Sum		\$		Payment: Percentage of work completed.
HW0203.05	Switchboard	ltem	Lump Sum	\$ 137 187 50	S 1	37 187 50	Submit: Relevant Quality Records. Payment: Percentage of work completed.
HW0203.06	Switchboard	Item	Lump Sum	\$ 137,187.50	\$ 1	37,187.50	Submit: Relevant Quality Records.
	PLC / Telemetry Hardware	Item	Lump Sum	\$ 14,437.50	\$	14,437.50	Payment: Percentage of work completed. Submit: Relevant Quality Records.
HW0203.07	PLC / Telemetry / Scada Engineering and Software Development	Item	Lump Sum	\$ 28,450.00	\$	28,450.00	Payment: Percentage of work completed.
HW0203.08	Stainless Steel Generator Box Cable Tray 8	ltem	Lumo Sum	\$ 12.437.50	s	12 437 50	Submit: Relevant Quality Records. Payment: Percentage of work completed.
HW0203.09	Metering Box	item	Lump Sum	\$ 12,437.50	\$	12,437.50	Submit: Relevant Quality Records, Payment: Percentage of work completed.
	Building Services (Electrical)	Item	Lump Sum	\$ 11,062.50	\$	11,062.50	Submit: Relevant Quality Records.
HW0203.10	Pressure Transmitter/Gauge Board	Item	Lump Sum	s -	\$		Payment: Percentage of work completed. Submit: Relevant Quality Records.
HW0203.11	Installation/Cabling (Electrical)	Item	Lump Sum	\$ 26.625.00	s	26.625.00	Payment: Percentage of work completed.
HW0204	Empty	nam	comp dam	• 20,020.00	÷	20,020.00	Submit: Relevant Quality Records.
HW0205	Empty						
HW0206	Service Location	Item	Lump Sum	\$ 1,815.0	\$	1,815.00	Payment: Maximum of 10% shall be due each month until 70% of the
HW0207	Excavation below design depth including	0	m3	\$ 70.0	s		amount has been paid. Remainder at Practical Completion. Measurement: Cubic metres excavated based on thickness of
11110207	disposal of excavated material (Contingent	0	110	• 10.0	Ť		excavation by design cross section of the structure for which
	Item)						excavation has been undertaken.
							Submit: Relevant Quality Records.
HW0208	Extra over Civil Works for excavation in rock:	0	m3	\$ 120.0	\$		Measurement: Actual cubic metres of rock excavated within the design
							dimensions of the structure. Submit: Relevant Quality Records.
HW0209							Limits of Accuracy: <to be="" inserted="">.</to>
HW0209	Cut and fill earthworks including compaction:	0	m3	\$ 25.0	s		Measurement: Actual cubic metres of earthworks completed in accordance with the design.
							Submit: Relevant Quality Records.
HW0210	Supply & place ballast (Contingent Item)	0	tonne	\$ 90.0	s		Limits of Accuracy: <to be="" inserted="">. Measurement: Actual tonnes placed as directed.</to>
11110210	Supply & place ballast (Contingent item)	0	torne	a 50.0			Submit: Relevant Quality Records including certified weighbridge
							dockets.
HW0211	Import and place select fill including	0	m3	\$ 65.0	s		Limits of Accuracy: <to be="" inserted="">. Measurement: Actual cubic metres placed as directed by the</to>
	compaction <may be="" contingent="" item=""></may>						Superintendent or placed in accordance with the design.
							Submit: Relevant Quality Records. Limits of Accuracy: <to be="" inserted="">.</to>
HW0212	Construct access road and hardstand						
HW0212.01	Prepare subgrade		m2	\$ 4.2			Measurement: Actual square metres in accordance with the design. Submit: Relevant Quality Records.
							Limits of Accuracy: <to be="" inserted="">.</to>
HW0212.02	Supply, place and compact 150mm thick basecourse		m2	\$ 37.0			Measurement: Actual square metres in accordance with the design. Submit: Relevant Quality Records.
				\$ 47.0			Limits of Accuracy: <to be="" inserted="">.</to>
HW0212.03	Supply, place and compact 200mm thick basecourse		m2	\$ 47.0			Measurement: Actual square metres in accordance with the design. Submit: Relevant Quality Records.
							Limits of Accuracy: <to be="" inserted="">.</to>
HW0212.04	Supply, place and compact 250mm thick basecourse		m2	\$ 51.0			Measurement: Actual square metres in accordance with the design. Submit: Relevant Quality Records.
							Limits of Accuracy: <to be="" inserted="">.</to>
HW0212.05	Supply, place and compact two coat bitumen seal		m2	\$ 26.0	1 -		Measurement: Actual square metres in accordance with the design. Submit: Relevant Quality Records.
							Limits of Accuracy: <to be="" inserted="">.</to>
HW0212.06	Supply, place and compact 30mm thick asphalt bitumen seal		m2	\$ 37.0			Measurement: Actual square metres in accordance with the design. Submit: Relevant Quality Records.
							Limits of Accuracy: <to be="" inserted="">.</to>
HW0212.07	Concrete kerb & gutter	0	m	\$ 110.00	s		Limits of Accuracy: <to be="" inserted="">. Measurement: Actual metres in accordance with the design.</to>
HW0212.07		0	m	\$ 110.00	s		Limits of Accuracy: <to be="" inserted="">.</to>
HW0212.07 HW0212.08		0	m m2	\$ 110.00 \$ 178.00	s		Limits of Accuracy: <to be="" inserted="">- Measurement: Actual metres in accordance with the design. Submit: Relevant Quality Records. Limits of Accuracy: <to be="" inserted="">- Measurement: Actual square metres in accordance with the design.</to></to>
	Concrete kerb & gutter	-					Limits of Accuracy. <to be="" inserted=""> Measurement. Accula merces in accordance with the design. Submit: Relevant Quality Records. Limits of Accuracy. <to be="" inserted=""> Measurement. Accula square metres in accordance with the design. Submit: Relevant Quality Records.</to></to>
	Concrete kerb & gutter Concrete driveway Supply all plant, material and labour to	-					Limits of Accuracy: <to be="" inserted="">- Measurement: Actual metres in accordance with the design. Submit: Relevant Quality Records. Limits of Accuracy: <to be="" inserted="">- Measurement: Actual square metres in accordance with the design.</to></to>
HW0212.08	Concrete kerb & gutter	-					Limits of Accuracy. <10 be inserted- Measurement: Actual metres in accordance with the design. Submit: Relevant Quality Records. Limits of Accuracy. <10 be inserted- Measurement: Actual square metres in accordance with the design. Submit: Relevant Quality Records. Limits of Accuracy. <10 be inserted
HW0212.08 HW0213	Concrete kerb & gutter Concrete driveway Supply all plant, material and labour to undertake the following Piling works:	-	m2				Limits of Accuracy. <10 be inserted- Measurement: Actual metres in accordance with the design. Submit: Relevant Quality Records. Limits of Accuracy. <10 be inserted Measurement: Actual square metres in accordance with the design. Submit: Relevant Quality Records. Limits of Accuracy. <10 be inserted Measurement: Actual metres in accordance with the design. Submit: Relevant Quality Records.
HW0212.08 HW0213 HW0213.01	Concrete kerb & gutter Concrete driveway Supply all plant, material and labour to <u>undertake the following Pling works:</u> Treated timber mini ples	0	m2 m		\$		Limits of Accuracy. <10 be inserted>
HW0212.08 HW0213	Concrete kerb & gutter Concrete driveway Supply all plant, material and labour to undertake the following Piling works:	-	m2				Limits of Accuracy. <10 be inserted- Measurement: Actual metres in accordance with the design. Submit: Relevant Quality Records. Limits of Accuracy. <10 be inserted Measurement: Actual square metres in accordance with the design. Submit: Relevant Quality Records. Limits of Accuracy. <10 be inserted Measurement: Actual metres in accordance with the design. Submit: Relevant Quality Records.
HW0212.08 HW0213 HW0213.01 HW0213.02	Concrete kerb & gutter Concrete driveway Supply all plant, material and labour to understate the following Plane works: Treated timber mit plane Reinforced concrete bored piles	0	m2 m		\$		Limits of Accuracy. <10 be inserted>. Measurement: Actual metres in accordance with the design. Submit: Relevant Quality Records. Limits of Accuracy. <10 be inserted>. Measurement: Actual square metres in accordance with the design. Submit: Relevant Quality Records. Limits of Accuracy. <10 be inserted>. Measurement: Actual metres in accordance with the design. Submit: Relevant Quality Records. Measurement: Actual metres in accordance with the design. Submit: Relevant Quality Records. Payment: Percentage of work completed. <consider %="" at="" milestones="" payments=""> Submit: Relevant Quality Records.</consider>
HW0212.08 HW0213 HW0213.01	Concrete kerb & gutter Concrete driveway Supply all plant, material and labour to <u>undertake the following Pling works:</u> Treated timber mini ples	0	m2 m		\$		Limits of Accuracy. <10 be inserted- Measurement: Actual metres in accordance with the design. Submit: Relevant Quality Records. Limits of Accuracy. <10 be inserted- Naeasurement: Actual square metres in accordance with the design. Submit: Performance of the serted- limits of Accuracy. <10 be inserted- Naeasurement: Actual metres in accordance with the design. Submit: Relevant Quality Records. Limits of Accuracy. <10 be inserted- Naeasurement: Actual metres in accordance with the design. Submit: Relevant Quality Records. Submit: Relevant Quality Records.
HW0212.08 HW0213 HW0213.01 HW0213.02 HW0214	Concrete kerb & gutter Concrete driveway Supply all plant, material and tabour to supply all plant, material and tabour to superhate. the following Relaxing Wall works:	0	m2 m Lump Sum	\$ 178.00	\$		Limits of Accuracy. <10 be inserted>
HW0212.08 HW0213 HW0213.01 HW0213.02 HW0214.01	Concrete kerb & gutter Concrete kerb & gutter Concrete driveway Supply all plant, material and labour to undertake the following Plane works: Treated timber mini plane Restforced concrete bored piles Supply all plant, material and labour to undertake the following Retaining Wall works: Timber(Kopera Log up to 1.5 m light)	0	m2 m Lump Sum m2	\$ 178.00 \$ 300.00	\$		Limits of Accuracy. <10 be inserted>
HW0212.08 HW0213 HW0213.01 HW0213.02 HW0214	Concrete kerb & gutter Concrete driveway Supply at plant, material and labour to undertake the following Plana works: Treated timber mini ples Reinforced concrete bored piles Supply at plant, material and labour to undertake the following Retaining Wall works: Timker(Rospens Log) up to 1.5m high Concrete Keystone up to 1m high	0	m2 m Lump Sum	\$ 178.00	\$		Limits of Accuracy. <10 be inserted>. Limits of Accuracy. <10 be inserted>. Submit: Relevant Quality Records. Limits of Accuracy. <10 be inserted>. Measurement: Actual equire metres in accordance with the design. Submit: Relevant Quality Records. Limits of Accuracy. <10 be inserted>. Measurement: Actual equire metres in accordance with the design. Submit: Relevant Quality Records. Jumits of Accuracy. <10 be inserted>. Measurement: Actual metres in accordance with the design. Submit: Relevant Quality Records. Measurement: Actual square metres in accordance with the design. Submit: Relevant Quality Records. Measurement: Actual square metres in accordance with the design. Submit: Relevant Quality Records. Submit: Relevant Quality Records. Submit: Relevant Quality Records. Limits of Accuracy: <70 be inserted>. Limits of Accuracy: <70 be inserted>.
HW0212.08 HW0213 HW0213.01 HW0213.02 HW0213.02 HW0214.01 HW0214.03	Concrete kerb & gutter Concrete driveway Supply all plant, material and tabour to supply all plant, material and tabour to supervise the second plant. Reinforced concrete bored piles Reinforced concrete bored piles Supply all plant, material and tabour to undertable the following Retaining Wall works: Timbert(Koppens Log) up to 1.5m High Concrete Keystone but hom High Concrete Keystone hom Hig	0	m2 m Lump Sum m2 m2 m2	\$ 178.00 \$ 300.0 \$ 380.0 \$ 560.0	\$		Limits of Accuracy. <10 be inserted>. Limits of Accuracy. <10 be inserted>. Measurement: Accurate metrics in accordance with the design. Submit: Relevant Quality Records. With a service of Accuracy of the inserted>. Limits of Accuracy. <10 be inserted>. Measurement: Acculat enters in accordance with the design. Submit: Relevant Quality Records. Limits of Accuracy. <10 be inserted>. Measurement: Acculat enters in accordance with the design. Submit: Relevant Quality Records. Limits of Accuracy. <10 be inserted>. Limits of
HW0212.08 HW0213.01 HW0213.01 HW0213.02 HW0214.01 HW0214.01	Concrete keyto & gutter Concrete keyto and tabour to supply at plant, material and tabour to untertrate the following Plant works Treated timber mini plant Resifurced concrete bored piles Supply at plant, material and tabour to untertain the following Relaming Wat untertain the following Relaming Wat untertained the following Relaming Wat untertained the following Relaming Wat untertained the following Relaming Wat Concrete Keytone up to 1 m high Concrete Keytone between the mad Sm	0	m2 m Lump Sum m2 m2	\$ 178.00 \$ 300.0 \$ 380.0	\$		Limits of Accuracy.

		_				
HW0214.06	Concrete Crib Block between 2m and 3m high		m2	\$ 704.00		Limits of Accuracy: <to be="" inserted="">.</to>
HW0215	Acid sulphate soil					
HW0215.01	Initial testing for acid sulphate soils and	5	per test	\$ 110.00	\$ 550.00	
HW0215.02	prepare and submit report Establish treatment facility	Item	Lump Sum		s -	Limits of Accuracy: <to be="" inserted=""> Payment: 100% after completion of treatment facility.</to>
HW0215.02	Establish treatment facility	item	Lump Sum		s -	Payment: 100% after completion of treatment facility.
HW0215.03	Handling, treatment and testing of acid		m3	\$ 60.00		Measurement: Cubic metres within the design cross section of the structure
	sulphate soils					for which excavation has been undertaken.
						Submit: Test results confirming satisfactory treatment.
HW0215.04	Disposal off site of acid sulphate soil		tonne	\$ 122.00		Limits of Accuracy: <to be="" inserted=""> Measurement: Tonnes transported from the site.</to>
rtwu215.04	Disposal off site of acid sulphate sol		tonne	\$ 122.00		Submit: Weighbridge dockets.
						Limits of Accuracy: <to be="" inserted=""></to>
HW0216	Series Pump Pit Structure	Item	Lump Sum		s	Payment: <insert appropriate="" at="" key<="" of="" percentages="" reflect="" td="" the="" to="" value="" work=""></insert>
						milestones eg excavation, reinforced concrete, metalwork etc>.
						Submit: Relevant Quality Records.
HW0217	Supply and Install valve pit concrete	Item	Lump Sum	s	s	Payment: <insert appropriate="" of="" percentages="" reflect="" td="" the="" to="" value="" work<=""></insert>
	formwork, reinforced concrete complete with					at key milestones eg excavation, reinforced concrete, metalwork etc>.
	aluminium tread plate covers and including excavation and backfill					Submit: Relevant Quality Records.
HW0218	Supply and install pipework items inside	ltem	Lump Sum	\$ 15.120.00	\$ 15.120.0	Payment: Valued at percentage of work completed. Retention of 20%
1110210	valve pit	item	cump Sum	\$ 10,120.00	φ 10,120.01	arrayment: valued at percentage of work completed. Retention of 20% <
	ture pr					Submit: Relevant Quality Records.
HW0219	Supply and Install additional pipe Items	Item	Lump Sum	S	S	Payment: Valued at percentage of work completed. Retention of 20%
	outside station			-		<pre><or other="" percentage=""> until satisfactory testing.</or></pre>
						Submit: Relevant Quality Records.
HW0220	Supply and install pipework items inside	Item	Lump Sum	s	s	Payment: Valued at percentage of work completed. Retention of 20%
	station					<or other="" percentage=""> until satisfactory testing.</or>
HW0221					-	Submit: Relevant Quality Records.
HWU221	Supply and install Type 2 or 4 flow relief structures in accordance with Dros SCP-502	Item	Lump Sum		\$	Payment: Valued at percentage of work completed. Retention of 20% <or other="" percentage=""> until satisfactory testing.</or>
	and SCP-505					Submit: Relevant Quality Records.
HW0222	Supply and install emergency storage		L/m			Payment: Valued at percentage of work completed. Retention of 20%
	structures					<pre><or other="" percentage=""> until satisfactory testing.</or></pre>
						Submit: Relevant Quality Records.
HW0223	Supply and install fan forced ventilation	Item	Lump Sum		s	Payment: Valued at percentage of work completed. Retention of 20%
						<or other="" percentage=""> until satisfactory testing.</or>
HW0224					-	Submit: Relevant Quality Records.
HWU224	Supply and install Soil Bed Filter	Item	Lump Sum		\$	Payment: Valued at percentage of work completed. Retention of 20% <or other="" percentage=""> until satisfactory testing.</or>
						Submit: Relevant Quality Records.
HW0225	Supply and Install Strainers	Item	Lump Sum		s	Payment: Valued at percentage of work completed. Retention of 20%
					•	<pre><or other="" percentage=""> until satisfactory testing.</or></pre>
						Submit: Relevant Quality Records.
HW0226	Supply and Install Series Bypass	Item	Lump Sum		\$	Payment: Valued at percentage of work completed up to 80%.
						Remainder at Practical Completion.
						Submit: Relevant Quality Records.
HW0227	Landscaping	Item	Lump Sum	\$	\$	Payment: 100% at completion.
HW0228	Miscellaneous					Submit: Relevant Quality Records.
HW0228	Preparation and submission of Operation and	Item	Lump Sum		s -	Payment: 100% at Practical Completion.
11110229	Maintenance Information	nem	cump Sum		÷ -	Submit: Complying Work As Constructed Information.
HW0230	Pre commissioning and commissioning	Item	Lump Sum	\$ 8.000.00	\$ 8.000.00	
			p ourn	+ 0,000.00	+ 0,000.00	Remainder at Practical Completion.
						Submit: Relevant Quality Records.
HW0231	Preparation and submission of Work as	Item	Lump Sum	\$ 6,000.00	\$ 6,000.00	
	Constructed Information					Submit: Complying Work As Constructed Information.
HW2SP	Sub Total				\$655,873	

Item No.	Item Description	Qty	Unit		Amount	Application of Schedule of Rates
HW0009	Restoration - Pipelines:				•	Payment: 100% after completion.
HW0009.01	Concrete kerb & gutter	0	m	\$ 110.00	\$-	Measurement: Lineal metres restored within Minimum Trench Width. Limits of Accuracy: <to be="" inserted="">.</to>
HW0009.02	Concrete driveway	0	m2	\$ 178.00	\$.	Measurement: Square metres restored based on actual length by Minimum Trench Width. Limits of Accuracy: <to be="" inserted=""></to>
HW0009.03	Exposed aggregate & stamped driveway	0	m2	\$ 220.00	\$-	Measurement: Square metres restored based on actual length by Minimum Trench Width. Limits of Accuracy: <to be="" inserted=""></to>
HW0009.04	Concrete footpath	0	m2	\$ 155.00	\$ -	Measurement: Square metres restored based on actual length by Minimum Trench Width. Limits of Accuracy: <to be="" inserted=""></to>
HW0009.05	Bitumen footpath	0	m2	\$ 117.00	\$-	Measurement: Square metres restored based on actual length by Minimum Trench Width. Limits of Accuracy: <to be="" inserted=""></to>
HW0009.06	Gravel pavement	0	m2	\$ 69.00	\$.	Measurement: Square metres restored based on actual length by Minimum Trench Width. Limits of Accuracy: <to be="" inserted=""></to>
HW0009.07	Bitumen pavement		m2			Measurement: Square metres restored based on actual length by Minimum Trench Width. Limits of Accuracy: <to be="" inserted=""></to>
HW0009.08	AC pavement		m2			Measurement: Square metres restored based on actual length by Minimum Trench Width. Limits of Accuracy: <to be="" inserted=""></to>

HW0011.04	Disposal off site of acid sulphate soil	tonne		Measurement: Tonnes transported from the site. Submit: Weighbridge dockets.
	-			Submit: Test results confirming satisfactory treatment.
HW0011.03	Handling, treatment and testing of acid sulphate soils	m3		Measurement: Cubic metres excavated based on thickness of ASS by actual length by Minimum Trench Width.
HW0011.02	Establish treatment facility	 Item		Payment: 100% after completion of treatment facility.
	prepare and submit report	1		Limits of Accuracy: <to be="" inserted="">.</to>
HW0011.01	Initial testing for acid sulphate soils and	per test		Submit: Result for each test.
HW0011	Acid sulphate soil		 	Limits of Accuracy: <to be="" inserted="">.</to>
	disposal of excess excavated material			actual length by Minimum Trench Width.
HW0010	Extra over item for Excavation in rock and	m3		Measurement: Cubic metres excavated based on thickness of rock by
				Limits of Accuracy: <to be="" inserted=""></to>
1100005.12	Hydromaidin	1112		Minimum Trench Width.
HW0009 12	Hydromulch	 m2		Limits of Accuracy: <to be="" inserted=""> Measurement: Square metres restored based on actual length by</to>
				Minimum Trench Width.
HW0009.11	Grass seeding	m2		Measurement: Square metres restored based on actual length by
				Limits of Accuracy: <to be="" inserted=""></to>
				Minimum Trench Width.
HW0009.10	Turf	m2		Measurement: Square metres restored based on actual length by
				Limits of Accuracy: <to be="" inserted=""></to>
		m2		Measurement: Square metres restored based on actual length by Minimum Trench Width.

a.	TOTAL ESTIMATED CONTRACT AWARD SUM	\$	2,573,797.23
3.	PRE-CONSTRUCTION COST (Table 10)		
HW0016	Design	\$	308,855.67
HW0017	Project Management of Design	\$	71,771.13
HW0018	Land Matters	\$	-
HW0024	Community Consultation		
	Sub Total(B1)	\$	380,626.80
	Pre construction contingency (30% of B1)	\$	114,188.04
	TOTAL PRE-CONSTRUCTION COST (B)	\$	494,814.84
	CONSTRUCTION COST		
2.	CONSTRUCTION COST Total Estimated Contract Award Sum (A)	ş	2,573,797.23
с. НW0019		s s	2,573,797.23
C. HW0019 HW0020	Total Estimated Contract Award Sum (A)	\$ \$ \$	2,573,797.23
	Total Estimated Contract Award Sum (A) Principal Supplied Pipe (as applicable)	\$ \$ \$ \$	2,573,797.23 - - -
HW0020	Total Estimated Contract Award Sum (A) Principal Supplied Pipe (as applicable) Principal Supplied Valves and Flowmeters (as applicable)	\$ \$ \$ \$	2,573,797.23 - - - 187,500.00
HW0020 HW0021	Total Estimated Contract Award Sum (A) Principal Supplied Pipe (as applicable) Principal Supplied Valves and Flowmeters (as applicable) Principal Supplied Fittings (as applicable)	\$ \$ \$ \$ \$ \$	- - 187,500.00
HW0020 HW0021 HW0022	Total Estimated Contract. Award Sum (A) Principal Supplied Pipe (as applicable) Principal Supplied Valves and Flowmeters (as applicable) Principal Supplied Fittings (as applicable) Pump Station HV Power Supply	\$ \$ \$ \$ \$ \$ \$ \$	-
HW0020 HW0021 HW0022	Total Estimated Contract Award Sum (A) Principal Supplied Pipe (as applicable) Principal Supplied Valex and Flowmeters (as applicable) Principal Supplied Fittings (as applicable) Pump Station HV Power Supply Construction Management (Table 11)	\$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$	- 187,500.00 205,903.78 2,967,201.01
HW0020 HW0021 HW0022	Total Estimated Contract Award Sum (A) Principal Supplied Tyles (as applicable) Principal Supplied Yalves and Flowmeters (as applicable) Principal Supplied Fittings (as applicable) Pump Station HY Power Supply Construction Management (Table 11) Sub Total (C1)	\$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$	- - 187,500.00 205,903.78

\$ 4,352,176.15 TOTAL PRELIMINARY PROJECT ESTIMATE (B+C) (Preliminary Estimate)

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PROJECT DESCRIPTION:

Option 2 (Common Rising Main) - Western WWPS

Item No.	Item Description	Qty	Unit	Rate \$/Unit		Amount	Application of Schedule of Rates
						\$	
HW0001	All work not included elsewhere in this schedule	Item	Lump Sum	\$ 16,110.00		16,110.00	Payment: Maximum of 10% shall be due each month until 70% of the amount has been paid. Remainder at Practical Completion.
HW0002	Site Establishment <insert \$="" max=""></insert>	Item	Lump Sum	\$ 15,000.00	÷	15,000.00	Payment: 100% after completion.
HW0003	Site Disestablishment <insert \$="" min=""></insert>	Item	Lump Sum	\$ 15,000.00	1	15,000.00	Payment: 100% after completion.
HW0004	Preparation and implementation of the Construction EMP	Item	Lump Sum	\$ 3,000.00	\$	3,000.00	Payment: Maximum of 30% on submission of complying Construction EMP, then 10% per month up to maximum of 80%. Remainder at Practical Completion. Submit: Construction EMP.
HW0005	Preparation and implementation of the Safety Management Plan.	Item	Lump Sum	\$ 5,000.00	\$	5,000.00	Payment: Maximum of 30% on submission of complying plan, then 10% per month up to maximum of 80%. Remainder at Practical Completion. Submit: Safety Management Plan.
HW0006	Preparation and implementation of the Traffic Control Plan.	Item	Lump Sum	\$ 4,200.00	\$	4,200.00	Payment: Maximum of 30% on submission of complying Traffic Control Plan, then 10% per month up to maximum of 80%. Remainder at Practical Completion.
HW0007	Preparation and Implementation of Quality Management Plan	Item	Lump Sum	\$ 8,855.04	\$	8,855.04	Payment: Maximum of 30% on submission of complying Quality Management Plan, then 10% per month up to maximum of 80%. Remainder at Practical Completion.
Common F	RM - East WWPS			Pata		Amount	
Item	Pump Station - Name	Qty	Unit	Rate \$/Unit		Amount \$	Application of Schedule of Rates
HW0101	Common RM - East WWPS 3.8m dia 2 Pump(s)						
	Clear, excavate & backfill in OTR conditions, supply and construct pipework, pump station, includes sliding aluminium hatch covers, screens & ancillary metal work & fittings. Supply & picce formwork, reinforcement, concrete, roof slab, thrust blocks.	Item	Lump Sum	\$ 369,000.0	s	369,000.01	Payment: <insert appropriate="" of="" percentages="" reflect="" the="" to="" value="" work<br="">at key milestones ge accavation, pump well, metalwork etc>. Submit: Relevant Quality Records.</insert>
HW0102	Pumps for Pumping Stations - Supply and install pumps and associated fittings, connection to pipework, testing and commissioning.	2	Lump Sum	\$ 54,000.0	\$	108,000.01	Payment: <insert appropriate="" eg<br="" for="" key="" milestones="" percentages="">installation, precommissioning, commissioning>. Submit: Relevant Quality Records including those for pump test.</insert>
HW0103.01	Pit and Conduit System	Item	Lump Sum	\$ 10,975.00	\$	10,975.00	Payment: Percentage of work completed. Submit: Relevant Quality Records.
HW0103.02	LV Station Power Supply	Item	Lump Sum	\$ 14,375.00	\$	14,375.00	Payment: Percentage of work completed. Submit: Relevant Quality Records.
HW0103.05	Switchboard	Item	Lump Sum	\$ 166,037.50	\$	166,037.50	Payment: Percentage of work completed. Submit: Relevant Quality Records.
HW0103.06	PLC / Telemetry Hardware	Item	Lump Sum	\$ 14,437.50	\$	14,437.50	Payment: Percentage of work completed. Submit: Relevant Quality Records.
HW0103.07	PLC / Telemetry / Scada Engineering and Software Development	Item	Lump Sum	\$ 28,450.00	\$	28,450.00	Payment: Percentage of work completed. Submit: Relevant Quality Records.
HW0103.08	Stainless Steel Generator Box Cable Tray & Metering Box	Item	Lump Sum	\$ 22,362.50	\$	22,362.50	Payment: Percentage of work completed. Submit: Relevant Quality Records.
HW0103.09	Building Services (Electrical)	Item	Lump Sum	\$ 13,125.00	\$	13,125.00	Payment: Percentage of work completed. Submit: Relevant Quality Records.
HW0103.11	Installation/Cabling (Electrical)	Item	Lump Sum	\$ 26,625.00	\$	26,625.00	Payment: Percentage of work completed. Submit: Relevant Quality Records.
HW0104	Empty				T		and the second se
HW0105	Empty						
HW0106	Service Location	Item	Lump Sum	\$ 866.4	\$	866.41	amount has been paid. Remainder at Practical Completion.
HW0115.01	Initial testing for acid sulphate soils and prepare and submit report	5	per test	\$ 110.00	\$	550.00	Submit: Result for each test. Limits of Accuracy: <to be="" inserted=""></to>
					1		
HW0128	Miscellaneous						
HW0130	Pre commissioning and commissioning	Item	Lump Sum	\$ 8,000.00	ĵ.	8,000.00	Remainder at Practical Completion. Submit: Relevant Quality Records.
		Item Item	Lump Sum Lump Sum	\$ 8,000.00 \$ 6,000.00	ĵ.	8,000.00 6,000.00 \$788.804	Remainder at Practical Completion. Submit: Relevant Quality Records.

Item 1	No.	Item Description	Qty	Unit	Amount \$	Application of Schedule of Rates

A. TOTAL ESTIMATED CONTRACT AWARD SUM \$ 855,968.94

В.	PRE-CONSTRUCTION COST (Table 10)	
HW0016	Design	\$ 128,395.34
HW0017	Project Management of Design	\$ 35,679.07
HW0018	Land Matters	\$ -
HW0024	Community Consultation	
	Sub Total(B1)	\$ 164,074.41
	Pre construction contingency (30% of B1)	\$ 49,222.32

	CONSTRUCTION COST		
	Total Estimated Contract Award Sum (A)	\$ 855,968.94
HW0022	Pump Station HV Power Supply		\$ 187,500.00
HW0023	Construction Management (Table 11)		\$ 85,596.89
	Sub Total (C1		\$ 1,129,065.83
	Construction contingency (Table 12) (30% of C1)	Preliminary Estimate	\$ 338,719.7
	TOTAL CONSTRUCTION COST (C)		\$ 1,467,785.58

PROJECT DESCRIPTION:

Option 2 (Common Rising Main) - Eastern WWPS

Item No.	Item Description	Qty	Unit	Rate \$/Unit		Amount	Application of Schedule of Rates
						\$	
HW0001	All work not included elsewhere in this schedule	Item	Lump Sum	\$ 18,100.0	0\$		Payment: Maximum of 10% shall be due each month until 70% of the amount has been paid. Remainder at Practical Completion.
HW0002	Site Establishment <insert \$="" max=""></insert>	Item	Lump Sum	\$ 15,000.0	0\$	15,000.00	Payment: 100% after completion.
HW0003	Site Disestablishment <insert \$="" min=""></insert>	Item	Lump Sum	\$ 15,000.0	0\$	15,000.00	Payment: 100% after completion.
HW0004	Preparation and implementation of the Construction EMP	ltem	Lump Sum	\$ 3,000.0	0\$	3,000.00	Payment: Maximum of 30% on submission of complying Construction EMP, then 10% per month up to maximum of 80%. Remainder at Practical Completion. Submit: Construction EMP.
HW0005	Preparation and implementation of the Safety Management Plan.	Item	Lump Sum	\$ 5,000.0	0\$	5,000.00	Payment: Maximum of 30% on submission of complying plan, then 10% per month up to maximum of 80%. Remainder at Practical Completion. Submit: Safety Management Plan.
HW0006	Preparation and implementation of the Traffic Control Plan.	ltem	Lump Sum	\$ 4,200.0	0\$		Payment: Maximum of 30% on submission of complying Traffic Control Plan, then 10% per month up to maximum of 80%. Remainder at Practical Completion.
HW0007	Preparation and Implementation of Quality Management Plan	Item	Lump Sum	\$ 9,850.1	3\$	9,850.13	Payment: Maximum of 30% on submission of complying Quality Management Plan, then 10% per month up to maximum of 80%. Remainder at Practical Completion.
HW0008	Community Consultation	Item	Lump Sum	\$	\$	-	Payment: 10% per month up to maximum of 70%. Remainder at Practical Completion.

Common RM - East WWPS

Item	Pump Station - Name	Qty	Unit	Rate \$/Unit		Amount \$	Application of Schedule of Rates
HW0101	Common RM - East WWPS 5.5m dia 2 Pump(s)						
	Clear, excavate & backfill in OTR conditions, supply and construct pipework, pump station, nicludes silding aluminium hatch covers, screens & ancillary metal work & fittings. Supply & place formwork, reinforcement, concrete, roof slab, thrust blocks.	Item	Lump Sum	\$ 369,000.0	s	369,000.0	Payment: <insert appropriate="" of="" percentages="" reflect="" the="" to="" value="" work<br="">at key milestones og excavation, pump velil, metalwork etc>. Submit: Relevant Quality Records.</insert>
HW0102	Pumps for Pumping Stations - Supply and install pumps and associated fittings, connection to pipework, testing and commissioning.	2	Lump Sum	\$ 65,437.5	\$	130,875.0	Payment: <insert appropriate="" eg<br="" for="" key="" milestones="" percentages="">installation, precommissioning, commissioning>. Submit: Relevant Quality Records including those for pump test.</insert>
HW0103	Pumping Station Electricals						
HW0103.01	Pit and Conduit System	Item	Lump Sum	\$ 10,975.00	\$	10,975.00	Payment: Percentage of work completed. Submit: Relevant Quality Records.
HW0103.02	LV Station Power Supply	Item	Lump Sum	\$ 23,437.50	\$	23,437.50	Payment: Percentage of work completed. Submit: Relevant Quality Records.
HW0103.03	Station By-Pass arrangements	Item	Lump Sum		\$		Payment: Percentage of work completed. Submit: Relevant Quality Records.
HW0103.04	Electrical Demolition works	Item	Lump Sum		\$		Payment: Percentage of work completed. Submit: Relevant Quality Records.
HW0103.05	Switchboard	Item	Lump Sum	\$ 183,000.00	\$	183,000.00	Payment: Percentage of work completed. Submit: Relevant Quality Records.
HW0103.06	PLC / Telemetry Hardware	Item	Lump Sum	\$ 14,437.50	\$	14,437.50	Payment: Percentage of work completed. Submit: Relevant Quality Records.
HW0103.07	PLC / Telemetry / Scada Engineering and Software Development	Item	Lump Sum	\$ 28,450.00	\$	28,450.00	Payment: Percentage of work completed. Submit: Relevant Quality Records.
HW0103.08	Stainless Steel Generator Box Cable Tray 8 Metering Box	Item	Lump Sum	\$ 22,362.50	\$	22,362.50	Payment: Percentage of work completed. Submit: Relevant Quality Records.
HW0103.09	Building Services (Electrical)	Item	Lump Sum	\$ 13,125.00	\$	13,125.00	Payment: Percentage of work completed
HW0103.10	Pressure Transmitter/Gauge Board	Item	Lump Sum	s -	\$		Payment: Percentage of work completed. Submit: Relevant Quality Records.
HW0103.11	Installation/Cabling (Electrical)	Item	Lump Sum	\$ 28,625.00	\$	28,625.00	Payment: Percentage of work completed. Submit: Relevant Quality Records.
HW0104	Empty						
HW0105	Empty				1		
HW0106	Service Location	Item	Lump Sum	\$ 1,815.0	\$	1,815.0	Payment: Maximum of 10% shall be due each month until 70% of the amount has been paid. Remainder at Practical Completion.
HW0107	Excavation below design depth including disposal of excavated material (Contingent Item)	0	m3	\$ 70.0	c s		Measurement: Cubic metres accevated based on thickness of excavation by design cross section of the structure for which excavation has been undertaken. Submit: Relevant Quality Records. Limits of Accuracy: < To be inserted.
HW0108	Extra over Civil Works for excavation in rock:	0	m3	\$ 120.0	c s		Measurement: Actual cubic metres of rock excavated within the design dimensions of the structure. Submit: Relevant Quality Records. Limits of Accuracy: <co be="" inserted.<="" td=""></co>
HW0109	Cut and fill earthworks including compaction:	0	m3	\$ 25.0	c ş		Measurement: Actual cubic metres of earthworks completed in accordance with the design. Submit: Relevant Quality Records. Limits of Accuracy: <to be="" inserted.<="" td=""></to>

HW0110	Supply & place ballast (Contingent Item)	0	tonne	\$	90.00	\$		Measurement: Actual tonnes placed as directed. Submit: Relevant Quality Records including certified weighbridge dockets. Limits of Accuracy: <to be="" inserted=""></to>
HW0111	Import and place select fill including compaction <may be="" contingent="" item=""></may>	0	m3	\$	65.00	\$		Limits of Accuracy: STo he inserted> Measurement: Actual cubic metres placed as directed by the Superintendent or placed in accordance with the design. Submit: Relevant Quality Records. Limits of Accuracy: STo he inserted>
HW0112	Construct access road and hardstand							
HW0112.01	Prepare subgrade		m2	s	4.20			Measurement: Actual square metres in accordance with the design. Submit: Relevant Quality Records. Limits of Accuracy: <to be="" inserted="">.</to>
HW0112.02	Supply, place and compact 150mm thick basecourse		m2	s	37.00			Measurement: Actual square metres in accordance with the design. Submit: Relevant Quality Records. Limits of Accuracy: <to be="" inserted="">.</to>
HW0112.03	Supply, place and compact 200mm thick basecourse		m2	s	47.00			Measurement: Actual square metres in accordance with the design. Submit: Relevant Quality Records. Limits of Accuracy: <to be="" inserted="">.</to>
	Supply, place and compact 250mm thick basecourse		m2	s				Measurement: Actual square metres in accordance with the design. Submit: Relevant Quality Records. Limits of Accuracy: <to be="" inserted="">.</to>
HW0112.05	Supply, place and compact two coat bitumen seal		m2	s	26.00			Measurement: Actual square metres in accordance with the design. Submit: Relevant Quality Records. Limits of Accuracy: <to be="" inserted="">.</to>
HW0112.06	Supply, place and compact 30mm thick asphalt bitumen seal		m2	s	37.00			Measurement: Actual square metres in accordance with the design. Submit: Relevant Quality Records. Limits of Accuracy: <to be="" inserted="">.</to>
HW0112.07	Concrete kerb & gutter	0	m	\$	110.00	\$		Measurement: Actual metres in accordance with the design. Submit: Relevant Quality Records. Limits of Accuracy: <to be="" inserted="">.</to>
HW0112.08	Concrete driveway	0	m2	\$	178.00	\$		Measurement: Actual square metres in accordance with the design. Submit: Relevant Quality Records. Limits of Accuracy: <to be="" inserted="">.</to>
HW0113	Supply all plant, material and labour to undertake the following Piling works:		1	1	_			
HW0113.01	undertake the following Piling works: Treated timber mini piles		m					Measurement: Actual metres in accordance with the design. Submit: Relevant Quality Records. Limits of Accuracy: <to be="" inserted="">.</to>
HW0113.02	Reinforced concrete bored piles	Item	Lump Sum			\$		Payment: Percentage of work completed. <consider %="" at<br="" payments="">milestones> Submit: Relevant Quality Records.</consider>
HW0114	Supply all plant, material and labour to undertake the following Retaining Wall works:							Submit: Relevant Quality Records. Measurement: Actual square metres in accordance with the design. Submit: Relevant Quality Records.
HW0114.01	Timber(Koppers Log) up to 1.5m high		m2	\$	300.00			Limits of Accuracy: <to be="" inserted="">.</to>
HW0114.02	Concrete Keystone up to 1m high		m2	\$	380.00			Limits of Accuracy: <to be="" inserted="">.</to>
HW0114.03 HW0114.04	Concrete Keystone between 1m and 3m high Concrete Keystone greater than 3m high		m2 m2	s s	560.00			Limits of Accuracy: <to be="" inserted="">.</to>
HW0114.04					630.00			Limits of Accuracy: <to be="" inserted="">.</to>
HW0114.05 HW0114.06	Concrete Crib Block up to 2m high		m2	\$				Limits of Accuracy: <to be="" inserted="">.</to>
	Concrete Crib Block between 2m and 3m high		m2	s	704.00			Limits of Accuracy: <to be="" inserted="">.</to>
HW0115	Acid sulphate soil							
HW0115.01	Initial testing for acid sulphate soils and prepare and submit report	5	per test	\$	110.00	\$	550.00	Limits of Accuracy: <to be="" inserted=""></to>
HW0115.02	Establish treatment facility	Item	Lump Sum			\$	-	Payment: 100% after completion of treatment facility.
HW0115.03	Handling, treatment and testing of acid sulphate soils		m3	s	60.00			Measurement: Cubic metres within the design cross section of the structure for which excavation has been undertaken. Submit: Test results confirming satisfactory treatment.
HW0115.04	Disposal off site of acid sulphate soil		tonne	s	122.00			Limits of Accuracy: <to be="" inserted=""> Measurement: Tonnes transported from the site.</to>
				3	122.00			Submit: Weighbridge dockets. Limits of Accuracy: <to be="" inserted=""></to>
HW0116	Series Pump Pit Structure	Item	Lump Sum			ŝ		Payment <insert appropriate="" at="" key<br="" of="" percentages="" reflect="" the="" to="" value="" work="">milestones eg excavation, reinforced concrete, metalwork etc>. Submit: Relevant Quality Records.</insert>
HW0117	Supply and Install valve pit concrete formwork, reinforced concrete complete with aluminium tread plate covers and including excavation and backfill	Item	Lump Sum	s		ŵ		Payment: <insert appropriate="" of="" percentages="" reflect="" the="" to="" value="" work<br="">at key milestones eg excavation, reinforced concrete, metalwork etc>. Submit: Relevant Quality Records.</insert>
HW0118	Supply and install pipework items inside valve pit	Item	Lump Sum	s		s		Payment: Valued at percentage of work completed. Retention of 20% <or other="" percentage=""> until satisfactory testing. Submit: Relevant Quality Records.</or>
HW0119	Supply and Install additional pipe Items outside station	ltem	Lump Sum	s	47,660.00	\$	47,660.00	Payment: Valued at percentage of work completed. Retention of 20% <or other="" percentage=""> until satisfactory testing. Submit: Relevant Quality Records.</or>
HW0120	Supply and install pipework items inside station	Item	Lump Sum	s		ŝ		Payment: Valued at percentage of work completed. Retention of 20% <or other="" percentage=""> until satisfactory testing. Submit: Relevant Quality Records.</or>
HW0121	Supply and install Type 2 or 4 flow relief structures in accordance with Drgs SCP-502 and SCP-505	Item	Lump Sum			\$		Payment: Valued at percentage of work completed. Retention of 20% <or other="" percentage=""> until satisfactory testing. Submit: Relevant Quality Records.</or>
HW0122	Supply and install emergency storage structures		L/m	1				Payment: Valued at percentage of work completed. Retention of 20% <or other="" percentage=""> until satisfactory testing.</or>

HW0123	Supply and install fan forced ventilation	Item	Lump Sum		\$	Payment: Valued at percentage of work completed. Retention of 20%	
						<or other="" percentage=""> until satisfactory testing.</or>	
						Submit: Relevant Quality Records.	
HW0124	Supply and install Soil Bed Filter	Item	Lump Sum		\$	Payment: Valued at percentage of work completed. Retention of 20%	
						<or other="" percentage=""> until satisfactory testing.</or>	
						Submit: Relevant Quality Records.	
HW0125	Supply and Install Strainers	Item	Lump Sum		\$	Payment: Valued at percentage of work completed. Retention of 20%	
						<or other="" percentage=""> until satisfactory testing.</or>	
						Submit: Relevant Quality Records.	
HW0126	Supply and Install Series Bypass	Item	Lump Sum		\$	Payment: Valued at percentage of work completed up to 80%.	
						Remainder at Practical Completion.	
						Submit: Relevant Quality Records.	
HW0127	Landscaping	Item	Lump Sum	\$	ş	Payment: 100% at completion.	
						Submit: Relevant Quality Records.	
HW0128	Miscellaneous						
HW0129	Preparation and submission of Operation and	Item	Lump Sum		ş -	Payment: 100% at Practical Completion.	
	Maintenance Information		-			Submit: Complying Work As Constructed Information.	
HW0130	Pre commissioning and commissioning	Item	Lump Sum	\$ 8,000.00	\$ 8,000.00	Payment: 50% at completion of satisfactory precommissioning.	
						Remainder at Practical Completion.	
						Submit: Relevant Quality Records.	
HW0131	Preparation and submission of Work as	Item	Lump Sum	\$ 6,000.00	\$ 6,000.00	Payment: 100% at Practical Completion.	
	Constructed Information					Submit: Complying Work As Constructed Information.	
HW1SP	Sub Total				\$888,313		

Item No.	Item Description	Qty	Unit	Amount \$	Application of Schedule of Rates
HW0009	Restoration - Pipelines:				Payment: 100% after completion.
HW0009.01	Concrete kerb & gutter		m		Measurement: Lineal metres restored within Minimum Trench Width. Limits of Accuracy: <to be="" inserted="">.</to>
HW0009.02	Concrete driveway		m2		Measurement: Square metres restored based on actual length by Minimum Trench Width. Limits of Accuracy: <to be="" inserted=""></to>
HW0009.03	Exposed aggregate & stamped driveway		m2		Measurement: Square metres restored based on actual length by Minimum Trench Width. Limits of Accuracy: <to be="" inserted=""></to>
HW0009.04	Concrete footpath		m2		Measurement: Square metres restored based on actual length by Minimum Trench Width. Limits of Accuracy: CTo be inserted>
HW0009.05	Bitumen footpath		m2		Measurement: Square metres restored based on actual length by Minimum Trench Width. Limits of Accuracy: <to be="" inserted=""></to>
HW0009.06	Gravel pavement		m2		Measurement: Square metres restored based on actual length by Minimum Trench Width. Limits of Accuracy: <to be="" inserted=""></to>
HW0009.07	Bitumen pavement		m2		Measurement: Square metres restored based on actual length by Minimum Trench Width. Limits of Accuracy: -To be inserted>
HW0009.08	AC pavement		m2		Measurement: Square metres restored based on actual length by Minimum Trench Width. Limits of Accuracy: <to be="" inserted=""></to>
HW0009.09	Pavers		m2		Measurement: Square metres restored based on actual length by Minimum Trench Width. Limits of Accuracy: -To be inserted>
HW0009.10	Turf		m2		Measurement: Square metres restored based on actual length by Minimum Trench Width. Limits of Accuracy: <to be="" inserted=""></to>
HW0009.11	Grass seeding		m2		Measurement: Square metres restored based on actual length by Minimum Trench Width. Limits of Accuracy: <to be="" inserted=""></to>
HW0009.12	Hydromulch		m2		Measurement: Square metres restored based on actual length by Minimum Trench Width. Limits of Accuracy: -To be inserted>
HW0010	Extra over item for Excavation in rock and disposal of excess excavated material		m3		Measurement: Cubic metres excavated based on thickness of rock by actual length by Minimum Trench Width. Limits of Accuracy: -To be inserted>.
HW0011	Acid sulphate soil				
HW0011.01	Initial testing for acid sulphate soils and prepare and submit report		per test		Submit: Result for each test. Limits of Accuracy: <to be="" inserted="">.</to>
HW0011.02	Establish treatment facility		Item		Payment: 100% after completion of treatment facility.
HW0011.03	Handling, treatment and testing of acid sulphate soils		m3		Measurement: Cubic metres excavated based on thickness of ASS by actual length by Minimum Trench Width. Submit: Test results confirming satisfactory treatment. Limits of Accuracy: CTo be inserted.
HW0011.04	Disposal off site of acid sulphate soil		tonne		Measurement: Tonnes transported from the site. Submit: Weighbridge dockets. Limits of Accuracy: -To be inserted>
HW0012	Preconstruction record				
HW0012.01	Photographic	Item	Lump Sum	\$	 Payment: 70% on submission of the Photographic record. Remainder at Practical Completion.
HW0012.02	Video	Item	Lump Sum	\$ -	Payment: 70% on submission of the Video record. Remainder at Practical Completion.
HW0012.03	CCTV	Item	Lump Sum	\$	Payment: 70% on submission of the CCTV record. Remainder at Practical Completion.
HW0013	Work as Constructed Information <insert min<br="">\$></insert>	Item	Lump Sum	s	Payment: 100% at Practical Completion.

L	TOTAL ESTIMATED CONTRACT AWARD SUM	\$	958,462.63
	PRE-CONSTRUCTION COST (Table 10)		
HW0016	Design	\$	143,769.39
HW0017	Project Management of Design	\$	38,753.88
HW0018	Land Matters	\$	-
HW0024	Community Consultation		
	Sub Total(B1)	\$	182,523.27
	Pre construction contingency (30% of B1)	\$	54,756.98
	TOTAL PRE-CONSTRUCTION COST (B)	\$	237,280.26
	CONSTRUCTION COST		
	CONSTRUCTION COST Total Estimated Contract Award Sum (A)	\$	958,462.63
HW0019	Total Estimated Contract Award Sum (A)	s s	958,462.63
HW0019 HW0020			958,462.63 - -
	Total Estimated Contract Award Sum (A) Principal Supplied Pipe (as applicable)	\$	958,462.63 - - -
HW0020	Total Estimated Contract Award Sum (A) Principal Supplied Pipe (as applicable) Principal Supplied Valves and Flowmeters (as applicable) Principal Supplied Fittings (as applicable)	\$ \$	958,462.63 - - - 187,500.00
HW0020 HW0021	Total Estimated Contract Award Sum (A) Principal Supplied Pipe (as applicable) Principal Supplied Valves and Flowmeters (as applicable) Principal Supplied Fittings (as applicable) Pump Station AV Power Supply	s s s	- - - 187,500.00
HW0020 HW0021 HW0022	Total Estimated Contract Award Sum (A) Principal Supplied Pipe (as applicable) Principal Supplied Valves and Flowneters (as applicable) Principal Supplied Fittings (as applicable) Pump Station HV Power Supply Construction Management (Table 11)	s s s s	-
HW0020 HW0021 HW0022	Total Estimated Contract Award Sum (A) Principal Supplied Pipe (as applicable) Principal Supplied Valves and Flowmeters (as applicable) Principal Supplied Fittings (as applicable) Pump Station AV Power Supply		- - 187,500.00 95,846.26
HW0020 HW0021 HW0022	Total Estimated Contract Award Sum (A) Principal Supplied Pile (as applicable) Principal Supplied Valves and Flowmeters (as applicable) Principal Supplied Fittings (as applicable) Pump Station HY Power Supply Construction Management [Table 11] Sub Total (C1)	* * * * * *	- 187,500.01 95,846.21 1,241,808.81

PROJECT DESCRIPTION:

Option 2 (Common Rising Main) - Western RM

Item No.	Item Description	Qty	Unit	Rate \$/Unit	Amount \$	Application of Schedule of Rates
HW0001	All work not included elsewhere in this schedule	Item	Lump Sum	\$ 13,401.00	\$ 13,401	00 Payment: Maximum of 10% shall be due each month until 70% of the amount has been paid. Remainder at Practical Completion.
HW0002	Site Establishment <insert \$="" max=""></insert>	Item	Lump Sum	\$ 15,000.00	\$ 15,000	⁰⁰ Payment: 100% after completion.
HW0003	Site Disestablishment <insert \$="" min=""></insert>	Item	Lump Sum	\$ 15,000.00	\$ 15,000	⁰⁰ Payment: 100% after completion.
	Preparation and implementation of the Construction EMP	Item	Lump Sum	\$ 4,000.00	0 \$ 4,000	⁰⁰ Payment: Maximum of 30% on submission of complying Construction EMP, then 10% per month up to maximum of 80%. Remainder at Practical Completion. Submit: Construction EMP
HW0005	Preparation and implementation of the Safety Management Plan.	Item	Lump Sum	\$ 9,000.00	9,000	⁰⁰ Payment: Maximum of 30% on submission of complying plan, then 10% per month up to maximum of 80%. Remainder at Practical Completion. Submit: Safety Management Plan.
HW0006	Preparation and implementation of the Traffic Control Plan.	Item	Lump Sum	\$ 2,000.00	\$ 2,000	Payment: Maximum of 30% on submission of complying Traffic Control Plan, then 10% per month up to maximum of 80%. Remainder at Practical Completion.
HW0007	Preparation and Implementation of Quality Management Plan	ltem	Lump Sum	\$ 7,500.70	\$ 7,500	70 Payment: Maximum of 30% on submission of complying Quality Management Plan, then 10% per month up to maximum of 80%. Remainder at Practical Completion.
HW0008	Community Consultation	Item	Lump Sum	\$ -	Ş	 Payment: 10% per month up to maximum of 70%. Remainder at Practical Completion.

Sewer Pip	eline - Rising - section will be present if o	ne or more	e rising mai	is are	specified Rate	_	Amount	
Item	Construction of Sewer Rising Mains	Qty	Unit		Kate \$/Unit		Amount \$	Application of Schedule of Rates
HWR001	Service Location	Item	Lump Sum	\$	2,925.00	\$	2,925.00	Payment: Maximum of 10% shall be due each month until 70% of the amount has been paid. Remainder at Practical Completion.
HWR002	Supply all valves	Item	Lump Sum			\$	-	Payment: Percentage of valves and flowmeters supplied. Submit: Relevant Quality Records including Compliance Certificates.
HWR003	Supply all fittings	Item	Lump Sum			\$	-	Payment: Percentage of fittings supplied. Submit: Relevant Quality Records including Compliance Certificates.
HWR004	Supply all pipe materials including detector tape, pipe protection wrapping, rubber rings and lubricant for following pipe sizes:							Measurement: Actual metres (effective length) of pipe delivered to site. Submit: Relevant Quality Records including Compliance Certificates. Note: Limits of Accuracy to be inserted for each pipe size.
HWR005	Clear, excavate, lay, join, bed, backfil & test pipelines (installation). Up to 1.5 m depth to invert in OTR.							Measurement: Actual unterse of pipe installed with design depth of secondoico up to and including 1. Installed with design depth of mean pipe and including 1. Installed with the statisticatory testing. Submit: Relevant Quality Records including as constructed lengths, levels and coordinates. Limits of Accuracy: <1 or be inserted
11ED03	Nominal DN300 DICL (Trench type 3)	3900	m	\$	89.25	\$	348,075.00	
HWR006	Clear, excavate, lay, join, bed, backfiil & test pipelines (installation). Nominal depth >1.5m to 3.0m to invert in OTR.							Measurement: Actual metres of pipe installed with design depth of excavation > 1.5m to and including 3.0m. Retention: 10%-conther appropriate percentage- until satisfactory testing. Submit: Relevant Quality Records including as constructed lengths, levels and coordinates. Limits of Accuracy..
HWR007	Clear, excavate, lay, join, bed, backfil & test pipelines (installation). Nominal depth >3.0m to 4.5m to invert in OTR.							Measurement: Achail metres of pipe installed with design depth of secondoirs > 3 who and including 4 Sm. Retention: 10% scr other appropriate percentages until satisfactory testing. Submit: Relevent Quality Records including as constructed lengths, levels Limits of Accuracy. <to be="" inserted="">.</to>
HWR008	Clear, excavate, lay, join, bed, backfill & test pipelines (installation). Nominal depth >4.5m to invert in OTR.							Measurement: Actual metres of pipe installed with design depth of excavation > 4.5m. Retention: 10% -cor other appropriate percentage> until satisfactory testing. Submit: Relevant Quality Records including as constructed lengths, levels and coordinates. Limits of Accuracy.
HWR009	EMPTY							
HWR010	Extra over rate for installation for Additional compaction		m3	\$	19.13			Interaurement: Cutic metres of additional compaction based on thickness of length by Minimum Trench Width. Submit: Relevant Quality Records. Limits of Accuracy: <to be="" inserted="">.</to>
HWR011	Excavate below specified design depth where directed including disposal of excess excavated material		m3	\$	78.75			measurement. Cutor menes or excavation unected dased on mickness by- length by Minimum Trench Width. Submit: Relevant Quality Records. Limits of Accuracy: <to be="" inserted="">.</to>
HWR012	Extra over rate for installation to Supply & place & compact non cohesive material.		m3					Measurement: Cubic metres or non conesive material based on thickness of length by Minimum Trench Width. Submit: Relevant Quality Records. Limits of Accuracy: <to be="" inserted="">.</to>

HWR014 HWR015 HWR016	Extra over rate for installation for supply, labe and compact stabilised sand cement (14.1) backful Extra over rate for installation for Supply, place and compact aggregate Supply & place ballast External Dewatering of trench including		m3 m3	s	337.50			Measurement. Cubic metres of statilised sand cement based on finickness by length by Minimum Trench Width. Submit: Relevant Quality Records. Limits of Accuracy: <to be="" inserted="">. measurement. Cubic metres or adjutegate based on mickness by length by</to>
HWR014 I HWR015 I HWR016 I	(14-1) backfill Extra over rate for installation for Supply, place and compact aggregate Supply & place ballast							Submit: Relevant Quality Records. Limits of Accuracy: <to be="" inserted="">.</to>
HWR014 I HWR015 HWR016 I	Erra over rate for installation for Supply, place and compact aggregate Supply & place ballast							Limits of Accuracy: <to be="" inserted="">.</to>
HWR015 HWR016	place and compact aggregate							
HWR015 HWR016	place and compact aggregate							
HWR015 HWR016	Supply & place ballast		tonnae					Minimum Trench Width.
HWR016			toonee					Submit: Relevant Quality Records.
HWR016			tonnee					Limits of Accuracy: <to be="" inserted="">.</to>
HWR016								Limits of Accuracy. < To be inserted>.
	Evternal Dewaterion of trench including			\$	90.00			Measurement: Actual tonnes placed as directed.
	External Devrataring of trench inclusion							Submit: Relevant Quality Records including certified weighbridge dockets.
	External Dewaterion of trench including							Limits of Accuracy: <to be="" inserted="">.</to>
	External Dewatering of trench including							Linits of Accuracy. <10 be inserted>.
								measurement: Length of pipeline for which external dewatering is
			m					agreed with the Superintendent and provided, measured along the axis
HWD017	establishment & disestablishment							of the pipeline between the first and last spear point.
HWD017								
HW/2017								Submit: Relevant Quality Records.
	Supply and place treated timber piling for		m					Measurement: Actual metres from pipe invert to toe of pile.
1	pipe support							Submit: Relevant Quality Records.
								Limits of Accuracy: <to be="" inserted="">.</to>
HWR018	Road / creek crossings					Γ		Measurement: Length in metres of casing installed.
	-		l l	1				Submit: Relevant Quality Records.
			l l	1				Limits of Accuracy: <to be="" inserted="">.</to>
HWR019	Extra over rate for installation of trenchless		m	-		1		Measurement: Length in metres of casing installed.
	technique under existing rail line							Submit: Relevant Quality Records.
								Limits of Accuracy: <to be="" inserted="">.</to>
HWR020	Supply and installation of pipe aerial creek					-		measurement. Length in metres of crossing installed in accordance with
	crossing including supply of MSCL pipe with							design.
	protection coating, internal and external		l l	1				Retention: 10% <or appropriate="" other="" percentage=""> until satisfactory testing.</or>
	welding, testing of welds. For the following							Note: Consider other milestone retentions.
	MSCL pipe sizes:							Submit: Relevant Quality Records.
	mode ppe area.							Limits of Accuracy: <to be="" inserted="">.</to>
								Linito di Addatady. 110 be indeneda :
	Supply and installation of pipe river crossing							
	including supply of MSCL pipe, internal and							
	external welding, testing of welds and 150							
	thick concrete encasement. Also includes							
	mobilisation and demobilisation of dredge(if required) excavation & disposal of excavated							Measurement: Length in metres of casing installed.
								Retention: 10% <or appropriate="" other="" percentage=""> until satisfactory testing.</or>
	material, backfilling, lay, bed and test for the							Note: Consider other milestone retentions.
	following MSCL pipe sizes:							Submit: Relevant Quality Records.
								Limits of Accuracy: <to be="" inserted="">.</to>
HWR022	Bulkheads and Trenchstops in accordance	Item	Lump Sum			s		Payment: Number of buikneads & trenchstops constructed.
	with WSAA drawing SEW-1206	inc.ini	camp oam			Ť		Submit: Relevant Quality Records.
	nar frorer drawing oc fri 1200							Limits of Accuracy: <to be="" inserted="">.</to>
HWR023	Supply and Install valve pits (excluding	0	Each	s		s		Payment: Number of valve pits constructed.
	valves and fittings)	0	Edui	Ť		Ŷ	-	Retention: <to be="" determined="">.</to>
	raives and iturigs)		l l	1				Submit: Relevant Quality Records.
			l l	1				Limits of Accuracy: <to be="" inserted="">.</to>
HWR024	Flow Relief Structures		Each					Payment: Number of now relief structures constructed.
mWRU24	Flow Relier Structures		Each	1				Retention: <to be="" determined="">.</to>
			l l	1				Submit: Relevant Quality Records.
								Limits of Accuracy: <to be="" inserted="">.</to>
								Limits of Accuracy. NTO be inserted?.
	EMPTY							
HWR026	Supply and construct vent stacks		each					Payment: Number of vent stacks constructed.
								Retention: <to be="" determined="">.</to>
								Submit: Relevant Quality Records.
			l l	1				Limits of Accuracy: <to be="" inserted="">.</to>
HWR027	Preparation of line sheets	3900	m	\$	1.00	\$	3,900.00	
			l l	1		Ľ		Limits of Accuracy: <to be="" inserted="">.</to>
HWR028	Acceptance testing - rising main		m			-		Measurement: Length of pipelines constructed as per design.
	receptance reasing - nally fildli							Submit: Satisfactory test records
								Limits of Accuracy: <to be="" inserted="">.</to>
HWR029	Miscellaneous							
mmd29	miscellalleous							
HWR000	Sub Total					4	\$354.900	

Item No.	Item Description	Qty	Unit		Amount \$	Application of Schedule of Rates
HW0009	Restoration - Pipelines:					Payment: 100% after completion.
HW0009.01	Concrete kerb & gutter	0	m	\$ 110.00	\$-	Measurement: Lineal metres restored within Minimum Trench Width. Limits of Accuracy: <to be="" inserted="">.</to>
HW0009.02	Concrete driveway	0	m2	\$ 178.00	s -	Measurement: Square metres restored based on actual length by Minimum Trench Width. Limits of Accuracy: <to be="" inserted=""></to>
HW0009.03	Exposed aggregate & stamped driveway	0	m2	\$ 220.00	\$-	Measurement: Square metres restored based on actual length by Minimum Trench Width. Limits of Accuracy: <to be="" inserted=""></to>
HW0009.04	Concrete footpath	0	m2	\$ 155.00	\$ -	Measurement: Square metres restored based on actual length by Minimum Trench Width. Limits of Accuracy: <to be="" inserted=""></to>
HW0009.05	Bitumen footpath	0	m2	\$ 117.00	s -	Measurement: Square metres restored based on actual length by Minimum Trench Width. Limits of Accuracy: <to be="" inserted=""></to>

								· · · · · · · · · · · · · · · · · · ·
HW0009.06	Gravel pavement	0	m2	\$	69.00	\$	-	Measurement: Square metres restored based on actual length by
								Minimum Trench Width.
								Limits of Accuracy: <to be="" inserted=""></to>
HW0009.07	Bitumen pavement		m2					Measurement: Square metres restored based on actual length by
								Minimum Trench Width.
								Limits of Accuracy: <to be="" inserted=""></to>
HW0009.08	AC pavement		m2					Measurement: Square metres restored based on actual length by
								Minimum Trench Width.
								Limits of Accuracy: <to be="" inserted=""></to>
HW0009.09	Pavers		m2					Measurement: Square metres restored based on actual length by
								Minimum Trench Width.
								Limits of Accuracy: <to be="" inserted=""></to>
HW0009.10	Turf		m2					Measurement: Square metres restored based on actual length by
								Minimum Trench Width.
								Limits of Accuracy: <to be="" inserted=""></to>
HW0009.11	Grass seeding		m2					Measurement: Square metres restored based on actual length by
								Minimum Trench Width.
								Limits of Accuracy: <to be="" inserted=""></to>
HW0009 12	Hydromulch		m2					Measurement: Square metres restored based on actual length by
11110003.12	nyalamatan							Minimum Trench Width.
								Limits of Accuracy: <to be="" inserted=""></to>
HW0010	Extra over item for Excavation in rock and		m3			_		Measurement: Cubic metres excavated based on thickness of rock by
milliono	disposal of excess excavated material		1115					actual length by Minimum Trench Width.
	disposal of excess excavated material							Limits of Accuracy: <to be="" inserted="">.</to>
HW0011	Acid sulphate soil					-		Limits of Accuracy: <10 be inserted>.
HW0011.01				-				Submit: Result for each test
HWUUTIUT	Initial testing for acid sulphate soils and	52	per test	s	110.00	\$	5,720.00	
	prepare and submit report							Limits of Accuracy: <to be="" inserted="">.</to>
HW0011.02	Establish treatment facility		Item					Payment: 100% after completion of treatment facility.
HW0011.03	Handling, treatment and testing of acid	4387.5	m3	\$	60.00	\$	263,250.00	Measurement: Cubic metres excavated based on thickness of ASS by
	sulphate soils							actual length by Minimum Trench Width.
								Submit: Test results confirming satisfactory treatment.
								Limits of Accuracy: <to be="" inserted=""></to>
HW0011.04	Disposal off site of acid sulphate soil	0	tonne	\$	122.00	\$		Measurement: Tonnes transported from the site.
								Submit: Weighbridge dockets.
								Limits of Accuracy: <to be="" inserted=""></to>
HW0012	Preconstruction record							
HW0012.01	Photographic	Item	Lump Sum			s		Payment: 70% on submission of the Photographic record. Remainder
			Lanp odli			Ť		at Practical Completion.
HW0012.02	Video	ltem	Lump Sum			s		Payment: 70% on submission of the Video record. Remainder at
11110012.02	video	nem	cump Sum			Ŷ	-	Prayment: 70% on submission of the video record. Remainder at Practical Completion.
HW0012.03	CCTV	ltem	Lump Sum			s		Practical Completion. Payment: 70% on submission of the CCTV record. Remainder at
11110012.03	0017	nem	cump Sum			Ŷ	-	
1000040					04.000.00		04 000 0	Practical Completion.
HW0013	Work as Constructed Information <insert min<="" td=""><td>Item</td><td>Lump Sum</td><td>\$</td><td>31,200.00</td><td>\$</td><td>31,200.0</td><td>Payment: 100% at Practical Completion.</td></insert>	Item	Lump Sum	\$	31,200.00	\$	31,200.0	Payment: 100% at Practical Completion.
	\$>			L				

A. TOTAL ESTIMATED CONTRACT AWARD SUM

\$ 720,971.70

8.	PRE-CONSTRUCTION COST (Table 10)		
HW0016	Design	s	108,145.76
HW0017	Project Management of Design	\$	31,629.15
HW0018	Land Matters	\$	-
HW0024	Community Consultation		
	Sub Total(B1)	\$	139,774.91
	Pre construction contingency (30% of B1)	\$	41,932.47
	TOTAL PRE-CONSTRUCTION COST (B)	\$	181,707.38
	CONSTRUCTION COST		
	Total Estimated Contract Award Sum (A)	\$	720,971.70
HW0019	Principal Supplied Pipe (as applicable)	\$	-
11EDSS	Nominal DN300 DICL pipe	\$	694,200.00
HW0020	Principal Supplied Valves and Flowmeters (as applicable)	\$	-
HW0021	Principal Supplied Fittings (as applicable)	\$	-
HW0022	Pump Station HV Power Supply	\$	187,500.00
HW0023	Construction Management (Table 11)	\$	72,097.17
	Sub Total (C1)	\$	1,674,768.87
	Construction contingency	\$	502,430.66
	(Table 12) (30% of C1) Preliminary Estimate		
	TOTAL CONSTRUCTION COST (C)	S	2.177.199.53

PROJECT DESCRIPTION:

Option 2 (Common Rising Main) - Eastern RM

Item No.	Item Description	Qty	Unit	Rate \$/Unit	Amount \$	Application of Schedule of Rates
	All work not included elsewhere in this schedule	Item	Lump Sum	\$ 18,107.00	\$	Payment: Maximum of 10% shall be due each month until 70% of th amount has been paid. Remainder at Practical Completion.
HW0002	Site Establishment <insert \$="" max=""></insert>	Item	Lump Sum	\$ 15,000.00	\$ 15,000.00	Payment: 100% after completion.
HW0003	Site Disestablishment <insert \$="" min=""></insert>	Item	Lump Sum	\$ 15,000.00	\$ 15,000.00	Payment: 100% after completion.
HW0004	Preparation and implementation of the Construction EMP	ltem	Lump Sum	\$ 4,000.00	\$ 4,000.00	Payment: Maximum of 30% on submission of complying Construction EMP, then 10% per month up to maximum of 80%. Remainder at Practical Completion. Submit: Construction FMP.
HW0005	Preparation and implementation of the Safety Management Plan.	ltem	Lump Sum	\$ 9,000.00	\$ 9,000.00	Payment: Maximum of 30% on submission of complying plan, then 10% per month up to maximum of 80%. Remainder at Practical Completion. Submit: Safetv Management Plan.
HW0006	Preparation and implementation of the Traffic Control Plan.	ltem	Lump Sum	\$ 2,000.00	\$ 2,000.00	Payment: Maximum of 30% on submission of complying Traffic Control Plan, then 10% per month up to maximum of 80%. Remainder at Practical Completion.
	Preparation and Implementation of Quality Management Plan	ltem	Lump Sum	\$ 9,853.25	\$ 9,853.25	Payment: Maximum of 30% on submission of complying Quality Management Plan, then 10% per month up to maximum of 80%. Remainder at Practical Completion.
HW0008	Community Consultation	Item	Lump Sum	s -	\$ -	Payment: 10% per month up to maximum of 70%. Remainder at Practical Completion.

								Practical Completion.	
ewer Pin	eline - Rising - section will be present if o	ne or more	risina mair	ns are si	pecified				
ltem	Construction of Sewer Rising Mains	Qtv	Unit		Kate /Unit		Amount \$	Application of Schedule of Rates	1
HWR001	Service Location	ltem	Lump Sum	\$	5,581.80	\$	5,581.80		
HWR002	Supply all valves	Item	Lump Sum			\$		amount has been paid. Remainder at Practical Completion. Payment: Percentage of valves and howmeters supplied	
HWR003	Supply all fittings	Item	Lump Sum			\$		Submit: Relevant Quality Records including Compliance Certificates. Payment: Percentage or mongs supplied.	-
HWR004	Supply all pipe materials including detector					_		Submit: Relevant Quality Records including Compliance Certificates.	
	tape, pipe protection wrapping, rubber rings and lubricant for following pipe sizes:							Measurement: Actual metres (effective length) of pipe delivered to site. Submit: Relevant Quality Records including Compliance Certificates. Note: Limits of Accuracy to be inserted for each pipe size.	
HWR005	Clear, excavate, lay, join, bed, backfil & test pipelines (installation). Up to 1.5 m depth to invert in OTR.							Measurement: Actual metres of pipe installed with design depth of excavation up to and including 1.5m. Retention: 10% conther appropriate percentage> until satisfactory testing Submit: Relevant Quality Records including as constructed lengths, levels and coordinates. Umits of Accuracy; <to be="" inserted="">.</to>	
12DD03 HWR006	Nominal DN450 DICL (Trench type 3) Clear, excavate, lay, join, bed, backfil & test	4430	m	\$	161.98	\$	717,438.50		Pipeline 1 - area allowa
HWR005	pipelines (installation). Nominal depth >1.5m to 3.0m to invert in O TR.							Measurement: Actual metres of pipe installed with design depth of excavation > 1.5m to and including 3.0m. Retention: 10% <or appropriate="" other="" percentage=""> until satisfactory testing Submit: Relevant Quality Records including as constructed lengths, levels and coordinates. Limits of Accuracy: <to be="" inserted="">.</to></or>	
HWRUUT	Clear, excavate, lay, join, bed, backfil & test pipelines (installation). Nominal depth >3.0m to 4.5m to invert in OTR.							Measurement: Actual metres of pipe installed with design depth of excavation > 3 Join 6 and including 4 5m. Retention: 10% Retention: 10% and counting a sprograte percentage> until satisfactory testing submit: Relevant Quality Records including as constructed lengths, levels and coordinates. Limits of Accuracy: <1 b is inserted>. 	
HWR008	Clear, excavate, lay, join, bed, backfil & test pipelines (installation). Nominal depth >4.5m to invert in OTR.							Measurement: Actual metres of pipe installed with design depth of excrustion > 4.5 cm. Retention: 10% cor other appropriate percentages until satisfactory testing Submit: Relevant Quality Records including as constructed lengths, levels and coordinates. Limits of Accuracy: <10 be inserted>.	
HWR009	EMPTY								
HWR010	Extra over rate for installation for Additional compaction		m3	\$	22.95			Nessonement. Color Interes of administration paction based on microless by length by Minimum Trench Width. Submit: Relevant Quality Records. Limits of Accuracy: <to be="" inserted="">.</to>	
HWR011	Excavate below specified design depth when directed including disposal of excess excavated material		m3	\$	94.50			length by Minimum Trench Width. Submit: Relevant Quality Records. Limits of Accuracy: «To be inserted».	
HWR012	Extra over rate for installation to Supply & place & compact non cohesive material.		m3					Negation in the second of the	
HWR013	Extra over rate for installation for supply, place and compact stabilised sand cement (14:1) backfill		m3	\$	405.00			Measurement. Course meters of submised sand cement based of vincenss by length by Minimum Trench Width. Submit: Relevant Quality Records. Limits of Accuracy:	
HWR014	Extra over rate for installation for Supply, place and compact aggregate		m3					Measurement. Source metres of aggregate based on anothese by length by Minimum Trench Width. Submit: Relevant Quality Records. Limits of Accuracy: <to be="" inserted="">.</to>	
HWR015	Supply & place ballast		tonnes	\$	90.00			Measurement: Actual tonnes placed as directed. Submit: Relevant Quality Records including certified weighbridge dockets. Limits of Accuracy: <to be="" inserted="">.</to>	

					_		measurement: Length of pipeline for which external gewatering is
HWR016	External Dewatering of trench including establishment & disestablishment	4430	m		\$	443,000.00	agreed with the Superintendent and provided, measured along the axis of the pipeline between the first and last spear point. Submit: Relevant Quality Records.
HWR017	Supply and place treated timber piling for pip support		m				Measurement: Actual metres from pipe invent to toe of pile Submit: Relevant Quality Records. Limits of Accuracy: <to be="" inserted="">.</to>
HWR018	Road / creek crossings						Measurement: Lengen in menes of casing installed Submit: Relevant Quality Records. Limits of Accuracy: <to be="" inserted="">.</to>
HWR018.01	Irrawang	90	m	\$ 1,324.72	\$	119,225.00	
HWR019	Extra over rate for installation of trenchless technique under existing rail line		m				Measurement: Lengur III meres of casing instance Submit: Relevant Quality Records. Limits of Accuracy: <to be="" inserted="">.</to>
	Supply and installation of pipe aerial creek crossing including supply of MSCL pipe with protection coating, internal and external welding, testing of welds. For the following MSCL pipe sizes:						design. Retention: 10% <or appropriate="" other="" percentage=""> until satisfactory testing. Note: Consider other milestone retentions. Submit: Relevant Quality Records. Umits of Accuracy. <to be="" inserted="">.</to></or>
	Supply and installation of pipe river crossing including supply of MSCL pipe, internal and external welding, testing of welds and 150 hick concrete encasement. Also includes mobilisation and demobilisation of dredge(if required) execusion 6. disposed of execusided material, backfilling, lay, bed and test for the following MSCL pipe sizes:						Measurement: Length in metres of casing installed. Reterition: 10% or other appropriate percentage> until satisfactory testing. Note: Consider of unmiliation references. Submit: Refervant Quality Records. Limits of Accuracy: or Tole instender>.
HWR022	Bulkheads and Trenchstops in accordance with WSAA drawing SEW-1206	Item	Lump Sum		\$		Payment, Number of outwieaus a renunsiops constructed Submit: Relevant Quality Records. Limits of Accuracy: <to be="" inserted="">.</to>
HWR023	Supply and Install valve pits (excluding valve and fittings)	. 0	Each	\$	\$		raymen: wanter or varie pro consocieu Retention: <to be="" determine0<br="">Submit: Relevant Quality Records. Limits of Accuracy: <to be="" inserted="">.</to></to>
HWR024	Flow Relief Structures		Each				rayment, wanner on nov rener souccures constructed Retention: <to be="" determined="">. Submit: Relevant Quality Records. Limits of Accuracy: <to be="" inserted="">.</to></to>
HWR025	EMPTY						
HWR026	Supply and construct vent stacks		each				raymen, wanner or ven sacke consucces Retention: <to be="" determined="">. Submit: Retevant Quality Records. Limits of Accuracy: <to be="" inserted="">.</to></to>
HWR027	Preparation of line sheets	4430	m	\$ 1.00	\$	4,430.00	Limits of Accuracy: <to be="" inserted="">.</to>
HWR028	Acceptance testing - rising main		m				Measurement: Length of pipelines constructed as per design Submit: Satisfactory test records Limits of Accuracy: <to be="" inserted="">.</to>
HWR029	Miscellaneous						
HWR000	Sub Total				\$	1,289,675	

Item No.	Item Description	Qty	Unit		Amount	Application of Schedule of Rates
					\$	
HW0009	Restoration - Pipelines:			1		Payment: 100% after completion.
HW0009.01	Concrete kerb & gutter	0	m	\$ 110.	10 \$	Measurement: Lineal metres restored within Minimum Trench Width. Limits of Accuracy: <to be="" inserted="">.</to>
HW0009.02	Concrete driveway	0	m2	\$ 178.	10 \$	Measurement: Square metres restored based on actual length by Minimum Trench Width. Limits of Accuracy: <to be="" inserted=""></to>
HW0009.03	Exposed aggregate & stamped driveway	0	m2	\$ 220.	10 \$	Measurement: Square metres restored based on actual length by Minimum Trench Width. Limits of Accuracy: <to be="" inserted=""></to>
HW0009.04	Concrete footpath	0	m2	\$ 155.	10 \$ ·	Measurement: Square metres restored based on actual length by Minimum Trench Width. Limits of Accuracy: <to be="" inserted=""></to>
HW0009.05	Bitumen footpath	0	m2	\$ 117.	10 \$	Measurement: Square metres restored based on actual length by Minimum Trench Width. Limits of Accuracy: <50 be inserted>
HW0009.06	Gravel pavement	0	m2	\$ 69.	10 \$ ·	Measurement: Square metres restored based on actual length by Minimum Trench Width. Limits of Accuracy: <to be="" inserted=""></to>
HW0009.07	Bitumen pavement		m2			Measurement: Square metres restored based on actual length by Minimum Trench Width. Limits of Accuracy: STo be inserted>
HW0009.08	AC pavement		m2			Measurement: Square metres restored based on actual length by Minimum Trench Width. Limits of Accuracy: <to be="" inserted=""></to>
HW0009.09	Pavers		m2			Measurement: Square metres restored based on actual length by Minimum Trench Width. Limits of Accuracy: <to be="" inserted=""></to>
HW0009.10	Turf		m2			Measurement: Square metres restored based on actual length by Minimum Trench Width. Limits of Accuracy: <to be="" inserted=""></to>
HW0009.11	Grass seeding	7974	m2	\$ 7.	00 \$ 55,818.00	OMeasurement: Square metres restored based on actual length by Minimum Trench Width. Limits of Accuracy: <to be="" inserted=""></to>
HW0009.12	Hydromulch		m2			Measurement: Square metres restored based on actual length by Minimum Trench Width. Limits of Accuracy: <to be="" inserted=""></to>

HW0010	Extra over item for Excavation in rock and					
	Extra over item for Excavation in rock and disposal of excess excavated material		m3			Measurement: Cubic metres excavated based on thickness of rock by
	disposal of excess excavated material					actual length by Minimum Trench Width.
						Limits of Accuracy: <to be="" inserted="">.</to>
HW0011	Acid sulphate soil					
HW0011.01	Initial testing for acid sulphate soils and	1	per test	\$ 110.0	\$ 110.00	Submit: Result for each test.
	prepare and submit report					Limits of Accuracy: <to be="" inserted="">.</to>
HW0011.02	Establish treatment facility		Item			Payment: 100% after completion of treatment facility.
HW0011.03	Handling, treatment and testing of acid	135	m3	\$ 60.0	\$ 8,100.00	Measurement: Cubic metres excavated based on thickness of ASS by
	sulphate soils					actual length by Minimum Trench Width.
						Submit: Test results confirming satisfactory treatment.
						Limits of Accuracy: <to be="" inserted=""></to>
HW0011.04	Disposal off site of acid sulphate soil	Ó	tonne	\$ 122.0	\$	Measurement: Tonnes transported from the site.
						Submit: Weighbridge dockets.
						Limits of Accuracy: <to be="" inserted=""></to>
HW0012	Preconstruction record					
HW0012.01	Photographic	Item	Lump Sum		\$	Payment: 70% on submission of the Photographic record.
						Remainder at Practical Completion.
HW0012.02	Video	Item	Lump Sum		\$	Payment: 70% on submission of the Video record. Remainder at
						Practical Completion.
HW0012.03	CCTV	Item	Lump Sum		\$	Payment: 70% on submission of the CCTV record. Remainder at
						Practical Completion.
HW0013	Work as Constructed Information <insert min<="" td=""><td>Item</td><td>Lump Sum</td><td>\$ 35,440.0</td><td>\$ 35,440.00</td><td>Payment: 100% at Practical Completion.</td></insert>	Item	Lump Sum	\$ 35,440.0	\$ 35,440.00	Payment: 100% at Practical Completion.
	\$>					Payment: 100% at Practical Completion.

A. TOTAL ESTIMATED CONTRACT AWARD SUM \$ 1,462,103.55

В.	PRE-CONSTRUCTION COST (Table 10)	
HW0016	Design	\$ 175,452.43
HW0017	Project Management of Design	\$ 38,898.5
HW0018	Land Matters	\$ -
HW0024	Community Consultation	
	Sub Total(B1)	\$ 214,350.99
	Pre construction contingency (30% of B1)	\$ 64,305.3
	TOTAL PRE-CONSTRUCTION COST (B)	\$ 278,656.2
	CONSTRUCTION COST	
	Total Estimated Contract Award Sum (A)	\$ 1,462,103.5

	TOTAL CONSTRUCTION COST (C)	\$ 3,841,544.0
	(Table 12) (30% of C1) Preliminary Estimate	
	Construction contingency	\$ 886,510.1
	Sub Total (C1)	\$ 2,955,033.
HW0023	Construction Management (Table 11)	\$ 146,210.
HW0022	Pump Station HV Power Supply	\$
HW0021	Principal Supplied Fittings (as applicable)	\$
HW0020	Principal Supplied Valves and Flowmeters (as applicable)	\$
12DDSS	Nominal DN450 DICL pipe	\$ 1,346,720.0
HW0019	Principal Supplied Pipe (as applicable)	\$
	Total Estimated Contract Award Sum (A)	

PROJECT DESCRIPTION:

Option 2 (Common Rising Main) - Common Section

Item No.	Item Description	Qty	Unit	Rate \$/Unit	Amount	Application of Schedule of Rates	1
HW0001	All work not included elsewhere in this schedule	Item	Lump Sum	\$ 16,464.00	\$ 16,464.00	Payment: Maximum of 10% shall be due each month until 70% of the amount has been paid. Remainder at Practical Completion.	
HW0002	Site Establishment <insert \$="" max=""></insert>	Item	Lump Sum	\$ 15,000.00	\$ 15,000.00	Payment: 100% after completion.	1
HW0003	Site Disestablishment <insert \$="" min=""></insert>	Item	Lump Sum	\$ 15,000.00	\$ 15,000.00	Payment: 100% after completion.	1
HW0004	Preparation and implementation of the Construction EMP	ltem	Lump Sum	\$ 8,000.00	\$ 8,000.00	Payment: Maximum of 30% on submission of complying Construction EMP, then 10% per month up to maximum of 80%. Remainder at Practical Completion. Submit: Construction EMP.	
HW0005	Preparation and implementation of the Safety Management Plan.	Item	Lump Sum	\$ 18,000.00	\$ 18,000.00	10% per month up to maximum of 80%. Remainder at Practical Completion.	
HW0006	Preparation and implementation of the Traffic Control Plan. Preparation and Implementation of Quality	Item	Lump Sum	\$ 4,000.00 \$ 9.032.25	\$ 4,000.00 \$ 9.032.25	Submit: Safetv Management Plan. Payment: Maximum of 30% on submission of complying Traffic Control Plan, then 10% per month up to maximum of 80%. Remainder at Practical Completion. Payment: Maximum of 30% on submission of complying Quality	
	Management Plan				• 5,00L12	Remainder at Practical Completion.	
	eline - Rising - section will be present if o			Rate	Amount	Application of Schedule of Rates	1
Item HWR001	Construction of Sewer Rising Mains	Qty	Unit	\$/Unit \$ 10,980.00	\$ 10,990,00	Payment: Maximum of 10% shall be due each month until 70% of the	
HWR004		Item	Lump Sum	\$ 10,950.00	\$ 10,960.00	amount has been paid. Remainder at Practical Completion.	
HWR004	Supply all pipe materials including detector tape, pipe protection wrapping, rubber rings and lubricant for following pipe sizes: Clear, excavate, lav, join, bed, backfill & test					Measurement: Actual metres (effective length) of pipe delivered to site. Submit: Relevant Quality Records including Compliance Certificates. Note: Limits of Accuracy to be inserted for each pipe size.	
HWR005	Clear, excavate, lay, join, bed, backtil & test pipelines (installation). Up to 1.5 m depth to invert in OTR.					Measurement: Actual metres of pipe installed with design depth of excavation up to and including 1.5m. Retention: 10% var other appropriate percentage> until satisfactory testing Submit: Retevent Quality Records including as constructed lengths, levels and coordinates. Limits of Accuracy: <1 be inserted>.	
132D03 HWR006	Nominal DN500 DICL (Trench type 3)	2600	m	\$ 199.70	\$ 519,220.00		Pipeline 2 - area allowance
HWHOUS	Clear, excavate, lay, join, bed, backfill & test pipelines (installation). Nominal depth >1.5m to 3.0m to invert in OTR.					Measument: Actual metres of pipe installed with design depth of excavation >1.5 m6 and including 3.0m. Retention: 10% Retention: 10% rot of and return of a pipe of	
HWR007	Clear, excavate, lay, join, bed, backfil & test pipelines (installation). Nominal depth >3.0m to 4.5m to invert in OTR.					Messurement: Actual metres of pipe installed with design depth of excavation > 3.0m to and including 4.5m. Retention: 10% confler appropriate processinges- until satisfactory testing Submit: Relevant Quality Records including as constructed lengths, levels and coordinates. Limits of Accuracy: <to be="" inserted="">.</to>	
HWR008	Clear, excavate, lay, join, bed, backfil & test pipelines (installation). Nominal depth >4.5m to invert in OTR.					Messurement: Actual metres of pipe installed with design depth of excavation > 4.5m. Retention: 105-con their appropriate percentage> until satisfactory testing Submit: Relevant Quality Records including as constructed lengths, levels and coordinates. Limits of Accuracy: <to be="" inserted="">.</to>	
HWR009	EMPTY					measurement. Length of pipenne for which external dewatering is	
HWR016	External Dewatering of trench including establishment & disestablishment	2600	m	\$ 1449.05	\$ 260,000.00 \$ 115,925.00	agreed with the Superintendent and provided, measured along the axis of the pipeline between the first and last spear point. Submit: Relevant Quality Records.	
HWR018.01 HWR020	Adelaide St Supply and installation of pipe aerial creek	80	m	> 1,449.06	\$ 115,925.00		1
	crossing including supply of MSCL pipe with protection coating, internal and external welding, testing of welds. For the following MSCL pipe sizes:					design. Retention: 10% <or appropriate="" other="" percentage=""> until satisfactory testing Note: Consider other milestone retentions. Submit: Relevant Quality Records. Limits of Accuracy: <to be="" inserted="">.</to></or>	
HWR021	Supply and installation of pipe river crossing including supply of MSCL pipe, internal and external welding, testing of welds and 150 thick concrete encasement. Also includes mobilisation and demobilisation of dredge (if required) excuvation & disposal of excuvated material, backfling, lay, bed and test for the following MSCL pipe sizes: EMPTY					Masurenert: Lengh in metres of casing installed. Retertion: 10% of their appropriate percentage> until satisfactory testing Note: Consider of metaleone retertions. Schmit: Reterant Quality Records. Unite of Accuracy - To be instellad- 	
HWR025	Preparation of line sheets	2600	m	\$ 1.00	\$ 2,600.00	Measurement: Length of pipelines constructed as per design	1
HWR029	Miscellaneous					Limits of Accuracy: <to be="" inserted="">.</to>	1
HWR000	Sub Total				\$908,725		4
							-
Item No.	Item Description	Qty	Unit		Amount \$	Application of Schedule of Rates	J

HW0009.11	Grass seeding	2600	m2	\$ 7.0	n e	18 200 00	Measurement: Square metres restored based on actual length by
	Chara accurry	2000		• 1.	Ť		Minimum Trench Width.
							Limits of Accuracy: <to be="" inserted=""></to>
HW0011.01	Initial testing for acid sulphate soils and	20	per test	\$ 110.0	0\$	2,200.00	Submit: Result for each test.
	prepare and submit report						Limits of Accuracy: <to be="" inserted="">.</to>
HW0011.03	Handling, treatment and testing of acid	2025	m3	\$ 60.0	0\$	121,500.00	Measurement: Cubic metres excavated based on thickness of ASS by
	sulphate soils						actual length by Minimum Trench Width.
							Submit: Test results confirming satisfactory treatment.
							Limits of Accuracy: <to be="" inserted=""></to>
HW0013	Work as Constructed Information <insert min<="" td=""><td>Item</td><td>Lump Sum</td><td>\$ 20,800.0</td><td>0 \$</td><td>\$ 20,800.00</td><td>Payment: 100% at Practical Completion.</td></insert>	Item	Lump Sum	\$ 20,800.0	0 \$	\$ 20,800.00	Payment: 100% at Practical Completion.
	φ-				+		

Α.	TOTAL ESTIMATED CONTRACT AWARD SU	M	\$	\$	1,156,921.2
3.	PRE-CONSTRUCTION COST (Table 10)				
HW0016	Design		s	5	138,830.55
HW0017	Project Management of Design		s	5	36,361.64
HW0018	Land Matters		s	5	-
HW0024	Community Consultation				
	Sub Total(B1)		s	5	175,192.19
	Pre construction contingency (30% of B	1)	s	5	52,557.6
	TOTAL PRE-CONSTRUCTION COST (B)		\$	5	227,749.8
	TOTAL PRE-CONSTRUCTION COST (B) CONSTRUCTION COST		\$	5	227,749.8
2.	TOTAL PRE-CONSTRUCTION COST (B)		s	5	1,156,921.2
132DSS	TOTAL PRE-CONSTRUCTION COST (B) CONSTRUCTION COST	·	s	5	1,156,921.2
132DSS HW0022	TOTAL PRE-CONSTRUCTION COST (B) CONSTRUCTION COST Total Estimated Contract Award Sum (A)		s s s	5 5 5 5	227,749.84 1,156,921.25 1,024,400.00 187,500.00
	TOTAL PRE-CONSTRUCTION COST (B) CONSTRUCTION COST Total Estimated Contract Award Sum (A) Nominal DN500 DICL pipe		s s s	5 5 5 5	1,156,921.2
HW0022	TOTAL PRE-CONSTRUCTION COST (B) CONSTRUCTION COST Total Estimated Contract Award Sum (A) Nominal DNS00 DICL pipe Pump Station HV Power Supply		s s s	5	1,156,921.2 1,024,400.0 187,500.0
HW0022	TOTAL PRE-CONSTRUCTION COST (B) CONSTRUCTION COST Total Estimated Contract Award Sum (A) Nominal DNSOD DICL pipe Pump Station HV Power Supply Construction Management (Table 11)		s s s		1,156,921.2 1,024,400.0 187,500.0 115,692.1
HW0022	TOTAL PRE-CONSTRUCTION COST (B) CONSTRUCTION COST Total Estimated Contract Award Sum (A) Nominal DNSCO DICL pipe Pump Station HV Power Supply Construction Management (Table 11) Sub Total (C1)	Preliminary Estimate	\$ \$ \$ \$ \$		1,156,921.2 1,024,400.0 187,500.0 115,692.1 2,484,513.3

TOTAL PRELIMINARY PROJECT ESTIMATE (B+C) (Preliminary Estimate) \$ 3,457,517.23

APPENDIX E – COST EFFECTIVENESS ANALYSIS

Option Reference Real Discount Rate		Option SE1A 7.0%																														
Length RM (m) Diam RM (mm) Pump Duty (L/s) Length GM (m)		6,400 500 356 2,000																														
Costs 2010/2011 Energy Cost Annual Real Energy Increase 2010/2011 GHG Cost Real GHG Increase		0.157 2.18% 25.00 3.52%	/ kWh / tonnes CO ₂ -e																													
FY Ending Discount Factor		Units	2012 1.00	2013 0.93	2014 0.86	2015 0.80	2016 0.75	2017 0.70	2018 0.65	2019 0.60	2020 0.56	2021 0.52	2022 0.48	2023 0.45	2024 0.42	2025 0.39	2026 0.36	2027 0.34	2028 0.31	2029 0.29	2030 0.27	2031 0.25	2032 0.23	2033 0.22	2034 0.20	2035 0.19	2036 0.18	2037 0.16	2038 0.15	2039 0.14	2040 0.13	2041 0.12
Developer Capital Costs (\$ 2010/2011)																																
Water Supply Mains Pump Station Reservoir Telemetry & SCADA		\$ \$ \$																														
Chemical Dosing Total Water Supply Cost		\$	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Sewer Initernal Transfer Gravity Mains Rising Mains Sewer Pump Station Telemetry & SCADA Chemical Dosing Total Sewer Cost		\$ \$ \$ \$	4,352,176 - - 2,373,766 16,419,624																													
Total Developer Capital Costs		\$	16,419,624	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Total Developer PV HWC Capital Costs (\$ 2010/2011)	16,419,624	5	16,419,624	-	-	-	-		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Water Supply Mains Pump Station Reservoir Telemetry & SCADA Chemical Dosing Total Water Supply Cost		\$ \$ \$ \$ \$		-																											-	-
Sewer Mains Pump Station Telemetry & SCADA Chemical Dosing Total Sewer Cost		\$ \$ \$ \$	-															238,950 238,950												-		238,950 238,950
Total HWC Capital Costs Total HWC Capital PV	109,583	s s	:	-	-	-	:	:	-	:	-	-	-	-	-	-	-	238,950 80,455	-	:	-	-	-	-	-	-	-	-	:	:	:	238,950 29,128
HWC Operating Costs (\$ 2010/2011)																																
Water Supply Mains Pump Station Reservoir Chemical Dosing Total Water Supply Cost	#DIV/0! #DIV/0! #DIV/0! #DIV/0!	\$ \$ \$ \$ \$	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Sewer Mains Pump Station	#DIV/0! #DIV/0!	s s																														
ET ADWF (L/s) ADWF (ML/y) Detention Time (hr) Dose Cost Rate (\$ML) Chemical Dosing Total Sever Cost Chemical Dosing PV	9.47% 636,693	\$ \$	200 2.2 69.4 162.6 99.0 6,869 7,402 7,402	400 4.4 138.8 81.3 99.0 <u>13,737</u> 14,461 13,448	600 6.6 208.1 54.2 99.0 20,606 21,574 18,659	800 8.8 277.5 40.6 99.0 27,474 28,700 23,085	1,000 11.0 346.9 32.5 87.0 <u>30,180</u> 31,657 23,681	1,200 13.2 416.3 27.1 87.0 36,216 37,960 26,408	1,400 15.4 485.7 23.2 87.0 42,252 44,263 28,638	1,600 17.6 555.0 20.3 75.0 41,628 43,895 26,412	1,800 19.8 624.4 18.1 75.0 46,831 49,368 27,626	2,000 22.0 693.8 16.3 75.0 52,034 54,841 28,540	2,200 24.2 763.2 14.8 75.0 57,238 60,315 29,191	2,400 26.4 832.6 13.5 75.0 62,441 65,789 29,61 2	2,600 28.6 901.9 12.5 75.0 67,645 71,263 29,830	2,800 30.8 971.3 11.6 75.0 72,848 76,737 29,873	3,000 33.0 1040.7 10.8 62.0 64,523 68,669 24,861	3,200 35.2 1110.1 10.2 62.0 68,824 73,242 24,661	3,400 37.4 1179.4 9.6 62.0 73,126 77,814 24,366	3,600 39.6 1248.8 9.0 62.0 77,427 82,387 23,992	3,800 41.8 1318.2 8.6 62.0 81,729 86,959 23,551	4,000 44.0 1387.6 8.1 62.0 86,030 91,532 23,054	4,200 46.2 1457.0 7.7 62.0 90,332 96,105 22,511	4,400 48.4 1526.3 7.4 62.0 94,633 100,677 21,932	4,500 49.5 1561.0 7.2 49.0 76,491 82,657 16,746	4,500 49.5 1561.0 7.2 49.0 76,491 82,657 15,574	4,500 49.5 1561.0 7.2 49.0 76,491 82,657 14,483	4,500 49.5 1561.0 7.2 49.0 76,491 82,657 13,470	4,500 49.5 1561.0 7.2 49.0 76,491 82,657 12,527	4,500 49.5 1561.0 7.2 49.0 76,491 82,657 11,650	4,500 49.5 1561.0 7.2 49.0 76,491 82,657 10,834	4,500 49.5 1561.0 7.2 49.0 <u>76,491</u> 82,657 10,076
Energy kWh/year \$/kWh Total Energy Cost Energy Cost PV	2.18% 996,563	kWh/year \$/kWh \$	364,616 0.156 56,760 56,760	364,616 0.162 59, <i>108</i> 54,970	364,616 0.169 61,552 53,237	364,616 0.176 64,098 51,558	364,616 0.183 66,750 49,932	364,616 0.191 <i>69,511</i> 48,358	364,616 0.199 72,386 46,833	364,616 0.207 75,380 45,356	364,616 0.215 78,498 43,926	364,616 0.230 83,829 43,626	364,616 0.233 <i>85,053</i> 41,164	364,616 0.246 89,620 40,338	364,616 0.252 91,922 38,478	364,616 0.254 92,569 36,037	364,616 0.250 91,123 32,991	364,616 0.254 92,531 31,155	364,616 0.256 93,319 29,221	364,616 0.261 95,240 27,735	364,616 0.262 95,534 25,873	364,616 0.265 96,452 24,293	364,616 0.265 96,446 22,591	364,616 0.269 97,993 21,347	364,616 0.271 98,772 20,011	364,616 0.282 102,858 19,380	364,616 0.281 <i>102,523</i> 17,964	364,616 0.282 102,961 16,778	364,616 0.281 <i>102,483</i> 15,531	364,616 0.291 <i>106,213</i> 14,970	364,616 0.280 102,044 13,376	364,616 0.287 104,796 12,775
GHG Costs kg CO ₂ -e/kWh Tonnes CO ₂ -e \$ / tonne CO ₂ -e GHG Cost	3.52%	kg CO ₂ -e/kWh Tonnes CO ₂ -e \$ \$	0.89 325 25.00 8,113	0.89 325 25.88 8,398	0.89 325 26.79 8,694	0.89 325 27.73 9,000	0.89 325 28.71 9,317	0.89 325 29.72 9,645	0.89 325 30.77 9,984	0.89 325 31.85 10,336	0.89 325 32.97 10,699	0.89 325 34.13 11,076	0.89 325 35.33 11,466	0.89 325 36.58 11,869	0.89 325 37.86 12,287	0.89 325 39.20 12,720	0.89 325 40.58 13,168	0.89 325 42.01 13,631	0.89 325 43.48 14,111	0.89 325 45.01 14,608	0.89 325 46.60 15,122	0.89 325 48.24 15,654	0.89 325 49.94 16,205	0.89 325 51.70 16,775	0.89 325 53.51 <i>17,3</i> 66	0.89 325 55.40 17,977	0.89 325 57.35 18,610	0.89 325 59.37 19,265	0.89 325 61.46 19,943	0.89 325 63.62 20,645	0.89 325 65.86 21,372	0.89 325 68.18 22,124
GHG PV	148,031	e	8,113	7,810	7,519	7,239	6,969	6,710	6,460	6,219	5,987	5,764 149,747	5,549	5,342	5,143 175,472	4,952	4,767	4,590	4,419	4,254	4,095	3,943	3,796 208,755	3,654	3,518	3,387	3,261	3,139	3,022	2,910	2,801 206,074	2,697 209,578
Total Operating Costs Total Operating PV	1,781,288	\$	72,274 72,274	81,966 76,229	91,820 79,415	101,798 81,882	107,724 80,583	117,115 81,475	126,633 81,930	129,611 77,987	138,565 77,539	149,747 77,930	156,834 75,905	167,278 75,293	175,472 73,452	182,026 70,862	172,960 62,619	179,403 60,405	185,244 58,006	192,235 55,981	197,615 53,520	203,638 51,290	208,755 48,899	215,446 46,933	198,796 40,275	203,492 38,340	203,790 35,709	204,884 33,387	205,083 31,080	209,516 29,530	206,074 27,011	209,578 25,548
HWC Maintenance Costs (\$ 2010/2011) Water Supply Mains Pump Station Reservoir Chemical Dosing Total Water Supply Cost	#DIV/0! #DIV/0! #DIV/0! #DIV/0!	\$ \$ \$ \$	-				<u> </u>					-				-			-						-				<u> </u>			
Sewer Rising Mains Gravity Mains Pump Station Chemical Dosing Total Sewer Cost	0.00% 0.00% 0.00% #DIV/0!	\$ \$ \$ \$	8,485 4,561 16,000 29,046	8,485 4,561 16,000 29,046	8,485 4,561 16,000 29,046	8,485 4,561 16,000 29,046	8,485 4,561 16,000 29,046	8,485 4,561 16,000 29,046	8,485 4,561 16,000 29,046	8,485 4,561 16,000 29,046	8,485 4,561 16,000 29,046	8,485 4,561 16,000 29,046	8,485 4,561 16,000 29,046	8,485 4,561 16,000 29,046	8,485 4,561 16,000 29,046	8,485 4,561 16,000 29,046	8,485 4,561 16,000 29,046	8,485 4,561 16,000 29,046	8,485 4,561 16,000 29,046	8,485 4,561 16,000 29,046	8,485 4,561 16,000 29,046	8,485 4,561 16,000 29,046	8,485 4,561 16,000 29,046	8,485 4,561 16,000 29,046	8,485 4,561 16,000 29,046	8,485 4,561 16,000 29,046	8,485 4,561 16,000 29,046	8,485 4,561 16,000 29,046	8,485 4,561 16,000 29,046	8,485 4,561 16,000 29,046	8,485 4,561 16,000 29,046	8,485 4,561 16,000 29,046
Total Maintenance Costs Total Maintenance PV	367,899	s s	29,046 29,046	29,046 27,013	29,046 25,122	29,046 23,363	29,046 21,728	29,046 20,207	29,046 18,792	29,046 17,477	29,046 16,254	29,046 15,116	29,046 14,058	29,046 13,074	29,046 12,158	29,046 11,307	29,046 10,516	29,046 9,780	29,046 9,095	29,046 8,459	29,046 7,866	29,046 7,316	29,046 6,804	29,046 6,327	29,046 5,884	29,046 5,473	29,046 5,089	29,046 4,733	29,046 4,402	29,046 4,094	29,046 3.807	29,046 3,541
Total O & M Costs		s	101,320	111,012	120,866	130,844	136,769	146,161	155,679	158,657	167,611	178,792	185,880	196,324	204,518	211,072	202,006	208,449	214,290	221,280	226,661	232,684	237,801	244,491	227,842	232,538	232,836	233,929	234,129	238,562	235,119	238,624
Total O & M PV Lifecycle Costs	2,149,187	5 \$	101,320 16,520,944	103,241 111,012	104,537 120,866	105,245 130,844	102,311 136,769	101,682 146,161	100,723 155,679	95,464 158,657	93,792 167,611	93,046 178,792	<mark>89,962</mark> 185,880	88,366 196,324	85,610 204,518	82,169 211,072	73,135 202,006	70,185 447,399	67,101 214,290	64,440 221,280	61,386 226,661	58,606 232,684	55,702 237,801	53,261 244,491	46,159 227,842	43,813 232,538	40,798 232,836	38,120 233,929	35,482 234,129	33,623 238,562	30,818 235,119	29,088 477,574
Total PV (Inc GHG) Total PV (Ex GHG)	18,678,394 18,530,362	\$ \$	16,520,944 16,512,831	103,241 95,431	104,537 97,017	105,245 98,006	102,311 95,341	101,682 94,973	100,723 94,263	95,464 89,245	93,792 87,805	93,046 87,281	89,962 84,413	88,366 83,024	85,610 80,467	82,169 77,217	73,135 68,368	150,640 146,050	67,101 62,682	64,440 60,186	61,386 57,291	58,606 54,663	55,702 51,906	53,261 49,606	46,159 42,641	43,813 40,426	40,798 37,537	38,120 34,981	35,482 32,460	33,623 30,714	30,818 28,017	58,216 55,520

Option Reference Real Discount Rate		Option SE1A 7.0%																														
Length RM (m) Diam RM (mm) Pump Duty (L/s)		6,400 600 356																														
Length GM (m) Costs 2010/2011 Energy Cost Annual Real Energy Increase 2010/2011 GHG Cost Real GHG Increase		2,000 0.157 2.18% 25.00 3.52%	/ tonnes CO2-e																													
FY Ending		Units	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	2039	2040	2041
Discount Factor			1.00	0.93	0.86	0.80	0.75	0.70	0.65	0.60	0.56	0.52	0.48	0.45	0.42	0.39	0.36	0.34	0.31	0.29	0.27	0.25	0.23	0.22	0.20	0.19	0.18	0.16	0.15	0.14	0.13	0.12
Developer Capital Costs (\$ 2010/2011)																																
Water Supply Mains Pump Station Reservoir Telemety & SCADA Chemical Dosing Total Water Supply Cost		5 5 5 5 5 5																														-
Sewer Internal Transfer Gravity Mains Rising Mains Sewer Prump Station Telemetry & SCADA Chemical Dosing Total Sewer Cost		s s s s s s	4,352,176 																													<u> </u>
Total Developer Capital Costs Total Developer PV	18,131,951	s s	18,131,951 18,131,951	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
HWC Capital Costs (\$ 2010/2011)																																
Water Supply Mains Pump Station Reservoir Telemety & SCADA Chemical Dosing Total Water Supply Cost		****											-	-				-												-		
Sewer Mains Pump Station Telemetry & SCADA Chemical Dosing Total Sewer Cost		s s s s s			<u> </u>													218,325														218,325
Total HWC Capital Costs Total HWC Capital PV	100.124	s			:	:		:	:	:			:	:	:	:	:	218,325 73,510	:		:	:	:	:	:	:	:	:			:	218,325 26,614
HWC Operating Costs (\$ 2010/2011)		•																														
Water Supply Mains Pump Station Reservoir Chemical Dosing Total Water Supply Cost	#DIV/0! #DIV/0! #DIV/0! #DIV/0!	s s s s s																														<u> </u>
Sewer Mains Pump Station	#DIV/0! #DIV/0!	s s																														
ET ADWF (US) ADWF (NLV) Destension Time (Ivr) Dose Cost Rate (\$NL) Chemical Dosing Total Sever Cost Chemical Dosing PV	9.83% 714,866	s s	200 2.2 69.4 232.3 99.0 6,869 7,471 7,471	400 4.4 138.8 116.2 99.0 13,737 14,495 13,481	600 6.6 208.1 77.4 99.0 20,606 21,597 18,679	800 8.8 277.5 58.1 99.0 27,474 28,718 23,099	1,000 11.0 346.9 46.5 99.0 34,343 35,846 26,815	1,200 13.2 416.3 38.7 99.0 41,211 42,978 29,900	1,400 15.4 485.7 33.2 87.0 42,252 44,273 28,644	1,600 17.6 555.0 29.0 87.0 48,288 50,577 30,432	1,800 19.8 624.4 25.8 87.0 54,324 56,881 31,830	2,000 22.0 693.8 23.2 87.0 60,360 63,186 32,883	2,200 24.2 763.2 21.1 87.0 66,396 69,491 33,633	2,400 26.4 832.6 19.4 75.0 62,441 65,795 29,614	2,600 28.6 901.9 17.9 75.0 67,645 71,268 29,833	2,800 30.8 971.3 16.6 75.0 72,848 76,742 29,875	3,000 33.0 1040.7 15.5 75.0 78,052 82,216 29,766	3,200 35.2 1110.1 14.5 75.0 83,255 87,690 29,525	3,400 37.4 1179.4 13.7 75.0 88,458 93,164 29,173	3,600 39.6 1248.8 12.9 75.0 93,662 98,638 28,725	3,800 41.8 1318.2 12.2 75.0 98,865 104,113 28,197	4,000 44.0 1387.6 11.6 75.0 104,069 109,587 27,602	4,200 46.2 1457.0 11.1 62.0 90,332 96,108 22,512	4,400 48.4 1526.3 10.6 62.0 94,633 700,681 21,932	4,500 49.5 1561.0 10.3 62.0 96,784 102,967 20,860	4,500 49.5 1561.0 10.3 62.0 96,784 102,967 19,400	4,500 49.5 1561.0 10.3 62.0 96,784 702,967 18,042	4,500 49.5 1561.0 10.3 62.0 96,784 102,967 16,779	4,500 49.5 1561.0 10.3 62.0 96,784 102,967 15,605	4,500 49.5 1561.0 10.3 62.0 96,784 102,967 14,512	4,500 49.5 1561.0 10.3 62.0 96,784 702,967 13,496	4,500 49.5 1561.0 10.3 62.0 96,784 102,967 12,552
Energy kWh/year S/kWh Totat Energy Cost Energy Cost PV	2.18% 654,345	kWh/year \$/kWh \$	239,407 0.156 37,269 37,269	239,407 0.162 38,810 36,093	239,407 0.169 <i>40,415</i> 34,955	239,407 0.176 42,087 33,853	239,407 0.183 43,828 32,786	239,407 0.191 45,641 31,752	239,407 0.199 47,529 30,751	239,407 0.207 49,494 29,781	239,407 0.215 51,542 28,842	239,407 0.230 55,042 28,645	239,407 0.233 55,846 27,028	239,407 0.246 58,845 26,486	239,407 0.252 60,356 25,265	239,407 0.254 60,781 23,662	239,407 0.250 59,832 21,662	239,407 0.254 60,756 20,456	239,407 0.256 61,273 19,187	239,407 0.261 62,535 18,211	239,407 0.262 62,728 16,988	239,407 0.265 63,330 15,951	239,407 0.265 63,326 14,833	239,407 0.269 64,342 14,016	239,407 0.271 64,854 13,139	239,407 0.282 67,537 12,725	239,407 0.281 67,317 11,795	239,407 0.282 67,604 11,017	239,407 0.281 67,290 10,198	239,407 0.291 69,740 9,829	239,407 0.280 67,002 8,782	239,407 0.287 68,809 8,388
GHG Costs kg C0_r=kWh Tonnes C0_r= \$ / tonne C0_r= GHC Cost GHG PV	3.52% 97,198	kg CO ₂ -e/kWh Fonnes CO ₂ -e S S	0.89 213 25.00 5,327 5,327	0.89 213 25.88 5,514 5,128	0.89 213 26.79 5,708 4,937	0.89 213 27.73 5,909 4,753	0.89 213 28.71 6,117 4,576	0.89 213 29.72 6,333 4,406	0.89 213 30.77 6,556 4,241	0.89 213 31.85 6,786 4,083	0.89 213 32.97 7,025 3,931	0.89 213 34.13 7,273 3,785	0.89 213 35.33 7,529 3,644	0.89 213 36.58 7,794 3,508	0.89 213 37.86 8,068 3,377	0.89 213 39.20 8,352 3,251	0.89 213 40.58 8,646 3,130	0.89 213 42.01 8,950 3,014	0.89 213 43.48 9,265 2,901	0.89 213 45.01 9,591 2,793	0.89 213 46.60 9,929 2,689	0.89 213 48.24 10,278 2,589	0.89 213 49.94 10,640 2,492	0.89 213 51.70 11,015 2,399	0.89 213 53.51 11,403 2,310	0.89 213 55.40 11,804 2,224	0.89 213 57.35 12,219 2,141	0.89 213 59.37 12,650 2,061	0.89 213 61.46 13,095 1,985	0.89 213 63.62 13,556 1,911	0.89 213 65.86 14,033 1,839	0.89 213 68.18 14,527 1,771
Total Operating Costs Total Operating PV	1,466,409	s s	50,067 50,067	58,820 54,702	67,721 58,572	76,714 61,705	85,791 64,176	94,952 66,057	98,357 <mark>63,636</mark>	106,857 64,296	115,448 64,603	125,501 65,312	132,866 64,305	132,433 59,608	139,692 58,475	145,875 56,788	150,693 54,558	157,396 52,995	163,703 51,260	170,765 49,729	176,769 47,874	183,196 46,142	170,075 39,838	176,038 38,348	179,223 36,309	182,307 34,349	182,503 31,979	183,221 29,857	183,352 27,787	186,262 26,252	184,002 24,118	186,303 22,710
HWC Maintenance Costs (\$ 2010/2011)																																
Water Supply Mains Pump Station Reservoir Chemical Dosing Total Water Supply Cost	#DIV/0! #DIV/0! #DIV/0! #DIV/0!	\$ \$ \$ \$ \$ \$ \$ \$ \$																<u>.</u>														
Sewer Rising Mains Gravity Mains Pump Station Chemical Dosing Total Sewer Cost	0.00% 0.00% 0.00% #DIV/0!	s s s s s s	8,837 4,561 16,000 29,398	8,837 4,561 16,000 29,398	8,837 4,561 16,000 29,398	8,837 4,561 16,000 29,398	8,837 4,561 16,000 29,398	8,837 4,561 16,000 29,398	8,837 4,561 16,000 29,398	8,837 4,561 16,000 29,398	8,837 4,561 16,000 29,398	8,837 4,561 16,000 29,398	8,837 4,561 16,000 29,398	8,837 4,561 16,000 29,398	8,837 4,561 16,000 29,398	8,837 4,561 16,000 29,398	8,837 4,561 16,000 29,398	8,837 4,561 16,000 29,398	8,837 4,561 16,000 29,398	8,837 4,561 16,000 29,398	8,837 4,561 16,000 29,398	8,837 4,561 16,000 29,398	8,837 4,561 16,000 29,398	8,837 4,561 16,000 29,398	8,837 4,561 16,000 29,398	8,837 4,561 16,000 29,398	8,837 4,561 16,000 29,398	8,837 4,561 16,000 29,398	8,837 4,561 16,000 29,398	8,837 4,561 16,000 29,398	8,837 4,561 16,000 29,398	8,837 4,561 16,000 29,398
Total Maintenance Costs Total Maintenance PV	372,358	\$ \$	29,398 29,398	29,398 27,340	29,398 25,426	29,398 23,646	29,398 21,991	29,398 20,452	29,398 19,020	29,398 17,689	29,398 16,450	29,398 15,299	29,398 14,228	29,398 13,232	29,398 12,306	29,398 11,444	29,398 10,643	29,398 9,898	29,398 9,205	29,398 8,561	29,398 7,962	29,398 7,404	29,398 6,886	29,398 6,404	29,398 5,956	29,398 5,539	29,398 5,151	29,398 4,791	29,398 4,455	29,398 4,143	29,398 3,853	29,398 3,584
Total O & M Costs Total O & M PV	1,838,767	\$ \$	79,465 79,465	88,218 82,042	97,118 83,998	106,112 85,352	115,189 86,167	124,350 86,509	127,755 82,656	136,255 81,985	144,846 81,053	154,899 80,611	162,264 78,533	161,830 72,840	169,090 70,780	175,273 68,233	180,091 65,201	186,793 62,894	193,100 60,466	200,162 58,290	206,167 55,836	212,594 53,546	199,472 46,724	205,435 44,752	208,621 42,265	211,705 39,888	211,901 37,130	212,619 34,648	212,750 32,242	215,660 30,396	213,400 27,972	215,701 26,294
Lifecycle Costs Total PV (Inc GHG) Total PV (Ex GHG)	20,070,842 19,973,644	\$ \$ \$	18,211,416 18,211,416 18,206,089	88,218 82,042 76,914	97,118 83,998 79,061	106,112 85,352 80,599	115,189 86,167 81,591	124,350 86,509 82,103	127,755 82,656 78,415	136,255 81,985 77,902	144,846 81,053 77,122	154,899 80,611 76,826	162,264 78,533 74,889	161,830 72,840 69,333	169,090 70,780 67,403	175,273 68,233 64,981	180,091 65,201 62,071	405,118 136,404 133,390	193,100 60,466 57,565	200,162 58,290 55,497	206,167 55,836 53,147	212,594 53,546 50,957	199,472 46,724 44,232	205,435 44,752 42,353	208,621 42,265 39,955	211,705 39,888 37,664	211,901 37,130 34,989	212,619 34,648 32,586	212,750 32,242 30,258	215,660 30,396 28,485	213,400 27,972 26,132	434,026 52,908 51,137

Option Reference Real Discount Rate		Option SE1B 7.0%																														
Length RM (m) Diam RM (mm) Pump Duty (L/s) Length GM (m)		6,000 450 356 1,100																														
Costs 2010/2011 Energy Cost Annual Real Energy Increase 2010/2011 GHG Cost Real GHG Increase EV Endine		3.52%	/ tonnes CO2-e	2042	2044	2045	2046	2047	2046	2040	2020	2024	2022	2022	2024	2025	2026	2027	2029	2020	2020	2024	2022	2022	2024	2025	2026	2027	2028	2020	2040	2044
FY Ending Discount Factor		Units	2012 1.00	2013 0.93	2014 0.86	2015 0.80	2016 0.75	2017 0.70	2018 0.65	2019 0.60	2020 0.56	2021 0.52	2022 0.48	2023 0.45	2024 0.42	2025 0.39	2026 0.36	2027 0.34	2028 0.31	2029 0.29	2030 0.27	2031 0.25	0.23	2033 0.22	2034 0.20	2035 0.19	2036 0.18	2037 0.16	2038 0.15	2039 0.14	2040 0.13	0.12
Developer Capital Costs (\$ 2010/2011) Water Supply Mains Pump Station Reservoir Telemetry & SCADA Chemical Dosing Total Water Supply Cost		\$ \$ \$ \$ \$		-	-					-	-		-	-				-				-	-	-			-	-	-	-	-	
Sewer Internal Transfer Gravity Mains Rising Mains Sewer Pump Station Telemetry & SCADA Chemical Dosing Total Sewer Cost		s s s s s	4,352,176 2,359,273 6,731,106 2,373,766																													
Total Developer Capital Costs Total Developer PV	15,816,321	\$ \$	15,816,321 15,816,321	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:
HWC Capital Costs (\$ 2010/2011) Water Supply Mains Pump Station Reservoir Telemetry & SCADA Chemical Dosing Total Water Supply Cost		\$ \$ \$ \$ \$ \$	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Sewer Mains Pump Station Telemetry & SCADA Chemical Dosing Total Sewer Cost		\$ \$ \$ \$	-	-	-	-	-	-	-	-	-		-	-	-	-	-	238,950 238,950	-	-	-	-	-		-	-	-			-	-	238,950 238,950
Total HWC Capital Costs Total HWC Capital PV	109,583	\$ \$:	1	1	:	1	1	1	:	:	1	:	:	:	1	1	238,950 80,455	:	1	1	1	1	1	1	:	1	1	1	:	1	238,950 29,128
HWC Operating Costs (\$ 2010/2011) Water Supply Mains Pump Station Reservoir Chemical Dosing Total Water Supply Cost	#DIV/0! #DIV/0! #DIV/0! #DIV/0!	\$ \$ \$ \$	<u> </u>	-	-								-	-			-	-						-				-	-		-	
Sewer Mains Pump Station	#DIV/0! #DIV/0!	s s																														
ET ADWF (U/s) ADWF (ML/y) Detention Time (hr) Dose Cost Rate (\$ML) Chemical Dosing Total Sever Cost Chemical Dosing PV	8.67% 592,719	\$ = \$	200 2.2 69.4 124.4 99.0 6,869 7,364 7,364	400 4.4 138.8 62.2 99.0 13,737 14,441 13,431	600 6.6 208.1 41.5 99.0 20,606 21,561 18,648	800 8.8 277.5 31.1 87.0 24,144 25,348 20,389	1,000 11.0 346.9 24.9 87.0 30,180 31,650 23,676	1,200 13.2 416.3 20.7 87.0 <u>36,216</u> 37,953 26,404	1,400 15.4 485.7 17.8 75.0 <u>36,424</u> 38,418 24,856	1,600 17.6 555.0 15.6 75.0 <u>41,628</u> 43,891 26,409	1,800 19.8 624.4 13.8 75.0 46,831 49,364 27,623	2,000 22.0 693.8 12.4 75.0 52,034 54,838 28,538	2,200 24.2 763.2 11.3 75.0 57,238 60,312 29,190	2,400 26.4 832.6 10.4 62.0 51,618 54,949 24,733	2,600 28.6 901.9 9.6 62.0 55,920 59,522 24,916	2,800 30.8 971.3 8.9 62.0 60,221 64,094 24,952	3,000 33.0 1040.7 8.3 62.0 64,523 68,667 24,860	3,200 35.2 1110.1 7.8 62.0 68,824 73,239 24,660	3,400 37.4 1179.4 7.3 62.0 73,126 77,812 24,365	3,600 39.6 1248.8 6.9 49.0 61,192 66,137 19,260	3,800 41.8 1318.2 6.5 49.0 64,592 69,808 18,906	4,000 44.0 1387.6 6.2 49.0 67,992 73,478 18,507	4,200 46.2 1457.0 5.9 49.0 71,391 77,149 18,071	4,400 48.4 1526.3 5.7 49.0 74,791 80,820 17,606	4,500 49.5 1561.0 5.5 49.0 76,491 82,656 16,745	4,500 49.5 1561.0 5.5 49.0 76,491 82,656 15,573	4,500 49.5 1561.0 5.5 49.0 76,491 82,656 14,483	4,500 49.5 1561.0 5.5 49.0 76,491 82,656 13,469	4,500 49.5 1561.0 5.5 49.0 76,491 82,656 12,526	4,500 49.5 1561.0 5.5 49.0 76,491 82,656 11,650	4,500 49.5 1561.0 5.5 49.0 76,491 82,656 10,834	4,500 49.5 1561.0 5.5 49.0 <u>76,491</u> 82,656 10,076
Energy kVhlyear \$/kWh Total Energy Cost Energy Cost PV	2.18% 1,063,881	kWh/year \$/kWh \$	389,245 0.156 <i>60,594</i> 60,594	389,245 0.162 <i>63,100</i> 58,683	389,245 0.169 <i>65,710</i> 56,833	389,245 0.176 68,428 55,041	389,245 0.183 71,259 53,305	389,245 0.191 74,206 51,624	389,245 0.199 77,275 49,996	389,245 0.207 <i>80,472</i> 48,420	389,245 0.215 <i>83,800</i> 46,893	389,245 0.230 89,492 46,573	389,245 0.233 <i>90,798</i> 43,945	389,245 0.246 95,674 43,063	389,245 0.252 98,131 41,077	389,245 0.254 98,822 38,471	389,245 0.250 97,279 35,219	389,245 0.254 98,781 33,260	389,245 0.256 99,623 31,195	389,245 0.261 101,674 29,609	389,245 0.262 101,987 27,621	389,245 0.265 102,967 25,934	389,245 0.265 <i>102,961</i> 24,117	389,245 0.269 104,612 22,789	389,245 0.271 105,444 21,362	389,245 0.282 109,806 20,689	389,245 0.281 <i>109,449</i> 19,178	389,245 0.282 109,916 17,912	389,245 0.281 <i>109,405</i> 16,580	389,245 0.291 <i>113,388</i> 15,981	389,245 0.280 108,937 14,279	389,245 0.287 111,875 13,638
CHG Costs kg C0:_efkWh Tonnes C0:_e \$ / Ionne C0:_e GHG Cost GHG PV Total Operating Costs Total Operating PV		sg CO ₂ -e/kWh Fonnes CO ₂ -e \$ \$	0.89 346 25.00 8,661 8,661 76,618 76,618	0.89 346 25.88 8,966 8,338 86,507 80,452	0.89 346 26.79 9,281 8,027 96,552 83,508	0.89 346 27.73 9,608 7,728 103,384 83,158	0.89 346 28.71 9,946 7,440 112,854 84,421	0.89 346 29.72 10,296 7,163 122,455 85,191	0.89 346 30.77 10,659 6,896 126,352 81,748	0.89 346 31.85 <i>11,034</i> 6,639 135,396 81,468	0.89 346 32.97 11,422 6,392 144,586 80,908	0.89 346 34.13 <i>11,824</i> 6,153 156,154 81,264	0.89 346 35.33 12,240 5,924 163,350 79,059	0.89 346 36.58 12,671 5,703 163,294 73,499	0.89 346 37.86 13,117 5,491 170,771 71,484	0.89 346 39.20 13,579 5,286 176,495 68,709	0.89 346 40.58 14,057 5,089 180,002 65,169	0.89 346 42.01 14,552 4,900 186,572 62,819	0.89 346 43.48 15,064 4,717 192,499 60,277	0.89 346 45.01 15,594 4,541 183,405 53,410	0.89 346 46.60 16,143 4,372 187,938 50,899	0.89 346 48.24 16,711 4,209 193,157 48,650	0.89 346 49.94 17,300 4,052 197,410 46,241	0.89 346 51.70 17,909 3,901 203,341 44,296	0.89 346 53.51 18,539 3,756 206,639 41,864	0.89 346 55.40 19,192 3,616 211,653 39,878	0.89 346 57.35 19,867 3,481 211,971 37,142	0.89 346 59.37 20,566 3,351 213,138 34,732	0.89 346 61.46 21,290 3,227 213,351 32,333	0.89 346 63.62 22,040 3,106 218,084 30,737	0.89 346 65.86 22,816 2,991 214,409 28,104	0.89 346 68.18 23,619 2,879 218,150 26,593
HWC Maintenance Costs (\$ 2010/2011) Water Supply Mains Pump Station Reservoir Chemical Dosing Total Water Supply Cost		\$ \$ \$ \$ \$		-	-				-	-			-					-	-			-	-	-	-		-	-		-		
Sewer Rising Mains Gravity Mains Pump Station Chemical Dosing Total Sewer Cost	0.00% 0.00% #DIV/0!	\$ \$ \$ \$ \$	8,013 2,508 16,000 26,521	8,013 2,508 16,000 26,521	8,013 2,508 16,000 26,521	8,013 2,508 16,000 26,521	8,013 2,508 16,000 26,521	8,013 2,508 16,000 26,521	8,013 2,508 16,000 26,521	8,013 2,508 16,000 26,521	8,013 2,508 16,000 26,521	8,013 2,508 16,000 26,521	8,013 2,508 16,000 26,521	8,013 2,508 16,000 26,521	8,013 2,508 16,000 26,521	8,013 2,508 16,000 26,521	8,013 2,508 16,000 26,521	8,013 2,508 16,000 26,521	8,013 2,508 16,000 26,521	8,013 2,508 16,000 26,521	8,013 2,508 16,000 26,521	8,013 2,508 16,000 26,521	8,013 2,508 16,000 26,521	8,013 2,508 16,000 26,521	8,013 2,508 16,000 26,521	8,013 2,508 16,000 26,521	8,013 2,508 16,000 26,521	8,013 2,508 16,000 26,521	8,013 2,508 16,000 26,521	8,013 2,508 16,000 26,521	8,013 2,508 16,000 26,521	8,013 2,508 16,000 26,521
Total Maintenance Costs Total Maintenance PV Total O & M Costs	335,919	5 \$ \$	26,521 26,521 103,139	26,521 24,664 113,028	26,521 22,938 123,073	26,521 21,332 129,905	26,521 19,839 139,375	26,521 18,450 148,976	26,521 17,159 152,873	26,521 15,958 161,917	26,521 14,841 171,107	26,521 13,802 182,675	26,521 12,836 189,871	26,521 11,937 189,815	26,521 11,102 197,291	26,521 10,324 203,016	26,521 9,602 206,523	26,521 8,930 213,093	26,521 8,305 219,019	26,521 7,723 209,926	26,521 7,183 214,459	26,521 6,680 219,678	26,521 6,212 223,930	26,521 5,777 229,862	26,521 5,373 233,160	26,521 4,997 238,174	26,521 4,647 238,492	26,521 4,322 239,659	26,521 4,019 239,872	26,521 3,738 244,604	26,521 3,476 240,930	26,521 3,233 244,671
Total O & M PV Lifecycle Costs Total PV (Inc GHG)	2,150,550 18,076,455	\$ \$ \$	103,139 15,919,461 15,919,461	105,116 113,028 105,116	106,446 123,073 106,446	104,490 129,905 104,490	104,260 139,375 104,260	103,641 148,976 103,641	98,907 152,873 98,907	97,426 161,917 97,426	95,748 171,107 95,748	95,066 182,675 95,066	91,894 189,871 91,894	85,437 189,815 85,437	82,585 197,291 82,585	79,033 203,016 79,033	74,771 206,523 74,771	71,749 452,043 152,203	68,582 219,019 68,582	61,133 209,926 61,133	58,081 214,459 58,081	55,330 219,678 55,330	52,453 223,930 52,453	50,074 229,862 50,074	47,237 233,160 47,237	44,875 238,174 44,875	41,789 238,492 41,789	39,054 239,659 39,054	36,353 239,872 36,353	34,475 244,604 34,475	31,580 240,930 31,580	29,825 483,621 58,954
Total PV (Ex GHG)	17,918,424	\$	15,910,800	96,778	98,419	96,762	96,820	96,478	92,011	90,787	89,357	88,912	85,970	79,733	77,095	73,747	69,681	147,304	63,865	56,592	53,709	51,121	48,401	46,172	43,481	41,259	38,308	35,703	33,126	31,369	28,589	56,074

Option Reference Real Discount Rate		Option SE1B 7.0%																														
Length RM (m) Diam RM (mm) Pump Duty (L/s) Length GM (m)		6,000 500 356 1,100																														
Costs 2010/2011 Energy Cost Annual Real Energy Increase 2010/2011 GHG Cost Real GHG Increase FY Ending		0.157 / 2.18% 25.00 3.52% Units	kWh / tonnes CO ₂ -e 2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	2039	2040	2041
Discount Factor Developer Capital Costs (\$ 2010/2011))		1.00	0.93	0.86	0.80	0.75	0.70	0.65	0.60	0.56	0.52	0.48	0.45	0.42	0.39	0.36	0.34	0.31	0.29	0.27	0.25	0.23	0.22	0.20	0.19	0.18	0.16	0.15	0.14	0.13	0.12
Water Supply Mains Pump Station Reservoir Telemetry & SCADA Chemical Dosing Total Water Supply Cost		\$ \$ \$ \$ \$ \$ \$ \$	<u> </u>	-	<u> </u>	-		-		-		-	-	-	-	-	-	-		-	-	-	-	-	-	-	-	-	-		-	
Sewer Internal Transfer Gravity Mains Rising Mains Sewer Pump Station Telemetry & SCADA Chemical Dosing Total Sewer Cost		\$ \$ \$ \$ \$ \$ \$	4,352,176 2,359,273 7,674,580 2,193,844 16,579,873																													
Total Developer Capital Costs Total Developer PV	16,579,873	\$ \$	16,579,873 16,579,873	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:
HWC Capital Costs (\$ 2010/2011)																																
Water Supply Mains Pump Station Reservoir Telemety & SCADA Chemical Dosing Total Water Supply Cost		\$ \$ \$ \$ \$ \$ \$ \$ \$			-	-	-	-	-	-	-	-	-	-		-	-	-	-		-	-	-	-	-	-			-			-
Sewer Mains Pump Station Telemetry & SCADA Chemical Dosing Total Sewer Cost		\$ \$ \$ \$		-	-	-	-	-	-	-	-	-	-	-	-	-	-	218,325 218,325	-	-	-	-	-	-	-	-	-	-	-	-	-	218,325 218,325
Total HWC Capital Costs Total HWC Capital PV	100,124	\$ \$:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	218,325 73,510	:	:	:	:	:	:	:	:	:	:	:	:	:	218,325 26,614
HWC Operating Costs (\$ 2010/2011) Water Supply																																
Mains Pump Station Reservoir Chemical Dosing Total Water Supply Cost	#DIV/0! #DIV/0! #DIV/0! #DIV/0!	\$ \$ \$ \$	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Sewer Mains Pump Station	#DIV/0! #DIV/0!	s s																														
ET ADWF (L/s) ADWF (ML/y) Detention Time (hr) Dose Cost Rate (\$ML) Chemical Dosing Total Sewer Cost Chemical Dosing PV	9.11% 622,980	\$ = \$ =	200 2.2 69.4 152.7 99.0 <u>6,869</u> 7,392 7,392	400 4.4 138.8 76.3 99.0 13,737 14,456 13,444	600 6.6 208.1 50.9 99.0 20,606 21,570 18,656	800 8.8 277.5 38.2 99.0 27,474 28,698 23,083	1,000 11.0 346.9 30.5 87.0 30,180 31,655 23,680	1,200 13.2 416.3 25.4 87.0 36,216 37,958 26,407	1,400 15.4 485.7 21.8 87.0 42,252 44,262 28,637	1,600 17.6 555.0 19.1 75.0 41,628 43,894 26,411	1,800 19.8 624.4 17.0 75.0 46,831 49,367 27,625	2,000 22.0 693.8 15.3 75.0 52,034 54,840 28,540	2,200 24.2 763.2 13.9 75.0 57,238 60,314 29,191	2,400 26.4 832.6 12.7 75.0 62,441 65,788 29,611	2,600 28.6 901.9 11.7 75.0 67,645 71,262 29,830	2,800 30.8 971.3 10.9 62.0 60,221 64,096 24,952	3,000 33.0 1040.7 10.2 62.0 64,523 68,669 24,861	3,200 35.2 1110.1 9.5 62.0 68,824 73,241 24,660	3,400 37.4 1179.4 9.0 62.0 73,126 77,814 24,366	3,600 39.6 1248.8 8.5 62.0 77,427 82,386 23,992	3,800 41.8 1318.2 8.0 62.0 81,729 86,959 23,551	4,000 44.0 1387.6 62.0 86,030 91,531 23,054	4,200 46.2 1457.0 7.3 49.0 71,391 77,151 18,072	4,400 48.4 1526.3 6.9 49.0 74,791 80,821 17,606	4,500 49.5 1561.0 6.8 49.0 76,491 82,657 16,746	4,500 49.5 1561.0 6.8 49.0 76,491 82,657 15,574	4,500 49.5 1561.0 6.8 49.0 76,491 82,657 14,483	4,500 49.5 1561.0 6.8 49.0 76,491 82,657 13,470	4,500 49.5 1561.0 6.8 49.0 76,491 82,657 12,527	4,500 49.5 1561.0 6.8 49.0 76,491 82,657 11,650	4,500 49.5 1561.0 6.8 49.0 76,491 82,657 10,834	4,500 49.5 1561.0 6.8 49.0 76,491 82,657 10,076
Energy kWhiyear \$kWh Total Energy Cost Energy Cost PV	2.18% 825,359	kWh/year \$/kWh \$	301,976 0.156 47,009 47,009	301,976 0.162 <i>48,953</i> 45,526	301,976 0.169 <i>50,978</i> 44,091	301,976 0.176 53,087 42,701	301,976 0.183 55,282 41,354	301,976 0.191 57,569 40,050	301,976 0.199 59,950 38,787	301,976 0.207 62,430 37,564	301,976 0.215 65,012 36,380	301,976 0.230 69,428 36,131	301,976 0.233 <i>70,441</i> 34,092	301,976 0.246 74,224 33,408	301,976 0.252 <i>76,130</i> 31,868	301,976 0.254 76,666 29,846	301,976 0.250 75,469 27,323	301,976 0.254 76,634 25,803	301,976 0.256 77,287 24,201	301,976 0.261 78,879 22,970	301,976 0.262 79,122 21,428	301,976 0.265 79,882 20,120	301,976 0.265 79,877 18,710	301,976 0.269 <i>81,158</i> 17,680	301,976 0.271 <i>81,804</i> 16,573	301,976 0.282 <i>85,187</i> 16,050	301,976 0.281 <i>84,910</i> 14,878	301,976 0.282 <i>85,273</i> 13,896	301,976 0.281 <i>84,877</i> 12,863	301,976 0.291 87,966 12,398	301,976 0.280 <i>84,514</i> 11,078	301,976 0.287 86,793 10,580
GHG Costs kg CO ₂ -e/kWh Tonnes CO ₂ -e \$ / tonne CO ₂ -e GHG Cost GHG PV		kg CO ₂ -e/kWh Fonnes CO ₂ -e \$ \$	0.89 269 25.00 6,719 6,719	0.89 269 25.88 6,955 6,469	0.89 269 26.79 7,200 6,228	0.89 269 27.73 7,454 5,995	0.89 269 28.71 7,716 5,772	0.89 269 29.72 7,988 5,557	0.89 269 30.77 8,269 5,350	0.89 269 31.85 <i>8,560</i> 5,151	0.89 269 32.97 <i>8,861</i> 4,959	0.89 269 34.13 9,173 4,774	0.89 269 35.33 9,496 4,596	0.89 269 36.58 9,830 4,425	0.89 269 37.86 10,176 4,260	0.89 269 39.20 10,535 4,101	0.89 269 40.58 10,905 3,948	0.89 269 42.01 11,289 3,801	0.89 269 43.48 11,687 3,659	0.89 269 45.01 12,098 3,523	0.89 269 46.60 12,524 3,392	0.89 269 48.24 12,965 3,265	0.89 269 49.94 13,421 3,144	0.89 269 51.70 <i>13,894</i> 3,027	0.89 269 53.51 14,383 2,914	0.89 269 55.40 14,889 2,805	0.89 269 57.35 15,413 2,701	0.89 269 59.37 15,955 2,600	0.89 269 61.46 16,517 2,503	0.89 269 63.62 17,099 2,410	0.89 269 65.86 17,700 2,320	0.89 269 68.18 18,323 2,234
Total Operating Costs Total Operating PV	1,570,939	\$ \$	61,120 61,120	70,364 65,439	79,749 68,975	89,238 71,779	94,654 70,806	103,515 72,014	112,481 72,774	114,884 <mark>69,126</mark>	123,241 68,963	133,441 <mark>69,444</mark>	140,252 67,879	149,842 67,444	157,569 65,958	151,297 58,899	155,043 56,132	161,165 54,264	166,787 52,226	173,363 50,485	178,604 48,371	184,378 46,439	170,448 <mark>39,926</mark>	175,873 38,313	178,843 36,232	182,733 34,429	182,980 32,062	183,885 29,965	184,051 27,893	187,722 26,458	184,871 24,232	187,773 22,890
HWC Maintenance Costs (\$ 2010/2011 Water Supply Mains Pump Station Reservoir Chemical Dosing Total Water Supply Cost	#DIV/0! #DIV/0! #DIV/0! #DIV/0!	\$ \$ \$ \$	<u> </u>	-								-	-		-		<u>.</u>															
Sewer Rising Mains Gravity Mains Pump Station Chemical Dosing Total Sewer Cost	0.00% 0.00% 0.00% #DIV/0!	\$ \$ \$ \$ \$	8,155 2,508 16,000 26,663	8,155 2,508 16,000 26,663	8,155 2,508 16,000 26,663	8,155 2,508 16,000 26,663	8,155 2,508 16,000 26,663	8,155 2,508 16,000 26,663	8,155 2,508 16,000 26,663	8,155 2,508 16,000 26,663	8,155 2,508 16,000 26,663	8,155 2,508 16,000 26,663	8,155 2,508 16,000 26,663	8,155 2,508 16,000 26,663	8,155 2,508 16,000 26,663	8,155 2,508 16,000 26,663	8,155 2,508 16,000 26,663	8,155 2,508 16,000 26,663	8,155 2,508 16,000 26,663	8,155 2,508 16,000 26,663	8,155 2,508 16,000 26,663	8,155 2,508 16,000 26,663	8,155 2,508 16,000 26,663	8,155 2,508 16,000 26,663	8,155 2,508 16,000 26,663	8,155 2,508 16,000 26,663	8,155 2,508 16,000 26,663	8,155 2,508 16,000 26,663	8,155 2,508 16,000 26,663	8,155 2,508 16,000 26,663	8,155 2,508 16,000 26,663	8,155 2,508 16,000 26,663
Total Maintenance Costs Total Maintenance PV	337,724	\$ \$	26,663 26,663	26,663 24,797	26,663 23,061	26,663 21,447	26,663 19,946	26,663 18,549	26,663 17,251	26,663 16,043	26,663 14,920	26,663 13,876	26,663 12,905	26,663 12,001	26,663 11,161	26,663 10,380	26,663 9,653	26,663 8,978	26,663 8,349	26,663 7,765	26,663 7,221	26,663 6,716	26,663 6,246	26,663 5,808	26,663 5,402	26,663 5,024	26,663 4,672	26,663 4,345	26,663 4,041	26,663 3,758	26,663 3,495	26,663 3,250
Total O & M Costs Total O & M PV	1,908,662	s s	87,783 87,783	97,028 90,236	106,412 92,036	115,901 93,226	121,317 90,752	130,178 90,563	139,144 90,025	141,548 85,169	149,904 83,884	160,105 83,320	166,915 80,784	176,505 79,446	184,232 77,119	177,961 69,279	181,706 65,786	187,828 63,242	193,451 60,576	200,026 58,250	205,268 55,592	211,042 53,155	197,112 46,171	202,537 44,121	205,507 41,634	209,397 39,453	209,643 36,734	210,549 34,310	210,714 31,934	214,385 30,216	211,534 27,727	214,437 26,140
Lifecycle Costs Total PV (Inc GHG) Total PV (Ex GHG)	18,588,660 18,466,060	\$ \$	16,667,656 16,667,656 16,660,937	97,028 90,236 83,767	106,412 92,036 85,808	115,901 93,226 87,231	121,317 90,752 84,980	130,178 90,563 85,006	139,144 90,025 84,675	141,548 85,169 80,019	149,904 83,884 78,925	160,105 83,320 78,546	166,915 80,784 76,188	176,505 79,446 75,021	184,232 77,119 72,859	177,961 69,279 65,178	181,706 65,786 61,837	406,153 136,752 132,951	193,451 60,576 56,916	200,026 58,250 54,727	205,268 55,592 52,200	211,042 53,155 49,890	197,112 46,171 43,028	202,537 44,121 41,094	205,507 41,634 38,720	209,397 39,453 36,648	209,643 36,734 34,034	210,549 34,310 31,710	210,714 31,934 29,431	214,385 30,216 27,806	211,534 27,727 25,407	432,762 52,754 50,520
	:0,400,000	ş	10,000,937	00,101	00,008	07,237	04,980	00,006	04,0/0	00,019	10,325	r 0,040	10,188	10,021	12,009	00,178	01,037	132,901	916,90	04,1 <i>∠1</i>	52,200	43,03U	40,028	÷1,094	30, <i>12</i> 0	JO,048	34,034	31,710	23,431	£1,000	£0,40 <i>1</i>	JU,32U

Length RM (m) Diam RM (mm) Pump Duty (Ls) Length GM (m) Costs 2010/2011 Energy Cost Annual Real Energy Increase		6,000 600																														
2010/2011 Energy Cost		356 1,100																														
2010/2011 GHG Cost Real GHG Increase		3.52%	tonnes CO2-e																													
FY Ending Discount Factor		Units	2012 1.00	2013 0.93	2014 0.86	2015 0.80	2016 0.75	2017 0.70	2018 0.65	2019 0.60	2020 0.56	2021 0.52	2022 0.48	2023 0.45	0.42	2025 0.39	2026 0.36	2027 0.34	2028 0.31	2029 0.29	2030 0.27	2031 0.25	2032 0.23	2033 0.22	2034 0.20	2035 0.19	2036 0.18	2037 0.16	2038 0.15	2039 0.14	2040 0.13	2041 0.12
Developer Capital Costs (\$ 2010/2011) Water Supply Mains Pump Station Reservoir Telemetry & SCADA Chemical Dosing Total Water Supply Cost Sewer)	\$ \$ \$ \$ \$ \$	-		-			-	-			-		-	-	-		-	-	-			-			-				-		
Internal Transfer Gravity Mains Rising Mains Sewer Pump Station Telemetry & SCADA Chemical Dosing Total Sewer Cost		\$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$	4,352,176 2,359,273 8,938,789 1,717,664 17,367,902																													
Total Developer Capital Costs Total Developer PV	17,367,902	\$	17,367,902 17,367,902	:	:	:	:	-			:	:	:		:	:	:		:	:	:	:	:	:	:		:	:	:		:	:
HWC Capital Costs (\$ 2010/2011)	11,001,002	•	11,001,002	-			-	-							-										-						-	
Water Supply Mains Pump Station Reservoir Telemetry & SCADA Chemical Dosing Total Water Supply Cost		\$ \$ \$ \$ \$ \$ \$	-		-	<u> </u>			<u> </u>			-		<u> </u>		-	-		-	-	-	-					-	-				
Sewer Mains Pump Station Telemetry & SCADA Chemical Dosing Total Sewer Cost		\$ \$ \$ \$ \$	-	-	-	-	-	-	-	-	-	-	-	-	_	-	-	108,000 <i>108,000</i>	-	-	-	-	-	-	_	-	-	-	-	-	_	108,000 <i>108,000</i>
Total HWC Capital Costs Total HWC Capital PV	49,529	\$ \$:	1	:	1	1	:	:	:	:	1	:	:	2	:	1	108,000 36,364	:	1	1	1	:	:	:	:	1	1	:	:	:	108,000 13,165
HWC Operating Costs (\$ 2010/2011)																																
Water Supply Mains Pump Station Reservoir Chemical Dosing Total Water Supply Cost	#DIV/0! #DIV/0! #DIV/0! #DIV/0!	\$ \$ \$ \$		-		-				-	-	-	-	-		-	-	-	-	-	-	-	-	-		-	-	-	-	-		
Sewer Mains Pump Station	#DIV/0! #DIV/0!	s s																														
ET ADWF (L/s) ADWF (MLy) Detention Time (hr) Dose Cost Rate (\$/ML) Chemical Dosing Total Sever Cost Chemical Dosing PV	9.63% 705,841	\$ <u></u>	200 2.2 69.4 218.1 99.0 6,869 7,457 7,457	400 4.4 138.8 109.0 99.0 13,737 14,488 13,474	600 6.6 208.1 72.7 99.0 20,606 21,592 18,675	800 8.8 277.5 54.5 99.0 27,474 28,714 23,096	1,000 11.0 346.9 43.6 99.0 34,343 35,843 26,813	1,200 13.2 416.3 36.3 99.0 41,211 42,976 29,898	1,400 15.4 485.7 31.2 87.0 42,252 44,271 28,643	1,600 17.6 555.0 27.3 87.0 48,288 50,575 30,431	1,800 19.8 624.4 24.2 87.0 54,324 56,879 31,829	2,000 22.0 693.8 21.8 87.0 60,360 63,185 32,882	2,200 24.2 763.2 19.8 75.0 57,238 60,320 29,194	2,400 26.4 832.6 18.2 75.0 62,441 65,793 29,614	2,600 28.6 901.9 16.8 75.0 67,645 71,267 29,832	2,800 30.8 971.3 15.6 75.0 72,848 76,741 29,875	3,000 33.0 1040.7 14.5 75.0 78,052 82,215 29,765	3,200 35.2 1110.1 13.6 75.0 83,255 87,689 29,525	3,400 37.4 1179.4 12.8 75.0 88,458 93,163 29,172	3,600 39.6 1248.8 12.1 75.0 93,662 98,637 28,724	3,800 41.8 1318.2 11.5 75.0 98,865 104,112 28,196	4,000 44.0 1387.6 10.9 62.0 86,030 91,535 23,055	4,200 46.2 1457.0 10.4 62.0 90,332 96,107 22,512	4,400 48.4 1526.3 9.9 62.0 94,633 100,680 21,932	4,500 49.5 1561.0 9.7 62.0 96,784 102,966 20,860	4,500 49.5 1561.0 9.7 62.0 96,784 102,966 19,400	4,500 49.5 1561.0 9.7 62.0 96,784 102,966 18,042	4,500 49.5 1561.0 9.7 62.0 96,784 102,966 16,779	4,500 49.5 1561.0 9.7 62.0 96,784 102,966 15,605	4,500 49.5 1561.0 9.7 62.0 96,784 102,966 14,512	4,500 49.5 1561.0 9.7 62.0 96,784 102,966 13,496	4,500 49.5 1561.0 9.7 62.0 96,784 102,966 12,552
Energy KWh/year \$/kWh Total Energy Cost Energy Cost PV		kWh/year \$/kWh \$	211,198 0.156 32,877 32,877	211,198 0.162 34,237 31,841	211,198 0.169 <i>35,653</i> 30,837	211,198 0.176 37,128 29,864	211,198 0.183 <i>38,664</i> 28,922	211,198 0.191 <i>40,263</i> 28,010	211,198 0.199 <i>41,928</i> 27,127	211,198 0.207 <i>43</i> ,663 26,272	211,198 0.215 45,469 25,443	211,198 0.230 <i>48,557</i> 25,269	211,198 0.233 49,266 23,844	211,198 0.246 51,911 23,365	211,198 0.252 53,244 22,288	211,198 0.254 53,619 20,874	211,198 0.250 52,782 19,109	211,198 0.254 53,597 18,046	211,198 0.256 <i>54,054</i> 16,926	211,198 0.261 <i>55,166</i> 16,065	211,198 0.262 55,337 14,987	211,198 0.265 55,868 14,072	211,198 0.265 55,865 13,086	211,198 0.269 56,761 12,365	211,198 0.271 57,212 11,591	211,198 0.282 59,579 11,225	211,198 0.281 59,385 10,406	211,198 0.282 59,639 9,719	211,198 0.281 59,361 8,996	211,198 0.291 61,522 8,671	211,198 0.280 59,108 7,748	211,198 0.287 60,702 7,400
GHG Costs kg CO ₂ -e/kWh Tonnes CO ₂ -e \$ / tonne CO ₂ -e GHG Cost GHG PV		CO ₂ -e/kWh nnes CO ₂ -e \$ \$	0.89 188 25.00 4,699 4,699	0.89 188 25.88 4,865 4,524	0.89 188 26.79 5,036 4,355	0.89 188 27.73 5,213 4,193	0.89 188 28.71 5,397 4,037	0.89 188 29.72 5,587 3,886	0.89 188 30.77 5,783 3,742	0.89 188 31.85 5,987 3,602	0.89 188 32.97 6,197 3,468	0.89 188 34.13 6,416 3,339	0.89 188 35.33 6,641 3,214	0.89 188 36.58 6,875 3,095	0.89 188 37.86 7,117 2,979	0.89 188 39.20 7,368 2,868	0.89 188 40.58 7,627 2,761	0.89 188 42.01 7,896 2,658	0.89 188 43.48 <i>8,173</i> 2,559	0.89 188 45.01 <i>8,461</i> 2,464	0.89 188 46.60 8,759 2,372	0.89 188 48.24 9,067 2,284	0.89 188 49.94 9,387 2,199	0.89 188 51.70 <i>9,717</i> 2,117	0.89 188 53.51 <i>10,059</i> 2,038	0.89 188 55.40 10,413 1,962	0.89 188 57.35 10,780 1,889	0.89 188 59.37 11,159 1,818	0.89 188 61.46 <i>11,552</i> 1,751	0.89 188 63.62 11,958 1,685	0.89 188 65.86 12,379 1,623	0.89 188 68.18 <i>12,815</i> 1,562
Total Operating Costs Total Operating PV	1,368,830	\$ \$	45,034 45,034	53,590 49,839	62,281 53,867	71,055 57,154	79,903 59,772	88,825 61,795	91,983 59,512	100,224 60,305	108,545 60,740	118,157 61,490	116,227 56,252	124,580 56,074	131,629 55,099	137,728 53,617	142,624 51,636	149,181 50,229	155,390 48,658	162,265 47,254	168,207 45,555	156,470 39,410	161,358 37,796	167,158 36,414	170,238 34,489	172,958 32,587	173,131 30,336	173,764 28,316	173,879 26,351	176,447 24,869	174,453 22,867	176,483 21,513
HWC Maintenance Costs (\$ 2010/2011) Water Supply Mains Pump Station Reservoir Chemical Dosing Total Water Supply Cost	#DIV/0! #DIV/0! #DIV/0! #DIV/0!	\$ \$ \$ \$																														
Sewer Rising Mains Gravity Mains Pump Station Chemical Dosing Total Sewer Cost	0.00% 0.00% 0.00% #DIV/0!	\$ \$ \$ \$	8,485 2,508 16,000 26,993	8,485 2,508 16,000 26,993	8,485 2,508 16,000 26,993	8,485 2,508 16,000 26,993	8,485 2,508 16,000 26,993	8,485 2,508 16,000 26,993	8,485 2,508 16,000 26,993	8,485 2,508 16,000 26,993	8,485 2,508 16,000 26,993	8,485 2,508 16,000 26,993	8,485 2,508 16,000 26,993	8,485 2,508 16,000 26,993	8,485 2,508 16,000 26,993	8,485 2,508 16,000 26,993	8,485 2,508 16,000 26,993	8,485 2,508 16,000 26,993	8,485 2,508 16,000 26,993	8,485 2,508 16,000 26,993	8,485 2,508 16,000 26,993	8,485 2,508 16,000 26,993	8,485 2,508 16,000 26,993	8,485 2,508 16,000 26,993	8,485 2,508 16,000 26,993	8,485 2,508 16,000 26,993	8,485 2,508 16,000 26,993	8,485 2,508 16,000 26,993	8,485 2,508 16,000 26,993	8,485 2,508 16,000 26,993	8,485 2,508 16,000 26,993	8,485 2,508 16,000 26,993
Total Maintenance Costs Total Maintenance PV	341,904	\$ \$	26,993 26,993	26,993 25,104	26,993 23,347	26,993 21,712	26,993 20,192	26,993 18,779	26,993 17,464	26,993 16,242	26,993 15,105	26,993 14,048	26,993 13,064	26,993 12,150	26,993 11,299	26,993 10,508	26,993 9,773	26,993 9,089	26,993 8,453	26,993 7,861	26,993 7,311	26,993 6,799	26,993 6,323	26,993 5,880	26,993 5,469	26,993 5,086	26,993 4,730	26,993 4,399	26,993 4,091	26,993 3,805	26,993 3,538	26,993 3,291
Total O & M Costs Total O & M PV	1,710,733	\$ \$	72,027 72,027	80,583 74,943	89,275 77,214	98,048 78,866	106,897 79,964	115,819 80,574	118,976 76,976	127,218 76,547	135,539 75,845	145,150 75,538	143,221 69,316	151,573 68,224	158,622 66,399	164,721 64,125	169,617 61,409	176,175 59,318	182,384 57,110	189,259 55,114	195,201 52,866	183,464 46,209	188,352 44,119	194,151 42,294	197,231 39,958	199,951 37,673	200,124 35,066	200,757 32,715	200,873 30,442	203,440 28,673	201,447 26,405	203,476 24,804
Lifecycle Costs	19,128,165 19,042,420	\$ \$	17,439,929 17,439,929 17,435,230	80,583 74,943 70,419	89,275 77,214 72,858	98,048 78,866 74,673	106,897 79,964 75,928	115,819 80,574 76,687	118,976 76,976 73,235	127,218 76,547 72,945	135,539 75,845 72,377	145,150 75,538 72,199	143,221 69,316 66,102	151,573 68,224 65,129	158,622 66,399 63,419	164,721 64,125 61,257	169,617 61,409 58,648	284,175 95,682 93,023	182,384 57,110 54,551	189,259 55,114 52,650	195,201 52,866 50,494	183,464 46,209 43,925	188,352 44,119 41,921	194,151 42,294 40,178	197,231 39,958 37,920	199,951 37,673 35,711	200,124 35,066 33,177	200,757 32,715 30,896	200,873 30,442 28,692	203,440 28,673 26,988	201,447 26,405 24,782	311,476 37,969 36,407

Option Reference Real Discount Rate		Option SE1B 7.0%																														
Length RM (m) Diam RM (mm) Pump Duty (L/s) Length GM (m)		3,500 600 356 3,600																														
Costs 2010/2011 Energy Cost Annual Real Energy Increase 2010/2011 GHG Cost Real GHG Increase FY Ending		0.157 2.18% 25.00 3.52% Units	kWh / tonnes CO2-e 2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	2039	2040	2041
Discount Factor		Units	1.00	0.93	0.86	0.80	0.75	0.70	0.65	0.60	0.56	0.52	0.48	0.45	0.42	0.39	0.36	0.34	0.31	0.29	0.27	0.25	0.23	0.22	0.20	0.19	0.18	0.16	0.15	0.14	0.13	0.12
Developer Capital Costs (\$ 2010/2011 Water Supply Mains Pump Station Reservoir Telemetry & SCADA Chemical Dosing Total Water Supply Cost	1	\$ \$ \$ \$ \$ \$ \$ \$	-		-								-																			
Sewer Internal Transfer Gravity Mains Rising Mains Sewer Pump Station Telemetry & SCADA Chemical Dosing Total Sewer Cost		\$ \$ \$ \$	3,320,409 7,412,888 5,727,547 2,373,766 18,834,609			-	-							-					-	-			-	-				-	-	<u> </u>	<u> </u>	-
Total Developer Capital Costs Total Developer PV	18,834,609	\$ \$	18,834,609 18,834,609	:	1	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:
HWC Capital Costs (\$ 2010/2011) Water Supply Mains Pump Station Reservoir Telemetry & SCADA Chemical Dosing Total Water Supply Cost		\$ \$ \$ \$ \$ \$			-								-					-							-							
Sewer Mains Pump Station Telemetry & SCADA Chemical Dosing <i>Total Sewer Cost</i> Total HWC Capital Costs		\$ \$ \$ \$															-	238,950 238,950 238,950			<u> </u>					<u> </u>					-	238,950 238,950 238,950
Total HWC Capital PV HWC Operating Costs (\$ 2010/2011)	109,583	s	-	-	-	•	•	-	-	-	-	-	-		-	•	-	80,455	-	•	-	-	-	-	-	-	-	-	-	-	-	29,128
Water Supply Mains Pump Station Reservoir Chemical Dosing Total Water Supply Cost	#DIV/0! #DIV/0! #DIV/0! #DIV/0!	\$ \$ \$ \$	-		-	-	-		-	-	-	-	-	-	-		-	-	-	-	-	-	-	-	-		-	-	-		-	
<i>Sewer</i> Mains Pump Station	#DIV/0! #DIV/0!	s s																														
ET ADWF (L/s) ADWF (ML/y) Detention Time (hr) Dose Cost Rate (\$/ML) Chemical Dosing Total Sever Cost Chemical Dosing PV	8.67% 592,732	\$ \$	200 2.2 69.4 128.9 99.0 6,869 7,368 7,368 7,368	138.8 64.4	208.1 43.0 99.0	800 8.8 277.5 32.2 87.0 24,144 25,350 20,390	1,000 11.0 346.9 25.8 87.0 <u>30,180</u> 31,651 23,676	1,200 13.2 416.3 21.5 87.0 <u>36,216</u> 37,954 26,404	1,400 15.4 485.7 18.4 75.0 <u>36,424</u> <u>38,419</u> 24,856	1,600 17.6 555.0 16.1 75.0 41,628 43,891 26,409	1,800 19.8 624.4 14.3 75.0 46,831 49,364 27,623	2,000 22.0 693.8 12.9 75.0 52,034 54,838 28,538	2,200 24.2 763.2 11.7 75.0 57,238 60,312 29,190	2,400 26.4 832.6 10.7 62.0 51,618 54,950 24,733	2,600 28.6 901.9 9.9 62.0 55,920 59,522 24,916	2,800 30.8 971.3 9.2 62.0 60,221 64,094 24,952	3,000 33.0 1040.7 8.6 62.0 64,523 68,667 24,860	3,200 35.2 1110.1 8.1 62.0 68,824 73,239 24,660	3,400 37.4 1179.4 7.6 62.0 73,126 77,812 24,365	3,600 39.6 1248.8 7.2 49.0 61,192 66,137 19,260	3,800 41.8 1318.2 6.8 49.0 64,592 69,808 18,906	4,000 44.0 1387.6 6.4 49.0 <u>67,992</u> 73,479 18,507	4,200 46.2 1457.0 6.1 49.0 71,391 77,149 18,071	4,400 48.4 1526.3 5.9 49.0 74,791 80,820 17,606	4,500 49.5 1561.0 5.7 49.0 76,491 82,656 16,746	4,500 49.5 1561.0 5.7 49.0 76,491 82,656 15,573	4,500 49.5 1561.0 5.7 49.0 76,491 82,656 14,483	4,500 49.5 1561.0 5.7 49.0 76,491 82,656 13,469	4,500 49.5 1561.0 5.7 49.0 76,491 82,656 12,527	4,500 49.5 1561.0 5.7 49.0 76,491 82,656 11,650	4,500 49.5 1561.0 5.7 49.0 76,491 82,656 10,834	4,500 49.5 1561.0 5.7 49.0 76,491 82,656 10,076
Energy kWh/year \$/kWh Total Energy Cost Energy Cost PV	2.18% 998,548	kWh/year \$/kWh \$	365,342 0.156 <i>56,873</i> 56,873	365,342 0.162 59,225 55,079	365,342 0.169 61,675 53,343	365,342 0.176 <i>64,226</i> 51,661	365,342 0.183 66,883 50,032	365,342 0.191 69,649 48,454	365,342 0.199 72,530 46,926	365,342 0.207 75,530 45,446	365,342 0.215 78,654 44,013	365,342 0.230 83,996 43,712	365,342 0.233 85,222 41,246	365,342 0.246 89,798 40,419	365,342 0.252 92,105 38,555	365,342 0.254 92,754 36,108	365,342 0.250 91,305 33,056	365,342 0.254 92,715 31,217	365,342 0.256 93,505 29,279	365,342 0.261 95,430 27,790	365,342 0.262 95,724 25,925	365,342 0.265 96,644 24,342	365,342 0.265 96,638 22,636	365,342 0.269 <i>98,188</i> 21,389	365,342 0.271 98,969 20,050	365,342 0.282 103,063 19,418	365,342 0.281 102,727 18,000	365,342 0.282 103,166 16,812	365,342 0.281 102,687 15,562	365,342 0.291 <i>106,425</i> 15,000	365,342 0.280 102,248 13,402	365,342 0.287 105,005 12,800
GHG Costs kg CO ₂ -ei/kWh Tonnes CO ₂ -e \$ / tonne CO ₂ -e GHG Cost GHG PV Total Operating Costs		kg CO ₂ -e/kWh Fonnes CO ₂ -e \$ \$	0.89 325 25.00 8,129 8,129 72,370	0.89 325 25.88 <i>8,415</i> 7,826 82,084	0.89 325 26.79 8,711 7,534 91,948	0.89 325 27.73 9,018 7,254 98,593	0.89 325 28.71 9,335 6,983 107,868	0.89 325 29.72 9,664 6,723 117,267	0.89 325 30.77 10,004 6,473 120,952	0.89 325 31.85 10,356 6,231 129,777	0.89 325 32.97 10,721 5,999 138,739	0.89 325 34.13 <i>11,098</i> 5,776 149,932	0.89 325 35.33 11,489 5,560 157,023	0.89 325 36.58 11,893 5,353 156,641	0.89 325 37.86 12,312 5,154 163,939	0.89 325 39.20 12,745 4,962 169,593	0.89 325 40.58 13,194 4,777 173,166	0.89 325 42.01 13,658 4,599 179,612	0.89 325 43.48 14,139 4,427 185,456	0.89 325 45.01 14,637 4,262 176,204	0.89 325 46.60 15,152 4,104 180,684	0.89 325 48.24 15,685 3,951 185,808	0.89 325 49.94 16,237 3,803 190,024	0.89 325 51.70 16,809 3,662 195,817	0.89 325 53.51 17,401 3,525 199,025	0.89 325 55.40 18,013 3,394 203,731	0.89 325 57.35 18,647 3,267 204,030	0.89 325 59.37 19,303 3,146 205,125	0.89 325 61.46 19,983 3,028 205,325	0.89 325 63.62 20,686 2,916 209,767	0.89 325 65.86 21,415 2,807 206,318	0.89 325 68.18 22,168 2,702 209,829
Total Operating PV HWC Maintenance Costs (\$ 2010/2011	1,739,606	ŝ	72,370	76,338	79,526	79,304	80,691	81,581	78,255	78,087	77,636	78,026	75,996	70,505	68,624	66,022	62,694	60,476	58,072	51,313	48,934	46,799	44,511	42,657	40,321	38,385	35,751	33,427	31,117	29,565	27,043	25,578
Water Supply Mains Pump Station Reservoir Chemical Dosing Total Water Supply Cost	#DIV/0! #DIV/0! #DIV/0! #DIV/0!	\$ \$ \$ \$	-			-	-	-	-		-	-	-	-	-	-	-	-	-	-	-		-	-	-	-		-	-		-	
Sewer Rising Mains Gravity Mains Pump Station Chemical Dosing Total Sewer Cost	0.00% 0.00% 0.00% #DIV/0!	\$ \$ \$ \$	6,060 8,209 16,000 <i>30,269</i>	6,060 8,209 16,000 <i>30,269</i>	6,060 8,209 16,000 <i>30,269</i>	6,060 8,209 16,000 <i>30,269</i>	6,060 8,209 16,000 <i>30,269</i>	6,060 8,209 16,000 <i>30,269</i>	6,060 8,209 16,000 <i>30,269</i>	6,060 8,209 16,000 30,269	6,060 8,209 16,000 <i>30,269</i>	6,060 8,209 16,000 <i>30,269</i>	6,060 8,209 16,000 <i>30,269</i>	6,060 8,209 16,000 <i>30,269</i>	6,060 8,209 16,000 <i>30,269</i>	6,060 8,209 16,000 <i>30,269</i>	6,060 8,209 16,000 <i>30,269</i>	6,060 8,209 16,000 <i>30,269</i>	6,060 8,209 16,000 <i>30,269</i>	6,060 8,209 16,000 <i>30,269</i>	6,060 8,209 16,000 <i>30,269</i>	6,060 8,209 16,000 <i>30,269</i>	6,060 8,209 16,000 <i>30,269</i>	6,060 8,209 16,000 <i>30,269</i>	6,060 8,209 16,000 <i>30,269</i>	6,060 8,209 16,000 <i>30,269</i>	6,060 8,209 16,000 30,269	6,060 8,209 16,000 <i>30,269</i>	6,060 8,209 16,000 <i>30,269</i>	6,060 8,209 16,000 <i>30,269</i>	6,060 8,209 16,000 <i>30,269</i>	6,060 8,209 16,000 30,269
Total Maintenance Costs Total Maintenance PV	383,398	s s	30,269 30,269	30,269 28,151	30,269 26,180	30,269 24,347	30,269 22,643	30,269 21,058	30,269 19,584	30,269 18,213	30,269 16,938	30,269 15,753	30,269 14,650	30,269 13,624	30,269 12,671	30,269 11,784	30,269 10,959	30,269 10,192	30,269 9,478	30,269 8,815	30,269 8,198	30,269 7,624	30,269 7,090	30,269 6,594	30,269 6,132	30,269 5,703	30,269 5,304	30,269 4,933	30,269 4,587	30,269 4,266	30,269 3,968	30,269 3,690
Total O & M Costs Total O & M PV	2,123,004	\$ \$	102,639 102,639	112,353 104,489	122,218 105,706	128,863 103,652	138,138 103,334	147,536 102,639	151,222 97,839	160,047 96,300	169,009 94,574	180,202 93,779	187,292 90,646	186,911 84,129	194,208 81,295	199,863 77,805	203,435 73,652	209,882 70,667	215,725 67,550	206,473 60,128	210,953 57,132	216,077 54,423	220,294 51,601	226,087 49,251	229,295 46,454	234,001 44,089	234,300 41,055	235,395 38,359	235,595 35,704	240,036 33,831	236,587 31,011	240,098 29,268
Lifecycle Costs Total PV (Inc GHG) Total PV (Ex GHG)	21,067,195 20,918,869	\$ \$ \$	18,937,248 18,937,248 18,929,119	112,353 104,489 96,663	122,218 105,706 98,172	128,863 103,652 96,398	138,138 103,334 96,351	147,536 102,639 95,916	151,222 97,839 91,367	160,047 96,300 90,069	169,009 94,574 88,575	180,202 93,779 88,003	187,292 90,646 85,086	186,911 84,129 78,776	194,208 81,295 76,141	199,863 77,805 72,844	203,435 73,652 68,876	448,832 151,122 146,523	215,725 67,550 63,123	206,473 60,128 55,865	210,953 57,132 53,028	216,077 54,423 50,473	220,294 51,601 47,798	226,087 49,251 45,589	229,295 46,454 42,928	234,001 44,089 40,695	234,300 41,055 37,787	235,395 38,359 35,214	235,595 35,704 32,676	240,036 33,831 30,916	236,587 31,011 28,204	479,048 58,396 55,694
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Option Reference Real Discount Rate		Option SE1B 7.0%																														
Length RM (m) Diam RM (mm) Pump Duty (L/s) Length GM (m)		3,500 750 356 3,600																														
Costs 2010/2011 Energy Cost Annual Real Energy Increase 2010/2011 GHG Cost Real GHG Increase FY Ending		0.157 2.18% 25.00 3.52%	/ tonnes CO2-e	2042	2014	2045	2046	2047	2049	2040	2020	2024	2022	2022	2024	2025	2026	2027	2028	2020	2020	2024	2022	2022	2024	2025	2026	2027	2026	2020	2040	2044
Discount Factor	-	Units	2012 1.00	2013 0.93	2014 0.86	2015 0.80	2016 0.75	2017 0.70	2018 0.65	2019 0.60	2020 0.56	2021 0.52	2022 0.48	2023 0.45	2024 0.42	2025 0.39	2026 0.36	2027 0.34	2028 0.31	2029 0.29	2030 0.27	2031 0.25	0.23	2033 0.22	2034 0.20	2035 0.19	2036 0.18	2037 0.16	2038 0.15	2039 0.14	2040 0.13	0.12
Developer Capital Costs (\$ 2010/2011) Water Supply Mains Pump Station Reservoir Telemetry & SCADA Chemical Dosing Total Water Supply Cost Sewer)	\$ \$ \$ \$ \$		-	-		-						-	-																	-	_
Internal Transfer Gravity Mains Rising Mains Sewer Pump Station Telemetry & SCADA Chemical Dosing Total Sewer Cost		\$ \$ \$ \$ \$ \$ \$	3,320,409 7,412,888 7,504,196 2,193,844 20,431,337	-	-	-	-				-	-	-	-	-						-	-	-			-	-			-	-	
Total Developer Capital Costs Total Developer PV	20,431,337	s s	20,431,337 20,431,337	1	:	:	:	:	1	1	:	:	1	:	:	1	1	1	1	1	:	:	:	1	1	:	1	1	1	:	1	:
HWC Capital Costs (\$ 2010/2011) Water Supply Mains Pump Station Reservoir Telemetry & SCADA Chemical Dosing Total Water Supply Cost		\$ \$ \$ \$ \$ \$			-		<u> </u>			-	-		-	<u> </u>	<u> </u>						-	-	-			-	-		-	-	-	
Sewer Mains Pump Station Telemetry & SCADA Chemical Dosing Total Sewer Cost		\$ \$ \$ \$	-	-	-	-	-		-	-		-	-	-	-	-	-	218,325 218,325	-	-	-	-	-	-	-	-		-	-	-	-	218,325 218,325
Total HWC Capital Costs Total HWC Capital PV	100,124	\$ \$:	:	1	1	1	-	:	1	1	1	1	1	1	:	:	218,325 73,510	1	:	1	1	1	:	:	1	1	:	1	1	1	218,325 26,614
HWC Operating Costs (\$ 2010/2011) Water Supply Mains Pump Station Reservoir Chemical Dosing Total Water Supply Cost	#DIV/0! #DIV/0! #DIV/0! #DIV/0!	\$ \$ \$ \$																														
Sewer Mains Pump Station	#DIV/0! #DIV/0!	s s																														
ET ADWF (L/s) ADWF (ML/y) Detention Time (hr) Dose Cost Rate (\$/ML) Chemical Dosing Total Sewer Cost Chemical Dosing PV	9.55% 688,589	\$ \$	200 2.2 69.4 199.1 99.0 6,869 7,438 7,438	400 4.4 138.8 99.6 99.0 13,737 14,479 13,465	600 6.6 208.1 66.4 99.0 20,606 21,586 18,670	800 8.8 277.5 49.8 99.0 27,474 28,709 23,092	1,000 11.0 346.9 39.8 99.0 34,343 35,839 26,810	1,200 13.2 416.3 33.2 87.0 36,216 37,966 26,412	1,400 15.4 485.7 28.4 87.0 42,252 44,268 28,641	1,600 17.6 555.0 24.9 87.0 48,288 50,572 30,429	1,800 19.8 624.4 22.1 87.0 54,324 56,877 31,827	2,000 22.0 693.8 19.9 75.0 52,034 54,845 28,542	2,200 24.2 763.2 18.1 75.0 57,238 60,318 29,193	2,400 26.4 832.6 16.6 75.0 62,441 65,792 29,613	2,600 28.6 901.9 15.3 75.0 67,645 71,266 29,832	2,800 30.8 971.3 14.2 75.0 72,848 76,739 29,874	3,000 33.0 1040.7 13.3 75.0 78,052 82,214 29,765	3,200 35.2 1110.1 12.4 75.0 83,255 87,688 29,525	3,400 37.4 1179.4 11.7 75.0 88,458 93,162 29,172	3,600 39.6 1248.8 11.1 62.0 77,427 82,389 23,993	3,800 41.8 1318.2 10.5 62.0 81,729 86,961 23,551	4,000 44.0 1387.6 10.0 62.0 86,030 91,534 23,055	4,200 46.2 1457.0 9.5 62.0 90,332 96,106 22,512	4,400 48.4 1526.3 9.1 62.0 94,633 100,679 21,932	4,500 49.5 1561.0 8.9 62.0 96,784 102,965 20,860	4,500 49.5 1561.0 8.9 62.0 96,784 102,965 19,400	4,500 49.5 1561.0 8.9 62.0 96,784 102,965 18,042	4,500 49.5 1561.0 8.9 62.0 96,784 102,965 16,779	4,500 49.5 1561.0 8.9 62.0 96,784 102,965 15,604	4,500 49.5 1561.0 8.9 62.0 96,784 102,965 14,512	4,500 49.5 1561.0 8.9 62.0 96,784 102,965 13,496	4,500 49.5 1561.0 8.9 62.0 96,784 102,965 12,552
Energy kWh/year \$/kWh Total Energy Cost Energy Cost PV	2.18% 915,867	kWh/year \$/kWh \$	335,091 0.156 52,164 52,164	335,091 0.162 <i>54,321</i> 50,519	335,091 0.169 56,568 48,926	335,091 0.176 58,908 47,383	335,091 0.183 <i>61,345</i> 45,889	335,091 0.191 63,882 44,442	335,091 0.199 66,524 43,041	335,091 0.207 69,276 41,683	335,091 0.215 72,141 40,369	335,091 0.230 77,041 40,093	335,091 0.233 78,166 37,831	335,091 0.246 82,363 37,072	335,091 0.252 84,479 35,363	335,091 0.254 <i>85,073</i> 33,119	335,091 0.250 <i>83,745</i> 30,319	335,091 0.254 <i>85,038</i> 28,632	335,091 0.256 <i>85,762</i> 26,855	335,091 0.261 87,528 25,489	335,091 0.262 87,798 23,778	335,091 0.265 <i>88,642</i> 22,326	335,091 0.265 <i>88,636</i> 20,762	335,091 0.269 <i>90,058</i> 19,618	335,091 0.271 90,774 18,390	335,091 0.282 94,529 17,810	335,091 0.281 <i>94,221</i> 16,510	335,091 0.282 94,624 15,420	335,091 0.281 <i>94,184</i> 14,274	335,091 0.291 97,613 13,758	335,091 0.280 93,781 12,292	335,091 0.287 96,310 11,740
GHC Costs kg CO ₂ -ekWh Tonnes CO ₂ -e GHC CO ₂ -e GHC PV Total Operating Costs Total Operating PV		kg CO ₂ -e/kWh Fonnes CO ₂ -e \$ \$	0.89 298 25.00 7,456 7,456 67,058 67,058	0.89 298 25.88 7,718 7,178 76,518 71,162	0.89 298 26.79 7,990 6,910 86,144 74,506	0.89 298 27.73 <i>8,271</i> 6,653 95,888 77,129	0.89 298 28.71 8,562 6,405 105,746 79,104	0.89 298 29.72 8,864 6,166 110,711 77,021	0.89 298 30.77 9,176 5,937 119,968 77,618	0.89 298 31.85 9,499 5,715 129,347 77,828	0.89 298 32.97 9,833 5,502 138,852 77,699	0.89 298 34.13 10,179 5,297 142,065 73,932	0.89 298 35.33 10,537 5,100 149,022 72,124	0.89 298 36.58 10,908 4,910 159,063 71,595	0.89 298 37.86 11,292 4,727 167,037 69,921	0.89 298 39.20 11,690 4,551 173,503 67,544	0.89 298 40.58 12,101 4,381 178,060 64,465	0.89 298 42.01 12,527 4,218 185,253 62,375	0.89 298 43.48 12,968 4,061 191,893 60,088	0.89 298 45.01 13,425 3,909 183,342 53,391	0.89 298 46.60 13,897 3,764 188,657 51,093	0.89 298 48.24 14,386 3,624 194,562 49,004	0.89 298 49.94 14,893 3,488 199,635 46,762	0.89 298 51.70 15,417 3,358 206,154 44,909	0.89 298 53.51 15,960 3,233 209,699 42,484	0.89 298 55.40 16,522 3,113 214,016 40,323	0.89 298 57.35 17,103 2,997 214,290 37,548	0.89 298 59.37 17,705 2,885 215,294 35,084	0.89 298 61.46 18,328 2,778 215,478 32,656	0.89 298 63.62 18,974 2,674 219,552 30,944	0.89 298 65.86 19,641 2,575 216,388 28,363	0.89 298 68.18 20,333 2,479 219,609 26,770
HWC Maintenance Costs (\$ 2010/2011 Water Supply Mains Pump Station Reservoir Chemical Dosing Total Water Supply Cost		\$ \$ \$ \$	-	-		-	-	-	-	-	-		-	-		-					-	-	-	-		-		-		-		
Sewer Rising Mains Gravity Mains Pump Station Chemical Dosing Total Sewer Cost Total Maintenance Costs	0.00% 0.00% 0.00% #DIV/0!	\$ \$ \$ \$ \$	6,414 8,209 16,000 <i>30,624</i> 30,624	6,414 8,209 16,000 <i>30,624</i> 30,624	6,414 8,209 16,000 <i>30,624</i> 30,624	6,414 8,209 16,000 <i>30,624</i> 30,624	6,414 8,209 16,000 <i>30,624</i> 30,624	6,414 8,209 16,000 <i>30,624</i> 30,624	6,414 8,209 16,000 <i>30,624</i> 30,624	6,414 8,209 16,000 <i>30,624</i> 30,624	6,414 8,209 16,000 <i>30,624</i> 30,624	6,414 8,209 16,000 <i>30,624</i> 30,624	6,414 8,209 16,000 30,624 30,624	6,414 8,209 16,000 <i>30,624</i> 30,624	6,414 8,209 16,000 <i>30,624</i> 30,624	6,414 8,209 16,000 <i>30,624</i> 30,624	6,414 8,209 16,000 <i>30,624</i> 30,624	6,414 8,209 16,000 <i>30,624</i> 30,624	6,414 8,209 16,000 <i>30,624</i> 30,624	6,414 8,209 16,000 <i>30,624</i> 30,624	6,414 8,209 16,000 30,624 30,624	6,414 8,209 16,000 30,624 30,624	6,414 8,209 16,000 30,624 30,624	6,414 8,209 16,000 <i>30,624</i> 30,624	6,414 8,209 16,000 <i>30,624</i> 30,624	6,414 8,209 16,000 30,624 30,624	6,414 8,209 16,000 30,624 30,624	6,414 8,209 16,000 <i>30,624</i> 30,624	6,414 8,209 16,000 <i>30,624</i> 30,624	6,414 8,209 16,000 30,624 30,624	6,414 8,209 16,000 30,624 30,624	6,414 8,209 16,000 30,624 30,624
Total Maintenance PV Total O & M Costs	387,887	s s	30,624 97,682	28,480 107,142	26,487 116,768	24,632 126,512	22,908 136,370	21,305 141,335	19,813 150,592	18,426 159,971	17,137 169,475	15,937 172,689	14,821 179,645	13,784 189,687	12,819 197,661	11,922 204,127	11,087 208,683	10,311 215,877	9,589 222,517	8,918 213,966	8,294 219,280	7,713 225,186	7,173 230,259	<mark>6,671</mark> 236,778	6,204 240,323	5,770 244,640	5,366 244,914	<mark>4,990</mark> 245,918	<mark>4,641</mark> 246,102	<mark>4,316</mark> 250,175	<mark>4,014</mark> 247,012	3,733 250,232
Total O & M PV Lifecycle Costs Total PV (Inc GHG) Total PV (Ex GHG)	2,128,387 22,659,848 22,523,803	\$ \$ \$ \$	97,682 20,529,018 20,529,018 20,521,562	99,642 107,142 99,642 92,464	100,992 116,768 100,992 94,082	101,761 126,512 101,761 95,108	102,012 136,370 102,012 95,607	98,325 141,335 98,325 92,159	97,432 150,592 97,432 91,495	96,255 159,971 96,255 90,539	94,835 169,475 94,835 89,333	89,869 172,689 89,869 84,572	86,945 179,645 86,945 81,845	85,379 189,687 85,379 80,469	82,740 197,661 82,740 78,013	79,465 204,127 79,465 74,915	75,553 208,683 75,553 71,171	72,686 434,202 146,196 141,978	69,677 222,517 69,677 65,616	62,309 213,966 62,309 58,400	59,387 219,280 59,387 55,623	56,717 225,186 56,717 53,094	53,936 230,259 53,936 50,447	51,580 236,778 51,580 48,222	48,688 240,323 48,688 45,455	46,093 244,640 46,093 42,980	42,914 244,914 42,914 39,918	40,074 245,918 40,074 37,189	37,297 246,102 37,297 34,519	35,260 250,175 35,260 32,586	32,377 247,012 32,377 29,803	30,503 468,557 57,117 54,639

Option Reference Real Discount Rate		Option SE1B 7.0%																														
Length RM (m) Diam RM (mm) Pump Duty (L/s) Length GM (m)		6,350 450 356 1,100																														
Costs 2010/2011 Energy Cost Annual Real Energy Increase 2010/2011 GHG Cost Real GHG Increase		3.52%	/ tonnes CO2-e																													
FY Ending Discount Factor		Units	2012 1.00	2013 0.93	2014 0.86	0.80	2016 0.75	2017 0.70	2018 0.65	2019 0.60	2020 0.56	2021 0.52	2022 0.48	2023 0.45	2024 0.42	2025 0.39	2026 0.36	2027 0.34	2028 0.31	2029 0.29	2030 0.27	0.25	0.23	2033 0.22	2034 0.20	0.19	0.18	2037 0.16	2038 0.15	2039 0.14	2040 0.13	0.12
Developer Capital Costs (\$ 2010/2011 Water Supply Mains Pump Station Reservoir Telemetry & SCADA Chemical Dosing Total Water Supply Cost Sewer)	\$ \$ \$ \$ \$			-	-	-			-	-	-	-	-	-	-	-					-	-	-	-	-		-	-		-	
Internal Transfer Gravity Mains Rising Mains Sewer Pump Station Telemetry & SCADA Chemical Dosing Total Sewer Cost		\$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$	3,320,409 2,359,273 7,380,331 2,373,766 15,433,779		-			<u> </u>					-	-	<u> </u>							-	-			-	-					
Total Developer Capital Costs Total Developer PV	15,433,779	\$ \$	15,433,779 15,433,779	1	:	1	1	:	:	1	1	1	-	:	1	1	1	:	:	:	:	1	1	1	:	1	1	1	:	:	1	1
HWC Capital Costs (\$ 2010/2011) Water Supply Mains Pump Station Reservoir Telemetry & SCADA Chemical Dosing Total Water Supply Cost		\$ \$ \$ \$ \$ \$ \$ \$ \$				-	-		<u> </u>			-	-	-	-	-				<u> </u>		-	-	-		-	-				-	
Sewer Mains Pump Station Telemetry & SCADA Chemical Dosing Total Sewer Cost Total HWC Capital Costs		\$ \$ \$ \$	-			-	-	-		-	-	-	-	-	-	-	-	238,950 238,950 238,950										-	-	-		238,950 238,950 238,950
Total HWC Capital PV HWC Operating Costs (\$ 2010/2011)	109,583	\$	-	-		-			•			-	•	•	-	-		80,455	•	•	•	-	-		-	-	-			•		29,128
Water Supply Mains Pump Station Reservoir Chemical Dosing Total Water Supply Cost	#DIV/0! #DIV/0! #DIV/0! #DIV/0!	\$ \$ \$ \$	-			-	-	-		-	-	-	-	-	-	-	-											-	-			<u> </u>
<i>Sewer</i> Mains Pump Station	#DIV/0! #DIV/0!	s s																														
ET ADWF (L/s) ADWF (ML/y) Detention Time (hr) Dose Cost Rate (\$/ML) Chemical Dosing Total Sewer Cost Chemical Dosing PV	8.71% 597,471	\$ \$	200 2.2 69.4 131.5 99.0 <u>6,869</u> 7,371 7,371	4.4 138.8 65.7	43.8 99.0	800 8.8 277.5 32.9 87.0 24,144 25,350 20,391	1,000 11.0 346.9 26.3 87.0 <u>30,180</u> 31,651 23,677	1,200 13.2 416.3 21.9 87.0 36,216 37,954 26,404	1,400 15.4 485.7 18.8 75.0 <u>36,424</u> 38,419 24,857	1,600 17.6 555.0 16.4 75.0 41,628 43,892 26,410	1,800 19.8 624.4 14.6 75.0 <u>46,831</u> 49,365 27,624	2,000 22.0 693.8 13.1 75.0 52,034 54,838 28,538	2,200 24.2 763.2 12.0 57,238 60,312 29,190	2,400 26.4 832.6 11.0 62.0 51,618 54,950 24,733	2,600 28.6 901.9 10.1 62.0 55,920 59,522 24,916	2,800 30.8 971.3 9.4 62.0 60,221 64,095 24,952	3,000 33.0 1040.7 8.8 62.0 64,523 68,667 24,861	3,200 35.2 1110.1 8.2 62.0 68,824 73,240 24,660	3,400 37.4 1179.4 7.7 62.0 73,126 77,812 24,365	3,600 39.6 1248.8 7.3 62.0 77,427 82,385 23,992	3,800 41.8 1318.2 6.9 49.0 64,592 69,808 18,906	4,000 44.0 1387.6 6.6 49.0 67,992 73,479 18,507	4,200 46.2 1457.0 6.3 49.0 71,391 77,150 18,071	4,400 48.4 1526.3 6.0 49.0 74,791 80,820 17,606	4,500 49.5 1561.0 5.8 49.0 76,491 82,656 16,746	4,500 49.5 1561.0 5.8 49.0 76,491 82,656 15,573	4,500 49.5 1561.0 5.8 49.0 76,491 82,656 14,483	4,500 49.5 1561.0 5.8 49.0 76,491 82,656 13,469	4,500 49.5 1561.0 5.8 49.0 76,491 82,656 12,527	4,500 49.5 1561.0 5.8 49.0 76,491 82,656 11,650	4,500 49.5 1561.0 5.8 49.0 76,491 82,656 10,834	4,500 49.5 1561.0 5.8 49.0 76,491 82,656 10,076
Energy kWh/year \$/kWh Total Energy Cost Energy Cost PV	2.18% 1,085,165	kWh/year \$/kWh \$	397,033 0.156 <i>61,806</i> 61,806	397,033 0.162 64,363 59,857	397,033 0.169 67,025 57,970	397,033 0.176 69,797 56,142	397,033 0.183 72,684 54,372	397,033 0.191 75,691 52,657	397,033 0.199 78,821 50,997	397,033 0.207 <i>82,082</i> 49,389	397,033 0.215 <i>85,477</i> 47,831	397,033 0.230 91,282 47,504	397,033 0.233 92,615 44,824	397,033 0.246 97,588 43,925	397,033 0.252 100,095 41,899	397,033 0.254 <i>100,799</i> 39,241	397,033 0.250 99,225 35,924	397,033 0.254 100,757 33,925	397,033 0.256 101,616 31,819	397,033 0.261 103,708 30,201	397,033 0.262 104,028 28,174	397,033 0.265 105,027 26,453	397,033 0.265 105,020 24,600	397,033 0.269 106,705 23,245	397,033 0.271 107,554 21,790	397,033 0.282 <i>112,003</i> 21,103	397,033 0.281 <i>111,638</i> 19,562	397,033 0.282 112,115 18,270	397,033 0.281 <i>111,594</i> 16,912	397,033 0.291 <i>115</i> ,657 16,301	397,033 0.280 111,117 14,565	397,033 0.287 114,113 13,910
$\begin{array}{l} {\it GHG\ Costs}\\ {\it kg\ CO_2-e/kWh}\\ {\it Tonnes\ CO_2-e}\\ {\it S/\ tonnes\ CO_2-e}\\ {\it GHG\ Cost}\\ {\it GHG\ PV} \end{array}$		kg CO ₂ -e/kWh Fonnes CO ₂ -e \$ \$	0.89 353 25.00 8,834 8,834	0.89 353 25.88 9,145 8,505	0.89 353 26.79 9,467 8,188	0.89 353 27.73 9,800 7,883	0.89 353 28.71 10,145 7,589	0.89 353 29.72 10,502 7,306	0.89 353 30.77 10,872 7,034	0.89 353 31.85 <i>11,254</i> 6,772	0.89 353 32.97 11,651 6,519	0.89 353 34.13 12,061 6,277	0.89 353 35.33 12,485 6,043	0.89 353 36.58 12,925 5,817	0.89 353 37.86 13,380 5,601	0.89 353 39.20 13,851 5,392	0.89 353 40.58 14,338 5,191	0.89 353 42.01 14,843 4,998	0.89 353 43.48 15,365 4,811	0.89 353 45.01 15,906 4,632	0.89 353 46.60 16,466 4,459	0.89 353 48.24 17,046 4,293	0.89 353 49.94 17,646 4,133	0.89 353 51.70 18,267 3,979	0.89 353 53.51 18,910 3,831	0.89 353 55.40 19,576 3,688	0.89 353 57.35 20,265 3,551	0.89 353 59.37 20,978 3,419	0.89 353 61.46 <i>21,716</i> 3,291	0.89 353 63.62 22,481 3,168	0.89 353 65.86 23,272 3,050	0.89 353 68.18 24,091 2,937
Total Operating Costs Total Operating PV	1,843,829	\$ \$	78,011 78,011	87,953 81,796	98,055 84,808	104,947 <mark>84,415</mark>	114,480 85,637	124,147 86,368	128,112 82,887	137,228 82,570	146,492 81,974	158,181 82,319	165,412 80,057	165,463 74,475	172,997 72,416	178,745 69,584	182,230 65,975	188,840 63,583	194,793 60,996	201,999 58,825	190,302 51,539	195,552 49,254	199,816 46,805	205,792 44,830	209,120 42,366	214,234 40,364	214,559 37,596	215,749 35,158	215,966 32,730	220,793 31,119	217,045 28,449	220,861 26,923
HWC Maintenance Costs (\$ 2010/2011 Water Supply Mains Pump Station Reservoir Chemical Dosing Total Water Supply Cost	#DIV/0! #DIV/0! #DIV/0! #DIV/0!	\$ \$ \$ \$ \$		<u> </u>		-	-	-	-	-	-	-			-	-	-			-					-			-	-	-		
Sewer Rising Mains Gravity Mains Pump Station Chemical Dosing Total Sewer Cost	0.00% 0.00% 0.00% #DIV/0!	\$ \$ \$ \$	8,068 2,508 16,000 26,576	8,068 2,508 16,000 26,576	8,068 2,508 16,000 26,576	8,068 2,508 16,000 26,576	8,068 2,508 16,000 26,576	8,068 2,508 16,000 26,576	8,068 2,508 16,000 26,576	8,068 2,508 16,000 26,576	8,068 2,508 16,000 26,576	8,068 2,508 16,000 26,576	8,068 2,508 16,000 26,576	8,068 2,508 16,000 26,576	8,068 2,508 16,000 26,576	8,068 2,508 16,000 26,576	8,068 2,508 16,000 26,576	8,068 2,508 16,000 26,576	8,068 2,508 16,000 26,576	8,068 2,508 16,000 26,576	8,068 2,508 16,000 26,576	8,068 2,508 16,000 26,576	8,068 2,508 16,000 26,576	8,068 2,508 16,000 26,576	8,068 2,508 16,000 26,576	8,068 2,508 16,000 26,576	8,068 2,508 16,000 26,576	8,068 2,508 16,000 26,576	8,068 2,508 16,000 26,576	8,068 2,508 16,000 26,576	8,068 2,508 16,000 26,576	8,068 2,508 16,000 26,576
Total Maintenance Costs Total Maintenance PV	336,621	s s	26,576 26,576	26,576 24,716	26,576 22,986	26,576 21,377	26,576 19,881	26,576 18,489	26,576 17,195	26,576 15,991	26,576 14,872	26,576 13,831	26,576 12,862	26,576 11,962	26,576 11,125	26,576 10,346	26,576 9,622	26,576 8,948	26,576 8,322	26,576 7,739	26,576 7,198	26,576 6,694	26,576 6,225	26,576 5,789	26,576 5,384	26,576 5,007	26,576 4,657	26,576 4,331	26,576 4,028	26,576 3,746	26,576 3,484	26,576 3,240
Total O & M Costs Total O & M PV	2,180,450	\$ \$	104,587 104,587	114,529 106,512	124,631 107,794	131,524 105,792	141,057 <mark>105,518</mark>	150,723 104,857	154,688 100,082	163,804 98,561	173,068 96,846	184,758 96,150	191,989 <mark>92,919</mark>	192,039 <mark>86,437</mark>	199,573 <mark>83,541</mark>	205,321 79,930	208,807 75,597	215,416 72,531	221,370 <mark>69,318</mark>	228,576 66,564	216,878 58,737	222,128 55,947	226,392 53,030	232,369 50,620	235,696 47,750	240,811 45,372	241,135 42,252	242,325 39,489	242,543 36,757	247,370 34,865	243,621 <mark>31,933</mark>	247,437 30,163
Lifecycle Costs Total PV (Inc GHG) Total PV (Ex GHG)	17,723,811 17,562,619	\$ \$ \$	15,538,366 15,538,366 15,529,532	114,529 106,512 98,007	124,631 107,794 99,606	131,524 105,792 97,909	141,057 105,518 97,929	150,723 104,857 97,550	154,688 100,082 93,048	163,804 98,561 91,789	173,068 96,846 90,326	184,758 96,150 89,873	191,989 92,919 86,876	192,039 86,437 80,620	199,573 83,541 77,940	205,321 79,930 74,538	208,807 75,597 70,406	454,366 152,985 147,988	221,370 69,318 64,507	228,576 66,564 61,932	216,878 58,737 54,277	222,128 55,947 51,654	226,392 53,030 48,897	232,369 50,620 46,640	235,696 47,750 43,919	240,811 45,372 41,683	241,135 42,252 38,702	242,325 39,489 36,070	242,543 36,757 33,466	247,370 34,865 31,696	243,621 31,933 28,882	486,387 59,291 56,354

Option Reference Real Discount Rate		Option SE1B 7.0%																														
Length RM (m) Diam RM (mm) Pump Duty (L/s) Length GM (m)		6,350 500 356 1,100																														
Costs 2010/2011 Energy Cost Annual Real Energy Increase 2010/2011 GHG Cost Real GHG Increase FY Ending Discount Factor		2.18) / tonnes CO ₂ -e	2013 0.93	2014 0.86	2015 0.80	2016 0.75	2017 0.70	2018 0.65	2019 0.60	2020 0.56	2021 0.52	2022 0.48	2023 0.45	2024 0.42	2025 0.39	2026 0.36	2027 0.34	2028 0.31	2029 0.29	2030 0.27	2031 0.25	2032 0.23	2033 0.22	2034 0.20	2035 0.19	2036 0.18	2037 0.16	2038 0.15	2039 0.14	<u>2040</u> 0.13	2041 0.12
Developer Capital Costs (\$ 2010/2011) Water Supply)																															
Mains Pump Station Reservoir Telemetry & SCADA Chemical Dosing Total Water Supply Cost		\$ \$ \$ \$ \$ \$ \$			-	-		-	-	-		-		-		-	-	-	-	-		-	-	-	-	-	-	-	-	-	-	-
Sewer Internal Transfer Gravity Mains Rising Mains Sewer Pump Station Telemetry & SCADA Chemical Dosing		\$ \$ \$ \$ \$ \$ \$ \$	\$ 3,320,408.84 2,359,273 8,251,836 2,193,844																													
Total Sewer Cost Total Developer Capital Costs Total Developer Capital Costs	16,125,362	s s	16,125,362 16,125,362	-	-	-	-	-	-	-	-		-	-	-	-		-	-	-	-	-	-	-	-	-		-	-	-	-	-
Total Developer PV HWC Capital Costs (\$ 2010/2011)	16,125,362	•	16,125,362	-	-		-	-		-	•	-	-	-	-	-	-		-		-	-	-	-	-		-	-	-	-	-	
Water Supply Mains Pump Station Reservoir Telemetry & SCADA Chemical Dosing Total Water Supply Cost		\$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$			-	-	-	-	-		<u> </u>	-	-	-	-	-	-	-	-	-	-				-	-		-	-	-		
Sewer Mains Pump Station Telemetry & SCADA Chemical Dosing Total Sewer Cost		% % % %		-	-	-	-	-	_	-	-	-	-	-	-	-	-	218,325 218,325	-	_	-	-	-	-	-	-	-	-	-	_	-	218,325 218,325
Total HWC Capital Costs Total HWC Capital PV	100,124	\$ \$:	Ē	÷	1	1	1	1	÷	1	1	1	1	1	1	1	218,325 73,510	1	1	Ĩ	÷	1	1	1	1	:	1	1	-	1	218,325 26,614
HWC Operating Costs (\$ 2010/2011) Water Supply Mains Pump Station Reservoir Chemical Dosing Total Water Supply Cost	#DIV/0! #DIV/0! #DIV/0! #DIV/0!	\$ \$ \$ \$ \$			-																						-		-			
Sewer Mains Pump Station	#DIV/0! #DIV/0!	s																														
ET ADWF (L/s) ADWF (ML/y) Detention Time (hr) Dose Cost Rate (\$/ML) Chemical Dosing Total Sewer Cost Chemical Dosing PV	9.47% 636,690	\$ \$	200 2.2 69.4 161.4 99.0 <u>6,869</u> 7,400 7,400	138.8 80.7	208.1 53.8 99.0	800 8.8 277.5 40.3 99.0 27,474 28,700 23,085	1,000 11.0 346.9 32.3 87.0 <u>30,180</u> 31,657 23,681	1,200 13.2 416.3 26.9 87.0 36,216 37,959 26,408	1,400 15.4 485.7 23.1 87.0 42,252 44,263 28,638	1,600 17.6 555.0 20.2 75.0 41,628 43,895 26,412	1,800 19.8 624.4 17.9 75.0 46,831 49,368 27,625	2,000 22.0 693.8 16.1 75.0 52,034 54,841 28,540	2,200 24.2 763.2 14.7 75.0 57,238 60,315 29,191	2,400 26.4 832.6 13.4 75.0 62,441 65,789 29,61 2	2,600 28.6 901.9 12.4 75.0 67,645 71,263 29,830	2,800 30.8 971.3 11.5 75.0 72,848 76,737 29,873	3,000 33.0 1040.7 10.8 62.0 64,523 68,669 24,861	3,200 35.2 1110.1 10.1 62.0 68,824 73,242 24,660	3,400 37.4 1179.4 9.5 62.0 73,126 77,814 24,366	3,600 39.6 1248.8 9.0 62.0 77,427 82,387 23,992	3,800 41.8 1318.2 8.5 62.0 81,729 86,959 23,551	4,000 44.0 1387.6 8.1 62.0 86,030 91,532 23,054	4,200 46.2 1457.0 7.7 62.0 90,332 96,105 22,511	4,400 48.4 1526.3 7.3 62.0 94,633 100,677 21,932	4,500 49.5 1561.0 7.2 49.0 76,491 82,657 16,746	4,500 49.5 1561.0 7.2 49.0 76,491 82,657 15,574	4,500 49.5 1561.0 7.2 49.0 76,491 82,657 14,483	4,500 49.5 1561.0 7.2 49.0 76,491 82,657 13,470	4,500 49.5 1561.0 7.2 49.0 76,491 82,657 12,527	4,500 49.5 1561.0 7.2 49.0 76,491 82,657 11,650	4,500 49.5 1561.0 7.2 49.0 76,491 82,657 10,834	4,500 49.5 1561.0 7.2 49.0 76,491 82,657 10,076
Energy kWh/year \$/kWh Total Energy Cost Energy Cost PV	2.18% 824,660	kWh/year \$/kWh \$	301,721 0.156 46,969 46,969	301,721 0.162 48,912 45,488	301,721 0.169 <i>50</i> ,935 44,054	301,721 0.176 53,042 42,664	301,721 0.183 55,236 41,319	301,721 0.191 57,520 40,016	301,721 0.199 59,899 38,754	301,721 0.207 62,377 37,532	301,721 0.215 64,957 36,349	301,721 0.230 69,369 36,100	301,721 0.233 70,382 34,063	301,721 0.246 74,161 33,380	301,721 0.252 76,066 31,841	301,721 0.254 76,601 29,821	301,721 0.250 75,405 27,300	301,721 0.254 76,569 25,781	301,721 0.256 77,222 24,181	301,721 0.261 78,812 22,951	301,721 0.262 79,055 21,410	301,721 0.265 79,814 20,103	301,721 0.265 79,809 18,694	301,721 0.269 81,089 17,665	301,721 0.271 <i>81,735</i> 16,559	301,721 0.282 <i>85,115</i> 16,037	301,721 0.281 84,838 14,866	301,721 0.282 <i>85,201</i> 13,884	301,721 0.281 <i>84,805</i> 12,852	301,721 0.291 87,892 12,388	301,721 0.280 84,442 11,068	301,721 0.287 86,719 10,571
GHG Costs kg CO ₂ -e/kWh Tonnes CO ₂ -e \$ / tonne CO ₂ -e \$ / tonne CO ₂ -e GHG Cost GHG PV		kg CO ₂ -e/kWl Tonnes CO ₂ -i \$ \$		0.89 269 25.88 6,950 6,463	0.89 269 26.79 7,194 6,222	0.89 269 27.73 7,447 5,990	0.89 269 28.71 7,710 5,767	0.89 269 29.72 7,981 5,552	0.89 269 30.77 8,262 5,345	0.89 269 31.85 <i>8,553</i> 5,146	0.89 269 32.97 <i>8,854</i> 4,954	0.89 269 34.13 9,165 4,770	0.89 269 35.33 9,488 4,592	0.89 269 36.58 9,822 4,421	0.89 269 37.86 10,168 4,256	0.89 269 39.20 10,526 4,098	0.89 269 40.58 10,896 3,945	0.89 269 42.01 11,280 3,798	0.89 269 43.48 11,677 3,656	0.89 269 45.01 12,088 3,520	0.89 269 46.60 12,513 3,389	0.89 269 48.24 12,954 3,263	0.89 269 49.94 13,410 3,141	0.89 269 51.70 13,882 3,024	0.89 269 53.51 14,370 2,911	0.89 269 55.40 14,876 2,803	0.89 269 57.35 15,400 2,698	0.89 269 59.37 15,942 2,598	0.89 269 61.46 16,503 2,501	0.89 269 63.62 17,084 2,408	0.89 269 65.86 17,685 2,318	0.89 269 68.18 18,308 2,232
Total Operating Costs Total Operating PV HWC Maintenance Costs (\$ 2010/2011	1,583,846	\$ \$	61,083 61,083	70,321 65,399	79,702 68,934	89,189 71,740	94,602 70,767	103,461 71,976	112,424 72,737	114,825 69,090	123,179 68,929	133,376 69,410	140,185 67,847	149,772 67,413	157,496 65,927	163,864 63,791	154,970 56,106	161,091 54,239	166,713 52,203	173,286 50,463	178,527 48,350	184,300 46,420	189,323 44,347	195,648 42,620	178,762 36,216	182,649 34,413	182,895 32,047	183,800 29,952	183,965 27,880	187,633 26,445	184,785 24,221	187,684 22,879
Water Supply Mains Pump Station Reservoir Chemical Dosing Total Water Supply Cost	#DIV/0! #DIV/0! #DIV/0! #DIV/0!	\$ \$ \$ \$ \$ \$	<u> </u>	-		-	-	-			-	-	-	-	-	-	-	-	-										-			
Sewer Rising Mains Gravity Mains Pump Station Chemical Dosing Total Sewer Cost	0.00% 0.00% 0.00% #DIV/0!	s s s s	8,219 2,508 16,000 26,727	8,219 2,508 16,000 26,727	8,219 2,508 16,000 26,727	8,219 2,508 16,000 26,727	8,219 2,508 16,000 26,727	8,219 2,508 16,000 26,727	8,219 2,508 16,000 26,727	8,219 2,508 16,000 26,727	8,219 2,508 16,000 26,727	8,219 2,508 16,000 26,727	8,219 2,508 16,000 26,727	8,219 2,508 16,000 26,727	8,219 2,508 16,000 26,727	8,219 2,508 16,000 26,727	8,219 2,508 16,000 26,727	8,219 2,508 16,000 26,727	8,219 2,508 16,000 26,727	8,219 2,508 16,000 26,727	8,219 2,508 16,000 26,727	8,219 2,508 16,000 26,727	8,219 2,508 16,000 26,727	8,219 2,508 16,000 26,727	8,219 2,508 16,000 26,727	8,219 2,508 16,000 26,727	8,219 2,508 16,000 26,727	8,219 2,508 16,000 26,727	8,219 2,508 16,000 26,727	8,219 2,508 16,000 26,727	8,219 2,508 16,000 26,727	8,219 2,508 16,000 26,727
Total Maintenance Costs Total Maintenance PV	338,531	\$ \$	26,727 26,727	26,727 24,856	26,727 23,116	26,727 21,498	26,727 19,993	26,727 18,594	26,727 17,292	26,727 16,082	26,727 14,956	26,727 13,909	26,727 12,935	26,727 12,030	26,727 11,188	26,727 10,405	26,727 9,676	26,727 8,999	26,727 8,369	26,727 7,783	26,727 7,238	26,727 6,732	26,727 6,261	26,727 5,822	26,727 5,415	26,727 5,036	26,727 4,683	26,727 4,355	26,727 4,051	26,727 3,767	26,727 3,503	26,727 3,258
Total O & M Costs Total O & M PV	1,922,377	\$ \$	87,810 87,810	97,048 90,255	106,429 92,051	115,916 93,238	121,329 90,761	130,188 90,570	139,152 90,030	141,552 85,172	149,906 83,885	160,103 83,319	166,912 80,782	176,499 79,443	184,224 77,115	190,591 74,196	181,697 65,782	187,818 63,238	193,440 60,572	200,013 58,246	205,254 55,589	211,027 53,151	216,051 50,607	222,376 48,443	205,489 41,631	209,376 39,449	209,623 36,731	210,527 34,307	210,692 31,930	214,360 30,212	211,512 27,724	214,412 26,137
Lifecycle Costs Total PV (Inc GHG) Total PV (Ex GHG)	18,147,864 18,025,367	\$ \$ \$	16,213,172 16,213,172 16,206,459	97,048 90,255 83,792	106,429 92,051 85,828	115,916 93,238 87,248	121,329 90,761 84,994	130,188 90,570 85,018	139,152 90,030 84,684	141,552 85,172 80,026	149,906 83,885 78,930	160,103 83,319 78,550	166,912 80,782 76,190	176,499 79,443 75,022	184,224 77,115 72,859	190,591 74,196 70,098	181,697 65,782 61,838	406,143 136,749 132,951	193,440 60,572 56,916	200,013 58,246 54,726	205,254 55,589 52,200	211,027 53,151 49,889	216,051 50,607 47,466	222,376 48,443 45,419	205,489 41,631 38,719	209,376 39,449 36,646	209,623 36,731 34,032	210,527 34,307 31,709	210,692 31,930 29,429	214,360 30,212 27,804	211,512 27,724 25,406	432,737 52,751 50,519

Option Reference Real Discount Rate Length RM (m) Diam RM (mm) Pump Duty (L/s)		Option SE1A 7.0% East 4,430 450 241	A West	C 3900 300 121.8	common 2600 500 363.1			4430 300 121.8	2600 500 363.1																								
Length GM (m) Wet Well diameter (m) Costs 2010/2011 Energy Cost Annual Real Energy Increase 2010/2011 GHG Cost		1,100 5.5 0.15 2.18 25.0	0 / tonne	3.8																													
Real GHG Increase FY Ending Discount Factor		3.52 Units	1	2012 1.00	2013 0.93	2014 0.86	2015 0.80	2016 0.75	2017 0.70	2018 0.65	2019 0.60	2020 0.56	2021 0.52	2022 0.48	2023 0.45	2024 0.42	2025 0.39	2026 0.36	2027 0.34	2028 0.31	2029 0.29	2030 0.27	2031 0.25	2032 0.23	2033 0.22	2034 0.20	2035 0.19	2036 0.18	2037 0.16	2038 0.15	2039 0.14	2040 0.13	2041 0.12
Developer Capital Costs (\$ 2010/2011)				1.00	0.55	0.00	0.00	0.75	0.70	0.05	0.00	0.50	0.52	0.40	0.45	0.42	0.55	0.50	0.54	0.01	0.25	0.27	0.25	0.23	0.22	0.20	0.19	0.10	0.10	0.15	0.14	0.15	0.12
Water Supply Mains Pump Station Reservoir Telemetry & SCADA Chemical Dosing Total Water Supply Cost		\$ \$ \$ \$ \$ \$							-	-			-			-	-	-	-	-													<u> </u>
Sewer Internal Transfer Gravity Mains Rising Mains Sewer Pump Station Telemetry & SCADA Chemical Dosing Total Sewer Cost		\$ \$ \$ \$ \$ \$		2,359,273 9,936,725 3,532,714								<u> </u>									<u> </u>			<u> </u>									
Total Developer Capital Costs Total Developer PV	15,828,712	\$ \$		5,828,712 5,828,712	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:
HWC Capital Costs (\$ 2010/2011) Water Supply Mains Pump Station Reservoir Telemetry & SCADA Chemical Dosing Total Water Supply Cost		\$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$	_	-		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Sewer Mains Pump Station Telemetry & SCADA Chemical Dosing Total Sewer Cost Total HWC Capital Costs		\$ \$ \$ \$ \$			-	-	-	-	-	-	-		-		-	-	-	-	238,875 238,875 238,875	-													238,875 238,875 238,875
Total HWC Capital PV HWC Operating Costs (\$ 2010/2011)	109,548	ŝ			-						-	-		-	-		-		80,429	-	-	-	-	-	-	-			-	-		-	29,119
Water Supply Mains Pump Station Reservoir Chemical Dosing Total Water Supply Cost	#DIV/0! #DIV/0! #DIV/0! #DIV/0!	\$ \$ \$ \$ \$ \$			-				-	-	-	-	-			-	-	-	-	-	-	-			-	-			-	-			
Sewer Mains Pump Station	#DIV/0! #DIV/0!	s s																															
ET ADWF (L/s) ADWF (ML/y) Detention Time (hr) Dose Cost Rate (\$/ML) Chemical Dosing Total Sewer Cost Chemical Dosing PV	9.55% 688,570	\$ \$		200 2.2 69.4 192.4 99.0 6,869 7,431 7,431	400 4.4 138.8 96.2 99.0 13,737 14,475 13,462	600 6.6 208.1 64.1 99.0 20,606 21,583 18,668	800 8.8 277.5 48.1 99.0 27,474 28,708 23,091	1,000 11.0 346.9 38.5 99.0 34,343 35,838 26,809	1,200 13.2 416.3 32.1 87.0 <u>36,216</u> 37,964 26,411	1,400 15.4 485.7 27.5 87.0 42,252 44,267 28,641	1,600 17.6 555.0 24.0 87.0 48,288 50,572 30,429	1,800 19.8 624.4 21.4 87.0 54,324 56,876 31,827	2,000 22.0 693.8 19.2 75.0 52,034 54,844 28,542	2,200 24.2 763.2 17.5 75.0 57,238 60,318 29,193	2,400 26.4 832.6 16.0 75.0 62,441 65,791 29,61 3	2,600 28.6 901.9 14.8 75.0 67,645 71,265 29,831	2,800 30.8 971.3 13.7 75.0 72,848 76,739 29,874	3,000 33.0 1040.7 12.8 75.0 78,052 82,213 29,765	3,200 35.2 1110.1 12.0 75.0 83,255 87,687 29,524	3,400 37.4 1179.4 11.3 75.0 88,458 93,162 29,172	3,600 39.6 1248.8 10.7 62.0 77,427 82,388 23,993	3,800 41.8 1318.2 10.1 62.0 81,729 86,961 23,551	4,000 44.0 1387.6 9.6 62.0 86,030 91,533 23,054	4,200 46.2 1457.0 9.2 62.0 90,332 96,106 22,512	4,400 48.4 1526.3 8.7 62.0 94,633 100,679 21,932	4,500 49.5 1561.0 8.5 62.0 96,784 102,965 20,860	4,500 49.5 1561.0 8.5 62.0 96,784 102,965 19,400	4,500 49.5 1561.0 8.5 62.0 <u>96,784</u> 102,965 18,042	4,500 49.5 1561.0 8.5 62.0 96,784 102,965 16,779	4,500 49.5 1561.0 8.5 62.0 96,784 102,965 15,604	4,500 49.5 1561.0 8.5 62.0 96,784 102,965 14,512	4,500 49.5 1561.0 8.5 62.0 96,784 102,965 13,496	4,500 49.5 1561.0 8.5 62.0 <u>96,784</u> 102,965 12,551
Energy kWh/year \$/kWh Total Energy Cost Energy Cost PV	2.18% 682,181	kWh/year \$/kWh \$		249,591 0.156 <i>38,854</i> 38,854	249,591 0.162 40,461 37,629	249,591 0.169 <i>42,135</i> 36,442	249,591 0.176 <i>43,877</i> 35,293	249,591 0.183 <i>45,692</i> 34,180	249,591 0.191 47,582 33,102	249,591 0.199 <i>49,550</i> 32,059	249,591 0.207 <i>51,600</i> 31,048	249,591 0.215 53,734 30,069	249,591 0.230 57,384 29,863	249,591 0.233 58,222 28,178	249,591 0.246 61,348 27,613	249,591 0.252 62,924 26,340	249,591 0.254 63,367 24,668	249,591 0.250 62,377 22,583	249,591 0.254 63,340 21,327	249,591 0.256 63,880 20,003	249,591 0.261 <i>65,195</i> 18,986	249,591 0.262 65,396 17,711	249,591 0.265 66,025 16,630	249,591 0.265 66,020 15,465	249,591 0.269 67,079 14,613	249,591 0.271 67,613 13,698	249,591 0.282 70,410 13,266	249,591 0.281 70,180 12,297	249,591 0.282 70,480 11,485	249,591 0.281 70,153 10,632	249,591 0.291 72,707 10,247	249,591 0.280 69,853 9,156	249,591 0.287 71,736 8,745
GHG Costs kg CO ₂ -e/kWh Tonnes CO ₂ -e \$ / tonne CO ₂ -e GHG Cost GHG PV		kg CO ₂ -e/kW Fonnes CO ₂ - \$ \$		0.89 222 25.00 5,553 5,553	0.89 222 25.88 5,749 5,346	0.89 222 26.79 5,951 5,147	0.89 222 27.73 6,161 4,955	0.89 222 28.71 6,378 4,771	0.89 222 29.72 6,602 4,593	0.89 222 30.77 6,834 4,422	0.89 222 31.85 7,075 4,257	0.89 222 32.97 7,324 4,098	0.89 222 34.13 7,582 3,946	0.89 222 35.33 7,849 3,799	0.89 222 36.58 8,125 3,657	0.89 222 37.86 8,411 3,521	0.89 222 39.20 8,707 3,390	0.89 222 40.58 9,014 3,263	0.89 222 42.01 9,331 3,142	0.89 222 43.48 9,659 3,025	0.89 222 45.01 9,999 2,912	0.89 222 46.60 10,351 2,803	0.89 222 48.24 10,716 2,699	0.89 222 49.94 11,093 2,598	0.89 222 51.70 <i>11,483</i> 2,502	0.89 222 53.51 11,888 2,408	0.89 222 55.40 12,306 2,319	0.89 222 57.35 12,739 2,232	0.89 222 59.37 13,188 2,149	0.89 222 61.46 13,652 2,069	0.89 222 63.62 14,132 1 ,992	0.89 222 65.86 14,630 1,918	0.89 222 68.18 15,145 1,846
Total Operating Costs Total Operating PV HWC Maintenance Costs (\$ 2010/2011)	1,472,083	\$		51,839 <mark>51,839</mark>	60,685 56,437	69,669 60,257	78,746 63,340	87,908 65,760	92,149 64,107	100,652 65,121	109,247 65,734	117,935 65,994	119,810 62,351	126,388 61,170	135,264 60,883	142,600 59,692	148,813 57,932	153,604 55,611	160,358 53,993	166,701 52,199	157,583 45,890	162,708 44,066	168,274 42,383	173,219 40,575	179,241 39,046	182,466 36,966	185,681 34,984	185,885 32,571	186,633 30,413	186,770 28,305	189,804 26,751	187,448 24,570	189,846 23,142
Water Supply Mains Pump Station Reservoir Chemical Dosing Total Water Supply Cost	#DIV/0! #DIV/0! #DIV/0! #DIV/0!	\$ \$ \$ \$ \$ \$				-	-	-		-					-		-			-			-										
Sewer Rising Mains Gravity Mains Pump Station Chemical Dosing Total Sewer Cost	0.00% 0.00% 0.00% #DIV/0!	s s s s		8,600 2,508 8,000 19,108	8,600 2,508 8,000 19,108	8,600 2,508 8,000 19,108	8,600 2,508 8,000 19,108	8,600 2,508 8,000 19,108	8,600 2,508 8,000 19,108	8,600 2,508 8,000 19,108	8,600 2,508 8,000 19,108	8,600 2,508 8,000 19,108	8,600 2,508 8,000 19,108	8,600 2,508 8,000 19,108	8,600 2,508 8,000 19,108	8,600 2,508 8,000 19,108	8,600 2,508 8,000 <i>19,108</i>	8,600 2,508 8,000 19,108	8,600 2,508 8,000 <i>19,108</i>	8,600 2,508 8,000 <i>19,108</i>	8,600 2,508 8,000 19,108	8,600 2,508 8,000 19,108	8,600 2,508 8,000 19,108	8,600 2,508 8,000 19,108	8,600 2,508 8,000 19,108	8,600 2,508 8,000 19,108	8,600 2,508 8,000 19,108	8,600 2,508 8,000 19,108	8,600 2,508 8,000 19,108	8,600 2,508 8,000 19,108	8,600 2,508 8,000 19,108	8,600 2,508 8,000 19,108	8,600 2,508 8,000 19,108
Total Maintenance Costs Total Maintenance PV	242,031	\$ \$		19,108 <mark>19,108</mark>	19,108 17,771	19,108 16,527	19,108 15,370	19,108 14,294	19,108 13,294	19,108 12,363	19,108 11,498	19,108 10,693	19,108 <mark>9,944</mark>	19,108 9,248	19,108 <mark>8,601</mark>	19,108 7,999	19,108 7,439	19,108 <mark>6,918</mark>	19,108 6,434	19,108 <mark>5,983</mark>	19,108 5,565	19,108 <mark>5,175</mark>	19,108 <mark>4,813</mark>	19,108 <mark>4,476</mark>	19,108 <mark>4,163</mark>	19,108 3,871	19,108 3,600	19,108 3,348	19,108 <mark>3,114</mark>	19,108 2,896	19,108 2,693	19,108 2,505	19,108 2,329
Total O & M Costs Total O & M PV	1,714,114	\$ \$		70,947 <mark>70,947</mark>	79,794 74,208	88,778 76,784	97,854 78,710	107,016 80,054	111,257 77,400	119,761 77,484	128,355 77,231	137,043 76,687	138,919 72,295	145,497 70,418	154,373 69,484	161,708 67,691	167,921 65,371	172,712 62,529	179,467 60,427	185,809 58,183	176,691 51,455	181,817 <mark>49,241</mark>	187,382 47,196	192,328 45,051	198,350 43,209	201,574 40,838	204,789 38,585	204,993 35,919	205,741 33,527	205,878 31,201	208,912 29,444	206,556 27,075	208,955 25,472
Lifecycle Costs Total PV (Inc GHG) Total PV (Ex GHG)	17,652,374 17,551,042	\$ \$ \$	1	5,899,659 5,899,659 5,894,106	79,794 74,208 68,862	88,778 76,784 71,637	97,854 78,710 73,754	107,016 80,054 75,283	111,257 77,400 72,807	119,761 77,484 73,062	128,355 77,231 72,974	137,043 76,687 72,589	138,919 72,295 68,349	145,497 70,418 66,619	154,373 69,484 65,827	161,708 67,691 64,170	167,921 65,371 61,981	172,712 62,529 59,266	418,342 140,856 137,714	185,809 58,183 55,158	176,691 51,455 48,543	181,817 49,241 46,438	187,382 47,196 44,497	192,328 45,051 42,452	198,350 43,209 40,707	201,574 40,838 38,429	204,789 38,585 36,266	204,993 35,919 33,687	205,741 33,527 31,378	205,878 31,201 29,132	208,912 29,444 27,453	206,556 27,075 25,157	447,830 54,591 52,745