Dalrymple Bay Coal Terminal Rehabilitation Cost Review

Queensland Competition Authority

28 May 2020

311001-00034

Advisian
Worley Group

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PROJECT 311001-00034: Dalrymple Bay Coal Terminal Rehabilitation Cost Review

Rev	Description	Author	Review	Advisian approval	Revision date
1	ISSUE TO CLIENT	Various/ D. Sezgin	D. Plowman	D. Plowman	05/08/2020

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Executive Summary

Dalrymple Bay Coal Terminal (DBCT or the Terminal) is a coal-export terminal servicing mines in the Bowen Basin coal fields through the Goonyella rail system. The terminal is located at the Port of Hay Point, located approximately 38km from Mackay. The terminal is owned by the Queensland Government through DBCT Holdings Pty Ltd and is leased to DBCT Management (DBCTM) until 2051 with an option for an additional 49-year extension. DBCT Holdings (DBCTH) is the entity representing the Queensland Government's interests and is counterparty on the long-term lease of the Terminal.

The conditions of DBCTM's long-term lease are detailed within the Port Services Agreement (PSA), which establishes the obligations of the operator in rehabilitation of the site upon expiration of the lease. Under clause 22.3, DBCTM is mandated to provide DBCTH with a Rehabilitation Plan that details the scope of rehabilitation work to be carried out.

As a terminal that is 'declared' for third-party access under Part 5 of the *Queensland Competition Authority Act 1997*, the Queensland Competition Authority (QCA) assesses and approves access undertakings (AUs) submitted by DBCTM. The AU provides a calculation for the Terminal Infrastructure Charge, which includes an amount to fund the final cost of the rehabilitation.

In 2019, DBCTM proposed an increased forecast cost for site rehabilitation ($1.22Bn in October 2018 dollars) as compared to the QCA-approved cost under the 2017 AU ($433M in September 2016 dollars), based on a rehabilitation plan developed by GHD.

Advisian has been engaged as an independent third party to review the projected cost for rehabilitating the site and facilities at DBCT. The key elements of the engagement were to build an independent estimate of the rehabilitation costs of the DBCT site, and to complete an expert, high-level review on the prudency and efficiency of the rehabilitation plan developed by GHD.

The sections below provide a summary of this engagement.

Assignment undertaking

Advisian has developed an independent estimate for the decommissioning, deconstruction and restoration of the Terminal with a level of accuracy comparable to the GHD estimate. In key areas such as the estimate build-up and delivery strategy, Advisian has gone further in detail in the development of the estimate. Advisian considered the prudency of the scope of work required to satisfy DBCTM's contractual obligations under the PSA. The detailed work undertaken by GHD in this area, and the depth of understanding was of a high standard. Advisian on the whole adopted the environmental framework (as described within the GHD Report) that aimed to satisfy DBCTM's obligations under the PSA. This includes factors such as the most efficient cost to undertake the work, considering methodology, productivity, market pricing, contracting strategy, assumptions and overall risk.

Based on the interpretation of the contractual and legislative rehabilitation obligations, Advisian has identified a scope of works for the decommissioning and rehabilitation of the Terminal. The scope of works formed the basis of estimate, upon which a first principles estimate was developed. Advisian concurrently completed an analysis of variances from the GHD report **DBCT Rehabilitation Plan and Rehabilitation Cost Estimate** (7 June 2019) (GHD Report).

Advisian based the development of the first principles estimate on a variety of sources, including a desktop review of drawings, estimates and photographs provided by GHD and DBCTM. A site visit was also conducted in early March 2020 to supplement the desktop understanding by validating assumptions and reducing uncertainty around characteristics of domain structures and rehabilitation areas. The site visit was completed by three independent estimators, including a marine expert.

This Report details analysis and comparison of GHD's estimate against Advisian's independent estimate, describing differences and making recommendations where appropriate of costs that are not considered prudent and efficient with supporting reasoning.

Advisian has provided within this Report recommendations of what Advisian considers prudent and efficient cost to undertake the work.

Rehabilitation obligation

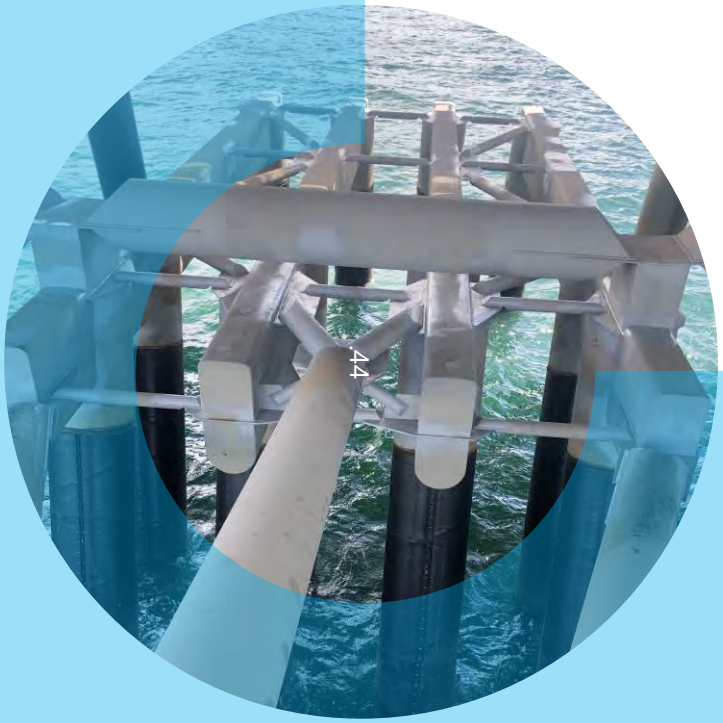
GHD indicated in its report that the PSA sets out the key obligations for DBCTM in respect of the ongoing ownership, management and operations of DBCT. Furthermore, GHD states that the PSA defines rehabilitation as returning the site to its Natural State and condition as existed prior to any development occurring on the site. Advisian has established the 1977 (data) as the basis of Natural State and adopted some deviations (for practicable reasons) on this definition. These are described below and the following deviations are explained further within this Report. They include:

- Complete removal of piles both on-shore and off-shore versus Advisian approach to remove to immediately below seafloor level
- Advisian has used 1977 topographical imagery to generate the pre-disturbance level as foundation of our approach and establishes our datum point for our quantity's assessment. This is described in detail in Section 11.

Noting that this obligation is more onerous than other typical industry rehabilitation requirements, Advisian sought clarification of the rehabilitation obligations set out in the PSA with QCA. Interpretation of the requirements was considered from the QCA's final decision for the 2015 DAU and with no change in circumstances, we find the interpretation to be accepted.

As such, Advisian and GHD are generally aligned on the definition of 'Natural State' with the exception of the above. The natural landform above ground is reasonably defined as a requirement to take the site back to its original topographical landform (circa 1981).

The base case for the Rehabilitation Plan assumes the battery limits and asset composition at the facility as at **March 2020** and is based on current known legislation.



Overall summary of costs compared to GHD Report

As part of a detailed undertaking which is described in every detail within this Report and its appendices, Advisian determined a cost delta of **$-406.26M which represents 33.29% less than the proposed position of GHD**. This is presented in Table 1 below. For clarity, Advisian's prices whilst developed and procured in 2020 dollars can be assessed against 2018 dollars without de-escalating, as the Advisian estimates contain contingencies that would negate any impact of escalation over the relatively short elapsed period.

Table 1: Rehabilitation cost estimate comparison by Domain

Domain	Domain number	GHD	Advisian	Variance
		$'M	$'M	$'M
Rail Loop	1	217.37	113.09	-104.28
Stockyard	2	457.26	214.91	-242.35
Seawall	3	57.50	49.24	-8.26
Offshore	4	269.22	169.31	-99.91
Water Management	5	58.84	60.89	2.05
Quarry Dam	6	12.10	77.29	65.19
Offices and Workshops	7	48.97	32.17	-16.80
Utilities	8	34.34	7.75	-26.59
Tug Harbour	9	37.23	37.23	0.00
Ongoing costs	Management costs	9.25	9.25	0.00
Indirect costs	Distributable costs (salaries, employee related costs, IT)	24.52	50.20	25.68
	Studies cost (EIS, stakeholder engagement, Tug Harbour)	2.00	2.00	0.00
	Project management and governance cost	1.00	-	-1.00
Total Cost		**1,220.35**	**814.09**	**-406.26**

Direct cost comparison

Table 2 below provides insight to the differences between the Advisian and GHD estimate on a direct cost only basis. Note the costs provided in Table 1 above for each Domain are different as they include indirect costs (e.g. site offices, camp accommodation, insurances, project management). GHD has subcontracted parts of the estimate to Axiom and for the purpose of this report we will refer to all estimates as "GHD's". Where specific elements of comparison are referenced, we have used Axiom estimate contained within the GHD Report for cross referencing purposes only.

Table 2: Variance in direct cost only between Advisian and GHD estimates

Domain ($'M)	Materials handling	Contaminated waste disposal	Depth of substrate/ soil removed	Offshore pile removal	Other	Total direct cost variance
Rail Loop	-28.65	-31.71	-2.43		1.65	**-61.14**
Stockyards	-118.31		-30.64		1.90	**-147.05**
Seawall	-6.00				4.45	**-1.55**
Offshore				-45.86	-5.31	**-51.17**
Water Management	7.44		-1.81		-0.02	**5.61**
Quarry Dam	50.71				-1.90	**48.81**
Offices & Workshops			-8.8		-0.17	**-8.97**
Utilities	-8.52		-8.1		-.51	**-17.13**
Total	**-103.33**	**-31.71**	**-51.78**	**-45.86**	**0.09**	**-232.59**

Key differences and justification/rationale

Advisian undertook an analysis of the GHD report and compared to the detailed assessment undertaken by Advisian. Key areas of differences that give rise to the findings include:

Materials handling

The largest component of work in the rehabilitation of the Terminal is earthworks oriented and contains large volumes of earth being moved, recovered, stockpiled and imported. The rates and quantities that are associated with these components significantly drive the costs of rehabilitation. The variance in materials handling is driven by several key components:

1. Bulk earthworks rates

The bulk earthworks price varies significantly between GHD and Advisian estimates, solely based on the large values and assumed earthworks productivities. The Advisian bulk earthwork rates were peer reviewed by two tiers of construction contractors in operation in Queensland currently. A recent bulk earthworks project tendered in Queensland was additionally used to verify the rates were in line with the current market. We were unable to verify how GHD determined its bulk earthworks rates or if they were peer-reviewed to a similar rigour, based on information contained in the GHD report and discussions during the review process.

The plant and equipment mix within the GHD estimate is unclear, but there is a price (inclusive of contractor margin) of $372 per hour for plant and labour, with an achieved productivity of 27.64m^3 per hour. This achieves a 'sell price' of $13.46 per m^3 to the end client.

Advisian has a comparative 'sell price' for plant and labour of $915 per hour, with a productivity of 115m^3 per hour, resulting in a 'sell price' of $7.96 per m^3. The price difference between the bulk handling rates is a key contributing factor in the overall cost estimate disparity.

2. Imported clean fill rate

Advisian used $48.50 per m^3 whereas GHD used $50 per m^3 and this was used for the vast majority of the imported fill within the bulk earthworks so there will not be a major difference. These rates were also confirmed where possible with contacts in the market place.

For some reason, the filling of the Rail Receival Pit was included into the GHD portion of the estimate under demolition and they used $35 per m^3, but with a relatively small volume (24,000m^3); so, the impact of this to the overall difference is negligible.

3. Quantity differences

Advisian has independently modelled the quantities that were used by GHD in the cost estimates. To do this, software was used to develop digital representations of both pre-construction and prepared final landforms. Using these landforms, earthwork requirements were able to be calculated. As a result of the modelling, Advisian have derived a lower requirement for materials handling and thus, a lower cost when compared to GHD's methodology. This contributed to the overall price difference of approximately $70M (direct costs) Further detail is provided in Section 11 of this Report.

The methodology applied by Advisian cannot directly be compared to GHD on a cut-to-fill balance. The approach adopted by GHD appears to be more generalized and extrapolated from largely different data. Therefore, the impact of the Advisian scientific modelling and assessment has resulted in a more robust and accurate position in our opinion on the quantities for the expected earthwork activities and the subsequent pricing.

Contaminated waste disposal

GHD has priced the removal of contaminated waste (including rail sleepers, rail ballast, substation contaminated soil etc.) to be transported 750km to Roma, Queensland. Conversely, Advisian has allowed for the disposal of this contaminated waste to the local Hogan's Pocket Transfer Station.

It should be noted that it is unlikely that these facilities will have the capacity to accept all waste streams. However, due to the notice periods as described in the PSA of four years, these facilities should be able to expand, or additional facilities will be put in place to handle the capacity required.

The difference in carting location has a significant impact on the disposal rate, with GHD's rate at $383 per tonne and Advisian's disposal rate of $350 per tonne.

Depth of substrate/soil removed

This is a construction assumption relating to depth of contamination. Advisian has made the assumption that any contamination on the areas requiring removal is contained within the top 25mm. We note that there is no standard for this assumption and decisions are typically made on a case by case basis, based on the level of contamination at the time. The following considerations were made for this assumption, which we consider justifies our position that GHD's assumption for contaminated substrate removal is overestimated:

- During the operation of the site, any large spills having an environmental impact would be required to be cleaned up. Advisian have assumed costs for any such clean up would be under an operational budget.
- The material used to construct the earthen pads was free of contaminates at the time of construction.

It must be recognized that the approach adopted by GHD assumes heavy contamination across significant parts of the site which cannot be the case as any environmental incidents would have been addressed as part of coal terminal operations and procedures. It is our recent and relevant experience dealing with a Tier 1 Hydrocarbon Client that the allowance of 250mm is appropriate and in many cases excessive when restoration works are actually undertaken. It is therefore Advisian's strong position that even at 250mm depths contamination soil would be minimal. This assumption would be dealt with as part of the normal soil conditioning as part of the Advisian approach. And, if indeed there were deeper contaminates these would be dealt with in isolation and these events are largely covered with contingencies provisioned for both the Contractor and the Owner.

Key contributors to the cost variance between the two estimates are:

1. **Depth of road substrate removed – GHD 500mm vs Advisian 250mm**

GHD has allowed for the removal of 500mm of material under the roads. Road section drawings for the Domain were not supplied to Advisian, therefore Advisian has assumed 250mm under the running pavement based on a known facility like the Terminal asset. Our assumption is based on a known facility of similar complexity and ground conditions for which we have drawings. Advisian have used this inform our position. This is applicable to several Domains.

2. **Depth of contaminated soil removed (Stockyard Domain) – GHD 400mm vs Advisian 250mm**

During construction of the Terminal, 300mm of low-grade coal was laid down over the stockyard. Advisian has not priced this removal as it is an operational cost for DBCTM, who will recover and sell the coal under normal operating conditions. It is unclear how this thermal coal has been dealt with in the GHD estimate.

However, the point of difference within the two estimates is the depth of contaminated soil that is removed from the stockyard beds, once all the coal is gone. Advisian has allowed for the removal of 250mm of contaminated materials beneath the stockyards. This allows for a 50mm average buffer for earthmoving equipment between the bedding and material, as well as removal of 200mm of material below as contaminated soil.

GHD has allowed for the removal of contaminated soils to a depth of 400mm across the stockyards.

3. **Depth of contaminated soil under substation removed (Utilities Domain) – GHD 1m vs Advisian 250mm**

GHD has assumed a substrata depth of 1m to be removed in all substation areas, which they have classified as a low contamination substrate. Advisian has assumed the substrate to be removed is 250mm within the same area. The difference in removal volumes is considerable, which is reflected in the estimate.

Offshore pile removal

It is understood from discussions with DBCTM personnel during the site visit and drawings supplied that all marine piles are driven to refusal within the seabed and bedrock below. From discussions with DBCTM personnel, it was also indicated that piles from previous temporary works were cut at the seafloor level and remain in situ today.

GHD's position on the offshore piles was to fully remove from the rock, although they have also provided a price for cutting off at the current seafloor level.

Advisian assessed the requirements of the removal of the off-shore pilling and determined that the methodology adopted by GHD would be more destructive than approach adopted below. We note that there is not applicable environmental standard for the depth of pile removal and do accept that the "natural state" definition expressly may be interpreted differently. In the case of complete removal of piles, the GHD methodology and costing is a reasonable position. However, Advisian strongly believe our approach would be more environmentally prudent. Our approach is described below:

- The piles will be cut off 1 meter below the existing disturbed seafloor level. (some 10m below the original undisturbed level)
- There are already piles from the construction of the facility that have been cut off and left in this state. The GHD approach of relief drilling around each pile and vibratory removal will have a greater short-term impact to the marine environment than cut and remove.
- Any drilled holes would need to be filled with a material of similar makeup and density to what was removed to ensure no long-term impact to the area. The approach to allow the sea floor to fill in overtime to return to the natural pre-disturbance level will further bury the remains of the piles.

Rates

Advisian has developed a list of rates for plant, material, disposal and labour costs as part of assembling the cost estimate for the rehabilitation of the Terminal. These rates were amalgamated from a variety of industry sources, including recent enterprise agreements from tier one contractors, contacting suppliers and disposal facilities, as well as first principles build-ups.

In investigating the robustness of the estimate put together by GHD, Advisian has also reviewed and compared the rates for the two estimates. While there are some discrepancies, overall the rates were not a major driver for the variance between the estimates.

The one exception to this is the contaminated waste disposal, described above.

1. Labour rates

Advisian used a current Queensland Enterprise agreement (fully detailed within the main report and built up cost rates). GHD appear to have used "Industry Norms' for the different skillsets. The Advisian lower rates were higher than the GHD lower skill rates but the top rates were lower. As a result, there was not a significant difference, however the Advisian rates are founded upon current markets rates that have been confirmed in the market via several contractors.

2. Plant rates

Advisian used well-known industry rates and productivities of plant that is easily accessible and verifiable. This approach is for transparency. Plant hire companies or Earthmoving contractors were contacted independently, and the rates and productivities verified within a few percentages points of the Advisian sourced rates and productivities. GHD and Advisian had a small number of pieces of plant that overlapped in the approach and the rates were comparable within a few percentage points. GHD predominantly used much larger pieces of plant for the earth works, the hire rates for the larger plants rate are more difficult to determine for these as they are not as readily available in the current plant hire market. The Plant selection adopted and priced by Advisian reflects a more realistic application of Plant to undertake the tasks.

3. Material & Disposal rates

Advisian sourced rates for material and disposal from local suppliers. For disposal, GHD used rates from some of the same local service providers but added 20% to allow for a potential capacity shortfall, Advisian thought this addition was unnecessary and is considered to be incorporated within contingency elsewhere in the estimate.

Indirect cost comparison

Advisian has assessed the approach adopted by GHD on the application of indirect costs to the DBCT Rehabilitation Cost Estimate. The approach adopted by GHD appears to apply a percentage of indirect costs to the direct costs as outlined in the GHD Report. Advisian has determined indirect costs on a detailed build up or an application of industry accepted (market expectations) percentage on costed to the direct cost. This is presented in detail within this Report.

The approach to establish and compare indirect costs was founded upon a traditional delivery approach to execute the works. Advisian priced on the basis that a Tier 1 Contractor would control the site under the direction of a Project Management Office (PMO) established by DBCTM (Owner). This approach represents a more risk-balanced delivery model and would enable the works to be planned in a more effective and executed timely manner. As a result, the indirect costs sit largely within the Contractor's price with the PMO and Owner's costs separate. Advisian have assigned risk where it is most likely to be managed in both the Contractor's price and the Owner's costs. It appears that GHD have allocated a 'global' risk allowance over the Direct Costs which is approximately 25%, which resulted in a significant cost delta between Advisian and GHD.

Cost escalation

As part of our engagement, QCA requested that we propose an appropriate escalation rate for the Rehabilitation Cost Estimates (in March 2020 dollars) which will ultimately be expressed in April 2054 dollars.

Based on Advisian's experience on mining industry norms for long-term cost escalation assessments for rehabilitation activities, we consider a rate of **2.6%** per annum to be appropriate to be applied to the overall costs. This escalation rate has been derived based on an escalation rate of 3.11% for labour costs (mid-point of the 15-year historical wage price index (WPI) for private-sector workers in Queensland and Queensland Treasury's forecast of Queensland WPI) and 2.50% for non-labour costs. The 3.11% applies to about a fifth of total rehabilitation costs, reflecting the share of labour costs, and 2.50% applies to the balance of costs. A blended position of 2.6% has therefore been determined.

It should be noted that the price prepared by GHD in 2019 stated as October 2018 dollars has not been adjusted by our proposed indexation.

Part 2
Review of rehabilitation framework and legislative requirements

1 Introduction

1.1 Infrastructure

The figure below is an extract from the GHD report **DBCT Rehabilitation Plan and Rehabilitation Cost Estimate** (7 June 2019) (GHD Report) and shows the site location. The Dalrymple Bay Coal Terminal (DBCT or the Terminal) covers an area of approximately 2.38km from the rail loops to the jetty. The wharf extends for approximately 3.8km offshore.

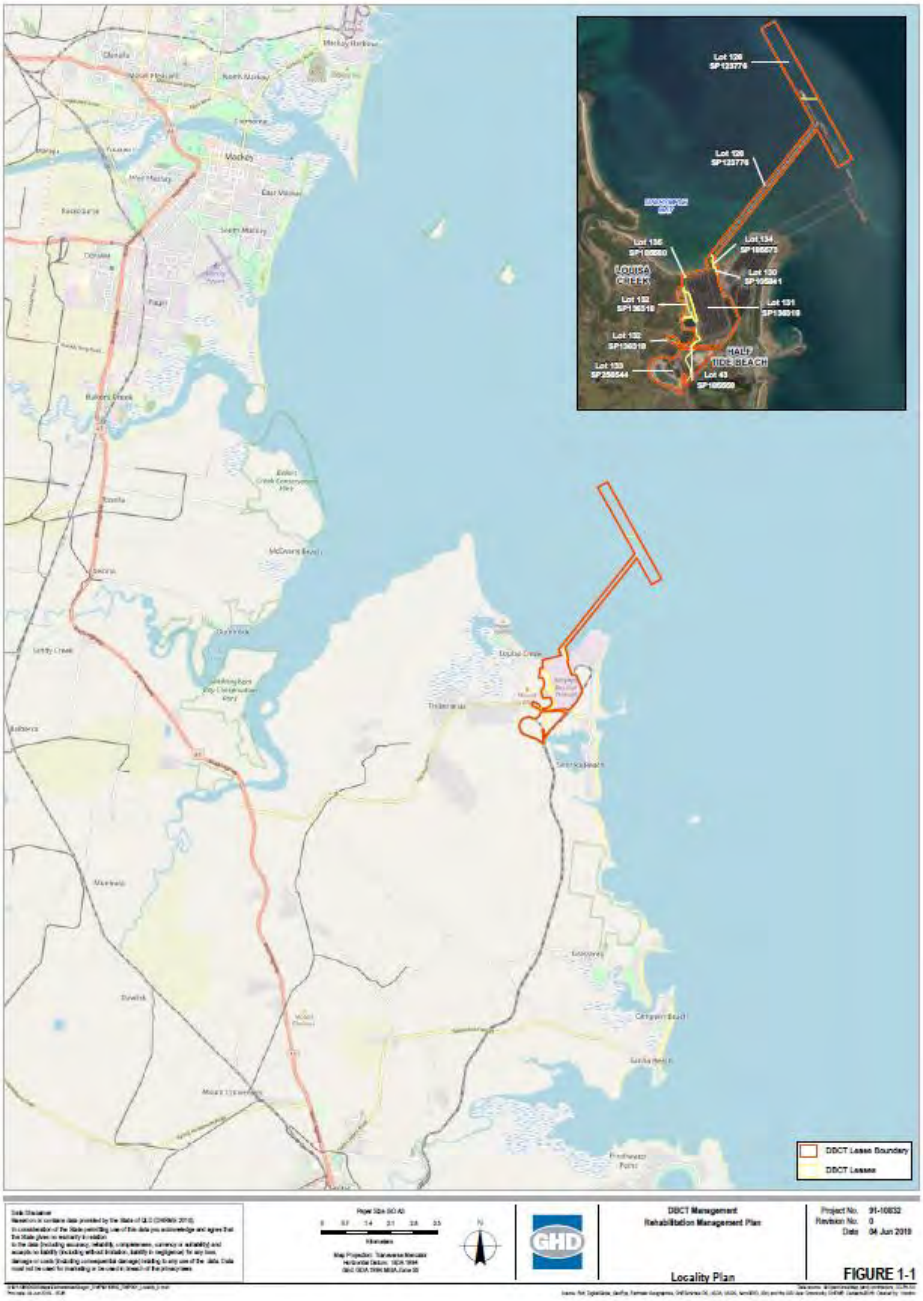


Figure 1: Site location (extract from the GHD Report)

Table 3 below shows the works delineated into the eight Domains of the assets types and infrastructure associated with the overall development forming the study. Advisian has mostly maintained the GHD Domain split to facilitate the estimates comparison. However, Tug Harbour, due to the nature of the estimate, has been included in the indirect costs as a complete lump sum given the nature of the proposed negotiated position by DBCT Management (DBCTM). The other Domains have been left unchanged as they were packaged appropriately for estimating and contracting strategy purposes.

Table 3: Works, assets and infrastructure identified generally in each Domain

Domain	Infrastructure
Domain 1 – Rail Loop, Receival Conveyors	• Rail line trackwork 1, 2 & 3 (3.2km of balloon loop) • Rail line overhead catenary and support towers • Aurizon substation • Associated support structures and services • Receival pits and stations RRP1, RRP2, RRP3 • Pit conveyors C1, C2, BF11 • Associated support structures and services • Conveyors S1, S2, S11 • Towers T1, T2, T21 • Associated support structures and services
Domain 2 – Stockyards	• Surface roads and drainage • Stockpile pads rows 1, 2, 3, 4, 5, 6, 7 & 8 bulk earthworks and bedding coal • Bund walls 1, 2, 3, 4, 4A, 5, 5A, 6 • Stacker/reclaimer machines SR2, SR3A, SR4A, SR5, SR6 • Stacker machines ST1, ST2, ST3, ST4 • Reclaimer machines RL1, RL2, RL3 • Inloading Conveyors S3, S4, S13, S5, S6, S7, S8 • Outloading conveyors R1, R2, R3, R4, R5, R6, R7, R8 • Towers T3, T3A, T4, T4A, T5, T5A, T6, T6A, T8, T7, T9, T10, T11, T12, T20, T23, T23A, T25, T25A, T27, T29, T31 • Associated support structures and services
Domain 3 – Seawall and Transfer Stations	• Bulk earthworks • Hanbars • Outloading conveyors L1, L2, L3, L4, L6A, L11, L11A, L13, L15A, • Towers T13, T14, T15, T16, T17, T18, T19 • Surge bins SB1, SB2, SB3 • Belt feeders, BF5, BF6, BF7, BF8, BF15, BF17 • Sample stations 1, 2, 3 • Associated support structures and services

Domain	Infrastructure
Domain 4 – Offshore	Marine structures including: • Berth 1, 2, 3 & 4 mooring points and jewellery • Railings and ladders • Decks • Piling • Wharf ship loader machines SL1, SL2 & SL3 and integral conveyors L9, L10, L19 Wharf materials handling systems including: • Conveyors L5, L6, L7, L8, L15, L17 • Main wharf transfer tower • Towers L7, L8, L17 • Associated support structures and services
Domain 5 – Water Management	• Industrial Dam • Rail Loop Dam • Rail Receival Dam • Spindlers Dam • Associated surface roads and drainage • Process water pump house, pumps and piping • Potable water treatment plant, tanks, pumps and piping • Fire water pump house, tanks pumps and piping
Domain 6 – Quarry Dam	• Quarry Dam bulk earthworks • Water pumping and pipelines • Associated surface roads and drainage
Domain 7 – Offices and Workshops	• Paved roads and carparks • Site fencing • Carpark cover structures • Buildings – including DBCT Corporate office, Operations Centre, Stores Warehouse, Q2 Coal building, L&D Training building, DBCT Administration building, Archives building, Learning Centre, CP Office, Old NQBP Tower, Fire Pump House, Sample Prep Building and the main and west gate security huts • Associated support services • Sewage mains connection to the Mackay Regional Council waste water plant • Diesel fuel storage and distribution
Domain 8 – Utilities	• Ergon 33/11kV substation • 11kV overhead transmission line feeding main DBCT substation • Main DBCT substation

Domain	Infrastructure
	• In-plant substations SS1, SS1A, SS2, SS2A, SS2B, SS3, SS3A, SS3B, SS3C, SS4, SS4A, SS5, SS5A, SS6, SS6A, SS9 • Substation power feeds • Potable water connection mains to the Mackay Regional Council water treatment plant • Raw water connection mains to SunWater

***Note**: Tug Harbour is addressed separately in this assignment and has been adopted wholly as presented the GHD as scope and price provision as a once-off cost to be negotiated by the stakeholders.*

1.2 Scope

This Report sets out the Rehabilitation Plan and cost estimate for the rehabilitation works of DBCT at the end of its lease term in year 2051. This Report also provides an extensive comparison with the GHD Report. Advisian has developed this specific section of the report following the steps highlighted below. Our approach largely follows the approach adopted by GHD:

1. Review information developed/provided by GHD and DBCTM
2. Review of rehabilitation objectives identified by GHD
3. Review of pre-existing conditions and legislative restrictions established by GHD
4. Redefining the Domains by grouping the type of decommissioning, demolition and rehabilitation required
5. Review of GHD stakeholder consultation strategy and final land use
6. Establishing the most appropriate decommissioning, demolition and rehabilitation methods for each Domain and defining scope
7. Developing first principle estimates
8. Site visit and validation of assumptions
9. Risk analysis and risk allocation of each Domain of estimates
10. Identified variances between GHD approach and Advisian approach and significant differences discussed/commented
11. Comparison of GHD estimates with Advisian estimates and significant differences discussed/ commented
12. Independent modelling of digital terrain model for deriving the earthworks quantities
13. Identification of monitoring and maintenance activities and costs.

As the rehabilitation will most likely not occur until 2051, Advisian, similarly to GHD, has not included investigations that are commonly required to be completed one to two years prior commencement of rehabilitation works such as design landform, soil characteristic and contamination, coastal processes and morphology, sediments transport assessment etc. however those have been allowed for in the estimates, as lead-in design costs and Owner's investigations similar to the position adopted by GHD.

Also, it should be noted that as legislative requirements and guidelines change in time, an update will be necessary closer to the date to account for new factors which may have material financial impacts to the findings in this Report.

2 Rehabilitation planning framework

The GHD Report provides a summary of guidelines and leading practices relevant to rehabilitation and closure planning generally; however, notes that there are no current guidelines or standards directly for the rehabilitation for port or coal terminal infrastructure. The guidelines and leading practices identified by GHD are for the mining industry and so are not directly relevant to rehabilitation and closure of port facilities.

There are no rehabilitation and closure planning guidelines identified specifically for Australian port facilities. There are no suitable planning precedents for rehabilitation and closure of a major coal terminal at a port facility in Australia. Port facility rehabilitation and closure requirements may differ significantly dependent upon proposed post closure land use, future economic opportunities and the strategic importance of a port's facilities at any location.

Photo 1: Offshore Domain – Jetty

3 Agreements and legislative requirements

GHD discussed three matters relevant to rehabilitation and closure requirements for DBCT:

- Port Services Agreement
- Consents and licences
- Legislation.

The GHD Report indicates that the Port Services Agreement (PSA) sets out the key obligations for DBCTM in respect of the ongoing ownership and management and operations of DBCT. Furthermore, GHD states that the PSA defines rehabilitation as returning the site to its Natural State and condition as existed prior to any development occurring on the site. Noting that this obligation is more onerous than other typical industry rehabilitation requirements, Advisian sought clarification of the rehabilitation obligations set out in the PSA with QCA. Interpretation of the requirements was based on the QCA's final decision on the 2015 DAU. Further description of estimating assumptions associated with returning the site to its Natural State is provided below.

GHD describes the Environmental Authority, a primary Queensland Government environmental approval relevant to DBCT. GHD briefly describes conditions of the Authority for the values of air, water, noise, land, waste and general values; however, no information is provided regarding rehabilitation or closure requirements for DBCT. GHD does not describe, and Advisian has not been made aware of any other planning or environmental approvals with significant implications for rehabilitation and closure planning requirements for DBCT.

GHD identifies other legislation that may be relevant to rehabilitation and closure activities. Advisian has not identified other legislation that is likely to have a significant impact on the estimated cost for rehabilitation and closure.

3.1 Definition of 'Natural State' as approach to Advisian cost estimate

Generally, Advisian and GHD are aligned on the definition of 'Natural State' for the remediation of the site. The natural landform above ground is reasonably defined as a requirement to take the site back to its original topographical landform (circa 1981). However, Advisian varies from GHD's position on scope in complete removal of piles both on-shore and off-shore. Advisian has also used 1977 topographical imagery to generate the pre-disturbance level. This base material forms the foundation of our approach and establishes our datum point for our quantity's assessment, this is described in detail in Section 11. It is our opinion this provides the most accurate baseline to determine the 'Natural State'.

4 Approach

4.1 Our approach

Advisian has completed a full review of the GHD Report and has developed a first principle estimate based on information and drawings provided by GHD and DBCTM. A list of the data provided is included in Appendix G. Advisian has also carried an RFI process and has requested from both GHD and DBCTM additional information necessary to complete a comprehensive assessment and estimate. The information reviewed includes:

- GHD Report
- Axiom estimate
- Drawings (general arrangements, plot plans)
- LIDAR (Light Detection and Ranging) data
- Site photos
- Google Earth, etc.

A list of data and the completed RFI Schedule is included in Appendix H.

Advisian has also conducted a two day site visit of DBCT on 3rd and 4th March 2020 to validate the estimate assumptions and some of the measurements and quantities not available on the drawings. A visual inspection and notations were also undertaken on key areas of the facility. A comprehensive Site Report has been compiled and is provided as Appendix B to this Report.

Advisian has also independently developed a digital terrain model to derive some of the quantities to ensure that its estimate was not solely reliant upon GHD's assumptions or quantities) and now could be classified as fully independent. A description of the Advisian approach to the quantities assessment is documented in Section 11.

Advisian has reviewed the definition of 'Natural State' as adopted by GHD approach for purposes of defining our scope and deviated only where noted in the onshore and off-shore piling methods as described further within our Report. Advisian then moved on to identify differences between GHD and Advisian scope and subsequently progressed on developing a first principle estimate based on Advisian scope and assessed differences in rates and cost between GHD and Advisian independent estimate.

4.2 Rehabilitation objectives

Advisian has reviewed the rehabilitation objectives identified by GHD and considers those to be fair and reasonable.

4.3 Key assumptions

Advisian has reviewed GHD's key assumptions and generally agrees with GHD's position for the purpose of our scope. For completeness we provide the following key assumptions and exclusions:

- It is assumed that demolition and rehabilitation will take place at DBCT in its current setup as at the date of this Report – no future expansion has been considered
- DBCT will be fully rehabilitated and land restored to Natural State as defined in this Report. DBCT will not be re-purposed for other activities or the facility repurposed for another commodity
- All shared infrastructure such as substations and the Tug Harbour will no longer have any other end users at the time of demolition (100% of costs sit with DBCT)
- It is assumed that at the time of demolition and rehabilitation works all mines in the Bowen Basin utilising DBCT and Hay Point will be at end of life operations also or have alternative measures in place for shipping
- The Goonyella rail network servicing Hay Point and DBCT will be demolished by others balloon loop servicing only DBCT is considered within the estimate
- All lands will be restored to Natural State as defined within this Report (prior to DBCT construction)
- Current landform was determined by LIDAR data in 2013 and adjusted with any changes to current format
- Drawings from the 7x Expansion project were utilised to determine quantities for decommissioning and demolition
- It is assumed that any contaminate spills that may have occurred prior to decommissioning are cleaned as an operational cost
- All contaminated waste will be able to be removed to Hogan's Pocket Transfer Station
- All general and demolition waste will be able to be removed to Paget Transfer Station
- It is assumed that all tanks will be emptied to lowest levels and only residual chemicals/fuels/ process items remain
- It is assumed that all asbestos would have been removed from site prior to activities starting on site (provisioned within the contingency)
- All items of value like steel/ferrous and other valuable items will be disposed of at no charge (no salvage)
- All works areas will be available concurrently
- All material that is to be kept on site is able to be used as clean fill (mainly crushed concrete)
- It is assumed that existing access roads will be in place for use for removal of items from Site
- All infrastructure associated with the Tug Harbour will be able to be gifted (as per GHD Report)
- All construction water is obtained from site (dams).

4.4 Battery limits

Advisian has reviewed the battery limits identified by GHD and has assumed that these battery limits define the limits of the works. Advisian have adopted battery limits as explained in GHD report and assessed the assets contained wholly therein. Advisian has also undertaken independent assessment through google site maps and validated scope of work through a detailed site visit with records provided for completeness in Appendix B.

Figure 2 and 3 below show the GHD defined site boundaries and domains split for the project.

Figure 2: Battery limits (extract from the GHD Report)

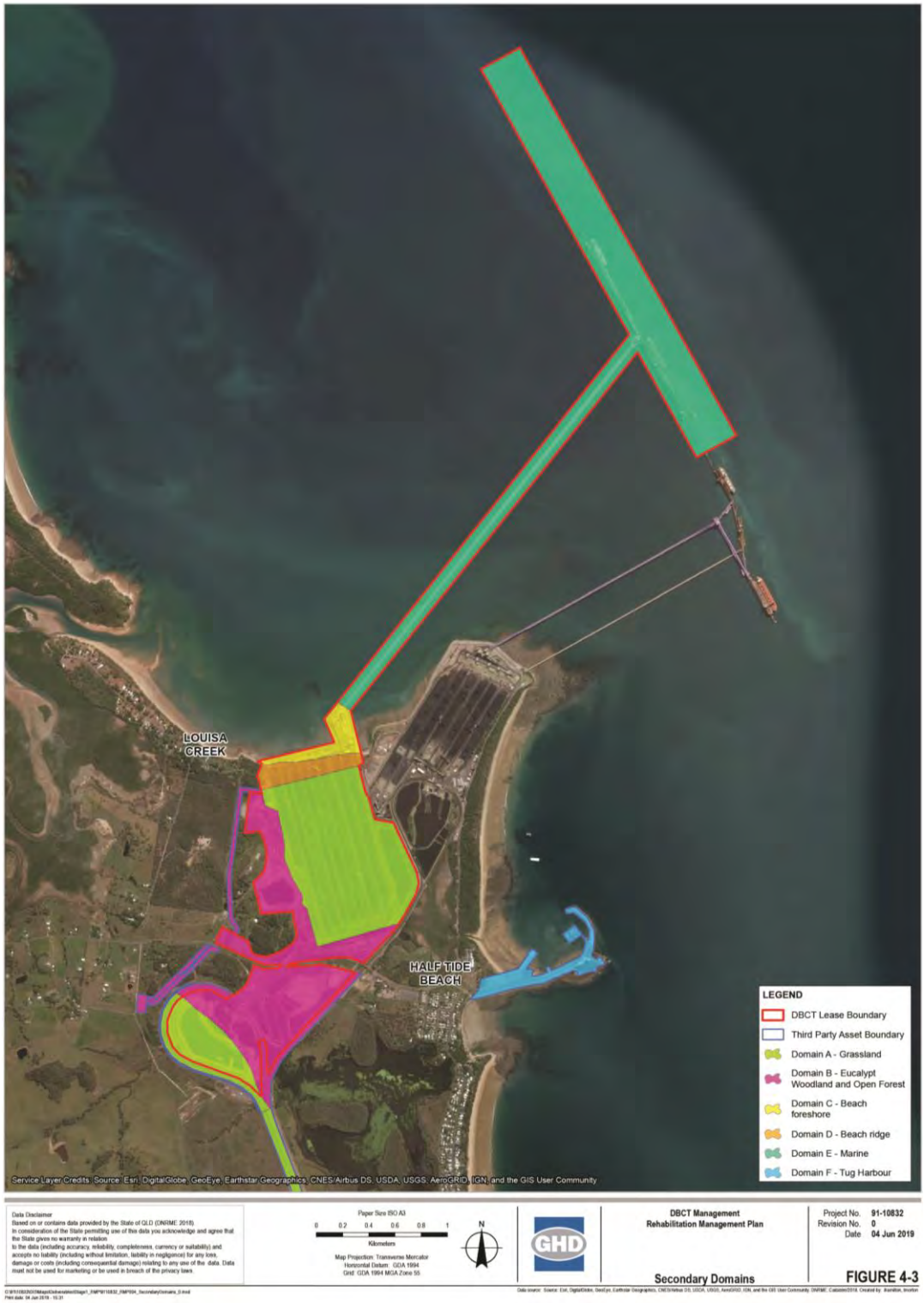


Figure 3: Primary Domains (extract from the GHD Report)

4.5 Domains

As stated previously, Advisian has maintained the same Domains' delineation utilised by GHD for ease of comparison noting that the Tug Harbour scope has been included in the indirect costs as a lump sum as described in their report. The definition and split of Domains as reported in the GHD Report section 4.5, page 27 table 4.1 are reported in the description and table below. For clarity, Advisian has adopted the same domain delineation and asset description.

Primary Domains are defined as operational or functional land management units within DBCT site, usually with unique purpose and therefore similar geophysical characteristics and rehabilitation treatment requirements. It is possible that the rehabilitation requirements for each Domain may be different. Secondary Domains are based on post-operations land management units characterised by similar land use. They provide a defined final land use and basis for the completion criteria.

Table 4: Primary Domains

Domain	Name	Description
1	Rail Loop, Receival Conveyors	Rail line and loops, Rail line overhead catenary and support towers, Aurizon substation, Rail receival pits and stations, Pit conveyors, Receival conveyors, and Transfer towers
2	Stockyards	Stockpile pads, Stockyard bunds, Yard machines, Inloading Conveyors, Outloading conveyors, and Towers
3	Seawall and Transfer Stations	Sea wall structure and bulk earthworks, Hanbars, Outloading conveyors, Towers, Surge bins, Belt feeders, and Sample stations
4	Offshore	Marine structures, Wharf ship loader machines and integral conveyors, Wharf conveyors, Main wharf transfer tower and other towers
5	Water Management	Dams (not including the Quarry Dam); Industrial Dam, Rail Loop Dam, Rail Receival Dam, Spindlers Dam and associated water systems
6	Quarry Dam	Quarry Dam and associated infrastructure
7	Offices and Workshops	Paved roads and carparks, Site fencing, Carpark cover structures, Buildings, Sewage and Diesel fuel storage and distribution
8	Utilities (Electricity & Water)	Ergon 33kV OHL and substation, Main substation and in-plant electrical, Water mains connections
9	Tug Harbour	Incorporates the Groyne and seawall, publicly accessible boat ramps, berths and associated facilities.

Table 5: Secondary Domains

Domain	Name	Description
Domain A	Grassland	Suitable for cattle grazing.
Domain B	Eucalypt Woodland to Open Forest	Mixed eucalypt vegetation community consistent with pre-existing vegetation community.
Domain C	Beach foreshore	Consistent with the rocky platform along the coast.
Domain D	Beach ridge	Consistent with pre-existing vegetation community of Coastal Sheoak (*Casuarina equisetifolia* var. *incana*), Breadfruit trees (*Pandanus sp*) and Cupania (*Cupaniopsis ancardiodides*) located as a narrow band on the exposed seaward side of the woodland community, with a sparse groundcover of Beach Spinifex (Spinifex hirsutus) and Dune Couch (Zoisia macrantha).
Domain E	Marine	Consistent with the pre-existing marine environment including offshore gradients and depths.
Domain F	Tug Harbour	Not part of DBCT lease but purpose-built to service the terminals, not to be rehabilitated due to significant public use. In lieu of rehabilitation, a one-off payment for ongoing maintenance will be made. No change in land use.

4.6 Completion criteria

GHD identified a set of completion criteria and Advisian has not identified any changes to criteria that would results in a significant change to our cost estimate.

5 Stakeholder consultation strategy

GHD set out a discussion of stakeholder consultation strategy associated with rehabilitation and closure planning which included a description of potential social impact assessment requirements. In the discussion of social impact assessment GHD anticipated that the rehabilitation works will require an Environmental Impact Assessment as well as a Social Impact Assessment. Advisian has not identified additional requirements associated with stakeholder consultation, or environmental and social impact assessment that is considered likely to have a significant bearing on the overall estimate for rehabilitation and closure of DBCT, noting that there is significant uncertainty regarding the future potential requirements for such work.

Photo 2: Offshore Domain – Jetty and wharf

6 Land use

GHD set out a discussion of past and present land use for the area of DBCT to support identification of land use post rehabilitation and closure. Advisian has not identified additional information with respect to post rehabilitation and closure land use that is considered likely to have a significant impact on the overall estimate for rehabilitation and closure of DBCT, noting that there is significant uncertainty regarding the future potential land use for the area.

Photo 3: Tug Harbour Domain

7 Land use constraints and opportunities

GHD set out a discussion of land use constraints and opportunities that were considered relevant to the rehabilitation and closure activities including:

- Contamination and hazardous materials
- Salinity
- Landform
- Surface water
- Marine and coastal
- Terrestrial ecology and biodiversity.

Advisian has not identified additional information with respect to post rehabilitation and closure activities for these aspects that is considered likely to have a significant impact on the overall estimate for rehabilitation and closure of DBCT.

Refer to Part 3 for contaminated material assumptions for each Domain.

Photo 4: Quarry Dam Domain

Photo 5: Seawall Domain

Part 3
Estimate review

Preamble

As part of the assignment, Advisian undertook a highly detailed first principles approach to the estimate build-up. The full estimate is located in Appendix A. The estimate contains a breakdown of the elements of the work into major disciplines such as **decommissioning**, **deconstruction** and **rehabilitation**. The results are supported by methods and estimation calculation in the Advisian DBCT Rehabilitation Estimate. A summary of the direct costs is presented in Table 6.

The full estimate comprises the following tabs in the Excel workbook.

Cost estimates workbook contents	
Cover	3. Seawall Methods
DBCT Sell Price Compare	4. Jetty & Wharf Estimate
Executive Summary	4. Jetty & Wharf Methods
Direct Cost Summary	5. Water Management Estimate
Information	5. Water Management Methods
Resources Analysis	6. Quarry Dam Estimate
Organisation Chart	6. Quarry Dam Methods
RFI Register	7. Offices & Workshops Estimate
Definition Risk Analysis	7. Offices & Workshops Methods
Estimate Detail	8. Utilities Estimate
1. Rail Loop Estimate	8. Utilities Methods
1. Rail Loop Methods	9. Tug Harbour Estimate
2. Stockyard Estimate	9. Tug Harbour Methods
2. Stockyard Methods	Data
3. Seawall Estimate	

Table 6: Direct Cost summary (note sums to top row of each Domain category)

Domain	GHD	Advisian	Variance
Rail Loop Domain	**$144,653,427**	**$83,512,379**	**-$61,141,049**
Decommissioning Total	**$2,120,020**	**$2,277,982**	**$157,962**
Deconstruction Total	**$6,691,900**	**$7,284,282**	**$592,382**
Rehabilitation Total	**$135,841,507**	**$73,950,115**	**-$61,891,393**
Stockyards Domain	**$304,133,326**	**$157,075,903**	**-$147,057,423**
Decommissioning Total	**$5,657,546**	**$6,127,852**	**$470,306**
Deconstruction Total	**$15,339,800**	**$15,716,935**	**$377,135**
Rehabilitation Total	**$283,135,980**	**$135,231,115**	**-$147,904,865**
Seawall Domain	**$36,986,133**	**$35,440,541**	**-$1,545,592**
Decommissioning Total	**$2,608,899**	**$2,974,853**	**$365,954**
Deconstruction Total	**$19,625,550**	**$23,570,169**	**$3,944,619**
Rehabilitation Total	**$14,751,684**	**$8,895,519**	**-$5,856,166**
Offshore Domain	**$169,130,694**	**$117,960,243**	**-$51,170,451**
Decommissioning Total	**$6,905,260**	**$6,520,406**	**-$384,854**
Deconstruction Total	**$160,141,420**	**$109,157,002**	**-$50,984,418**
Rehabilitation Total	**$2,084,014**	**$2,282,835**	**$198,821**
Water Management Domain	**$39,291,773**	**$44,898,223**	**$5,606,450**
Decommissioning Total	**$84,178**	**$21,226**	**-$62,952**
Deconstruction Total	**$173,570**	**$218,681**	**$45,111**
Rehabilitation Total	**$39,034,026**	**$44,658,317**	**$5,624,292**
Quarry Dam Domain	**$8,084,266**	**$56,894,076**	**$48,809,810**
Decommissioning Total	**$0**	**$5,632**	**$5,632**
Deconstruction Total	**$0**	**$67,238**	**$67,238**
Rehabilitation Total	**$8,084,266**	**$56,821,206**	**$48,736,940**
Offices and Workshops Domain	**$32,575,455**	**$23,608,771**	**-$8,966,683**
Decommissioning Total	**$1,481,729**	**$405,995**	**-$1,075,734**
Deconstruction Total	**$724,300**	**$818,771**	**$94,471**
Rehabilitation Total	**$30,369,426**	**$22,384,004**	**-$7,985,421**

Domain	GHD	Advisian	Variance
Utilities Domain	**$22,865,380**	**$5,741,923**	**-$17,123,458**
Decommissioning Total	**$475,455**	**$116,273**	**-$359,182**
Deconstruction Total	**$686,900**	**$1,180,614**	**$493,714**
Rehabilitation Total	**$21,703,026**	**$4,445,036**	**-$17,257,990**
Decommissioning	**$19,333,086**	**$18,450,219**	**-$882,867**
Deconstruction	**$203,383,440**	**$158,013,692**	**-$45,369,748**
Rehabilitation	**$535,003,929**	**$348,668,147**	**-$186,335,782**
Mob & Demob Allowance	**$0**	**$2,277,186**	**$2,277,186**
Labour Escalation Allowance	**$0**	**$11,069,405**	**$11,069,405**
Total Estimate	**$757,720,455**	**$538,478,649**	**-$219,241,806**
Tug Harbour	$37,230,000	$37,230,000	$0
Total Estimate	**$794,950,455**	**$575,708,649**	**-$219,241,806**

8 Rates

Advisian has developed a list of rates for plant, material, disposal and labour costs as part of assembling the cost estimate for the rehabilitation of the Terminal. These rates were amalgamated from a variety of industry sources, including recent enterprise agreements from tier one contractors, contacting suppliers and disposal facilities, as well as first principles build-ups.

In investigating the robustness of the estimate put together by GHD, Advisian has also reviewed and compared the rates for the two estimates. While there are some discrepancies, overall the rates were not a major driver for the variance between the estimates.

This section outlines the development process of the rates and provides comparison of the two rates lists. The full rates list developed by Advisian is provided in Appendix C.

8.1 Direct labour rates

8.1.1 GHD approach

GHD has two approaches to the labour rates within the estimate. Through the GHD estimated portion of decommissioning and demolition, there are three labour rates for the direct work; a flat per hour sell price to the end-client of labour at $60, labour at $80 and foreman at $100. Plant operators are included within the plant rates and occasionally applied at $90 per hour. These rates have been applied at 60 hours per week.

GHD has subcontracted the estimates to Axiom. Within the Axiom estimated portion of the estimate of disposal and remediation, an average crew labour cost rate of a flat $60 per person per hour has been applied through the estimate. This rate has been applied for 55 hours per week.

This approach is reasonable and when considering the qualification of -50% to +75% accuracy detailed in the estimate file and +25% estimate contingency applied, gives a range that will cover the cost of labour on the works.

8.1.2 Advisian approach

Advisian has built up labour rates based on a current enterprise agreement from a tier one contractor in the Queensland construction industry[1]. The rates onsite effective from 1st March 2020 have been used.

From the eight rates in the Enterprise Agreement (EA), five rates were developed to be used within Advisian's estimate. The rates used from the enterprise agreement range from the lowest rate entry-level labourer through to various trades and machine operators. When classifying skilled trades and operators it was considered and decided to take a conservative approach to these worker classifications which included the application of all trades persons and heavy construction machinery operators in the top rate bracket (Labour Group A) for application through the estimate.

[1] Lendlease – services, utilities and infrastructure – Queensland enterprise agreement 2016. https://www.fwc.gov.au/documents/documents/agreements/fwa/ae419251-2.pdf

Other labour classes like B, C and D were incorporated based on skill levels required and tasks performed. Labour E (entry level labour) was not used through the estimate.

Three rostering scenarios for the work were considered; full-time fly-in fly-out 21/7, casual local labour and full-time local labour. Penalty rates have been considered and a flat hourly cost rate has been applied that includes the subcontractors' margin and head contractors' margin.

Generally, Advisian has taken a conservative position in the application of the labour classification to the rates used in its estimate. As Mackay is a major regional centre, it is not expected to be difficult in accessing the required skills locally. The middle cost position of the casual local labour was chosen and has been applied through the estimate.

8.1.2.1 Full-time fly-in fly-out 21 on, 7 off roster

The rate includes the following:

- Return flights between Brisbane and Mackay at $814.00 return
- Accommodation and messing allowance $294.75/day (current ATO guidelines)
- A roster travel allowance of 3 hours in each direction (6 hours recovered over the 21 days on)
- Safety training, pre-starts and toolbox talks of 1.5 days per roster (0.5 days per week)
- Supervisor allowance on the Labour A and B, First Aid allowance and 1 crib break allowance per day on all 5 rates (conservative approach was taken to include allowances on all rates)
- Industry Redundancy Trust allowance of $250/week (ACIRT/CIRT or similar)
- Statutory leave entitlements
- Superannuation of 9.5%, Payroll tax of 4.75% and WorkCover of 1.13%
- PPE including the EA Prescribed Boot allowance of $1,200 per year
- Small Tools per person allowance of $1,260 per year
- Subcontractor margin of 19% which includes site overhead, corporate overhead, subcontractor contingency and profit
- Head Contractor mark-up of 10.74%. Refer to detailed Indirect and Mark-up in Section 21.

Table 7: Full-time fly-in fly-out 21 and 7 roster rates (includes travel and accommodation)

Labour classification	Description	Blended flat hourly rate
Labour A	Tradesperson, form worker, heavy plant operator	$144.89
Labour B	Rigger, scaffolder, medium plant operator	$137.45
Labour C	Driver, light plant operator	$128.19
Labour D	General labour/trades assistant	$122.22
Labour E	Entry level labour	$117.01

8.1.2.2 Casual local labour: Monday to Friday

The rate includes the following:

- Safety training, pre-starts and toolbox talks of 0.5 days per week
- Supervisor allowance on the Labour A and B of $2/hour
- First aid allowance of $4/ day +$1/ day to recover cost associated with the First Aid course (conservative approach was taken to include this allowance on all rates)
- One crib break allowance per day
- Superannuation of 9.5%, Payroll tax of 4.75% and WorkCover of 1.13%
- Casual Loading of 25% as per the EA
- PPE including the EA Prescribed Boot allowance of $1,200 per year
- Small tools per person allowance of $1,260 per year
- Subcontractor margin of 19% which includes site overhead, corporate overhead, subcontractor contingency and profit
- Head Contractor mark-up of 10.74%. Refer to detailed Indirect and Mark-up in Section 21.

Table 8: Casual local labour rates

Labour classification	Description	Blended flat hourly rate
Labour A	Tradesperson, form worker, heavy plant operator	$101.66
Labour B	Rigger, scaffolder, medium plant operator	$93.51
Labour C	Driver, light plant operator	$83.97
Labour D	General labour/trades assistant	$77.43
Labour E	Entry level labour	$71.72

8.1.2.3 Full-time local labour: Monday to Friday

The rate includes the following:

- Safety training, pre-starts and toolbox talks of 0.5 days per week
- Supervisor allowance on the Labour A and B of $2/hour
- First Aid allowance $4/ day +$1/ day to recover costs associated with the First Aid course (conservative approach was taken to include allowances on all rates)
- One crib break allowance per day on all 5 rates
- Industry Redundancy Trust allowance of $250/ week (ACIRT/ CIRT or similar)
- Statutory leave entitlements
- Superannuation of 9.5%, Payroll Tax of 4.75% and WorkCover of 1.13%
- PPE including the EA Boot allowance of $1,200 per year
- Small tools per person allowance of $1,260 per year

- Subcontractor margin of 19% which includes site overhead, corporate overhead, subcontractor contingency and profit
- Head Contractor mark-up of 10.74%. Refer to detailed Indirect and Mark-up in Section 21.

Table 9: Full-time local labour rates

Labour classification	Description	Blended flat hourly rate
Labour A	Tradesperson, form worker, heavy plant operator	$97.61
Labour B	Rigger, scaffolder, medium plant operator	$90.52
Labour C	Driver, light plant operator	$81.53
Labour D	General labour/trades assistant	$75.85
Labour E	Entry level labour	$70.88

8.1.3 Comparison of GHD and Advisian direct labour rates

The table below provides a comparison of GHD and Advisian's direct labour rates. To directly compare the rates between Advisian and GHD, the table below has the Head Contractors' mark-up of 10.74% added.

Advisian developed a list of rates for plant, material, disposal and labour costs as part of assembling the cost estimate for the rehabilitation of the Terminal. These rates were amalgamated from a variety of industry sources, including recent enterprise agreements from Tier 1 contractors, contacting suppliers and disposal facilities, as well as first principles build-ups. The process adopted by Advisian was robust. Whilst these rates largely aligned with GHD on a blended basis, Advisian were unable to ascertain the source of the GHD Rates as "Industry Norms" was stated as the basis for setting the rates generally.

Table 10: Comparison of GHD and Advisian direct labour rates (with Head Contractors' mark-up added)

Source	Labour	Cost to end client ($/hr)
GHD	Labourers / Cleaning	$67.00
GHD	Foreman Demolition	$110.00
GHD	Foreman Cleaning	$95.00
GHD	Foreman Decommissioning	$100.00
GHD	Operator – Decommissioning	$90.00
GHD	Operators – Cleaning	$85.00
Axiom	Average Crew Labour	$60.00
Advisian	Labour A – tradesperson	$101.66
Advisian	Labour B – medium plant operator	$93.51
Advisian	Labour C – light plant operator	$83.97

Source	Labour	Cost to end client ($/hr)
Advisian	Labour D – general labour/trades assistant	$77.43
Advisian	Labour E – entry level labour	$71.72

8.2 Indirect labour rates

Indirect labour costs relate to the supporting labour expenses that are necessary to facilitate the successful delivery of the project. Examples include project managers, engineers, site supervisors, environmental managers and more.

This section details the approaches both GHD and Advisian has used in the build-up of these costs.

8.2.1 GHD approach

The indirect labour costs within the GHD estimate were built up using two approaches.

Axiom estimate

Within the Axiom estimate, an allowance of 10% of direct costs has been apportioned to indirect labour costs and is documented as the DBCTM Project Management team. It is unclear on the rates that have been applied to individual positions within the team, however the assumptions within the report are clear that a management team is supplied by the asset operator.

While this approach is reasonable, it is noteworthy that the costs are at the higher end of the industry norms of between 3 and 7% for a project management office on demolition projects.

The cost allocated to indirect laborers within the Axiom estimate is $53.5M.

GHD estimate

The GHD portion of the estimate has 'distributable costs' for labour sitting in two portions of the estimate – 4.5 years of cost is located within the distributable cost section, with the remaining 3.5 years grouped under offshore, direct works. Both sections are staffed with a project manager, two project engineers and a health and safety officer. The rates used for these are provided below:

- Project manager – $150/hr
- Project engineer – $120/hr
- Health and safety officer – $100/hr

These resources are assumed to belong to the head contractor undertaking the works. These rates are within the market rates. The table below provides a summary of indirect costs, including all accommodation, site vehicles and airfares.

Table 11: GHD indirect labour costs

Estimate	Cost methodology	Total cost
Axiom estimate	10% of direct costs	$53,500,393
GHD – Onshore	First principles build-up	$15,393,680

Estimate	Cost methodology	Total cost
GHD – Offshore	First principles build-up	$20,995,320
Total		**$89,889,393**

8.2.2 Advisian approach

Advisian's approach was to develop and price an organisation chart for a probable Head Contractor's management team and to split the scope into three key areas: rail, offshore and onshore. The high-level program critical path for each of the areas was calculated and the teams on each area applied for the duration.

The total project critical path runs through the offshore works due to having only a single work front for a large portion of the scope. The overall management team has been applied for this duration.

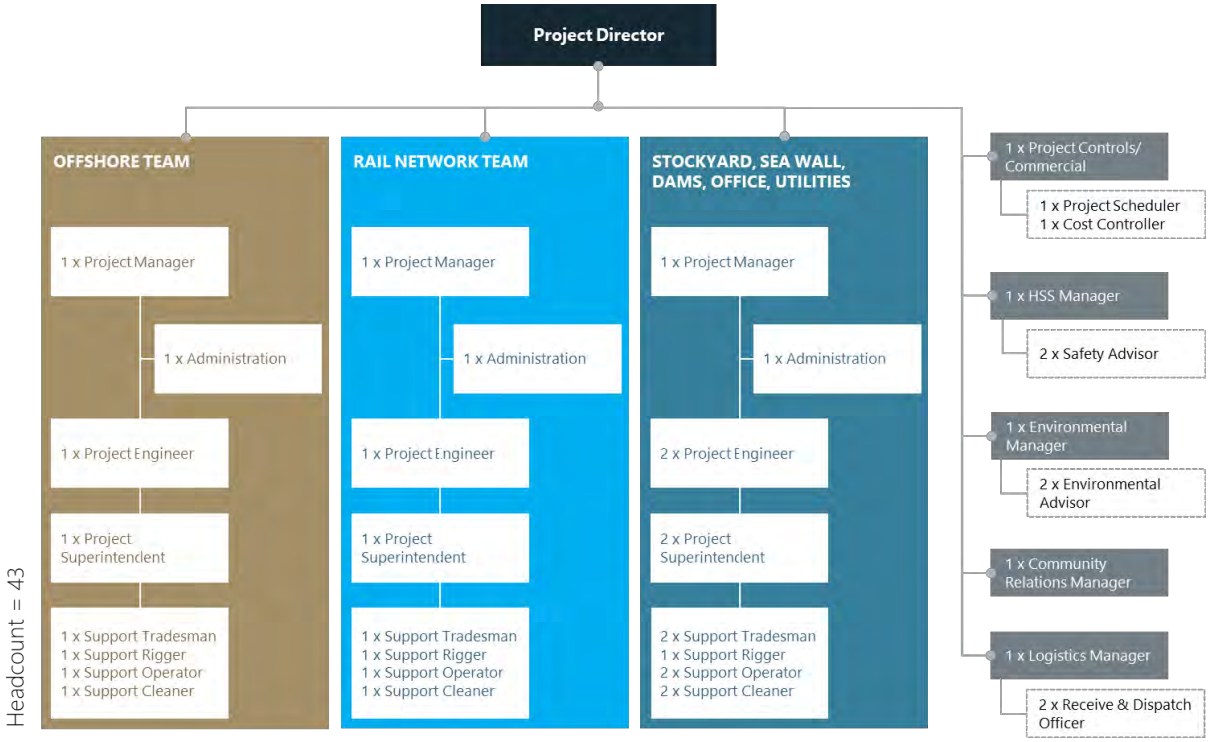


Figure 4: Terminal rehabilitation project organisation chart

The salaries are aligned with industry standards for a project of this scale undertaken in Queensland in 2020. A detailed breakdown of the below summary table can be found in the Resource Analysis tab of Appendix A.

Table 12: Advisian indirect labour cost

Indirect cost allocation	Cost
Staff salaries	$32,223,599
Site labour	$13,452,917

Indirect cost allocation	Cost
Owner's project management cost* applied as per percentage (10% nominal) as per GHD calculation within their report	$50,000,000
Total	**$95,676,516**

*Refer to section 21.5 for further details on Owner's project management cost.

Whilst Advisian have applied the owners project management cost per GHD report, we envisage that this would include for several items such as:

- Project procurement (contract formulation and administration)
- Site establishment
- Operational and management cost
- Client owned project risk such as unknown site remediation and environmental matters
- General contract risks provisions
- Third parties' fees and charges.

8.3 Plant rates

8.3.1 GHD approach

The GHD estimate has obtained market rates for the plant required for the works. The rates appear to be inclusive of fuel, ground engaging tools, maintenance, insurances and in most cases, an operator.

The plant rates have then been built into crew build-ups required to undertake the works. These crews have been applied at 100% utilisation for 60 hours per week. The number of weeks required to undertake the works estimated is multiplied by the total crew rate.

This approach is reasonable and aligns with the stated accuracy of the estimate. Plant and equipment rarely reach 100% utilisation, so the costs associated may be slightly overstated, particularly when consumables such as fuel and ground engaging tools are included within the rate.

The plant included within the Axiom portion of the estimate is not transparent, although the costs per unit of measure are as expected for the specified line items.

8.3.2 Advisian approach

Plant rates have been sourced from hire companies and contractors supplying equipment in the Queensland construction industry. The rates are inclusive of fuel, ground engaging tools, maintenance, insurances and in most cases, operators. The rates estimated are the costs borne by the head contractor and would be owned by the Subcontractor performing the direct works.

Advisian has specifically selected plant that is readily available in the current market and has well known and documented production rates. The pieces of plant that crossover closely between GHD and Advisian methodologies are compared below.

The table below provides an extracted comparison of plant prices between GHD and Advisian. **Note that Advisian has used additional plant** throughout the estimate, but there were no prices to compare to with GHD.

Table 13: Comparison of GHD and Advisian plant rates

Plant description	GHD	Advisian
30-35T Excavator with shear **(Note 1)**	$125.00	**$295.70**
Bobcat/skid steer	$150.00	**$143.43**
Wet vac truck/sucker truck	$227.00	**$237.32**
Loader	$216.67	**$282.59**
Roller	$208.33	**$157.89**
Elevated work platform	$166.67	**$133.81**
Franna crane (Assume 25T mobile)	$213.33	**$185.86**

Note 1: This piece of plant is used as an Auxiliary and not front line and rate does not include an Operator.

8.4 Material and disposal rates

8.4.1 GHD approach

The GHD estimate and rates have been split between the Axiom portion of the estimate and the GHD priced portion. The notable difference between the two estimates is clean fill rate, where GHD has applied the rate of $35 per cubic metre and within the Axiom portion of the estimate the rate of $50 per cubic metre is applied.

It should be noted that the volume clean fill priced by GHD is negligible to the total bulk earthworks of the overall project however within the Axiom portion of the estimate the rate contributes significantly. The disposal rates within the Axiom portion are like those identified by Advisian.

The other key point of differentiation is the cost of transporting contaminated material from the Terminal, where GHD has priced removal almost 750km to Roma, Queensland.

8.4.2 Advisian approach

Advisian has sourced rates locally in Mackay for waste streams and contaminated materials.

For the clean fill rate, which is the largest single item contributor to the estimate cost, Advisian sourced screened topsoil rates delivered to site by truck and dog from local landscaping suppliers. It is understood that the quantities required would not be able to be supplied through a local landscaping supplier, and it is expected that through these economies of scale, a more competitive rate would be achieved. Of the two rates obtained of $37.00 and $43.80 per cubic metre, the conservative position and consequently higher rate was taken.

For general waste removal, Advisian has allowed for disposal to the Paget Transfer Station within the Mackay township and for contaminated and regulated waste, disposal to the Hogan's Pocket Transfer

Station. It should be noted that it is unlikely that these facilities (including those assumed by GHD) will have the capacity to accept all waste streams at present. However, due to the notice periods as described in the PSA of four years, these facilities should be able to expand, or additional facilities will be put in place to handle the capacity required.

Table 14: Comparison of GHD and Advisian disposal rates

Disposal	Axiom ($/tonne)	Advisian ($/tonne)
Heavy contaminated soil	$383.00	**$350.33**
Medium contaminated soil	$282.00	**$350.33**
General waste	$131.00	**$208.39**
Asbestos	$282.00	**$265.77**
Putrescible, noxious, offensive	$246.00	**$385.57**
HDPE/rubbers	$290.00	**$350.33**
Steel/ferrous and other valuable metals – transfer to Paget	No cost	**No cost**

9 Scope of the Estimate

Advisian and GHD are generally aligned on the obligations of DBCTM in restoring the terminal back to its Natural State as described earlier. There are however a few specific scope differences between the two estimates that are detailed within this estimate.

9.1 Sea floor level

Natural state for the sea floor is considered to be returning the sea floor to its pre-disturbed level, some 10m higher than it currently sits. Advisian aligns with GHD that undertaking this work would result in an unacceptable environmental impact to marine life. Leaving the sea floor to naturally fill in over time is the most appropriate action.

9.2 Onshore and offshore pile removal

Offshore pile removal

It is understood from discussions with DBCTM personnel during the site visit and drawings supplied that all marine piles are driven to refusal within the seabed and bedrock below. From discussions with DBCTM personnel, it was also indicated that piles from previous temporary works were cut at the seafloor level and remain in situ today.

GHD's position on the offshore piles was to fully remove from the rock, although they have also provided a price for cutting off at the current seafloor level. It is Advisian's position that complete removal of offshore piles would have a significant environmental impact to marine life in the short-term.

Given the current sea floor is some 10m lower than the undisturbed Natural State of the sea floor, Advisian's position is that cutting off the piles just below current seafloor level and leaving the embedded part of the piles to be further covered naturally over time, is the most appropriate action.

Onshore pile removal

There is a wide variety of piling used within the onshore area. These range from small piles used within the stockyard stacker/reclaimer in and outloading conveyors, to large piles under the stockyard inloading conveyors and in some cases the drive towers.

GHD's approach to the onshore piles socketed into rock is unclear. Advisian's position on the onshore piles socketed into rock is to remove the pile material down to 600mm below rock level and cap with concrete. It is Advisian's opinion that the removal of 2–3m of a pile cut into rock is contrary to the intent of Natural State, without replacing the rock material with concrete or material of similar strength to the rock. All smaller and shallow type piles that are not embedded into bedrock like the stockyard conveyors have been priced to be removed in full along with the standard demolition.

9.3 Stockyard coal bed contaminant removal

Initially during the construction of the Terminal, there was 300mm of low-grade coal laid down over the stockyard area. Over time and operation of the port, this area is now 600–700mm and will require removal prior to the commencement of restoration works. Advisian has currently not priced this removal as it is an operational cost for the asset operator, who will recover and sell the coal under normal operating conditions. It is unclear how this thermal coal has been dealt with in the GHD estimate.

However, the point of difference within the two estimates is the depth of coal and metal contaminated soil that is removed from the stockyard beds, once all the coal is gone. Advisian has allowed for the removal of 250mm of contaminated materials beneath the stockyards. This allows for a 50mm average buffer for earthmoving equipment between the bedding and material, as well as removal of 200mm of material below as contaminated soil.

Currently, GHD has allowed for the removal of contaminated soils to a depth of 400mm across the stockyards, which differs to Advisian's position.

Key issues that relate to the contaminant removal are presented in the rationale below, this rationale applies to all domains within this Advisian Report.

Depth of substrate/soil removed

This is a construction assumption relating to depth of contamination. Advisian has made the assumption that any contamination on the areas requiring removal is contained within the top 25mm. We note that there is no standard for this assumption and decisions are typically made on a case by case basis, based on the level of contamination at the time. The following considerations were made for this assumption, which we consider justifies our position that GHD's assumption for contaminated substrate removal is overestimated:

- During the operation of the site, any large spills having an environmental impact would be required to be cleaned up. Advisian have assumed costs for any such clean up would be under an operational budget.
- The material used to construct the earthen pads was free of contaminates at the time of construction.

It must be recognized that the approach adopted by GHD assumes heavy contamination across significant parts of the site which cannot be the case as any environmental incidents would have been addressed as part of coal terminal operations and procedures. It is our recent and relevant experience dealing with a Tier 1 Hydrocarbon Client that the allowance of 250mm is appropriate and in many cases excessive when restoration works are actually undertaken. It is therefore Advisian's strong position that even at 250mm depths contamination soil would be minimal. This assumption would be dealt with as part of the normal soil conditioning as part of the Advisian approach. And, if indeed there were deeper contaminates these would be dealt with in isolation and these events are largely covered with contingencies provisioned for both the Contractor and the Owner.

Depth of contaminated soil removed (Stockyard Domain) – GHD 400mm vs Advisian 250mm

During construction of the Terminal, 300mm of low-grade coal was laid down over the stockyard. Advisian has not priced this removal as it is an operational cost for DBCTM, who will recover and sell

the coal under normal operating conditions. It is unclear how this thermal coal has been dealt with in the GHD estimate.

However, the point of difference within the two estimates is the depth of contaminated soil that is removed from the stockyard beds, once all the coal is gone. Advisian has allowed for the removal of 250mm of contaminated materials beneath the stockyards. This allows for a 50mm average buffer for earthmoving equipment between the bedding and material, as well as removal of 200mm of material below as contaminated soil.

9.4 Tug Harbour

The obligations as would be explicitly stated by the PSA would be the full removal and rehabilitation of the Tug Harbour. GHD and Advisian are aligned in the view that removal of this asset would be contrary to the wider economic benefit of the community, as it is currently used by locals. The most appropriate outcome would be to preserve the structure.

9.5 Ameliorants and vegetation

GHD and Advisian are aligned on the re-vegetation and ameliorant requirements of the site and allowance for ameliorants, direct seeding and planting of tube stock has been made. Advisian has allowed for the treatment of acid sulphate soils in the same quantities as GHD.

Advisian has allowed for saplings and tube stock trees and a standard seeding mix for revegetation for the areas based on m^2.

9.6 Monitoring and maintenance

GHD and Advisian are aligned on the monitoring and maintenance requirements for the site. The development of a plan and the execution of the plan over a period of 10 years has been allowed for within the estimates.

10 Estimate development process

Advisian reviewed the GHD Report and structured a blank estimate file that, when complete, would enable comparison between the GHD and Advisian–prepared estimate build-ups.

Drawings of the site that were received were reviewed and considered in the creation of the estimate. To further Advisian's understanding of the facility, Google Earth and images available in the public domain were used to support the basis of estimate. Several requests for information were submitted during the information gathering phase and the responses reviewed and considered.

Rates for plant, equipment, materials, and waste streams were sourced from suppliers. Labour rates were built up from a current enterprise agreement from a Tier 1 construction contractor currently undertaking construction activities in Queensland. A number of rostering scenarios were considered, and a blended flat hourly rate developed for the various skill classifications. Rates were applied consistently through the estimate. These were generally described earlier in this Report.

A site visit was undertaken on 3rd and 4th March 2020 with three members of the Advisian team. Following the site visit the estimate build-up was amended to include the details identified that varied from initial assumptions. The site visit report is provided in Appendix B.

Photo 6: Rail Loop Domain –Rail system

11 Advisian quantity reassessment

During the assignment Advisian was commissioned to undertake a quantity reassessment in addition to the original scope of work. This was due to limited access to data that supported GHD quantity assumptions. As a result of our assessment, (explained in detail below) it differs in many areas and has contributed largely to the estimate delta.

The following is a technical description of our approach and it was deemed important to detail our approach to avoid future conflict in base data.

Approach to developing base data to establish revised Quantities

GHD's approach to determine the cut-and-fill volumes within Domain 2 (Stockyards) has been based on digital volume analysis between a Pre-Construction landform and a Prepared-Final landform. Volume calculations were performed in 12d Model software utilising digital representations of both the Pre-Construction and Prepared-Final Landforms, referred to as Pre-Construction Surface and Prepared Final Surface. The Pre-Construction Surface was created by digitizing historic design drawings where pre-construction topographic information is present. The Prepared-Final Surface was created from Light Detection and Ranging (LIDAR) data flown in 2013, modified to remove structures and stockpiles deemed appropriate by GHD's project team. By comparing the Prepared-Final Surface with the Pre-Construction Surface, GHD calculated an approximate extent of earthworks, including a conceptual material balance, to achieve a final landform consistent with the pre-development state.

Advisian was unable to determine the method by which GHD earthworks volumes were derived in all other Domains.

Advisian's approach was to re-calculate volumes utilising an alternative, Pre-Construction Surface and an independently generated Prepared-Final Surface.

High resolution historic stereographic images were processed to generate a Pre-Construction Surface that encompasses the whole DBCT site. High resolution aerial mages of Hay Point, flown in 1977, have been supplied in 1693dpi along with camera calibration data by the Queensland Department of Natural Resources, Mines and Energy (DNRME). These images have been orthorectified to MGA94 Zone 55 projection, horizontally and vertically correlated to both the 2013 LIDAR supplied by GHD, and 2015 digital terrain supplied by DNRME. Advisian believes this is a demonstrably more robust method of re-generating the Pre-Construction landform. It serves as an alternate source of data with which to validate GHD's volumes in Domain 2. Using the same data source would result in the similar outcomes and similar accuracy or error that is contained within. Furthermore, this alternative data source affords the opportunity to digitally calculate earthworks volumes over other Domains.

The Prepared-Final Surface is generated from the supplied 2013 LIDAR, modified where appropriate to add dams, remove water surfaces, stockpiles and base materials anticipated to be removed before the earthworks operation. The details of these modifications are as follows:

- Remove coal stockpiles/compacted coal from the Stockyards (Domain 2)
- Add Quarry Dam wall raise (derived from supplied drawings NJ1-04-0003 Rev B, NJ1-04-0003 Rev C and NJ1-04-0015 Rev C)
- Add Quarry Dam depth (derived from "Figure 7-1 DBCT water system flow diagram" in the GHD Report)

- Add Rail Loop Dam (derived from supplied drawings NJ1-04-0033 Rev B and NJ1-04-0034 Rev B)
- Add Rail Loop Dam depth (derived from "Figure 7-1 DBCT water system flow diagram" in the GHD Report)
- Add Grendon Creek Diversion (derived from supplied drawings NJ1-04-0033 Rev B and NJ1-04-0034 Rev B)
- Add Rail Receival Dam depth (derived from "Figure 7-1 DBCT water system flow diagram" in the GHD Report)
- Add Spindlers Dam depth (derived from "Figure 7-1 DBCT water system flow diagram" in the GHD Report)
- Add Industrial Dam depth (derived from "Figure 7-1 DBCT water system flow diagram" in the GHD Report)

It was necessary to perform a datum adjustment to the levels shown drawings NJ1-04-0003, NJ1-04-0003, NJ1-04-0015, NJ1-04-0033 and NJ1-04-0034. The datum nominated on these drawings is Survey Control Mark PM1070085 at RL12.16m. The Survey Control Mark Report for PM1070085 has been sourced from DNRME and attached in Appendix J No height data is available but MGA2020 co-ordinates are. These have been re-projected to MGA94 and plotted on the 2013 LIDAR returning an RL of 9.39m. Therefore, a height adjustment of -2.77m has been made to the notated levels when adding the Quarry Dam Wall Raise, Rail Loop Dam and Grendon Creek features to our model.

In the absence of any dam floor level data, water surface levels are removed using the storage volumes notated in Figure 7-1 of the GHD Report. Spillway levels are identified using 2013 LIDAR or 2019 aerial imagery and dam floor levels modelled to strike dam storage volumes that agree with Figure 7-1. Using this method, the Quarry Dam has a modelled depth of 38m which agrees with site notes recording a depth of approximately 40m.

Earthworks volumes are then calculated between the Pre-Construction Surface and the Prepared Final Surface (less 100mm to allow for Growth Medium thickness) and reported to match GHD's DBCT Domains. It is therefore important that Advisian's DBCT Domain boundaries match, as close as practicable, GHD's Domain boundaries. To achieve this, Domain boundaries have been digitised using Figure 4-2 from the GHD Report, supplemented by Digital Cadastral Database (DCDB) property boundaries. Refer to Appendix J drawing 311001-00034-00-CI-DSK-0001 for a plan showing Advisian's DBCT Domains.

The table below summarises the volumes from Table 7-3 of the GHD Report, along-side volumes generated by Advisian's model. Refer to Appendix K for volume report files corresponding to the table. It should be noted that the GHD volumes captured in Table 7-3 do not match the volumes reported in the Axiom estimate.

Table 15: Summary of earthworks volumes

Domain	Description	GHD Report Table 7-3		Advisian					
		Cut (m3)	Fill (m3)	Cut (m3)	Fill (m3)	Import (m3)	Spoil (m3)	Area (m2)	Growth Medium (m3)
1	Rail Loop, Recieval and Conveyors	8,400	800,000	346,211	574,132	227,921		505,147	50,515
2	Stockyards		4,218,000	1,973,547	2,630,643	657,096		1,009,082	100,908
3	Seawall and transfer	1,341,000		724,486	1,427		723,059	92,074	
4	Offshore								
5	Water Management	66,100	810,100	448,432	1,430,179	981,747		505,239	50,524
6	Quarry Dam		1,200,000	68,507	1,652,329	1,583,822		79,088	7,909
7	Offices and Workshops	730,700	125,200	1,229,492	85,782		1,143,710	278,949	27,895
8	Utilities								
9	Tug Harbour								
	Totals	**2,146,200**	**7,153,300**	**4,790,675**	**6,374,492**	**3,450,586**	**1,866,769**	**2,469,579**	**237,751**

The import volumes exclude a compaction factor of 10% Advisian was unable to determine compaction rates (if any) contained within the GHD Report.

Advisian has assumed the cut to fill activities are only per Domain and any Domain with excess material is cut to stockpile and subsequently used as imported fill to partially offset fill requirements.

For our assumption of the compaction of the won material, we have allowed for 90% of the cut material volume to be usable compacted material. Any material that must to be procured we have assumed an additional 10% by volume to be added to the amount.

For compaction assumption of the of the won material, Advisian has allowed for 90% of the cut material volume to be usable compacted material. Any material that is to be externally procured Advisian has assumed an additional 10% by volume to be added to the amount.

To align with the GHD estimate, Advisian has spread the material stockpiled from the site across all the Domains that require imported material. Of the cut to stockpile volume, 90% of the material won has been pro rata across the Domains where fill is required with the balance being made from imported fill.

For any contaminated material that we have removed we have assumed it will be replaced with clean fill at 1 to 1 (regardless of whether it came from a cut area or not).

Site sections have been included to provide further visibility over the Advisian volumes reported. Refer to drawings 311001-00034-00-CI-DSK-0011 and 311001-00034-00-CI-DSK-0012 in Appendix J

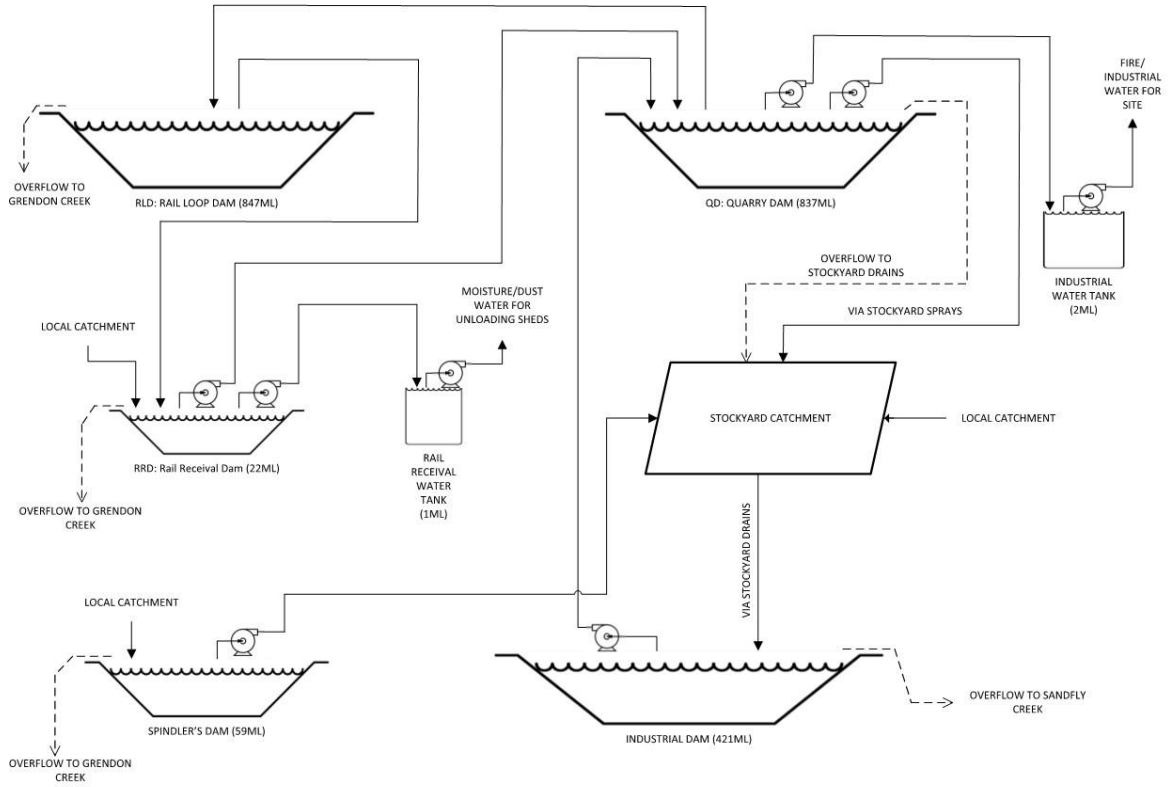


Figure 5: Extract from the GHD Report – used to determine Dams' volumes.

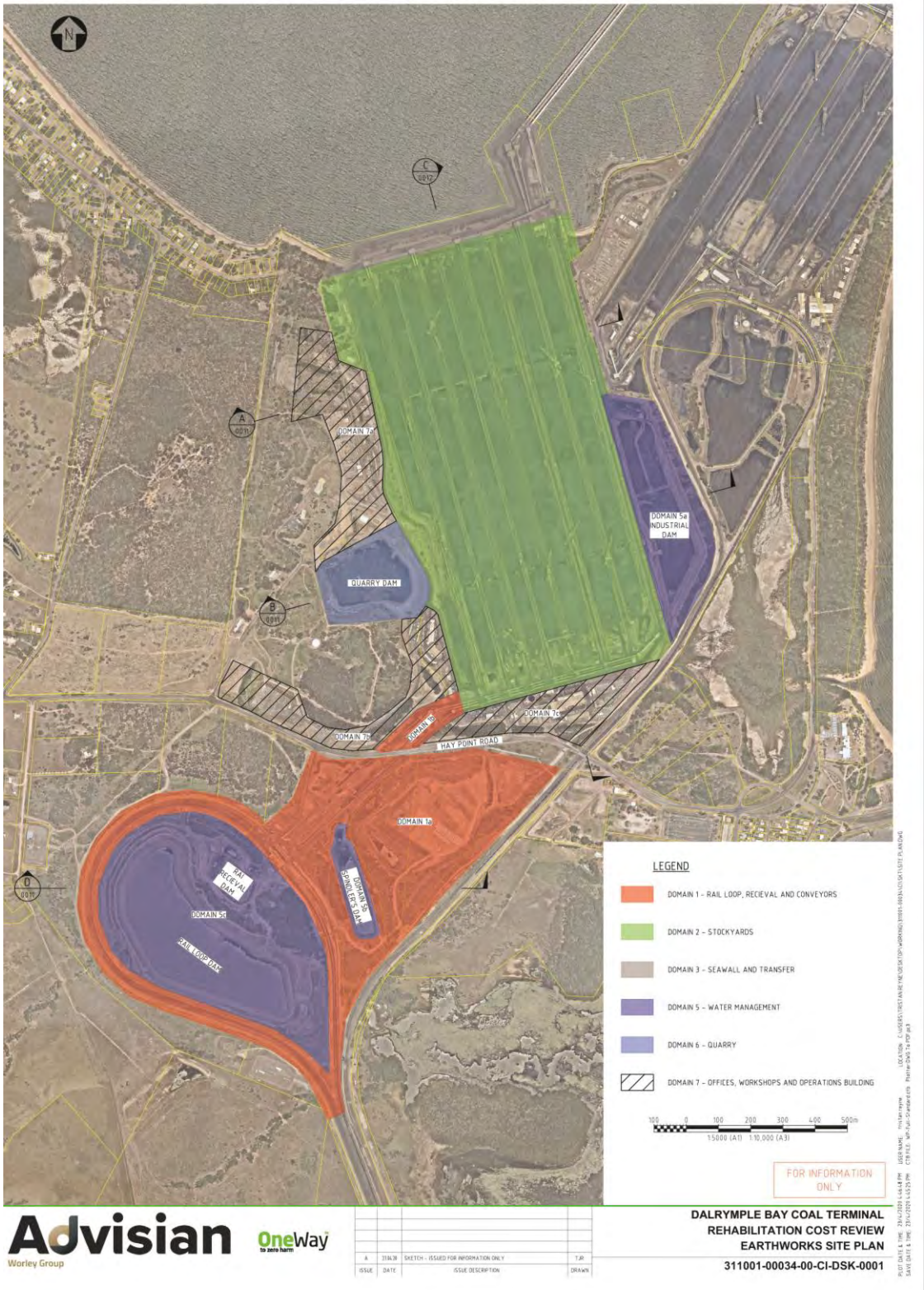


Figure 6: Quantities review earthworks delineation site plan

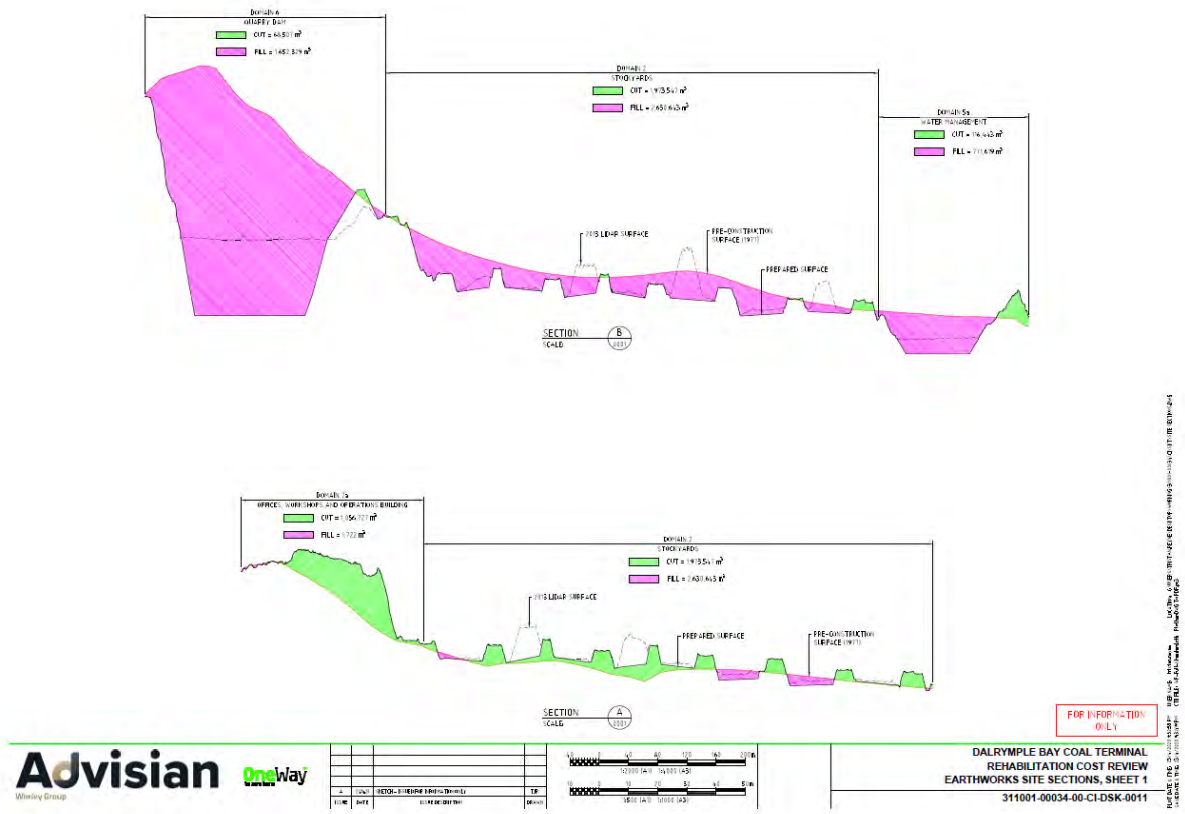


Figure 7: Cross section of Site

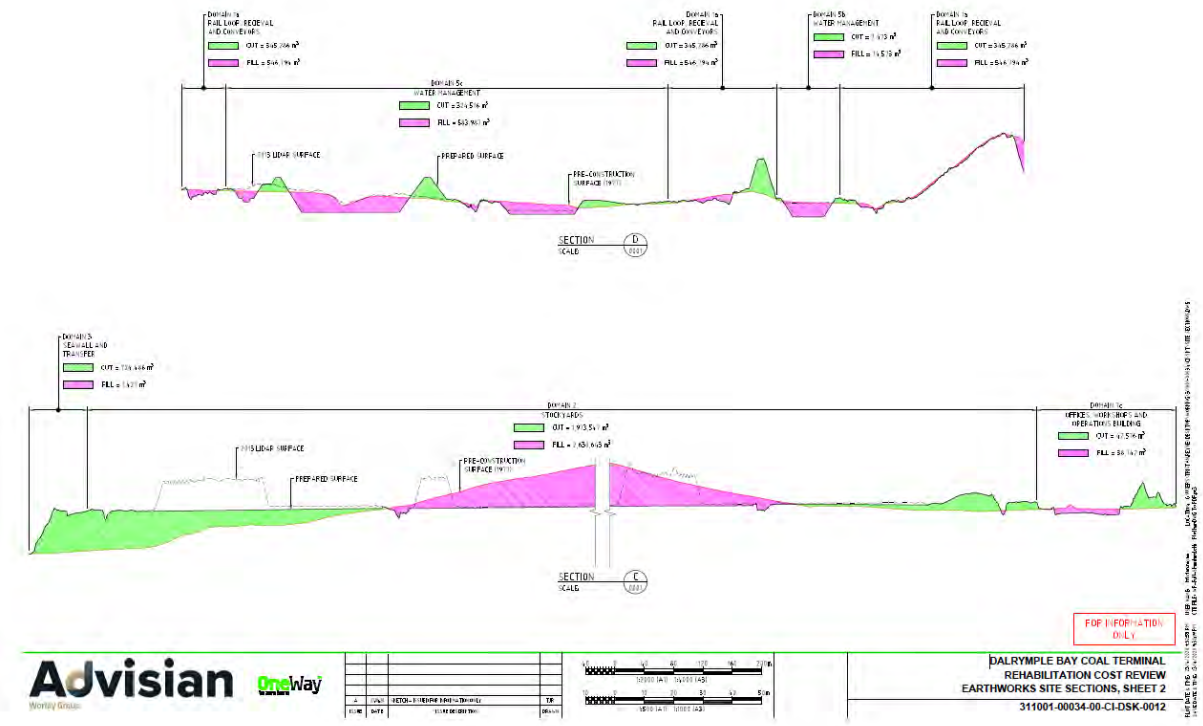


Figure 8: Cross section of Site

Preamble to Estimate findings

The following section details our findings when compared to the GHD Report on a Domain basis. Each section illustrates a chart graphically illustrating the price difference. Furthermore, a description of the key differences between both estimates on a discipline by discipline basis is outlined. It also provides an explanation of any key differences adopted in the methodology. At the end of each section there is a table – the **Cost estimate summary** illustrating the cost variances at a more granular level as extracted from the full estimate in Appendix A.

The following is a high-level summary table comprising all the Domains.

Table 16: Summary of Domain cost variances

Domain	GHD	Advisian	Variance
Rail Loop	$144,653,427	$83,512,379	**-$61,141,049**
Stockyards	$304,133,326	$157,075,903	**-$147,057,423**
Seawall	$36,986,133	$35,440,541	**-$1,545,592**
Offshore	$169,130,694	$117,960,243	**-$51,170,451**
Water Management	$39,291,773	$44,898,223	**$5,606,450**
Quarry Dam	$8,084,266	$56,894,076	**$48,809,810**
Offices and Workshops	$32,575,455	$23,608,771	**-$8,966,683**
Utilities	$22,865,380	$5,741,923	**-$17,123,458**
Tug Harbour (non-direct cost)	$37,230,000	$37,230,000	**$ -**

Photo 7: Stockyards Domain – Conveyors and towers

12 Domain 1 – Rail Loop and Receival Conveyors

This section details the approach undertaken to confirm the scope of works required to return the Rail Loop Domain to the preconstruction state and condition. It sets out the current infrastructure within the Domain and methodologies used to develop an estimate to decommission, demolish and rehabilitate the assets in the prescribed area.

12.1 Summary

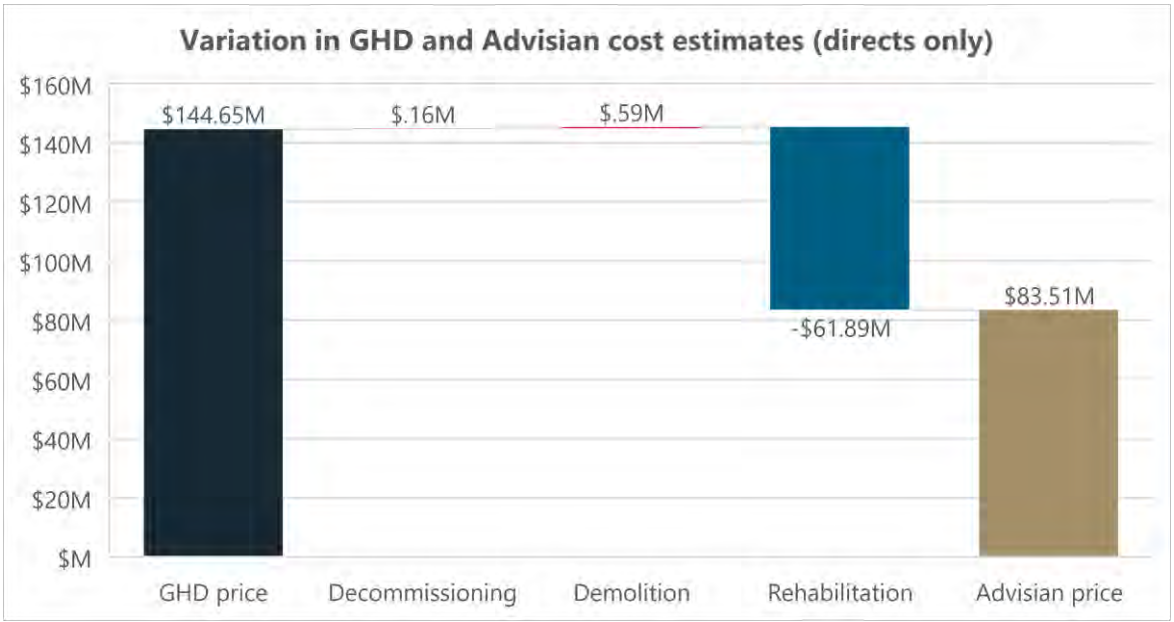


Figure 9: Domain 1 – Waterfall chart of key differences between GHD and Advisian estimate

Table 17: Domain 1 – Key differences in Advisian and GHD cost estimates

Key difference	Comment	Advisian vs GHD
Rehabilitation – Contaminated waste disposal location and rate	In the disposal of contaminated waste in the rail loop Domain (including rail sleepers, rail ballast and substation contaminated soil etc.), GHD has priced the removal to Roma, over 750km away from the Terminal. Advisian has priced transporting locally to Hogan's Pocket facility. The difference in carting location has a significant impact on disposal cost and also the disposal rate, with GHD's rate at $380 and Advisian's disposal rate of $350.3 per tonne.	**-$31.71M**
Rehabilitation – Clean fill rate and volume moved	The rehabilitation section within the GHD estimate uses a different clean fill rate of $50 versus the $35 per cubic meter used by GHD elsewhere in this Domain (Backfilling of the RRP Void Section S3.06). Advisian has used a rate of $48.50 per cubic metre. Due to the large	**-$28.65M**

Key difference	Comment	Advisian vs GHD
	quantities in the Domain, this variance in rate contributes significantly to the differences in price. GHD allowed for 1.1 million m^3 in bulk earthworks whereas Advisian allowed for 0.6 million m^3 based on the new modelling. GHD also allowed for the import of 0.55 million m^3 of fill whereas Advisian allowed for 0.15million m^3.	
Rehabilitation – Removal of material under roads	GHD has allowed for removal of 500mm under roads but Advisian has not been able to source these drawings and has assumed 250mm under the running pavement based on a known facility similar to the terminal asset.	**-$2.43M**

Photo set 8: Rail Loop and Receival Conveyors Domain – Pictures taken during site visit

12.2 Scope of works

This section outlines the current existing assets that are present within the Domain, as well as the proposed final condition of the Domain once all rehabilitation work has been completed.

12.2.1 Present conditions

An understanding of the assets within the Domain was gained through a review of drawings, images available in the public domain (including Google Earth), as well as a site visit. The site visit conducted in March 2020 by three members of the Advisian team enabled the verification of assets identified through a desktop review, and to highlight any gaps. It also helped to identify any associated support structures and where services to the Domain were located.

It is important to note that the rail loop and substation in the Domain is not operated by DBCTM and access was not granted during the site visit and as such, information gathered was limited to what Advisian could see from outside the boundary. Advisian has assumed the areas will be returned to the Terminal manager for rehabilitation giving unhindered access to the works. The Domain has the following infrastructure within it, all of which requires decommissioning and demolition prior to the bulk earthworks and rehabilitation:

- Rail line trackwork 1, 2 & 3 (3.2km loop)
- Rail line overhead catenary and support towers and associated footings
- Queensland Rail (QR) / Aurizon Rail substation
- Rail Receival pits and stations RRP1, RRP2, RRP3
- Pit conveyors C1, C2, BF11
- Conveyors S1, S2, S11
- Towers T1, T2, T21
- Associated support structures and services
- Domain internal roads.

Note: The Rail Loop Dam is considered separately in Section 16 of this Report.

12.2.2 Proposed final land use and landform

Upon the completion of the restoration works, the Domain will provide a final land use that reflects the land use prior to construction of the Terminal. The planned land use for this Domain is in line with the holistic rehabilitation purpose, to return the Terminal back to its Natural State and condition.

This generally includes the following characteristics:

- Removal of all infrastructure and assets
- Removal of all hazardous and contaminated material
- The remaining land will be revegetated with grassland and eucalypt woodland-open forest vegetation – not mature trees
- Formation of the land will be consistent with the surrounding landscape, to ensure that it is stable and with minimal subsidence.

12.3 Methodology

This section provides an overview of the methodology undertaken in the decommissioning, demolition and rehabilitation of the Domain.

12.3.1 Decommissioning

The decommissioning scope of works consists of the following activities:

1. A chemical sweep of the Domain area completed by multiple 4-person crews equipped with an elevated work platform (EWP) and a small forklift. Similar resourcing has been allowed for to undertake the removal of universal waste including but not limited to mercury, ozone depleting substances (ODS) and radioactive waste.
2. Draining of equipment oils consists of a 2-person crew working in conjunction with a vacuum truck to empty all oils from machinery. An allowance has been made for a mobile pumping unit, storage container and associated support.
3. Cleaning of the conveyors consists of a 10-person crew working on multiple fronts equipped with EWPs and high-pressure cleaner units achieving an estimated productivity of 30m per day for the elevated/enclosed conveyors and 35m per day for the ground level/enclosed conveyors. Additionally, similar resourcing has been allowed for to complete the cleaning of the rail receival pits (RRP) and associated plant.
4. De-tensioning of all conveyor units, consisting of a 4-person crew equipped with EWPs to release all tension units. An allowance has been made for consumables.
5. Cleaning of the drive/transfer towers consists of a 10-person crew working on multiple fronts equipped with EWPs and high-pressure cleaner units.

12.3.1.1 Variance to GHD methodology

Generally, the estimates and methodology between GHD and Advisian for the decommissioning of Domain 1 align. There are, however, a few minor differences:

- Advisian allowed more time for the chemical sweep activities due to the scale of the site
- Advisian did not receive the asbestos register to quantify the asbestos on site. As such, the quantity to be removed has been considered in the risk make up and therefore varies in this section of the estimate.

12.3.2 Deconstruction

The deconstruction scope of works consists of the following activities:

1. Removal of rail receival pits (RRP) 1, 2 and 3 superstructures, including plant, equipment, demolition of conveyor structures and associated drive/transfer towers. To be completed with multiple 4-person demolition crews equipped with EWPs, an excavator with demolition shears and an excavator with grapple for clean-up and removal.
2. Removal of RRP 1, 2, and 3 substructures and conveyor tunnels, including removal of concrete slabs and footings of conveyors and towers. Completed with excavators utilising hydraulic hammers and jackhammers for concrete breaking. An allowance has been made for pile capping where present.

3. Following removal of the RRP structures, the void is then backfilled with imported fill.
4. Demolition of the rail loop consists of several activities including:
    a. Removal of the catenary wires consists of a 4-person labour crew equipped with EWPs cutting and removing wires and a 4-person crew downing and laying out wires
    b. Catenary supports removal consisting of a 4-person crew cutting infrastructure equipped with EWPs, a 4-person crew downing and placing infrastructure supported by a mobile crane for lifting and placing
    c. Cutting of the rail Lines and removal of the sleepers, consists of a 4-person crew cutting and a 4-person crew organising pieces ready for loading. An allowance has been made for cutting consumables
    d. Removal of the ballast consisting of a loader and truck and dog supported by a coordinator/ spotter
    e. Removal of QR substation infrastructure consisting of a 4-person crew equipped with EWPs supported by a mobile crane for lifting and a coordinator/spotter. An allowance has been made for cutting consumables
    f. Removal of the QR Substation substrate consisting of an excavator and coordinator
    g. Capping of the piling consisting of an excavator with demolition jaws and a coordinator. An allowance has been made for pile capping consumables.
5. Crushing of all concrete within the Domain consist of a crusher and screening plant with an excavator feeding the plant and two operators running the plants. The activity is supported by an excavator for clean-up and a truck and dog for loading reject metal.

12.3.2.1 Variance to GHD methodology

The variance in cost between the Advisian and GHD deconstruction scope of works is predominantly driven by the reduction in cost of the rail receival pits backfilling being offset by the inclusion of the demolition of trackwork within the Domain.

- The backfilling of the rail receival pits following demolition differs significantly in timeframe. GHD has allowed 15 weeks for this to be undertaken, whereas Advisian has allowed for 3.5 weeks, resulting in a cost reduction in the Advisian estimate. Additionally, the cost of clean fill for the RRP varies, with GHD allowing $35 per cubic metre, while Advisian has a cost of $48.50 per cubic metre. The cost savings from the reduced timeframe for backfilling is offset by an increase in cost for clean fill.
- Demolition of the rail line trackwork 1, 2 and 3 (3.2km loop) prior to loading for transport appears to have been omitted within the GHD estimate. This work includes the cutting of the tracks and catenary system and preparation for loading for transport.
- GHD has priced demolition with the use of explosives, where Advisian has allowed machinery to demolish the rail receival pits. Advisian's cost is higher for this section.

12.3.3 Rehabilitation

The following items outline the rehabilitation methodology for the Rail Loop Domain. Disposal of all waste materials has been directed to either the Paget Transfer Station within the Mackay City boundary, or the Hogan's Pocket Transfer Station within the Mackay Regional Area. All contaminated waste will be transported to the Hogan's Pocket Transfer Station and all steel and general construction waste to the Paget Transfer Station.

1. Transport and disposal of all decommissioning and demolition materials. This is completed using an excavator or like to load materials onto a truck (semi, tipper or truck and dog) to transport to disposal. In some cases, a vacuum truck has been allowed for to transport waste to disposal.
2. Removal of the three railway bridges consists of an excavator utilising a hydraulic hammer for concrete breaking and an excavator and trucks loading and disposing concrete.
3. The removal of roads and pavements consist of a bulldozer, excavator and trucks supported by a coordinator and a water truck for dust suppression.
4. With an empty Domain, ameliorating and fertilisation then takes place. This is following by seeding of the Domain, with an allowance being made for the planting of tube stock trees.
5. Bulk earthworks, site profiling and growth medium placement consists of a bulldozer, grader and supporting plant and materials.

12.3.3.1 Variance to GHD methodology

The differences in rehabilitation methodology between the GHD and Advisian estimate contributes significantly to the large variation between the two cost estimates. The key areas of difference are:

- The contaminated waste (including rail sleepers, rail ballast, substation contaminated soil etc.) in the GHD estimate was being transported 750km to Roma, Queensland. Advisian has allowed for the waste to be handled locally at the Hogan's Pocket facility. In addition, the rate for disposal of waste varies slightly between the GHD/Axiom estimate and the Advisian sourced rate.
- GHD has allowed for removal of 500mm of material under the roads. Road section drawings for the Domain were not able to be supplied (RFI 029), therefore Advisian has assumed 250mm under the running pavement based on a known facility like the Terminal asset.
- The rehabilitation section within the GHD estimate was priced by Axiom and uses a difference clean fill rate of $50 per cubic metre, versus the $35 per cubic metre used by GHD elsewhere in this Domain (backfilling of the RRP void section S3.06). Advisian has used the rate of $48.50 per cubic metre.

12.4 Cost estimate summary

Table 18: Domain 1 – Cost estimate summary

Domain	Section	Section Area	GHD	Advisian	Variance
Rail Loop Domain			**$144,653,427**	**$83,512,379**	**-$61,141,049**
Decommissioning					
Rail Loop	2.01	Chemical Sweep of Area	$6,240	$29,201	$22,961
Rail Loop	2.02	Removal of Universal Wastes (Lighting, ODS, Mercury, Radioactive Devices)	$31,800	$30,622	-$1,178
Rail Loop	2.03	Draining of Equipment Oils	$26,140	$29,315	$3,175
Rail Loop	2.04	Cleaning of Elevated/Enclosed Conveyors	$367,350	$423,445	$56,095
Rail Loop	2.05	Cleaning of Ground Level/ Enclosed Conveyors	$910,260	$1,060,009	$149,749
Rail Loop	2.06	Conveyor De-Tensioning Elevated/Enclosed Conveyors	$8,820	$10,526	$1,706
Rail Loop	2.07	Conveyor De-Tensioning Ground Level/Enclosed Conveyors	$15,150	$18,428	$3,278
Rail Loop	2.08	Cleaning of RRP 1, 2, 3 Pits	$450,960	$535,122	$84,162
Rail Loop	2.09	Cleaning of Drive/Transfer Towers	$127,740	$141,314	$13,574
Rail Loop	2.10	Type 3 (Friable) ACM Abatement - RRP 1, 2, 3 Superstructures	$175,560	$0	-$175,560
Decommissioning Total			**$2,120,020**	**$2,277,982**	**$157,962**
Deconstruction					
Rail Loop	3.01	Demolition of RRP 1, 2, 3 Superstructures	$266,100	$277,795	$11,695
Rail Loop	3.02	Removal of Equipment from RRP1, 2, 3	$305,700	$319,514	$13,814
Rail Loop	3.03	Demolition of RRP 1, 2, 3 Substructures	$1,283,000	$1,858,296	$575,296
Rail Loop	3.04	Explosives for Demolition of RRP 1, 2, 3 Substructures	$360,000	$0	-$360,000
Rail Loop	3.05	Backfilling of RRP 1, 2, 3 Substructure and Conveyor Tunnel Void	$1,611,000	$252,952	-$1,358,048
Rail Loop	3.06	Imported fill for RRP 1, 2, 3 Void	$864,500	$1,187,022	$322,522

Domain	Section	Section Area	GHD	Advisian	Variance
Rail Loop	3.07	Deconstruction of Ground Module Conveyors	$278,800	$336,031	$57,231
Rail Loop	3.08	Demolition of Conveyor Tunnels	$1,326,600	$1,362,441	$35,841
Rail Loop	3.09	Demolition of Drive/Transfer Towers	$157,400	$177,020	$19,620
Rail Loop	3.10	Demolition of Rail Loop	$0	$1,257,578	$1,257,578
Rail Loop	3.11	Demolition of Hay Point Road Underpass	$0	$0	$0
Rail Loop	3.12	Demolition of Footings - Conveyors, Drive Towers	$52,400	$74,610	$22,210
Rail Loop	3.13	Crushing of concrete to 100mm minus	$186,400	$181,023	-$5,377
Deconstruction Total			**$6,691,900**	**$7,284,282**	**$592,382**
Rehabilitation					
Rail Loop	4.01	Rail Loop	$79,435,953	$47,729,478	-$31,706,475
Rail Loop	4.02	Receival Stations	$7,663,885	$5,230,648	-$2,433,238
Rail Loop	4.03	Materials Handling	$108,809	$1,041,976	$933,167
Rail Loop	4.04	Rail & Receival Domain Rehabilitation	$48,632,860	$19,948,014	-$28,684,846
Rehabilitation Total			**$135,841,507**	**$73,950,115**	**-$61,891,393**

13 Domain 2 – Stockyards

This section details the approach undertaken to confirm the scope of works required to return the stockyards to the preconstruction state and condition. It sets out the current infrastructure within the Domain and methodologies used to develop an estimate to decommission, demolish and rehabilitate the assets in the prescribed area.

13.1 Summary

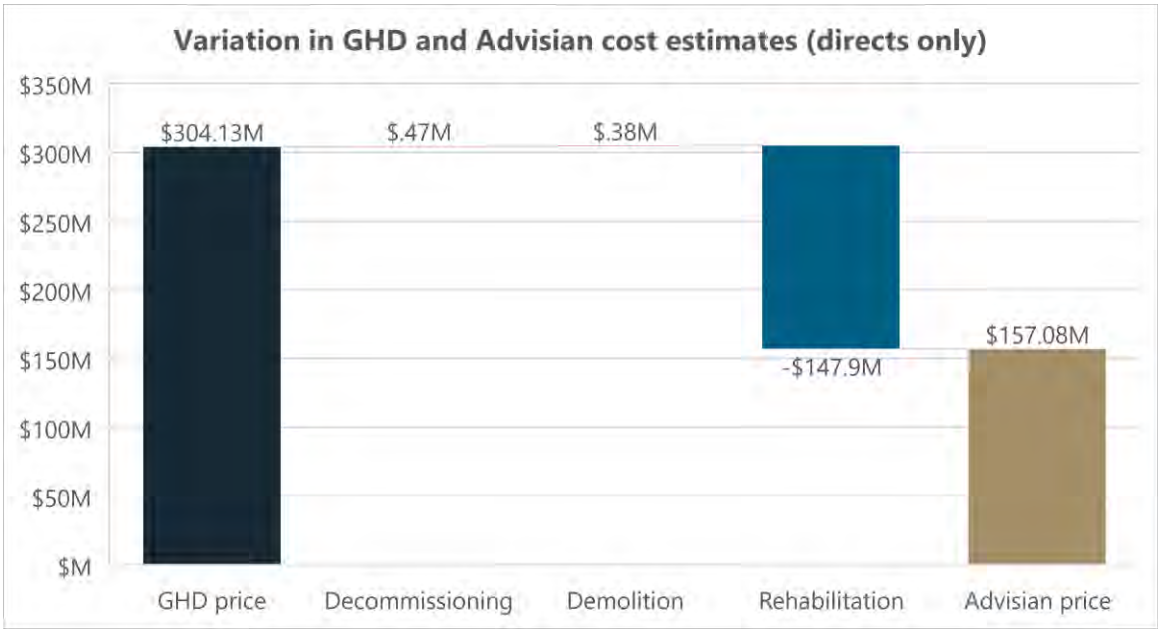


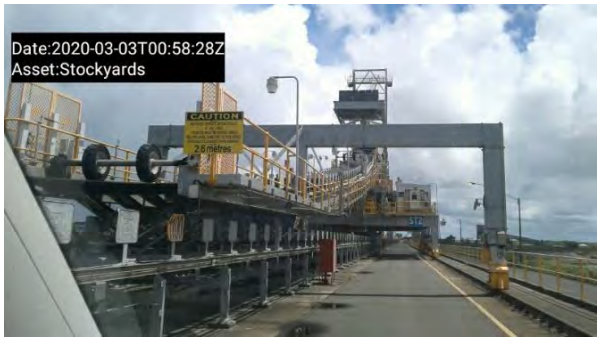
Figure 10: Domain 2 – Waterfall chart of key differences between GHD and Advisian estimate

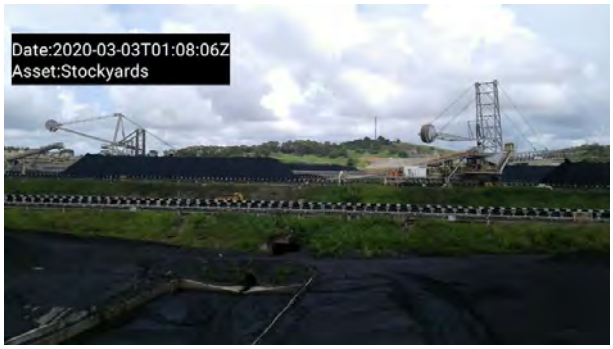
Table 19: Domain 2 – Key differences in Advisian and GHD cost estimates

Key difference	Comment	Advisian vs GHD
Rehabilitation – Removal of contaminated soil and road substrate	GHD has allowed for the removal of 400mm of contaminated soil across stockyard pads. Advisian has allowed for the removal of 250mm of contaminated soil. GHD has allowed 500mm for road and pavement removal whereas Advisian has allowed 250mm resulting in a large difference in volumes removed.	**-$30.64M**
Rehabilitation – Materials handling	Advisian has a lower material handling cost, due to three contributing factors: 1. Bulk earthworks rate – GHD $13.46 vs Advisian $7.96 per cubic metre 2. Material volumes – Lower bulk earthworks volumes (4.2 million m^3 vs 2.6 million m^3) and lower imported fill purchases (2.2 million m^3 vs 0.4 million m^3). GHD also allowed for 1 million	**-$118.31M**

Key difference	Comment	Advisian vs GHD
	m^3 for bund soil double handling which will have an impact on the total price 3. Imported clean fill rate – GHD $50 vs Advisian $48.50 per cubic metre.	

Photo set 9: Stockyards Domain – Pictures taken during site visit





13.2 Scope of works

This section outlines the current existing assets that are present within the Domain, as well as the proposed final condition of the Domain once all rehabilitation work has been completed.

13.2.1 Present conditions

An understanding of the assets within the Domain was gained through a review of drawings, images available in the public domain (including Google Earth), as well as a site visit. The site visit conducted in March 2020 by three members of the Advisian team enabled the verification of assets identified through a desktop review, and to highlight any gaps.

Importantly, the site visit confirmed that the existing stockpiles and bedding coal would be removed as part of the terminal operators' final actions prior to decommissioning. The stockyard has the following

infrastructure within it, all of which requires decommissioning and demolition prior to the bulk earthworks and rehabilitation:

- The Domain surface roads and drainage
- Stockpile pads rows 1, through to 8
- Stockyard bunds 1, 2, 3, 4, 4A, 5, 5A, and 6
- Stacker/reclaimer machines SR2, SR3A, SR4A, SR5, SR6
- Stacker machines ST1, ST2, ST3, ST4
- Reclaimer machines RL1, RL2, RL3
- Inloading conveyors S3, S4, S13, S5, S6, S7, S8
- Outloading conveyors R1, R2, R3, R4, R5, R6, R7, R8
- Towers T3, T3A, T4, T4A, T5, T5A, T6, T6A, T8, T7, T9, T10, T11, T12, T20, T23, T23A, T25, T25A,T27, T29, T31
- Associated support structures and services.

13.2.2 Proposed final land use and landform

Upon the completion of the restoration works, the Domain will provide a final land use that reflects the land use prior to construction of the Terminal. The planned land use for this Domain is in line with the holistic rehabilitation purpose, to return the Terminal back to its Natural State and condition.

This generally includes the following characteristics:

- Removal of all infrastructure and assets
- Removal of all hazardous and contaminated material
- The remaining land will be revegetated with grassland and eucalypt woodland-open forest vegetation – not mature trees
- Formation of the land will be consistent with the surrounding landscape, to ensure that it is stable and with minimal subsidence.

13.3 Methodology

This section provides an overview of the methodology undertaken in the decommissioning, demolition and rehabilitation of the Domain.

13.3.1 Decommissioning

The decommissioning scope of works consists of the following activities:

1. A chemical sweep of the Domain area completed by multiple 4-person crews equipped with an EWP and a small forklift. Similar resourcing has been allowed for to undertake the removal of universal waste including but not limited to mercury, ODS and radioactive waste.
2. Draining of equipment oils consists of a 2-person crew working in conjunction with a vacuum truck to empty all oils from machinery. An allowance has been made for a mobile pumping unit, storage container and associated support.

3. Flushing of storm sewer system completed by crews with high-pressure cleaning units and associated support.
4. Cleaning of coal collection pits with a 5-person crew equipped with EWPs and high-pressure cleaner units working in conjunction with a vacuum truck.
5. Cleaning of the bund concrete walls (bund 4A and 5A), completed by a 10-person crew working on multiple fronts equipped with EWPs and high-pressure cleaner units working in conjunction with a vacuum truck.
6. Cleaning of conveyors, completed by a 10-person crew working on multiple fronts, equipped with EWPs and high-pressure cleaner units. It is estimated they would achieve a productivity of 40m per day for the inloading elevated/enclosed and elevated/open conveyors and 100m per day for the stockyard ground level open conveyors.
7. De-tensioning of all conveyor units, consisting of a 4-person crew equipped with EWPs to release all tension units. An allowance has been made for consumables.
8. Cleaning of the drive/transfer towers consists of a 10-person crew working on multiple fronts equipped with EWPs and high-pressure cleaner units.
9. Cleaning of storage and processing tanks consists of a 4-person crew equipped with EWPs working in conjunction with a vacuum truck. An allowance has been made for a Mobile Crane.

13.3.1.1 Variance to GHD methodology

The estimates between GHD and Advisian align on most areas related to decommissioning within this Domain. The productivities assumed by Advisian on the ground level conveyor cleaning has a slightly lower overall forecast cost.

13.3.2 Deconstruction

The deconstruction scope of works consists of the following activities:

1. Removal of both inloading and stockyard conveyor structures and associated drive/transfer towers. To be completed with multiple 4-person demolition crews, equipped with EWPs, an excavator with demolition shears and an excavator with grapple for clean-up and removal. This is supported through additional plant such as mobile cranes and water carts.
2. Removal of concrete structures, including bund cross beams, rail beams, footpaths, concrete walls of bunds 4a and 5a, demolition of concrete footings and slabs of conveyors and towers. To be completed with an excavator utilising hydraulic and jack hammers for concrete breaking. An allowance has been made for pile capping where present.
3. Removal of yard machines (stacker/reclaimers). To be completed with excavators with demolition shears and grapple for clean-up and removal. Supported by a heavy lift mobile crane and other required plant.
4. Concrete from Terminal is removed after first being crushed through a crusher and screening plant. An excavator feeds the plant and a truck and dog has been allocated to dispose of concrete. An additional truck and dog are used for the removal of reject metal.

13.3.2.1 Variance to GHD methodology

The key differences between GHD and Advisian methodologies in the deconstruction of Domain 2 are listed below:

- GHD has made an allowance to demolish the yard machines with explosives, whereas Advisian has allowed machinery to demolish the plant. Advisian's cost is marginally higher for this section.
- The volume of concrete to be demolished varies between GHD and Advisian, as Advisian has allowed additional volume for the piles, which were not included in the GHD estimate.
- The major pricing difference is in the crushing of concrete, as GHD has assumed 20 weeks for this activity and Advisian has allowed 6.5 weeks.

13.3.3 Rehabilitation

The following items outline the rehabilitation methodology for the stockyards. Disposal of all waste materials has been directed to either the Paget Transfer Station within the Mackay City boundary, or the Hogan's Pocket Transfer Station within the Mackay Regional Area. All contaminated waste will be transported to the Hogan's Pocket Transfer Station and all steel and general construction waste to the Paget Transfer Station.

1. Transport and disposal of all decommissioning and demolition materials. This is completed using an excavator or like to load materials onto a truck (semi, tipper or truck and dog) to transport to disposal. In some cases, a vacuum truck has been allowed for to transport waste to disposal.
2. Demolition of stockyard culverts, utilising an excavator with hydraulic hammer for concrete breaking and supporting plant for material removal and dust suppression.
3. The removal of roads and pavements consist of a bulldozer, excavator and trucks supported by a coordinator and a water truck for dust suppression.
4. With an empty Domain, ameliorating and fertilisation then takes place. This is following by seeding of the Domain, with an allowance being made for the planting of tube stock trees.
5. Bulk earthworks, removal of stockyard bund soil, site profiling and growth medium placement consists of a bulldozer, grader and supporting plant and materials.

13.3.3.1 Variance to GHD methodology

The variance in the rehabilitation methodology has the biggest impact on price difference within this Domain. The key contributing factors in the variance are listed below, with the cost impacts documented in Section 13.1.

Contaminated soil

GHD has allowed for the removal of bedding coal and contaminated soils to a depth of 400mm across the stockyards, which differs to Advisian's position. Advisian understands the depth of bedding coal to have initially been installed at 300mm and will be recovered by the operator and sold under normal operating conditions.

As such, Advisian has allowed for 250mm of contaminated material to be removed. Advisian considers this a conservative position, as it allows for a 50mm average buffer for the earthmoving equipment

between the bedding coal and material below, as well as removal of 200mm of material below as contaminated soil.

Materials handling

Advisian has a lower material handling cost across the scope of works in this Domain. There are three main contributing factors to the higher cost:

1. Variance in bulk earthworks rate

The bulk earthworks price varies significantly between GHD and Advisian estimates, solely based on such large volumes and the assumed earthworks productivities. The plant and equipment mix are not clear within the Axiom portion of the estimate. There is a sell price of $372 per hour (plant & labour) and an achieved productivity of 27.64 per cubic metre per hour. Achieving a sell price to the end client per cubic metre of $13.46.

Within the Advisian estimate, the cost per hour of the plant and equipment mix has a sell price of $915.41 per hour with a productivity of 115m^3 per hour, thus achieving a like for like sell price to the terminal operator of $7.96 per cubic metre.

The price differences of $7.96 for Advisian, versus $13.46 per cubic metre for bulk earthworks is a key contributing factor in the overall cost estimate disparity for this Domain.

2. GHD additional material volumes

As identified in the quantities refresh (Section 11), Advisian has a lower requirement for material handling and thus a lower cost compared to GHD.

3. Variance in imported clean fill rate

GHD has applied a rate of $50 per cubic metre, versus the Advisian cost to head contractor of $48.50 per cubic metre. Due to the large quantities in this Domain, the small variance in rate contributes to the differences in price.

13.4 Cost estimate summary

Table 20: Domain 2 – Cost estimate summary

Domain	Section	Section Area	GHD	Advisian	Variance
Stockyards Domain			**$304,133,326**	**$157,075,903**	**-$147,057,423**
Decommissioning					
Stockyards	2.01	Chemical Sweep of Area	$15,600	$15,154	-$446
Stockyards	2.02	Removal of Universal Wastes (Lighting, ODS, Mercury, Radioactive Devices)	$95,400	$113,312	$17,912
Stockyards	2.03	Draining of Equipment Oils	$138,200	$159,758	$21,558
Stockyards	2.04	Flushing of Storm Sewer System	$232,560	$250,758	$18,198
Stockyards	2.05	Cleaning of Coal Collection Pits	$191,280	$204,035	$12,755
Stockyards	2.06	Cleaning of Drive/Transfer Towers	$574,830	$644,438	$69,608
Stockyards	2.07	Cleaning of Drive/Transfer Tower Concrete Slabs	$42,816	$55,692	$12,876
Stockyards	2.08	Cleaning of Bunds 4A & 5A Concrete Walls	$568,230	$615,145	$46,915
Stockyards	2.09	Cleaning of Elevated/Enclosed Conveyors	$587,760	$673,730	$85,970
Stockyards	2.10	Cleaning of Elevated/Open Conveyors	$246,480	$268,011	$21,531
Stockyards	2.11	Cleaning of Ground Level/Open Conveyors	$2,792,160	$2,949,761	$157,601
Stockyards	2.12	Conveyor De-Tensioning Elevated/Enclosed Conveyors	$22,050	$39,889	$17,839
Stockyards	2.13	Conveyor De-Tensioning Elevated/Open Conveyors	$22,050	$21,052	-$998
Stockyards	2.14	Conveyor De-Tensioning Ground Level/Open Conveyors	$81,810	$66,291	-$15,519
Stockyards	2.15	Cleaning of Storage and Processing Tanks	$46,320	$50,827	$4,507
Decommissioning Total			**$5,657,546**	**$6,127,852**	**$470,306**
Deconstruction					
Stockyards	3.01	Demolition of Bunds 1,2,3,4,5,6 Concrete Cross	$2,009,600	$2,043,720	$34,120

Domain	Section	Section Area	GHD	Advisian	Variance
		Beams, Rail Beams, Footpaths			
Stockyards	3.02	Demolition of Bunds 4A, 5A Concrete Walls	$620,000	$739,012	$119,012
Stockyards	3.03	Demolition of Elevated Inloading Conveyors	$787,000	$816,470	$29,470
Stockyards	3.04	Demolition of Ground Module Yard Conveyors	$2,091,000	$2,357,343	$266,343
Stockyards	3.05	Demolition of Inloading Drive/Transfer Towers	$2,119,200	$2,246,017	$126,817
Stockyards	3.06	Demolition of Yard Machines (Stackers/Reclaimers, Stackers, Reclaimers)	$3,806,400	$6,025,207	$2,218,807
Stockyards	3.07	Explosives for Demolition of Yard Machines	$1,440,000	$0	-$1,440,000
Stockyards	3.08	Demolition of Concrete Slabs On-Grade - Drive/Transfer Towers	$157,200	$194,191	$36,991
Stockyards	3.09	Demolition of Footings - Conveyors, Drive/Transfer Towers	$445,400	$679,162	$233,762
Stockyards	3.10	Crushing of concrete to 100mm minus	$1,864,000	$615,814	-$1,248,186
Deconstruction Total			**$15,339,800**	**$15,716,935**	**$377,135**
Rehabilitation					
Stockyards	4.01	Stockyard Infrastructure	$108,407,910	$77,769,246	-$30,638,665
Stockyards	4.02	Yard Machines	$518,995	$327,353	-$191,642
Stockyards	4.03	Materials Handling	$930,285	$2,165,059	$1,234,774
Stockyards	4.04	Stockyard Domain Rehabilitation	$173,278,790	$54,969,458	-$118,309,332
Rehabilitation Total			**$283,135,980**	**$135,231,115**	**-$147,904,865**

14 Domain 3 – Seawall and Transfer Stations

This section details the approach undertaken to confirm the scope of works required to return the seawall to the preconstruction state and condition. It sets out the current infrastructure within the Domain and methodologies used to develop an estimate to decommission, demolish and rehabilitate the assets in the prescribed area.

14.1 Summary

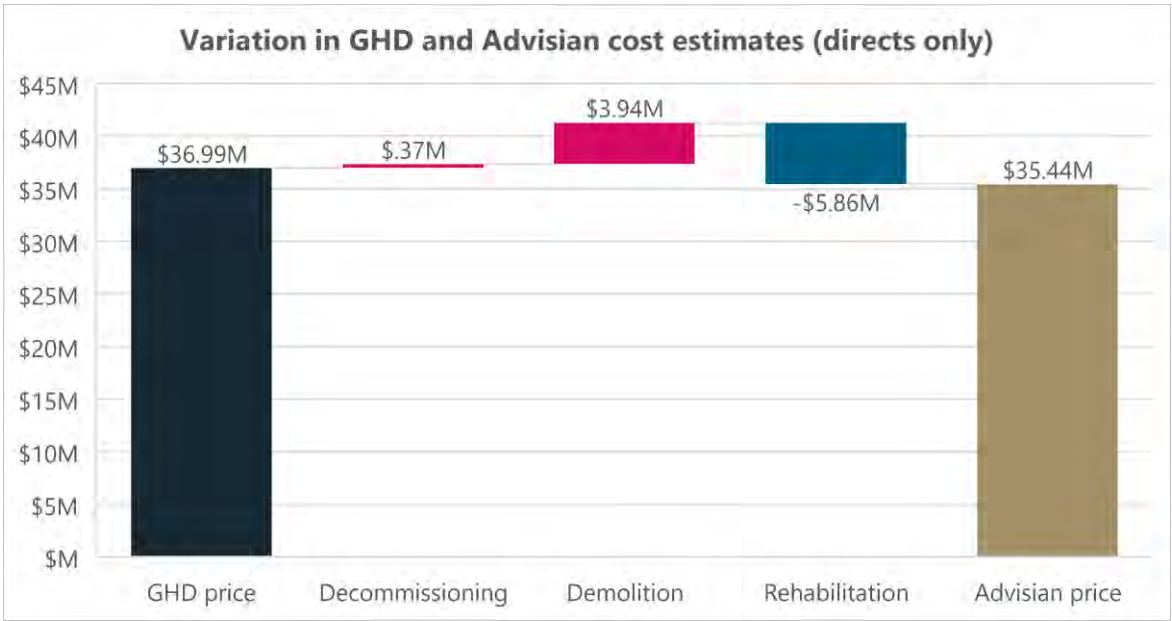


Figure 11: Domain 3 – Waterfall chart of key differences between GHD and Advisian estimate

Table 21: Domain 3 – Key differences in Advisian and GHD cost estimates

Key difference	Comment	Advisian vs GHD
Demolition – Hanbar and rock removal	Advisian has allowed for additional cost to remove the Hanbars and Rocks. Additional cost has also been allowed for to break up Hanbars prior to crushing.	**$3.1M**
Demolition – Footings	Advisian has allowed additional costs to remove footings of the Conveyors and Towers.	**$0.8M**
Rehabilitation – Planting of trees and related	GHD made an allowance of $0.9M for the re-planting of trees whereas Advisian allowed a similar amount but spread across all Domains based on size and makeup.	**$0.85M**
Rehabilitation – Earthwork volumes	GHD allowed for a volume of 1.3 million m^3 to be removed from the Seawall area whereas Advisian allowed for 0.72 million m^3 to be removed based on revised modelling.	**-$6.00M**

Key difference	Comment	Advisian vs GHD
Rehabilitation – Earthworks general	Advisian allowed additional handling of Crushed Concrete to due to large volumes.	**$0.80M**

Photo set 10: Seawall and Transfer Stations Domain – Pictures taken during site visit

14.2 Scope of works

This section outlines the current existing assets that are present within the Domain, as well as the proposed final condition of the Domain once all rehabilitation work has been completed.

14.2.1 Present conditions

An understanding of the assets within the Domain was gained through a review of drawings, images available in the public domain (including Google Earth), as well as a site visit. The site visit conducted in March 2020 by three members of the Advisian team enabled the verification of assets identified through a desktop review, and to highlight any gaps.

The seawall is predominantly reclaimed land and no drawings were provided for the civil component of the Domain. Advisian were unable to determine the depth of the secondary armour rock and have made assumptions for this. The seawall has the following infrastructure within it, all of which requires decommissioning and demolition prior to the bulk earthworks and rehabilitation:

- Sea wall structure
- Hanbars
- Outloading conveyors L1, L2, L3, L4, L6A, L11, L11A, L13 and L15A
- Towers T13, T14, T15, T16, T17, T18 and T19
- Surge bins SB1, SB2 and SB3
- Belt feeders, BF5, BF6, BF7, BF8, BF15 and BF17
- Sample stations 1, 2 and 3
- Associated support structures and services.

14.2.2 Proposed final land use and landform

Upon the completion of the restoration works, the Domain will provide a final land use that reflects the land use prior to construction of the Terminal. The planned land use for this Domain is in line with the holistic rehabilitation purpose, to return the Terminal back to its Natural State and condition.

This generally includes the following characteristics:

- Removal of all infrastructure and assets
- Removal of all hazardous and contaminated material
- The remaining land will be revegetated with grassland and eucalypt woodland-open forest vegetation – not mature trees
- Formation of the land will be consistent with the surrounding landscape, to ensure that it is stable and with minimal subsidence.

14.3 Methodology

This section provides an overview of the methodology undertaken in the decommissioning, demolition and rehabilitation of the Domain.

14.3.1 Decommissioning

The decommissioning scope of works consists of the following activities:

1. A chemical sweep of the Domain area completed by multiple 4-person crews equipped with an EWP and a small forklift. Similar resourcing has been allowed for to undertake the removal of universal waste including but not limited to mercury, ODS and radioactive waste.
2. Draining of equipment oils consists of a 2-person crew working in conjunction with a vacuum truck to empty all oils from machinery. An allowance has been made for a mobile pumping unit, storage container and associated support.
3. Cleaning of the conveyors consists of a 10-person crew working on multiple fronts equipped with EWPs and high-pressure cleaner units achieving an estimated productivity of 40m per day for the elevated/enclosed conveyors and 30m per day for the ground level/enclosed conveyors.
4. De-tensioning of all conveyor units, consisting of a 4-person crew equipped with EWPs to release all tension units. An allowance has been made for consumables.
5. Cleaning of the drive/transfer towers consists of a 10-person crew working on multiple fronts equipped with EWPs and high-pressure cleaner units.

14.3.1.1 Variance to GHD methodology

No significant variance between the GHD and Advisian estimates within this section.

14.3.2 Deconstruction

The deconstruction scope of works consists of the following activities:

1. The removal of the concrete hanbars consists of the following activities:
    a. Large excavators removing hanbars, assisted by excavators for adjusting/manipulating hanbars due to interlocking structures and trucks for hanbar removal to crushing point
    b. Mobile crane for un-loading hanbars and an excavator with hydraulic hammer to break up hanbars in preparation for crushing. This activity is supported by a water cart for dust suppression and coordination.
2. Removal of the shoreline armour rock completed using large excavators digging out and loading rocks onto trucks. An allowance has been made for a dozer and grader for general clean-up activities and coordination.
3. Removal of conveyor structures, associated drive/transfer towers and surge bin/sample station complex. To be completed with multiple 4-person demolition crews, equipped with EWPs, an excavator with demolition shears and an excavator with grapple for clean-up and removal. This is supported through additional plant such as mobile cranes and water carts.
4. Removal of concrete structures, including footings and slabs of conveyors, transfer towers and surge bin/sample station towers. To be completed with an excavator utilising hydraulic and jack hammers for concrete breaking. An allowance has been made for pile capping where present.

5. Concrete from Terminal is removed after first being crushed through a crusher and screening plant. An excavator feeds the plant and a truck and dog has been allocated to dispose of concrete. An additional truck and dog are used for the removal of reject metal.

14.3.2.1 Variance to GHD methodology

Advisian's cost estimate associated with the demolition of the seal wall Domain exceeds GHD's. This is predominantly driven by the cost of the hanbar removal, where additional costs were allowed for the breaking up of the hanbars in preparation of crushing.

There were also additional costs due to extra concrete volume associated with the removal of footings under the conveyors, drive/transfer towers and surge bins in this area. Advisian used the same productivity as GHD for the hanbar removal, at 12 hanbars per day.

14.3.3 Rehabilitation

The following items outline the rehabilitation methodology for the stockyards. Disposal of all waste materials has been directed to either the Paget Transfer Station within the Mackay City boundary, or the Hogan's Pocket Transfer Station within the Mackay Regional Area. All contaminated waste will be transported to the Hogan's Pocket Transfer Station and all steel and general construction waste to the Paget Transfer Station.

1. Transport and disposal of all decommissioning and demolition materials. This is completed using an excavator or like to load materials onto a truck (semi, tipper or truck and dog) to transport to disposal. In some cases, a vacuum truck has been allowed for to transport waste to disposal.
2. Removal of roads and pavements, completed by a bulldozer, excavator and trucks supported by a coordinator and a water truck for dust suppression.
3. Bulk earthworks, removal of stockyard bund soil, site profiling and growth medium placement consists of a bulldozer, grader and supporting plant and materials.

14.3.3.1 Variance to GHD methodology

The roads and sealed area costs within the Domain vary between estimates.

GHD has allowed for removal of 500mm of material under the roads. Road section drawings for the Domain were not able to be supplied (RFI 029), therefore Advisian has assumed 250mm under the running pavement based on a known facility similar to the Terminal asset.

14.4 Cost estimate summary

Table 22: Domain 3 – Cost estimate summary

Domain	Section	Section Area	GHD	Advisian	Variance
Seawall Domain			**$36,986,133**	**$35,440,541**	**-$1,545,592**
Decommissioning					
Seawall	2.01	Chemical Sweep	$12,480	$15,154	$2,674
Seawall	2.02	Removal of Universal Wastes (Lighting, ODS, Mercury, Radioactive Devices)	$47,700	$52,009	$4,309
Seawall	2.03	Draining of Equipment Oils	$73,665	$102,718	$29,053
Seawall	2.04	Cleaning of Drive/Transfer Towers	$574,830	$585,853	$11,023
Seawall	2.05	Cleaning of Surge Bins/Sample Plants	$514,290	$615,145	$100,855
Seawall	2.06	Cleaning of Drive/Transfer Tower & Surge Bin Slabs	$64,224	$63,648	-$576
Seawall	2.07	Cleaning of Elevated/Enclosed Conveyors	$514,290	$673,730	$159,440
Seawall	2.08	Cleaning of Ground Level/Enclosed Conveyors	$770,220	$813,683	$43,463
Seawall	2.09	Conveyor De-Tensioning Elevated/Enclosed Conveyors	$22,050	$30,470	$8,420
Seawall	2.10	Conveyor De-Tensioning Ground Level/Enclosed Conveyors	$15,150	$22,442	$7,292
Decommissioning Total			**$2,608,899**	**$2,974,853**	**$365,954**
Deconstruction					
Seawall	3.01	Removal of Concrete Hanbars	$5,922,000	$7,509,395	$1,587,395
Seawall	3.02	Demolition of Ground Module Outloading Conveyors	$348,500	$385,254	$36,754
Seawall	3.03	Demolition of Elevated Outloading Conveyors	$478,350	$544,392	$66,042
Seawall	3.04	Demolition of Outloading Drive/Transfer Towers	$973,000	$1,003,032	$30,032
Seawall	3.05	Demolition of Surge Bins & Sample Plants	$803,700	$915,241	$111,541
Seawall	3.06	Demolition of Concrete Slabs On-Grade - Drive/Transfer Towers, Surge Bins	$26,200	$34,962	$8,762
Seawall	3.07	Demolition of Footings - Conveyors, Drive/Transfer Towers, Surge Bins	$157,200	$760,750	$603,550

Domain	Section	Section Area	GHD	Advisian	Variance
Seawall	3.08	Removal of armour rock on shoreline below hanbars	$10,823,400	$11,843,950	$1,020,550
Seawall	3.09	Crushing of concrete to 100mm minus	$93,200	$573,192	$479,992
Deconstruction Total			**$19,625,550**	**$23,570,169**	**$3,944,619**
Rehabilitation					
Seawall	4.01	Sea Wall Structure	$162,360	$0	-$162,360
Seawall	4.02	Outloading Materials Handling	$13,002,357	$8,677,177	-$4,325,180
Seawall	4.03	Seawall Domain Rehabilitation	$1,586,967	$218,341	-$1,368,626
Rehabilitation Total			**$14,751,684**	**$8,895,519**	**-$5,856,166**

15 Domain 4 – Offshore

This section details the approach undertaken to confirm the scope of works required to return the offshore Domain to the preconstruction state and condition. It sets out the current infrastructure within the Domain and methodologies used to develop an estimate to decommission, demolish and rehabilitate the assets in the prescribed area.

15.1 Summary

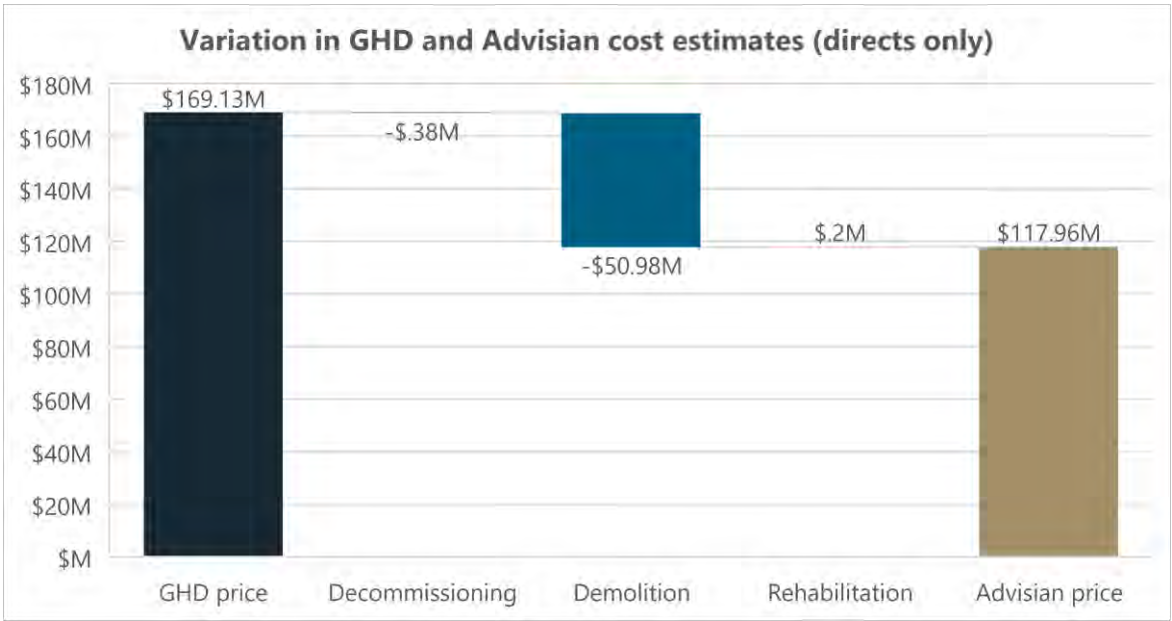


Figure 12: Domain 4 – Waterfall chart of key differences between GHD and Advisian estimate

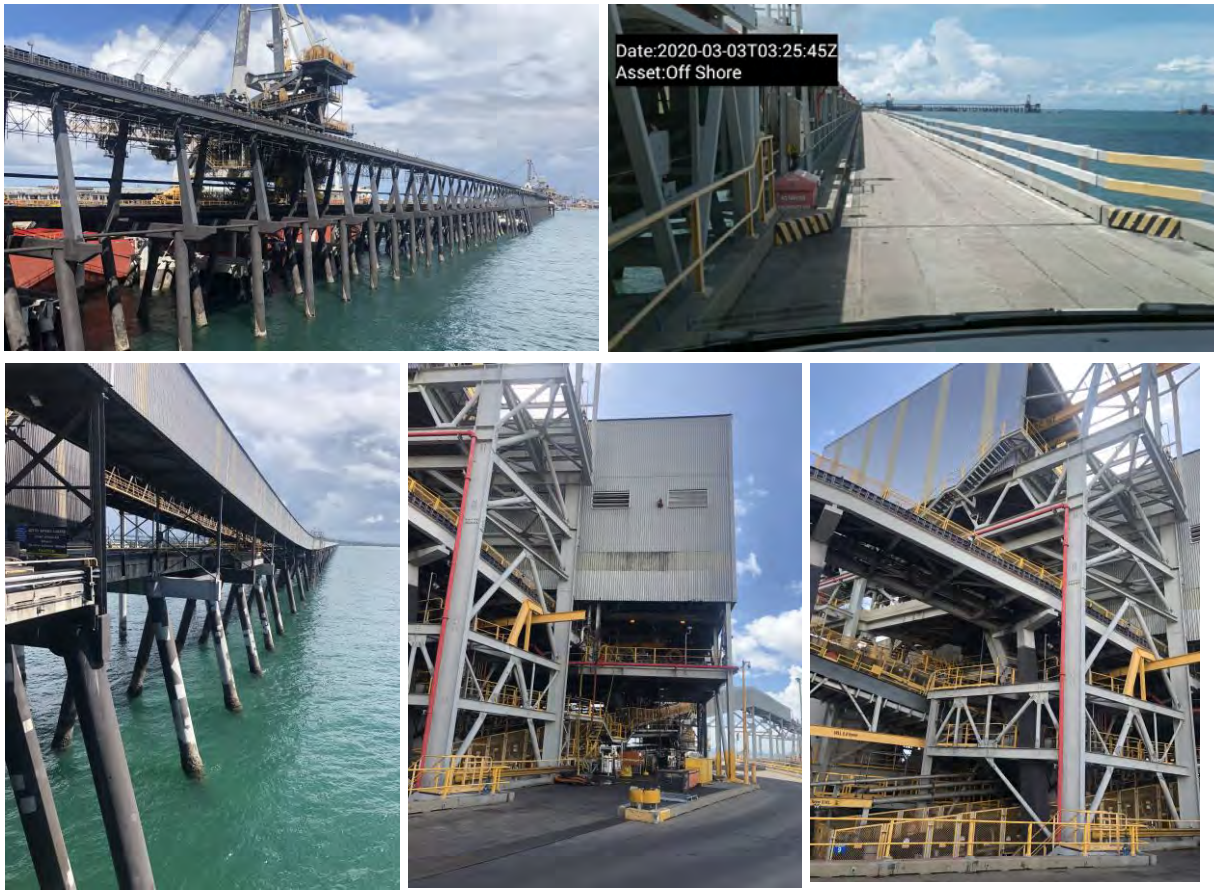
Table 23: Domain 4 – Key differences in Advisian and GHD cost estimates

Key difference	Comment	Advisian vs GHD
Decommission – Temporary controls	Advisian has assumed normal maintenance procedures for cleaning of offshore conveyors and that provision of temporary controls for marine protection such as floating booms, netting, small boat with operator is unnecessary and ineffective in open water.	**-$0.58M**
Demolition – Shiploader rate	GHD has allowed a rate of $83,000 per day excluding head contractor margin for a heavy lift vessel, compared to Advisian's rate of $50,000 per day. There also does not appear to be any allowance for mobilisation/demobilisation of the vessel in the GHD estimate. Advisian has assumed mobilisation ex. Asia (34 days).	**-$1.23M**
Demolition – Pile removal	The GHD Option A estimate of $169.13M assumes that all piles can be extracted from the seabed. Advisian considers this assumption to be impractical and disruptive to the natural environment.	**-$45.86M**

Key difference	Comment	Advisian vs GHD
A comparison (direct costs only) can be made between GHD (Option B) and Advisian estimates broken down into i) wharf/dolphins and ii) jetty components as follows:		
Demolition – Wharf/Dolphins (1)	Advisian adopts travelling platform working from outer extremities of the wharf to the Jetty Head using one equipment spread per arm. Piles are removed using the wharf/dolphin demolition spread with barge spread for piles and oversized elements to nearby Materials Offloading Facility (MOF).	**$1.74M**
Demolition – Jetty (1)	Advisian adopts a jetty-based crane to remove complete structure and piles, retreating from the head towards the shore with barge spread for transfer of piles and oversized elements to nearby MOF.	**$4.13M**

(1) To enable direct cost comparison, GHD Option B is assumed for pile removal (i.e. cutting off at seabed).

Photo set 11: Offshore Domain – Pictures taken during site visit



15.2 Scope of works

This section outlines the current existing assets that are present within the Domain, as well as the proposed final condition of the Domain once all rehabilitation work has been completed.

An understanding of the assets within the offshore Domain was gained through a review of drawings, images available in the public domain (including Google Earth), as well as a site visit. The site visit conducted in March 2020 by three members of the Advisian team enabled the verification of assets identified through a desktop review, and to highlight any gaps.

The offshore Domain has been split into the jetty and wharf for the purposes of describing the present conditions using the information Advisian was provided.

15.2.1 Present condition – jetty

The jetty is comprised of steel piles and a headstock trestle structure, supporting two conveyor galleries L5 and L6. During Project 7X, the jetty was widened to include an additional roadway and conveyor gallery L15. A typical section is shown in Figure 13 below.

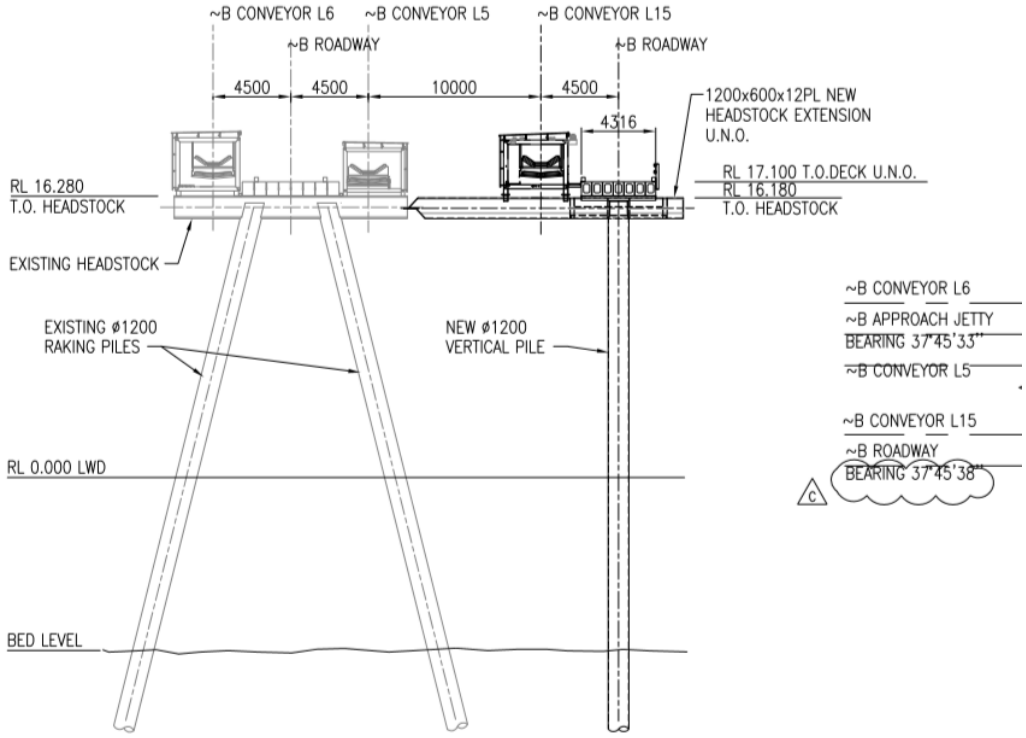


Figure 13: Typical jetty section

15.2.1.1 Piles

Piles are typically 1200 CHS sections, either 16mm or 12.7mm wall thicknesses. The founding conditions are not apparent from the supplied drawing set. However, GHD understands that all piles at

the facility are driven to refusal into bedrock (pg. 79, GHD Report). Refusal is not defined and there is no bore log data provided to confirm if piles are founded on bedrock or driven into bedrock.

There are 530 piles which make up the jetty structure.

15.2.1.2 Headstocks

The stage 7X headstocks are steel box sections, 1200 x 500 x 12mm plate recessed into pile heads. The original jetty steelwork sections are assumed identical.

15.2.1.3 Decking

Deck units are predominantly 24m lengths to suit bent spacings. Stage 7X deck units comprise of a prestressed box section QMR standard. The northern roadway is approximately 5.5m wide and the southern roadway is approximately 4.5m wide on average. Individual girders are 600mm wide and 800mm deep. The deck units are transversely, post tensioned.

Advisian has estimated the weight of a single girder to be 24 T. This is based on Advisian's experience with similar structures and not based on any drawings or specific data pertaining to this site.

15.2.2 Wharf

15.2.2.1 Piles

Piles are like those used on the jetty. As noted earlier, the founding conditions are not apparent from the supplied drawing set. There are 1176 piles supporting the wharf.

15.2.2.2 Headstocks

The wharf structure is of similar construction to the jetty with steel CHS piles and box section headstock supporting prestressed concrete girders. Bent spacings are nominally 13m.

15.2.2.3 Decking

All wharf decking is assumed to be 0.6m deep prestressed concrete girders based on Advisian's site visit. Deck units are nominally half the length of the jetty deck girders. Berth 3 decking was constructed with double width (1.2m wide) units.

The wharf bents support the elevated outloading conveyors, shiploaders, deck and wharf superstructures (transfer tower, drive towers and other buildings). At a lower level, independent breasting and mooring dolphins are used to hold the vessel at the berth. A typical section through Berth 4 is shown below. Other berths are similar except on the south arm (Berths 1 and 2) there are two parallel outloading conveyors.

15.2.3 Environmental controls

Advisian has used methods to minimise vibration and potential plumes by avoiding drilling and vibration of piles to extract them. Accordingly, environmental issues would not be expected to have a dramatic impact on time or cost. Accordingly, Advisian has allowed for the following environmental controls:

- Standby punt for duration of the project, dedicated operator would not be required
- 1.5 FTE for the duration of the project (marine mammal observations and noise monitoring)
- 6 monthly bathymetry and magnetometer surveys
- Containment devices/drip trays for equipment on wharf deck in case of spills
- Environmental Assessment including benthic habitat survey, noise impact assessment, marine impact assessment, liquid and solid waste management, spills management, dust assessment, approval application preparation, regulator liaison and project management/coordination – Allow $500k.

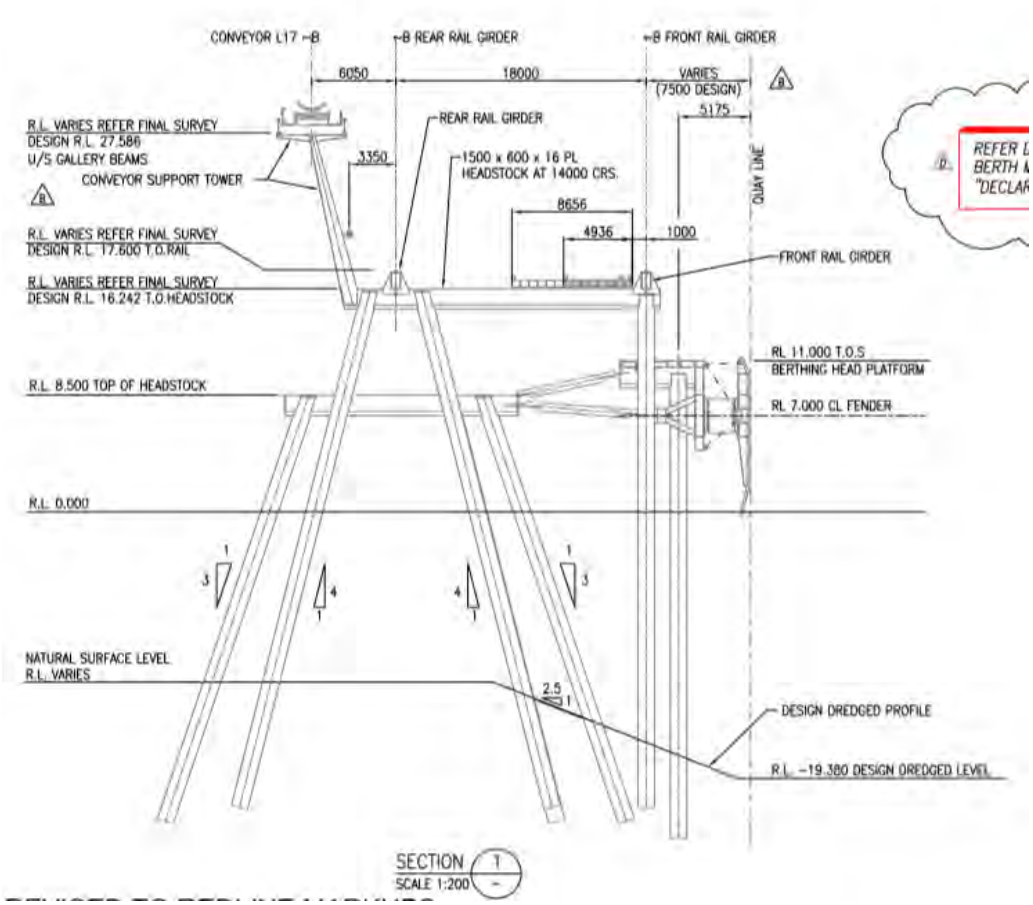


Figure 14: Typical section Berth 4 – drawing 72030201

15.2.4 Proposed final land use and landform

Upon the completion of the restoration works, the Domain will provide a final land use that reflects the land use prior to construction of the Terminal. The planned land use for this Domain is in line with the holistic rehabilitation purpose, to return the Terminal back to its Natural State and condition.

This generally includes the following characteristics:

- Removal of all infrastructure and assets to seabed level
- Removal of all hazardous and contaminated material
- The seabed profile will not be altered as part of the rehabilitation. Seabed levels will naturally return to a new equilibrium state over time
- Piles will be cut off at or immediately below seabed level. Cutting off piles at seabed is conventional practice and is not expected to have any material disadvantages regarding navigation, sediment movements, water quality or marine flora and fauna, when compared to full extraction of piles.

15.3 Methodology

This section provides an overview of the methodology undertaken in the decommissioning, demolition and rehabilitation of the Offshore Domain.

15.3.1.1 State of assets

In accordance with the brief, this cost estimate is based on the presumption that at the end of service life the offshore structures are in a good and well-maintained condition, fully accessible by cranes and other equipment intended by the design. However, it is noted that the true condition of PSC deck girders will be largely unknown and may appear sound when not. Advisian has allowed for the use of barges to transport larger objects such as piling which are too long or heavy to manage via the jetty roadways and for lifts which need to be undertaken by a barge-mounted crane.

15.3.1.2 Internal stresses

Due to the in-situ welded design of the wharf and jetty bents and other steelwork, significant internal (residual) stresses could exist in the piles and connecting steelwork. A remote cutting head attached to the excavator stick has been adopted to reduce the risk of kick-back injury.

15.3.1.3 Pile lengths

In the absence of any hydrographic surveys (RFI-002), Advisian has assumed an average seabed level of -8m chart datum along the jetty for the purposes of estimating the pile lengths.

15.3.1.4 Pile founding conditions

Pile founding conditions could not be verified by the available drawings and so Advisian has adopted the same understanding of GHD in that piles are driven to refusal into rock.

15.3.2 Decommissioning

The decommissioning works are like the general onshore methodology, but allowances have been made for works taking place over water. This includes adjusting productivities to lower rates and allowing for additional or different resources. Some resources like temporary environmental controls have been excluded during the decommissioning phase. This is due to the exposed waters, which will make them impractical.

It was confirmed with DBCTM personnel at the site visit that there is no current plan in place to prevent water containing coal dust from entering the sea due to high pressure cleaning activities. This approach has been adopted in the pricing, which is the main reason for the lower price compared to GHD.

Decommissioning consists of the following activities:

1. A chemical sweep of the Domain area completed by multiple 4-person crews equipped with an EWP and a small forklift. Similar resourcing has been allowed for to undertake the removal of universal waste including but not limited to mercury, ODS and radioactive waste.
2. Draining of equipment oils consists of a 2-person crew working in conjunction with a vacuum truck to empty all oils from machinery. An allowance has been made for a mobile pumping unit, storage container and associated support.
3. Cleaning of the conveyors consists of a 10-person crew working on multiple fronts equipped with EWPs and high-pressure cleaner units achieving an estimated productivity of 40m per day for the elevated/enclosed conveyors and 30m per day for the ground level/enclosed conveyors.
4. De-tensioning of all conveyor units, consisting of a 4-person crew equipped with EWPs to release all tension units. An allowance has been made for consumables.
5. Cleaning of the drive/transfer towers consists of a 10-person crew working on multiple fronts equipped with EWPs and high-pressure cleaner units.

Disposal of all waste materials have been allowed for under Section 3 of the estimate for each Domain. Disposal of all materials will either be at the Paget Transfer Stations within the Mackay City boundaries or the Hogan's Pocket Transfer Station within the Mackay Regional Area. All contaminated waste will be transported to the Hogan's Pocket Transfer Station.

15.3.2.1 Variance to GHD methodology

Advisian has not allowed for deployment of floating booms, netting or vessels during the decommissioning phase.

15.3.3 Deconstruction

The deconstruction scope of works consists of the following activities:

1. Deconstruction of shiploaders, completed one at a time using the Happy Sky or Happy Star (S-Type) heavy lift ships or equivalent (circa 1,800 tonnes lifting capacity) using dual lift. For the purposes of this study, it is assumed that the original lifting points have not been removed and are able to support the weight of the shiploader. Each unit is assumed to be transported to Brisbane for offload, dismantling and scrapping.

2. Deconstruction of conveyor structures completed by cutting and removing 24m length sections, to align with jetty bents, before they are lifted onto a truck fitted with an extendable trailer using a 200T crane. Units will be cut and processed onshore to ensure they are suitable for offsite disposal or recycling.
3. Deconstruction of wharf transfer/drive towers completed by removal of the structures using a crane, excavator with cutting attachment and elevated work platforms.
4. Deconstruction of jetty and wharf concrete decks will be completed working from the seaward end back to shore using a 4-person demolition crew, excavator with demolition jaws and supporting equipment and plant. Nearing completion of the wharf head, a crawler crane will be established on the wharf head for lifting purposes. Crane temporary supports have been purposefully manufactured. For the wharf south, north and head, a tug boat and barge has been allowed for.
5. Deconstruction of the jetty, wharf and mooring dolphin steelwork to be completed by crews equipped with specialist cutting equipment (diamond wire cutter), supported by a tug-boat, barge and excavator with shearing head.
6. Deconstruction of piles to be completed by cutting piles via a collar lowered over the pile and using a diamond wire cutting attachment. Advisian has assumed a barge mounted Davit crane for this operation and the jetty based crane used to lift the pile onto the barge for storage and transport to shore.
7. Crushing of all concrete within the Domain consists of a crusher and screening plant with an excavator feeding the plant and two operators running the plants. The activity is supported by an excavator for clean-up and a truck and dog for loading reject metal.
8. An allowance has been made for environmental controls consisting of a monitoring punt and labour as well as marine surveys.

15.3.3.1 Variance to GHD methodology

The variance in the deconstruction methodology has the biggest impact of price difference within this Domain. The key contributing factors in the variance are listed below:

- GHD has allowed a rate of $83,000 per day for a heavy lift vessel, compared to Advisian's rate of $50,000 per day. There also does not appear to be any allowance for mobilisation/demobilisation of the vessel in the GHD estimate. Advisian has assumed mobilisation ex. Asian (34 days).
- Jetty outloading conveyors:
  - Advisian considers that only one jetty carriageway would need to be cleared to allow commencement of the wharf deconstruction. Advisian's option therefore allows earlier commencement of wharf deconstruction (around 24 weeks) c.f. clearing of both accessways in GHD's 55 week's allowance.
  - Advisian has allowed for a single 200T crane to remove the 24m long galleries onto an extendable trailer located shoreside of the crane. As noted above, the crane would require additional support using temporary soldier beams or trusses as the actual condition of the PSC deck girders would not be quantifiable.

15.3.4 Rehabilitation

The following items outline the rehabilitation methodology for the Offshore Domain. Disposal of all waste materials (except for the ship loaders) would be directed to either the Paget Transfer Station within the Mackay City boundary, or the Hogan's Pocket Transfer Station within the Mackay Regional Area. All contaminated waste will be transported to the Hogan's Pocket Transfer Station and all steel and general construction waste to the Paget Transfer Station.

Following deconstruction works, materials would be separated on shore into stockpiles which are expected to include:

1. Recyclables, such as steel and metals
2. Crushed concrete for reuse on site
3. Building waste (inert materials such as concrete, clay bricks, timber, non-recyclable materials)
4. Hazardous waste (solids and liquids)
5. General waste (i.e. not building or hazardous waste).

Stockpiled materials would be loaded by excavator or front-end loader onto a truck (semi, tipper or truck and dog) for to transport to the disposal site.

During and following completion of all demolition works, marine seabed areas in the vicinity of the offshore structures will be surveyed. Hydrographic surveys would be undertaken of the site, accompanied with side scan sonar imaging and magnetometer surveys to detect the presence of ferrous materials on the seabed.

15.3.4.1 Variance to GHD methodology

Advisian's methodology for rehabilitation of the site does not differ substantially from GHD.

15.4 Cost estimate summary

Table 24: Domain 4 – Cost estimate summary

Domain	Section	Section Area	GHD	Advisian	Variance
Offshore Domain			**$169,130,694**	**$117,960,243**	**-$51,170,451**
Decommissioning					
Offshore	2.01	Chemical Sweep	$21,840	$26,192	$4,352
Offshore	2.02	Removal of Universal Wastes (Lighting, ODS, Mercury, Radioactive Devices)	$127,200	$144,771	$17,571
Offshore	2.03	Draining of Equipment Oils	$55,280	$78,425	$23,145
Offshore	2.04	Cleaning of Drive/Transfer Towers	$191,610	$263,634	$72,024
Offshore	2.05	Cleaning of Ground Level/Enclosed Conveyors	$5,321,520	$5,324,762	$3,242

Domain	Section	Section Area	GHD	Advisian	Variance
Offshore	2.06	Cleaning of Elevated/Open Conveyors	$492,960	$558,280	$65,320
Offshore	2.07	Temporary Controls for Marine Protection (Booms, netting, small boat w/operator) during Offshore Conveyor Cleaning	$575,000	$0	-$575,000
Offshore	2.08	Conveyor De-Tensioning Elevated/Open Conveyors	$44,100	$41,220	-$2,880
Offshore	2.09	Conveyor De-Tensioning Ground Level/Enclosed Conveyors	$75,750	$83,123	$7,373
Decommissioning Total			**$6,905,260**	**$6,520,406**	**-$384,854**
Deconstruction					
Offshore	3.01	Demolition of Shiploaders 1, 2, 3	$5,764,500	$4,534,806	-$1,229,694
Offshore	3.02	Demolition of Jetty Outloading Conveyors	$9,938,500	$7,434,416	-$2,504,084
Offshore	3.03	Demolition of Elevated Wharf Outloading Conveyors	$1,690,800	$0	-$1,690,800
Offshore	3.04	Demolition of Wharf Transfer/Drive Towers	$962,000	$1,431,996	$469,996
Offshore	3.05	Demolition of Jetty Deck	$11,407,500	$41,946,372	$30,538,872
Offshore	3.06	Demolition of Wharf Deck & Mooring/Berthing Dolphins	$2,781,000	$46,942,460	$44,161,460
Offshore	3.07	Temporary works/Engineered lifting device	$10,000,000	$0	-$10,000,000
Offshore	3.08	Removal of Jetty/Wharf Piles	$0		
Offshore	3.09	Option A: Drilling around piles to loosen bedrock and extract with vibrations	$86,013,000	$0	-$86,013,000
Offshore	3.10	Option B: Use abrasive water cutting to cut pile off at subsea level, by deploying cutter through centre of pile	$40,156,500		
Offshore	3.11	Crushing of concrete to 100mm minus	$838,800	$845,053	$6,253
Offshore	3.12	Environmental Controls	$8,750,000	$6,021,898	-$2,728,102
Offshore	3.13	Structural Allowance (strengthening works)	$1,000,000	$0	-$1,000,000
Offshore	3.14	Distributable (to Offshore only)	$20,995,320	$0	-$20,995,320
Deconstruction Total			**$160,141,420**	**$109,157,002**	**-$50,984,418**

Domain	Section	Section Area	GHD	Advisian	Variance
Rehabilitation					
Offshore	4.01	Jetty & Berthing Wharf	$2,084,014	$2,282,835	$198,821
Offshore	4.02	Offshore Domain Rehabilitation	$0	$0	$0
Rehabilitation Total			**$2,084,014**	**$2,282,835**	**$198,821**

16 Domain 5 – Water Management

This section details the approach undertaken to confirm the scope of works required to return the dams and other water management assets to the preconstruction state and condition. It sets out the current infrastructure within the Domain and methodologies used to develop an estimate to decommission, demolish and rehabilitate the assets in the prescribed area.

16.1 Summary

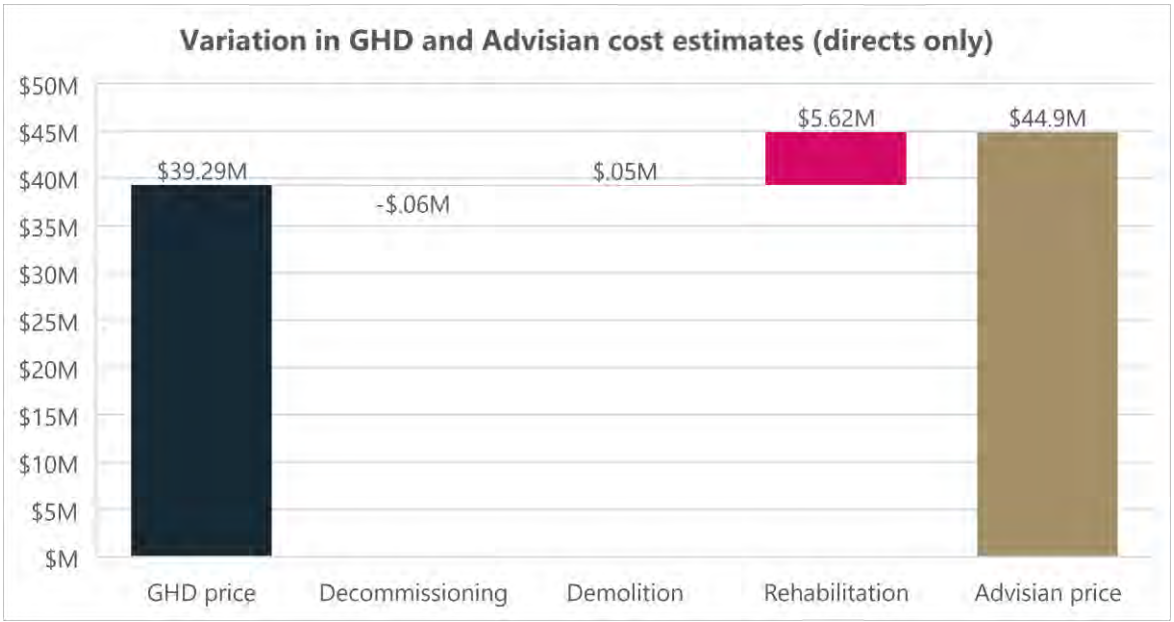


Figure 15: Domain 5 – Waterfall chart of key differences between GHD and Advisian estimate

Table 25: Domain 5 – Key differences in Advisian and GHD cost estimates

Key difference	Comment	Advisian vs GHD
Rehabilitation – Removal of material under roads	GHD has allowed for removal of 500mm under roads, but Advisian has not been able to source these drawings and has assumed 250mm under the running pavement based on a known facility similar to the terminal asset.	**-$1.81M**
Rehabilitation – Materials handling	The cost is higher in this area mainly due to the following contributing factors: 1. An additional 0.6 million m^3 of earthmoving works will be needed based on new modelling (GHD 0.81 million m^3 vs Advisian 1.4 million m^3) 2. Additional fill purchases of 0.13 million m^3 will be needed over and above what GHD (0.42 million m^3) has allowed based on new modelling 3. Imported clean fill rate – GHD $50 vs Advisian $48.50 per cubic metre 4. The lower Bulk earthworks rate will negate the increase in cost to an extent – GHD $13.46 vs Advisian $7.96 per cubic metre.	**+$7.44M**

Photo set 12: Water Management Domain – Pictures taken during site visit

16.2 Scope of works

This section outlines the current existing assets that are present within the Domain, as well as the proposed final condition of the Domain once all rehabilitation work has been completed.

16.2.1 Present conditions

Almost no drawings were received for the dams and associated infrastructure. During the site visit, all the dams were all sighted, including the Rail Loop Dam which had not been constructed when the LIDAR data of the site was acquired in 2013. Final earth work volumes were determined via the method described in Section 11.

The Water Management Domain has the following infrastructure within it, all of which requires decommissioning and demolition prior to the bulk earthworks and rehabilitation:

- Industrial Dam
- Rail Loop Dam
- Rail Receival Dam
- Spindlers Dam
- Associated surface roads and drainage
- Process water pump house, pumps and piping
- Potable water treatment plant, tanks, pumps and piping
- Fire water pump house, tanks pumps and piping.

16.2.2 Proposed final land use and landform

Upon the completion of the restoration works, the Domain will provide a final land use that reflects the land use prior to construction of the Terminal. The planned land use for this Domain is in line with the holistic rehabilitation purpose, to return the Terminal back to its Natural State and condition.

This generally includes the following characteristics:

- *Water discharged in accordance with licence conditions or if water quality suitable then re-used on site for rehabilitation purposes*
- *Earthworks to fill the water dams and reshape to blend in with the surrounding landscape and is stable*
- Removal of all infrastructure and assets
- Removal of all hazardous and contaminated material
- The remaining land will be revegetated with grassland and eucalypt woodland-open forest vegetation – not mature trees
- Formation of the land will be consistent with the surrounding landscape, to ensure that it is stable and with minimal subsidence.

16.3 Methodology

This section provides an overview of the methodology undertaken in the decommissioning, demolition and rehabilitation of the Domain.

16.3.1 Decommissioning

The decommissioning scope of works consists of a chemical sweep of the Domain by crews equipped with access and lifting equipment. Note that de-energisation is part of the utilities section.

16.3.1.1 Variance to GHD methodology

GHD has allowed for the asbestos removal associated with the work in this section. Advisian has considered asbestos under the risk as it was not able to be quantified with the documentation provided. Other than this key difference the estimates are similar.

16.3.2 Deconstruction

The deconstruction scope of works consists of the following activities:

1. The removal of the pumphouses and treatment plants consists of the following activities:
    a. Removal of building and sheds, to be completed with multiple 4-person demolition crews equipped with EWPs, an excavator with demolition shears and an excavator with grapple for clean-up and removal
    b. Demolition of the concrete footings and slabs consists of an excavator utilising a hydraulic hammer for concrete breaking. The demolition activity is supported by a water cart for dust suppression and associated support.
2. Crushing of all concrete within the Domain consists of a crusher and screening plant with an excavator feeding the plant and two operators running the plants. The activity is supported by an excavator for clean-up and a truck and dog for loading reject metal.

16.3.2.1 Variance to GHD methodology

The demolition scope is similar between the two estimates, Advisian has included the dam spillway in this section which has the impact of increasing the demolition costs as well as the concrete crushing volumes required.

16.3.3 Rehabilitation

The following items outline the rehabilitation methodology for the Domain. Disposal of all waste materials has been directed to either the Paget Transfer Station within the Mackay City boundary, or the Hogan's Pocket Transfer Station within the Mackay Regional Area. All contaminated waste will be transported to the Hogan's Pocket Transfer Station and all steel and general construction waste to the Paget Transfer Station.

1. Transport and disposal of all decommissioning and demolition materials. This is completed using an excavator or like to load materials onto a truck (semi, tipper or truck and dog) to transport to disposal. In some cases, a vacuum truck has been allowed for to transport waste to disposal.
2. The removal of roads and pavements consist of a bulldozer, excavator and trucks supported by a coordinator and a water truck for dust suppression.
3. With an empty Domain, ameliorating and fertilisation then takes place. This is following by seeding of the Domain, with an allowance being made for the planting of tube stock trees.
4. Bulk earthworks, site profiling and growth medium placement consists of a bulldozer, grader and supporting plant and materials.

16.3.3.1 Variance to GHD methodology

The differences in rehabilitation methodology between the GHD and Advisian estimate contributes significantly to the large variation between the two cost estimates. The key areas of difference are:

- GHD has allowed for removal of 500mm of material under the roads. Road section drawings for the Domain were not able to be supplied (RFI 029), therefore Advisian has assumed 250mm under the running pavement based on a known facility similar to the Terminal asset.
- Advisian has used the rate of $48.50 per cubic metre as a cost to the head contractor versus $50 per cubic meter used by GHD. Due to the large quantities in the Domain, this variance in rate contributes significantly to the differences in price.
- The bulk earthworks price varies significantly between GHD and Advisian estimates, solely based on such large volumes and the assumed earthworks productivities. The plant and equipment mix are not clear within the Axiom portion of the estimate. There is a sell price of $372 per hour (plant & labour) and an achieved productivity of 27.64 per cubic metre per hour. Achieving a sell price to the end client per cubic metre of $13.46.

Within the Advisian estimate, the cost per hour of the plant and equipment mix is $826.63 and after applying the mark-up of approximately 10.74%, has a sell price of $915.41 per hour with a productivity of 115m^3 per hour. Thus, achieving a like for like sell price to the terminal operator of $7.96 per cubic metre.

16.4 Cost estimate summary

Table 26: Domain 5 – Cost estimate summary

Domain	Section	Section Area	GHD	Advisian	Variance
Water Management Domain			**$39,291,773**	**$44,898,223**	**$5,606,450**
Decommissioning					
Water Management	2.01	Chemical Sweep	$15,600	$21,226	$5,626
Water Management	2.02	Type I (Non-Friable) ACM Abatement - Treatment Plant & Pumphouse	$14,631	$0	-$14,631
Water Management	2.03	Type 3 (Friable) ACM Abatement - Treatment Plant & Pumphouse	$53,947	$0	-$53,947
Decommissioning Total			**$84,178**	**$21,226**	**-$62,952**
Deconstruction					
Water Management	3.01	Demolition of Pumphouse/Treatment Plant	$164,250	$198,875	$34,625
Water Management	3.02	Crushing of concrete to 100mm minus	$9,320	$19,805	$10,485
Deconstruction Total			**$173,570**	**$218,681**	**$45,111**
Rehabilitation					
Water Management	4.01	Water Dams	$3,521,565	$1,708,664	-$1,812,901
Water Management	4.02	Water Management Rehabilitation	$35,512,461	$42,949,653	$7,437,193
Rehabilitation Total			**$39,034,026**	**$44,658,317**	**$5,624,292**

17 Domain 6 – Quarry Dam

This section details the approach undertaken to confirm the scope of works required to return the Quarry Dam to the preconstruction state and condition. It sets out the current infrastructure within the Domain and methodologies used to develop an estimate to decommission, demolish and rehabilitate the associated pumps and pipeline in the prescribed area.

17.1 Summary

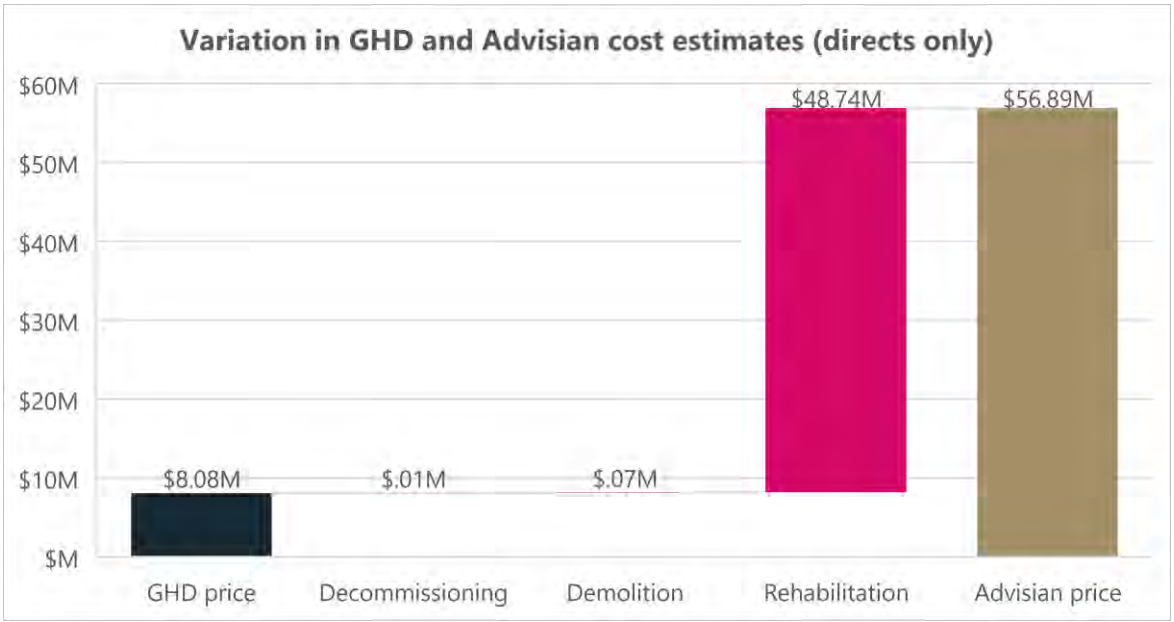
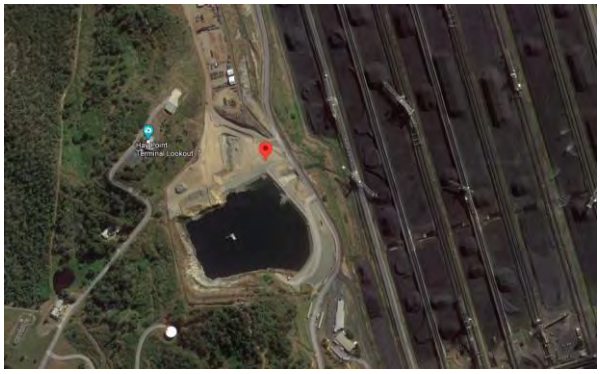


Figure 16: Domain 6 – Waterfall chart of key differences between GHD and Advisian estimate

Table 27: Domain 6 – Key differences in Advisian and GHD cost estimates

Key difference	Comment	Advisian vs GHD
Rehabilitation – Materials handling	The cost is higher in this area mainly due to the following contributing factors: 1. A large increase in earthmoving volumes (1.5 million m^3) will be needed based on new modelling (GHD 0.15 million m^3 vs Advisian 1.65 million m^3) 2. Additional fill purchases of 1.5 million m^3 will be needed over and above what GHD (0.08 million m^3) has allowed based on new modelling 3. Imported clean fill rate – GHD $50 vs Advisian $48.50 per cubic metre 4. The lower bulk earthworks rate will negate the increase in cost to an extent – GHD $13.46 vs Advisian $7.96 per cubic metre.	**$50.71M**

Photo set 13: Quarry Dam Domain – Pictures taken during site visit



17.2 Scope of works

This section outlines the current existing assets that are present within the Domain, as well as the proposed final condition of the Domain once all rehabilitation work has been completed.

17.2.1 Present conditions

The Quarry Dam Domain had very little information provided for review and google earth was used extensively to define the scope. During the site visit the dam was viewed including the floating pumping unit and pipelines. The rear dam wall provided insight to the pre-disturbed topography of the site.

The Quarry Dam area has the following infrastructure and assets within the Domain. These will require decommissioning and demolition prior to the bulk earthworks and rehabilitation.

- Quarry dam
- Water pump and pipelines
- Associated surface roads and drainage.

17.2.2 Proposed final land use and landform

Upon the completion of the restoration works, the Domain will provide a final land use that reflects the land use prior to construction of the Terminal. The planned land use for this Domain is in line with the holistic rehabilitation purpose, to return the Terminal back to its Natural State and condition.

This generally includes the following characteristics:

- Removal of all infrastructure and assets
- Removal of all hazardous and contaminated material
- The remaining land will be revegetated with grassland and eucalypt woodland-open forest vegetation – not mature trees
- Formation of the land will be consistent with the surrounding landscape, to ensure that it is stable and with minimal subsidence.

17.3 Methodology

This section provides an overview of the methodology undertaken in the decommissioning, demolition and rehabilitation of the Domain.

17.3.1 Decommissioning

The decommissioning scope of works consists of a general crew with access equipment. An allowance has also been made for any consumables that may be required.

17.3.1.1 Variance to GHD methodology

Advisian has made an allowance to decommission the floating pump unit within the Quarry Dam. This was not allowed for within this section of the GHD estimate.

17.3.2 Deconstruction

The deconstruction scope of works consists of the following activities:

1. The removal of the pumphouses and treatment plants consists of the following activities:
    a. Removal of building and sheds, to be completed with multiple 4-person demolition crews equipped with EWPs, an excavator with demolition shears and an excavator with grapple for clean-up and removal.
    b. Demolition of the concrete spillway and other slabs consists of an excavator utilising a hydraulic hammer for concrete breaking. The demolition activity is supported by a water cart for dust suppression and associated support.
2. Crushing of all concrete within the Domain consist of a crusher and screening plant with an excavator feeding the plant and two operators running the plants. The activity is supported by an excavator for clean-up and a truck and dog for loading reject metal.

17.3.2.1 Variance to GHD methodology

Advisian has made a small allowance to deconstruct and remove the floating pump unit in the Quarry Dam.

17.3.3 Rehabilitation

The following items outline the rehabilitation methodology for the Domain. Disposal of all waste materials has been directed to either the Paget Transfer Station within the Mackay City boundary, or the Hogan's Pocket Transfer Station within the Mackay Regional Area. All contaminated waste will be transported to the Hogan's Pocket Transfer Station and all steel and general construction waste to the Paget Transfer Station.

1. Transport and disposal of all decommissioning and demolition materials. This is completed using an excavator or like to load materials onto a truck (semi, tipper or truck and dog) to transport to disposal. In some cases, a vacuum truck has been allowed for to transport waste to disposal.
2. With an empty Domain, ameliorating and fertilisation then takes place. This is following by seeding of the Domain, with an allowance being made for the planting of tube stock trees.

3. Bulk earthworks, site profiling and growth medium placement consists of a bulldozer, grader and supporting plant and materials.

17.3.3.1 Variance to GHD methodology

The differences in methodology between the GHD and Advisian estimate contributes significantly to the large variation between the two cost estimates. The key areas of difference are:

1. Axiom uses a clean fill rate of $50 per cubic metre whereas Advisian has used the rate of $48.50 per cubic metre. This variance in rate contributes to the differences in price.
2. The bulk earthworks price varies significantly between GHD and Advisian estimates, solely based on such large volumes and the assumed earthworks productivities. The plant and equipment mix are not clear within the Axiom portion of the estimate. There is a sell price of $372 per hour (plant & labour) and an achieved productivity of 27.64 per cubic metre per hour. Achieving a sell price to the end client per cubic metre of $13.46. Within the Advisian estimate, the cost per hour of the plant and equipment mix is $915.41 per hour with a productivity of 115m^3 per hour. Achieving a like for like sell price to the terminal operator of $7.96 per cubic metre.

17.4 Cost estimate summary

Table 28: Domain 6 – Cost estimate summary

Domain	Section	Section Area	GHD	Advisian	Variance
Quarry Dam Domain			**$8,084,266**	**$56,894,076**	**$48,809,810**
Decommissioning					
Quarry Dam	2.01	General Decommissioning Activities	$0	$5,632	$5,632
Decommissioning Total			**$0**	**$5,632**	**$5,632**
Deconstruction					
Quarry Dam	3.01	N/A	$0	$67,238	$67,238
Deconstruction Total			**$0**	**$67,238**	**$67,238**
Rehabilitation					
Quarry Dam	4.01	Quarry Dam	$1,994,079	$16,394	-$1,977,685
Quarry Dam	4.02	Quarry Dam Domain Rehabilitation	$6,090,187	$56,804,812	$50,714,625
Rehabilitation Total			**$8,084,266**	**$56,821,206**	**$48,736,940**

18 Domain 7 – Offices and Workshops

This section details the approach undertaken to confirm the scope of works required to return the Offices and Workshops Domain to the preconstruction state and condition. It sets out the current infrastructure within the Domain and methodologies used to develop an estimate to decommission, demolish and rehabilitate the assets in the prescribed area.

18.1 Summary

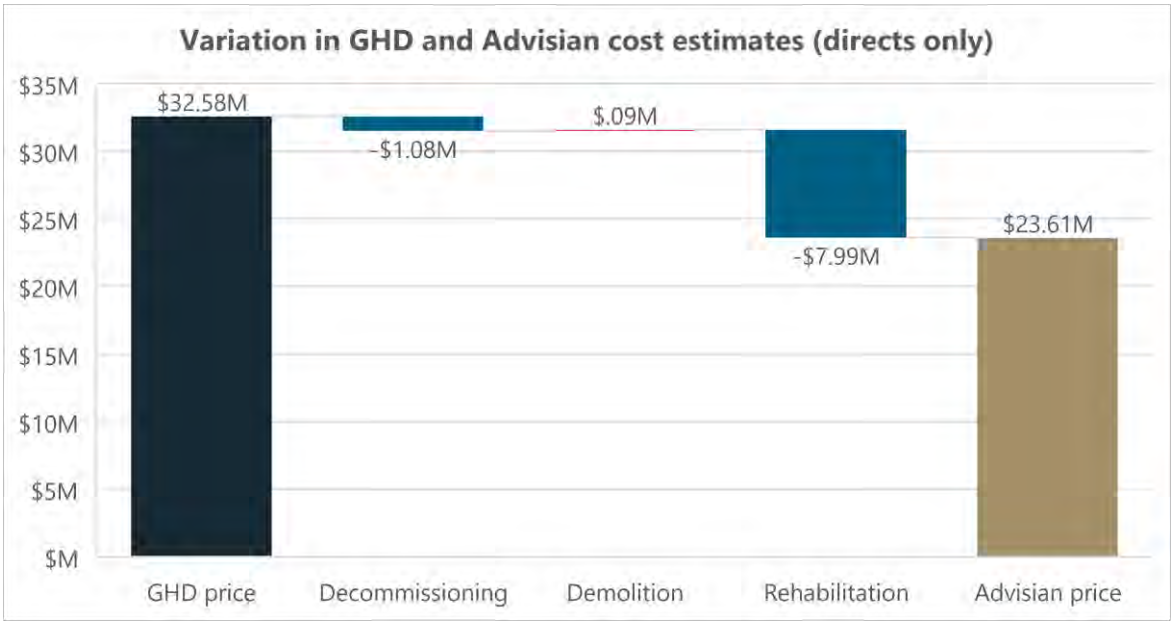


Figure 17: Domain 7 – Waterfall chart of key differences between GHD and Advisian estimate

Table 29: Domain 7 – Key differences in Advisian and GHD cost estimates

Key difference	Comment	Advisian vs GHD
Rehabilitation – Removal of material under roads	GHD has allowed for removal of 500mm under roads, but Advisian has not been able to source these drawings and has assumed 250mm under the running pavement based on a known facility similar to the terminal asset.	**-$8.8M**
Rehabilitation – Office and works	1. Advisian has allowed for an additional 0.5 million m^3 in Earthworks based on modelling completed 2. Advisian allowed for 0.065 million m^3 less fill to be imported based on modelling completed.	**$0.8M**

Photo set 14: Offices and Workshops Domain – Pictures taken during site visit

18.2 Scope of works

This section outlines the current existing assets that are present within the Domain, as well as the proposed final condition of the Domain once all rehabilitation work has been completed.

18.2.1 Present conditions

No drawings were received for the offices and workshops. Google Earth was used to quantify sizes and assumptions of contents and general building structure were made. The site visit confirmed building cladding and access. Asbestos signage was identified during the site visit which confirmed the presence of asbestos on site. However, Advisian has not received a copy of the asbestos register therefore assumptions under risks were made for this by apportioning $5M from unallocated risk in the owner contingency as presented in the in-direct costs.

The Offices and Workshops Domain have the following infrastructure and assets. These will require decommissioning and demolition prior to the bulk earthworks and rehabilitation.

- Paved roads and carparks
- Site fencing – (removal of fencing has been allowed for within the individual Domains)
- Carpark cover structures
- Buildings – including DBCT office, operations centre, stores warehouse, Q2 coal building, L&D training building, DBCT administration building, archives building, learning centre, CP office, old NQBP Tower, fire pump house, sample prep building and the main and west gate security huts

- Sewage mains connection to the MRC wastewater treatment plant
- Diesel fuel storage and distribution
- Associated support services.

18.2.2 Proposed final land use and landform

Upon the completion of the restoration works, the Domain will provide a final land use that reflects the land use prior to construction of the Terminal. The planned land use for this Domain is in line with the holistic rehabilitation purpose, to return the Terminal back to its Natural State and condition.

This generally includes the following characteristics:

- Removal of all infrastructure and assets
- Removal of all hazardous and contaminated material
- The remaining land will be revegetated with grassland and eucalypt woodland-open forest vegetation – not mature trees
- Formation of the land will be consistent with the surrounding landscape, to ensure that it is stable and with minimal subsidence.

18.3 Methodology

This section provides an overview of the methodology undertaken in the decommissioning, demolition and rehabilitation of the Domain.

18.3.1 Decommissioning

The decommissioning scope of works consists of the following activities:

1. A chemical sweep of the Domain area completed by multiple 4-person crews equipped with an EWP and a small forklift. Similar resourcing has been allowed for to undertake the removal of universal waste including but not limited to mercury, ODS and radioactive waste.
2. Draining of hydraulic, heating and lubrication oils consists of a 4-person crew working in conjunction with a vacuum truck to empty all oils from machinery. An allowance has been made for a mobile pumping unit, storage container and associated support.
3. Flushing of the storm and sanitary system consists of a 5-person crew working on multiple fronts equipped with high-pressure cleaner units assisted by a water cart and vacuum truck. An allowance has also been made for a bobcat.
4. Cleaning of the building pits sumps and trenches consists of a 4-person crew equipped with high-pressure cleaner units working in conjunction with a vacuum truck.
5. Cleaning of all building structures and stained concrete consists of a 5-person crew working on multiple fronts equipped with high-pressure cleaner units working in conjunction with a vacuum truck.

Disposal of all waste materials have been allowed for under Section 3 of the estimate for each Domain. Disposal of all materials will either be at the Paget Transfer Stations within the Mackay City boundaries or the Hogan's Pocket Transfer Station within the Mackay Regional Area. All contaminated waste will be transported to the Hogan's Pocket Transfer Station.

18.3.1.1 Variance to GHD methodology

With the acceptance of the asbestos treatment, the two estimates are largely the same. Advisian has considered asbestos removal under risk.

GHD has assumed minor amounts of friable asbestos containing material in each building and have allowed time to setup and take down containment and time to remove. GHD's approach to this is measured and reasonable.

18.3.2 Deconstruction

The deconstruction scope of works consists of the following activities:

1. The tasks of demolition of the building consists of the following activities:
    a. Removal of buildings to be completed with multiple 4-person demolition crews equipped with EWPs, an excavator with demolition shears and an excavator with grapple for clean-up and removal.
    b. Demolition of the concrete slabs and paths consists of an excavator utilising a hydraulic hammer for concrete breaking. The demolition activity is supported by a water cart for dust suppression and associated support.
2. Crushing of all concrete within the Domain consist of a crusher and screening plant with an excavator feeding the plant and two operators running the plants. The activity is supported by an excavator for clean-up and a truck and dog for loading reject metal.

18.3.2.1 Variance to GHD methodology

The costs associated with the demolition of the structures are similar within both estimates.

18.3.3 Rehabilitation

The following items outline the rehabilitation methodology for the Domain. Disposal of all waste materials has been directed to either the Paget Transfer Station within the Mackay City boundary, or the Hogan's Pocket Transfer Station within the Mackay Regional Area. All contaminated waste will be transported to the Hogan's Pocket Transfer Station and all steel and general construction waste to the Paget Transfer Station.

1. Transport and disposal of all decommissioning and demolition materials. This is completed using an excavator or like to load materials onto a truck (semi, tipper or truck and dog) to transport to disposal. In some cases, a vacuum truck has been allowed for to transport waste to disposal.
2. The removal of roads and pavements consist of a bulldozer, excavator and trucks supported by a coordinator and a water truck for dust suppression.
3. With an empty Domain, ameliorating and fertilisation then takes place. This is following by seeding of the Domain, with an allowance being made for the planting of tube stock trees.
4. Bulk earthworks, removal of stockyard bund soil, site profiling and growth medium placement consists of a bulldozer, grader and supporting plant and materials.
5. An allowance has been made for removal of fencing around the site.

18.3.3.1 *Variance to GHD methodology*

They key driver of cost variance between the GHD and Advisian estimates is the depth to which material under roads requires removal. GHD has allowed for removal of 500mm of material under the roads. Road section drawings for the Domain were not able to be supplied (RFI 029), therefore Advisian has assumed 250mm under the running pavement based on a known facility similar to the Terminal asset.

Due to the large amount of road removal, the difference in estimation is largely due to different depths excavated. There is also a small difference in disposal fees between the two estimates.

18.4 Cost estimate summary

Table 30: Domain 7 – Cost estimate summary

Domain	Section	Section Area	GHD	Advisian	Variance
Offices and Workshops Domain			**$32,575,455**	**$23,608,771**	**-$8,966,683**
Decommissioning					
Offices	2.01	Chemical Sweep	$37,440	$36,225	-$1,215
Offices	2.02	Removal of Universal Wastes (Lighting, ODS, Mercury, Radioactive Devices)	$63,600	$64,068	$468
Offices	2.03	Flushing of storm and sanitary sewer systems	$116,280	$108,833	-$7,447
Offices	2.04	Type I (Non-Friable) ACM Abatement - Treatment Plant & Pumphouse	$203,400	$0	-$203,400
Offices	2.05	Type 3 (Friable) ACM Abatement - Treatment Plant & Pumphouse	$863,147	$0	-$863,147
Offices	2.06	Removal of Hydraulic, Heating and Lubrication Oils in Tanks	$40,241	$45,705	$5,464
Offices	2.07	Cleaning of Building Pits Sumps and Trenches	$47,820	$39,780	-$8,040
Offices	2.08	Final Cleaning of Structures	$21,960	$23,868	$1,908
Offices	2.09	Cleaning of Stained Concrete	$87,840	$87,516	-$324
Decommissioning Total			**$1,481,729**	**$405,995**	**-$1,075,734**
Deconstruction					
Offices	3.01	Demolition of DBCT Operations Buildings, Management Buildings, Stores, Warehouse, Maintenance Building, Security Gates and Car Parks	$677,700	$749,886	$72,186
Offices	3.02	Removal of Roads	$0	$0	$0

Domain	Section	Section Area	GHD	Advisian	Variance
Offices	3.03	Crushing of concrete to 100mm minus	$46,600	$68,886	$22,286
Deconstruction Total			**$724,300**	**$818,771**	**$94,471**
Rehabilitation					
Offices	4.01	Buildings and Infrastructure	$22,689,543	$9,124,217	-$13,565,326
Offices	4.02	General Utilities	$490,217	$292,055	-$198,163
Offices	4.03	Offices and Workshops Domain Rehabilitation	$7,189,665	$12,967,732	$5,778,067
Rehabilitation Total			**$30,369,426**	**$22,384,004**	**-$7,985,421**

19 Domain 8 – Utilities

This section details the approach undertaken to confirm the scope of works required to return the Utilities Domain to the preconstruction state and condition. It sets out the current infrastructure within the Domain and methodologies used to develop an estimate to decommission, demolish and rehabilitate the assets in the prescribed area.

19.1 Summary

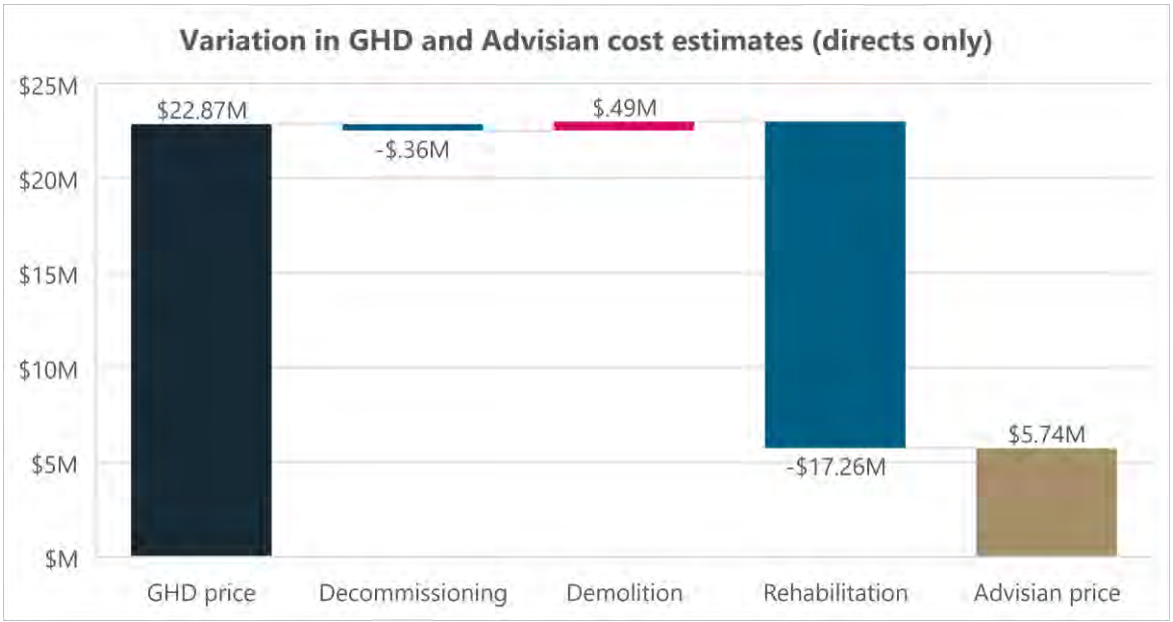
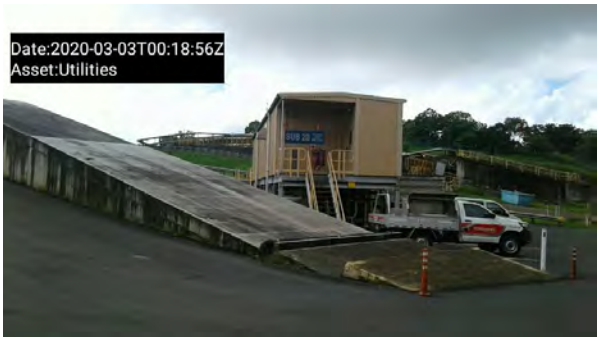


Figure 18: Domain 8 – Waterfall chart of key differences between GHD and Advisian estimate

Table 31: Domain 8 – Key differences in Advisian and GHD cost estimates

Key difference	Comment	Advisian vs GHD
Rehabilitation – Depth of substrate removal under substations	GHD has assumed a substrata depth of 1m to be removed in all substation areas, which they have classified as a low contamination substrate. Advisian has assumed the substrate to be removed is 250mm deep within the same area. The difference in removal volumes is considerable, which is reflected in the estimate.	**-$8.10M**
Rehabilitation – Removal of material under roads	GHD has allowed for removal of 500mm under roads, but Advisian has not been able to source these drawings and has assumed 250mm under the running pavement based on a known facility similar to the terminal asset.	**-$0.6M**
Rehabilitation – Utilities Domain rehabilitation	Bulk volumes – Advisian has not allowed for major bulk earthworks based on modelling undertaken in this Domain. GHD allowed for 0.22 million m^3 in earthworks and 0.11 million m^3 in fill purchases.	**-$8.52M**

Photo set 15: Utilities Domain – Pictures taken during site visit



19.2 Scope of works

This section outlines the current existing assets that are present within the Domain, as well as the proposed final condition of the Domain once all rehabilitation work has been completed.

19.2.1 Present conditions

No drawings were received that relate to the utilities, and as some of these assets are owned and operated by third parties, access during the site visit was also not possible. Google Earth was used to determine the number and approximate size of transformers within the substations. Volumes of oils and plant weights were assumed along with contents of the switch rooms. These assumptions and methodologies are detailed within the estimate.

The Utilities Domain has the following infrastructure and assets. These will require decommissioning and demolition prior to the bulk earthworks and rehabilitation.

- Ergon Energy 33/11kV substation
- 11kV overhead transmission line feeding main DBCT substation
- Main DBCT substation
- In-plant substations SS1, SS1A, SS2, SS2A, SS2B, SS3, SS3A, SS3B, SS3C, SS4, SS4A, SS5, SS5A, SS6, SS6A and SS9
- Substation power feeds
- Potable water connection mains to the MRC water treatment plant (which is different from the sewage facility identified in the Offices and Workshops Domain)
- Raw water connection mains to Sun Water.

19.2.2 Proposed final land use and landform

Upon the completion of the restoration works, the Domain will provide a final land use that reflects the land use prior to construction of the Terminal. The planned land use for this Domain is in line with the holistic rehabilitation purpose, to return the Terminal back to its Natural State and condition.

This generally includes the following characteristics:

- Removal of all infrastructure and assets
- Removal of all hazardous and contaminated material

  The remaining land will be revegetated with grassland and eucalypt woodland-open forest vegetation – not mature trees
- Formation of the land will be consistent with the surrounding landscape, to ensure that it is stable and with minimal subsidence.

19.3 Methodology

This section provides an overview of the methodology undertaken in the decommissioning, demolition and rehabilitation of the Domain.

19.3.1 Decommissioning

The decommissioning scope of works consists of the following activities:

1. A chemical sweep of the Domain area completed by multiple 4-person crews equipped with an EWP and a small forklift. Similar resourcing has been allowed for to undertake the removal of universal waste including but not limited to mercury, ODS and radioactive waste.
2. Draining of transformer oils consists of a 4-person crew working in conjunction with a vacuum truck to empty all oils from machinery. An allowance has been made for a mobile pumping unit, storage container and associated support.

Disposal of all waste materials have been allowed for under Section 3 of the estimate for each Domain. Disposal of all materials will either be at the Paget Transfer Stations within the Mackay City boundaries or the Hogan's Pocket Transfer Station within the Mackay Regional Area. All contaminated waste will be transported to the Hogan's Pocket Transfer Station.

19.3.1.1 Variance to GHD methodology

GHD has assumed minor amounts of friable asbestos containing material in each building and have allowed time to setup and take down containment and time to remove. The approach to this is measured and reasonable. Advisian has considered asbestos removal under risk. No other significant variance exists within this section.

19.3.2 Deconstruction

The deconstruction scope of works consists of the following activities:

1. The tasks of demolition of overhead transmission lines and utilities consist of the following activities:
    a. Overhead infrastructure removal to be completed with multiple 4-person demolition crews equipped with EWPs, an excavator with demolition shears and an excavator with grapple for clean-up and removal.
    b. Demolition of the concrete piles and footings consists of an excavator utilising a hydraulic hammer for concrete breaking. The demolition activity is supported by a water cart for dust suppression and associated support.
2. The tasks of demolition of substations consist of the following activities:
    a. Overhead infrastructure removal to be completed with multiple 4-person demolition crews equipped with EWPs, an excavator with demolition shears and an excavator with grapple for clean-up and removal.
    b. Demolition of the concrete slabs and bunds consists of an excavator utilising a hydraulic hammer for concrete breaking. The demolition activity is supported by a water cart for dust suppression and associated support.
3. Crushing of all concrete within the Domain consist of a crusher and screening plant with an excavator feeding the plant and two operators running the plants. The activity is supported by an excavator for clean-up and a truck and dog for loading reject metal.

19.3.2.1 Variance to GHD methodology

Advisian has a higher cost of works within this section of the estimate, predominately driven by the scope around the substation demolition. From the site visit, it became clear that the scope around removing the substations was bigger than originally planned, so additional time and resources were allocated to deconstruct the substations.

19.3.3 Rehabilitation

The following items outline the rehabilitation methodology for the Domain. Disposal of all waste materials has been directed to either the Paget Transfer Station within the Mackay City boundary, or the Hogan's Pocket Transfer Station within the Mackay Regional Area. All contaminated waste will be transported to the Hogan's Pocket Transfer Station and all steel and general construction waste to the Paget Transfer Station.

1. Transport and disposal of all decommissioning and demolition materials. This is completed using an excavator or like to load materials onto a truck (semi, tipper or truck and dog) to transport to disposal. In some cases, a vacuum truck has been allowed for to transport waste to disposal.
2. The removal of substation substrate, completed with an excavator, coordination and trucks for disposal.
3. The removal of roads and pavements consist of a bulldozer, excavator and trucks supported by a coordinator and a water truck for dust suppression.

4. With an empty Domain, ameliorating and fertilisation then takes place. This is following by seeding of the Domain, with an allowance being made for the planting of tube stock trees.
5. Bulk earthworks, removal of stockyard bund soil, site profiling and growth medium placement consists of a bulldozer, grader and supporting plant and materials.

19.3.3.1 Variance to GHD methodology

The key driver of cost variance between the GHD and Advisian estimates is the depth to which substrata material under the substations is to be removed.

GHD has assumed a substrata depth of 1m to be removed in all substation areas, which they have classified as a low contamination substrate. Advisian has assumed the substrate to be removed is 250mm within the same area. The difference in removal volumes is considerable, which is reflected in the estimate.

In addition, there is also a difference is cost due to the road substrate that GHD is removing being to a depth of 500mm, whereas Advisian is removing only 250mm.

19.4 Cost estimate summary

Table 32: Domain 8 – Cost estimate summary

Domain	Section	Section Area	GHD	Advisian	Variance
Utilities Domain			**$22,865,380**	**$5,741,923**	**-$17,123,458**
Decommissioning					
Utilities	2.01	Draining of Transformer Oils	$71,700	$92,299	$20,599
Utilities	2.02	Chemical Sweep	$15,600	$15,154	-$446
Utilities	2.03	Removal of Universal Wastes (Lighting, ODS, Mercury, Radioactive Devices)	$6,360	$8,819	$2,459
Utilities	2.04	Type I (Non-Friable) ACM Abatement - Substations	$58,114	$0	-$58,114
Utilities	2.05	Type 3 (Friable) ACM Abatement - Substations	$323,680	$0	-$323,680
Decommissioning Total			**$475,455**	**$116,273**	**-$359,182**
Deconstruction					
Utilities	3.01	Demolition of Overhead Transmission Line & Utilities	$361,500	$364,319	$2,819
Utilities	3.02	Demolition of Substations	$278,800	$780,462	$501,662
Utilities	3.03	Removal of Sewage System - Collection Treatment and Outfall	$0	$0	$0

Domain	Section	Section Area	GHD	Advisian	Variance
Utilities	3.04	Demolition of Fuel - Storage & Distribution	$0	$0	$0
Utilities	3.05	Crushing of concrete to 100mm minus	$46,600	$35,833	-$10,767
Deconstruction Total			**$686,900**	**$1,180,614**	**$493,714**
Rehabilitation					
Utilities	4.01	Power	$12,873,688	$4,143,523	-$8,730,165
Utilities	4.02	Water	$6,379	$0	-$6,379
Utilities	4.03	Utilities Domain Rehabilitation	$8,822,959	$301,513	-$8,521,446
Rehabilitation Total			**$21,703,026**	**$4,445,036**	**-$17,257,990**

20 Domain 9 – Tug Harbour

The Tug Harbour currently provides ocean access for recreation vessels at the public boat ramp, although it was originally constructed to service the coal trade at the Port of Hay Point and provides a harbour for tugboats. It is currently owned and maintained by North Queensland Bulk Ports (NQBP) Corporation. The GHD Report details the option to leave the port for the public to retain use.

Advisian agrees that this is the most appropriate end use and incorporates the value established in Section 19.0 of the GHD Report of $37.23M within our estimate as presented below as a lump sum one-off payment

20.1 Present conditions

The Tug Harbour Domain has the following infrastructure:

- Groyne and sea wall (to be retained and gifted to Mackay Regional Council (MRC))
- MOF and boat ramps (to be retained and gifted to MRC)
- Berths and other marine structures
- Buildings, gates and fences.

Photo set 16: Tug Harbour Domain – Pictures taken during site visit

20.2 Cost estimate summary

Table 33: Domain 9 – Cost estimate summary

Domain	Section	Section Area	GHD	Advisian	Variance
Tug Harbour Domain		Non-Direct Cost	$37,230,000	$37,230,000	**$ -**

21 Indirect costs

Preamble

Advisian has assessed the approach adopted by GHD on the application of indirect costs to the DBCT Rehabilitation Cost Estimate. The approach adopted by GHD appears to apply a percentage of indirect costs to the direct costs as outlined in their report. Advisian have determined indirect cost on a detailed build up with percentage on cost very similar to GHD's. The assessment of indirect costs from Advisian reflects a more traditional and granular level that reflects current market conventions for pricing.

21.2 Overheads

A list of all overheads, including a description and the costs, has been provided in Table 34 below.

Table 34: List of overheads, including descriptions and amounts

Category	Description	Amount
Staff salaries	The staff salaries have been developed to reflect a Tier 1 structure to conclude the full design and construction of the ALL the works under the direction of a possible DBCTM Project Management Office (PMO). This is a fundamental difference to the approach adopted by GHD, as they have intended to deliver via an owner's project management team (this is not a viable approach given the complexity of the project). Refer Organisation structure presented in Section 8.2.2.	$32,223,599
Site labour (wages)	As the site is likely to be divided into definable disciplines of work, Advisian has constructed a suitable site labour structure to support the various major subcontracts expected to be assembled across the entire site. These range from supervisors, leading hands and general labour (these staff wages are enablers only of the site and record actual site activities and validate the works).	$13,452,917
Employee related costs	These costs represent typical employee related costs, such as salary and wage increase over the term of the construction period set at 8.48% of the Direct Costs Total A. Escalation of 2% has been allowed for year on year.	$1,076,957
Motor vehicles (construction)	To support the site labour described above to supervise the works, Advisian has allowed for a series of motor vehicles to be leased or purchased over the term of the construction period. The allowance is for nominally 17 vehicles for dedicated supervisory staff and pool resources as required by the management staff.	$2,235,037

Category	Description	Amount
Temporary services (security)	An allowance is provided for 24 hours manned, and patrolled security service which will be required during the construction period. It is expected that 3 shifts including a gate security guard be contracted to an appropriate organisation.	$3,464,311
Site offices	A co-located site office compound has been allowed for the Tier 1 Contractor and the PMO. It will also accommodate separate meeting and training facilities.	$1,500,000
Site office expenses	A nominal allowance to accommodate general office expenses such as stationery and running costs.	$450,000
Site office maintenance	A nominal allowance for site office routine maintenance and minor alterations and additions.	$350,000
Clean up and rubbish removal	An allowance for 2 x 10 tonne skid bins for general rubbish removal not in sub-contract controlled by the Tier 1 Contractor.	$998,400
Cleaning	An allowance of on-site contractor facilities.	$350,000
Plant & equipment – operation and maintenance of temporary facilities	Allowance for a Tier 1 contractor-controlled facility for staging, laydown, fuel bunkering, water and power management and storage and plant yard staffed by a permanent resource for the term of the construction period.	$2,500,000
Small tools	An allowance for small tools and consumables controlled within the maintenance facility above.	$100,000
Environmental management	An allowance for wheel washing and grates, minor sediment control not included in sub-contract. Offshore works will be included in specialised sub-contracts.	$250,000
Safety	An allowance for operational safety management including safety inductions and weekly bulletins preparation.	$450,000
Training	An allowance for general site training tool box meetings and project updates etc.	$400,000
Entertainment	An allowance for celebration of site milestones and staff and contractor amenity.	$100,000
Information technology (IT)	A build-up of the IT requirements to run the site office for the duration of the contract including capital costs for computers, 'back-bone' and back-to-base connections. The build-up also incorporates recurrent software licensing and upgrades for the organisation structure.	$1,213,535
Telecommunications	An allowance for site office communication and site a communications system including a structured UHF radio and relay system site wide.	$400,000
Licenses permits and statutory fees	An allowance for expected licenses, permits and statutory fees not in sub contracts or provided by Owner.	$200,000

Category	Description	Amount
Surveying	An allowance for the recurrent (monthly survey) and establishment of a 'site-controlled datum station' for earthworks controlled by the Tier 1 Contractor (all remote and automated control of plant and equipment in sub contract). This also includes an allowance for an independent survey for monthly claims assessment.	$450,000
Public community relations	An allowance the preparation of site information in order to report to the PMO for the community notifications. The allowance also includes for a community information desk within the site office. It is expected that the PMO will manage the community interface specifically.	$250,000
Bonds and bank guarantees	An allowance for the establishment of insurance bonds and financing over the term of the contract period.	$700,000
Insurance	The insurance is expected to be limited to Contractors All Risk and Public Liability at the Tier 1 Contactor level and is priced as contractor controlled. A nominal 0.3% allowance of the Direct costs has been allowed – no shipping or project specific Professional Indemnity (PI) other than normal 'blanket covers' has been allowed given the nature of the works as it is predominately deconstruction. Project specific insurance for PI temporary works particularly in the offshore will be incorporated in the sub-contracts as is normal practice.	$3,750,000
Uninsured losses	Provision for uninsurable losses on site for theft and wilful damage.	$200,000
Legal fees	An allowance for the preparation of specialist sub-contracts and provision to assess potential ad-hoc claims.	$250,000
Staff relocation and expenses costs	An allowance for the relocation of key staff over the term of the contract.	$250,000
Recruitment	An allowance for the recruitment and expenses to replace 20% churn of key staff.	$400,000
Total Overhead Costs		**$67,964,756**

21.3 Threats, opportunities and other indirect costs

A list of all threats, opportunities and other indirect costs, a description and their cost has been provided in the table below.

Table 35: List of threats and opportunities including description and cost

Category	Description	Amount
Quantity and definition risk	Advisian undertook a detailed assessment of the definition risk to establish our allowance that could reasonably be carried forward as risk of definition and scope contingency in a simulated Tier 1 pricing approach. This analysis is presented in detail in Section 21.6.1 below.	$19,765,653
Design 'growth'	An allowance for design growth that may manifest during construction as either PMO directed or areas of unknown definition.	$2,000,000
Schedule delay risk (Tier 1 Contractor)	An allowance of 6 days per month has been provided for delay caused by weather and its effect on productivity for the offshore works, including rain, wind and swell where these work activities are most exposed. For the onshore works a 3.5 day allowance has been provisioned primarily to allow for weather (wet weather) as the site is valuable to wet weather events specifically. Allowances have been assessed and the provisioned for historically provisions for industrial action both site and industry based.	$12,776,679
General unallocated contingency	It would be usual to allow for general unallocated contingency for the type of works where there are a range of know-unknows and unknown-unknowns. The provision would meet industry normal expectations. Areas for consideration include such things as asbestos removal, ground conditions, general scope and staffing contingencies. As at the time of this Report there was no Asbestos register available, so we believe $5M be allocated for this at Tier 1 Contractor level.	$15,000,000
Forex	An allowance for forex is provided to recognise foreign exchange losses/gains. In this case a negative position on forex has been provisioned to address the potential variability in the offshore works where there resides the most potential exposure, specifically the technical shipping requirements.	$250,000
Opportunities and buying gains	Advisian advises that a net zero position be taken on opportunities, possible buying gains and salvage at this early stage of pricing development. The realisation on any such opportunities are very specifically tied to the timeliness and the true engagement and competitive tension created during a 'real' tender process. Any salvage would be considered zero cost to remove.	$0
Design	Advisian recognises the requirements of the Tier 1 Contractor to undertake design tasks to enable approval and certification beyond any lead-in design that maybe undertaken by a PMO as described in the GHD Report. These include activities to enable pricing (de-risk) and definition, design during construction to	$3,450,000

Category	Description	Amount
	facilitate the works, such as proof engineering of temporary works for an example. It will also be prudent to provision for the certification design and as-built construction for the final works. The allowance provided represents normal consideration of the design effort required of the Tier 1 Contractor.	
Tender/Negotiation and contract close	It must be recognised that a project of this scale and complexity would incur significant tender, negotiation and contract close costs for the Tier 1 Contractors – these costs will far exceed the normal business development provisioning. An allowance is included and be expected to be recovered (reflecting costs) subject to the ultimate procurement method selected.	$700,000
Total threats, opportunities and other indirect costs		**$53,942,332**

21.4 Mark-up

Advisian's approach of a Tier 1 Contractor undertaking the entire works results in the contractor taking on most of the risk. To account for this, Advisian has provisioned for mark-ups based on a realistic transfer of risk and the normal approach undertaken by a Tier 1 Contractor to manage the expectations of mark-ups and margin.

The margin is typically assessed based on a regional and head office cost (corporate overhead), as well as the project margin. Advisian's assessment reflects existing market conservative expectations, based upon the risk and corporate expectations in today's market.

Table 36: List of mark-ups, calculations and values

Category	Calculation	Amount
Branch overhead fee	0.37% of A, B and C totals	$2,000,000
Corporate overhead fee	0.37% of A, B and C totals	$2,000,000
Profit	10.00% of A, B and C totals	$54,000,000
Total mark-ups		**$58,000,000**

21.5 Other mark-ups

The following section explains the additional on-costs and mark-ups that were compiled within the GHD Report. As they relate largely to the costs from DBCTM we have replicated here for comparison with a brief explanation. It is this section that Advisian would require further interaction with GHD and DBCTM to rationalize in the context of our delivery and estimating strategy.

Category	Description	Amount
Lead-in design and planning cost	We have replicated the proposed Lead -in one-off costs attributed to EIS, Stakeholder Engagement and Tug Harbour – whilst we believe these costs are reasonable, we could expect these costs to be higher and have adjusted the Owner's Project management costs and rehabilitation study below to account for this.	$2,000,000
Maintenance monitoring	Provision for the ongoing maintenance and monitoring of the site post completion of rehabilitation. It is assumed that monitoring would be over a 10-year period. The assessment undertaken in the GHD Report appears to be robust and this allowance is considered reasonable. Advisian has adopted the same number for comparison.	$9,250,000
Owners project management cost	Given our estimating approach and delivery method proposed we believe that the Owner's project management costs could be significantly reduced from the nominal 10% of Direct costs as suggested in the GHD Report. We would recommend that a PMO be established to manage the program of works once the procurement and Tier 1 Contractor is established. We believe that this cost is more like 3% of the directs costs plus an allowance for approvals, pre-planning, procurement (tender process) and contract administration, such as reporting etc which in our view is a further 2-3% of the direct costs. However, for comparison we have adopted the nominal 10% on our resulting directs costs in this case.	$50,000,000
Rehabilitation study works	Advisian had adopted and believe prudent given the detailed assessment of the rehabilitation study effort undertaken by GHD. However there appears to be some duplication (by description only in GHD report) such as Lead-in design. However together they sum to a reasonable provision for these element of the works	$13,500,000
Client contingency, includes contract risk total	An allowance of $30,000,000 has been made for the client contingency to allow for any contract cost overruns. Advisian were unable to establish what constituted the 18.7% contingency contained within the GHD Report. Whilst we recognise risk is to be held at the Owners level, 18.7% far exceeds our expectation, and given we have undertaken a risk assessment in the Tier 1 we believe this risk has largely been transferred and provided for. However, again for consistency we have made a provision here for comparison.	$30,000,000
QLeave levy	Portable long service leave levy imposed by State government. Amount is 0.475% of total cost of construction work.	$3,136,832

Category	Description	Amount
Client schedule risk and ground conditions (extension of time claims)	An allowance of 1.3% of the head contract sum has been allowed for the client's schedule risk. This sum is to cover the client's direct costs incurred when an extension of time is granted to the Tier 1 Contractor. This amount is a resultant of Advisian estimate reflecting the GHD allowance we believe this a prudent provision.	$8,585,015
Total other mark-ups		**$116,471,847**

21.6 Risk

The GHD approach to risk is a blanket 25% added to the total cost of the work. The Advisian approach to risk and contingency has been considered and estimated specifically in the following areas as detailed in the following sections. Advisian have defined and assigned risk allowance where it is most likely to be managed in both the Contractor's price and the Owner's costs and has done so based upon a clearer understanding of the potential project risk. The blanket risk approach adopted by GHD may not be an unreasonable allowance, but Advisian were not provided enough detail to enable an assessment of GHD's rationale at the time of this report.

21.6.1 Estimation quantity and definition risk

During the review of documentation and the site visit undertaken, an assessment of the quality of information provided and collected was undertaken. This assessment was quantified into a certainty factor and was a risk value attributed to each of the subsections in the eight Domains.

The certainty factor rules were applied as follows:

- 1% of the direct costs were added to the quantity and definition risk for all subsections that exceeded a certainty factor of 70%
- 2.5% of the direct cost was added to the quantity and definition Risk for subsections with a certainty factor between 40% and 70%, and
- Where the certainty factor was below 40% or no drawings were obtained, 5% of the direct cost for the associated subsection was added to quantity and definition risk value.

Details of this risk assessment can be found in the Definition Risk Analysis tab of the estimate. As a result of this assessment and based upon our estimate we have carried this forward to replicate definition risk if the works were tendered in today's market reflecting an allowance that a Tier 1 Contractor would apply. Of course, thorough investigations and further documentation during the tender phase could mitigate this definition risk, however it would not be completely extinguished, and residual risk would remain surrounding the actual scope of works for any project.

Table 37: Estimate quantity and definition risk development

Domain	Domain Sub Area	DBCT Drawings	Google Maps / Other Online	Site Visit	Expected Unknowns	>70 = 1%	Definition Scope	RESULTANT ($)
Rail Loop	Decommissioning	50%	10%	20%	20%	70%	1%	$22,780
Rail Loop	Catenary & Rail System	10%	40%	30%	20%	40%	2.5 %	$31,439
Rail Loop	RRP, Tunnels & Conveyors	60%	10%	20%	10%	80%	1%	$60,267
Rail Loop	Rehab & Disposal	0%	50%	10%	40%	10%	5%	$3,697,506
Stockyard	Decommissioning	50%	10%	20%	20%	70%	1%	$61,279
Stockyard	Conveyors and Towers	60%	20%	20%	0%	80%	1%	$69,090
Stockyard	Stockyard Bunds	50%	10%	30%	10%	80%	1%	$27,827
Stockyard	Yard Machines	50%	10%	20%	20%	70%	2%	$120,504
Stockyard	Rehab & Disposal	0%	50%	10%	40%	10%	5%	$6,761,556
Seawall	Decommissioning	50%	10%	20%	20%	70%	1%	$29,749
Seawall	Conveyors and Towers	60%	10%	20%	10%	80%	1%	$36,436
Seawall	Hanbars & Armour Rock	0%	50%	20%	30%	20%	5%	$996,327
Seawall	Rehab & Disposal	0%	50%	10%	40%	10%	5%	$114,142
Offshore	Decommissioning	50%	10%	20%	20%	70%	1%	$65,204
Offshore	Jetty and Wharf Structures (incl Piles)	50%	10%	20%	20%	70%	1%	$957,558
Offshore	Shiploaders	50%	10%	20%	20%	70%	1%	$45,348
Offshore	Conveyors and Towers	50%	10%	20%	20%	70%	1%	$88,664
Offshore	Rehab & Disposal	50%	10%	20%	20%	70%	1%	$22,828
Water Management	Decommissioning	0%	40%	30%	25%	30%	5%	$1,061
Water Management	Deconstruction	0%	40%	30%	25%	30%	5%	$10,934
Water Management	Rehab & Disposal	0%	50%	10%	40%	10%	5%	$2,232,916
Quarry Dam	Decommissioning	5%	40%	30%	25%	35%	5%	$282
Quarry Dam	Deconstruction	5%	40%	30%	25%	35%	5%	$3,362
Quarry Dam	Rehab & Disposal	0%	50%	10%	40%	10%	5%	$2,841,060

Domain	Domain Sub Area	DBCT Drawings	Google Maps / Other Online	Site Visit	Expected Unknowns	>70 = 1%	Definition Scope	RESULTANT ($)
Buildings & Workshops	Decommissioning	0%	0%	30%	70%	30%	5%	$20,300
Buildings & Workshops	Deconstruction	0%	30%	30%	40%	30%	5%	$40,939
Buildings & Workshops	Rehab & Disposal	0%	50%	10%	40%	10%	5%	$1,119,200
Utilities	Decommissioning	0%	50%	20%	30%	20%	5%	$5,814
Utilities	Deconstruction	0%	50%	20%	30%	20%	5%	$59,031
Utilities	Rehab & Disposal	0%	50%	10%	40%	10%	5%	$222,252
TOTAL								**$19,765,653**

21.6.2 Asbestos risk

We know there is asbestos on site the site visit confirmed there were stickers; two conduits for cables and some of the buildings. We didn't receive a copy of the register but there is one. We have assigned $5M of the unallocated risk from the Tier 1 Contractor provision. It would be expected that once the Owner's contingency is assigned it too would provision for 'unknown unknowns' such as Asbestos risk that could not be attributed to the Tier 1 contractor allowance in a future contract.

21.6.3 Other contaminated soils

We made assumptions there is no major leak and any sources of major contamination as we cannot confirm any extent prior completing any testing. We have priced the removal of some contaminated material within each of the Domains where required.

22 Preliminary program

A high-level preliminary program has been developed for the direct scope of works to be undertaken.

The critical path for the works is driven through the offshore component of the scope. This is due to the constrained access to work fronts on the jetty area. Following the lead in and tendering process, (not included in the programme). The project extends for six years, excluding the inclement weather contingency and the monitoring and maintenance associated with the works. We recognise that this rehabilitation period along with the GHD's estimate far exceeds the PSA requirements. This will need to be considered and the PSA potentially revised. The constraint is due to the offshore works.
The onshore areas have substantial access to work fronts due to the size of the site and therefore these durations were able to be kept under four years.

A copy of the overall program can be found in Appendix I.

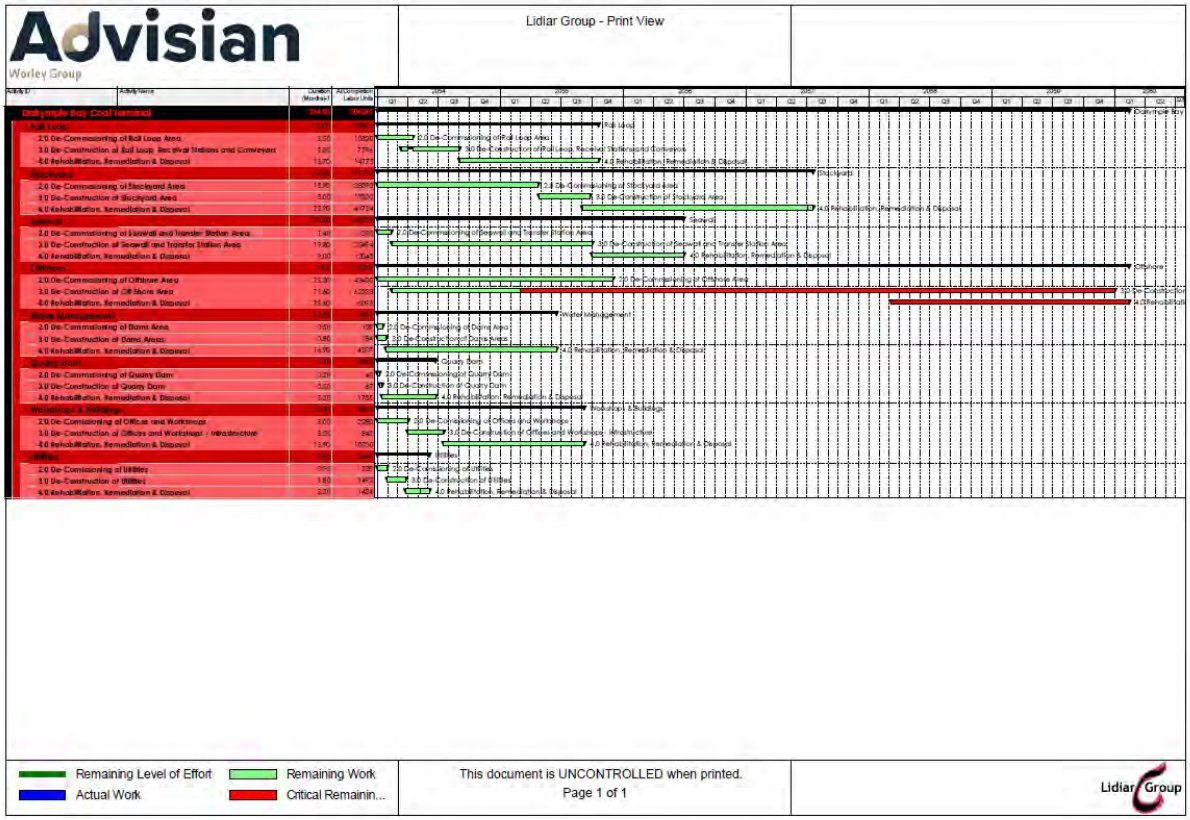


Figure 19: Overall delivery program

23 Estimate assumptions and exclusions

The following assumptions and exclusions support our estimate and report.

Assumptions and exclusions
It is assumed that demolition and rehabilitation will take place at DBCT in its current setup as at the date of this Report – no future expansion has been considered.
DBCT will be fully rehabilitated and land restored to Natural State as defined in this Report. DBCT will not be re-purposed for other activities or the facility repurposed for another commodity.
All shared infrastructure such as substations and the Tug Harbour will no longer have any other end users at the time of demolition (100% of costs sit with DBCT).
It is assumed that at the time of demolition and rehabilitation works all mines in the Bowen Basin utilising DBCT and Hay Point will be at end of life operations also or have alternative measures in place for shipping.
The Goonyella rail network servicing Hay Point and DBCT will be demolished by others balloon loop servicing only DBCT is considered within the estimate.
All lands will be restored to Natural State as defined within this Report (prior to DBCT construction).
Current landform was determined by LIDAR data in 2013 and adjusted with any changes to current format.
Drawings from the 7x Expansion project were utilised to determine quantities for decommissioning and demolition.
It is assumed that any contaminate spills that may have occurred prior to decommissioning are cleaned as an operational cost.
All contaminated waste will be able to be removed to Hogan's Pocket Transfer Station.
All general and demolition waste will be able to be removed to Paget Transfer Station.
It is assumed that all tanks will be emptied to lowest levels and only residual chemicals/fuels/ process items remain.
It is assumed that all asbestos would have been removed from site prior to activities starting on site (provisioned within the contingency).
All items of value like steel/ferrous and other valuable items will be disposed of at no charge (no salvage).
All works areas will be available concurrently.
All material that is to be kept on site is able to be used as clean fill (mainly crushed concrete).
It is assumed that existing access roads will be in place for use for removal of items from Site.
All infrastructure associated with the Tug Harbour will be able to be gifted (as per GHD Report).
All construction water is obtained from site (dams).

Part 4
Appendices

Appendix A
Cost estimate

The full estimate is available in two Excel spreadsheets:

1. **01052020 DBCT estimate V1-Client Active Model** This is a full working version PASSWORD PROTECTED Excel spreadsheet on which Advisian has developed the independent estimate.
2. **01052020 DBCT estimate V1 -Third Party Issue** This is an Excel spreadsheet of Advisian's independent estimate in a format issuable to third parties.

The full working version comprises the following worksheets detailing our estimates:

Cost estimate workbook contents	
Cover	3. Seawall Methods
DBCT Sell Price Compare	4. Jetty & Wharf Estimate
Executive Summary	4. Jetty & Wharf Methods
Direct Cost Summary	5. Water Management Estimate
Information	5. Water Management Methods
Resources Analysis	6. Quarry Dam Estimate
Organisation Chart	6. Quarry Dam Methods
RFI Register	7. Offices & Workshops Estimate
Definition Risk Analysis	7. Offices & Workshops Methods
Estimate Detail	8. Utilities Estimate
1. Rail Loop Estimate	8. Utilities Methods
1. Rail Loop Methods	9. Tug Harbour Estimate
2. Stockyard Estimate	9. Tug Harbour Methods
2. Stockyard Methods	Data
3. Seawall Estimate	

Asset name: DBCT - Rail Loop & Receival Conveyors

#	Type	Direct Cost Schedule	Quantity	Quantity (Risk)	Qty Units	Production Rate	Productivity (Risk)	Pr Units	Utilisation	Total Resource Quantity	Res Qty Units	Resource Rate	Plant Cost	Material Cost	Labour Cost	Disposal Cost	Total Cost
1.0 Site Establishment													$ -	$ -	$ -	$ -	$ -
1.01		**Site establishment for DBCT Decommissioning and Deconstruction**	1	1		1	1	#N/A					$ -	$ -	$ -	$ -	$ -
2.0 Decommissioning of Rail Loop Area													**$ 1,281,075.51**	**$ 15,503.16**	**$ 981,403.00**	**$ -**	**$ 2,277,981.67**
2.01		**Chemical sweep of RRP 1,2,3**	160	360	hrs	1	1	N/A					$ 6,415.53	$ 1,107.37	$ 21,673.71	$ -	$ 29,196.61
1	L	Labour A	4	40	#		1		100%	160.0	hr	$ 93.51			$ 14,960.99		$ 14,960.99
2	P	Elevated Work Platform	4	40	#		1		25%	40.0	hr	$ 133.81	$ 5,352.25				$ 5,352.25
3	M	Consumables 2	1	1	unit		1		100%	1.0	each	$ 1,107.37		$ 1,107.37			$ 1,107.37
4	P	Forklift (2-3t)	1	160	#		1		50%	80.0	hr	$ 13.29	$ 1,063.07				$ 1,063.07
5	L	Labour C	1	160	#		1		50%	80.0	hr	$ 83.97			$ 6,717.74		$ 6,717.74
2.02		**Removal of Universal Wastes (Lighting, ODS, Mercury, Radioactive Devices)**	120	120	hrs	1	1	N/A					$ 8,821.68	$ 5,536.84	$ 16,259.05	$ -	$ 30,621.58
1	L	Labour B	2	80	#		1		100%	120.0	hr	$ 93.51			$ 11,220.74		$ 11,220.74
2	P	Elevated Work Platform	2	60	#		1		50%	60.0	hr	$ 133.81	$ 8,028.38				$ 8,028.38
3	M	Consumables 5	1	1	unit		1		100%	1.0	each	$ 5,536.84		$ 5,536.84			$ 5,536.84
4	P	Forklift (2-3t)	1	120	#		1		50%	60.0	hr	$ 13.29	$ 797.31				$ 797.31
5	L	Labour C	1	120	#		1		50%	60.0	hr	$ 83.97			$ 5,038.31		$ 5,038.31
2.03		**Draining of Equipment Oils**	80	80	hrs	1	1	N/A					$ 12,938.94	$ 5,536.84	$ 10,835.37	$ -	$ 29,315.15
1	L	Labour A	2	40	#		1		100%	80.0	hr	$ 93.51			$ 7,480.50		$ 7,480.50
2	M	Consumables 6	1	1	unit		1		100%	1.0	each	$ 5,536.84		$ 5,536.84			$ 5,536.84
3	P	Suck up waste truck	1	40.0	#		1		100%	40.0	hr	$ 237.32	$ 9,492.81				$ 9,492.81
4	L	Labour C	1	40.0	#		1		100%	40.0	hr	$ 83.97			$ 3,358.87		$ 3,358.87
5	P	Mobile Pumping Unit	1	8.0	#		1		100%	8.0	Day	$ 320.03	$ 2,560.24				$ 2,560.24
6	P	Waste Storage Container	1	8.0	#		1		100%	8.0	Day	$ 110.74	$ 885.89				$ 885.89
2.04		**Cleaning of Elevated/Enclosed Conveyors**			hrs	1	1	N/A					$ 292,536.35	$ -	$ 130,909.69	$ -	$ 423,445.04
1	L	Labour B	10	140.00	#		1		100%	1400.0	hr	$ 93.51			$ 130,908.69		$ 130,908.69
2	P	High Pressure Cleaner	10	14.00	#		1		100%	140.0	Day	$ 276.84	$ 38,757.90				$ 38,757.90
3	P	Elevated Work Platform	10	140	#		1		100%	1400.0	hr	$ 133.81	$ 187,328.80				$ 187,328.80
4	P	Suck up waste truck	2	140.00	#		1		100%	280.0	hr	$ 237.32	$ 66,449.65				$ 66,449.65
2.05		**Cleaning of Ground Level/Enclosed**			hrs	1	1	N/A					$ 639,231.27	$ -	$ 420,777.03	$ -	$ 1,060,008.29
1	L	Labour B	10	4500.0	#		1		100%	4500.0	hr	$ 93.51			$ 420,777.03		$ 420,777.03
2	P	High Pressure Cleaner	10	45.00	#		1		100%	450.0	Day	$ 276.84	$ 124,578.07				$ 124,578.07
3	P	Elevated Work Platform	10	450	#		1		50%	2250.0	hr	$ 133.81	$ 301,064.14				$ 301,064.14
4	P	Suck up waste truck	2	450.00	#		1		100%	900.0	hr	$ 237.32	$ 213,588.15				$ 213,588.15
2.06		**Conveyor De-Tensioning Elevated/Enclosed Conveyors**			hrs	1	1	N/A					$ 5,352.25	$ 1,107.37	$ 4,066.26	$ -	$ 10,525.88
1	L	Labour A	4	10	#		1		100%	40.0	hr	$ 101.66			$ 4,066.26		$ 4,066.26
2	P	Elevated Work Platform	4	10	#		1		100%	40.0	hr	$ 133.81	$ 5,352.25				$ 5,352.25
3	M	Consumables 2	1	1	unit		1		100%	1.0	each	$ 1,107.37		$ 1,107.37			$ 1,107.37
2.07		**Conveyor De-Tensioning Ground Level/Enclosed Conveyors**			hrs	1	1	N/A					$ 4,014.19	$ 2,214.74	$ 12,198.77	$ -	$ 18,427.70
1	L	Labour A	4	20	#		1		100%	120.0	hr	$ 101.66			$ 12,198.77		$ 12,198.77
2	P	Elevated Work Platform	4	30	#		1		25%	30.0	hr	$ 133.81	$ 4,014.19				$ 4,014.19
3	M	Consumables 3	1	1	unit		1		100%	1.0	each	$ 2,214.74		$ 2,214.74			$ 2,214.74
2.08		**Cleaning of RRP 1, 2, 3 Pits**			hrs	1	1	N/A					$ 254,603.41	$ -	$ 280,518.62	$ -	$ 535,122.03
1	L	Labour B	10	3200.00	#		1		100%	3000.0	hr	$ 93.51			$ 280,518.62		$ 280,518.62
2	P	High Pressure Cleaner	10	30.00	#		1		100%	300.0	Day	$ 276.84	$ 83,052.65				$ 83,052.65
3	P	Elevated Work Platform	10	300	#		1		25%	750.0	hr	$ 133.81	$ 100,354.71				$ 100,354.71
4	P	Suck up waste truck	1	300.00	#		1		100%	300.0	hr	$ 237.32	$ 71,196.05				$ 71,196.05
2.09		**Cleaning of Drive/Transfer Towers**			hrs	1	1	N/A					$ 57,158.09	$ -	$ 84,155.59	$ -	$ 141,313.68
1	L	Labour B	10	60.00	#		1		100%	900.0	hr	$ 93.51			$ 84,155.59		$ 84,155.59
2	P	High Pressure Cleaner	10	9.00	#		1		100%	90.0	Day	$ 276.84	$ 24,915.79				$ 24,915.79
3	P	Elevated Work Platform	10	90	#		1		25%	225.0	hr	$ 133.81	$ 30,106.41				$ 30,106.41
4	P	Suck up waste truck	1	9.00	#		1		100%	9.0	hr	$ 237.32	$ 2,135.88				$ 2,135.88
2.10		**Type 1 (1000 PCA) Abatement - RRP 1, 2, 3 Superstructures**	0		hrs	1	1	N/A		-			$ -	$ -	$ -	$ -	$ -
2.0 Deconstruction of Rail Loop, Receival Stations and Co													**$ 4,880,605.94**	**$ 1,436,179.84**	**$ 967,496.30**	**$ -**	**$ 7,284,282.18**
2.01		**Demolition of RRP 1, 2, 3 Superstructures**			hrs	1	1						$ 211,350.15	$ 27,684.22	$ 46,300.00	$ -	$ 285,334.37
1	P	100T Mobile Crane	1	204	#		1		50%	102.0	hr	$ 472.64	$ 48,208.07				$ 48,208.07
2	P	Elevated Work Platform	4	134	#		1		25%	133.9	hr	$ 133.81	$ 17,920.70				$ 17,920.70
3	P	30T Excavator (with Demolition Jaws)	1	536	#		1		50%	267.9	hr	$ 295.70	$ 79,206.79				$ 79,206.79
4	P	30T Excavator (with Grapple)	1	210	#		1		100%	210.5	hr	$ 251.35	$ 52,901.00				$ 52,901.00
5	L	Labour A	4	134	#		1		50%	267.9	hr	$ 101.66			$ 27,228.73		$ 27,228.73
6	L	Labour B	1	204	#		1		100%	204.0	hr	$ 93.51			$ 19,075.27		$ 19,075.27
7	P	Water Cart	1	134	#		1		25%	33.5	hr	$ 166.32	$ 5,568.74				$ 5,568.74
8	M	Consumables 5	1	1	unit	1.0	1.0		100%	1.0	each	$ 5,536.84		$ 27,684.22			$ 27,684.22
2.02		**Removal of Equipment from RRP1, 2, 3**			hrs	1	1						$ 227,928.75	$ 27,684.22	$ 63,901.44	$ -	$ 319,514.41
1	P	100T Mobile Crane	1	268	#		1		50%	195.0	hr	$ 472.64	$ 92,164.02				$ 92,164.02
2	P	Elevated Work Platform	4	135	#		1		25%	134.9	hr	$ 133.81	$ 18,055.15				$ 18,055.15
3	P	30T Excavator (with Demolition Jaws)	1	540	#		1		50%	269.9	hr	$ 295.70	$ 79,801.03				$ 79,801.03
4	P	30T Excavator (with Grapple)	1	129	#		1		100%	128.5	hr	$ 251.35	$ 32,298.02				$ 32,298.02
5	L	Labour A	4	135	#		1		50%	269.9	hr	$ 101.66			$ 27,434.02		$ 27,434.02
6	L	Labour B	1	390	#		1		100%	390.0	hr	$ 93.51			$ 36,467.42		$ 36,467.42
7	P	Water Cart	1	135	#		1		25%	33.7	hr	$ 166.32	$ 5,610.52				$ 5,610.52
8	M	Consumables 5	1	1	unit	1.0	1.0		100%	1.0	each	$ 5,536.84		$ 27,684.22			$ 27,684.22
2.03		**Demolition of RRP 1, 2, 3 Substructures**	61,541.3	61,541	m3	2.2	2.2						$ 1,553,519.61	$ 55,368.41	$ 249,407.59	$ -	$ 1,858,295.62
1	P	30T Excavator	1	6534	#	2.2	2.2		100%	2970.1	hr	$ 229.26	$ 680,922.23				$ 680,922.23
2	P	Water Cart	1	6534	#	2.2	2.2		50%	1485.1	hr	$ 166.32	$ 246,993.13				$ 246,993.13
3	P	Hydraulic Hammer / Rock Saw - 36T to 50T	1	6534	#	2.2	2.2		50%	1485.1	hr	$ 236.38	$ 351,038.79				$ 351,038.79
4	P	Jackhammer and hoses	1	6534	#	2.2	2.2		50%	1485.1	hr	$ 184.88	$ 274,553.31				$ 274,553.31
5	L	Labour C	4	1634	#	2.2	2.2		100%	2970.1	hr	$ 83.97			$ 249,407.59		$ 249,407.59
6	M	Consumables 5	10	10	unit	1.0	1.0		100%	10.0	each	$ 5,536.84		$ 55,368.41			$ 55,368.41
2.04		**Explosives for Demolition of RRP 1, 2, 3**			hrs	1	1						$ -	$ -	$ -	$ -	$ -
2.05		**Backfilling of RRP 1, 2, 3 Substructure and**	24473.3	24473	m3/hr	1	1	115					$ 217,211.29	$ -	$ 35,740.27	$ -	$ 252,951.56
1	P	Loader	1	24473	#	115	115		100%	212.8	hr	$ 217.61	$ 46,310.46				$ 46,310.46
2	P	D8 bulldozer	1	24473	#	115	115		100%	212.8	hr	$ 348.40	$ 74,155.91				$ 74,155.91
3	P	Water Cart	1	24473	#	115	115		50%	106.4	hr	$ 166.32	$ 17,697.14				$ 17,697.14
4	P	Backhoe	1	24473	#	115	115		50%	106.4	hr	$ 143.45	$ 15,261.91				$ 15,261.91
5	P	Smooth Drum Roller	1	24473	#	115	115		50%	106.4	hr	$ 157.85	$ 16,795.77				$ 16,795.77
6	P	Tipper Truck	1	24473	#	115	115		100%	212.8	hr	$ 220.47	$ 46,960.07				$ 46,960.07
7	L	Labour C	2	24473	#	115	115		100%	425.6	hr	$ 83.97			$ 35,740.27		$ 35,740.27
3.06		**Imported fill for RRP 1, 2, 3 Void**	24473.3	24473	hrs	1	1	#N/A					$ -	$ 1,187,022.00	$ -	$ -	$ 1,187,022.00
1	M	Topsoil / General Fill Supply	1	24473	#		1		100%	24473.3	m3	$ 48.50		$ 1,187,022.00			$ 1,187,022.00
3.07		**Demolition of Ground Module Conveyors**			hrs	1	1						$ 256,410.13	$ 11,073.69	$ 68,547.05	$ -	$ 336,030.86
1	P	100T Mobile Crane	1	237	#		1		50%	118.5	hr	$ 472.64	$ 56,007.37				$ 56,007.37
2	P	Elevated Work Platform	4	228	#		1		25%	228.2	hr	$ 133.81	$ 30,528.06				$ 30,528.06
3	P	30T Excavator (with Demolition Jaws)	1	913	#		1		50%	456.3	hr	$ 295.70	$ 134,929.42				$ 134,929.42
4	P	30T Excavator (with Grapple)	1	101	#		1		50%	101.3	hr	$ 251.35	$ 25,458.89				$ 25,458.89
5	L	Labour A	4	228	#		1		50%	456.3	hr	$ 101.66			$ 46,386.08		$ 46,386.08
6	L	Labour B	1	237	#		1		100%	237.0	hr	$ 93.51			$ 22,160.97		$ 22,160.97
7	P	Water Cart	1	228	#		1		25%	57.0	hr	$ 166.32	$ 9,486.40				$ 9,486.40
8	M	Consumables 5	2	2	unit	1.0	1.0		100%	2.0	each	$ 5,536.84		$ 11,073.69			$ 11,073.69
3.08		**Demolition of Conveyor Tunnels**	2314.7	2315	m3	2.2	2.2						$ 1,151,402.27	$ 44,294.74	$ 166,683.76	$ -	$ 1,362,440.77
1	P	30T Excavator	1	2315	#		2.2		100%	1052.1	hr	$ 229.26	$ 241,215.26				$ 241,215.26
2	P	Water Cart	1	2315	#		2.2		50%	526.1	hr	$ 166.32	$ 87,495.52				$ 87,495.52
3	P	Hydraulic Hammer / Rock Saw - 36T to 50T	1	2315	#		2.2		50%	526.1	hr	$ 236.38	$ 124,352.94				$ 124,352.94
4	P	Jackhammer and hoses	1	2315	#		2.2		50%	526.1	hr	$ 184.88	$ 97,259.23				$ 97,259.23
5	L	Labour C	4	579	#		2.2		100%	1052.1	hr	$ 83.97			$ 88,350.83		$ 88,350.83
6	M	Consumables 5	5	5	unit	1.0	1.0		100%	5.0	each	$ 5,536.84		$ 27,684.22			$ 27,684.22
7	P	30T Excavator	1	2052	#	2.20	2.20		100%	932.8	hr	$ 229.26	$ 213,864.50				$ 213,864.50
8	P	Water Cart	1	2052	#	2.20	2.20		50%	466.4	hr	$ 166.32	$ 77,574.61				$ 77,574.61
9	P	Hydraulic Hammer / Rock Saw - 36T to 50T	1	2052	#	2.20	2.20		50%	466.4	hr	$ 236.38	$ 110,252.85				$ 110,252.85
10	P	Jackhammer and hoses	1	2052	#	2.20	2.20		50%	466.4	hr	$ 184.88	$ 86,231.23				$ 86,231.23
11	L	Labour C	4	513	#	2.20	2.20		100%	932.8	hr	$ 83.97			$ 78,332.93		$ 78,332.93
12	M	Consumables 5	3	3	unit	1.0	1.00		100%	3.0	each	$ 5,536.84		$ 16,610.52			$ 16,610.52
13	P	Tipper Truck	1	2052	#	1.00	1.00		25%	513.1	hr	$ 220.47	$ 113,216.03				$ 113,216.03
3.09		**Demolition of Drive/Transfer Towers**			hrs	1	1						$ 124,203.04	$ 27,684.22	$ 25,066.88	$ -	$ 177,020.14
1	P	100T Mobile Crane	1	90	#		1		50%	45.0	hr	$ 472.64	$ 21,268.62				$ 21,268.62
2	P	Elevated Work Platform	4	82	#		1		50%	163.8	hr	$ 133.81	$ 21,917.47				$ 21,917.47
3	P	30T Excavator (with Demolition Jaws)	1	328	#		1		50%	163.8	hr	$ 295.70	$ 48,435.95				$ 48,435.95
4	P	30T Excavator (with Grapple)	1	116	#		1		100%	116.2	hr	$ 251.35	$ 29,241.65				$ 29,241.65
5	L	Labour A	4	82	#		1		50%	163.8	hr	$ 101.66			$ 16,651.32		$ 16,651.32
6	L	Labour B	1	90	#		1		100%	90.0	hr	$ 93.51			$ 8,415.56		$ 8,415.56
7	P	Water Cart	1	82	#		1		25%	20.5	hr	$ 166.32	$ 3,405.36				$ 3,405.36
8	M	Consumables 5	5	5	unit	1.0	1.0		100%	5.0	each	$ 5,536.84		$ 27,684.22			$ 27,684.22
3.10		**Demolition of Rail Loop**			hrs	1	1	#N/A					$ 927,140.30	$ 44,294.74	$ 286,142.98	$ -	$ 1,257,578.03
1	L	Labour A	4	41	#		1		100%	164.8	hr	$ 101.66			$ 16,752.98		$ 16,752.98
2	P	Elevated Work Platform	4	41	#		1		100%	164.0	hr	$ 133.81	$ 22,051.28				$ 22,051.28
3	L	Labour D	4	41	#		1		100%	164.8	hr	$ 77.40			$ 12,760.00		$ 12,760.00
4	M	Consumables 5	1	1	unit		1		100%	1.0	each	$ 5,536.84		$ 5,536.84			$ 5,536.84
5	L	Labour A	4	19	#		1		100%	75.0	hr	$ 101.66			$ 7,624.23		$ 7,624.23
6	P	Elevated Work Platform	4	19	#		1		100%	75.0	hr	$ 133.81	$ 10,035.47				$ 10,035.47
7	L	Labour D	4	19	#		1		100%	75.0	hr	$ 77.40			$ 5,807.04		$ 5,807.04
8	P	357 Mobile Crane	1	19	#		1		100%	18.8	hr	$ 185.46	$ 3,484.79				$ 3,484.79
9	M	Consumables 5	1	1	unit		1		100%	1.0	each	$ 5,536.84		$ 5,536.84			$ 5,536.84
10	L	Labour A	4	110	#		1		100%	440.0	hr	$ 101.66			$ 44,728.83		$ 44,728.83
11	L	Labour D	4	110	#		1		100%	440.0	hr	$ 77.40			$ 34,067.97		$ 34,067.97
12	M	Consumables 5	1	1	unit		1		100%	1.0	each	$ 5,536.84		$ 5,536.84			$ 5,536.84
13	P	830 Loader	1	83200	#	50	50		100%	1664.0	hr	$ 282.59	$ 470,232.11				$ 470,232.11
14	L	Labour D	1	83200	#	50	50		100%	1664.0	hr	$ 77.40			$ 128,838.88		$ 128,838.88
15	P	Truck and Dog	1	83200	#	50	50		100%	1664.0	hr	$ 194.05	$ 322,819.20				$ 322,819.20
16	L	Labour A	4	27	#		1		100%	147.8	hr	$ 101.66			$ 15,028.21		$ 15,028.21
17	P	Elevated Work Platform	4	27	#		1		100%	147.8	hr	$ 133.81	$ 19,781.03				$ 19,781.03
18	P	100T Mobile Crane	1	70	#		1		100%	70.0	hr	$ 472.64	$ 33,084.52				$ 33,084.52
19	L	Labour D	1	70	#		1		100%	70.0	hr	$ 77.40			$ 5,419.90		$ 5,419.90
20	M	Consumables 5	1	1	unit		1		100%	1.0	each	$ 5,536.84		$ 5,536.84			$ 5,536.84
21	P	30T Excavator	1	114	#		1		100%	114.0	hr	$ 229.26	$ 26,135.40				$ 26,135.40
22	L	Labour C	1	114	#		1		100%	114.0	hr	$ 83.97			$ 9,572.78		$ 9,572.78
23	P	30T Excavator (with Demolition Jaws)	1	66	#		1		100%	66.0	hr	$ 295.70	$ 19,516.32				$ 19,516.32
24	L	Labour C	1	66	#		1		100%	66.0	hr	$ 83.97			$ 5,542.14		$ 5,542.14
25	M	Consumables 5	4	4	unit	1	1		100%	4.0	each	$ 5,536.84		$ 22,147.37			$ 22,147.37
3.11		**Demolition of Hay Point Road Underpass**															
3.12		**Demolition of Footings - Conveyors, Drive**			hrs	1	1	#N/A					$ 56,217.52	$ 11,073.69	$ 7,324.78	$ -	$ 74,615.98
1	P	30T Excavator	1	192	#	2.20	2.20		100%	87.2	hr	$ 229.26	$ 19,998.11				$ 19,998.11
2	P	Water Cart	1	192	#	2.20	2.20		50%	43.6	hr	$ 166.32	$ 7,253.87				$ 7,253.87
3	P	Hydraulic Hammer / Rock Saw - 36T to 50T	1	192	#	2.20	2.20		50%	43.6	hr	$ 236.38	$ 10,309.56				$ 10,309.56
4	P	Jackhammer and hoses	1	192	#	2.20	2.20		50%	43.6	hr	$ 184.88	$ 8,063.34				$ 8,063.34
5	L	Labour C	4	48	#	2.20	2.20		100%	87.2	hr	$ 83.97			$ 7,324.78		$ 7,324.78
6	M	Consumables 5	2	2	unit	1.0	1.00		100%	2.0	each	$ 5,536.84		$ 11,073.69			$ 11,073.69
7	P	Tipper Truck	1	192	#	1.00	1.00		25%	48.0	hr	$ 220.47	$ 10,586.64				$ 10,586.64
3.13		**Crushing of concrete to 100mm minus**	529.4	529	hrs	1	1	#N/A					$ 162,646.95	$ -	$ 18,376.54	$ -	$ 181,023.49
1	L	Crusher Hire	1	109	#		1		100%	109.4	hr	$ 376.60	$ 41,197.57				$ 41,197.57
2	P	Tracked Screening Plant	1	2	#		1		100%	2.0	Week	$ 11,073.65	$ 22,147.37				$ 22,147.37
3	P	30T Excavator	1	109	#		1		100%	109.4	hr	$ 229.26	$ 25,085.81				$ 25,085.81
4	L	Labour C	2	109	#		1		100%	218.8	hr	$ 83.97			$ 18,376.54		$ 18,376.54
5	P	30T Excavator	1	1703	#		12		100%	141.9	hr	$ 229.26	$ 32,528.28				$ 32,528.28
6	P	Truck and Dog	1	1703	#		12		100%	141.9	hr	$ 194.05	$ 27,525.77				$ 27,525.77
7	P	Truck and Dog	73	73	Trips	1.00	1	hrs/trip	100%	73.0	hr	$ 194.05	$ 14,162.14				$ 14,162.14
4.0 Rehabilitation, Demolition & Disposal													**$ 8,985,896.94**	**$ 13,367,309.09**	**$ 861,660.75**	**$ 50,735,247.88**	**$ 73,950,114.65**
4.01		**Rail Loop**		1		1	1						$ 2,147,429.8	$ 1,107.37	$ 24,760.98	$ 45,522,124.01	$ 47,695,421.61
1	P	30T Excavator (with Demolition Jaws)	1	230	#	20	20		100%	115	hr	$ 295.70	$ 3,406.48				$ 3,406.48
2	L	Labour D	1	230	#	20	20		100%	115	hr	$ 77.40			$ 891.96		$ 891.96
3	P	Tipper Truck	1	230	#	20	20		100%	115	hr	$ 220.67	$ 2,542.06				$ 2,542.06
4	P	Tipper Truck	12	1	trips	1.0	1.0	hrs/trip	100%	12.0	hr	$ 220.47	$ 2,647.38				$ 2,647.38
5	D	Construction & Demolition Waste	0	1	#	1	1.0		100%	0.0	T	$ 208.38				$ -	$ -
6	P	30T Excavator (with Demolition Jaws)	1	45	#	20	20		100%	2.3	hr	$ 295.70	$ 665.33				$ 665.33
7	L	Labour D	1	45	#	20	20		100%	2.3	hr	$ 77.40			$ 174.21		$ 174.21
8	P	Tipper Truck	1	45	#	20	20		100%	2.3	hr	$ 220.67	$ 496.50				$ 496.50
9	P	Tipper Truck	3	1	trips	1.0	1.0	hrs/trip	100%	3.0	hr	$ 220.67	$ 662.00				$ 662.00
10	P	30T Excavator (with Demolition Jaws)	1	1362	#	20	20		100%	68.1	hr	$ 295.70	$ 20,140.84				$ 20,140.84
11	L	Labour D	1	1362	#	20	20		100%	68.1	hr	$ 77.40			$ 5,273.72		$ 5,273.72
12	P	Tipper Truck	1	1362	#	20	20		100%	68.1	hr	$ 220.67	$ 15,029.96				$ 15,029.96
13	P	Tipper Truck	69	1	trips	1.0	1.0	hrs/trip	100%	69.0	hr	$ 220.67	$ 15,225.91				$ 15,225.91
14	P	30T Excavator (with Demolition Jaws)	1	1688	#	12	12		100%	140.7	hr	$ 295.70	$ 41,595.38				$ 41,595.38
15	L	Labour D	1	1688	#	12	12		100%	140.7	hr	$ 77.40			$ 10,891.43		$ 10,891.43
16	P	Tipper Truck	1	1688	#	12	12		100%	140.7	hr	$ 220.67	$ 31,040.26				$ 31,040.26
17	P	Tipper Truck	85	1	trips	2.5	2.5	hrs/trip	100%	212.5	hr	$ 220.67	$ 46,891.39				$ 46,891.39
18	D	Contaminated Material disposal	4136	1	#	1	1.0		100%	4135.6	T	$ 350.10				$ 1,448,829.54	$ 1,448,829.54

19	P	Truck and Dog	3541	1	trips	2.5	2.5	hrs/trip	100%	8852.5	hr	$	194.00	$	1,717,402.01						$	1,717,402.01
20	D	Contaminated Material disposal	116480	1	#	1	1.0		100%	116480.0	T	$	350.33							$ 40,806,573.90	$	40,806,573.90
21	P	30T Excavator (with Demolition Jaws)	1	22	#		1		100%	22.0	hr	$	295.70	$	11,298.53						$	21,298.53
22	L	Labour D	1	7.2	#		1		100%	72.0	hr	$	77.43				$ 5,574.76				$	5,574.76
23	P	Tipper Truck	1	142	#		3		100%	142.0	hr	$	220.67	$	31,334.48						$	31,334.48
24	P	Tipper Truck	14	1	trips	1.0	1.0	hrs/trip	100%	13.5	hr	$	220.67	$	2,978.98						$	2,978.98
25	D	Construction & Demolition Waste	315	1	#	1	1.0		100%	315.0	T	$	208.28							$ 65,641.78	$	65,641.78
26	P	Truck and Dog	1	114	#		1		100%	114.0	hr	$	194.00	$	22,116.22						$	22,116.22
27	P	Truck and Dog	243	1	trips	2.5	2.5	hrs/trip	100%	607.5	hr	$	194.00	$	117,856.17						$	117,856.17
28	D	Contaminated Soil Disposal	9120	1	#	1	1.0		100%	9120.0	T	$	350.33							$ 3,195,020.21	$	3,195,020.21
29	P	Suck up waste truck	2	1	trips	2.5	2.5	hrs/trip	100%	5.0	hr	$	237.32	$	1,186.60						$	1,186.60
30	D	Contaminated Soil Disposal	17	1	#	1	1.0		100%	17.3	T	$	350.33							$ 6,059.33	$	6,059.33
31	P	30T Excavator	1	258	#	12	12		100%	21.5	hr	$	229.26	$	4,919.96						$	4,919.96
32	P	Truck and Dog	1	21	#	1.0	1		100%	21.5	hr	$	194.00	$	4,163.32						$	4,163.32
33	P	Truck and Dog	16	16	Trips	0.25	0	hrs/trip	100%	4.0	hr	$	194.00	$	774.01						$	774.01
34	P	Bobcat	1	7721	#	50	50		100%	154.5	hr	$	143.43	$	22,165.89						$	22,165.89
35	L	Labour C	2	7721	#	50	50		100%	309.1	hr	$	83.97				$ 25,953.99				$	25,953.99
36	M	Consumables 1	2	2	unit	1	1	Na	100%	2.0	each	$	553.68			$ 1,107.37					$	1,107.37
37	P	Truck and Dog	1	155	#	1.0	1		100%	154.5	hr	$	194.00	$	29,981.06						$	29,981.06
38	P	Truck and Dog	5	5	Trips	1.00	1	hrs/trip	100%	5.0	hr	$	194.00	$	970.01						$	970.01
4.02		**Receival Stations**		1		1	1							$	666,103.54	$ 16,610.51	$ 32,895.94	$ 4,515,037.84	$	5,230,647.65
1	P	Semi Trailer Truck	1	210	#		1		100%	210.5	hr	$	188.02	$	39,572.62						$	39,572.62
2	P	Semi Trailer Truck	9	9	trips	1.00	1	hrs/trip	100%	9.0	hr	$	188.02	$	1,692.18						$	1,692.18
3	D	Construction & Demolition Waste	60	1	#	1	1		100%	60.0	T	$	208.28							$ 12,503.20	$	12,503.20
1	P	Semi Trailer Truck	32	32	trips	1.00	1	hrs/trip	100%	32.0	hr	$	188.02	$	6,016.64						$	6,016.64
2	P	Suck up waste truck	1	1	trips	2.50	3	hrs/trip	100%	2.5	hr	$	237.32	$	593.30						$	593.30
3	D	Construction & Demolition Waste	5	1	#	1	1		100%	5.0	T	$	208.28							$ 1,041.93	$	1,041.93
4	D	Contaminated Soil Disposal	10	1	#	1	1		100%	10.0	T	$	350.33							$ 3,503.31	$	3,503.31
5	P	30T Excavator	1	6524	#	12.0	12		100%	544.5	hr	$	229.26	$	124,837.60						$	124,837.60
6	P	Truck and Dog	1	6524	#	12.0	12		100%	544.5	hr	$	194.00	$	105,638.90						$	105,638.90
7	P	Truck and Dog	397	397	Trips	0.25	0	hrs/trip	100%	99.2	hr	$	194.00	$	19,254.69						$	19,254.69
8	P	30T Excavator	1	140	#	1.0	1		100%	140.0	hr	$	229.26	$	32,096.35						$	32,096.35
9	P	Water Cart	1	140	#	1.0	1		25%	35.0	hr	$	166.32	$	5,821.12						$	5,821.12
10	P	Hydraulic Hammer / Rock Saw - 36T to 50T	1	140	#	1.0	1		50%	70.0	hr	$	236.38	$	16,546.52						$	16,546.52
11	P	Jackhammer and hoses	1	140	#	1.0	1		50%	70.0	hr	$	184.88	$	12,941.41						$	12,941.41
12	L	Labour C	1	140	#	1.0	1		100%	140.0	hr	$	83.97				$ 11,756.05				$	11,756.05
13	M	Consumables 5	3	3	unit	1.0	1		100%	3.0	each	$	5,536.84			$ 16,610.51					$	16,610.51
14	P	30T Excavator	1	91	#	1.0	1		100%	90.8	hr	$	229.26	$	20,824.42						$	20,824.42
15	P	Truck and Dog	1	91	#	1.0	1		100%	90.8	hr	$	194.00	$	17,621.84						$	17,621.84
16	P	Truck and Dog	67	67	Trips	0.25	0	hrs/trip	100%	16.8	hr	$	194.00	$	3,249.53						$	3,249.53
17	P	D8 bulldozer	1	7551	#	75	75	m3/hr	100%	150.7	hr	$	348.60	$	25,102.98						$	25,102.98
18	P	Water Cart	1	7551	#	75	75	m3/hr	25%	25.2	hr	$	166.32	$	4,187.05						$	4,187.05
19	L	Labour C	1	7551	#	75	75	m3/hr	100%	150.7	hr	$	83.97				$ 8,455.96				$	8,455.96
20	P	30T Excavator	1	7551	#	50	50		100%	151.1	hr	$	229.26	$	34,629.67						$	34,629.67
21	L	Labour C	1	7551	#	50	50		100%	151.1	hr	$	83.97				$ 12,683.93				$	12,683.93
22	P	Truck and Dog	1	7551	#	50	50		100%	151.1	hr	$	194.00	$	29,303.99						$	29,303.99
23	P	Truck and Dog	322	322.0	Trips	2.50	2.50	hrs/trip	100%	805.0	hr	$	194.00	$	156,171.55						$	156,171.55
24	D	Contaminated Soil Disposal	12828	1	#	1	1		100%	12839.3	T	$	350.33							$ 4,497,989.35	$	4,497,989.35
4.03		**Materials Handling**	0	1		1	m3/hr							$	341,890.46	$ -	$ -	$ 698,085.18	$	1,041,975.64
1	P	Tipper Truck	1	120.00	#		1		50%	60.0	hr	$	220.67	$	13,239.92						$	13,239.92
2	D	Category 2 - Regulated Waste	1	10.00	#		1		100%	10.0	T	$	385.37							$ 3,855.66	$	3,855.66
3	P	Tipper Truck	1	1	trips	2.5	2.50	hrs/trip	100%	2.5	hr	$	220.67	$	551.66						$	551.66
4	P	Suck up waste truck	5	5	trips	2.5	2.50	hrs/trip	100%	12.5	hr	$	237.32	$	2,966.50						$	2,966.50
5	D	Contaminated Material disposal	1	50.00	#		1.00		100%	50.0	T	$	350.33							$ 17,516.56	$	17,516.56
6	P	Suck up waste truck	28	28	trips	2.5	2.50	hrs/trip	100%	70.0	hr	$	237.32	$	16,612.41						$	16,612.41
7	D	Contaminated Material disposal	1	334.00	#		1.00		100%	334.0	T	$	350.33							$ 117,711.21	$	117,711.21
8	P	Suck up waste truck	90	90	trips	2.5	2.50	hrs/trip	100%	225.0	hr	$	237.32	$	53,397.04						$	53,397.04
9	D	Contaminated Material disposal	1	1080.00	#		1.00		100%	1080.0	T	$	350.33							$ 378,357.66	$	378,357.66
10	P	Suck up waste truck	30	30	trips	2.5	2.50	hrs/trip	100%	75.0	hr	$	237.32	$	17,799.01						$	17,799.01
11	D	Contaminated Material disposal	360	1	#		1.00		100%	360.0	T	$	350.33							$ 126,119.22	$	126,119.22
12	P	Suck up waste truck	9	9	trips	2.5	2.50	hrs/trip	100%	22.5	hr	$	237.32	$	5,339.70						$	5,339.70
13	D	Contaminated Material disposal	1	108.00	#		1.00		100%	108.0	T	$	350.33							$ 37,835.77	$	37,835.77
14	D	Asbestos Disposal	0	1	#		1.00		100%	0.0	T	$	245.77							$ -	$	-
15	P	Semi Trailer Truck	1	338	#	1	1.00		50%	169.1	hr	$	188.02	$	31,802.62						$	31,802.62
16	P	Semi Trailer Truck	32	32	Trips	1.00	1.00	hrs/trip	100%	32.0	hr	$	188.02	$	6,016.64						$	6,016.64
17	D	Construction & Demolition Waste	50	1	#	1	1.00		100%	50.0	T	$	208.28							$ 10,419.33	$	10,419.33
18	P	30T Excavator	1	4361	#	12.0	12.00		100%	363.9	hr	$	229.26	$	83,431.31						$	83,431.31
19	P	Truck and Dog	1	4361	#	12.0	12.00		100%	363.9	hr	$	194.00	$	70,600.45						$	70,600.45
20	P	Truck and Dog	265	265	Trips	0.25	0.25	hrs/trip	100%	66.3	hr	$	194.00	$	12,852.63						$	12,852.63
21	P	30T Excavator (with Demolition Jaws)	1	40	#		1.00		100%	39.8	hr	$	295.70	$	11,778.79						$	11,778.79
22	P	Semi Trailer Truck	1	40	#		1.00		100%	39.8	hr	$	188.02	$	7,489.46						$	7,489.46
23	P	Semi Trailer Truck	11	11	trips	1.00	1.00	hrs/trip	100%	11.0	hr	$	188.02	$	2,068.22						$	2,068.22
24	P	Suck up waste truck	1	1	trips	2.50	2.50	hrs/trip	100%	2.5	hr	$	237.32	$	593.30						$	593.30
25	D	Construction & Demolition Waste	20	1	#	1	1.00		100%	20.0	T	$	208.28							$ 4,167.73	$	4,167.73
26	D	Contaminated Soil Disposal	6	1	#	1	1.00		100%	6.0	T	$	350.33							$ 2,101.99	$	2,101.99
27	P	30T Excavator	1	192	#	12.0	12.00		100%	16.0	hr	$	229.26	$	3,666.32						$	3,666.32
28	P	Truck and Dog	1	192	#	12.0	12.00		100%	16.0	hr	$	194.00	$	3,102.48						$	3,102.48
29	P	Truck and Dog	12	12	Trips	0.25	0.25	hrs/trip	100%	3.0	hr	$	194.00	$	582.01						$	582.01
4.04		**Rail & Receival Domain Rehabilitation**	1	1		1	1							$	5,816,417.82	$ 15,949,591.19	$ 780,004.74	$ -	$	19,948,013.75
1	M	Supply Gypsum	1	505147	#	5000	5000	m2/t	100%	101.0	tonnes	$	171.64			$ 17,340.96					$	17,340.90
2	P	Tipper Truck	1	505147	#	1000	1000	m2/hr	50%	252.6	hr	$	220.67	$	55,734.22						$	55,734.22
3	P	30T Excavator	1	505147	#	1000	1000		25%	126.3	hr	$	200.32	$	25,298.19						$	25,298.19
4	P	Water Cart	1	505147	#	1000	1000		50%	252.6	hr	$	166.32	$	42,007.44						$	42,007.44
5	L	Labour D	1	505147	#	1000	1000		100%	505.1	hr	$	77.43				$ 39,112.12				$	39,112.12
6	P	Tractor Spreader	1	505147	#	1000	1000		100%	505.1	hr	$	134.43	$	67,908.07						$	67,908.07
7	P	Grader	1	505147	#	500	500		100%	1010.2	hr	$	217.61	$	219,852.94						$	219,852.94
8	P	D8 bulldozer	1	505147	#	500	500		100%	1010.3	hr	$	348.60	$	352,188.13						$	352,188.13
9	P	Water Cart	1	505147	#	500	500		25%	252.6	hr	$	166.32	$	42,007.44						$	42,007.44
10	P	Backhoe	1	505147	#	500	500		50%	505.1	hr	$	143.43	$	72,453.96						$	72,453.96
11	P	Tipper Truck	1	505147	#	500	500		50%	505.1	hr	$	220.67	$	111,468.44						$	111,468.44
12	L	Labour C	2	505147	#	500	500		100%	2020.6	hr	$	83.97				$ 169,672.34				$	169,672.34
13	P	Tractor Spreader	1	505147	#	1000	1000		100%	505.1	hr	$	134.43	$	67,908.07						$	67,908.07
14	P	Water Cart	1	505147	#	1000	1000		100%	505.1	hr	$	166.32	$	84,014.89						$	84,014.89
15	M	Seed Supply	505147	1	m2	1	1	Na	100%	505147.0	m2	$	0.17			$ 88,134.81					$	88,134.87
16	L	Labour D	1	505147	#	1000	1000		100%	505.1	hr	$	77.43				$ 39,112.12				$	39,112.12
17	P	Grader	1	574132	#	115	115		100%	4992.5	hr	$	217.61	$	1,086,421.64						$	1,086,421.64
18	P	D8 bulldozer	1	574132	#	115	115		100%	4992.5	hr	$	348.60	$	1,740,367.04						$	1,740,367.04
19	P	Water Cart	1	574132	#	115	115		50%	2496.2	hr	$	166.32	$	415,166.65						$	415,166.65
20	P	Backhoe	1	574132	#	115	115		50%	2496.2	hr	$	143.43	$	358,037.29						$	358,037.29
21	P	Tipper Truck	1	574132	#	115	115		50%	2496.2	hr	$	220.67	$	550,830.59						$	550,830.59
22	L	Labour C	1	574132	#	115	115		100%	4992.5	hr	$	83.97				$ 419,225.01				$	419,225.01
23	M	Topsoil / General Fill Supply	1	215801	#	1	1		100%	215801.0	m3	$	48.50			$ 10,471,791.28					$	10,471,791.28
24	P	Grader	1	505.15	#	115	115		100%	439.3	hr	$	217.61	$	95,588.80						$	95,588.80
25	P	D8 bulldozer	1	505.15	#	115	115		100%	439.3	hr	$	348.60	$	153,126.18						$	153,126.18
26	P	Water Cart	1	505.15	#	115	115		50%	219.6	hr	$	166.32	$	36,528.45						$	36,528.45
27	P	Backhoe	1	505.15	#	115	115		50%	219.6	hr	$	143.43	$	31,501.91						$	31,501.91
28	P	Tipper Truck	1	505.15	#	115	115		50%	219.6	hr	$	220.67	$	48,464.83						$	48,464.83
29	L	Labour C	2	505.15	#	115	115		100%	878.5	hr	$	83.97				$ 73,771.02				$	73,771.02
30	M	Topsoil / General Fill Supply	1	50515	#	1	1		100%	50515.0	m3	$	48.50			$ 2,450,116.15					$	2,450,116.19
31	M	Supply Fertilizer	1	505147	#	5000	5000	m2/t	100%	101.0	tonnes	$	498.02			$ 50,344.55					$	50,344.55
32	P	Tipper Truck	1	505147	#	1000	1000	m2/hr	50%	252.6	hr	$	220.67	$	55,734.22						$	55,734.22
33	P	30T Excavator	1	505147	#	1000	1000		25%	126.3	hr	$	200.32	$	25,298.19						$	25,298.19
34	P	Water Cart	1	505147	#	1000	1000		15%	75.8	hr	$	166.32	$	12,602.22						$	12,602.23
35	L	Labour D	1	505147	#	1000	1000		100%	505.1	hr	$	77.43				$ 39,112.12				$	39,112.12
36	P	Tractor Spreader	1	505147	#	1000	1000		100%	505.1	hr	$	134.43	$	67,908.07						$	67,908.07
37	M	Tube stock Supply	1	245004	unit	1	1		100%	245004.0	each	$	1.11			$ 271,863.39					$	271,863.39
		Mobilisation and Demobilisation Allowance (1% of Plant Cost)												$	151,475.78						$	151,475.78
		Allowance for Labour Escalation (2% YOY) - Allow 40% of Plant to be Labour Related									Duration		2.08	$	254,802.91			$ 118,193.62			$	372,996.53
		Total Treatment Cost												**$**	**15,553,857.08**	**$ 14,818,992.19**	**$ 2,928,753.68**	**$ 50,735,247.86**	**$**	**84,036,850.82**
5.0 Additional Markups																							

Asset name: DBCT - Stockyard Area

#	Type	Direct Cost Schedule	Quantity	Quantity (Risk)	Qty Units	Production Rate	Productivity (Risk)	Pr Units	Utilisation	Total Resource Quantity	Res Qty Units	Resource Rate	Plant Cost	Material Cost	Labour Cost	Disposal Cost	Total Cost
1.0 Site Establishment													$ -	$ -	$ -	$ -	$ -
1.01		**Site Establishment for DBCT Decommissioning and Deconstruction**	1	1		1	1	#N/A					$ -	$ -	$ -	$ -	$ -
2.0 Decommissioning of Stockyard Area													**$ 3,594,129.57**	**$ 35,435.80**	**$ 2,498,286.84**	**$ -**	**$ 6,127,852.20**
2.01		**Chemical Sweep**	80.0	80	hrs	1	1	N/A					$ 3,207.66	$ 1,107.37	$ 10,839.37	$ -	$ 15,154.40
1	L	Labour B	4	20	#		1		100%	80.0	hr	$ 93.51			$ 7,480.50		$ 7,480.50
2	P	Elevated Work Platform	4	20	#		1		25%	20.0	hr	$ 133.81	$ 2,676.13				$ 2,676.13
3	M	Consumables 2	1	1	unit		1		100%	1.0	each	$ 1,107.37		$ 1,107.37			$ 1,107.37
4	P	Forklift (2-3t)	1	80	#		1		50%	40.0	hr	$ 13.29	$ 531.54				$ 531.54
5	L	Labour C	1	80	#		1		50%	40.0	hr	$ 83.97			$ 3,358.87		$ 3,358.87
2.02		**Removal of Universal Wastes (Lighting, ODS, Mercury, Radioactive Devices)**	440	440	hrs	1	1	N/A					$ 42,621.86	$ 11,073.69	$ 59,616.52	$ -	$ 113,312.06
1	L	Labour B	4	110	#		1		100%	440.0	hr	$ 93.51			$ 41,142.73		$ 41,142.73
2	P	Elevated Work Platform	4	110	#		1		50%	220.0	hr	$ 133.81	$ 29,437.38				$ 29,437.38
3	M	Consumables 5	2	2	unit		1		100%	2.0	each	$ 5,536.84		$ 11,073.69			$ 11,073.69
4	P	50T Mobile Crane	1	440	#		1		10%	44.0	hr	$ 233.21	$ 10,261.02				$ 10,261.02
5	P	Forklift (2-3t)	1	440	#		1		50%	220.0	hr	$ 13.29	$ 2,923.45				$ 2,923.45
6	L	Labour C	1	440	#		1		50%	220.0	hr	$ 83.97			$ 18,473.79		$ 18,473.79
2.03		**Draining of Equipment Oils**	600	600	hrs	1	1	N/A					$ 89,719.89	$ 5,536.84	$ 64,500.90	$ -	$ 159,757.63
1	L	Labour B	4	150	#		1		100%	600.0	hr	$ 93.51			$ 56,103.72		$ 56,103.72
2	P	Elevated Work Platform	4	150	#		1		50%	300.0	hr	$ 133.81	$ 40,141.89				$ 40,141.89
3	M	Consumables 5	1	1	unit		1		100%	1.0	each	$ 5,536.84		$ 5,536.84			$ 5,536.84
4	P	Suck up waste truck	1	100.0	#		1		100%	100.0	hr	$ 237.32	$ 23,732.02				$ 23,732.02
5	L	Labour C	1	100.0	#		1		100%	100.0	hr	$ 83.97			$ 8,397.18		$ 8,397.18
6	P	Mobile Pumping Unit	1	60.0	#		1		100%	60.0	Day	$ 320.03	$ 19,201.77				$ 19,201.77
7	P	Waste Storage Container	1	60.0	#		1		100%	60.0	Day	$ 110.74	$ 6,644.21				$ 6,644.21
2.04		**Flushing of Storm Sewer System**	1000	1000	hrs	1	1	N/A					$ 166,786.03	$ -	$ 83,971.76	$ -	$ 250,757.79
1	L	Labour C	10	100.00	#		1		100%	1000.0	hr	$ 83.97			$ 83,971.76		$ 83,971.76
2	P	High Pressure Cleaner	10	10.00	#		1		100%	100.0	Day	$ 276.84	$ 27,684.22				$ 27,684.22
3	P	Water Cart	2	100.00	#		1		25%	50.0	hr	$ 166.32	$ 8,315.89				$ 8,315.89
4	P	Suck up waste truck	2	200.00	#		1		100%	400.0	hr	$ 237.32	$ 94,928.07				$ 94,928.07
5	P	Bobcat	1	1000.00	#		1		25%	250.0	hr	$ 143.43	$ 35,857.86				$ 35,857.86
2.05		**Cleaning of Coal Collection Pit**			hrs	1	1	N/A					$ 120,062.80	$ -	$ 83,971.76	$ -	$ 204,034.57
1	L	Labour C	5	200.00	#		1		100%	1000.0	hr	$ 83.97			$ 83,971.76		$ 83,971.76
2	P	High Pressure Cleaner	5	20.00	#		1		100%	100.0	Day	$ 276.84	$ 27,684.22				$ 27,684.22
3	P	Elevated Work Platform	5	200.00	#		1		25%	250.0	hr	$ 133.81	$ 33,451.57				$ 33,451.57
4	P	Suck up waste truck	1	200.00	#		1		100%	200.0	hr	$ 237.32	$ 47,464.03				$ 47,464.03
4	P	30T Excavator	1	200.00	#		1		25%	50.0	hr	$ 229.26	$ 11,462.98				$ 11,462.98
2.06		**Cleaning of Drive/Transfer Towers**			hrs	1	1	N/A					$ 459,699.98	$ -	$ 184,737.88	$ -	$ 644,437.86
1	L	Labour C	10	220.00	#		1		100%	2200.0	hr	$ 83.97			$ 184,737.88		$ 184,737.88
2	P	High Pressure Cleaner	10	22.00	#		1		100%	220.0	Day	$ 276.84	$ 60,905.27				$ 60,905.27
3	P	Elevated Work Platform	10	220.00	#		1		100%	2200.0	hr	$ 133.81	$ 294,373.83				$ 294,373.83
4	P	Suck up waste truck	2	220.00	#		1		100%	440.0	hr	$ 237.32	$ 104,420.87				$ 104,420.87
2.07		**Cleaning of Drive/Transfer Tower Concrete Slabs**			hrs	1	1	N/A					$ 26,301.89	$ -	$ 29,390.12	$ -	$ 55,692.00
1	L	Labour C	10	35.00	#		1		100%	350.0	hr	$ 83.97			$ 29,390.12		$ 29,390.12
2	P	High Pressure Cleaner	10	3.50	#		1		100%	35.0	Day	$ 276.84	$ 9,689.48				$ 9,689.48
3	P	Suck up waste truck	2	35.00	#		1		100%	70.0	hr	$ 237.32	$ 16,612.41				$ 16,612.41
2.08		**Cleaning of Bunds 4A & 5A Concrete Walls**			hrs	1	1	N/A					$ 438,804.53	$ -	$ 176,340.70	$ -	$ 615,145.23
1	L	Labour C	10	210.00	#		1		100%	2100.0	hr	$ 83.97			$ 176,340.70		$ 176,340.70
2	P	High Pressure Cleaner	10	21.00	#		1		100%	210.0	Day	$ 276.84	$ 58,136.85				$ 58,136.85
3	P	Elevated Work Platform	10	210.00	#		1		100%	2100.0	hr	$ 133.81	$ 280,993.20				$ 280,993.20
4	P	Suck up waste truck	2	210.00	#		1		100%	420.0	hr	$ 237.32	$ 99,674.47				$ 99,674.47
2.09		**Cleaning of Elevated/Enclosed Conveyors**			hrs	1	1	N/A					$ 480,595.43	$ -	$ 193,135.05	$ -	$ 673,730.49
1	L	Labour C	10	230.00	#		1		100%	2300.0	hr	$ 83.97			$ 193,135.05		$ 193,135.05
2	P	High Pressure Cleaner	10	23.00	#		1		100%	230.0	Day	$ 276.84	$ 63,673.70				$ 63,673.70
3	P	Elevated Work Platform	10	230.00	#		1		100%	2300.0	hr	$ 133.81	$ 307,754.46				$ 307,754.46
4	P	Suck up waste truck	2	230.00	#		1		100%	460.0	hr	$ 237.32	$ 109,167.28				$ 109,167.28
2.10		**Cleaning of Elevated/Open Conveyors**			hrs	1	1	N/A					$ 184,038.74	$ -	$ 83,971.76	$ -	$ 268,010.50
1	L	Labour C	10	100.00	#		1		100%	1000.0	hr	$ 83.97			$ 83,971.76		$ 83,971.76
2	P	High Pressure Cleaner	10	10.00	#		1		100%	10.0	Day	$ 276.84	$ 2,768.42				$ 2,768.42
3	P	Elevated Work Platform	10	100.00	#		1		100%	1000.0	hr	$ 133.81	$ 133,806.29				$ 133,806.29
4	P	Suck up waste truck	2	100.00	#		1		100%	200.0	hr	$ 237.32	$ 47,464.03				$ 47,464.03
2.11		**Cleaning of Ground Level/Open Conveyors**			hrs	1	1	N/A					$ 1,513,843.81	$ -	$ 1,435,917.14	$ -	$ 2,949,760.95
1	L	Labour C	10	1710.00	#		1		100%	17100.0	hr	$ 83.97			$ 1,435,917.14		$ 1,435,917.14
2	P	Elevated Work Platform	10	1710.00	#		1		10%	1710.0	hr	$ 133.81	$ 228,808.75				$ 228,808.75
3	P	High Pressure Cleaner	10	171.00	#		1		100%	1710.0	Day	$ 276.84	$ 473,400.09				$ 473,400.09
4	P	Suck up waste truck	2	1710.00	#		1		100%	3420.0	hr	$ 237.32	$ 811,634.98				$ 811,634.98
2.12		**Conveyor De-Tensioning Elevated/Enclosed Conveyors**			hrs	1	1	N/A					$ 21,409.01	$ 2,214.74	$ 16,265.03	$ -	$ 39,888.77
1	L	Labour A	4	40	#		1		100%	160.0	hr	$ 101.66			$ 16,265.03		$ 16,265.03
2	P	Elevated Work Platform	4	40	#		1		100%	160.0	hr	$ 133.81	$ 21,409.01				$ 21,409.01
3	M	Consumables 3	1	1	unit		1		100%	1.0	each	$ 2,214.74		$ 2,214.74			$ 2,214.74
2.13		**Conveyor De-Tensioning Elevated/Open Conveyors**			hrs	1	1	N/A					$ 10,704.50	$ 2,214.74	$ 8,132.52	$ -	$ 21,051.76
1	L	Labour A	4	20	#		1		100%	80.0	hr	$ 101.66			$ 8,132.52		$ 8,132.52
2	P	Elevated Work Platform	4	20	#		1		100%	80.0	hr	$ 133.81	$ 10,704.50				$ 10,704.50
3	M	Consumables 3	1	1	unit		1		100%	1.0	each	$ 2,214.74		$ 2,214.74			$ 2,214.74
2.14		**Conveyor De-Tensioning Ground Level/Open Conveyors**			hrs	1	1	N/A					$ 6,422.70	$ 11,073.69	$ 48,795.09	$ -	$ 66,291.48
1	L	Labour A	4	120	#		1		100%	480.0	hr	$ 101.66			$ 48,795.09		$ 48,795.09
2	P	Elevated Work Platform	4	120	#		1		10%	48.0	hr	$ 133.81	$ 6,422.70				$ 6,422.70
3	M	Consumables 3	5	5	unit		1		100%	5.0	each	$ 2,214.74		$ 11,073.69			$ 11,073.69
2.15		**Cleaning of Storage and Processing Tanks**			hrs	1	1	N/A					$ 29,910.74	$ 2,214.74	$ 18,701.24	$ -	$ 50,826.72
1	L	Labour B	4	50	#		1		100%	200.0	hr	$ 93.51			$ 18,701.24		$ 18,701.24
2	P	Elevated Work Platform	4	50	#		1		50%	100.0	hr	$ 133.81	$ 13,380.63				$ 13,380.63
3	P	Suck up waste truck	1	50	#		1		100%	50.0	hr	$ 237.32	$ 11,866.01				$ 11,866.01
4	M	Consumables 3	1	1	unit		1		100%	1.0	each	$ 2,214.74		$ 2,214.74			$ 2,214.74
5	P	50T Mobile Crane	1	200	#		1		10%	20.0	hr	$ 233.21	$ 4,664.10				$ 4,664.10
3.0 Deconstruction of Stockyard Area													**$ 12,931,063.60**	**$ 398,652.70**	**$ 2,387,219.13**	**$ -**	**$ 15,716,935.44**
3.01		**Demolition of Bunds 1,2,3,4,5,6 Concrete Cross Beams, Rail Beams, Footpaths**	3230.0	3230	hrs	1	1	#N/A					$ 1,689,438.85	$ 83,052.65	$ 271,228.55	$ -	$ 2,043,720.04
1	P	30T Excavator	1	3230	#		1.0		100%	3230.0	hr	$ 229.26	$ 740,507.94				$ 740,507.94
2	P	Water Cart	1	3230	#		1.0		50%	1615.0	hr	$ 166.32	$ 268,602.85				$ 268,602.85
3	P	Hydraulic Hammer / Rock Saw - 36T to 50T	1	3230	#		1.0		50%	1615.0	hr	$ 236.38	$ 381,751.59				$ 381,751.59
4	P	Jackhammer and hoses	1	3230	#		1.0		50%	1615.0	hr	$ 184.88	$ 298,576.48				$ 298,576.48
5	L	Labour C	4	807	#		1.0		100%	3230.0	hr	$ 83.97			$ 271,228.55		$ 271,228.55
6	M	Consumables 5	15	15	unit	1.0	1.0		100%	15.0	each	$ 5,536.84		$ 83,052.65			$ 83,052.65
3.02		**Demolition of Bunds 4A, 5A Concrete Walls**	1181.0	1181	hrs	1	1	#N/A					$ 617,697.06	$ 22,147.37	$ 99,167.29	$ -	$ 739,011.73
1	P	30T Excavator	1	1181	#		1.0		100%	1181.0	hr	$ 229.26	$ 270,746.45				$ 270,746.45
2	P	Water Cart	1	1181	#		1.0		50%	590.5	hr	$ 166.32	$ 98,207.28				$ 98,207.28
3	P	Hydraulic Hammer / Rock Saw - 36T to 50T	1	1181	#		1.0		50%	590.5	hr	$ 236.38	$ 139,577.02				$ 139,577.02
4	P	Jackhammer and hoses	1	1181	#		1.0		50%	590.5	hr	$ 184.88	$ 109,166.31				$ 109,166.31
5	L	Labour C	4	295	#		1.0		100%	1181.0	hr	$ 83.97			$ 99,167.29		$ 99,167.29
6	M	Consumables 5	4	4	unit	1.0	1.0		100%	4.0	each	$ 5,536.84		$ 22,147.37			$ 22,147.37
3.03		**Demolition of Elevated Inloading Conveyors**			hrs	1	1	#N/A					$ 655,348.01	$ 27,684.22	$ 133,437.36	$ -	$ 816,469.59
1	P	100T Mobile Crane	1	504	#		1		50%	252.0	hr	$ 472.64	$ 119,104.27				$ 119,104.27
2	P	Elevated Work Platform	4	425	#		1		50%	849.0	hr	$ 133.81	$ 113,606.70				$ 113,606.70
3	P	30T Excavator (with Demolition Jaws)	1	1698	#		1		50%	849.0	hr	$ 295.70	$ 251,062.19				$ 251,062.19
4	P	30T Excavator (with Grapple)	1	612	#		1		100%	612.4	hr	$ 251.35	$ 153,923.58				$ 153,923.58
5	L	Labour A	4	425	#		1		50%	849.0	hr	$ 101.66			$ 86,310.24		$ 86,310.24
6	L	Labour B	1	504	#		1		100%	504.0	hr	$ 93.51			$ 47,127.13		$ 47,127.13
7	P	Water Cart	1	425	#		1		25%	106.1	hr	$ 166.32	$ 17,651.27				$ 17,651.27
8	M	Consumables 5	5	5	unit	1.0	1.0		100%	5.0	each	$ 5,536.84		$ 27,684.22			$ 27,684.22
3.04		**Demolition of Ground Module Yard Conveyors**			hrs	1	1	#N/A					$ 1,742,416.94	$ 55,368.43	$ 559,558.02	$ -	$ 2,357,343.39
1	P	100T Mobile Crane	1	2025	#		1		50%	1012.5	hr	$ 472.64	$ 478,543.95				$ 478,543.95
2	P	Elevated Work Platform	4	1821	#		1		10%	728.4	hr	$ 133.81	$ 97,457.97				$ 97,457.97
3	P	30T Excavator (with Demolition Jaws)	1	7284	#		1		50%	3641.8	hr	$ 295.70	$ 1,076,873.62				$ 1,076,873.62
4	P	30T Excavator (with Grapple)	1	55	#		1		100%	55.0	hr	$ 251.35	$ 13,830.34				$ 13,830.34
5	L	Labour A	4	1821	#		1		50%	3641.8	hr	$ 101.66			$ 370,207.95		$ 370,207.95
6	L	Labour B	1	2025	#		1		100%	2025.0	hr	$ 93.51			$ 189,350.07		$ 189,350.07
7	P	Water Cart	1	1821	#		1		25%	455.2	hr	$ 166.32	$ 75,711.06				$ 75,711.06
8	M	Consumables 5	10	10	unit	1.0	1.0		100%	10.0	each	$ 5,536.84		$ 55,368.43			$ 55,368.43
3.05		**Demolition of Inloading Drive/Transfer Towers**			hrs	1	1	#N/A					$ 1,853,739.09	$ 55,368.43	$ 336,909.59	$ -	$ 2,246,017.11
1	P	300T Mobile Crane	1	2076	#		1		75%	1557.0	hr	$ 720.68	$ 1,122,091.75				$ 1,122,091.75
2	P	Elevated Work Platform	4	702	#		1		50%	1404.6	hr	$ 133.81	$ 187,949.66				$ 187,949.66
3	P	30T Excavator (with Demolition Jaws)	1	2809	#		1		50%	1404.6	hr	$ 295.70	$ 415,354.50				$ 415,354.50
4	P	30T Excavator (with Grapple)	1	394	#		1		100%	394.4	hr	$ 251.35	$ 99,141.11				$ 99,141.11
5	L	Labour A	4	702	#		1		50%	1404.6	hr	$ 101.66			$ 142,790.70		$ 142,790.70
6	L	Labour B	1	2076	#		1		100%	2076.0	hr	$ 93.51			$ 194,118.88		$ 194,118.88
7	P	Water Cart	1	702	#		1		25%	175.6	hr	$ 166.32	$ 29,202.06				$ 29,202.06
8	M	Consumables 5	10	10	unit	1.0	1.0		100%	10.0	each	$ 5,536.84		$ 55,368.43			$ 55,368.43
3.06		**Demolition of Yard Machines (Stackers/Reclaimers, Stackers, Reclaimers)**			hrs	1	1	#N/A					$ 5,098,992.51	$ 110,736.86	$ 815,477.23	$ -	$ 6,025,206.60
1	P	300T Mobile Crane	1	4392	#		1		75%	3294.0	hr	$ 720.68	$ 2,373,905.09				$ 2,373,905.09
2	P	Elevated Work Platform	4	1991	#		1		50%	3982.0	hr	$ 133.81	$ 532,819.31				$ 532,819.31
3	P	30T Excavator (with Demolition Jaws)	1	7964	#		1		50%	3982.0	hr	$ 295.70	$ 1,177,490.28				$ 1,177,490.28
4	P	30T Excavator (with Grapple)	1	3708	#		1		100%	3708.0	hr	$ 251.35	$ 931,992.77				$ 931,992.77
5	L	Labour A	4	1991	#		1		50%	3982.0	hr	$ 101.66			$ 404,797.97		$ 404,797.97

6	L	Labour B	1	4392	#		1		100%	4392.0	hr	$ 93.51			$ 410,679.26			$ 410,679.26
7	P	Water Cart	1	1991	#		1		25%	497.8	hr	$ 166.32	$ 82,785.05					$ 82,785.05
8	M	Consumables 5	20	20	unit	1.0	1.0		100%	20.0	each	$ 5,536.84		$ 110,736.86				$ 110,736.86
3.07		**Explosives for Demolition of Yard Machines**			hrs	1	1	#N/A					$ -	$ -	$ -	$ -	$ -	$ -
3.08		**Demolition of Concrete Slabs On-Grade - Drive/Transfer Towers**	265.1	265	hrs	1	1	#N/A					$ 159,179.37	$ 11,073.69	$ 23,937.60	$ -	$ -	$ 194,190.66
1	P	30T Excavator	1	265	#		1.0		100%	265.1	hr	$ 229.26	$ 60,769.23					$ 60,769.23
2	P	Water Cart	1	265	#		1.0		50%	132.5	hr	$ 166.32	$ 22,042.69					$ 22,042.69
3	P	Hydraulic Hammer / Rock Saw - 36T to 50T	1	265	#		1.0		50%	132.5	hr	$ 236.38	$ 31,328.16					$ 31,328.16
4	P	Jackhammer and hoses	1	265	#		1.0		50%	132.5	hr	$ 184.88	$ 24,502.46					$ 24,502.46
5	L	Labour C	4	66	#		1.0		100%	265.1	hr	$ 83.97			$ 22,258.17			$ 22,258.17
6	M	Consumables 5	1	1	unit	1.0	1.0		100%	1.0	each	$ 5,536.84		$ 5,536.84				$ 5,536.84
7	P	Tipper Truck	1	265	#		1.0		25%	66.3	hr	$ 220.67	$ 14,622.79					$ 14,622.79
8	P	30T Excavator (with Demolition Jaws)	1	20	#		1		100%	20.0	hr	$ 295.70	$ 5,914.03					$ 5,914.03
9	L	Labour C	1	20	#		1		100%	20.0	hr	$ 83.97			$ 1,679.44			$ 1,679.44
10	M	Consumables 5	1	1	unit	1	1		100%	1.0	each	$ 5,536.84		$ 5,536.84				$ 5,536.84
3.09		**Demolition of Footings - Conveyors, Drive/Transfer Towers**	922.7	923	hrs	1	1	#N/A					$ 560,733.37	$ 33,221.06	$ 85,207.86	$ -	$ -	$ 679,162.28
1	P	30T Excavator	1	923	#		1.0		100%	922.7	hr	$ 229.26	$ 211,542.53					$ 211,542.53
2	P	Water Cart	1	923	#		1.0		50%	461.4	hr	$ 166.32	$ 76,732.37					$ 76,732.37
3	P	Hydraulic Hammer / Rock Saw - 36T to 50T	1	923	#		1.0		50%	461.4	hr	$ 236.38	$ 109,055.81					$ 109,055.81
4	P	Jackhammer and hoses	1	923	#		1.0		50%	461.4	hr	$ 184.88	$ 85,295.00					$ 85,295.00
5	L	Labour C	4	231	#		1.0		100%	922.7	hr	$ 83.97			$ 77,482.45			$ 77,482.45
6	M	Consumables 5	5	5	unit	1.0	1.0		100%	5.0	each	$ 5,536.84		$ 27,684.22				$ 27,684.22
7	P	Tipper Truck	1	923	#		1.0		25%	230.7	hr	$ 220.67	$ 50,903.10					$ 50,903.10
8	P	30T Excavator (with Demolition Jaws)	1	92	#		1		100%	92.0	hr	$ 295.70	$ 27,204.56					$ 27,204.56
9	L	Labour C	1	92	#		1		100%	92.0	hr	$ 83.97			$ 7,725.40			$ 7,725.40
10	M	Consumables 5	1	1	unit	1	1		100%	1.0	each	$ 5,536.84		$ 5,536.84				$ 5,536.84
3.10		**Crushing of concrete to 100mm minus**	370.9	371	hrs	1	1	#N/A					$ 553,518.40	$ -	$ 62,295.63	$ -	$ -	$ 615,814.04
1	P	Crusher Hire	1	371	#		1		100%	370.9	hr	$ 376.51	$ 139,657.89					$ 139,657.89
2	P	Tracked Screening Plant	1	7	#		1		100%	7.0	Week	$ 11,073.69	$ 77,515.80					$ 77,515.80
3	P	30T Excavator	1	371	#		1		100%	370.9	hr	$ 229.26	$ 85,039.74					$ 85,039.74
4	L	Labour C	2	371	#		1		100%	741.9	hr	$ 83.97			$ 62,295.63			$ 62,295.63
5	P	30T Excavator	1	5772	#		12		100%	481.0	hr	$ 229.26	$ 110,269.38					$ 110,269.38
6	P	Truck and Dog	1	5772	#		12		100%	481.0	hr	$ 194.00	$ 93,311.11					$ 93,311.11
7	P	Truck and Dog	246	246	Trips	1.00	1	hrs/trip	100%	246.0	hr	$ 194.00	$ 47,724.47					$ 47,724.47
4.0		**Rehabilitation, Remediation & Disposal**											**$ 31,544,503.43**	**$ 29,534,902.32**	**$ 3,127,123.56**	**$ 71,024,585.92**	**$ 135,231,115.23**	
4.01		**Stockyard Infrastructure**	0	1									$ 6,912,400.94	$ 16,610.53	$ 407,433.27	$ 70,432,800.88	$ 77,769,245.63	
1	P	D8 bulldozer	1	11201	#	75	75	m3/hr	100%	149.3	hr	$ 348.60	$ 52,062.85					$ 52,062.85
2	P	Water Cart	1	11201	#	75	75	m3/hr	25%	37.3	hr	$ 166.32	$ 6,209.83					$ 6,209.83
3	L	Labour C	1	11201	#	75	75	m3/hr	100%	149.3	hr	$ 83.97			$ 12,541.06			$ 12,541.06
4	P	30T Excavator	1	11201	#	50	50		100%	224.0	hr	$ 229.26	$ 51,359.38					$ 51,359.38
5	L	Labour C	1	11201	#	50	50		100%	224.0	hr	$ 83.97			$ 18,811.59			$ 18,811.59
6	P	Truck and Dog	1	11201	#	50	50		100%	224.0	hr	$ 194.00	$ 43,460.85					$ 43,460.85
7	P	Truck and Dog	477	477.0	Trips	2.50	2.50	hrs/trip	100%	1192.5	hr	$ 194.00	$ 231,347.29					$ 231,347.29
8	D	Contaminated Soil Disposal	19042	1.0	#	1	1		100%	19041.9	T	$ 350.33				$ 6,670,984.30		$ 6,670,984.30
9	P	D8 bulldozer	1	145388	#	115	115	m3/hr	100%	1264.2	hr	$ 348.60	$ 440,713.31					$ 440,713.31
10	P	Water Cart	1	145388	#	115	115	m3/hr	25%	316.1	hr	$ 166.32	$ 52,566.34					$ 52,566.34
11	L	Labour C	1	145388	#	115	115	m3/hr	100%	1264.2	hr	$ 83.97			$ 106,160.39			$ 106,160.39
12	P	30T Excavator	1	145388	#	50	50		100%	2907.8	hr	$ 229.26	$ 666,629.69					$ 666,629.69
13	L	Labour C	1	145388	#	50	50		100%	2907.8	hr	$ 83.97			$ 244,168.89			$ 244,168.89
14	P	Truck and Dog	1	145388	#	50	50		100%	2907.8	hr	$ 194.00	$ 564,109.09					$ 564,109.09
15	P	Truck and Dog	6187	6187.0	Trips	2.50	2.50	hrs/trip	100%	15467.5	hr	$ 194.00	$ 3,000,724.71					$ 3,000,724.71
16	D	Contaminated Soil Disposal	181734	1.0	#	1	1		100%	181734.4	T	$ 350.33				$ 63,667,215.09		$ 63,667,215.09
17	P	D8 bulldozer	1	0	#	115	115	m3/hr	100%	0.0	hr	$ 348.60	$ -					$ -
18	P	Water Cart	1	0	#	115	115	m3/hr	25%	0.0	hr	$ 166.32	$ -					$ -
19	L	Labour C	1	0	#	115	115	m3/hr	100%	0.0	hr	$ 83.97			$ -			$ -
20	P	30T Excavator	1	0	#	50	50		100%	0.0	hr	$ 229.26	$ -					$ -
21	L	Labour C	1	0	#	50	50		100%	0.0	hr	$ 83.97			$ -			$ -
22	P	Truck and Dog	1	0	#	50	50		100%	0.0	hr	$ 194.00	$ -					$ -
23	P	Truck and Dog	0	0.0	Trips	0.25	0.25	hrs/trip	100%	0.0	hr	$ 194.00	$ -					$ -
24	P	30T Excavator	1	307	#	1.0	1		100%	306.7	hr	$ 229.26	$ 70,306.29					$ 70,306.29
25	P	Water Cart	1	307	#	1.0	1		25%	76.7	hr	$ 166.32	$ 12,751.02					$ 12,751.02
26	P	Hydraulic Hammer / Rock Saw - 36T to 50T	1	307	#	1.0	1		50%	153.3	hr	$ 236.38	$ 36,244.77					$ 36,244.77
27	P	Jackhammer and hoses	1	307	#	1.0	1		50%	153.3	hr	$ 184.88	$ 28,347.84					$ 28,347.84
28	L	Labour C	1	307	#	1.0	1		100%	306.7	hr	$ 83.97			$ 25,751.34			$ 25,751.34
29	M	Consumables 5	3	3.0	unit	1.0	1		100%	3.0	each	$ 5,536.84		$ 16,610.53				$ 16,610.53
30	P	30T Excavator	1	114	#	1.0	1		100%	113.7	hr	$ 229.26	$ 26,059.18					$ 26,059.18
31	P	Truck and Dog	1	114	#	1.0	1		100%	113.7	hr	$ 194.00	$ 22,051.55					$ 22,051.55
32	P	Truck and Dog	1075	1075.0	Trips	0.25	0	hrs/trip	100%	268.8	hr	$ 194.00	$ 52,138.02					$ 52,138.02
33	P	30T Excavator	1	38478	#	12.0	12.00		100%	3206.5	hr	$ 229.26	$ 735,129.18					$ 735,129.18
34	P	Truck and Dog	1	38478	#	12.0	12.00		100%	3206.5	hr	$ 194.00	$ 622,074.08					$ 622,074.08
35	P	Truck and Dog	2333		Trips	0.25	0.25	hrs/trip	100%	583.3	hr	$ 194.00	$ 113,151.62					$ 113,151.62
36	P	Semi Trailer Truck	1	380	#	15	15.00		100%	25.3	hr	$ 188.02	$ 4,763.17					$ 4,763.17
37	P	Semi Trailer Truck	17	17.0	trips	1.00	1.00	hrs/trip	100%	17.0	hr	$ 188.02	$ 3,196.34					$ 3,196.34
38	D	Construction & Demolition Waste	380	1.0	#	1	1.00		100%	380.0	T	$ 208.39				$ 79,186.92		$ 79,186.92
39	P	Semi Trailer Truck	1	3629	#	15	15.00		100%	241.9	hr	$ 188.02	$ 45,488.27					$ 45,488.27
40	P	Semi Trailer Truck	155	155.0	trips	1.00	1.00	hrs/trip	100%	155.0	hr	$ 188.02	$ 29,143.08					$ 29,143.08
41	P	Suck up waste truck	4	4.0	trips	2.50	2.50	hrs/trip	100%	10.0	hr	$ 237.32	$ 2,373.20					$ 2,373.20
42	D	Contaminated Soil Disposal	44	1.0	#	1	1.00		100%	44.0	T	$ 350.33				$ 15,414.57		$ 15,414.57
4.02		**Yard Machines**		1									$ 256,319.95	$ -	$ -	$ 71,032.66	$ 327,352.61	
1	P	30T Excavator (with Demolition Jaws)	1	16	#		1.00		100%	16.0	hr	$ 295.70	$ 4,731.23					$ 4,731.23
2	P	Semi Trailer Truck	1	16	#		1.00		100%	16.0	hr	$ 188.02	$ 3,008.32					$ 3,008.32
3	P	Semi Trailer Truck	11	11	trips	1.00	1.00	hrs/trip	100%	11.0	hr	$ 188.02	$ 2,068.22					$ 2,068.22
4	D	Construction & Demolition Waste	240	1	#	1	1.00		100%	240.0	T	$ 208.39				$ 50,012.79		$ 50,012.79
5	P	30T Excavator (with Demolition Jaws)	1	403	#		1.00		100%	403.2	hr	$ 295.70	$ 119,226.95					$ 119,226.95
6	P	Semi Trailer Truck	1	403	#		1.00		100%	403.2	hr	$ 188.02	$ 75,809.61					$ 75,809.61
7	P	Semi Trailer Truck	258	258	trips	1.00	1.00	hrs/trip	100%	258.0	hr	$ 188.02	$ 48,509.13					$ 48,509.13
8	P	Suck up waste truck	5	5	trips	2.50	2.50	hrs/trip	100%	12.5	hr	$ 237.32	$ 2,966.50					$ 2,966.50
9	D	Contaminated Soil Disposal	60	1	#	1	1.00		100%	60.0	T	$ 350.33				$ 21,019.87		$ 21,019.87
4.03		**Materials Handling**		1			1						$ 1,644,306.21	$ -	$ -	$ 520,752.38	$ 2,165,058.58	
1	P	Tipper Truck	1	440.00	#		1		50%	220.0	hr	$ 220.67	$ 48,546.38					$ 48,546.38
2	D	Category 2 - Regulated Waste	1	100.00	#		1		100%	100.0	T	$ 385.57				$ 38,556.56		$ 38,556.56
3	P	Tipper Truck	9	9	trips	2.5	2.50	hrs/trip	100%	22.5	hr	$ 220.67	$ 4,964.97					$ 4,964.97
4	P	Suck up waste truck	15	15	trips	2.5	2.50	hrs/trip	100%	37.5	hr	$ 237.32	$ 8,899.51					$ 8,899.51
5	D	Contaminated Material disposal	1	170.00	#		1.00		100%	170.0	T	$ 350.33				$ 59,556.30		$ 59,556.30
6	P	Suck up waste truck	7	7	trips	2.5	2.50	hrs/trip	100%	17.5	hr	$ 237.32	$ 4,153.10					$ 4,153.10
7	D	Contaminated Material disposal	1	80.00	#		2.50		100%	32.0	T	$ 350.33				$ 11,210.60		$ 11,210.60
6	P	Suck up waste truck	7	7	trips	2.5	2.50	hrs/trip	100%	17.5	hr	$ 237.32	$ 4,153.10					$ 4,153.10
7	D	Contaminated Material disposal	1	80.00	#		2.50		100%	32.0	T	$ 350.33				$ 11,210.60		$ 11,210.60
8	P	Suck up waste truck	15	15	trips	2.5	2.50	hrs/trip	100%	37.5	hr	$ 237.32	$ 8,899.51					$ 8,899.51
9	D	Contaminated Material disposal	1	176.00	#		1.00		100%	176.0	T	$ 350.33				$ 61,658.28		$ 61,658.28
10	P	Suck up waste truck	3	3	trips	2.5	2.50	hrs/trip	100%	7.5	hr	$ 237.32	$ 1,779.90					$ 1,779.90
11	D	Contaminated Material disposal	1	28.00	#		1.00		100%	28.0	T	$ 350.33				$ 9,809.27		$ 9,809.27
12	P	Suck up waste truck	14	14	trips	2.5	2.50	hrs/trip	100%	35.0	hr	$ 237.32	$ 8,306.21					$ 8,306.21
13	D	Contaminated Material disposal	1	168.00	#		2.50		100%	67.2	T	$ 350.33				$ 23,542.25		$ 23,542.25
14	P	Suck up waste truck	16	16	trips	2.5	2.50	hrs/trip	100%	40.0	hr	$ 237.32	$ 9,492.81					$ 9,492.81
15	D	Contaminated Material disposal	1	184.00	#		1.00		100%	184.0	T	$ 350.33				$ 64,460.93		$ 64,460.93
16	P	Suck up waste truck	7	7	trips	2.5	2.50	hrs/trip	100%	17.5	hr	$ 237.32	$ 4,153.10					$ 4,153.10
17	D	Contaminated Material disposal	1	80.00	#		1.00		100%	80.0	T	$ 350.33				$ 28,026.49		$ 28,026.49
18	P	Suck up waste truck	114	114	trips	2.5	2.50	hrs/trip	100%	285.0	hr	$ 237.32	$ 67,636.25					$ 67,636.25
19	D	Contaminated Material disposal	1	1368.00	#		2.50		100%	547.2	T	$ 350.33				$ 191,701.21		$ 191,701.21
20	P	Suck up waste truck	5	5	trips	2.5	2.50	hrs/trip	100%	12.5	hr	$ 237.32	$ 2,966.50					$ 2,966.50
21	D	Contaminated Material disposal	1	60.00	#		1.00		100%	60.0	T	$ 350.33				$ 21,019.87		$ 21,019.87
22	P	30T Excavator	1	38478	#	12.0	12		100%	3206.5	hr	$ 229.26	$ 735,129.18					$ 735,129.18
23	P	Truck and Dog	1	38478	#	12.0	12		100%	3206.5	hr	$ 194.00	$ 622,074.08					$ 622,074.08
24	P	Truck and Dog	2333	2333	Trips	0.25	0	hrs/trip	100%	583.3	hr	$ 194.00	$ 113,151.62					$ 113,151.62
4.04		**Stockyard Domain Rehabilitation**	0	0	hrs	1	1	#N/A					$ 22,731,476.34	$ 29,518,291.79	$ 2,719,690.29	$ -	$ 54,969,458.41	
1	M	Supply Gypsum	1	1009082	#	5000	5000	m2/t	100%	201.8	tonnes	$ 171.64		$ 34,640.20				$ 34,640.20
2	P	Tipper Truck	1	1009082	#	1000	1000	m2/hr	50%	504.5	hr	$ 220.67	$ 111,334.71					$ 111,334.71
3	P	20T Excavator	1	1009082	#	1000	1000		25%	252.3	hr	$ 200.32	$ 50,535.69					$ 50,535.69
4	P	Water Cart	1	1009082	#	1000	1000		50%	504.5	hr	$ 166.32	$ 83,914.10					$ 83,914.10
5	L	Labour D	1	1009082	#	1000	1000		100%	1009.1	hr	$ 77.43			$ 78,130.41			$ 78,130.41
6	P	Tractor Spreader	1	1009082	#	1000	1000		100%	1009.1	hr	$ 134.43	$ 135,653.20					$ 135,653.20
7	P	Grader	1	1009082	#	500	500		100%	2018.2	hr	$ 217.61	$ 439,178.38					$ 439,178.38
8	P	D8 bulldozer	1	1009082	#	500	500		100%	2018.2	hr	$ 348.60	$ 703,531.25					$ 703,531.25
9	P	Water Cart	1	1009082	#	500	500		25%	504.5	hr	$ 166.32	$ 83,914.10					$ 83,914.10
10	P	Backhoe	1	1009082	#	500	500		50%	1009.1	hr	$ 143.43	$ 144,734.08					$ 144,734.08
11	P	Tipper Truck	1	1009082	#	500	500		50%	1009.1	hr	$ 220.67	$ 222,669.43					$ 222,669.43
12	L	Labour C	2	1009082	#	500	500		100%	4036.3	hr	$ 83.97			$ 338,937.58			$ 338,937.58

13	M	Supply Lime	1	1009082	#	5000	5000	m2/t	100%	201.8	tonnes	$	442.95		$ 89,394.06			$ 89,394.06
14	P	Tipper Truck	1	1009082	#	1000	1000	m2/hr	50%	504.5	hr	$	220.67	$ 111,334.71				$ 111,334.71
15	P	20T Excavator	1	1009082	#	1000	1000		25%	252.3	hr	$	200.32	$ 50,535.69				$ 50,535.69
16	P	Water Cart	1	1009082	#	1000	1000		50%	504.5	hr	$	166.32	$ 83,914.10				$ 83,914.10
17	L	Labour D	1	1009082	#	1000	1000		100%	1009.1	hr	$	77.43			$ 78,130.41		$ 78,130.41
18	P	Tractor Spreader	1	1009082	#	1000	1000		100%	1009.1	hr	$	134.43	$ 135,653.20				$ 135,653.20
14	P	Tractor Spreader	1	1009082	#	1000	1000		100%	1009.1	hr	$	134.43	$ 135,653.20				$ 135,653.20
15	P	Water Cart	1	1009082	#	1000	1000		100%	1009.1	hr	$	166.32	$ 167,828.20				$ 167,828.20
16	M	Seed Supply	1009082	1009082	m2	1	1	Na	100%	1009082.0	m2	$	0.17		$ 176,058.29			$ 176,058.29
17	L	Labour D	1	1009082	#	1000	1000		100%	1009.1	hr	$	77.43			$ 78,130.41		$ 78,130.41
18	P	Grader	1	2630643	#	115	115		100%	22875.2	hr	$	217.61	$ 4,977,927.60				$ 4,977,927.60
19	P	D8 bulldozer	1	2630643	#	115	115		100%	22875.2	hr	$	348.60	$ 7,974,271.37				$ 7,974,271.37
20	P	Water Cart	1	2630643	#	115	115		50%	11437.6	hr	$	166.32	$ 1,902,271.77				$ 1,902,271.77
21	P	Backhoe	1	2630643	#	115	115		50%	11437.6	hr	$	143.43	$ 1,640,508.29				$ 1,640,508.29
22	P	Tipper Truck	1	2630643	#	115	115		50%	11437.6	hr	$	220.67	$ 2,523,877.15				$ 2,523,877.15
23	L	Labour C	1	2630643	#	115	115		100%	22875.2	hr	$	83.97			$ 1,920,867.21		$ 1,920,867.21
24	M	Topsoil / General Fill Supply	1	491199	#	1	1		100%	491198.8	m3	$	48.50		$ 23,824,490.44			$ 23,824,490.44
25	P	Grader	1	100908	#	115	115		100%	877.5	hr	$	217.61	$ 190,946.75				$ 190,946.75
26	P	D8 bulldozer	1	100908	#	115	115		100%	877.5	hr	$	348.60	$ 305,882.54				$ 305,882.54
27	P	Water Cart	1	100908	#	115	115		50%	438.7	hr	$	166.32	$ 72,968.64				$ 72,968.64
28	P	Backhoe	1	100908	#	115	115		50%	438.7	hr	$	143.43	$ 62,927.74				$ 62,927.74
29	P	Tipper Truck	1	100908	#	115	115		50%	438.7	hr	$	220.67	$ 96,812.60				$ 96,812.60
30	L	Labour C	2	100908	#	115	115		100%	1754.9	hr	$	83.97			$ 147,363.87		$ 147,363.87
31	M	Topsoil / General Fill Supply	1	100908	#	1	1		100%	100908.0	m3	$	48.50		$ 4,894,315.05			$ 4,894,315.05
32	M	Supply Fertilizer	1	1009082	#	5000	5000	m2/t	100%	201.8	tonnes	$	498.32		$ 100,568.32			$ 100,568.32
33	P	Tipper Truck	1	1009082	#	1000	1000	m2/hr	50%	504.5	hr	$	220.67	$ 111,334.71				$ 111,334.71
34	P	20T Excavator	1	1009082	#	1000	1000		25%	252.3	hr	$	200.32	$ 50,535.69				$ 50,535.69
35	P	Water Cart	1	1009082	#	1000	1000		15%	151.4	hr	$	166.32	$ 25,174.23				$ 25,174.23
36	L	Labour D	1	1009082	#	1000	1000		100%	1009.1	hr	$	77.43			$ 78,130.41		$ 78,130.41
37	P	Tractor Spreader	1	1009082	#	1000	1000		100%	1009.1	hr	$	134.43	$ 135,653.20				$ 135,653.20
38	M	Tube stock Supply	1	360156	unit	1	1		100%	360156.0	each	$	1.11		$ 398,825.44			$ 398,825.44
		Mobilisation and Demobilisation Allowance (1% of Plant Cost)												$ 480,696.97				$ 480,696.97
		Allowance for Labour Escalation (2% YOY) - Allow 40% of Plant to be Labour Related									Duration		3.81	$ 1,507,871.52		$ 628,359.28		$ 2,136,230.80
		Total Treatment Cost												**$ 50,058,265.09**	**$ 29,968,990.81**	**$ 8,640,988.81**	**$ 71,024,585.92**	**$ 159,692,830.64**
5.0 Additional Markups																		

Asset name: DBCT - Seawall and Transfer Station Area

#	Type	Direct Cost Schedule	Quantity	Quantity (Risk)	Qty Units	Production Rate	Productivity (Risk)	Pr Units	Utilisation	Total Resource Quantity	Res Qty Units	Resource Rate	Plant Cost	Material Cost	Labour Cost	Disposal Cost	Total Cost
1.0 Site Establishment													$ -	$ -	$ -	$ -	$ -
1.01		**Site Establishment for DBCT Decommissioning and Deconstruction**	1	1		1	1	#N/A					$ -	$ -	$ -	$ -	$ -
2.0 Decommissioning of Seawall and Transfer Station Area													**$ 1,990,350.60**	**$ 16,610.53**	**$ 967,892.11**	**$ -**	**$ 2,974,853.24**
2.01		**Chemical Sweep**	80	80	hrs	1	1	N/A					$ 3,207.66	$ 1,107.37	$ 10,839.37	$ -	$ 15,154.40
1	L	Labour B	4	20	#		1		100%	80.0	hr	$ 93.51			$ 7,480.50		$ 7,480.50
2	P	Elevated Work Platform	4	20	#		1		25%	20.0	hr	$ 133.81	$ 2,676.13				$ 2,676.13
3	M	Consumables 2	1	1	unit		1		100%	1.0	each	$ 1,107.37		$ 1,107.37			$ 1,107.37
4	P	Forklift (2-3t)	1	80	#		1		50%	40.0	hr	$ 13.29	$ 531.54				$ 531.54
5	L	Labour C	1	80	#		1		50%	40.0	hr	$ 83.97			$ 3,358.87		$ 3,358.87
2.02		**Removal of Universal Wastes (Lighting, ODS, Mercury, Radioactive Devices)**	200	200	hrs	1	1	N/A					$ 19,373.57	$ 5,536.84	$ 27,098.42	$ -	$ 52,008.83
1	L	Labour B	4	50	#		1		100%	200.0	hr	$ 93.51			$ 18,701.24		$ 18,701.24
2	P	Elevated Work Platform	4	50	#		1		50%	100.0	hr	$ 133.81	$ 13,380.63				$ 13,380.63
3	M	Consumables 5	1	1	unit		1		100%	1.0	each	$ 5,536.84		$ 5,536.84			$ 5,536.84
4	P	50T Mobile Crane	1	200	#		1		10%	20.0	hr	$ 233.21	$ 4,664.10				$ 4,664.10
5	P	Forklift (2-3t)	1	200	#		1		50%	100.0	hr	$ 13.29	$ 1,328.84				$ 1,328.84
6	L	Labour C	1	200	#		1		50%	100.0	hr	$ 83.97			$ 8,397.18		$ 8,397.18
2.03		**Draining of Equipment Oils**	300	300	hrs	1	1	N/A					$ 64,930.89	$ 5,536.84	$ 32,250.45	$ -	$ 102,718.18
1	L	Labour B	4	75	#		1		100%	300.0	hr	$ 93.51			$ 28,051.86		$ 28,051.86
2	P	Elevated Work Platform	4	75	#		1		100%	300.0	hr	$ 133.81	$ 40,141.89				$ 40,141.89
3	M	Consumables 5	1	1	unit		1		100%	1.0	each	$ 5,536.84		$ 5,536.84			$ 5,536.84
4	P	Suck up waste truck	1	50.0	#		1		100%	50.0	hr	$ 237.32	$ 11,866.01				$ 11,866.01
5	L	Labour C	1	50.0	#		1		100%	50.0	hr	$ 83.97			$ 4,198.59		$ 4,198.59
6	P	Mobile Pumping Unit	1	30.0	#		1		100%	30.0	Day	$ 320.03	$ 9,600.89				$ 9,600.89
7	P	Waste Storage Container	1	30.0	#		1		100%	30.0	Day	$ 110.74	$ 3,322.11				$ 3,322.11
2.04		**Cleaning of Drive/Transfer Towers**					1						$ 417,909.07	$ -	$ 167,943.53	$ -	$ 585,852.60
1	L	Labour C	10	200.00	#		1		100%	2000.0	hr	$ 83.97			$ 167,943.53		$ 167,943.53
2	P	High Pressure Cleaner	10	20.00	#		1		100%	200.0	Day	$ 276.84	$ 55,368.43				$ 55,368.43
3	P	Elevated Work Platform	10	200.00	#		1		100%	2000.0	hr	$ 133.81	$ 267,612.57				$ 267,612.57
4	P	Suck up waste truck	2	200.00	#		1		100%	400.0	hr	$ 237.32	$ 94,928.07				$ 94,928.07
2.05		**Cleaning of Surge Bins/Sample Plants**			hrs	1	1	N/A					$ 438,804.53	$ -	$ 176,340.70	$ -	$ 615,145.23
1	L	Labour C	10	210.00	#		1		100%	2100.0	hr	$ 83.97			$ 176,340.70		$ 176,340.70
2	P	High Pressure Cleaner	10	21.00	#		1		100%	210.0	Day	$ 276.84	$ 58,136.85				$ 58,136.85
3	P	Elevated Work Platform	10	210.00	#		1		100%	2100.0	hr	$ 133.81	$ 280,993.20				$ 280,993.20
4	P	Suck up waste truck	2	210.00	#		1		100%	420.0	hr	$ 237.32	$ 99,674.47				$ 99,674.47
2.06		**Cleaning of Drive/Transfer Tower & Surge Bin Slabs**			hrs	1	1	N/A					$ 30,059.30	$ -	$ 33,588.71	$ -	$ 63,648.00
1	L	Labour C	10	40.00	#		1		100%	400.0	hr	$ 83.97			$ 33,588.71		$ 33,588.71
2	P	High Pressure Cleaner	10	4.00	#		1		100%	40.0	Day	$ 276.84	$ 11,073.69				$ 11,073.69
3	P	Suck up waste truck	2	40.00	#		1		100%	80.0	hr	$ 237.32	$ 18,985.61				$ 18,985.61
2.07		**Cleaning of Elevated/Enclosed Conveyors**			hrs	1	1	N/A					$ 480,595.43	$ -	$ 193,135.05	$ -	$ 673,730.49
1	L	Labour C	10	230.00	#		1		100%	2300.0	hr	$ 83.97			$ 193,135.05		$ 193,135.05
2	P	High Pressure Cleaner	10	23.00	#		1		100%	230.0	Day	$ 276.84	$ 63,673.70				$ 63,673.70
3	P	Elevated Work Platform	10	230.00	#		1		100%	2300.0	hr	$ 133.81	$ 307,754.46				$ 307,754.46
4	P	Suck up waste truck	2	230.00	#		1		100%	460.0	hr	$ 237.32	$ 109,167.28				$ 109,167.28
2.08		**Cleaning of Ground Level/Enclosed Conveyors**			hrs	1	1	N/A					$ 511,385.01	$ -	$ 302,298.35	$ -	$ 813,683.36
1	L	Labour C	10	360.00	#		1		100%	3600.0	hr	$ 83.97			$ 302,298.35		$ 302,298.35
2	P	High Pressure Cleaner	10	36.00	#		1		100%	360.0	Day	$ 276.84	$ 99,663.18				$ 99,663.18
3	P	Elevated Work Platform	10	360.00	#		1		50%	1800.0	hr	$ 133.81	$ 240,851.32				$ 240,851.32
4	P	Suck up waste truck	2	360.00	#		1		100%	720.0	hr	$ 237.32	$ 170,870.52				$ 170,870.52
2.09		**Conveyor De-Tensioning Elevated/Enclosed Conveyors**			hrs	1	1	N/A					$ 16,056.75	$ 2,214.74	$ 12,198.77	$ -	$ 30,470.26
1	L	Labour A	4	30	#		1		100%	120.0	hr	$ 101.66			$ 12,198.77		$ 12,198.77
2	P	Elevated Work Platform	4	30	#		1		100%	120.0	hr	$ 133.81	$ 16,056.75				$ 16,056.75
3	M	Consumables 3	1	1	unit		1		100%	1.0	each	$ 2,214.74		$ 2,214.74			$ 2,214.74
2.10		**Conveyor De-Tensioning Ground Level/Enclosed Conveyors**			hrs	1	1	N/A					$ 8,028.38	$ 2,214.74	$ 12,198.77	$ -	$ 22,441.89
1	L	Labour A	4	30	#		1		100%	120.0	hr	$ 101.66			$ 12,198.77		$ 12,198.77
2	P	Elevated Work Platform	4	30	#		1		50%	60.0	hr	$ 133.81	$ 8,028.38				$ 8,028.38
3	M	Consumables 3	1	1	unit		1		100%	1.0	each	$ 2,214.74		$ 2,214.74			$ 2,214.74
3.0 Deconstruction of Seawall and Transfer Station Area													**$ 20,399,555.98**	**$ 348,821.12**	**$ 2,821,791.94**	**$ -**	**$ 23,570,169.04**
3.01		**Removal of Concrete Hanbars**			hrs	1	1	#N/A					$ 6,664,140.74	$ 5,536.84	$ 839,717.63	$ -	$ 7,509,395.21
1	P	200T Excavator	2	4000	#		1		100%	8000.0	hr	$ 415.41	$ 3,323,257.53				$ 3,323,257.53
2	P	30T Excavator	2	4000	#		1		25%	2000.0	hr	$ 229.26	$ 458,519.26				$ 458,519.26
3	L	Labour C	2	4000	#		1		100%	8000.0	hr	$ 83.97			$ 671,774.10		$ 671,774.10
4	P	Semi Trailer Truck	2	4000	#		1		50%	4000.0	hr	$ 188.02	$ 752,079.46				$ 752,079.46
5	P	Semi Trailer Truck	3200	3200	trips	0.25	0.25	hrs/trip	100%	800.0	hr	$ 188.02	$ 150,415.89				$ 150,415.89
6	P	100T Mobile Crane	1	4000	#		1		50%	2000.0	hr	$ 472.64	$ 945,272.00				$ 945,272.00
7	P	Semi Trailer Truck	1	4000	#		1		50%	2000.0	hr	$ 188.02	$ 376,039.73				$ 376,039.73
8	L	Labour C	2	2000	#		1		50%	2000.0	hr	$ 83.97			$ 167,943.53		$ 167,943.53
9	P	30T Excavator	1	2400	#		1		50%	1200.0	hr	$ 229.26	$ 275,111.56				$ 275,111.56
10	P	Hydraulic Hammer / Rock Saw - 36T to 50T	1	2400	#		1		50%	1200.0	hr	$ 236.38	$ 283,654.69				$ 283,654.69
11	P	Water Cart	1	2400	#		1		25%	600.0	hr	$ 166.32	$ 99,790.62				$ 99,790.62
12	M	Consumables 5	1	1	unit	1.0	1.0		100%	1.0	each	$ 5,536.84		$ 5,536.84			$ 5,536.84
3.02		**Demolition of Ground Module Outloading Conveyors**			hrs	1	1	#N/A					$ 279,103.91	$ 27,684.22	$ 78,466.28	$ -	$ 385,254.41
1	P	100T Mobile Crane	1	270	#		1		50%	135.0	hr	$ 472.64	$ 63,805.86				$ 63,805.86
2	P	Elevated Work Platform	4	262	#		1		10%	104.7	hr	$ 133.81	$ 14,010.17				$ 14,010.17
3	P	30T Excavator (with Demolition Jaws)	1	1047	#		1		50%	523.5	hr	$ 295.70	$ 154,807.02				$ 154,807.02
4	P	30T Excavator (with Grapple)	1	142	#		1		100%	141.6	hr	$ 251.35	$ 35,596.95				$ 35,596.95
5	L	Labour A	4	262	#		1		50%	523.5	hr	$ 101.66			$ 53,219.61		$ 53,219.61
6	L	Labour B	1	270	#		1		100%	270.0	hr	$ 93.51			$ 25,246.68		$ 25,246.68
7	P	Water Cart	1	262	#		1		25%	65.4	hr	$ 166.32	$ 10,883.92				$ 10,883.92
8	M	Consumables 5	5	5	unit	1.0	1.0		100%	5.0	each	$ 5,536.84		$ 27,684.22			$ 27,684.22
3.03		**Demolition of Elevated Outloading Conveyor**			hrs	1	1	#N/A					$ 408,103.94	$ 55,368.43	$ 80,920.07	$ -	$ 544,392.44
1	P	300T Mobile Crane	1	421	#		1		50%	210.5	hr	$ 720.68	$ 151,702.19				$ 151,702.19
2	P	Elevated Work Platform	4	204	#		1		50%	408.8	hr	$ 133.81	$ 54,695.81				$ 54,695.81
3	P	30T Excavator (with Demolition Jaws)	1	818	#		1		50%	408.8	hr	$ 295.70	$ 120,873.59				$ 120,873.59
4	P	30T Excavator (with Grapple)	1	288	#		1		100%	287.8	hr	$ 251.35	$ 72,334.17				$ 72,334.17
5	L	Labour A	4	204	#		1		50%	408.8	hr	$ 101.66			$ 41,553.96		$ 41,553.96
6	L	Labour B	1	421	#		1		100%	421.0	hr	$ 93.51			$ 39,366.11		$ 39,366.11
7	P	Water Cart	1	204	#		1		25%	51.1	hr	$ 166.32	$ 8,498.18				$ 8,498.18
8	M	Consumables 5	10	10	unit	1.0	1.0		100%	10.0	each	$ 5,536.84		$ 55,368.43			$ 55,368.43
3.04		**Demolition of Outloading Drive/Transfer Towers**				1	1	#N/A					$ 785,398.61	$ 55,368.43	$ 162,264.65	$ -	$ 1,003,031.70
1	P	300T Mobile Crane	1	939	#		1		50%	469.5	hr	$ 720.68	$ 338,357.15				$ 338,357.15
2	P	Elevated Work Platform	4	366	#		1		50%	732.5	hr	$ 133.81	$ 98,011.77				$ 98,011.77
3	P	30T Excavator (with Demolition Jaws)	1	1465	#		1		50%	732.5	hr	$ 295.70	$ 216,598.57				$ 216,598.57
4	P	30T Excavator (with Grapple)	1	466	#		1		100%	466.3	hr	$ 251.35	$ 117,202.87				$ 117,202.87
5	L	Labour A	4	366	#		1		50%	732.5	hr	$ 101.66			$ 74,462.33		$ 74,462.33
6	L	Labour B	1	939	#		1		100%	939.0	hr	$ 93.51			$ 87,802.33		$ 87,802.33
7	P	Water Cart	1	366	#		1		25%	91.6	hr	$ 166.32	$ 15,228.26				$ 15,228.26
8	M	Consumables 5	10	10	unit	1.0	1.0		100%	10.0	each	$ 5,536.84		$ 55,368.43			$ 55,368.43
3.05		**Demolition of Surge Bins & Sample Plant**	10.0	10	hrs	1	1	#N/A					$ 700,920.03	$ 55,368.43	$ 158,942.58	$ -	$ 915,241.04
1	P	300T Mobile Crane	1	1022	#		1		50%	510.8	hr	$ 720.68	$ 368,085.01				$ 368,085.01
2	P	Elevated Work Platform	4	312	#		1		50%	623.9	hr	$ 133.81	$ 83,485.09				$ 83,485.09
3	P	30T Excavator (with Demolition Jaws)	1	1248	#		1		50%	623.9	hr	$ 295.70	$ 184,495.71				$ 184,495.71
4	P	30T Excavator (with Grapple)	1	206	#		1		100%	206.5	hr	$ 251.35	$ 51,893.00				$ 51,893.00
5	L	Labour A	4	312	#		1		50%	623.9	hr	$ 101.66			$ 63,425.99		$ 63,425.99
6	L	Labour B	1	1022	#		1		100%	1021.5	hr	$ 93.51			$ 95,516.59		$ 95,516.59
7	P	Water Cart	1	312	#		1		25%	78.0	hr	$ 166.32	$ 12,971.22				$ 12,971.22
8	M	Consumables 5	10	10	unit	1.0	1.0		100%	10.0	each	$ 5,536.84		$ 55,368.43			$ 55,368.43
3.06		**Towers, Surge Bins**	44.4	44		1	1	#N/A					$ 25,693.47	$ 5,536.84	$ 3,731.37	$ -	$ 34,961.68
1	P	30T Excavator	1	44	#		1.0		100%	44.4	hr	$ 229.26	$ 10,187.38				$ 10,187.38
2	P	Water Cart	1	44	#		1.0		50%	22.2	hr	$ 166.32	$ 3,695.25				$ 3,695.25
3	P	Hydraulic Hammer / Rock Saw - 36T to 50T	1	44	#		1.0		50%	22.2	hr	$ 236.38	$ 5,251.87				$ 5,251.87
4	P	Jackhammer and hoses	1	44	#		1.0		50%	22.2	hr	$ 184.88	$ 4,107.60				$ 4,107.60
5	L	Labour C	4	11	#		1.0		100%	44.4	hr	$ 83.97			$ 3,731.37		$ 3,731.37
6	M	Consumables 5	1	1	unit	1.0	1.0		100%	1.0	each	$ 5,536.84		$ 5,536.84			$ 5,536.84
7	P	Tipper Truck	1	44	#		1.0		25%	11.1	hr	$ 220.67	$ 2,451.37				$ 2,451.37
3.07		**Surge Bins**	1080.3	1080	hrs	1	1	#N/A					$ 634,124.24	$ 33,221.06	$ 93,404.46	$ -	$ 760,749.77
1	P	30T Excavator	1	1080	#		1.0		100%	1080.3	hr	$ 229.26	$ 247,676.47				$ 247,676.47
2	P	Water Cart	1	1080	#		1.0		50%	540.2	hr	$ 166.32	$ 89,839.15				$ 89,839.15
3	P	Hydraulic Hammer / Rock Saw - 36T to 50T	1	1080	#		1.0		50%	540.2	hr	$ 236.38	$ 127,683.83				$ 127,683.83
4	P	Jackhammer and hoses	1	1080	#		1.0		50%	540.2	hr	$ 184.88	$ 99,864.38				$ 99,864.38
5	L	Labour C	4	270	#		1.0		100%	1080.3	hr	$ 83.97			$ 90,717.37		$ 90,717.37
6	M	Consumables 5	5	5	unit	1.0	1.0		100%	5.0	each	$ 5,536.84		$ 27,684.22			$ 27,684.22
7	P	Tipper Truck	1	1080	#		1.0		25%	270.1	hr	$ 220.67	$ 59,597.95				$ 59,597.95
8	P	30T Excavator (with Demolition Jaws)	1	32	#		1		100%	32.0	hr	$ 295.70	$ 9,462.46				$ 9,462.46
9	L	Labour C	1	32	#		1		100%	32.0	hr	$ 83.97			$ 2,687.10		$ 2,687.10
10	M	Consumables 5	1	1	unit	1	1		100%	1.0	each	$ 5,536.84		$ 5,536.84			$ 5,536.84
3.08		**Removal of Armour Rock on shoreline below Hanbar**			hrs	1	1	#N/A					$ 10,387,502.95	$ 110,736.86	$ 1,345,710.47	$ -	$ 11,843,950.29
1	P	200T Excavator	2	6383	#		1.0		100%	12766.3	hr	$ 415.41	$ 5,303,192.05				$ 5,303,192.05
2	P	200T Excavator	2	3830	#		1.0		100%	7659.8	hr	$ 415.41	$ 3,181,915.23				$ 3,181,915.23
3	P	Truck and Dog	3	4255	#		1.0		50%	6383.1	hr	$ 194.00	$ 1,238,338.51				$ 1,238,338.51
4	L	Labour C	3	4255	#		1.0		100%	12766.3	hr	$ 83.97			$ 1,072,004.51		$ 1,072,004.51
5	P	Truck and Dog	6519	6519	Trips	0.50	0.5	hrs/trip	100%	3259.5	hr	$ 194.00	$ 632,349.26				$ 632,349.26
6	L	Labour C	2	1630	#		1.0		100%	3259.5	hr	$ 83.97			$ 273,705.96		$ 273,705.96
7	P	D8 bulldozer	1	56	#		1.0		100%	56.0	hr	$ 348.60	$ 19,521.58				$ 19,521.58
8	P	Grader	1	56	#		1.0		100%	56.0	hr	$ 217.61	$ 12,186.32				$ 12,186.32
9	M	Consumables 5	20	20	unit	1.0	1.0		100%	20.0	each	$ 5,536.84		$ 110,736.86			$ 110,736.86
3.09		**Crushing of concrete to 100mm minus**	349.1	349	hrs	1	1	#N/A					$ 514,558.08	$ -	$ 58,634.42	$ -	$ 573,192.50

1	P	Crusher Hire	1	349	#		1		100%	349.1	hr	$ 376.51	$ 131,449.97					$ 131,449.97
2	P	Tracked Screening Plant	1	6	#		1		100%	6.0	Week	$ 11,073.69	$ 66,442.12					$ 66,442.12
3	P	30T Excavator	1	349	#		1		100%	349.1	hr	$ 229.26	$ 80,041.82					$ 80,041.82
4	L	Labour C	2	349	#		1		100%	698.3	hr	$ 83.97			$ 58,634.42			$ 58,634.42
5	P	30T Excavator	1	5433	#		12		100%	452.7	hr	$ 229.26	$ 103,788.67					$ 103,788.67
6	P	Truck and Dog	1	5433	#		12		100%	452.7	hr	$ 194.00	$ 87,827.06					$ 87,827.06
7	P	Truck and Dog	232	232	Trips	1.00	1	hrs/trip	100%	232.0	hr	$ 194.00	$ 45,008.45					$ 45,008.45
5.0 Rehabilitation, Remediation & Disposal													**$ 6,959,416.21**	**$ 41,967.18**	**$ 564,651.26**	**$ 1,329,483.91**	**$ 8,895,518.56**	
4.01		**Sea Wall Structure**	0	0	m3	75	75	m3/hr					$ -	$ -	$ -	$ -	$ -	
4.02		**Outloading Materials Handling**		1			1						$ 6,813,968.70	$ -	$ 533,724.80	$ 1,329,483.91	$ 8,677,177.41	
1	P	Tipper Truck	1	200.00	#		1		50%	100.0	hr	$ 220.67	$ 22,066.53				$ 22,066.53	
2	D	Category 2 - Requlated Waste	1	50.00	#		1		100%	50.0	T	$ 385.57				$ 19,278.28	$ 19,278.28	
3	P	Tipper Truck	5	5	trips	2.5	2.50	hrs/trip	100%	12.5	hr	$ 220.67	$ 2,758.32				$ 2,758.32	
4	P	Suck up waste truck	5	5	trips	2.5	2.50	hrs/trip	100%	12.5	hr	$ 237.32	$ 2,966.50				$ 2,966.50	
5	D	Contaminated Material disposal	1	60.00	#		1.00		100%	60.0	T	$ 350.33				$ 21,019.87	$ 21,019.87	
6	P	Suck up waste truck	14	14	trips	2.5	2.50	hrs/trip	100%	35.0	hr	$ 237.32	$ 8,306.21				$ 8,306.21	
7	D	Contaminated Material disposal	1	160.00	#		1.00		100%	160.0	T	$ 350.33				$ 56,052.99	$ 56,052.99	
8	P	Suck up waste truck	14	14	trips	2.5	2.50	hrs/trip	100%	35.0	hr	$ 237.32	$ 8,306.21				$ 8,306.21	
9	D	Contaminated Material disposal	1	168.00	#		1.00		100%	168.0	T	$ 350.33				$ 58,855.64	$ 58,855.64	
10	P	Suck up waste truck	3	3	trips	2.5	2.50	hrs/trip	100%	7.5	hr	$ 237.32	$ 1,779.90				$ 1,779.90	
11	D	Contaminated Material disposal	1	32.00	#		2.50		100%	12.8	T	$ 350.33				$ 4,484.24	$ 4,484.24	
12	P	Suck up waste truck	16	16	trips	2.5	2.50	hrs/trip	100%	40.0	hr	$ 237.32	$ 9,492.81				$ 9,492.81	
13	D	Contaminated Material disposal	1	184.00	#		2.50		100%	73.6	T	$ 350.33				$ 25,784.37	$ 25,784.37	
14	P	Suck up waste truck	24	24	trips	2.5	2.50	hrs/trip	100%	60.0	hr	$ 237.32	$ 14,239.21				$ 14,239.21	
15	D	Contaminated Material disposal	1	288.00	#		2.50		100%	115.2	T	$ 350.33				$ 40,358.15	$ 40,358.15	
16	P	D8 bulldozer	1	1684	#	75	75	m3/hr	100%	22.5	hr	$ 348.60	$ 7,826.06				$ 7,826.06	
17	P	Water Cart	1	1684	#	75	75	m3/hr	25%	5.6	hr	$ 166.32	$ 933.46				$ 933.46	
18	L	Labour C	1	1684	#	75	75	m3/hr	100%	22.5	hr	$ 83.97			$ 1,885.17		$ 1,885.17	
19	P	30T Excavator	1	1684	#	50	50		100%	33.7	hr	$ 229.26	$ 7,720.32				$ 7,720.32	
20	L	Labour C	1	1684	#	50	50		100%	33.7	hr	$ 83.97			$ 2,827.75		$ 2,827.75	
21	P	Truck and Dog	1	1684	#	50	50		100%	33.7	hr	$ 194.00	$ 6,533.01				$ 6,533.01	
22	P	Truck and Dog	72	72	Trips	2.50	2.50	hrs/trip	100%	180.0	hr	$ 194.00	$ 34,920.35				$ 34,920.35	
23	D	Contaminated Soil Disposal	2862	1	#	1	1		100%	2862.4	T	$ 350.33				$ 1,002,779.16	$ 1,002,779.16	
24	P	Semi Trailer Truck	1	400	#	15	15.00		100%	26.7	hr	$ 188.02	$ 5,013.86				$ 5,013.86	
25	P	Semi Trailer Truck	18	18	trips	1.00	1.00	hrs/trip	100%	18.0	hr	$ 188.02	$ 3,384.36				$ 3,384.36	
26	D	Construction & Demolition Waste	400	1	#	1	1.00		100%	400.0	T	$ 208.39				$ 83,354.66	$ 83,354.66	
27	P	Semi Trailer Truck	1	2580	#	15	15.00		100%	172.0	hr	$ 188.02	$ 32,333.15				$ 32,333.15	
28	P	Semi Trailer Truck	110	110	trips	1.00	1.00	hrs/trip	100%	110.0	hr	$ 188.02	$ 20,682.19				$ 20,682.19	
29	P	Suck up waste truck	5	5	trips	2.50	2.50	hrs/trip	100%	12.5	hr	$ 237.32	$ 2,966.50				$ 2,966.50	
30	D	Contaminated Soil Disposal	50	1	#	1	1.00		100%	50.0	T	$ 350.33				$ 17,516.56	$ 17,516.56	
31	P	Grader	1	724486	#	115	115		100%	6299.9	hr	$ 217.61	$ 1,370,934.35				$ 1,370,934.35	
32	P	D8 bulldozer	1	724486	#	115	115		100%	6299.9	hr	$ 348.60	$ 2,196,135.31				$ 2,196,135.31	
33	P	Water Cart	1	724486	#	115	115		50%	3149.9	hr	$ 166.32	$ 523,890.65				$ 523,890.65	
34	P	Backhoe	1	724486	#	115	115		50%	3149.9	hr	$ 143.43	$ 451,800.30				$ 451,800.30	
35	P	Tipper Truck	1	724486	#	115	115		50%	3149.9	hr	$ 220.67	$ 695,082.41				$ 695,082.41	
36	L	Labour C	1	724486	#	115	115		100%	6299.9	hr	$ 83.97			$ 529,011.88		$ 529,011.88	
37	P	30T Excavator	1	36217	#	12.0	12		100%	3018.1	hr	$ 229.26	$ 691,924.43				$ 691,924.43	
38	P	Truck and Dog	1	36217	#	12.0	12		100%	3018.1	hr	$ 194.00	$ 585,513.76				$ 585,513.76	
39	P	Truck and Dog	2195	2195	Trips	0.25	0	hrs/trip	100%	548.8	hr	$ 194.00	$ 106,458.55				$ 106,458.55	
4.03		**Seawall Domain Rehabilitatio**	0	1									$ 145,447.51	$ 41,967.18	$ 30,926.46	$ -	$ 218,341.15	
#REF!	P	Grader	1	92074	#	500	500		100%	184.1	hr	$ 217.61	$ 40,072.97				$ 40,072.97	
#REF!	P	D8 bulldozer	1	92074	#	500	500		100%	184.1	hr	$ 348.60	$ 64,193.93				$ 64,193.93	
#REF!	P	Water Cart	1	92074	#	500	500		25%	46.0	hr	$ 166.32	$ 7,656.77				$ 7,656.77	
#REF!	P	Backhoe	1	92074	#	500	500		50%	92.1	hr	$ 143.43	$ 13,206.31				$ 13,206.31	
#REF!	P	Tipper Truck	1	92074	#	500	500		50%	92.1	hr	$ 220.67	$ 20,317.54				$ 20,317.54	
#REF!	L	Labour C	2	92074	#	500	500		100%	368.3	hr	$ 83.97			$ 30,926.46		$ 30,926.46	
#REF!	M	Tube stock Supply	1	37898	unit	1	1		100%	37898.1	each	$ 1.11		$ 41,967.18			$ 41,967.18	
		Mobilisation and Demobilisation Allowance (1% of Plant Cost)											$ 293,493.23				$ 293,493.23	
		Plant to be Labour Related									Duration	2.62	$ 626,380.47		$ 232,328.24		$ 858,708.71	
		Total Treatment Cost											**$ 30,269,196.48**	**$ 407,398.82**	**$ 4,586,663.55**	**$ 1,329,483.91**	**$ 36,592,742.77**	
5.0 Additional Markups																		

Asset name: DBCT - Jetty and Wharf Area

#	Type	Direct Cost Schedule	Quantity	Quantity (Risk)	Qty Units	Production Rate	Productivity (Risk)	Pr Units	Utilisation	Total Resource Quantity	Res Qty Units	Resource Rate	Plant Cost	Material Cost	Labour Cost	Disposal Cost	Total Cost
1.0 Site Establishment													$ -	$ -	$ -	$ -	$ -
1.01		**Site Establishment for DBCT Decommissioning and Deconstruction**	1	1		1	1	#N/A					$ -	$ -	$ -	$ -	$ -
2.0 Decommissioning of Offshore Area													**$ 2,625,251.41**	**$ 17,717.90**	**$ 3,194,814.28**	**$ -**	**$ 5,837,783.60**
2.01		**Chemical Sweep**	120	120	hrs	1	1	N/A					$ 8,825.68	$ 1,107.37	$ 16,259.05	$ -	$ 26,192.10
1	L	Labour B	4	30	#		1		100%	120.0	hr	$ 93.51			$ 11,220.74		$ 11,220.74
2	P	Elevated Work Platform	4	30	#		1		50%	60.0	hr	$ 133.81	$ 8,028.38				$ 8,028.38
3	M	Consumables 2	1	1	unit		1		100%	1.0	each	$ 1,107.37		$ 1,107.37			$ 1,107.37
4	P	Forklift (2-3t)	1	120	#		1		50%	60.0	hr	$ 13.29	$ 797.31				$ 797.31
5	L	Labour C	1	120	#		1		50%	60.0	hr	$ 83.97			$ 5,038.31		$ 5,038.31
2.02		**Removal of Universal Wastes (Lighting, ODS, Mercury, Radioactive Devices)**	400	400	hrs	1	1	N/A					$ 79,500.70	$ 11,073.69	$ 54,196.84	$ -	$ 144,771.22
1	L	Labour B	4	100	#		1		100%	400.0	hr	$ 93.51			$ 37,402.48		$ 37,402.48
2	P	Elevated Work Platform	4	100	#		1		100%	400.0	hr	$ 133.81	$ 53,522.51				$ 53,522.51
3	M	Consumables 5	2	2	unit		1		100%	2.0	each	$ 5,536.84		$ 11,073.65			$ 11,073.65
4	P	50T Mobile Crane	1	400	#		1		25%	100.0	hr	$ 233.21	$ 23,320.50				$ 23,320.50
4	P	Forklift (2-3t)	1	400	#		1		50%	200.0	hr	$ 13.29	$ 2,657.68				$ 2,657.68
5	L	Labour C	1	400	#		1		50%	200.0	hr	$ 83.97			$ 16,794.35		$ 16,794.35
2.03		**Draining of Equipment Oils**	240	240	hrs	1	1	N/A					$ 47,087.88	$ 5,536.84	$ 25,800.36	$ -	$ 78,425.08
1	L	Labour B	4	60	#		1		100%	240.0	hr	$ 93.51			$ 22,441.49		$ 22,441.49
2	P	Elevated Work Platform	4	60	#		1		50%	120.0	hr	$ 133.81	$ 16,056.75				$ 16,056.75
3	M	Consumables 5	1	1	unit		1		100%	1.0	each	$ 5,536.84		$ 5,536.84			$ 5,536.84
4	P	Suck up waste truck	1	40.0	#		1		100%	40.0	hr	$ 237.32	$ 9,492.81				$ 9,492.81
5	L	Labour C	1	40.0	#		1		100%	40.0	hr	$ 83.97			$ 3,358.87		$ 3,358.87
6	P	Mobile Pumping Unit	1	50.0	#		1		100%	50.0	Day	$ 320.03	$ 16,001.48				$ 16,001.48
7	P	Waste Storage Container	1	50.0	#		1		100%	50.0	Day	$ 110.74	$ 5,536.84				$ 5,536.84
2.04		**Cleaning of Drive/Transfer Towers**			hrs	1	1	N/A					$ 188,059.08	$ -	$ 75,574.59	$ -	$ 263,633.67
1	L	Labour C	10	90.00	#		1		100%	900.0	hr	$ 83.97			$ 75,574.59		$ 75,574.59
2	P	High Pressure Cleaner	10	9.00	#		1		100%	90.0	Day	$ 276.84	$ 24,915.75				$ 24,915.75
3	P	Elevated Work Platform	10	90.00	#		1		100%	900.0	hr	$ 133.81	$ 120,425.66				$ 120,425.66
4	P	Suck up waste truck	2	90.00	#		1		100%	180.0	hr	$ 237.32	$ 42,717.63				$ 42,717.63
2.05		**Conveyors**			hrs	1	1	N/A					$ 2,301,778.07	$ -	$ 3,022,983.45	$ -	$ 5,324,761.52
1	L	Labour C	10	3600.00	#		1		100%	36000.0	hr	$ 83.97			$ 3,022,983.45		$ 3,022,983.45
2	P	High Pressure Cleaner	10	360.00	#		1		100%	3600.0	Day	$ 276.84	$ 996,631.76				$ 996,631.76
3	P	Elevated Work Platform	10	3600.00	#		1		20%	7200.0	hr	$ 133.81	$ 963,405.26				$ 963,405.26
4	P	Suck up waste truck	2	3600.00	#		1		20%	1440.0	hr	$ 237.32	$ 341,741.04				$ 341,741.04
2.06		**Cleaning of Elevated/Open Conveyors**			hrs	1	1	N/A					$ 138,421.08	$ -	$ 419,858.81	$ -	$ 558,279.89
1	L	Labour C	10	500.00	#		1		100%	5000.0	hr	$ 83.97			$ 419,858.81		$ 419,858.81
2	P	High Pressure Cleaner	10	50.00	#		1		100%	500.0	Day	$ 276.84	$ 138,421.08				$ 138,421.08
2.07		**(Booms, netting, small boat w/operator)**			hrs	1	1	N/A					$ -	$ -	$ -	$ -	$ -
2.08		**Conveyors**			hrs	1	1	N/A					$ 2,408.51	$ 2,214.74	$ 36,596.32	$ -	$ 41,219.57
1	L	Labour A	4	90	#		1		100%	360.0	hr	$ 101.66			$ 36,596.32		$ 36,596.32
2	P	Elevated Work Platform	4	90	#		1		5%	18.0	hr	$ 133.81	$ 2,408.51				$ 2,408.51
3	M	Consumables 3	1	1	unit		1		100%	1.0	each	$ 2,214.74		$ 2,214.74			$ 2,214.74
2.09		**Level/Enclosed Conveyors**			hrs	1	1	N/A					$ 32,113.51	$ 2,214.74	$ 48,795.09	$ -	$ 83,123.34
1	L	Labour A	4	120	#		1		100%	480.0	hr	$ 101.66			$ 48,795.09		$ 48,795.09
2	P	Elevated Work Platform	4	120	#		1		50%	240.0	hr	$ 133.81	$ 32,113.51				$ 32,113.51
3	M	Consumables 3	1	1	unit		1		100%	1.0	each	$ 2,214.74		$ 2,214.74			$ 2,214.74
3.0 Deconstruction of Off Shore Area													**$ 93,197,872.81**	**$ 3,433,997.89**	**$ 12,525,130.99**	**$ -**	**$ 109,157,001.68**
3.01	**OK**	**Demolition of Shiploaders 1, 2, 3**			hrs	1	1	#N/A					$ 4,196,989.62	$ 66,442.12	$ 271,373.79	$ -	$ 4,534,805.53
1	P	100T Mobile Crane	1	408	#		1		100%	408.0	hr	$ 472.64	192,835.49				192,835.49
2	P	Elevated Work Platform	2	408	#		1		100%	816.0	hr	$ 133.81	109,185.93				109,185.93
3	L	Labour B	2	408	#		1		100%	816.0	hr	$ 93.51			76,301.06		76,301.06
4	L	Labour A	2	408	#		1		100%	816.0	hr	$ 101.66			82,951.65		82,951.65
5	L	Engineering Consultant	1	450	#		1		100%	450.0	hr	$ 249.14			112,121.01		112,121.01
6	P	Semi Trailer Truck	1	408	#		1		25%	102.0	hr	$ 188.02	19,178.03				19,178.03
7	P	Heavy Lift Vessel (S Class)	1	70	#		1		100%	70.0	day	$ 55,368.43	3,875,790.17				3,875,790.17
8	M	Consumables 2	60	1	unit		1		100%	60.0	each	$ 1,107.37		$ 66,442.12			$ 66,442.12
3.02	**OK**	**Conveyors**	10.0	10	hrs	1	1	#N/A					$ 5,850,697.88	$ 232,547.41	$ 1,351,171.17	$ -	$ 7,434,416.45
1	P	Temp Works Supports (Jetty)	1	2	unit		1		100%	2.0	each	$ 387,579.02	$ 775,158.03				$ 775,158.03
2	P	200T Crane	1	2588	#		1		100%	2587.5	hr	$ 609.05	$ 1,575,923.97				$ 1,575,923.97
3	L	Labour A	4	647	#		1		100%	2587.5	hr	$ 101.66			$ 263,036.04		$ 263,036.04
4	P	Truck with Extendable Trailer (20m(	1	2588	#		1		100%	2587.5	hr	$ 321.14	$ 830,941.73				$ 830,941.73
5	P	Semi Trailer Truck	1	2588	#		1		100%	2587.5	hr	$ 188.02	$ 486,501.40				$ 486,501.40
6	L	Labour C	4	647	#		1		100%	2587.5	hr	$ 83.97			$ 217,276.94		$ 217,276.94
7	M	Consumables 2	200	200	unit		1		100%	200.0	each	$ 1,107.37		$ 221,473.72			$ 221,473.72
8	P	100T Mobile Crane	1	2588	#		1		100%	2587.5	hr	$ 472.64	1,222,945.65				$ 1,222,945.65
9	L	Labour C	2	3330	#		1		100%	6660.0	hr	$ 83.97			$ 559,251.94		$ 559,251.94
10	P	30T Excavator (with Demolition Jaws)	1	3197	#		1		50%	1598.3	hr	$ 295.70	$ 472,605.32				$ 472,605.32
11	L	Labour A	2	1598	#		1		50%	1598.3	hr	$ 101.66			$ 162,472.40		$ 162,472.40
12	M	Consumables 2	10	10	unit		1		100%	10.0	each	$ 1,107.37		$ 11,073.69			$ 11,073.69
13	P	100T Mobile Crane	1	888	#		1		100%	888.0	hr	$ 472.64	$ 419,700.77				$ 419,700.77
14	L	Labour C	2	888	#		1		100%	1776.0	hr	$ 83.97			$ 149,133.85		$ 149,133.85
15	P	30T Excavator (with Grapple)	1	266	#		1		100%	266.3	hr	$ 251.35	$ 66,921.00				$ 66,921.00
3.03	**OK**	**Demolition of Elevated Wharf Outloading**			hrs	1	1	#N/A					$ -	$ -	$ -	$ -	$ -
3.04	**OK**	**Demolition of Wharf Transfer/Drive**			hrs	1	1	#N/A					$ 698,690.13	$ 376,505.33	$ 356,800.73	$ -	$ 1,431,996.20
1	P	100T Mobile Crane	1	388	#		1		100%	388.2	hr	$ 472.64	$ 183,459.57				$ 183,459.57
2	P	Elevated Work Platform	2	388	#		1		100%	776.3	hr	$ 133.81	$ 103,877.17				$ 103,877.17
3	P	30T Excavator (with Demolition Jaws)	1	388	#		1		100%	388.2	hr	$ 295.70	$ 114,780.33				$ 114,780.33
4	P	Truck and Dog	2	388	#		1		100%	776.3	hr	$ 194.00	$ 150,608.54				$ 150,608.54
5	L	Labour A	2	388	#		1		100%	776.3	hr	$ 101.66			$ 78,918.44		$ 78,918.44
6	L	Labour B	6	388	#		1		100%	2329.0	hr	$ 93.51			$ 217,773.62		$ 217,773.62
6	L	Labour D	2	388	#		1		100%	776.3	hr	$ 77.42			$ 60,108.68		$ 60,108.68
8	P	Semi Trailer Truck	2	388	#		1		100%	776.3	hr	$ 188.02	$ 145,964.52				$ 145,964.52
9	M	Lifting Frames x 3	1	1	unit		1		100%	1.0	each	$ 332,210.59		$ 332,210.59			$ 332,210.59
10	M	Consumables 2	40	40	unit		1		100%	40.0	each	$ 1,107.37		$ 44,294.74			$ 44,294.74
3.05	**OK**	**Demolition of Jetty Deck**			hrs	1	1	#N/A					$ 38,324,892.04	$ 830,526.47	$ 2,790,953.71	$ -	$ 41,946,372.22
1	P	Temp Works Supports (Jetty)	1	2	unit		1		100%	2.0	each	$ 387,579.02	$ 775,158.03				$ 775,158.03
2	P	300T crawler crane	1	7500	#		1		100%	7500.0	hr	$ 956.63	$ 7,474,738.19				$ 7,474,738.19
3	P	Bobcat	2	3750	#		1		100%	7500.0	hr	$ 143.43	$ 1,075,735.78				$ 1,075,735.78
4	P	Saw Cutting Attachment	2	3750	#		1		100%	7500.0	hr	$ 83.05	$ 622,894.85				$ 622,894.85
5	L	Labour A	4	1884	#		1		100%	7537.0	hr	$ 101.66			$ 766,184.58		$ 766,184.58
6	P	Truck with Extendable Trailer (20m(	2	3750	#		1		100%	7500.0	hr	$ 321.14	$ 2,408,526.75				$ 2,408,526.75
7	L	Labour C	4	2278	#		1		100%	9112.5	hr	$ 83.97			$ 765,192.69		$ 765,192.69
8	M	Consumables 2	1	750	unit		1		100%	750.0	each	$ 1,107.37		$ 830,526.47			$ 830,526.47
9	P	100T Mobile Crane	1	7500	#		1		100%	7500.0	hr	$ 472.64	$ 3,544,730.01				$ 3,544,730.01
10	L	Labour C	2	7500	#		1		100%	15000.0	hr	$ 83.97			$ 1,259,576.44		$ 1,259,576.44
11	P	30T Excavator (with Demolition Jaws)	1	7500	#		1		100%	7500.0	hr	$ 295.70	$ 2,217,763.12				$ 2,217,763.12
Steelwork extra over plant, excludes offsite transport																	
12	P	350T mobile Crane	1	7500	#		1		100%	7500.0	hr	$ 720.68	$ 5,405,066.24				$ 5,405,066.24
13	P	Tug - 30T BP + crew	1	750	#		1		25%	187.5	day	$ 18,825.27	$ 3,529,737.48				$ 3,529,737.48
14	P	Punt	1	750	unit		1		100%	750.0	day	$ 1,107.37	$ 830,526.47				$ 830,526.47
15	P	Large dumb barge (250')	1	750	#		1		100%	750.0	day	$ 3,322.11	$ 2,491,579.40				$ 2,491,579.40
16	P	Diamond wire pile cutter on small dumb barge	1	750	#		1		100%	750.0	day	$ 6,644.21	$ 4,983,158.79				$ 4,983,158.79
17	P	30T Excavator	1	7500	#		1		100%	7500.0	hr	$ 229.26	$ 1,719,447.24				$ 1,719,447.24
18	P	Specialist cutting equipment	1	750	unit		1		100%	750.0	day	$ 1,661.05	$ 1,245,789.70				$ 1,245,789.70
3.06		**Demolition of Wharf Deck &**			hrs	1	1	#N/A					$ 40,207,574.02	$ 1,817,239.70	$ 4,917,646.75	$ -	$ 46,942,460.48
South Arm Concrete Only, excludes crushing plant and offsite transport																	
1	P	Temp Works Supports (Wharf)	1	1	unit		1		100%	1.0	each	$ 1,107,368.62	$ 1,107,368.62				$ 1,107,368.62
2	P	200T Crane	1	3437	#		1		100%	3436.8	hr	$ 609.05	$ 2,093,162.01				$ 2,093,162.01
3	P	Bobcat	1	3437	#		1		100%	3436.8	hr	$ 143.43	$ 492,937.99				$ 492,937.99
4	P	Saw Cutting Attachment	1	3437	#		1		100%	3436.8	hr	$ 83.05	$ 285,431.18				$ 285,431.18
5	L	Labour A	2	4571	#		1		100%	9141.8	hr	$ 101.66			$ 929,320.30		$ 929,320.30
6	P	Tug - 30T BP + crew	1	344	#		1		25%	85.9	day	$ 18,825.27	$ 1,617,443.37				$ 1,617,443.37
7	P	Large dumb barge (250')	1	344	#		1		50%	171.8	day	$ 3,322.11	$ 570,862.37				$ 570,862.37
8	L	Labour C	4	2285	#		1		100%	9141.8	hr	$ 83.97			$ 767,650.96		$ 767,650.96
9	M	Consumables 2	1	344	unit		1		100%	343.7	each	$ 1,107.37		$ 380,574.91			$ 380,574.91
10	P	300T Mobile Crane	1	3437	#		1		50%	1718.4	hr	$ 720.68	$ 1,238,390.76				$ 1,238,390.76
11	L	Labour C	2	3437	#		1		50%	3436.8	hr	$ 83.97			$ 288,589.95		$ 288,589.95
12	P	30T Excavator (with Demolition Jaws)	1	3437	#		1		50%	1718.4	hr	$ 295.70	$ 508,126.49				$ 508,126.49
South Arm Steelwork Only, excludes offsite transport																	
13	P	Elevated Work Platform	1	3437	#		1		100%	3436.8	hr	$ 133.81	$ 459,858.76				$ 459,858.76
14	p	Specialist cutting equipment	1	344	unit		1		100%	343.7	day	$ 1,661.05	$ 570,862.37				$ 570,862.37
15	p	Punt	1	344	unit		1		100%	343.7	day	$ 1,107.37	$ 380,574.91				$ 380,574.91
16	p	Diamond wire pile cutter on small dumb barge	1	344	#		1		100%	343.7	day	$ 6,644.21	$ 2,283,449.41				$ 2,283,449.41
17	M	Consumables 2	1	344	unit		1		100%	343.7	each	$ 1,107.37		$ 380,574.91			$ 380,574.91
North Arm Concrete Only, excludes crushing plant and offsite transport																	
18	P	Temp Works Supports (Wharf)	1	1	unit		1		100%	1.0	each	$ 1,107,368.62	$ 1,107,368.62				$ 1,107,368.62
19	P	200T Crane	1	2704	#		1		100%	2704.3	hr	$ 609.05	$ 1,647,030.88				$ 1,647,030.88
20	P	Bobcat	2	2704	#		1		100%	5408.5	hr	$ 143.43	$ 775,748.93				$ 775,748.93
21	P	Saw Cutting Attachment	2	2704	#		1		100%	5408.5	hr	$ 83.05	$ 449,190.24				$ 449,190.24
22	L	Labour A	2	3814	#		1		100%	7628.0	hr	$ 101.66			$ 775,437.86		$ 775,437.86
23	P	Tug - 30T BP + crew	1	270	#		1		25%	67.6	day	$ 18,825.27	$ 1,272,705.68				$ 1,272,705.68
24	p	Large dumb barge (250')	1	270	#		1		50%	135.2	day	$ 3,322.11	$ 449,190.24				$ 449,190.24
25	L	Labour C	2	3814	#		1		100%	7628.0	hr	$ 83.97			$ 640,538.70		$ 640,538.70
26	M	Consumables 2	1	270	unit		1		100%	270.4	each	$ 1,107.37		$ 299,460.16			$ 299,460.16
27	P	300T Mobile Crane	1	2704	#		1		50%	1352.1	hr	$ 720.68	$ 974,443.36				$ 974,443.36
28	L	Labour C	2	2704	#		1		50%	2704.3	hr	$ 83.97			$ 227,080.64		$ 227,080.64
29	P	30T Excavator (with Demolition Jaws)	1	2704	#		1		50%	1352.1	hr	$ 295.70	$ 399,825.73				$ 399,825.73
North Arm Steelwork Only, excludes offsite transport																	
30	P	Elevated Work Platform	1	2704	#		1		100%	2704.3	hr	$ 133.81	$ 361,845.65				$ 361,845.65
31	p	Specialist cutting equipment	1	270	unit		1		100%	270.4	day	$ 1,661.05	$ 449,190.24				$ 449,190.24
32	p	Punt	1	270	unit		1		100%	270.4	day	$ 1,107.37	$ 299,460.16				$ 299,460.16
33	p	Diamond wire pile cutter on small dumb barge	1	270	#		1		100%	270.4	day	$ 6,644.21	$ 1,796,760.96				$ 1,796,760.96
34	M	Consumables 2	1	270	unit		1		100%	270.4	each	$ 1,107.37		$ 299,460.16			$ 299,460.16
Mooring dolphins																	
35	P	200T Crane	1	1164	#		1		100%	1164.0	hr	$ 609.05	$ 708,937.39				$ 708,937.39
36	P	Large dumb barge (250')	1	116	#		1		100%	116.4	day	$ 3,322.11	$ 386,693.12				$ 386,693.12
37	P	Punt	1	116	unit		1		100%	116.4	day	$ 1,107.37	$ 128,897.71				$ 128,897.71
38	P	Tug - 30T BP + crew	1	116	#		1		50%	58.2	day	$ 18,825.27	$ 1,095,630.51				$ 1,095,630.51
39	P	Offshore Barge (Storage /Debris Transport	1	21	#		1		100%	21.2	week	$ 12,624.00	$ 267,169.79				$ 267,169.79
40	P	30T Excavator (with Demolition Jaws)	1	1164	#		1		100%	1164.0	hr	$ 295.70	$ 344,196.84				$ 344,196.84
41	L	Labour A	4	1164	#		1		100%	4656.0	hr	$ 101.66			$ 473,312.38		$ 473,312.38
42	L	Labour C	4	1164	#		1		100%	4656.0	hr	$ 83.97			$ 390,972.53		$ 390,972.53
43	M	Consumables 2	1	116	unit		1		100%	116.4	each	$ 1,107.37		$ 128,897.71			$ 128,897.71
Wharf Head, concrete only, excludes crushing plant + offsite transport																	
1	P	200T Crane	2	988	#		1		100%	1976.3	hr	$ 609.05	$ 1,203,663.47				$ 1,203,663.47

2	P	Large dumb barge (250')	1	988	#		1		50%	494.1	day	$ 3,322.11	$ 1,641,359.27					$ 1,641,359.27
4	P	Punt	1	988	unit		1		100%	988.1	day	$ 1,107.37	$ 1,094,239.51					$ 1,094,239.51
5	P	Tug - 30T BP + crew	1	988	#		1		50%	494.1	day	$ 18,825.27	$ 9,301,035.87					$ 9,301,035.87
6	P	Bobcat	1	846	#		1		100%	845.9	hr	$ 143.43	$ 121,323.58					$ 121,323.58
7	P	Saw Cutting Attachment	1	846	#		1		100%	845.9	hr	$ 83.05	$ 70,251.30					$ 70,251.30
8	L	Labour A	4	460	#		1		100%	1841.1	hr	$ 101.66				$ 187,163.59		$ 187,163.59
9	L	Labour C	4	460	#		1		100%	1841.1	hr	$ 83.97				$ 154,603.65		$ 154,603.65
10	M	Consumables 2	1	99	unit		1		100%	98.8	each	$ 1,107.37		$ 109,423.95				$ 109,423.95
11	P	300T Mobile Crane	1	988	#		1		50%	494.1	hr	$ 720.68	$ 356,065.54					$ 356,065.54
12	L	labour C	2	988	#		1		50%	988.1	hr	$ 83.97				$ 82,976.18		$ 82,976.18
13	P	30T Excavator (with Demolition Jaws)	1	988	#		1		50%	494.1	hr	$ 295.70	$ 146,097.94					$ 146,097.94
Wharf Head, extra over plant for steelwork only, excludes offsite transport																			
5	P	Specialist cutting equipment	2	99	unit		1		100%	197.6	day	$ 1,661.05	$ 328,271.85					$ 328,271.85
6	P	Punt	1	99	unit		1		100%	98.8	day	$ 1,107.37	$ 109,423.95					$ 109,423.95
7	P	Diamond wire pile cutter on small dumb barge	2	99	#		1		100%	197.6	day	$ 6,644.21	$ 1,313,087.42					$ 1,313,087.42
10	M	Consumables 2	2	99	unit		1		100%	197.6	each	$ 1,107.37		$ 218,847.90				$ 218,847.90
3.07		**Temporary works/Engineered lifting**			hrs	1	1	#N/A					$ -	$ -	$ -	$ -	$ -	$ -
3.08		**Removal of Jetty/Wharf Piles**			hrs	1	1	#N/A					$ -	$ -	$ -	$ -	$ -	$ -
3.09		**Option A: Drilling around piles to loosen**			hrs	1	1	#N/A					$ -	$ -	$ -	$ -	$ -	$ -
3.10		**Option B: Use abrasive water cutting to**			hrs	1	1	#N/A					$ -	$ -	$ -	$ -	$ -	$ -
3.11		**Crushing of concrete to 100mm minus**	323.6	324	hrs	1	1	#N/A					$ 790,712.76	$ -	$ 54,339.81	$ -	$ 845,052.57
1	P	Crusher Hire	1	324	#		1		100%	323.6	hr	$ 376.51	$ 121,822.06					$ 121,822.06
2	P	Tracked Screening Plant	1	6	#		1		100%	6.0	Week	$ 11,073.69	$ 66,442.12					$ 66,442.12
3	P	30T Excavator	1	324	#		1		100%	323.6	hr	$ 229.26	$ 74,179.25					$ 74,179.25
4	L	Labour C	2	324	#		1		100%	647.1	hr	$ 83.97				$ 54,339.81		$ 54,339.81
5	P	30T Excavator	1	12134	#		12		100%	1011.1	hr	$ 229.26	$ 231,810.15					$ 231,810.15
6	P	Truck and Dog	1	12134	#		12		100%	1011.1	hr	$ 194.00	$ 196,160.19					$ 196,160.19
7	P	Truck and Dog	517	517	Trips	1.00	1	hrs/trip	100%	517.0	hr	$ 194.00	$ 100,298.99					$ 100,298.99
3.12		**Environmental Controls**		1	hrs	1	1	#N/A					$ 3,128,316.35	$ 110,736.86	$ 2,782,845.03	$ -	$ 6,021,898.25
1	P	Punt	1	1825	unit		1		100%	1825.0	day	$ 1,107.37	$ 2,020,947.73					$ 2,020,947.73
2	L	Labour A	1.5	18250	#		1		100%	27375.0	hr	$ 101.66				$ 2,782,845.03		$ 2,782,845.03
3	P	Marine Survey	10	1	#		1		100%	10.0	each	$ 110,736.86	$ 1,107,368.62					$ 1,107,368.62
4	M	Consumables 2	100	100	unit		1		100%	100.0	each	$ 1,107.37		$ 110,736.86				$ 110,736.86
3.13		**Structural Allowance (strengthening**			hrs	1	1	#N/A					$ -	$ -	$ -	$ -	$ -	$ -
3.14		**Distributable (to Offshore only)**			hrs	1	1	#N/A					$ -	$ -	$ -	$ -	$ -	$ -
4.0 Rehabilitation, Remediation & Disposa													**$ 1,856,340.97**	**$ -**	**$ -**	**$ 426,494.39**	**$ 2,282,835.36**
4.01		**Jetty & Berthing Wharf**	1	1	hrs	1	1	#N/A					$ 1,856,340.97	$ -	$ -	$ 426,494.39	$ 2,282,835.36
1	P	Tipper Truck	1	400.00	#		1		50%	200.0	hr	$ 220.67	$ 44,133.07					$ 44,133.07
2	D	Catepory 2 - Regulated Waste	1	100.00	#		1		100%	100.0	T	$ 385.57					$ 38,556.56	$ 38,556.56
3	P	Tipper Truck	9	9	trips	2.5	2.50	hrs/trip	100%	22.5	hr	$ 220.67	$ 4,964.97					$ 4,964.97
4	P	Suck up waste truck	17	17	trips	2.5	2.50	hrs/trip	100%	42.5	hr	$ 237.32	$ 10,086.11					$ 10,086.11
5	D	Contaminated Material disposa	1	200.00	#		1.00		100%	200.0	T	$ 350.33					$ 70,066.23	$ 70,066.23
6	P	Suck up waste truck	6	6	trips	2.5	2.50	hrs/trip	100%	15.0	hr	$ 237.32	$ 3,559.80					$ 3,559.80
7	D	Contaminated Material disposa	1	72.00	#		1.00		100%	72.0	T	$ 350.33					$ 25,223.84	$ 25,223.84
8	P	Suck up waste truck	48	48	trips	2.5	2.50	hrs/trip	100%	120.0	hr	$ 237.32	$ 28,478.42					$ 28,478.42
9	D	Contaminated Material disposa	1	576.00	#		1.00		100%	576.0	T	$ 350.33					$ 201,790.75	$ 201,790.75
10	P	Suck up waste truck	7	7	trips	2.5	2.50	hrs/trip	100%	17.5	hr	$ 237.32	$ 4,153.10					$ 4,153.10
11	D	Contaminated Material disposa	1	80.00	#		1.00		100%	80.0	T	$ 350.33					$ 28,026.49	$ 28,026.49
12	P	Semi Trailer Truck	1	420	#	15	15.00		100%	28.0	hr	$ 188.02	$ 5,268.99					$ 5,268.99
13	P	Semi Trailer Truck	18	18	trips	1.00	1.00	hrs/trip	100%	18.0	hr	$ 188.02	$ 3,384.36					$ 3,384.36
14	D	Construction & Demolition Waste	420	1	#	3	3.00		100%	140.1	T	$ 208.39					$ 29,198.72	$ 29,198.72
15	P	Semi Trailer Truck	1	47721	#	15	15.00		100%	3181.4	hr	$ 188.02	$ 598,163.58					$ 598,163.58
16	P	Semi Trailer Truck	2031	2031	trips	3.00	3.00	hrs/trip	100%	6093.0	hr	$ 188.02	$ 1,145,605.04					$ 1,145,605.04
17	P	Suck up waste truck	8	8	trips	4.50	4.50	hrs/trip	100%	36.0	hr	$ 237.32	$ 8,543.53					$ 8,543.53
18	D	Contaminated Soil Disposal	96	1	#	1	1.00		100%	96.0	T	$ 350.33					$ 33,631.79	$ 33,631.79
4.02		**Offshore Domain Rehabilitation**	0	0	hrs	1	1	#N/A					$ -	$ -	$ -	$ -	$ -	$ -
		Mobilisation and Demobilisation																
		Allowance (1% of Plant Cost)											$ 976,794.65					$ 976,794.65
		Allowance for Labour Escalation (2% YOY)									Duration	6.00	$ 4,929,391.06		$ 1,983,266.33			$ 6,912,657.38
		- Allow 40% of Plant to be Labour Related																
		Total Treatment Cost											**$ 103,758,594.00**	**$ 3,456,145.26**	**$ 18,208,461.82**	**$ 426,494.39**	**$ 125,849,695.47**
5.0 Additional Markups																		

Asset name: DBCT - Water Management (Excl Quarry Dam)

#	Type	Direct Cost Schedule	Quantity	Quantity (Risk)	Qty Units	Production Rate	Productivity (Risk)	Pr Units	Utilisation	Total Resource Quantity	Res Qty Units	Resource Rate	Plant Cost	Material Cost	Labour Cost	Disposal Cost	Total Cost
1.0 Site Establishment													$ -	$ -	$ -	$ -	$ -
1.01		**Site Establishment for DBCT Decommissioning and Deconstruction**	1	1		1	1	#N/A					$ -	$ -	$ -	$ -	$ -
2.0 Decommissioning of Dams Area													**$ 4,412.84**	**$ 553.68**	**$ 16,259.05**	**$ -**	**$ 21,225.58**
2.01		**Chemical Sweep**	120	120	hrs	1	1	N/A					$ 4,412.84	$ 553.68	$ 16,259.05	$ -	$ 21,225.58
1	L	Labour B	4	30	#		1		100%	120.0	hr	$ 93.51			$ 11,220.74		$ 11,220.74
2	P	Elevated Work Platform	4	30	#		1		25%	30.0	hr	$ 133.81	$ 4,014.19				$ 4,014.19
3	M	Consumables 1	1	1	unit		1		100%	1.0	each	$ 553.68		$ 553.68			$ 553.68
4	P	Forklift (2-3t)	1	120	#		1		25%	30.0	hr	$ 13.29	$ 398.65				$ 398.65
5	L	Labour C	1	120	#		1		50%	60.0	hr	$ 83.97			$ 5,038.31		$ 5,038.31
2.02		**Type I (Non-Friable) ACM Abatement - Treatment Plant & Pumphouse**			hrs	1	1	N/A					$ -	$ -	$ -	$ -	$ -
2.03		**Type 2 (Friable) ACM Abatement - Treatment Plant & Pumphouse**			hrs	1	1	N/A					$ -	$ -	$ -	$ -	$ -
3.0 Deconstruction of Dams Areas													**$ 165,399.74**	**$ 6,644.21**	**$ 46,636.65**	**$ -**	**$ 218,680.60**
3.01		**Demolition of Pumphouse/Treatment Plant**			hrs	1	1	#N/A					$ 146,604.60	$ 6,644.21	$ 45,626.39	$ -	$ 198,875.20
1	P	50T Mobile Crane	1	112	#		1		50%	56.0	hr	$ 233.21	$ 13,059.48				$ 13,059.48
2	P	Elevated Work Platform	4	86	#		1		10%	34.4	hr	$ 133.81	$ 4,601.26				$ 4,601.26
3	P	30T Excavator (with Demolition Jaws)	1	342	#		1		50%	171.0	hr	$ 295.70	$ 50,575.35				$ 50,575.35
4	P	30T Excavator (with Grapple)	1	90	#		1		100%	89.8	hr	$ 251.35	$ 22,572.17				$ 22,572.17
5	L	Labour A	4	86	#		1		50%	171.9	hr	$ 101.66			$ 17,478.55		$ 17,478.55
6	L	Labour B	1	112	#		1		100%	112.0	hr	$ 93.51			$ 10,472.70		$ 10,472.70
7	P	Water Cart	1	86	#		1		25%	21.5	hr	$ 166.32	$ 3,574.53				$ 3,574.53
8	M	Consumables 5	1	1	unit	1.0	1		100%	1.0	each	$ 5,536.84		$ 5,536.84			$ 5,536.84
7	P	30T Excavator	1	100	#		1		100%	99.8	hr	$ 229.26	$ 22,889.65				$ 22,889.65
8	P	Water Cart	1	100	#		1		50%	49.9	hr	$ 166.32	$ 8,302.71				$ 8,302.71
9	P	Hydraulic Hammer / Rock Saw - 36T to 50T	1	100	#		1		50%	49.9	hr	$ 236.38	$ 11,800.22				$ 11,800.22
10	P	Jackhammer and hoses	1	100	#		1		50%	49.9	hr	$ 184.88	$ 9,229.22				$ 9,229.22
11	L	Labour C	4	25	#		1		100%	99.8	hr	$ 83.97			$ 8,383.88		$ 8,383.88
12	M	Consumables 1	1	1	unit	1.0	1		100%	1.0	each	$ 553.68		$ 553.68			$ 553.68
13	L	Labour D	4	30	#		1		100%	120.0	hr	$ 77.43			$ 9,291.27		$ 9,291.27
14	M	Consumables 1	1	1	unit	1.0	1		100%	1.0	each	$ 553.68		$ 553.68			$ 553.68
3.02		**Crushing of concrete to 100mm minus**	6	6	hrs	1	1	#N/A					$ 18,795.14	$ -	$ 1,010.26	$ -	$ 19,805.40
1	P	Crusher Hire	1	6	#		1		100%	6.0	hr	$ 376.51	$ 2,264.85				$ 2,264.85
2	P	Tracked Screening Plant	1	1	#		1		100%	1.0	Week	$ 11,073.69	$ 11,073.69				$ 11,073.69
3	P	30T Excavator	1	6	#		1		100%	6.0	hr	$ 229.26	$ 1,379.10				$ 1,379.10
4	L	Labour C	2	6	#		1		100%	12.0	hr	$ 83.97			$ 1,010.26		$ 1,010.26
5	P	30T Excavator	1	94	#		12		100%	7.8	hr	$ 229.26	$ 1,788.25				$ 1,788.25
6	P	Truck and Dog	1	94	#		12		100%	7.8	hr	$ 194.00	$ 1,513.24				$ 1,513.24
7	P	Truck and Dog	4	4	Trips	1.00	1	hrs/trip	100%	4.0	hr	$ 194.00	$ 776.01				$ 776.01
4.0 Earthworks and Rehabilitation Works													**$ 12,122,823.76**	**$ 29,536,792.25**	**$ 1,412,354.04**	**$ 1,586,347.23**	**$ 44,658,317.27**
4.01		**Water Dams**	0	1									$ 115,109.28	$ -	$ 7,207.58	$ 1,586,347.23	$ 1,708,664.08
1	P	D8 bulldozer	1	2575	#	75	75	m3/hr	100%	34.3	hr	$ 348.60	$ 11,968.59				$ 11,968.59
2	P	Water Cart	1	2575	#	75	75	m3/hr	25%	8.6	hr	$ 166.32	$ 1,427.56				$ 1,427.56
3	L	Labour C	1	2575	#	75	75	m3/hr	100%	34.3	hr	$ 83.97			$ 2,883.03		$ 2,883.03
4	P	30T Excavator	1	2575	#	50	50		100%	51.5	hr	$ 229.26	$ 11,806.87				$ 11,806.87
5	L	Labour C	1	2575	#	50	50		100%	51.5	hr	$ 83.97			$ 4,324.55		$ 4,324.55
6	P	Truck and Dog	1	2575	#	50	50		100%	51.5	hr	$ 194.00	$ 9,991.10				$ 9,991.10
7	P	Truck and Dog	110	110.0	Trips	2.50	2.50	hrs/trip	100%	275.0	hr	$ 194.00	$ 53,350.53				$ 53,350.53
8	D	Contaminated Soil Disposal	4506	1	#	1	1		100%	4506.3	T	$ 350.33				$ 1,578,679.81	$ 1,578,679.81
9	P	Semi Trailer Truck	1	22	#	15	15.00		100%	1.5	hr	$ 188.02	$ 275.76				$ 275.76
10	P	Semi Trailer Truck	1	1	trips	1.00	1.00	hrs/trip	100%	1.0	hr	$ 188.02	$ 188.02				$ 188.02
11	D	Construction & Demolition Waste	22	1	#	1	1.00		100%	22.0	T	$ 208.39				$ 4,584.51	$ 4,584.51
12	P	Semi Trailer Truck	1	72	#	15	15.00		100%	4.8	hr	$ 188.02	$ 902.50				$ 902.50
13	P	Semi Trailer Truck	4	4	trips	1.00	1.00	hrs/trip	100%	4.0	hr	$ 188.02	$ 752.08				$ 752.08
14	P	Suck up waste truck	1	1	trips	2.50	2.50	hrs/trip	100%	2.5	hr	$ 237.32	$ 593.30				$ 593.30
15	D	Contaminated Soil Disposal	9	1	#	1	1.00		100%	8.8	T	$ 350.33				$ 3,082.91	$ 3,082.91
16	P	30T Excavator	1	624	#	12.0	12		100%	52.0	hr	$ 229.26	$ 11,921.69				$ 11,921.69
17	P	Truck and Dog	1	624	#	12.0	12		100%	52.0	hr	$ 194.00	$ 10,088.26				$ 10,088.26
18	P	Truck and Dog	38	38	Trips	0.25	0	hrs/trip	100%	9.5	hr	$ 194.00	$ 1,843.02				$ 1,843.02
4.02		**Water Management Domain Rehabilitation**	0	0	m3	12	12	m3/hr					$ 12,007,714.48	$ 29,536,792.25	$ 1,405,146.46	$ -	$ 42,949,653.20
1	M	Supply Gypsum	1	505239	#	5000	5000	m2/t	100%	101.0	tonnes	$ 171.64		$ 17,344.06			$ 17,344.06
2	P	Tipper Truck	1	505239	#	1000	1000	m2/hr	50%	252.6	hr	$ 220.67	$ 55,744.37				$ 55,744.37
3	P	20T Excavator	1	505239	#	1000	1000		25%	126.3	hr	$ 200.32	$ 25,302.80				$ 25,302.80
4	P	Water Cart	1	505239	#	1000	1000		25%	252.6	hr	$ 166.32	$ 42,015.10				$ 42,015.10
5	L	Labour D	1	505239	#	1000	1000		100%	505.2	hr	$ 77.43			$ 39,119.25		$ 39,119.25
6	P	Tractor Spreader	1	505239	#	1000	1000		100%	505.2	hr	$ 134.43	$ 67,920.43				$ 67,920.43
7	P	Grader	1	505239	#	500	500		100%	1010.5	hr	$ 217.61	$ 219,892.98				$ 219,892.98
8	P	D8 bulldozer	1	505239	#	500	500		100%	1010.5	hr	$ 348.60	$ 352,252.27				$ 352,252.27
9	P	Water Cart	1	505239	#	500	500		25%	252.6	hr	$ 166.32	$ 42,015.10				$ 42,015.10
10	P	Backhoe	1	505239	#	500	500		50%	505.2	hr	$ 143.43	$ 72,467.16				$ 72,467.16
11	P	Tipper Truck	1	505239	#	500	500		50%	505.2	hr	$ 220.67	$ 111,488.74				$ 111,488.74
12	L	Labour C	2	505239	#	500	500		100%	2021.0	hr	$ 83.97			$ 169,703.24		$ 169,703.24
13	P	Tractor Spreader	1	505239	#	1000	1000		100%	505.2	hr	$ 134.43	$ 67,920.43				$ 67,920.43
14	P	Water Cart	1	505239	#	1000	1000		100%	505.2	hr	$ 166.32	$ 84,030.19				$ 84,030.19
15	M	Seed Supply	505239	1	m2	1	1		100%	505239.0	m2	$ 0.17		$ 88,150.93			$ 88,150.93
16	L	Labour D	1	505239	#	1000	1000		100%	505.2	hr	$ 77.43			$ 39,119.25		$ 39,119.25
17	P	Grader	1	1430179	#	115	115		100%	12436.3	hr	$ 217.61	$ 2,706,306.98				$ 2,706,306.98
18	P	D8 bulldozer	1	1430179	#	115	115		100%	12436.3	hr	$ 348.60	$ 4,335,303.37				$ 4,335,303.37
19	P	Water Cart	1	1430179	#	115	115		50%	6218.2	hr	$ 166.32	$ 1,034,191.69				$ 1,034,191.69
20	P	Backhoe	1	1430179	#	115	115		50%	6218.2	hr	$ 143.43	$ 891,881.00				$ 891,881.00
21	P	Tipper Truck	1	1430179	#	115	115		50%	6218.2	hr	$ 220.67	$ 1,372,134.53				$ 1,372,134.53
22	L	Labour C	1	1430179	#	115	115		100%	12436.3	hr	$ 83.97			$ 1,044,301.32		$ 1,044,301.32
23	M	Topsoil / General Fill Supply	1	550841	#	1	1		100%	550840.6	m3	$ 48.50		$ 26,717,281.49			$ 26,717,281.49
24	P	Grader	1	50524	#	115	115		100%	439.3	hr	$ 217.61	$ 95,605.83				$ 95,605.83
25	P	D8 bulldozer	1	50524	#	115	115		100%	439.3	hr	$ 348.60	$ 153,153.46				$ 153,153.46
26	P	Water Cart	1	50524	#	115	115		50%	219.7	hr	$ 166.32	$ 36,534.94				$ 36,534.94
27	P	Backhoe	1	50524	#	115	115		50%	219.7	hr	$ 143.43	$ 31,507.52				$ 31,507.52
28	P	Tipper Truck	1	50524	#	115	115		50%	219.7	hr	$ 220.67	$ 48,473.46				$ 48,473.46
29	L	Labour C	2	50524	#	115	115		100%	878.7	hr	$ 83.97			$ 73,784.16		$ 73,784.16
30	M	Topsoil / General Fill Supply	1	50524	#	1	1		100%	50524.0	m3	$ 48.50		$ 2,450,552.72			$ 2,450,552.72
31	M	Supply Fertilizer	1	505239	#	5000	5000	m2/t	100%	101.0	tonnes	$ 498.32		$ 50,353.72			$ 50,353.72
32	P	Tipper Truck	1	505239	#	1000	1000	m2/hr	50%	252.6	hr	$ 220.67	$ 55,744.37				$ 55,744.37
33	P	20T Excavator	1	505239	#	1000	1000		25%	126.3	hr	$ 200.32	$ 25,302.80				$ 25,302.80
34	P	Water Cart	1	505239	#	1000	1000		15%	75.8	hr	$ 166.32	$ 12,604.53				$ 12,604.53
35	L	Labour D	1	505239	#	1000	1000		100%	505.2	hr	$ 77.43			$ 39,119.25		$ 39,119.25
36	P	Tractor Spreader	1	505239	#	1000	1000		100%	505.2	hr	$ 134.43	$ 67,920.43				$ 67,920.43
37	M	Tube stock Supply	1	192447	unit	1	1		100%	192446.6	each	$ 1.11		$ 213,109.34			$ 213,109.34
		Mobilisation and Demobilisation Allowance (1% of Plant Co											$ 122,926.36				$ 122,926.36
		Plant to be Labour Related									Duration	1.73	$ 171,094.67		$ 51,333.04		$ 222,427.71
		Total Treatment Cost											**$ 12,586,657.37**	**$ 29,543,990.15**	**$ 1,526,582.78**	**$ 1,586,347.23**	**$ 45,243,577.52**
5.0 Additional Markups																	

Asset name: DBCT - Quarry Dam

#	Type	Direct Cost Schedule	Quantity	Quantity (Risk)	Qty Units	Production Rate	Productivity (Risk)	Pr Units	Utilisation	Total Resource Quantity	Res Qty Units	Resource Rate	Plant Cost	Material Cost	Labour Cost	Disposal Cost	Total Cost
1.0 Site Establishment													$ -	$ -	$ -	$ -	$ -
1.01		**Site Establishment for DBCT Decommissioning and Deconstruction**	1	1		1	1						$ -	$ -	$ -	$ -	$ -
2.0 Decommissioning of Quarry Dam													**$ 1,338.06**	**$ 553.68**	**$ 3,740.25**	**$ -**	**$ 5,632.00**
2.01		**General Decommissioning Works**	40	40	hrs	1	1						$ 1,338.06	$ 553.68	$ 3,740.25	$ -	$ 5,632.00
1	L	Labour B	4	10	#		1		100%	40.0	hr	$ 93.51			$ 3,740.25		$ 3,740.25
2	P	Elevated Work Platform	4	10	#		1		25%	10.0	hr	$ 133.81	$ 1,338.06				$ 1,338.06
3	M	Consumables 1	1	1	unit		1		100%	1.0	each	$ 553.68		$ 553.68			$ 553.68
3.0 Deconstruction of Quarry Dam													**$ 55,582.17**	**$ 3,322.11**	**$ 8,333.55**	**$ -**	**$ 67,237.83**
3.01		**Deconstruction of the Pumping Infrastructure**			hrs	1	1						$ 39,775.31	$ 3,322.11	$ 7,729.74	$ -	$ 50,827.15
1	P	50T Mobile Crane	1	12	#		1		50%	6.0	hr	$ 233.21	$ 1,399.23				$ 1,399.23
2	P	Elevated Work Platform	4	8	#		1		10%	3.1	hr	$ 133.81	$ 420.35				$ 420.35
3	P	30T Excavator (with Demolition Jaws)	1	31	#		1		50%	15.6	hr	$ 295.70	$ 4,626.25				$ 4,626.25
4	P	30T Excavator (with Grapple)	1	7	#		1		100%	7.1	hr	$ 251.35	$ 1,790.84				$ 1,790.84
5	L	Labour A	4	8	#		1		50%	15.7	hr	$ 101.66			$ 1,596.77		$ 1,596.77
6	L	Labour B	1	12	#		1		100%	12.0	hr	$ 93.51			$ 1,122.07		$ 1,122.07
7	P	Water Cart	1	8	#		1		25%	2.0	hr	$ 166.32	$ 326.55				$ 326.55
8	M	Consumables 5	1	1	unit	1.0	1		100%	0.5	each	$ 5,536.84		$ 2,768.42			$ 2,768.42
7	P	30T Excavator	1	60	#		1		100%	59.7	hr	$ 229.26	$ 13,680.75				$ 13,680.75
8	P	Water Cart	1	60	#		1		50%	29.8	hr	$ 166.32	$ 4,962.39				$ 4,962.39
9	P	Hydraulic Hammer / Rock Saw - 36T to 50T	1	60	#		1		50%	29.8	hr	$ 236.38	$ 7,052.79				$ 7,052.79
10	P	Jackhammer and hoses	1	60	#		1		50%	29.8	hr	$ 184.88	$ 5,516.15				$ 5,516.15
11	L	Labour C	4	15	#		1		100%	59.7	hr	$ 83.97			$ 5,010.90		$ 5,010.90
12	M	Consumables 1	1	1	unit	1.0	1		100%	1.0	each	$ 553.68		$ 553.68			$ 553.68
3.02		**Crushing of concrete to 100mm minus**	3.6	4	hrs	1	1						$ 15,806.86	$ -	$ 603.81	$ -	$ 16,410.68
1	P	Crusher Hire	1	4	#		1		100%	3.6	hr	$ 376.51	$ 1,353.66				$ 1,353.66
2	P	Tracked Screening Plant	1	1	#		1		100%	1.0	Week	$ 11,073.69	$ 11,073.69				$ 11,073.69
3	P	30T Excavator	1	4	#		1		100%	3.6	hr	$ 229.26	$ 824.27				$ 824.27
4	L	Labour C	2	4	#		1		100%	7.2	hr	$ 83.97			$ 603.81		$ 603.81
5	P	30T Excavator	1	56	#		12		100%	4.7	hr	$ 229.26	$ 1,068.81				$ 1,068.81
6	P	Truck and Dog	1	56	#		12		100%	4.7	hr	$ 194.00	$ 904.44				$ 904.44
7	P	Truck and Dog	3	3	Trips	1.00	1	hrs/trip	100%	3.0	hr	$ 194.00	$ 582.01				$ 582.01
4.0 Earthworks and Rehabilitation Works													**$ 12,222,617.31**	**$ 43,334,823.14**	**$ 1,262,998.31**	**$ 767.10**	**$ 56,821,205.85**
4.01		**Quarry Dam**		1									$ 15,626.80	$ -	$ -	$ 767.10	$ 16,393.90
1	P	30T Excavator (with Demolition Jaws)	1	2	#	15	15.00		100%	0.1	hr	$ 295.70	$ 39.43				$ 39.43
2	P	Semi Trailer Truck	1	2	#	15	15.00		100%	0.1	hr	$ 188.02	$ 25.07				$ 25.07
3	P	Semi Trailer Truck	1	1	trips	1.00	1.00	hrs/trip	100%	1.0	hr	$ 188.02	$ 188.02				$ 188.02
4	D	Construction & Demolition Waste	2	1	#	1	1.00		100%	2.0	T	$ 208.39				$ 416.77	$ 416.77
5	P	30T Excavator (with Demolition Jaws)	1	10	#	15	15.00		100%	0.7	hr	$ 295.70	$ 197.13				$ 197.13
6	P	Semi Trailer Truck	1	10	#	15	15.00		100%	0.7	hr	$ 188.02	$ 125.35				$ 125.35
7	P	Semi Trailer Truck	1	1	trips	1.00	1.00	hrs/trip	100%	1.0	hr	$ 188.02	$ 188.02				$ 188.02
8	P	Suck up waste truck	1	1	trips	2.50	2.50	hrs/trip	100%	2.5	hr	$ 237.32	$ 593.30				$ 593.30
9	D	Contaminated Soil Disposal	1	1	#	1	1.00		100%	1.0	T	$ 350.33				$ 350.33	$ 350.33
10	P	30T Excavator	1	373	#	12.0	12		100%	31.1	hr	$ 229.26	$ 7,125.39				$ 7,125.39
11	P	Truck and Dog	1	373	#	12.0	12		100%	31.1	hr	$ 194.00	$ 6,029.58				$ 6,029.58
12	P	Truck and Dog	23	23	Trips	0.25	0	hrs/trip	100%	5.8	hr	$ 194.00	$ 1,115.51				$ 1,115.51
4.02		**Quarry Dam Domain Rehabilitation**		1									$ 12,206,990.51	$ 43,334,823.16	$ 1,262,998.31	$ -	$ 56,804,811.99
1	M	Supply Gypsum	1	79088	#	5000	5000	m2/t	100%	15.8	tonnes	$ 171.64		$ 2,714.97			$ 2,714.97
2	P	Tipper Truck	1	79088	#	1000	1000	m2/hr	50%	39.5	hr	$ 220.67	$ 8,725.99				$ 8,725.99
3	P	20T Excavator	1	79088	#	1000	1000		25%	19.8	hr	$ 200.32	$ 3,960.79				$ 3,960.79
4	P	Water Cart	1	79088	#	1000	1000		50%	39.5	hr	$ 166.32	$ 6,576.87				$ 6,576.87
5	L	Labour D	1	79088	#	1000	1000		100%	79.1	hr	$ 77.43			$ 6,123.56		$ 6,123.56
6	P	Tractor Spreader	1	79088	#	1000	1000		100%	79.1	hr	$ 134.43	$ 10,631.98				$ 10,631.98
7	P	Grader	1	79088	#	500	500		100%	158.2	hr	$ 217.61	$ 34,421.13				$ 34,421.13
8	P	D8 bulldozer	1	79088	#	500	500		100%	158.2	hr	$ 348.60	$ 55,140.10				$ 55,140.10
9	P	Water Cart	1	79088	#	500	500		25%	39.5	hr	$ 166.32	$ 6,576.87				$ 6,576.87
10	P	Backhoe	1	79088	#	500	500		50%	79.1	hr	$ 143.43	$ 11,343.71				$ 11,343.71
11	P	Tipper Truck	1	79088	#	500	500		50%	79.1	hr	$ 220.67	$ 17,451.98				$ 17,451.98
12	L	Labour C	2	79088	#	500	500		100%	316.4	hr	$ 83.97			$ 26,564.64		$ 26,564.64
13	P	Tractor Spreader	1	79088	#	1000	1000		100%	79.1	hr	$ 134.43	$ 10,631.98				$ 10,631.98
14	P	Water Cart	1	79088	#	1000	1000		100%	79.1	hr	$ 166.32	$ 13,153.73				$ 13,153.73
15	M	Seed Supply	79088	79088	m2	1	1		100%	79088.0	m2	$ 0.17		$ 13,798.78			$ 13,798.78
16	L	Labour D	1	79088	#	1000	1000		100%	79.1	hr	$ 77.43			$ 6,123.56		$ 6,123.56
17	P	Grader	1	1652329	#	115	115		100%	14368.1	hr	$ 217.61	$ 3,126,678.20				$ 3,126,678.20
18	P	D8 bulldozer	1	1652329	#	115	115		100%	14368.1	hr	$ 348.60	$ 5,008,706.94				$ 5,008,706.94
19	P	Water Cart	1	1652329	#	115	115		50%	7184.0	hr	$ 166.32	$ 1,194,832.90				$ 1,194,832.90
20	P	Backhoe	1	1652329	#	115	115		50%	7184.0	hr	$ 143.43	$ 1,030,417.06				$ 1,030,417.06
21	P	Tipper Truck	1	1652329	#	115	115		50%	7184.0	hr	$ 220.67	$ 1,585,268.47				$ 1,585,268.47
22	L	Labour C	1	1652329	#	115	115		100%	14368.1	hr	$ 83.97			$ 1,206,512.86		$ 1,206,512.86
23	M	Topsoil / General Fill Supply	1	885039	#	1	1		100%	885039.0	m3	$ 48.50		$ 42,926,819.04			$ 42,926,819.04
24	P	Grader	1	7909	#	115	115		100%	68.8	hr	$ 217.61	$ 14,966.09				$ 14,966.09
25	P	D8 bulldozer	1	7909	#	115	115		100%	68.8	hr	$ 348.60	$ 23,974.56				$ 23,974.56
26	P	Water Cart	1	7909	#	115	115		50%	34.4	hr	$ 166.32	$ 5,719.16				$ 5,719.16
27	P	Backhoe	1	7909	#	115	115		50%	34.4	hr	$ 143.43	$ 4,932.17				$ 4,932.17
28	P	Tipper Truck	1	7909	#	115	115		50%	34.4	hr	$ 220.67	$ 7,588.01				$ 7,588.01
29	L	Labour C	2	7909	#	115	115		100%	137.5	hr	$ 83.97			$ 11,550.13		$ 11,550.13
30	M	Topsoil / General Fill Supply	1	7909	#	1	1		100%	7909.0	m3	$ 48.50		$ 383,608.21			$ 383,608.21
31	M	Supply Fertilizer	1	79088	#	5000	5000	m2/t	100%	15.8	tonnes	$ 498.32		$ 7,882.16			$ 7,882.16
32	P	Tipper Truck	1	79088	#	1000	1000	m2/hr	50%	39.5	hr	$ 220.67	$ 8,725.99				$ 8,725.99
33	P	20T Excavator	1	79088	#	1000	1000		25%	19.8	hr	$ 200.32	$ 3,960.79				$ 3,960.79
34	P	Water Cart	1	79088	#	1000	1000		15%	11.9	hr	$ 166.32	$ 1,973.06				$ 1,973.06
35	L	Labour D	1	79088	#	1000	1000		100%	79.1	hr	$ 77.43			$ 6,123.56		$ 6,123.56
36	P	Tractor Spreader	1	79088	#	1000	1000		100%	79.1	hr	$ 134.43	$ 10,631.98				$ 10,631.98
37	M	Tube stock Supply	1	33350	unit	1	1		100%	33350.3	each	$ 1.11		$ 36,931.12			$ 36,931.12
		Mobilisation and Demobilisation Allowance (1% of Plant Co											$ 122,795.38				$ 122,795.38
		Plant to be Labour Related									Duration	2.99	$ 299,955.97		$ 77,866.43		$ 377,822.39
		Total Treatment Cost											**$ 12,702,288.89**	**$ 43,375,630.07**	**$ 1,352,938.54**	**$ 767.10**	**$ 57,431,624.60**
5.0 Additional Markups																	

Asset name: DBCT - Offices & Workshops

#	Type	Direct Cost Schedule	Quantity	Quantity (Risk)	Qty Units	Production Rate	Productivity (Risk)	Pr Units	Utilisation	Total Resource Quantity	Res Qty Units	Resource Rate	Plant Cost	Material Cost	Labour Cost	Disposal Cost	Total Cost
1.0 Site Establishment													$ -	$ -	$ -	$ -	$ -
1.01		**Site Establishment for DBCT Decommissioning and Deconstruction**	1	1		1	1	#N/A					$ -	$ -	$ -	$ -	$ -
2.0 Decommissioning of Offices and Workshops													**$ 172,363.08**	**$ 12,181.05**	**$ 221,451.13**	**$ -**	**$ 405,995.26**
2.01		**Chemical Sweep**	200	200	hrs	1	1	N/A					$ 8,019.16	$ 1,107.37	$ 27,098.42	$ -	$ 36,224.94
1	L	Labour B	4	50	#		1		100%	200.0	hr	$ 93.51			$ 18,701.24		$ 18,701.24
2	P	Elevated Work Platform	4	50	#		1		25%	50.0	hr	$ 133.81	$ 6,690.33				$ 6,690.33
3	M	Consumables 2	1	1	unit		1		100%	1.0	each	$ 1,107.37		$ 1,107.37			$ 1,107.37
4	P	Forklift (2-3t)	1	200	#		1		50%	100.0	hr	$ 13.29	$ 1,328.84				$ 1,328.84
5	L	Labour C	1	200	#		1		50%	100.0	hr	$ 83.97			$ 8,397.18		$ 8,397.18
2.02		**Removal of Universal Wastes (Lighting, ODS, Mercury, Radioactive Devices)**	280	280	hrs	1	1	N/A					$ 20,593.26	$ 5,536.84	$ 37,937.78	$ -	$ 64,067.89
1	L	Labour B	4	70	#		1		100%	280.0	hr	$ 93.51			$ 26,181.74		$ 26,181.74
2	P	Elevated Work Platform	4	70	#		1		50%	140.0	hr	$ 133.81	$ 18,732.88				$ 18,732.88
3	M	Consumables 5	1	1	unit		1		100%	1.0	each	$ 5,536.84		$ 5,536.84			$ 5,536.84
4	P	Forklift (2-3t)	1	280	#		1		50%	140.0	hr	$ 13.29	$ 1,860.38				$ 1,860.38
5	L	Labour C	1	280	#		1		50%	140.0	hr	$ 83.97			$ 11,756.05		$ 11,756.05
2.03		**Flushing of storm and sanitary sewer systems**			hrs	1	1	N/A					$ 54,251.69	$ -	$ 54,581.65	$ -	$ 108,833.33
1	L	Labour C	5	130.00	#		1		100%	650.0	hr	$ 83.97			$ 54,581.65		$ 54,581.65
2	P	High Pressure Cleaner	5	13.00	#		1		100%	65.0	Day	$ 276.84	$ 17,994.74				$ 17,994.74
3	P	Water Cart	1	130.00	#		1		25%	32.5	hr	$ 166.32	$ 5,405.33				$ 5,405.33
4	P	Suck up waste truck	1	130.00	#		1		100%	130.0	hr	$ 237.32	$ 30,851.62				$ 30,851.62
2.04		**Type I (Non-Friable) ACM Abatement - Treatment Plant & Pumphouse**			hrs	1	1	N/A					$ -	$ -	$ -	$ -	$ -
2.05		**Type 3 (Friable) ACM Abatement - Treatment Plant & Pumphouse**			hrs	1	1	N/A					$ -	$ -	$ -	$ -	$ -
2.06		**Removal of Hydraulic, Heating and Lubrication Oils in Tanks**	200	200	hrs	1	1	N/A					$ 18,108.13	$ 5,536.84	$ 22,060.11	$ -	$ 45,705.09
1	L	Labour B	4	50	#		1		100%	200.0	hr	$ 93.51			$ 18,701.24		$ 18,701.24
3	M	Consumables 5	1	1	unit		1		100%	1.0	each	$ 5,536.84		$ 5,536.84			$ 5,536.84
4	P	Suck up waste truck	1	40.0	#		1		100%	40.0	hr	$ 237.32	$ 9,492.81				$ 9,492.81
5	L	Labour C	1	40.0	#		1		100%	40.0	hr	$ 83.97			$ 3,358.87		$ 3,358.87
6	P	Mobile Pumping Unit	1	20.0	#		1		100%	20.0	Day	$ 320.03	$ 6,400.59				$ 6,400.59
7	P	Waste Storage Container	1	20.0	#		1		100%	20.0	Day	$ 110.74	$ 2,214.74				$ 2,214.74
2.07		**Cleaning of Building Pits Sumps and Trenches**	250	250	hrs	1	1	N/A					$ 18,787.06	$ -	$ 20,992.94	$ -	$ 39,780.00
1	L	Labour C	4	62.50	#		1		100%	250.0	hr	$ 83.97			$ 20,992.94		$ 20,992.94
2	P	High Pressure Cleaner	4	6.25	#		1		100%	25.0	Day	$ 276.84	$ 6,921.05				$ 6,921.05
3	P	Suck up waste truck	1	50.00	#		1		100%	50.0	hr	$ 237.32	$ 11,866.01				$ 11,866.01
2.08		**Final Cleaning of Structures**	150	150	hrs	1	1	N/A					$ 11,272.24	$ -	$ 12,595.76	$ -	$ 23,868.00
1	L	Labour C	5	30.00	#		1		100%	150.0	hr	$ 83.97			$ 12,595.76		$ 12,595.76
2	P	High Pressure Cleaner	5	3.00	#		1		100%	15.0	Day	$ 276.84	$ 4,152.63				$ 4,152.63
3	P	Suck up waste truck	1	30.00	#		1		100%	30.0	hr	$ 237.32	$ 7,119.61				$ 7,119.61
2.09		**Cleaning of Stained Concrete**	550	550	hrs	1	1	N/A					$ 41,331.54	$ -	$ 46,184.47	$ -	$ 87,516.01
1	L	Labour C	5	110.00	#		1		100%	550.0	hr	$ 83.97			$ 46,184.47		$ 46,184.47
2	P	High Pressure Cleaner	5	11.00	#		1		100%	55.0	Day	$ 276.84	$ 15,226.32				$ 15,226.32
3	P	Suck up waste truck	1	110.00	#		1		100%	110.0	hr	$ 237.32	$ 26,105.22				$ 26,105.22
3.0 Deconstruction of Offices and Workshops - Infrastructure													**$ 640,422.98**	**$ 27,684.22**	**$ 150,664.30**	**$ -**	**$ 818,771.49**
3.01		**Demolition of DBCT Operations Buildings, Management Buildings, Stores, Warehouse, Maintenance Building, Security Gates and Car Parks**			hrs	1	1	#N/A					$ 578,213.47	$ 27,684.22	$ 143,988.19	$ -	$ 749,885.88
1	P	50T Mobile Crane	1	100	#		1		50%	50.0	hr	$ 233.21	$ 11,660.25				$ 11,660.25
2	P	Elevated Work Platform	4	381	#		1		25%	381.1	hr	$ 133.81	$ 50,995.10				$ 50,995.10
3	P	30T Excavator (with Demolition Jaws)	1	1524	#		1		50%	762.2	hr	$ 295.70	$ 225,390.62				$ 225,390.62
4	P	30T Excavator (with Grapple)	1	519	#		1		100%	519.3	hr	$ 251.35	$ 130,529.96				$ 130,529.96
5	L	Labour A	4	381	#		1		50%	762.2	hr	$ 101.66			$ 77,484.86		$ 77,484.86
6	L	Labour B	1	100	#		1		100%	100.0	hr	$ 93.51			$ 9,350.62		$ 9,350.62
7	P	Water Cart	1	381	#		1		25%	95.3	hr	$ 166.32	$ 15,846.39				$ 15,846.39
8	M	Consumables 5	1	1	unit	1.0	1		100%	1.0	each	$ 5,536.84		$ 5,536.84			$ 5,536.84
9	P	30T Excavator	1	275	#		1		100%	274.9	hr	$ 229.26	$ 63,025.95				$ 63,025.95
10	P	Water Cart	1	275	#		1		50%	137.5	hr	$ 166.32	$ 22,861.27				$ 22,861.27
11	P	Hydraulic Hammer / Rock Saw - 36T to 50T	1	275	#		1		50%	137.5	hr	$ 236.38	$ 32,491.56				$ 32,491.56
12	P	Jackhammer and hoses	1	275	#		1		50%	137.5	hr	$ 184.88	$ 25,412.37				$ 25,412.37
13	L	Labour C	4	69	#		1		100%	274.9	hr	$ 83.97			$ 23,084.74		$ 23,084.74
14	M	Consumables 5	3	3	unit	1.0	1		100%	3.0	each	$ 5,536.84		$ 16,610.53			$ 16,610.53
15	L	Labour D	4	110	#		1		100%	440.0	hr	$ 77.43			$ 34,067.97		$ 34,067.97
16	M	Consumables 5	1	1	unit	1.0	1		100%	1.0	each	$ 5,536.84		$ 5,536.84			$ 5,536.84
3.02		**Removal of Roads**	0	0	hrs	1	1	#N/A					$ -	$ -	$ -	$ -	$ -
3.03		**Crushing of concrete to 100mm minus**	39.8	40	hrs	1	1	#N/A					$ 62,209.51	$ -	$ 6,676.11	$ -	$ 68,885.62
1	P	Crusher Hire	1	40	#		1		100%	39.8	hr	$ 376.51	$ 14,966.88				$ 14,966.88
2	P	Tracked Screening Plant	1	1	#		1		100%	1.0	Week	$ 11,073.69	$ 11,073.69				$ 11,073.69
3	P	30T Excavator	1	40	#		1		100%	39.8	hr	$ 229.26	$ 9,113.55				$ 9,113.55
4	L	Labour C	2	40	#		1		100%	79.5	hr	$ 83.97	-		$ 6,676.11		$ 6,676.11
5	P	30T Excavator	1	619	#		12		100%	51.5	hr	$ 229.26	$ 11,817.36				$ 11,817.36
6	P	Truck and Dog	1	619	#		12		100%	51.5	hr	$ 194.00	$ 9,999.98				$ 9,999.98
7	P	Truck and Dog	27	27	Trips	1.00	1	hrs/trip	100%	27.0	hr	$ 194.00	$ 5,238.05				$ 5,238.05
4.0 Rehabilitation, Remediation & Disposal													**$ 10,734,956.06**	**$ 2,062,079.46**	**$ 1,176,452.45**	**$ 8,410,516.38**	**$ 22,384,004.25**
4.01		**Buildings & Infrastructure**		1			1						$ 742,248.49	$ 1,107.37	$ 58,365.37	$ 8,322,495.67	$ 9,124,216.90
1	P	Tipper Truck	1	280.00	#		1		50%	140.0	hr	$ 220.67	$ 30,893.15				$ 30,893.15
2	D	Category 2 - Regulated Waste	1	100.00	#		1		100%	100.0	T	$ 385.57				$ 38,556.56	$ 38,556.56
3	P	Tipper Truck	9	9	trips	2.5	3	hrs/trip	100%	22.5	hr	$ 220.67	$ 4,964.97				$ 4,964.97
4	P	Suck up waste truck	5	5	trips	2.5	3	hrs/trip	100%	12.5	hr	$ 237.32	$ 2,966.50				$ 2,966.50
5	D	Contaminated Material disposal	1	52.00	#		1		100%	52.0	T	$ 350.33				$ 18,217.22	$ 18,217.22
6	P	Suck up waste truck	4	4	trips	2.5	3	hrs/trip	100%	10.0	hr	$ 237.32	$ 2,373.20				$ 2,373.20
7	D	Contaminated Material disposal	1	48.00	#		1		100%	48.0	T	$ 350.33				$ 16,815.90	$ 16,815.90
8	P	Suck up waste truck	2	2	trips	2.5	3	hrs/trip	100%	5.0	hr	$ 237.32	$ 1,186.60				$ 1,186.60
9	D	Contaminated Material disposal	1	20.00	#		1		100%	20.0	T	$ 350.33				$ 7,006.62	$ 7,006.62
10	P	Suck up waste truck	1	1	trips	2.5	3	hrs/trip	100%	2.5	hr	$ 237.32	$ 593.30				$ 593.30
11	D	Contaminated Material disposal	1	12.00	#		1		100%	12.0	T	$ 350.33				$ 4,203.97	$ 4,203.97
12	P	Suck up waste truck	4	4	trips	2.5	3	hrs/trip	100%	10.0	hr	$ 237.32	$ 2,373.20				$ 2,373.20
13	D	Contaminated Material disposal	1	44.00	#		1		100%	44.0	T	$ 350.33				$ 15,414.57	$ 15,414.57
14	P	D8 bulldozer	1	13707	#	75	75	m3/hr	100%	182.8	hr	$ 348.60	$ 63,707.77				$ 63,707.77
15	P	Water Cart	1	13707	#	75	75	m3/hr	25%	45.7	hr	$ 166.32	$ 7,598.78				$ 7,598.78
16	L	Labour C	1	13707	#	75	75	m3/hr	100%	182.8	hr	$ 83.97			$ 15,346.13		$ 15,346.13
17	P	30T Excavator	1	13707	#	50	50		100%	274.1	hr	$ 229.26	$ 62,846.97				$ 62,846.97
18	L	Labour C	1	13707	#	50	50		100%	274.1	hr	$ 83.97			$ 23,019.19		$ 23,019.19
19	P	Truck and Dog	1	13707	#	50	50		100%	274.1	hr	$ 194.00	$ 53,181.77				$ 53,181.77
20	P	Truck and Dog	584	584	Trips	2.50	2.50	hrs/trip	100%	1460.0	hr	$ 194.00	$ 283,242.80				$ 283,242.80
21	D	Contaminated Soil Disposal	23301	1	#	1	1		100%	23301.1	T	$ 350.33				$ 8,163,086.94	$ 8,163,086.94
22	P	Semi Trailer Truck	1	200	#	15	15.00		100%	13.3	hr	$ 188.02	$ 2,506.93				$ 2,506.93
23	P	Semi Trailer Truck	9	9	trips	1.00	1.00	hrs/trip	100%	9.0	hr	$ 188.02	$ 1,692.18				$ 1,692.18
24	D	Construction & Demolition Waste	200	1	#	1	1.00		100%	200.0	T	$ 208.39				$ 41,677.33	$ 41,677.33
25	P	Semi Trailer Truck	1	1000	#	15	15.00		100%	66.7	hr	$ 188.02	$ 12,534.66				$ 12,534.66
26	P	Semi Trailer Truck	43	43	trips	1.00	1.00	hrs/trip	100%	43.0	hr	$ 188.02	$ 8,084.85				$ 8,084.85
27	P	Suck up waste truck	5	5	trips	2.50	2.50	hrs/trip	100%	12.5	hr	$ 237.32	$ 2,966.50				$ 2,966.50
28	D	Contaminated Soil Disposal	50	1	#	1	1.00		100%	50.0	T	$ 350.33				$ 17,516.56	$ 17,516.56
29	P	30T Excavator	1	4124	#	12.0	12		100%	343.6	hr	$ 229.26	$ 78,782.43				$ 78,782.43
30	P	Truck and Dog	1	4124	#	12.0	12		100%	343.6	hr	$ 194.00	$ 66,666.53				$ 66,666.53
31	P	Truck and Dog	250	250	Trips	0.25	0	hrs/trip	100%	62.5	hr	$ 194.00	$ 12,125.12				$ 12,125.12
32	P	Bobcat	1	5954	#	50	50		100%	119.1	hr	$ 143.43	$ 17,080.96				$ 17,080.96
33	L	Labour C	2	5954	#	50	50		100%	238.2	hr	$ 83.97			$ 20,000.06		$ 20,000.06
34	M	Consumables 1	2	2	unit	1	1	Na	100%	2.0	each	$ 553.68		$ 1,107.37			$ 1,107.37
35	P	Truck and Dog	1	119	#	1.0	1		100%	119.1	hr	$ 194.00	$ 23,103.30				$ 23,103.30
36	P	Truck and Dog	4	4	Trips	1.00	1	hrs/trip	100%	4.0	hr	$ 194.00	$ 776.01				$ 776.01
4.02		**General Utilities**	0	1	hrs	1	1	#N/A					$ 182,936.28	$ -	$ 21,097.91	$ 88,020.70	$ 292,054.89
1	P	30T Excavator	1	251	#		1		100%	251.3	hr	$ 229.26	$ 57,601.48				$ 57,601.48
2	L	Labour C	1	251	#		1		100%	251.3	hr	$ 83.97			$ 21,097.91		$ 21,097.91
3	P	Truck and Dog	1	619	#		1		100%	618.5	hr	$ 194.00	$ 119,999.75				$ 119,999.75
4	P	Truck and Dog	11	1	trips	2.5	2.5	hrs/trip	100%	27.5	hr	$ 194.00	$ 5,335.05				$ 5,335.05
5	D	Contaminated Soil Disposal	251	1	#	1	1.0		100%	251.3	T	$ 350.33				$ 88,020.70	$ 88,020.70

4.03		**Office & Workshop Domain Rehabilitation**	0	1	hrs	1	1	#N/A					$ 9,809,771.23	$ 2,060,972.09	$ 1,096,989.17	$ -	$ 12,967,732.50
1	M	Supply Gypsum	1	278949	#	5000	5000	m2/t	100%	55.8	tonnes	$ 171.64		$ 9,575.88			$ 9,575.88
2	P	Tipper Truck	1	278949	#	1000	1000	m2/hr	50%	139.5	hr	$ 220.67	$ 30,777.19				$ 30,777.19
3	P	20T Excavator	1	278949	#	1000	1000		25%	69.7	hr	$ 200.32	$ 13,970.00				$ 13,970.00
4	P	Water Cart	1	278949	#	1000	1000		50%	139.5	hr	$ 166.32	$ 23,197.08				$ 23,197.08
5	L	Labour D	1	278949	#	1000	1000		100%	278.9	hr	$ 77.43			$ 21,598.24		$ 21,598.24
6	P	Tractor Spreader	1	278949	#	1000	1000		100%	278.9	hr	$ 134.43	$ 37,499.75				$ 37,499.75
7	P	Grader	1	278949	#	500	500		100%	557.9	hr	$ 217.61	$ 121,405.76				$ 121,405.76
8	P	D8 bulldozer	1	278949	#	500	500		100%	557.9	hr	$ 348.60	$ 194,483.04				$ 194,483.04
9	P	Water Cart	1	278949	#	500	500		25%	139.5	hr	$ 166.32	$ 23,197.08				$ 23,197.08
10	P	Backhoe	1	278949	#	500	500		50%	278.9	hr	$ 143.43	$ 40,010.06				$ 40,010.06
11	P	Tipper Truck	1	278949	#	500	500		50%	278.9	hr	$ 220.67	$ 61,554.38				$ 61,554.38
12	L	Labour C	2	278949	#	500	500		100%	1115.8	hr	$ 83.97			$ 93,695.36		$ 93,695.36
13	P	Tractor Spreader	1	278949	#	1000	1000		100%	278.9	hr	$ 134.43	$ 37,499.75				$ 37,499.75
14	P	Water Cart	1	278949	#	1000	1000		100%	278.9	hr	$ 166.32	$ 46,394.16				$ 46,394.16
15	M	Seed Supply	278949	278949	m2	1	1	Na	100%	278949.0	m2	$ 0.17		$ 48,669.27			$ 48,669.27
16	L	Labour D	1	278949	#	1000	1000		100%	278.9	hr	$ 77.43			$ 21,598.24		$ 21,598.24
17	P	Grader	1	1229492	#	115	115		100%	10691.2	hr	$ 217.61	$ 2,326,549.88				$ 2,326,549.88
18	P	D8 bulldozer	1	1229492	#	115	115		100%	10691.2	hr	$ 348.60	$ 3,726,960.62				$ 3,726,960.62
19	P	Water Cart	1	1229492	#	115	115		50%	5345.6	hr	$ 166.32	$ 889,070.82				$ 889,070.82
20	P	Backhoe	1	1229492	#	115	115		50%	5345.6	hr	$ 143.43	$ 766,729.58				$ 766,729.58
21	P	Tipper Truck	1	1229492	#	115	115		50%	5345.6	hr	$ 220.67	$ 1,179,592.51				$ 1,179,592.51
22	L	Labour C	1	1229492	#	115	115		100%	10691.2	hr	$ 83.97			$ 897,761.83		$ 897,761.83
23	M	Topsoil / General Fill Supply	1	10201	#	1	1		100%	10201.1	m3	$ 48.50		$ 494,781.36			$ 494,781.36
24	P	Grader	1	27895	#	115	115		100%	242.6	hr	$ 217.61	$ 52,785.30				$ 52,785.30
25	P	D8 bulldozer	1	27895	#	115	115		100%	242.6	hr	$ 348.60	$ 84,558.15				$ 84,558.15
26	P	Water Cart	1	27895	#	115	115		50%	121.3	hr	$ 166.32	$ 20,171.45				$ 20,171.45
27	P	Backhoe	1	27895	#	115	115		50%	121.3	hr	$ 143.43	$ 17,395.74				$ 17,395.74
28	P	Tipper Truck	1	27895	#	115	115		50%	121.3	hr	$ 220.67	$ 26,762.87				$ 26,762.87
29	L	Labour C	2	27895	#	115	115		100%	485.1	hr	$ 83.97			$ 40,737.26		$ 40,737.26
30	M	Topsoil / General Fill Supply	1	27895	#	1	1		100%	27895.0	m3	$ 48.50		$ 1,352,984.09			$ 1,352,984.09
31	M	Supply Fertilizer	1	278949	#	5000	5000	m2/t	100%	55.8	tonnes	$ 498.32		$ 27,800.94			$ 27,800.94
32	P	Tipper Truck	1	278949	#	1000	1000	m2/hr	50%	139.5	hr	$ 220.67	$ 30,777.19				$ 30,777.19
33	P	20T Excavator	1	278949	#	1000	1000		25%	69.7	hr	$ 200.32	$ 13,970.00				$ 13,970.00
34	P	Water Cart	1	278949	#	1000	1000		15%	41.8	hr	$ 166.32	$ 6,959.12				$ 6,959.12
35	L	Labour D	1	278949	#	1000	1000		100%	278.9	hr	$ 77.43			$ 21,598.24		$ 21,598.24
36	P	Tractor Spreader	1	278949	#	1000	1000		100%	278.9	hr	$ 134.43	$ 37,499.75				$ 37,499.75
37	M	Tube stock Supply	1	114831	unit	1	1		100%	114831.3	each	$ 1.11		$ 127,160.55			$ 127,160.55
		Mobilisation and Demobilisation Allowance (1% of Plant Cost)											$ 115,477.42				$ 115,477.42
		Allowance for Labour Escalation (2% YOY) - Allow 40% of Plant to be Labour Related									Duration	1.48	$ 137,840.25		$ 46,211.41		$ 184,051.67
		Total Treatment Cost											**$ 11,801,059.73**	**$ 2,101,944.73**	**$ 1,594,779.30**	**$ 8,410,516.38**	**$ 23,908,300.14**

Asset name: DBCT - Utilities

#	Type	Direct Cost Schedule	Quantity	Quantity (Risk)	Qty Units	Production Rate	Productivity (Risk)	Pr Units	Utilisation	Total Resource Quantity	Res Qty Units	Resource Rate	Plant Cost	Material Cost	Labour Cost	Disposal Cost	Total Cost
1.0 Site Establishment													$ -	$ -	$ -	$ -	$ -
1.01		**Site Establishment for DBCT Decommissioning and Deconstruction**	1	1		1	1	#N/A					$ -	$ -	$ -	$ -	$ -
2.0 Decommissioning of Utilities													**$ 45,641.28**	**$ 9,412.63**	**$ 61,218.99**	**$ -**	**$ 116,272.91**
2.01		**Draining of Transformer Oils**	400	400	hrs	1	1	N/A					$ 40,962.67	$ 5,536.84	$ 45,799.66	$ -	$ 92,299.17
1	L	Labour B	4	100	#		1		100%	400.0	hr	$ 93.51			$ 37,402.48		$ 37,402.48
3	M	Consumables 5	1	1	unit		1		100%	1.0	each	$ 5,536.84		$ 5,536.84			$ 5,536.84
4	P	Suck up waste truck	1	100.0	#		1		100%	100.0	hr	$ 237.32	$ 23,732.02				$ 23,732.02
5	L	Labour C	1	100.0	#		1		100%	100.0	hr	$ 83.97			$ 8,397.18		$ 8,397.18
6	P	Mobile Pumping Unit	1	40.0	#		1		100%	40.0	Day	$ 320.03	$ 12,801.18				$ 12,801.18
7	P	Waste Storage Container	1	40.0	#		1		100%	40.0	Day	$ 110.74	$ 4,429.47				$ 4,429.47
2.02		**Chemical Sweep**	80	80	hrs	1	1	N/A					$ 3,207.66	$ 1,107.37	$ 10,839.37	$ -	$ 15,154.40
1	L	Labour B	4	20	#		1		100%	80.0	hr	$ 93.51			$ 7,480.50		$ 7,480.50
2	P	Elevated Work Platform	4	20	#		1		25%	20.0	hr	$ 133.81	$ 2,676.13				$ 2,676.13
3	M	Consumables 2	1	1	unit		1		100%	1.0	each	$ 1,107.37		$ 1,107.37			$ 1,107.37
4	P	Forklift (2-3t)	1	80	#		1		50%	40.0	hr	$ 13.29	$ 531.54				$ 531.54
5	L	Labour C	1	80	#		1		50%	40.0	hr	$ 83.97			$ 3,358.87		$ 3,358.87
2.03		**Removal of Universal Wastes (Lighting, ODS, Mercury, Radioactive Devices)**	40	40	hrs	1	1	N/A					$ 1,470.95	$ 2,768.42	$ 4,579.97	$ -	$ 8,819.33
1	L	Labour B	2	20	#		1		100%	40.0	hr	$ 93.51			$ 3,740.25		$ 3,740.25
2	P	Elevated Work Platform	2	20	#		1		25%	10.0	hr	$ 133.81	$ 1,338.06				$ 1,338.06
3	M	Consumables 5	1	1	unit		1		100%	0.5	each	$ 5,536.84		$ 2,768.42			$ 2,768.42
4	P	Forklift (2-3t)	1	40	#		1		25%	10.0	hr	$ 13.29	$ 132.88				$ 132.88
5	L	Labour C	1	40	#		1		25%	10.0	hr	$ 83.97			$ 839.72		$ 839.72
2.04		**Type I (Non-Friable) ACM Abatement - Substations**			hrs	1	1	N/A					$ -	$ -	$ -	$ -	$ -
2.05		**Type 3 (Friable) ACM Abatement - Substations**			hrs	1	1	N/A					$ -	$ -	$ -	$ -	$ -
3.0 Deconstruction of Utilities													**$ 963,202.21**	**$ 16,610.53**	**$ 200,801.24**	**$ -**	**$ 1,180,613.97**
3.01		**Demolition of Overhead Transmission Line & Utilities**		1	hrs	1	1	#N/A					$ 320,892.29	$ 8,305.26	$ 35,121.39	$ -	$ 364,318.94
1	P	50T Mobile Crane	1	0	#		1		50%	0.0	hr	$ 233.21	$ -				$ -
2	P	Elevated Work Platform	4	131	#		1		25%	130.9	hr	$ 133.81	$ 17,518.92				$ 17,518.92
3	P	30T Excavator (with Demolition Jaws)	1	524	#		1		50%	261.9	hr	$ 295.70	$ 77,430.98				$ 77,430.98
4	P	30T Excavator (with Grapple)	1	667	#		1		100%	666.6	hr	$ 251.35	$ 167,540.03				$ 167,540.03
5	L	Labour A	4	131	#		1		50%	261.9	hr	$ 101.66			$ 26,619.25		$ 26,619.25
6	L	Labour B	1	0	#		1		100%	0.0	hr	$ 93.51			$ -		$ -
7	P	Water Cart	1	131	#		1		25%	32.7	hr	$ 166.32	$ 5,443.89				$ 5,443.89
8	M	Consumables 5	1	1	unit	1.0	1		100%	0.5	each	$ 5,536.84		$ 2,768.42			$ 2,768.42
7	P	30T Excavator	1	101	#		1.0		100%	101.3	hr	$ 229.26	$ 23,212.54				$ 23,212.54
8	P	Water Cart	1	101	#		1.0		50%	50.6	hr	$ 166.32	$ 8,419.83				$ 8,419.83
9	P	Hydraulic Hammer / Rock Saw - 36T to 50T	1	101	#		1.0		50%	50.6	hr	$ 236.38	$ 11,966.68				$ 11,966.68
10	P	Jackhammer and hoses	1	101	#		1.0		50%	50.6	hr	$ 184.88	$ 9,359.41				$ 9,359.41
11	L	Labour C	4	25	#		1.0		100%	101.3	hr	$ 83.97			$ 8,502.14		$ 8,502.14
12	M	Consumables 5	1	1	unit	1.0	1.0		100%	1.0	each	$ 5,536.84		$ 5,536.84			$ 5,536.84
3.02		**Demolition of Substations**	1	1	hrs	1	1	#N/A					$ 609,325.71	$ 8,305.26	$ 162,831.46	$ -	$ 780,462.43
1	P	50T Mobile Crane	1	628	#		1		50%	314.0	hr	$ 233.21	$ 73,226.38				$ 73,226.38
2	P	Elevated Work Platform	4	396	#		1		15%	237.5	hr	$ 133.81	$ 31,776.40				$ 31,776.40
3	P	30T Excavator (with Demolition Jaws)	1	1583	#		1		50%	791.6	hr	$ 295.70	$ 234,078.10				$ 234,078.10
4	P	30T Excavator (with Grapple)	1	424	#		1		100%	423.9	hr	$ 251.35	$ 106,549.63				$ 106,549.63
5	L	Labour A	4	396	#		1		50%	791.6	hr	$ 101.66			$ 80,471.44		$ 80,471.44
6	L	Labour B	1	628	#		1		100%	628.0	hr	$ 93.51			$ 58,721.90		$ 58,721.90
7	P	Water Cart	1	396	#		1		25%	99.0	hr	$ 166.32	$ 16,457.18				$ 16,457.18
8	M	Consumables 5	1	1	unit	1.0	1		100%	0.5	each	$ 5,536.84		$ 2,768.42			$ 2,768.42
7	P	30T Excavator	1	282	#		1.0		100%	281.5	hr	$ 229.26	$ 64,536.77				$ 64,536.77
8	P	Water Cart	1	282	#		1.0		50%	140.8	hr	$ 166.32	$ 23,409.28				$ 23,409.28
9	P	Hydraulic Hammer / Rock Saw - 36T to 50T	1	282	#		1.0		50%	140.8	hr	$ 236.38	$ 33,270.43				$ 33,270.43
10	P	Jackhammer and hoses	1	282	#		1.0		50%	140.8	hr	$ 184.88	$ 26,021.55				$ 26,021.55
11	L	Labour C	4	70	#		1.0		100%	281.5	hr	$ 83.97			$ 23,638.12		$ 23,638.12
12	M	Consumables 5	1	1	unit	1.0	1.0		100%	1.0	each	$ 5,536.84		$ 5,536.84			$ 5,536.84
3.03		**Removal of Sewage System - Collection Treatment and Outfall**	0.0	0	hrs	1	1	#N/A					$ -	$ -	$ -	$ -	$ -
		See Rehab Areas															
3.04		**Demolition of Fuel - Storage & Distribution**	0.0	0	hrs	1	1	#N/A					$ -	$ -	$ -	$ -	$ -
		See Rehab Areas															
3.05		**Crushing of concrete to 100mm minus**	17.0	17	hrs	1	1	#N/A					$ 32,984.21	$ -	$ 2,848.39	$ -	$ 35,832.61
1	P	Crusher Hire	1	17	#		1		100%	17.0	hr	$ 376.51	$ 6,385.69				$ 6,385.69
2	P	Tracked Screening Plant	1	1	#		1		100%	1.0	Week	$ 11,073.69	$ 11,073.69				$ 11,073.69
3	P	30T Excavator	1	17	#		1		100%	17.0	hr	$ 229.26	$ 3,888.34				$ 3,888.34
4	L	Labour C	2	17	#		1		100%	33.9	hr	$ 83.97			$ 2,848.39		$ 2,848.39
5	P	30T Excavator	1	264	#		12		100%	22.0	hr	$ 229.26	$ 5,041.94				$ 5,041.94
6	P	Truck and Dog	1	264	#		12		100%	22.0	hr	$ 194.00	$ 4,266.54				$ 4,266.54
7	P	Truck and Dog	12	12	Trips	1.00	1	hrs/trip	100%	12.0	hr	$ 194.00	$ 2,328.02				$ 2,328.02
4.0 Rehabilitation, Remediation & Disposal													**$ 343,748.25**	**$ 224,938.76**	**$ 14,628.10**	**$ 3,822,061.85**	**$ 4,405,377.06**
4.01		**Power**	1	1	hrs	1	1						$ 310,219.30	$ -	$ 11,241.74	$ 3,822,061.85	$ 4,143,522.90
1	P	Suck up waste truck	9	9	trips	2.5	2.50	hrs/trip	100%	22.5	hr	$ 237.32	$ 5,339.70				$ 5,339.70
2	D	Contaminated Material disposal	1	97.98	#		1.00		100%	98.0	T	$ 350.33				$ 34,325.45	$ 34,325.45
3	P	30T Excavator	1	95	#		1		100%	94.8	hr	$ 229.26	$ 21,722.35				$ 21,722.35
4	L	Labour D	1	95	#		1		100%	94.8	hr	$ 77.43			$ 7,336.23		$ 7,336.23
5	P	Truck and Dog	1	95	#		1		100%	94.8	hr	$ 194.00	$ 18,381.68				$ 18,381.68
6	P	Truck and Dog	202	202	trips	2.5	2.5	hrs/trip	100%	505.0	hr	$ 194.00	$ 97,970.97				$ 97,970.97
7	D	Contaminated Soil Disposal	8291	1	#	1	1.0		100%	8290.6	T	$ 350.33				$ 2,904,464.30	$ 2,904,464.30
8	P	D8 bulldozer	1	1395	#	75	75	m3/hr	100%	18.6	hr	$ 348.60	$ 6,485.32				$ 6,485.32
9	P	Water Cart	1	1395	#	75	75	m3/hr	25%	4.7	hr	$ 166.32	$ 773.54				$ 773.54
10	L	Labour C	1	1395	#	75	75	m3/hr	100%	18.6	hr	$ 83.97			$ 1,562.21		$ 1,562.21
11	P	30T Excavator	1	1395	#	50	50		100%	27.9	hr	$ 229.26	$ 6,397.70				$ 6,397.70
12	L	Labour C	1	1395	#	50	50		100%	27.9	hr	$ 83.97			$ 2,343.31		$ 2,343.31
13	P	Truck and Dog	1	1395	#	50	50		100%	27.9	hr	$ 194.00	$ 5,413.80				$ 5,413.80
14	P	Truck and Dog	60	60	Trips	2.50	2.50	hrs/trip	100%	150.0	hr	$ 194.00	$ 29,100.29				$ 29,100.29
15	D	Contaminated Soil Disposal	2442	1	#	1	1		100%	2441.8	T	$ 350.33				$ 855,426.81	$ 855,426.81
16	P	Semi Trailer Truck	1	100	#	15	15.00		100%	6.7	hr	$ 188.02	$ 1,253.47				$ 1,253.47
17	P	Semi Trailer Truck	5	5	trips	1.00	1.00	hrs/trip	100%	5.0	hr	$ 188.02	$ 940.10				$ 940.10
18	D	Construction & Demolition Waste	100	1	#	1	1.00		100%	100.0	T	$ 208.39				$ 20,838.66	$ 20,838.66
19	P	Semi Trailer Truck	1	2330	#	15	15.00		100%	155.3	hr	$ 188.02	$ 29,205.75				$ 29,205.75
20	P	Semi Trailer Truck	100	100	trips	1.00	1.00	hrs/trip	100%	100.0	hr	$ 188.02	$ 18,801.99				$ 18,801.99
21	P	Suck up waste truck	2	2	trips	2.50	2.50	hrs/trip	100%	5.0	hr	$ 237.32	$ 1,186.60				$ 1,186.60
22	D	Contaminated Soil Disposal	20	1	#	1	1.00		100%	20.0	T	$ 350.33				$ 7,006.62	$ 7,006.62
23	P	30T Excavator	1	1759	#	12.0	12		100%	146.6	hr	$ 229.26	$ 33,612.90				$ 33,612.90
24	P	Truck and Dog	1	1759	#	12.0	12		100%	146.6	hr	$ 194.00	$ 28,443.59				$ 28,443.59
25	P	Truck and Dog	107	107	Trips	0.25	0	hrs/trip	100%	26.8	hr	$ 194.00	$ 5,189.55				$ 5,189.55
4.02		**Water**	0	0	m3	75	75	m3/hr					$ -	$ -	$ -	$ -	$ -
4.03		**Utilities Domain Rehabilitation**	0	0		1	1						$ 33,528.99	$ 264,597.74	$ 3,386.36	$ -	$ 301,513.09
1	M	Supply Gypsum	1	0	#	5000	5000	m2/t	100%	0.0	tonnes	$ 171.64		$ -			$ -
2	P	Tipper Truck	1	0	#	1000	1000	m2/hr	50%	0.0	hr	$ 220.67	$ -				$ -
3	P	20T Excavator	1	0	#	1000	1000		25%	0.0	hr	$ 200.32	$ -				$ -
4	P	Water Cart	1	0	#	1000	1000		50%	0.0	hr	$ 166.32	$ -				$ -
5	L	Labour D	1	0	#	1000	1000		100%	0.0	hr	$ 77.43			$ -		$ -
6	P	Tractor Spreader	1	0	#	1000	1000		100%	0.0	hr	$ 134.43	$ -				$ -
7	P	Grader	1	0	#	500	500		100%	0.0	hr	$ 217.61	$ -				$ -
8	P	D8 bulldozer	1	0	#	500	500		100%	0.0	hr	$ 348.60	$ -				$ -

9	P	Water Cart	1	0	#	500	500		25%	0.0	hr	$ 166.32	$ -					$ -
10	P	Backhoe	1	0	#	500	500		50%	0.0	hr	$ 143.43	$ -					$ -
11	P	Tipper Truck	1	0	#	500	500		50%	0.0	hr	$ 220.67	$ -					$ -
12	L	Labour C	2	0	#	500	500		100%	0.0	hr	$ 83.97			$ -			$ -
13	P	Tractor Spreader	1	0	#	1000	1000		100%	0.0	hr	$ 134.43	$ -					$ -
14	P	Water Cart	1	0	#	1000	1000		100%	0.0	hr	$ 166.32	$ -					$ -
15	M	Seed Supply	0	1	m2	1	1	Na	100%	0.0	m2	$ 0.17		$ -				$ -
16	L	Labour D	1	0	#	1000	1000		100%	0.0	hr	$ 77.43			$ -			$ -
17	P	Grader	1	4638	#	115	115		100%	40.3	hr	$ 217.61	$ 8,775.76					$ 8,775.76
18	P	D8 bulldozer	1	4638	#	115	115		100%	40.3	hr	$ 348.60	$ 14,058.11					$ 14,058.11
19	P	Water Cart	1	4638	#	115	115		50%	20.2	hr	$ 166.32	$ 3,353.58					$ 3,353.58
20	P	Backhoe	1	4638	#	115	115		50%	20.2	hr	$ 143.43	$ 2,892.11					$ 2,892.11
21	P	Tipper Truck	1	4638	#	115	115		50%	20.2	hr	$ 220.67	$ 4,449.43					$ 4,449.43
22	L	Labour C	1	4638	#	115	115		100%	40.3	hr	$ 83.97			$ 3,386.36			$ 3,386.36
23	M	Topsoil / General Fill Supply	1	4638	#	1	1		100%	4637.7	m3	$ 48.50		$ 224,938.76				$ 224,938.76
24	P	Grader	1	0	#	115	115		100%	0.0	hr	$ 217.61	$ -					$ -
25	P	D8 bulldozer	1	0	#	115	115		100%	0.0	hr	$ 348.60	$ -					$ -
26	P	Water Cart	1	0	#	115	115		50%	0.0	hr	$ 166.32	$ -					$ -
27	P	Backhoe	1	0	#	115	115		50%	0.0	hr	$ 143.43	$ -					$ -
28	P	Tipper Truck	1	0	#	115	115		50%	0.0	hr	$ 220.67	$ -					$ -
29	L	Labour C	2	0	#	115	115		100%	0.0	hr	$ 83.97			$ -			$ -
30	M	Topsoil / General Fill Supply	1	0	#	1	1		100%	0.0	m3	$ 48.50		$ -				$ -
31	M	Supply Fertilizer	1	0	#	5000	5000	m2/t	100%	0.0	tonnes	$ 498.32		$ -				$ -
32	P	Tipper Truck	1	0	#	1000	1000	m2/hr	50%	0.0	hr	$ 220.67	$ -					$ -
33	P	20T Excavator	1	0	#	1000	1000		25%	0.0	hr	$ 200.32	$ -					$ -
34	P	Water Cart	1	0	#	1000	1000		15%	0.0	hr	$ 166.32	$ -					$ -
35	L	Labour D	1	0	#	1000	1000		100%	0.0	hr	$ 77.43			$ -			$ -
36	P	Tractor Spreader	1	0	#	1000	1000		100%	0.0	hr	$ 134.43	$ -					$ -
37	M	Tube stock Supply	1	35814	unit	1	1		100%	35813.7	each	$ 1.11		$ 39,658.98				$ 39,658.98
		Mobilisation and Demobilisation Allowance (1% of Plant Cos t)											$ 13,525.92					$ 13,525.92
		Allowance for Labour Escalation (2% YOY) - Allow 40% of Plant to be Labour Related									Duration	0.28	$ 2,983.86		$ 1,525.74			$ 4,509.60
		Total Treatment Cost											**$ 1,369,101.56**	**$ 290,620.91**	**$ 278,174.07**	**$ 3,822,061.85**		**$ 5,759,958.39**
5.0 Additional Markups																		

Appendix B
Site visit report

Dalrymple Bay Coal Terminal Estimate Specific Questions & Photos

Domains

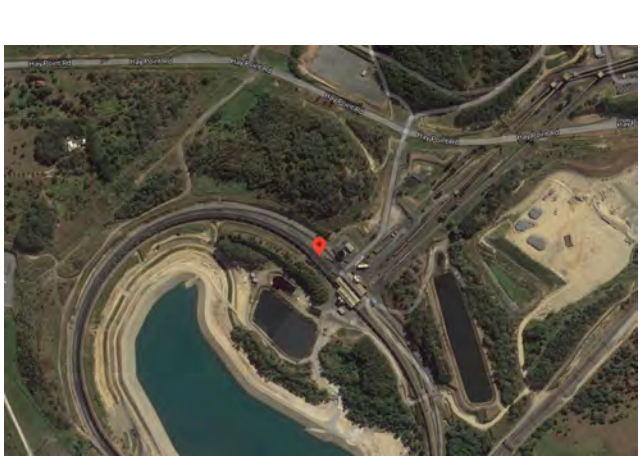
1. Rail loop, receival conveyors
2. Stockyards
3. Seawall and transfer stations
4. Offshore (Jetty & Wharf)
5. Water Management (Dams excl. Quarry)
6. Quarry Dam
7. Offices and Workshops
8. Utilities
9. Tug Harbour and All Domains General

1. Rail loop, receival conveyors

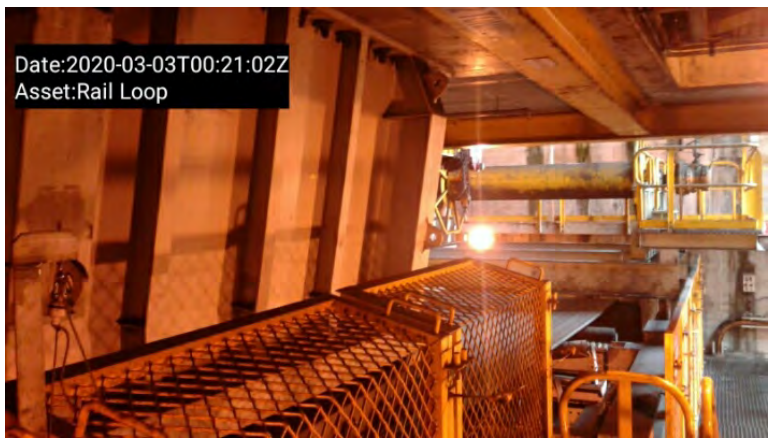
Location	Photo	Comment
Main Area: Rail Loop Sub Area: RRP 		*Q: Inspect RRP Buildings for Depth & Equipment* A: RRP3 dust extraction system, building dimensions, makeup and cladding inspected and confirmed for estimate.
Main Area: Rail Loop Sub Area: RRP 		*Q: Inspect RRP Buildings for Depth & Equipment* A: RRP3 dust extraction system, building dimensions, makeup and cladding inspected and confirmed for estimate.
Main Area: Rail Loop Sub Area: RRP 		*Q: Inspect RRP Buildings for Depth & Equipment* A: RRP3 dust extraction system, building dimensions, makeup and cladding inspected and confirmed for estimate.

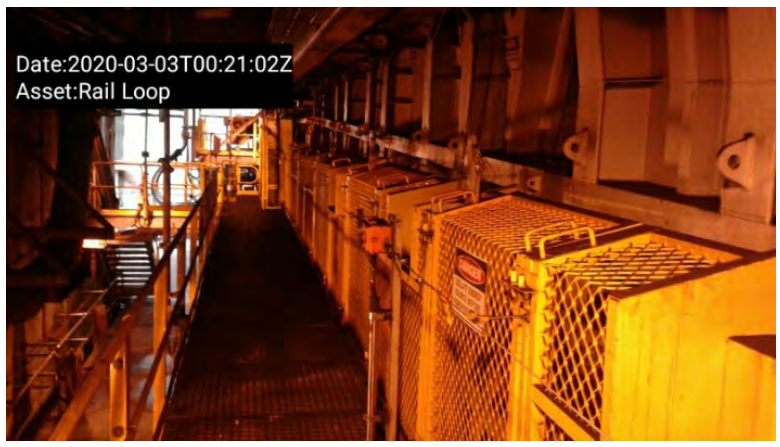
Location	Photo	Comment
Main Area: Rail Loop Sub Area: RRP 		*Q: Inspect Sub Station within Rail Loop Area* A: Substation dimensions and makeup noted for estimate (Domain 8)
Main Area: Rail Loop Sub Area: RRP 		*Q: Inspect RRP Buildings for Depth & Equipment* A: RRP3 building dimensions, makeup and cladding inspected and confirmed for estimate.
Main Area: Rail Loop Sub Area: RRP 		*Q: Inspect RRP Buildings for Depth & Equipment* A: RRP3 rail systems, equipment, building dimensions, makeup and cladding inspected and confirmed for estimate.

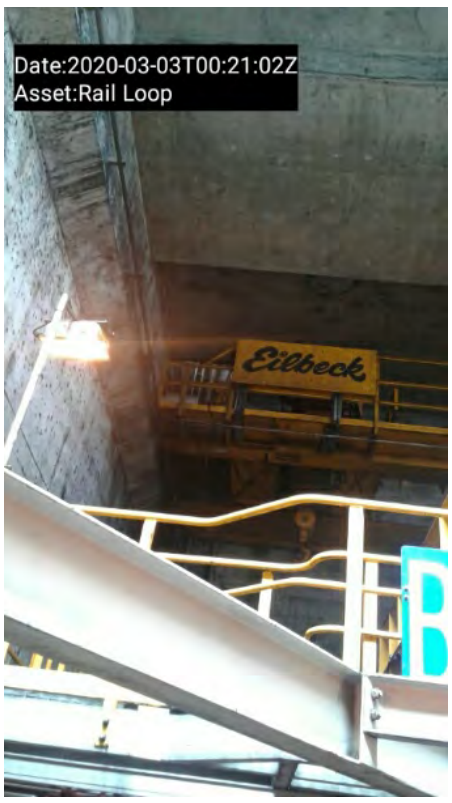
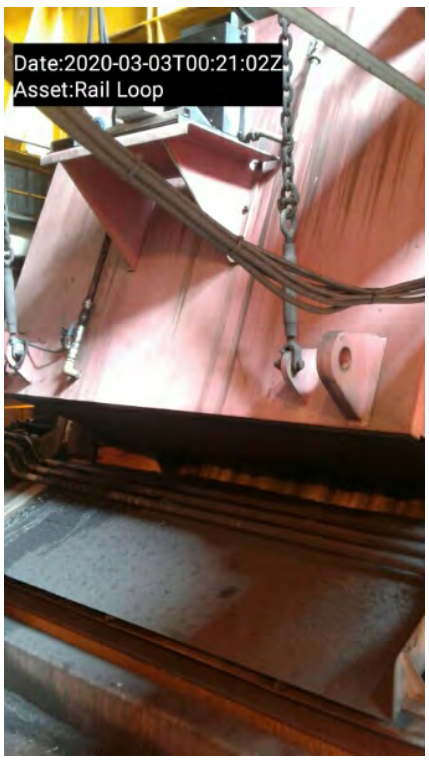
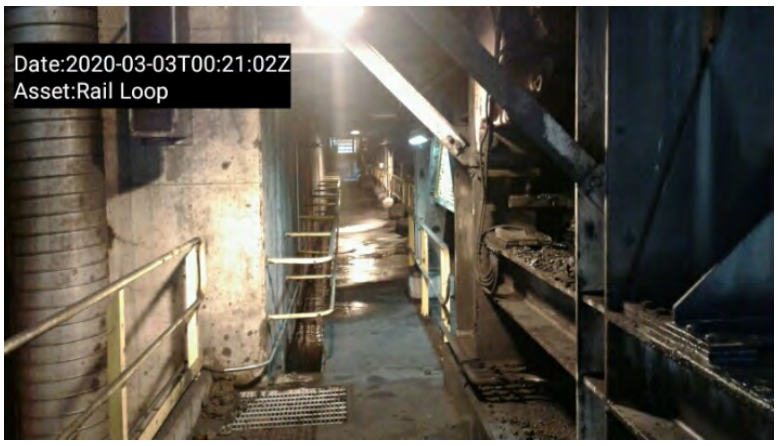
Location	Photo	Comment
Main Area: Rail Loop Sub Area: RRP 		*Q: Inspect RRP Buildings for Depth & Equipment* A: RRP3 rail systems and equipment inspected and confirmed for estimate
Main Area: Rail Loop Sub Area: RRP 		*Q: Inspect RRP Buildings for Depth & Equipment* A: RRP3 rail systems and equipment inspected and confirmed for estimate
Main Area: Rail Loop Sub Area: RRP 		*Q: Inspect RRP Buildings for Depth & Equipment* A: RRP3 building dimensions, makeup and cladding inspected and confirmed for estimate.

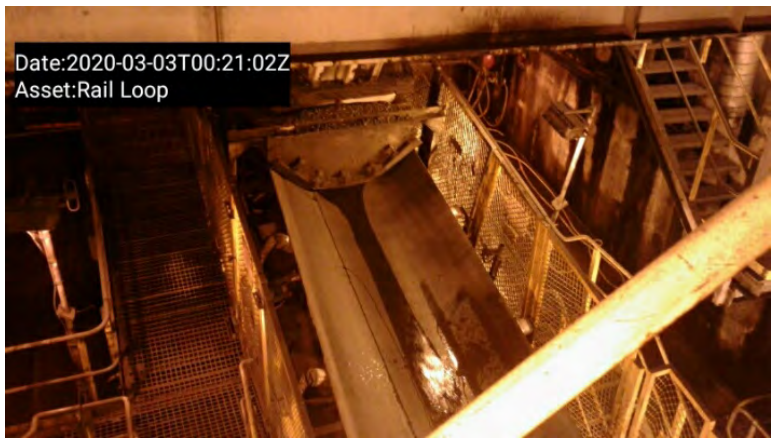
Location	Photo	Comment
Main Area: Rail Loop Sub Area: Rails 		*Q: Inspect Catenary Systems, Rail Tracks and Ballast (Width, Makeup), Confirm piles* A: Standard Rail Catenary Systems and piling (Approx. 600-800mm diameter)
Main Area: Rail Loop Sub Area: Rails 		*Q: Inspect Catenary Systems, Rail Tracks and Ballast (Width, Makeup), Confirm piles* A: Standard Rail Catenary Systems, Standard tracks, sleepers and ballast
Main Area: Rail Loop Sub Area: Rails 		*Q: Inspect Catenary Systems, Rail Tracks and Ballast (Width, Makeup), Confirm piles* A: Standard Rail Catenary Systems, Standard tracks, sleepers and ballast

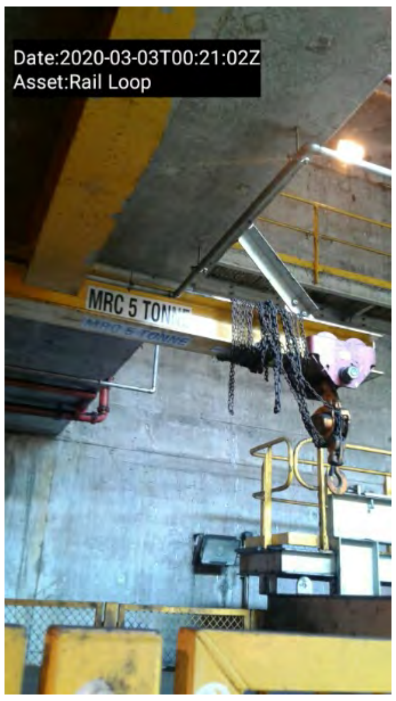
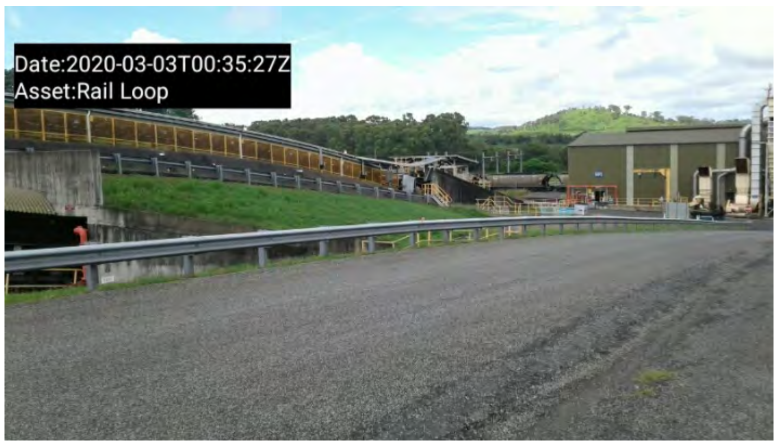
Location	Photo	Comment
Main Area: Rail Loop Sub Area: Rails 	 	*Q: Inspect Catenary Systems, Rail Tracks and Ballast (Width, Makeup), Confirm piles* A: Standard Rail Catenary Systems, Standard tracks, sleepers and ballast
Main Area: Rail Loop Sub Area: Rails 	 	*Q: Inspect Catenary Systems, Rail Tracks and Ballast (Width, Makeup), Confirm piles* A: Standard Rail Catenary Systems, Standard tracks, sleepers and ballast
Main Area: Rail Loop Sub Area: Rails 	 	*Q: Inspect Catenary Systems, Rail Tracks and Ballast (Width, Makeup), Confirm piles* A: Standard Rail Catenary Systems, Standard tracks, sleepers and ballast

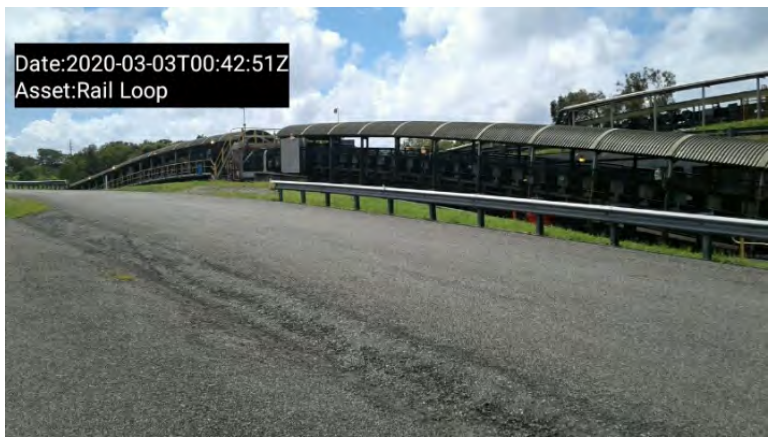
Location	Photo	Comment
Main Area: Rail Loop Sub Area: Rails 		*Q: Inspect Catenary Systems, Rail Tracks and Ballast (Width, Makeup), Confirm piles* A: Standard Rail Catenary Systems, Standard tracks, sleepers and ballast
Main Area: Rail Loop Sub Area: RRP 		*Q: Inspect RRP Buildings for Depth & Equipment* A: RRP3 building dimensions, makeup of infrastructure and cladding inspected and confirmed for estimate.
Main Area: Rail Loop Sub Area: RRP 		*Q: Inspect RRP Buildings for Depth & Equipment* A: RRP3 building dimensions, makeup of infrastructure inspected and confirmed for estimate.
Main Area: Rail Loop Sub Area: RRP 		*Q: Inspect RRP Buildings for Depth & Equipment* A: RRP3 building sub level 1 dimensions and makeup of infrastructure inspected and confirmed for estimate. Unloading areas incl hoppers/grates

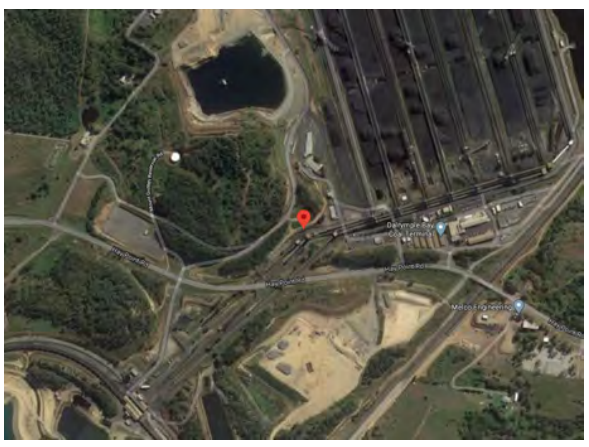
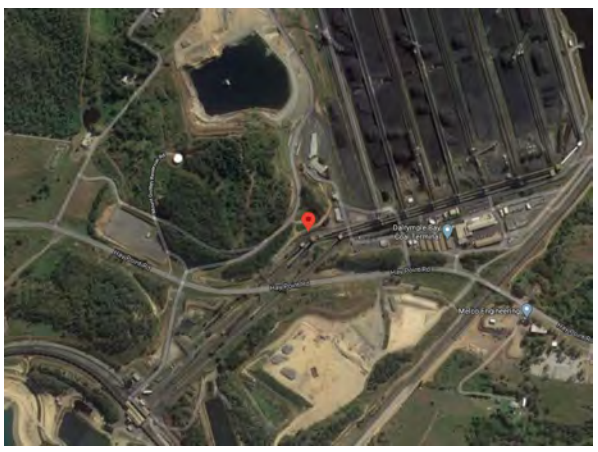
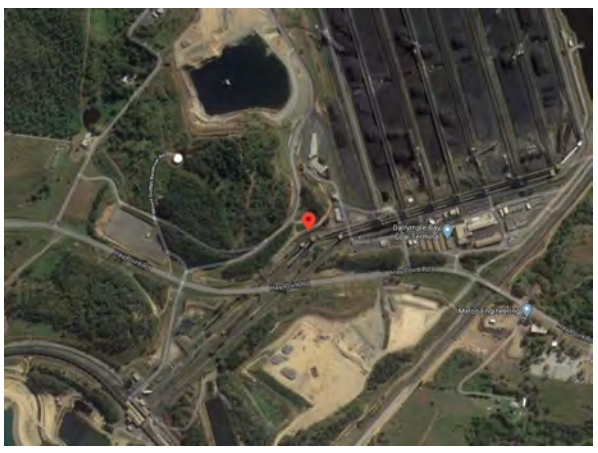
Location	Photo	Comment
Main Area: Rail Loop Sub Area: RRP 		*Q: Inspect RRP Buildings for Depth & Equipment* A: RRP3 building sub level 1 dimensions and makeup of infrastructure inspected and confirmed for estimate. Unloading areas incl hoppers/grates
Main Area: Rail Loop Sub Area: RRP 		*Q: Inspect RRP Buildings for Depth & Equipment* A: RRP3 building concrete makeup inspected and confirmed for estimate. Building concrete heavily reinforced
Main Area: Rail Loop Sub Area: RRP 		*Q: Inspect RRP Buildings for Depth & Equipment* A: RRP3 building sub level 1 dimensions and makeup of infrastructure inspected and confirmed for estimate. Unloading areas incl conveyor drives and other infrastructure

Location	Photo	Comment
Main Area: Rail Loop Sub Area: RRP 		*Q: Inspect RRP Buildings for Depth & Equipment* A: RRP3 building concrete makeup inspected and confirmed for estimate. Building concrete heavily reinforced
Main Area: Rail Loop Sub Area: RRP 		*Q: Inspect RRP Buildings for Depth & Equipment* A: RRP3 building sub level 1 dimensions and makeup of infrastructure inspected and confirmed for estimate. Unloading areas incl chutes/hoppers and other infrastructure
Main Area: Rail Loop Sub Area: RRP 		*Q: Inspect RRP Buildings for Depth & Equipment* A: RRP3 building sub level 1 dimensions and makeup of infrastructure inspected and confirmed for estimate. Unloading areas incl chutes/hoppers and other infrastructure

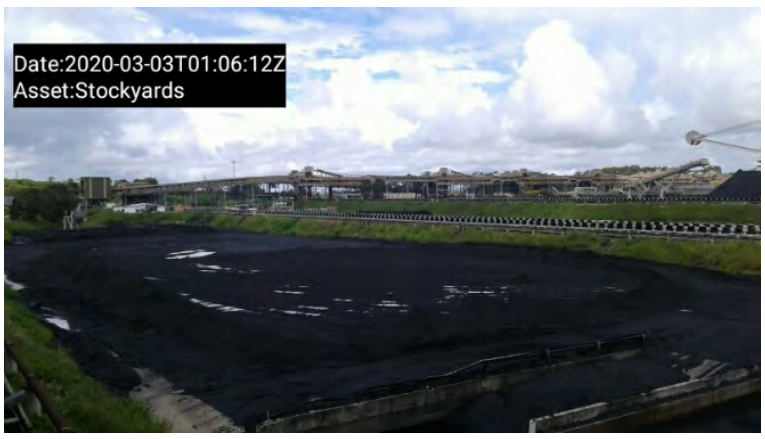
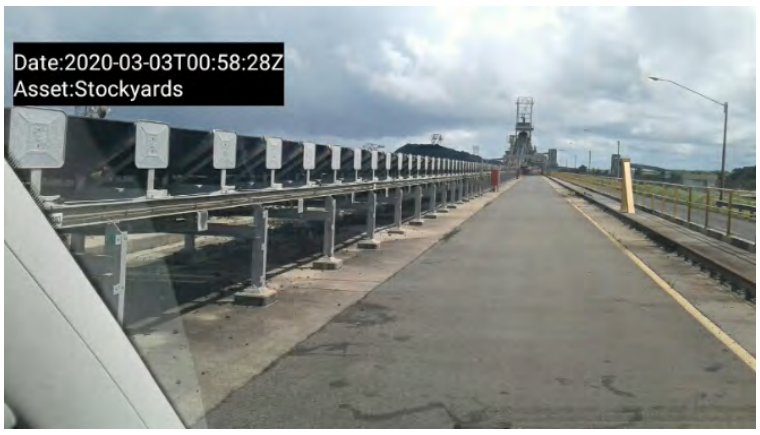
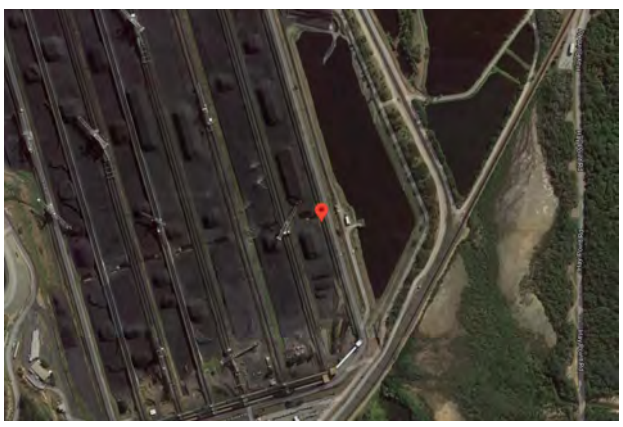
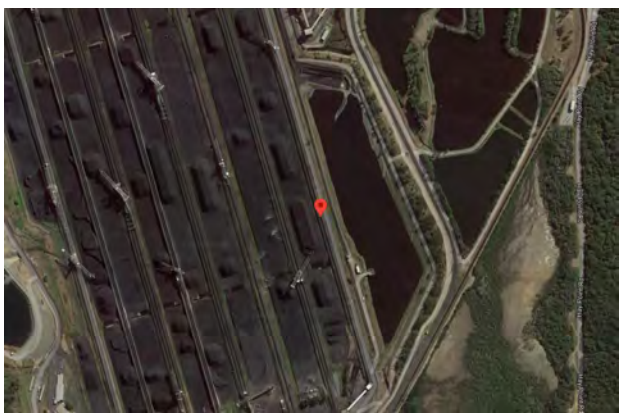
Location	Photo	Comment
Main Area: Rail Loop Sub Area: RRP 		*Q: Inspect RRP Buildings for Depth & Equipment* A: RRP3 building sub level 2 dimensions and makeup of infrastructure inspected and confirmed for estimate. Unloading areas incl transfer chutes and conveyor tunnel exits
Main Area: Rail Loop Sub Area: RRP 		*Q: Inspect RRP Buildings for Depth & Equipment* A: RRP3 building sub level 1 dimensions and makeup of infrastructure inspected and confirmed for estimate. Conveyor Belts and structures general
Main Area: Rail Loop Sub Area: RRP 		*Q: Inspect RRP Buildings for Depth & Equipment* A: RRP3 building sub level 1 dimensions and makeup of infrastructure inspected and confirmed for estimate. Conveyor Belts and structures general

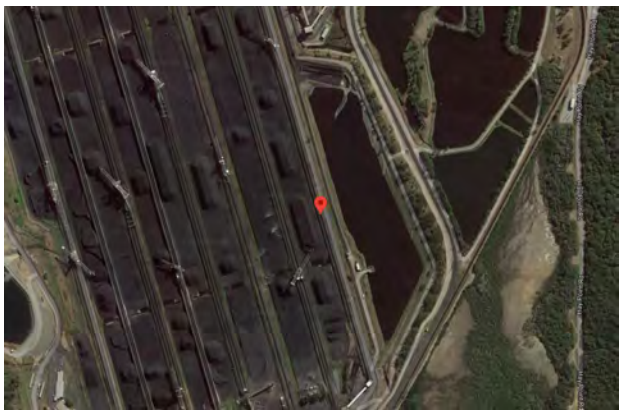
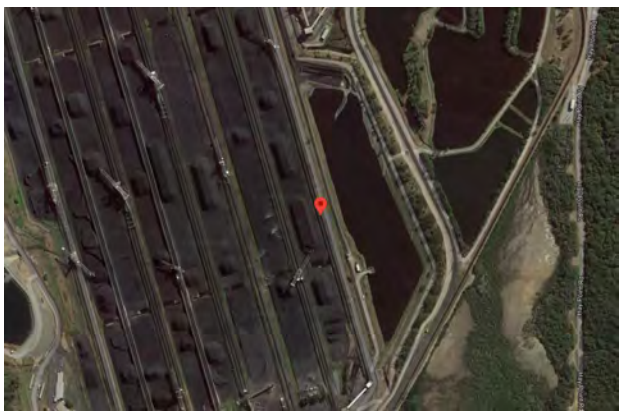
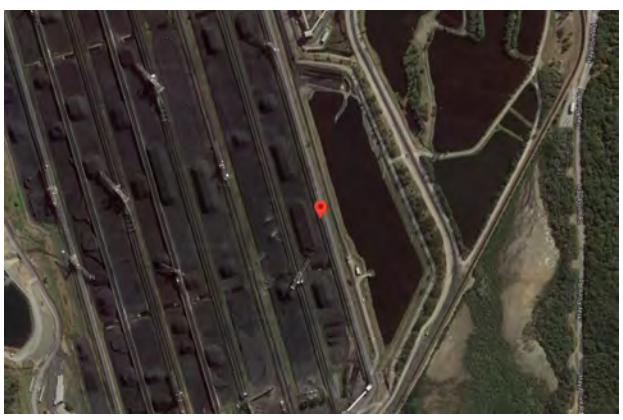
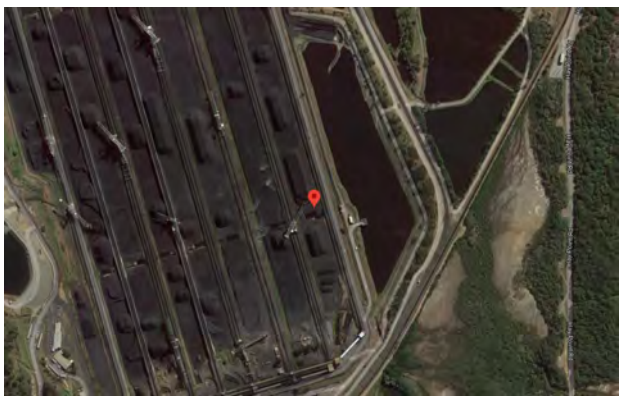
Location	Photo	Comment
Main Area: Rail Loop Sub Area: RRP 		*Q: Inspect RRP Buildings for Depth & Equipment* A: RRP3 building sub level 1 dimensions and makeup of infrastructure inspected and confirmed for estimate. Gantry Infrastructure
Main Area: Rail Loop Sub Area: Conveyor Tunnels 		*Q: Inspect Conveyor Tunnels for length, equipment and concrete makeup* A: Tunnel exit confirming concrete makeup and other infrastructure
Main Area: Rail Loop Sub Area: Conveyor Tunnels 		*Q: Inspect Conveyor Tunnels for length, equipment and concrete makeup* A: Tunnel exit confirming concrete makeup and other infrastructure
Main Area: Rail Loop Sub Area: Conveyor Tunnels 		*Q: Inspect Conveyor Tunnels for length, equipment and concrete makeup* A: Tunnel exit confirming concrete makeup and other infrastructure

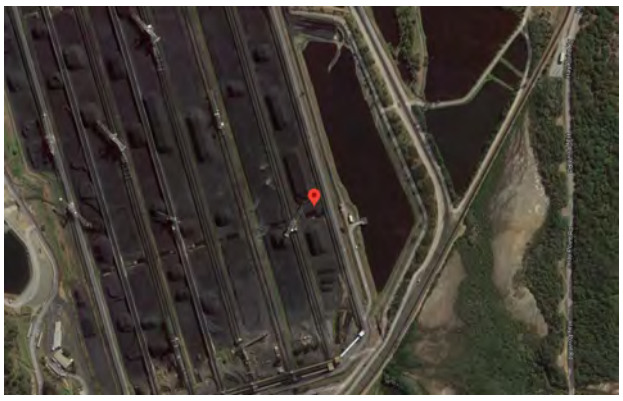
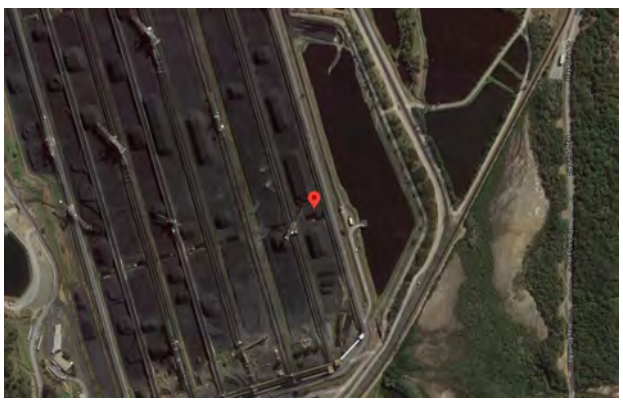
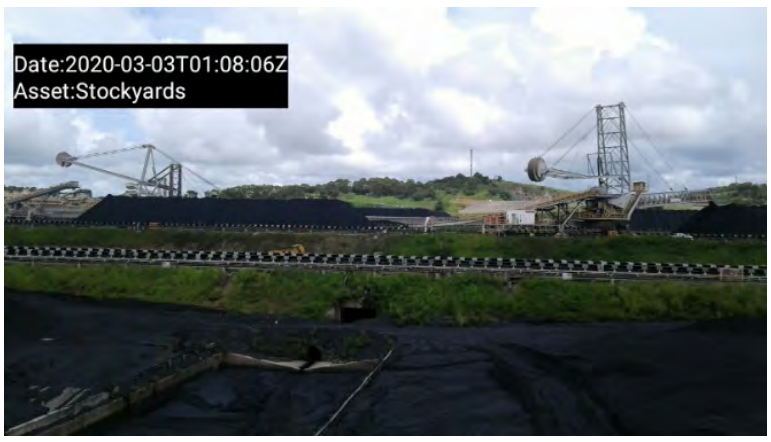
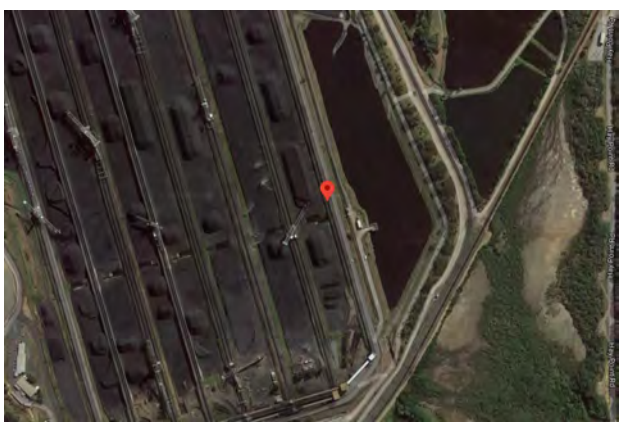
Location	Photo	Comment
Main Area: Rail Loop Sub Area: Out-loading Conveyors & Towers 		*Q: Inspect Conveyor and equipment for height and size* A: Std conveyor out loading inspected. Should be good for 12m sections as per Estimate assumptions.
Main Area: Rail Loop Sub Area: Out-loading Conveyors & Towers 		*Q: Inspect Conveyor and equipment for height and size* A: Std conveyor out loading inspected. Should be good for 12m sections as per Estimate assumptions.
Main Area: Rail Loop Sub Area: Rails 		*Q: Rail overpass inspect for makeup, size and equipment* A: Rail overpass makeup confirmed as well as equipment installed.

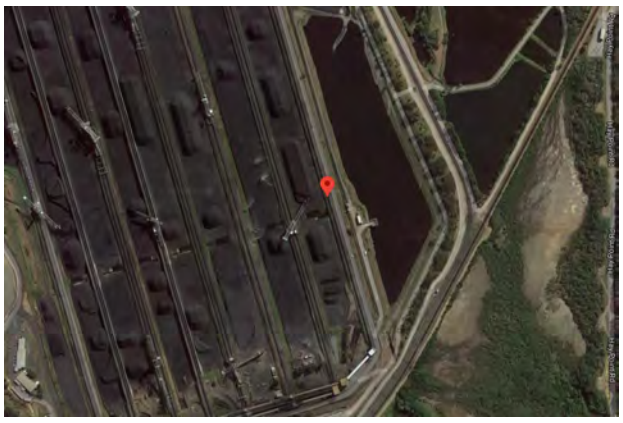
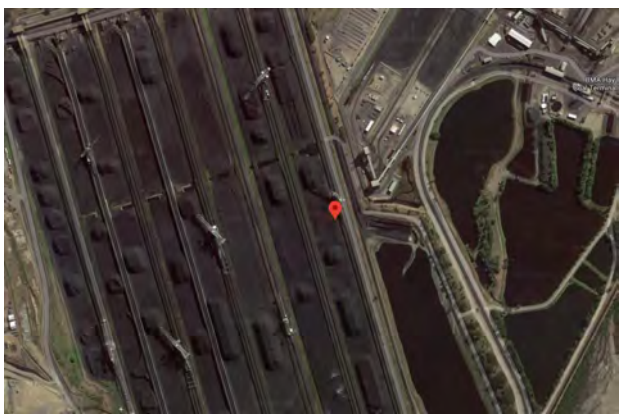
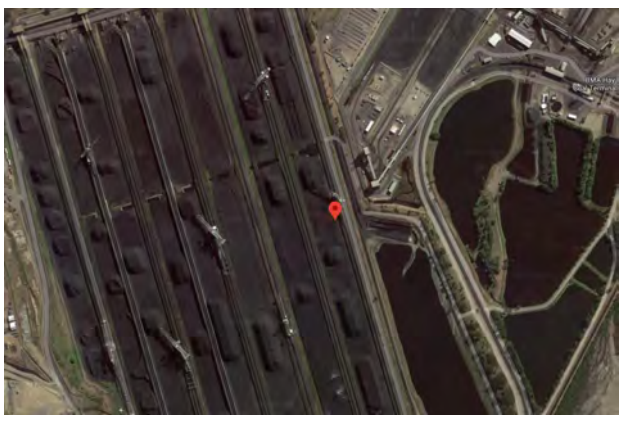
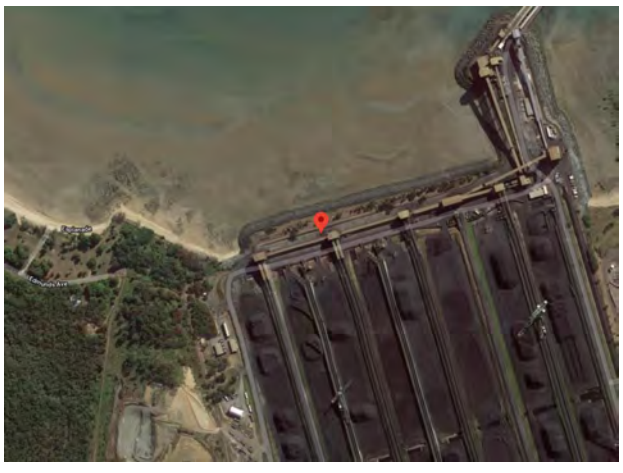
Location	Photo	Comment
Main Area: Rail Loop Sub Area: Rails 		*Q: Rail overpass inspect for makeup, size and equipment* A: Rail overpass makeup confirmed as well as equipment installed.
Main Area: Rail Loop Sub Area: Out-loading Conveyors & Towers 		*Q: Inspect equipment for height and size* A: Confirmed height, cladding and makeup of the conveyors and towers to determine number of cuts, vessels and loads for the Estimate
Main Area: Rail Loop Sub Area: Out-loading Conveyors & Towers 		*Q: Inspect equipment for height and size* A: Confirmed height, cladding and makeup of the conveyors and towers to determine number of cuts, vessels and loads for the Estimate
Main Area: Rail Loop Sub Area: Outloading Conveyors & Towers 		*Q: Inspect equipment for height and size* A: Confirmed height, cladding and makeup of the conveyors and towers to determine number of cuts, vessels and loads for the Estimate

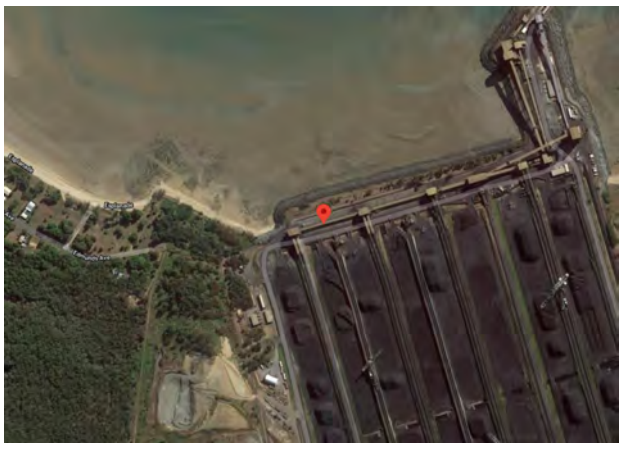
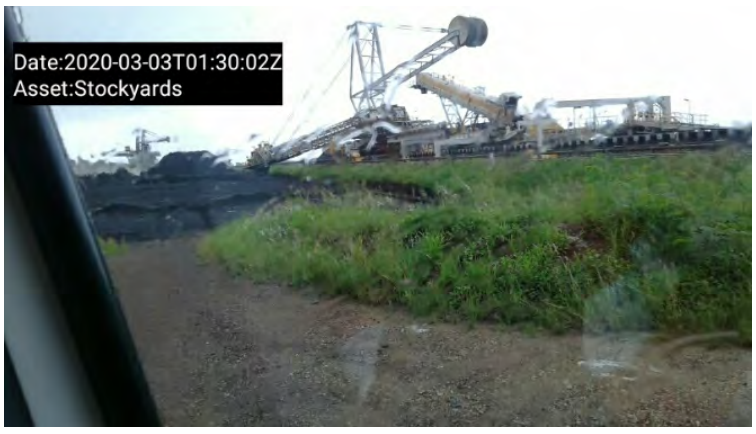
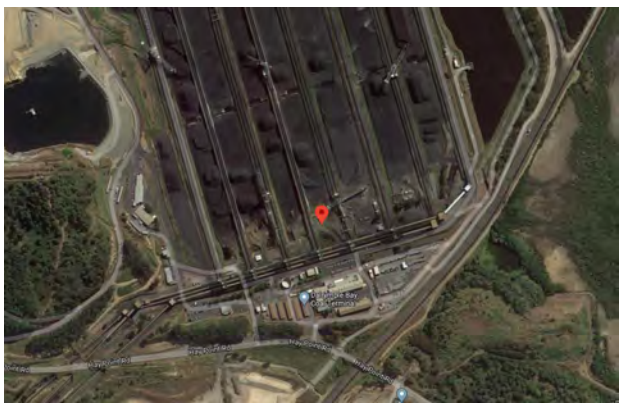
2. Stockyards

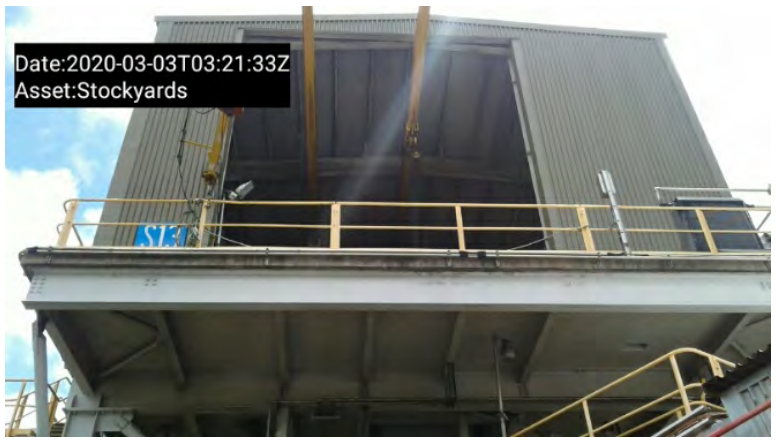
Location	Photo	Comment
Main Area: Stockyards Sub Area: Yard Infrastructure 		*Q: Floor of stockyard* A: Andrew (DBCT Personnel) confirmed on site the bottom 500mm is low grade coal that will be recovered during final operations. Underneath this is a clay floor of the original cut and fill material. (No Hardstand installed)
Main Area: Stockyards Sub Area: Yard Infrastructure 		*Q: Inspection of Machine rails & Bund infrastructure* A: Confirmed general infrastructure around bunds and machine rails.
Main Area: Stockyards Sub Area: Yard Infrastructure 		*Q: Inspection of Machine rails & Bund infrastructure* A: Confirmed general infrastructure around bunds and machine rails.
Main Area: Stockyards Sub Area: Yard Infrastructure 		*Q: Inspection of Machine rails & Bund infrastructure* A: Confirmed general infrastructure around bunds and machine rails.

Location	Photo	Comment
Main Area: Stockyards Sub Area: Yard Infrastructure 		*Q: Inspection of Machine rails & Bund infrastructure* A: Confirmed general infrastructure around stacker machines
Main Area: Stockyards Sub Area: Yard Infrastructure 		*Q: Inspection of Machine rails & Bund infrastructure* A: Confirmed general drainage infrastructure around bunds and rails
Main Area: Stockyards Sub Area: Yard Infrastructure 		*Q: Inspection of Machine rails & Bund infrastructure* A: Confirmed general drainage infrastructure around bunds and rails
Main Area: Stockyards Sub Area: Inloading Conveyors & Towers 		*Q: Inspect equipment for height and size* A: General height and makeup of conveyors and towers confirmed

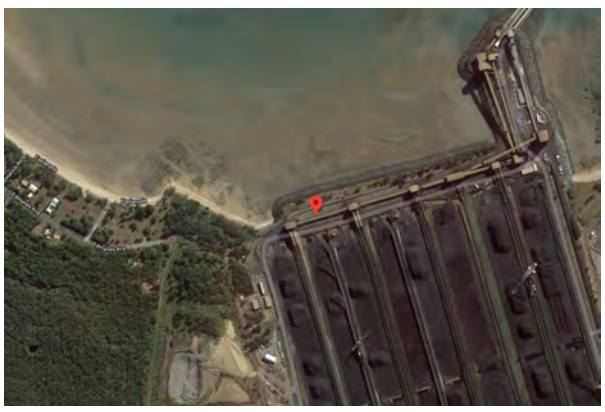
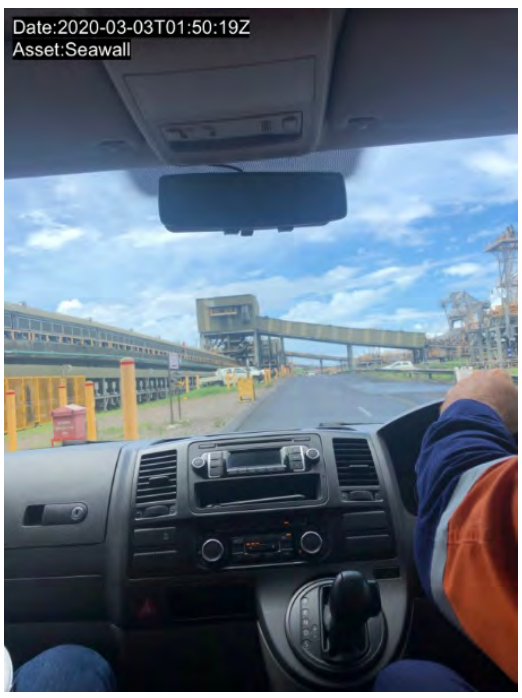
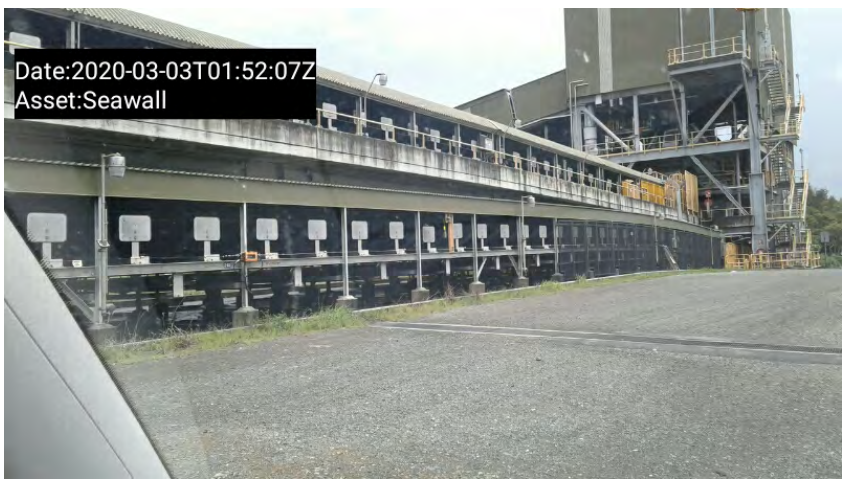
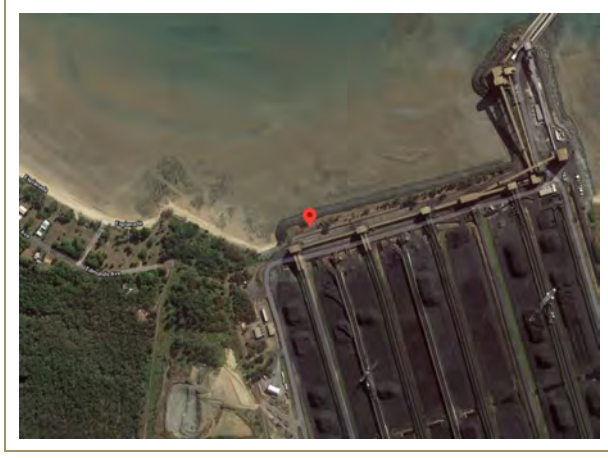
Location	Photo	Comment
Main Area: Stockyards Sub Area: Yard Machines 		*Q: Visual Inspections for height and size & compare to drawings* A: Confirmed height and dimensions and also various levels and makeup of the stacker/stacker reclaimer machines
Main Area: Stockyards Sub Area: Yard Machines 		*Q: Visual Inspections for height and size & compare to drawings* A: Confirmed height and dimensions and also various levels and makeup of the stacker/stacker reclaimer machines
Main Area: Stockyards Sub Area: Yard Machines 		*Q: Visual Inspections for height and size & compare to drawings* A: Confirmed height and dimensions and also various levels and makeup of the stacker/stacker reclaimer machines

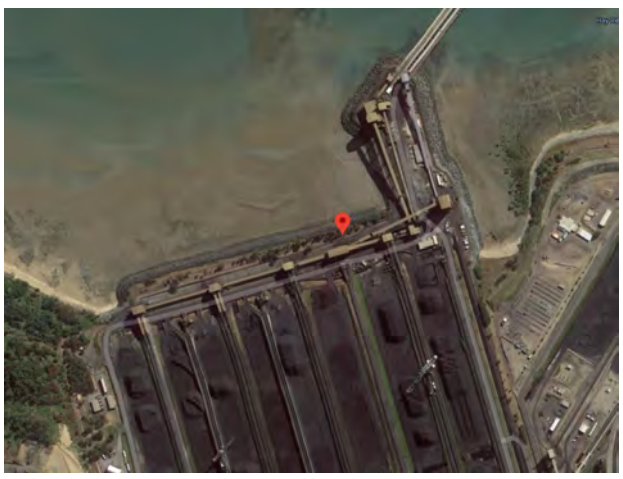
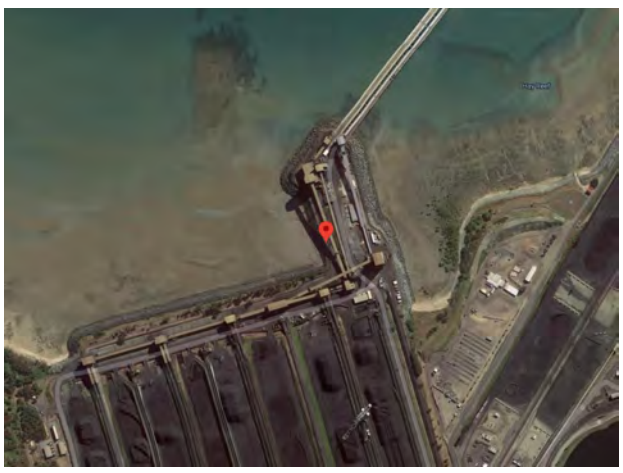
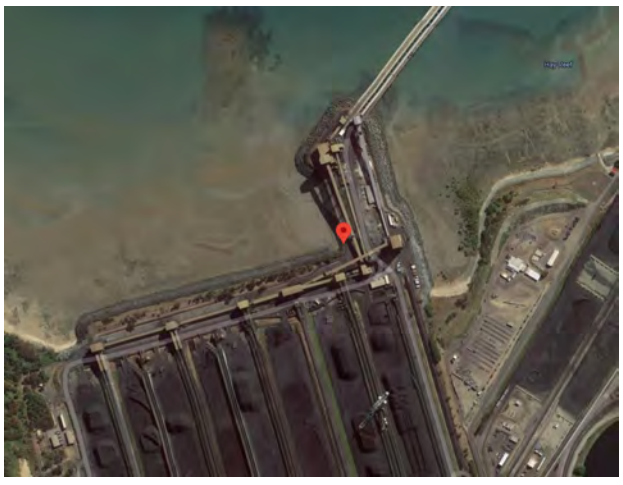
Location	Photo	Comment
Main Area: Stockyards Sub Area: Yard Machines 		*Q: Visual Inspections for height and size & compare to drawings* A: Confirmed height and dimensions and also various levels and makeup of the stacker/stacker reclaimer machines
Main Area: Stockyards Sub Area: Yard Infrastructure 		*Q: Inspect storm water system due to no info* A: Main Drain pits for stockyard inspected and approach finalised to estimate
Main Area: Stockyards Sub Area: Yard Infrastructure 		*Q: Inspect storm water system due to no info* A: Main Drain pits for stockyard inspected and approach finalised to estimate
Main Area: Stockyards Sub Area: Yard Machines 		*Q: Visual Inspections for height and size & compare to drawings* A: Confirmed height and dimensions and also various levels and makeup of the stacker/stacker reclaimer machines

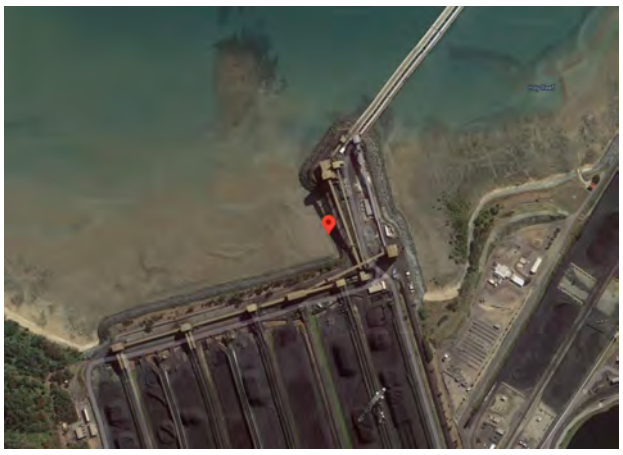
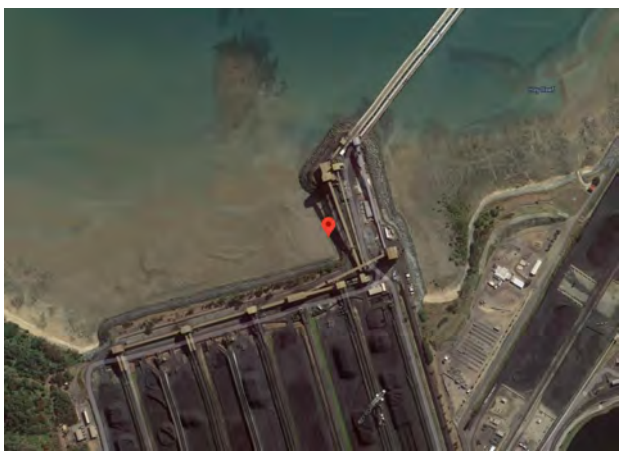
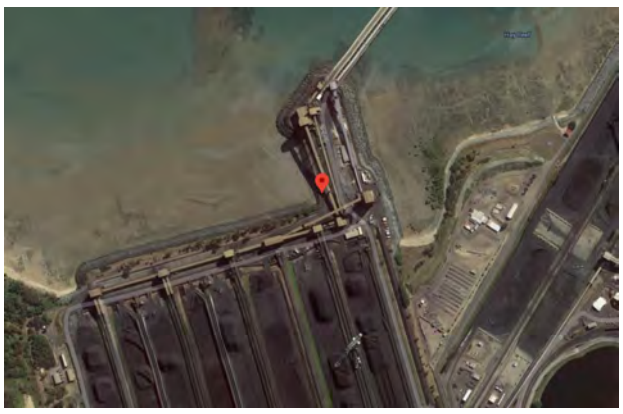
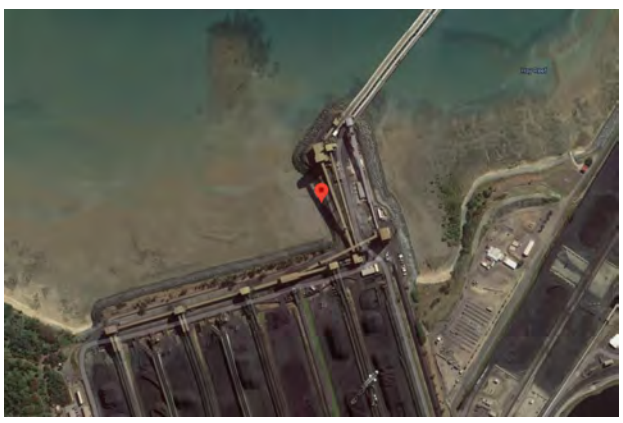
Location	Photo	Comment
Main Area: Stockyards Sub Area: Yard Machines 		*Q: Visual Inspections for height and size & compare to drawings* A: Confirmed height and dimensions and also various levels and makeup of the stacker/stacker reclaimer machines
Main Area: Stockyards Sub Area: Yard Infrastructure 		*Q: Visual Inspections for height and size & compare to drawings* A: Confirmed height and dimensions and also various levels and makeup of the stacker/stacker reclaimer machines
Main Area: Stockyards Sub Area: Inloading Conveyors & Towers 		*Q: Inspect equipment for height and size* A: General height and makeup of conveyors and towers confirmed
Main Area: Stockyards Sub Area: Inloading Conveyors & Towers 		*Q: Inspect equipment for height and size* A: General height and makeup of conveyors and towers confirmed

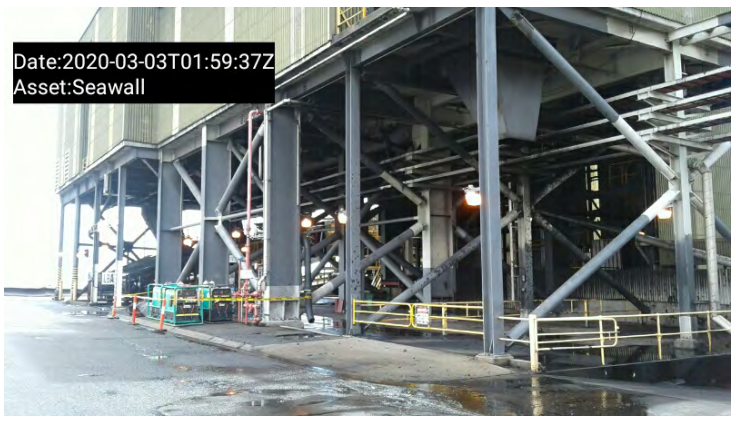
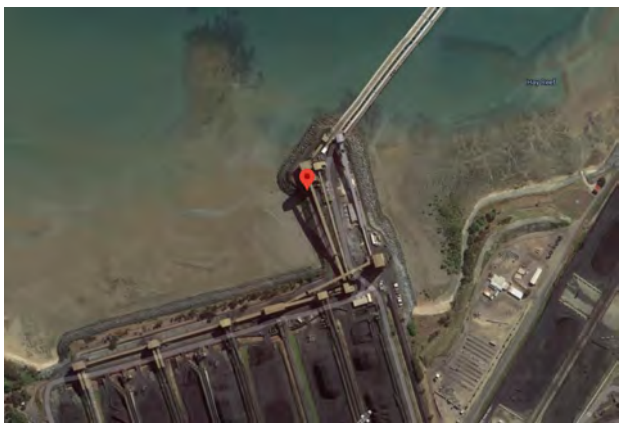
Location	Photo	Comment
Main Area: Stockyards Sub Area: Inloading Conveyors & Towers 		*Q: Check for possible piles & verify slabs due to uneven ground* A: S13 drive tower unit piling confirmed and incorporate into estimate
Main Area: Stockyards Sub Area: Inloading Conveyors & Towers 		*Q: Check for possible piles & verify slabs due to uneven ground* A: S13 drive tower general makeup confirmed

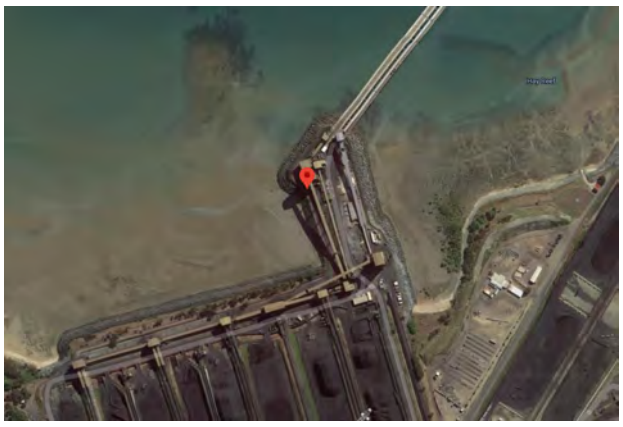
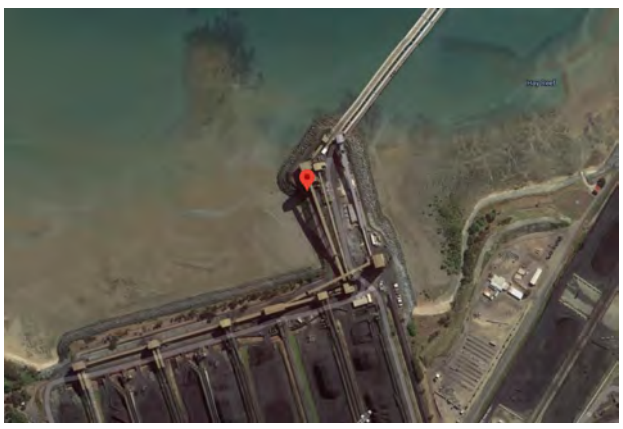
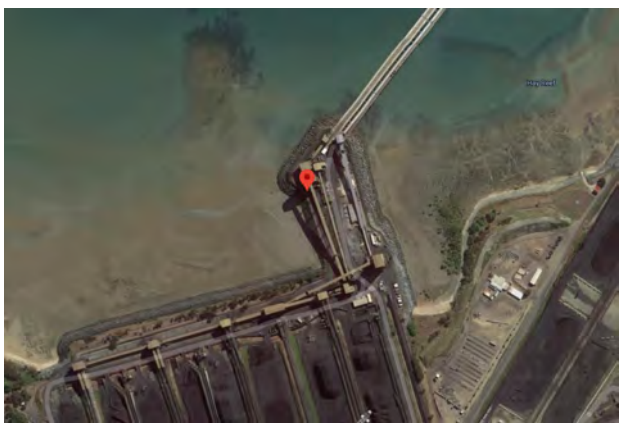
3. Seawall and Transfer Stations

Location	Photo	Comment
Main Area: Seawall Sub Area: Seawall & Hanbars 		*Q: Confirm size and makeup of the Hanbars & distance from shore* A: Confirmed the size and makeup of the Hanbars in certain areas, area not very accessible so all data could not be recorded for all areas
Main Area: Seawall Sub Area: Out-loading Conveyors & Towers 		*Q: Confirm cladding on structures* A: Cladding confirmed as colourbond type metal cladding with some transparent panels
Main Area: Seawall Sub Area: Out-loading Conveyors & Towers 		*Q: Confirm height and size and piling for the drive towers if possible* A: Confirmed height of units and concrete footings that was visible and compare to drawings received
Main Area: Seawall Sub Area: Out-loading Conveyors & Towers 		*Q: Confirm height and size and piling for the drive towers if possible* A: Confirmed height of units and concrete footings that was visible and compare to drawings received

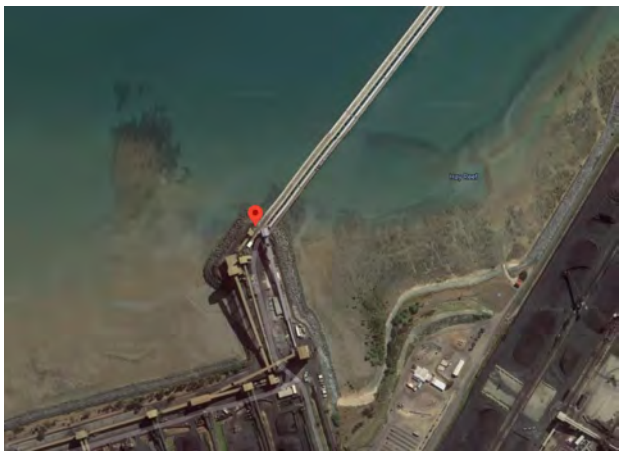
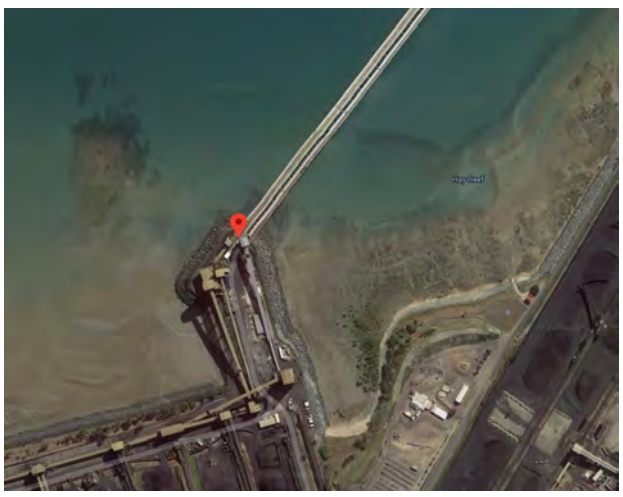
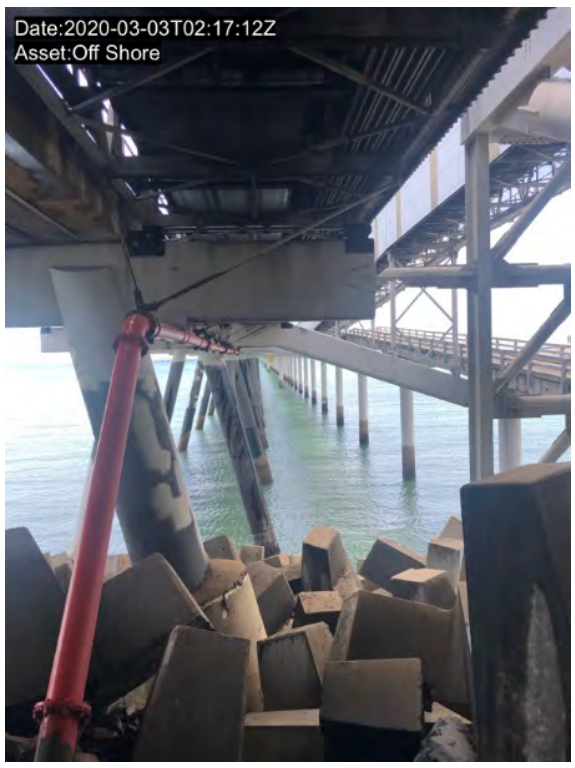
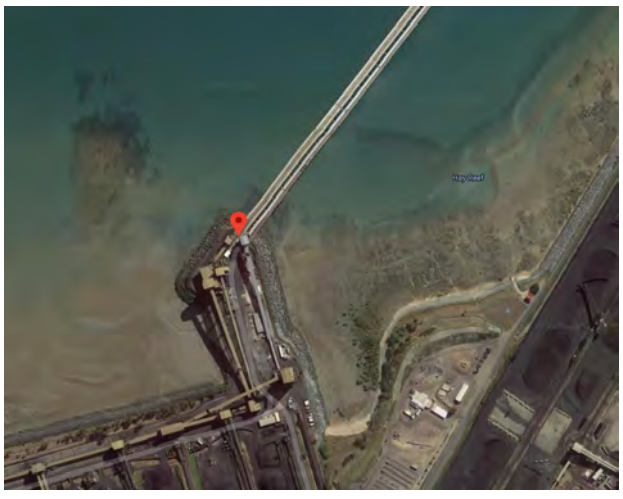
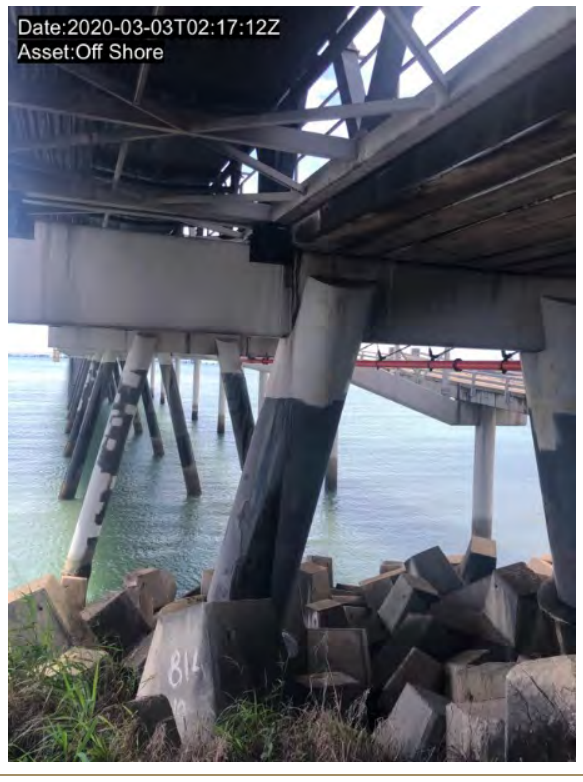
Location	Photo	Comment
Main Area: Seawall Sub Area: Out-loading Conveyors & Towers 		*Q: Confirm height and size and piling for the drive towers if possible* A: Confirmed height of units and concrete footings that was visible and compare to drawings received
Main Area: Seawall Sub Area: Out-loading Conveyors & Towers 		*Q: Confirm height and size and piling for the drive towers if possible* A: Confirmed height of units and concrete footings that was visible and compare to drawings received
Main Area: Seawall Sub Area: Outloading Conveyors & Towers 		*Q: Confirm height and size and piling for the drive towers if possible* A: Confirmed height of units and concrete footings that was visible and compare to drawings received. Size of the trestles also confirmed and compared to the received drawings
Main Area: Seawall Sub Area: Seawall & Hanbars 		*Q: Confirm size and makeup of the Hanbars & distance from shore* A: Confirmed the size and makeup of the Hanbars in certain areas, area not very accessible so all data could not be recorded for all areas. Various weights and dimensions of Hanbars could not be confirmed

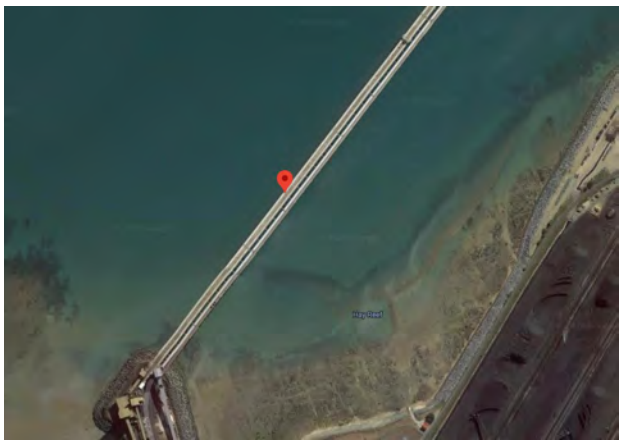
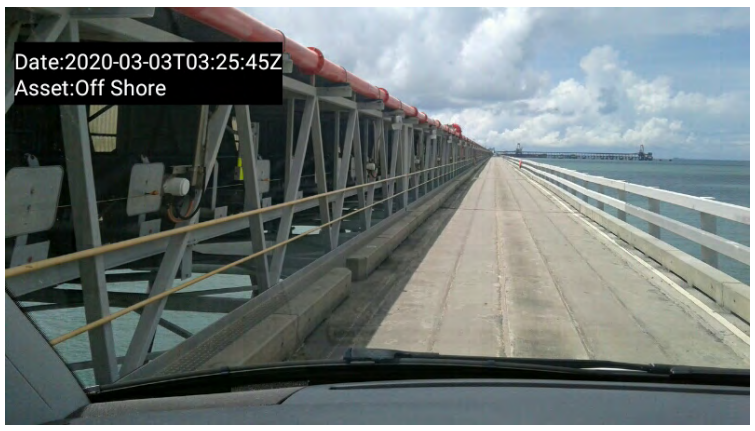
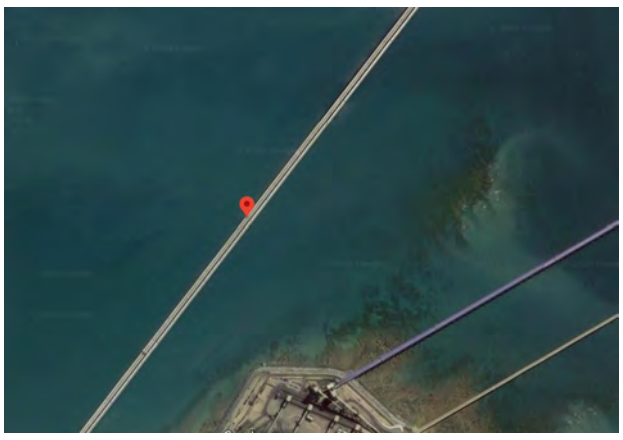
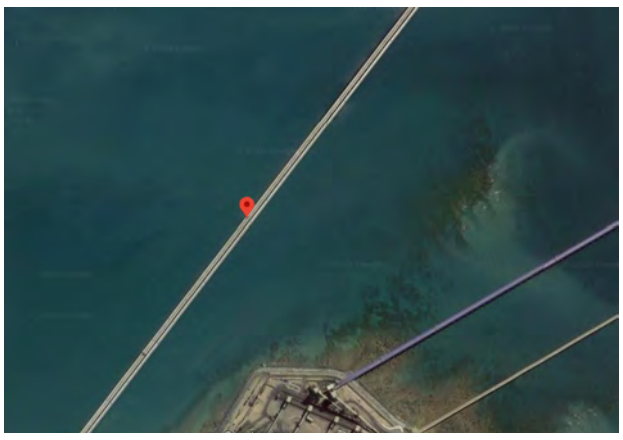
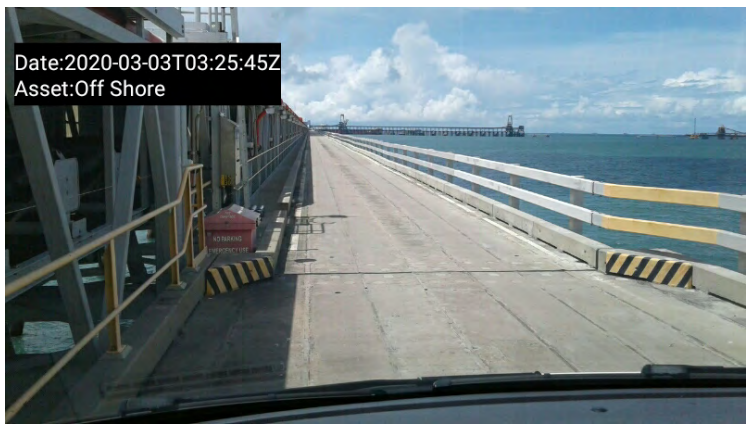
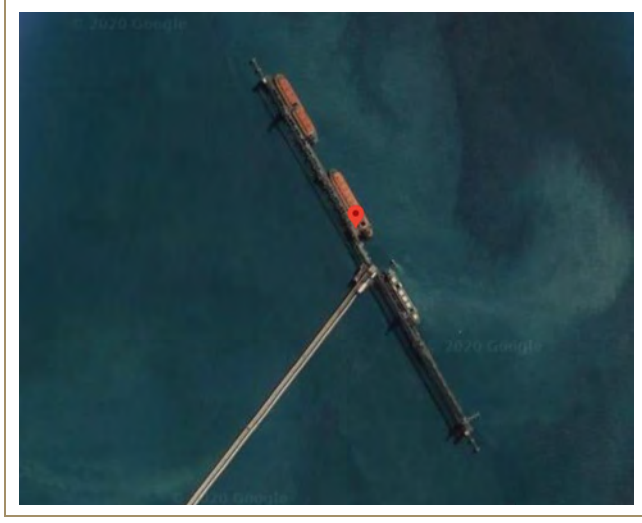
Location	Photo	Comment
Main Area: Seawall Sub Area: Seawall & Hanbars 		*Q: Confirm size and makeup of the Hanbars & distance from shore* A: Confirmed the size and makeup of the Hanbars in certain areas, area not very accessible so all data could not be recorded for all areas. Various weights and dimensions of Hanbars could not be confirmed
Main Area: Seawall Sub Area: Seawall & Hanbars 		*Q: Confirm size and makeup of the Hanbars & distance from shore* A: Confirmed the size and makeup of the Hanbars in certain areas, area not very accessible so all data could not be recorded for all areas. Various weights and dimensions of Hanbars could not be confirmed
Main Area: Seawall Sub Area: Seawall & Hanbars 		*Q: Confirm armour rock underneath if possible* A: Armour rock confirmed in some areas, due to area not being accessible no depths or widths could be confirmed for the rock layers
Main Area: Seawall Sub Area: Out-loading Conveyors & Towers 		*Q: Confirm cladding on structures* A: Cladding confirmed as Colourbond steel type cladding with some transparent panels. Conveyor trestles also confirmed

Location	Photo	Comment
Main Area: Seawall Sub Area: Surge Bins & Sample Stations 		*Q: Confirm size and makeup of the buildings* A: Confirmed from outside as no access inside. Confirmed height and makeup of structure.
Main Area: Seawall Sub Area: Surge Bins & Sample Stations 		*Q: Confirm size and makeup of the buildings* A: Confirmed from outside as no access inside. Confirmed height and makeup of structure.
Main Area: Seawall Sub Area: General 		*Q: Check for any other buildings* A: Confirmed substation as per Domain 8 , confirmed makeup and construction material of building

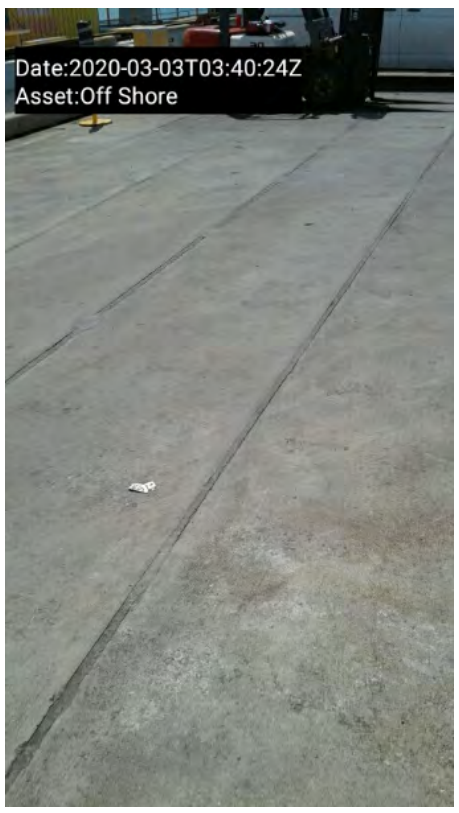
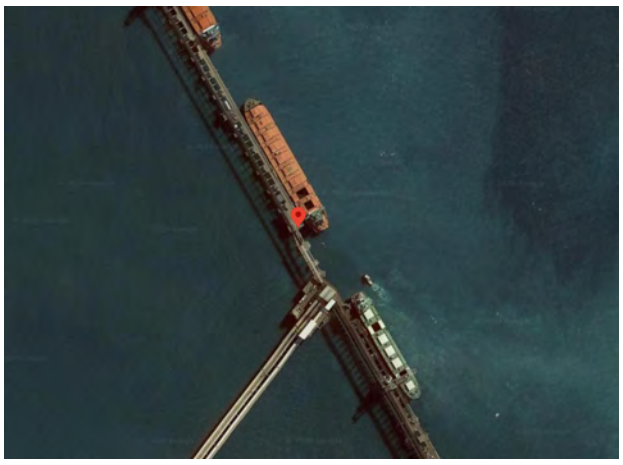
Location	Photo	Comment
Main Area: Seawall Sub Area: Surge Bins & Sample Stations 		*Q: Confirm if possible footings due to low levels of info* A: Confirmed footings that was visible and compare to drawings
Main Area: Seawall Sub Area: Surge Bins & Sample Stations 		*Q: Confirm if possible footings due to low levels of info* A: Confirmed footings that was visible and compare to drawings
Main Area: Seawall Sub Area: Belt Feeder Stations 		*Q: Confirm size and makeup of the Area* A: Confirmed from outside as no access inside. Confirmed height and makeup of structure.

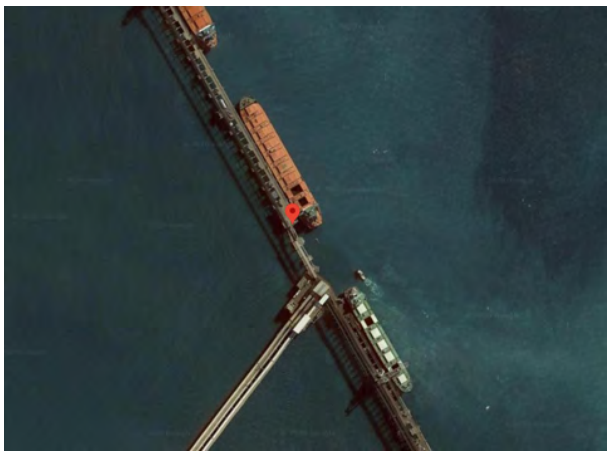
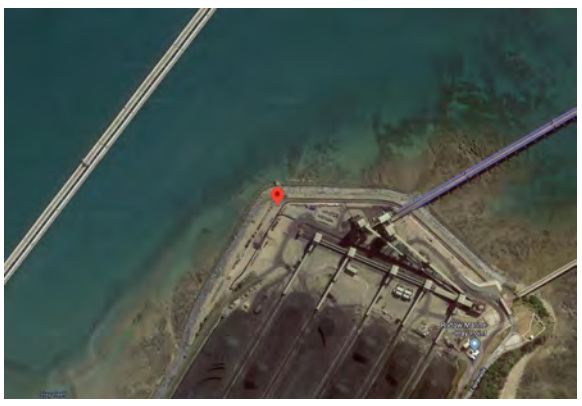
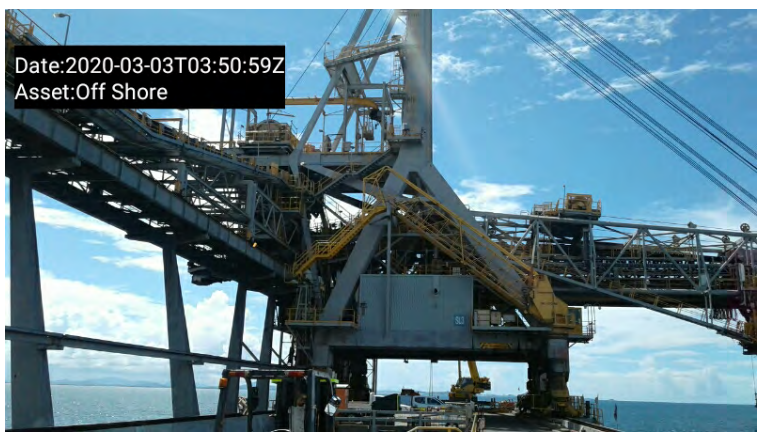
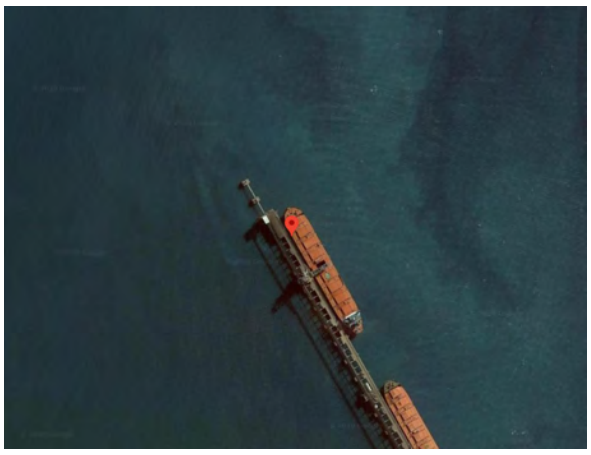
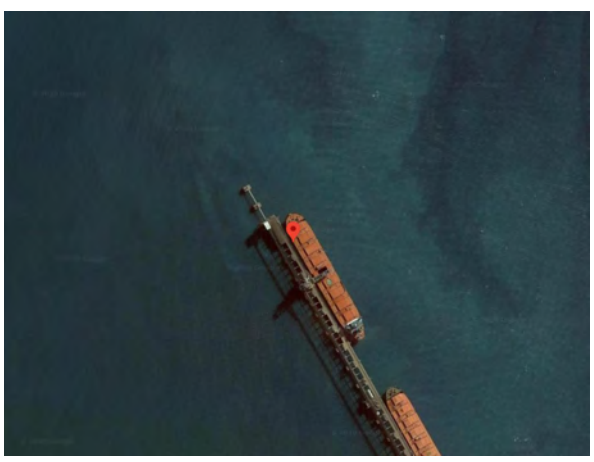
4. Offshore (Jetty & Wharf)

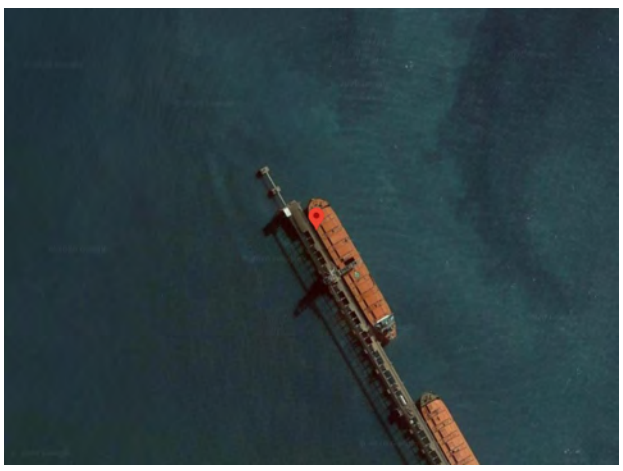
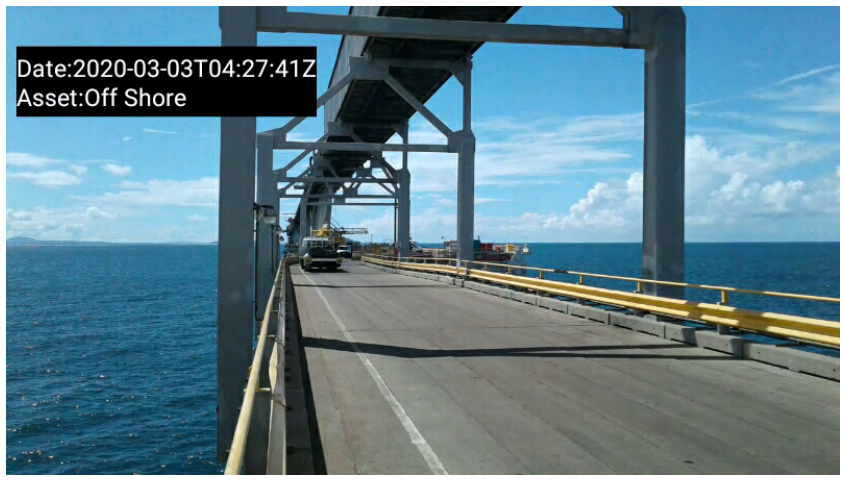
Location	Photo	Comment
Main Area: Off Shore Sub Area: Jetty 		*Q: Jetty pile makeup* A: Piles verified as steel piles
Main Area: Off Shore Sub Area: Jetty 		*Q: Jetty makeup* A: Confirmed Jetty make up and Pile orientation
Main Area: Off Shore Sub Area: Jetty 		*Q: Jetty makeup* A: Confirmed Jetty make up and Pile orientation

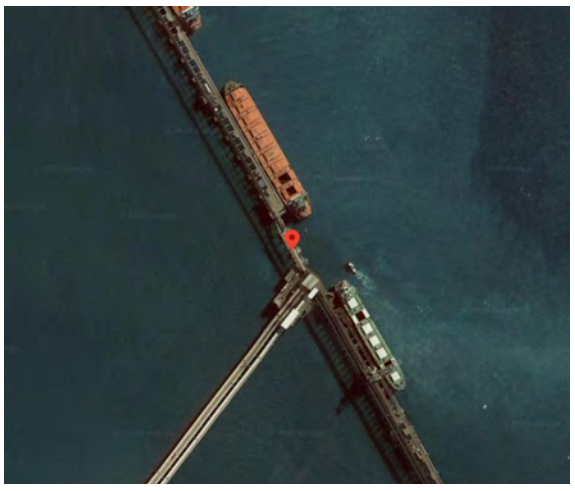
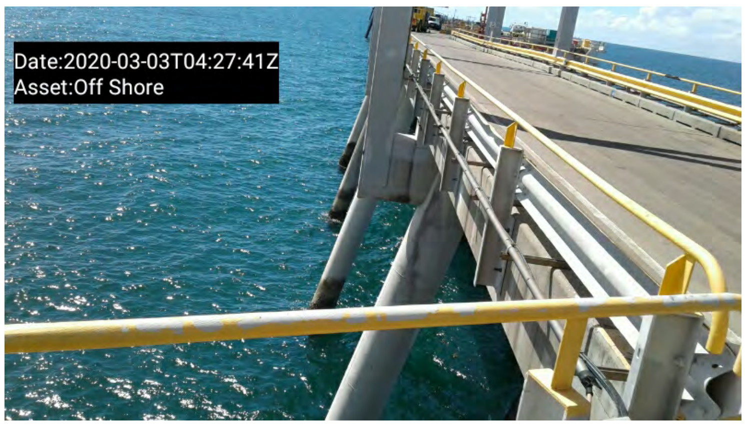
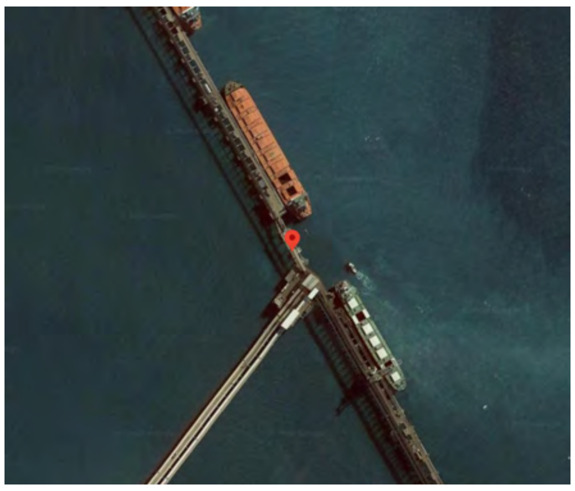
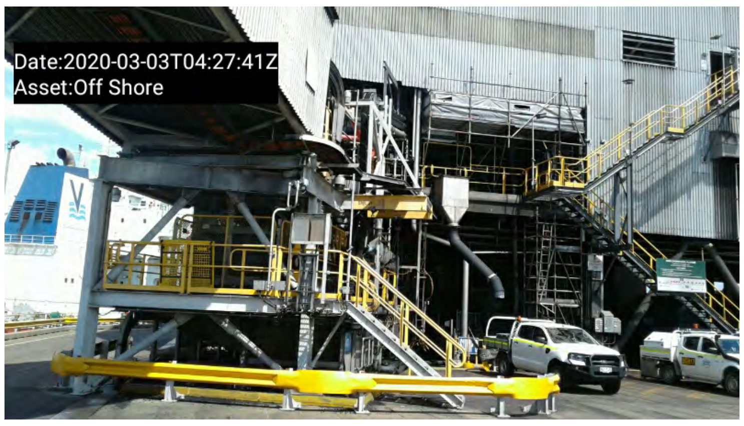
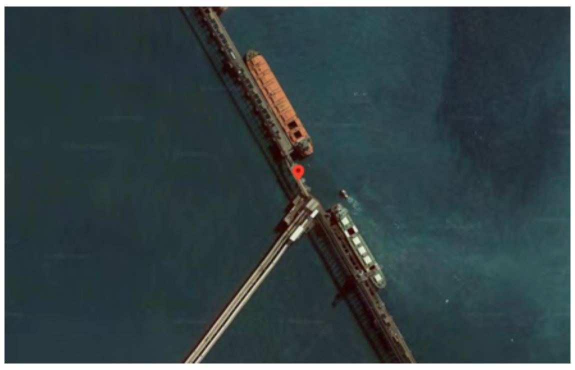
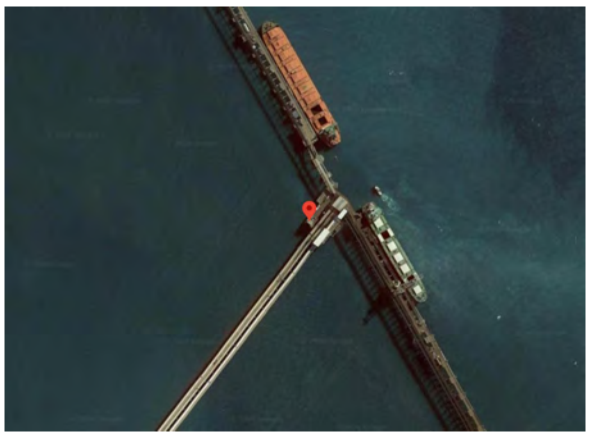
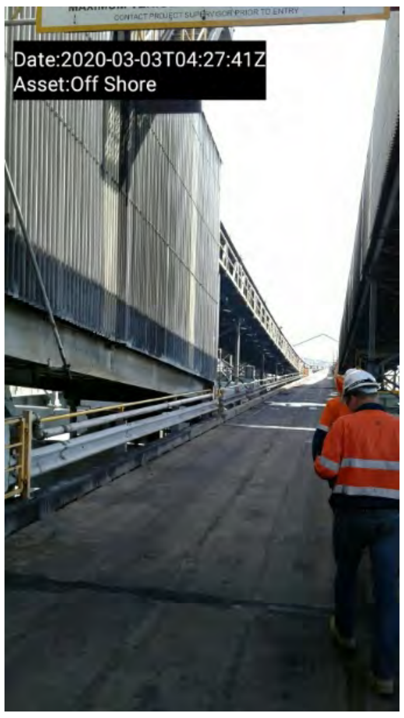
Location	Photo	Comment
Main Area: Off Shore Sub Area: Conveyors & Towers 		*Q: Jetty roadway/deck and conveyors* A: General conveyors and jetty confirmation
Main Area: Off Shore Sub Area: Conveyors & Towers 		*Q: Off-shore conveyor makeup* A: General conveyors confirmation and makeup of structures
Main Area: Off Shore Sub Area: Conveyors & Towers 		*Q: Jetty roadway/deck and conveyors* A: General conveyors and jetty confirmation
Main Area: Off Shore Sub Area: Ship Loaders & Associated Infrastructure 		*Q: Confirm makeup and structures of the Ship Loaders and Wharf Areas* A: General jetty and conveyors confirmed and noted for estimate

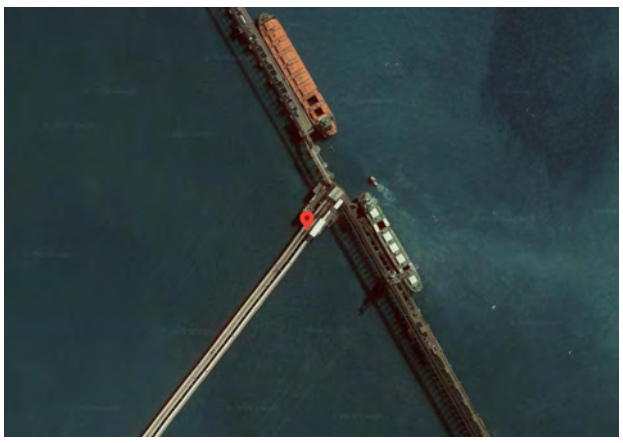
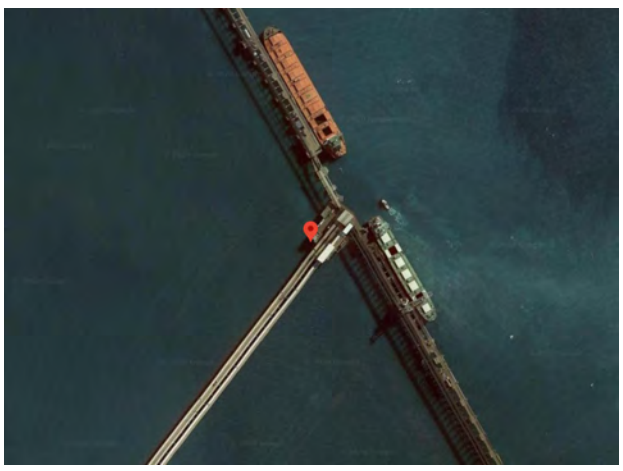
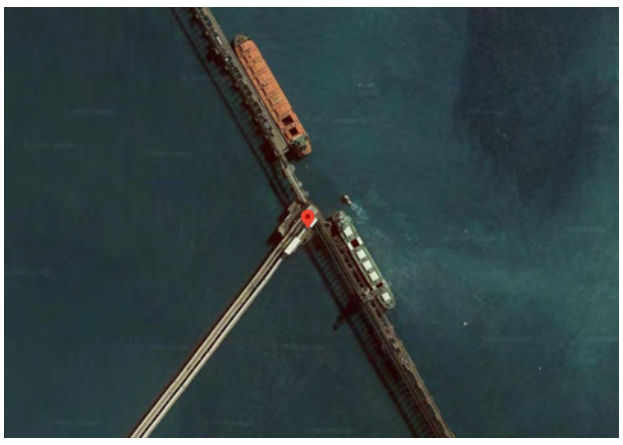
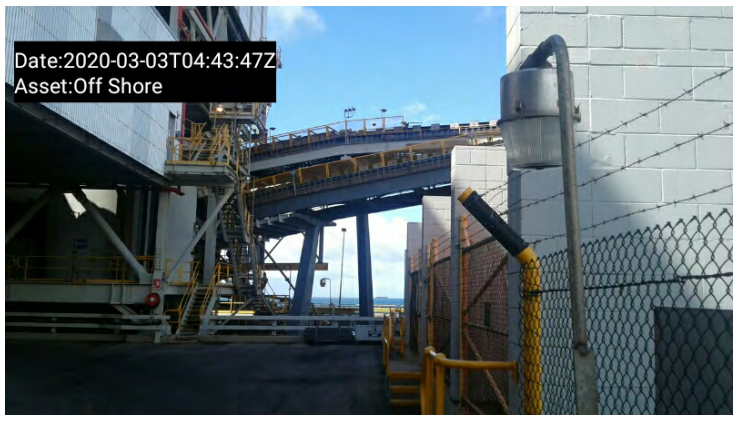
Location	Photo	Comment
Main Area: Off Shore Sub Area: Ship Loaders & Associated Infrastructure 		*Q: Confirm makeup and structures of the Ship Loaders and Wharf Areas* A: General jetty and conveyors confirmed and noted for estimate
Main Area: Off Shore Sub Area: Ship Loaders & Associated Infrastructure 		*Q: Confirm makeup and structures of the Ship loader conveyors* A: Confirm Ship loader conveyors size and makeup including height and number of belts
Main Area: Off Shore Sub Area: Jetty 		*Q: Confirm Jetty and Wharf Decking and general infrastructure* A: Confirmed and noted

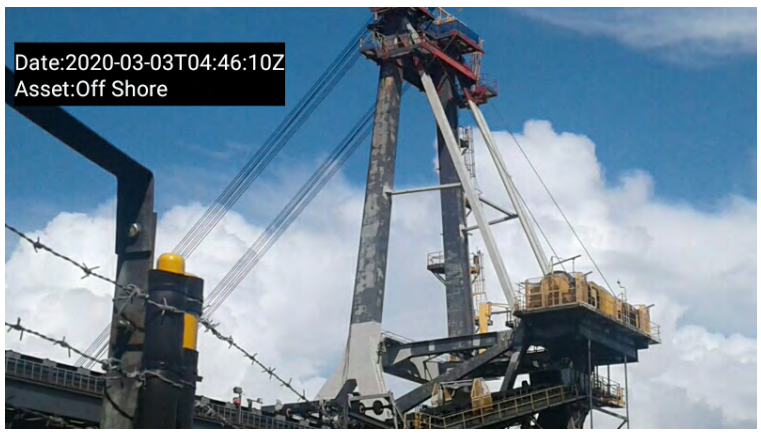
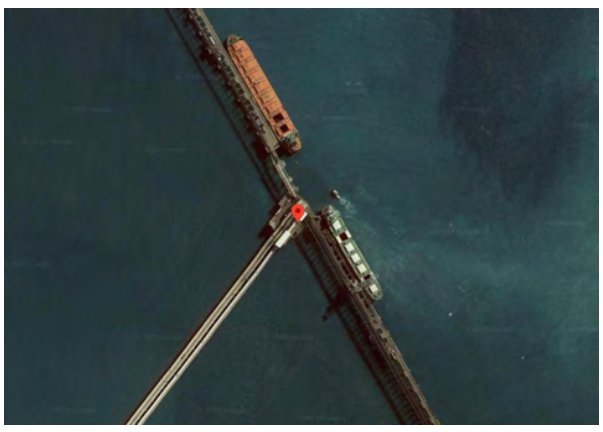
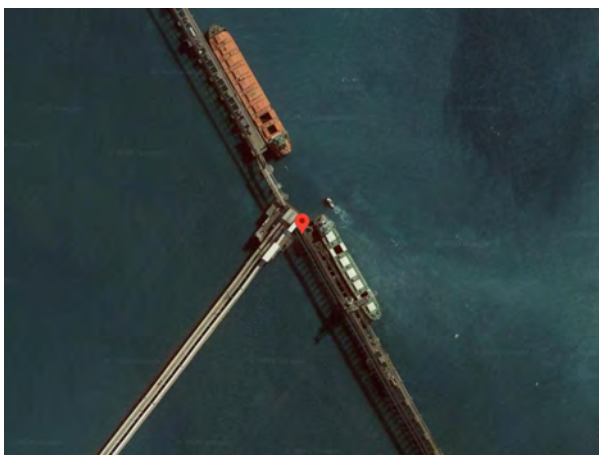
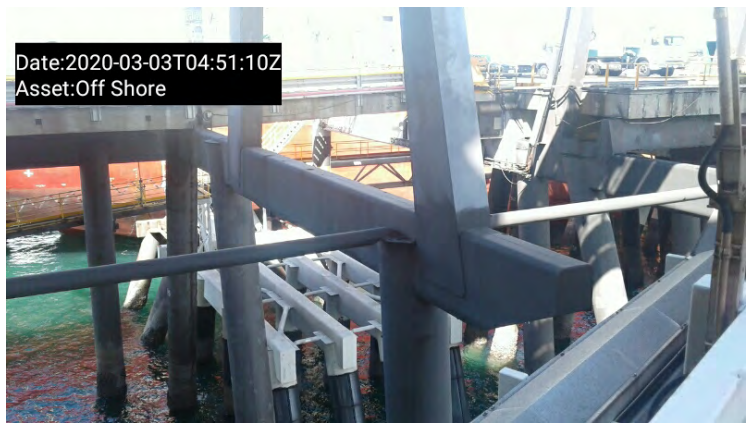
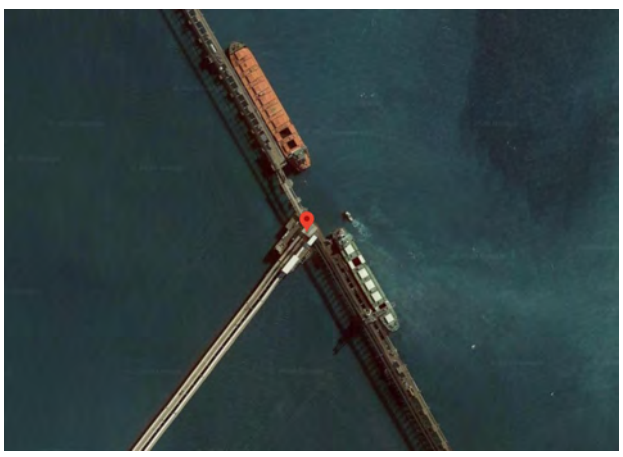
Location	Photo	Comment
Main Area: Off Shore Sub Area: Jetty 		*Q: Confirm Dolphins make up and infrastructure* A: Confirmed and noted
Main Area: Off Shore Sub Area: Jetty 		*Q: Confirm Jetty decking structure* A: Noted concrete makeup of Jetty and Wharf decks and infrastructure
Main Area: Off Shore Sub Area: Wharf 		*Q: Confirm Wharf decking structure* A: Noted concrete makeup of Jetty and Wharf decks and infrastructure

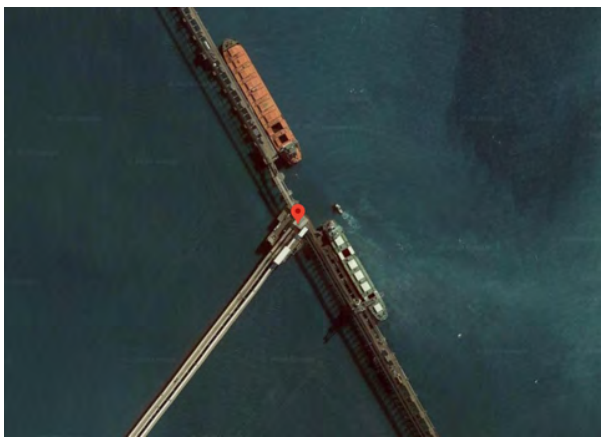
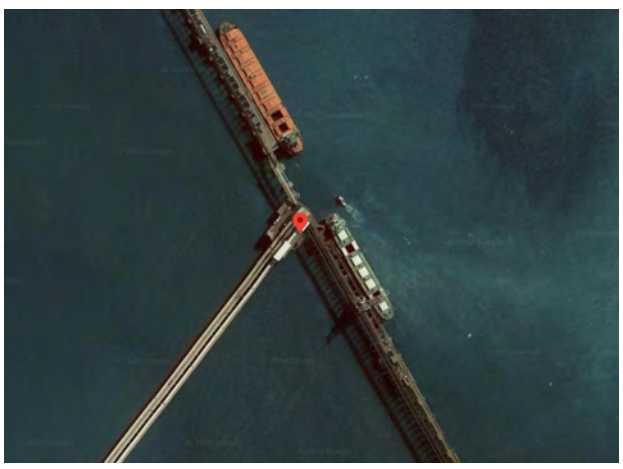
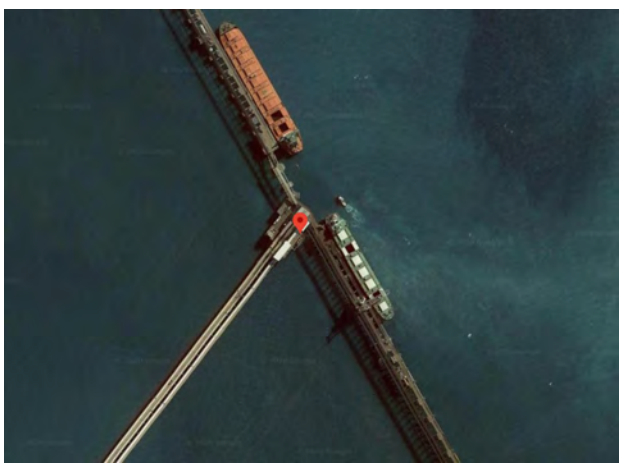
Location	Photo	Comment
Main Area: Off Shore Sub Area: Wharf 		*Q: Confirm Wharf decking structure* A: Noted concrete makeup of Jetty and Wharf decks and infrastructure
Main Area: Off Shore Sub Area: Ship Loaders & Associated Infrastructure 		*Q: Confirm height and dimensions of Ship loader* A: Confirmed for estimate
Main Area: Off Shore Sub Area: Wharf 		*Q: Confirm Wharf decking structure* A: Noted concrete makeup of Jetty and Wharf decks and infrastructure
Main Area: Off Shore Sub Area: Jetty 		*Q: Confirm pile numbers and makeup of the mooring dolphins underneath Wharf structure* A: Mooring dolphin confirmed as well as pile numbers and makeup of the structure

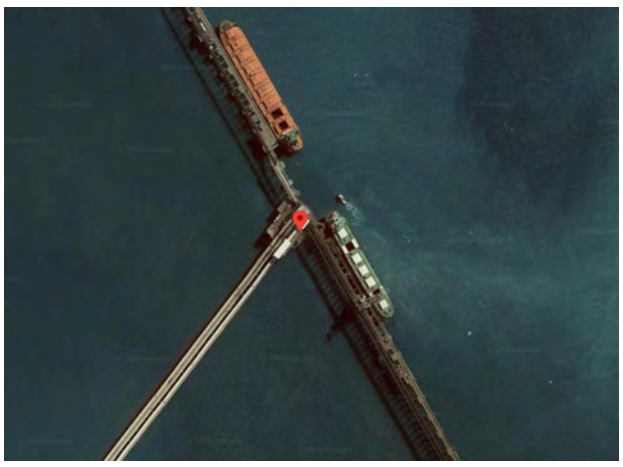
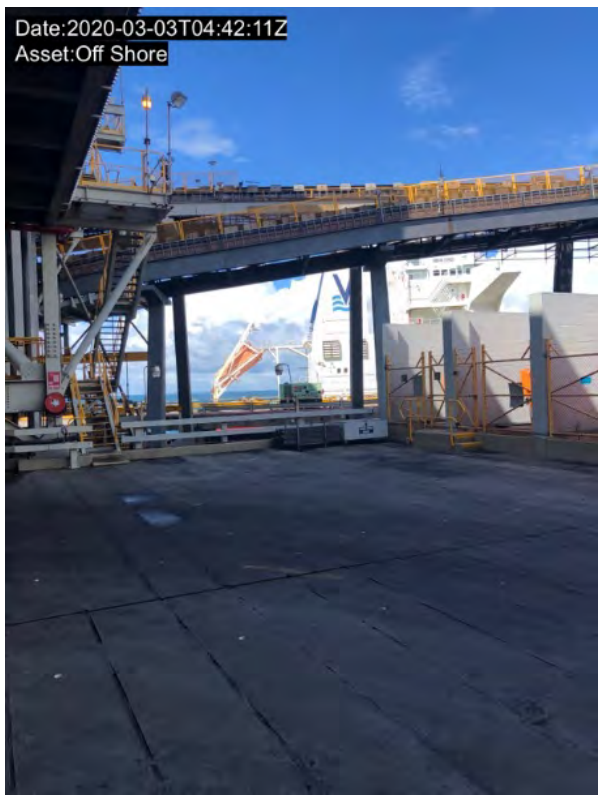
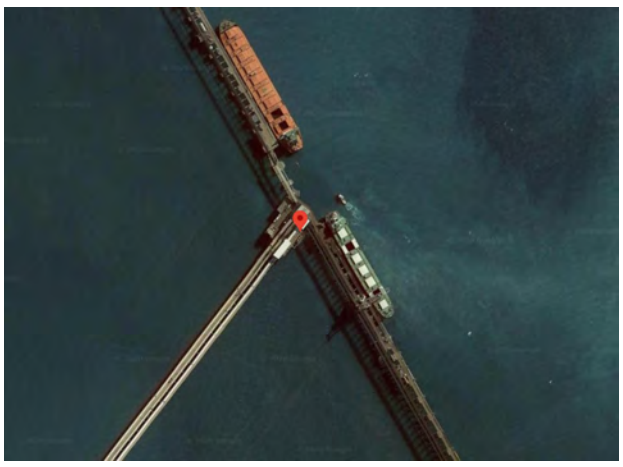
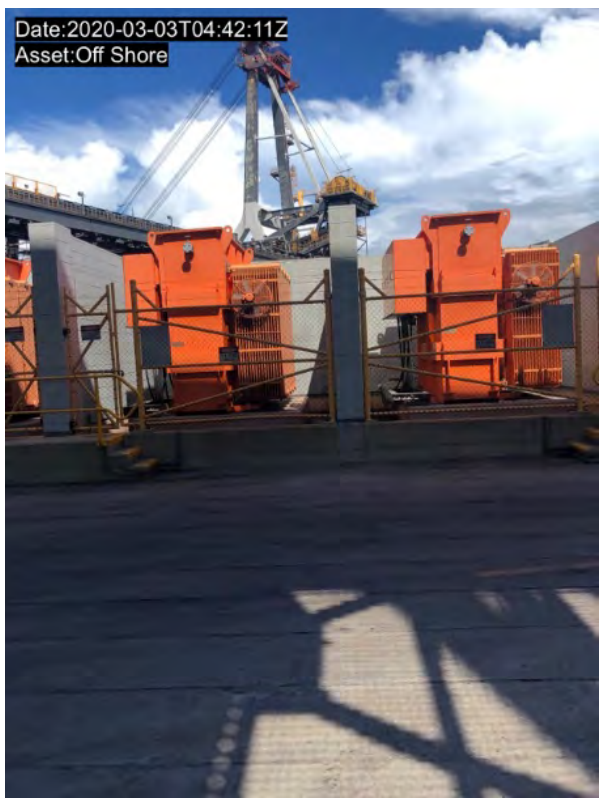
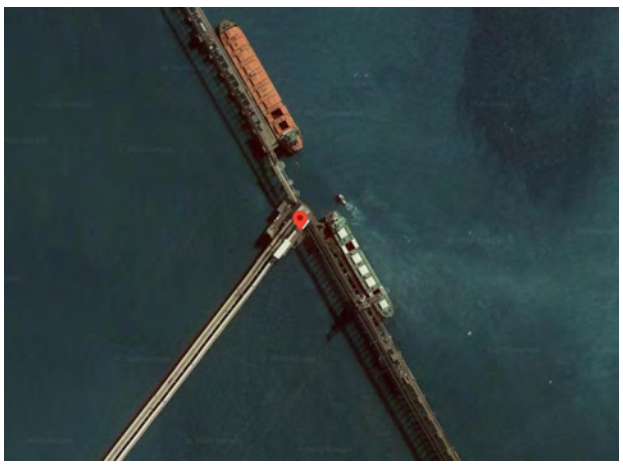
Location	Photo	Comment
Main Area: Off Shore Sub Area: Conveyors & Towers 		*Q: Confirm height and makeup of Conveyors* A: Confirmed height and trestle structure of the conveyors
Main Area: Off Shore Sub Area: Conveyors & Towers 		*Q: Confirm height and makeup of Conveyors* A: Confirmed height and trestle structure of the conveyors
Main Area: Off Shore Sub Area: Conveyors & Towers 		*Q: Confirm height and makeup of Conveyors* A: Confirmed height and trestle structure of the conveyors

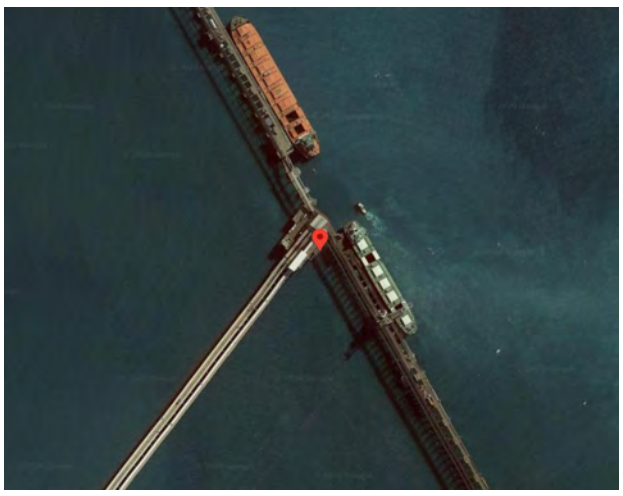
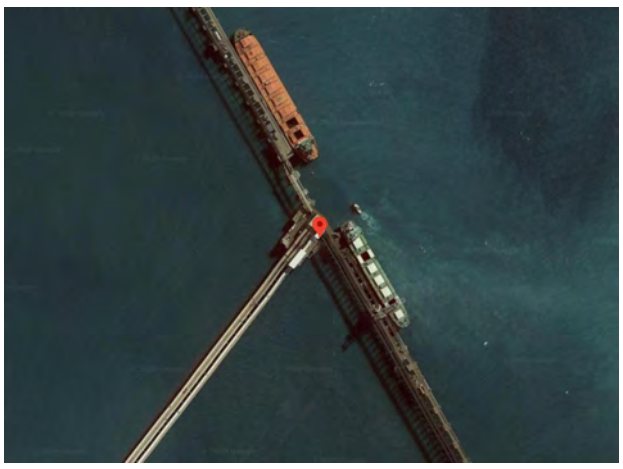
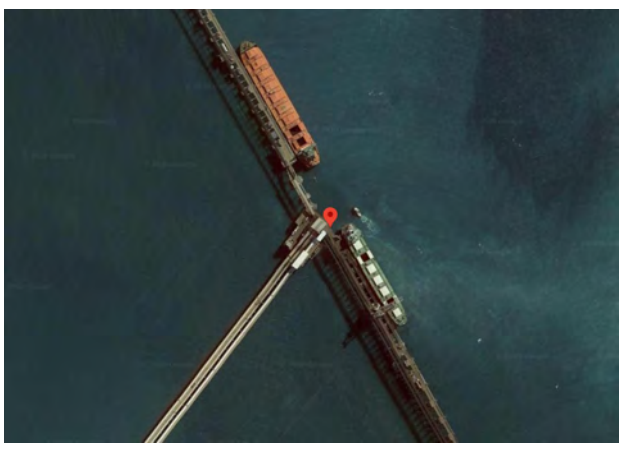
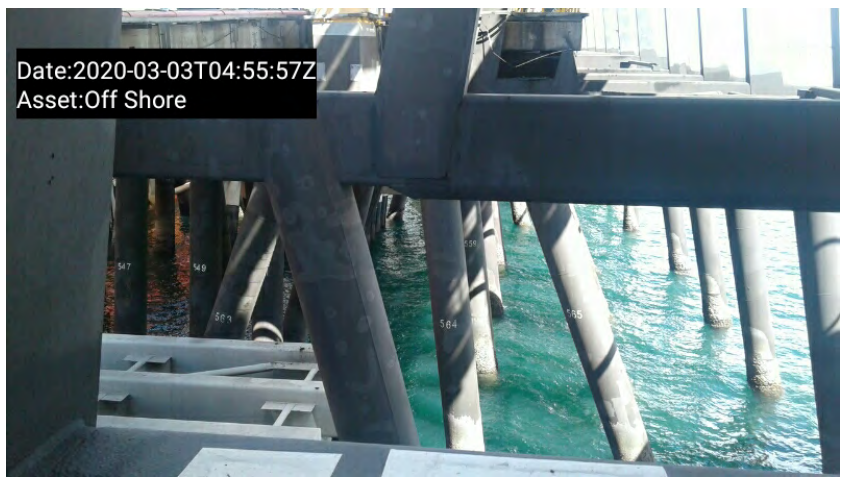
Location	Photo	Comment
Main Area: Off Shore Sub Area: Jetty 		*Q: Confirm Wharf/Jetty decking structure* A: Noted concrete makeup of Jetty and Wharf decks and infrastructure
Main Area: Off Shore Sub Area: Conveyors & Towers 		*Q: Confirm general makeup, height and cladding of towers* A: Confirmed
Main Area: Off Shore Sub Area: Conveyors & Towers 		*Q: Confirm general makeup, height and cladding of towers* A: Confirmed
Main Area: Off Shore Sub Area: Conveyors & Towers 		*Q: Confirm general makeup, height and cladding of towers* A: Confirmed

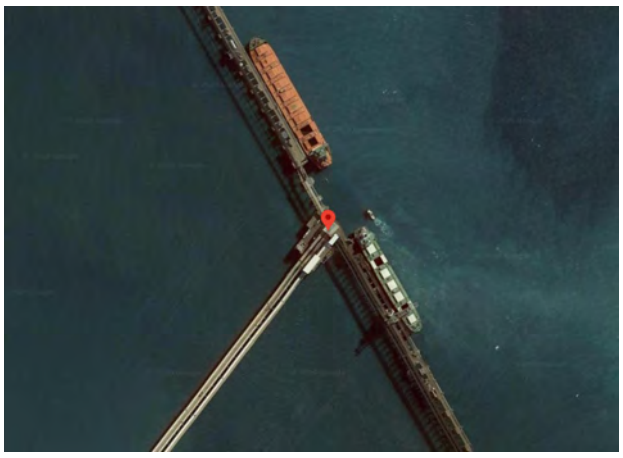
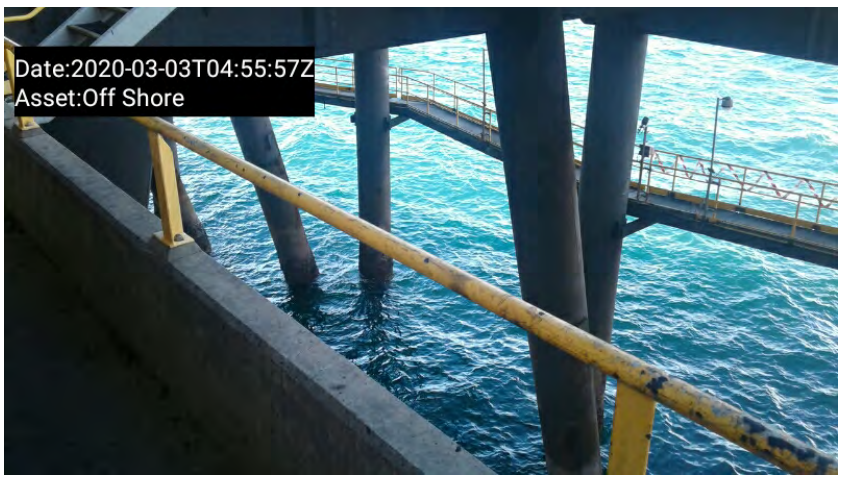
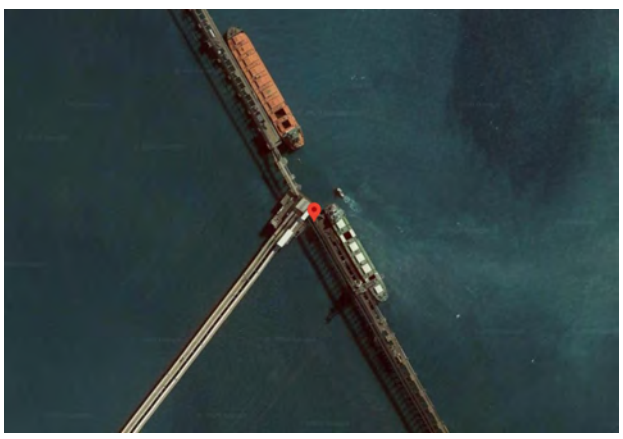
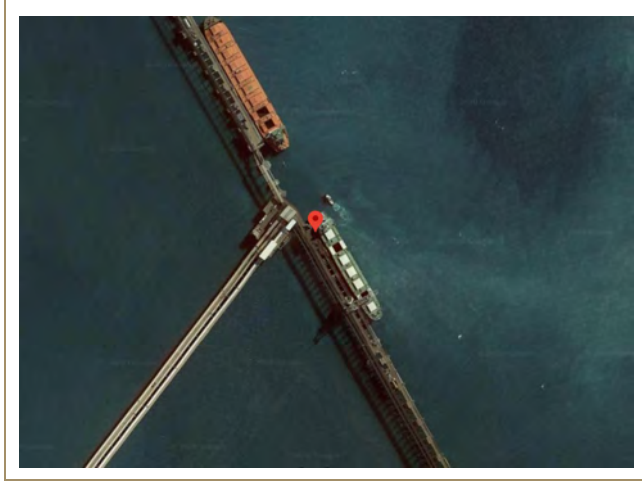
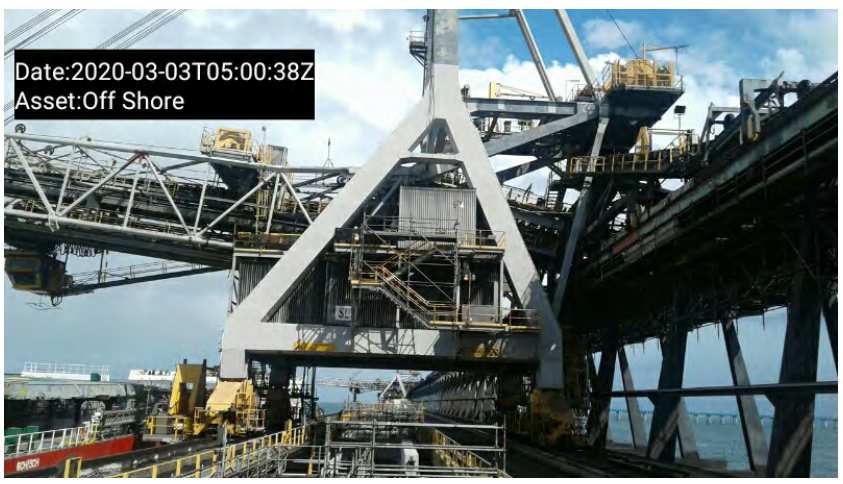
Location	Photo	Comment
Main Area: Off Shore Sub Area: Conveyors & Towers 		*Q: Confirm general makeup, height and cladding of conveyors* A: Confirmed
Main Area: Off Shore Sub Area: Conveyors & Towers 		*Q: Confirm general makeup, height and cladding of conveyors* A: Confirmed
Main Area: Off Shore Sub Area: Conveyors & Towers 		*Q: Confirm general makeup, height and cladding of conveyors & towers* A: Confirmed

Location	Photo	Comment
Main Area: Off Shore Sub Area: Ship Loaders & Associated Infrastructure 		*Q: Confirm Ship loader makeup, height and infrastructure* A: Confirmed boom cabling and infrastructure
Main Area: Off Shore Sub Area: Conveyors & Towers 		*Q: Confirm general makeup, height and cladding of conveyors & towers* A: Confirmed
Main Area: Off Shore Sub Area: Jetty 		*Q: Confirm Jetty makeup and associated infrastructure* A: Confirmed
Main Area: Off Shore Sub Area: Jetty 		*Q: Confirm Jetty makeup and associated infrastructure* A: Confirmed

Location	Photo	Comment
Main Area: Off Shore Sub Area: Jetty 		*Q: Confirm Jetty makeup and associated infrastructure* A: Confirmed
Main Area: Off Shore Sub Area: Conveyors & Towers 		*Q: Confirm general makeup, height and cladding of conveyors & towers* A: Confirmed
Main Area: Off Shore Sub Area: Conveyors & Towers 		*Q: Confirm general makeup, height and cladding of conveyors & towers* A: Confirmed

Location	Photo	Comment
Main Area: Off Shore Sub Area: Conveyors & Towers 		*Q: Confirm general makeup, height and cladding of conveyors & towers* A: Confirmed
Main Area: Off Shore Sub Area: Conveyors & Towers 		*Q: Confirm general makeup, height and cladding of conveyors & towers* A: Confirmed Substation for Domain 8
Main Area: Off Shore Sub Area: Conveyors & Towers 		*Q: Confirm general makeup, height and cladding of conveyors & towers* A: Confirmed

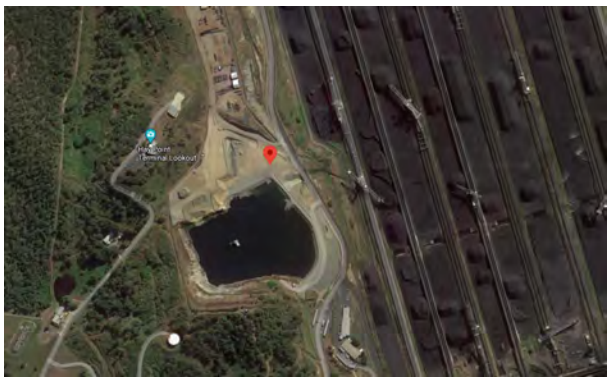
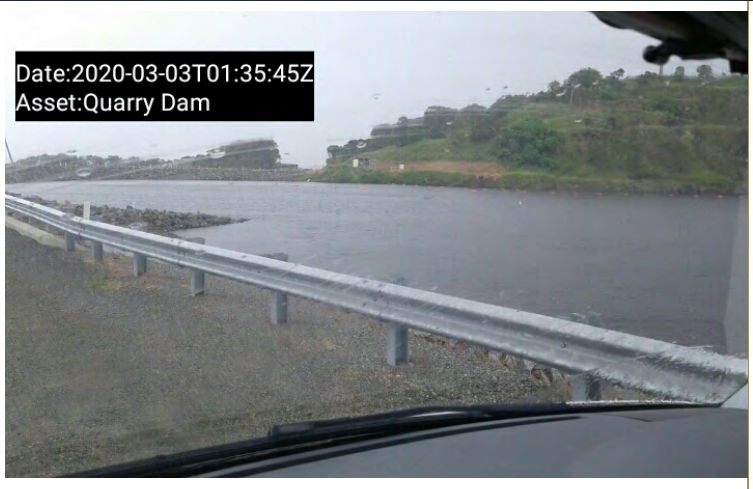
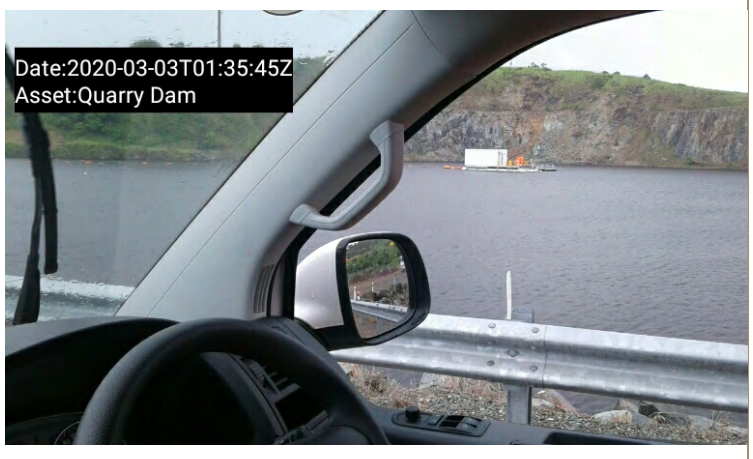
Location	Photo	Comment
Main Area: Off Shore Sub Area: Conveyors & Towers 		*Q: Confirm general makeup, height and cladding of conveyors & towers* A: Confirmed
Main Area: Off Shore Sub Area: Conveyors & Towers 		*Q: Confirm general makeup, height and cladding of conveyors & towers* A: Confirmed
Main Area: Off Shore Sub Area: Jetty 		*Q: Confirm Jetty makeup and associated infrastructure* A: Confirmed

Location	Photo	Comment
Main Area: Off Shore Sub Area: Jetty 		*Q: Confirm Jetty makeup and associated infrastructure* A: Confirmed
Main Area: Off Shore Sub Area: Jetty 		*Q: Confirm Jetty makeup and associated infrastructure* A: Confirmed
Main Area: Off Shore Sub Area: Ship Loaders & Associated Infrastructure 		*Q: Confirm makeup and infrastructure of Ship loader* A: Confirmed (SL1 main body)

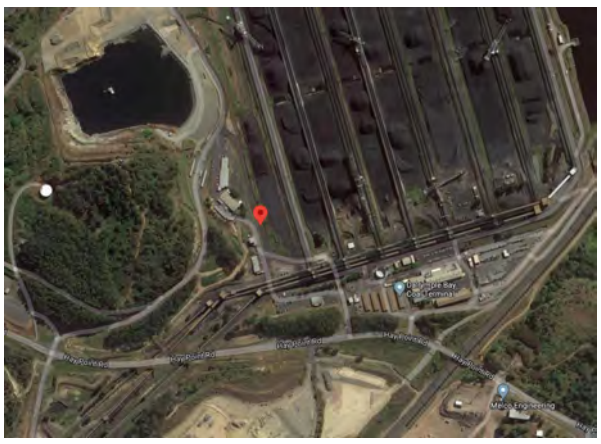
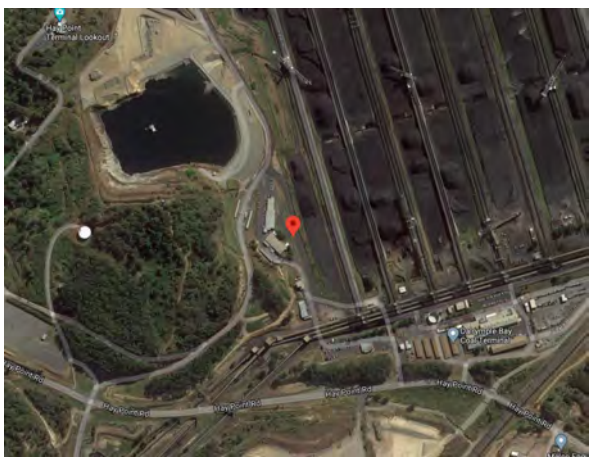
5. Water Management (Dams excl. Quarry)

Location	Photo	Comment
N/A	N/A	N/A

6. Quarry Dam

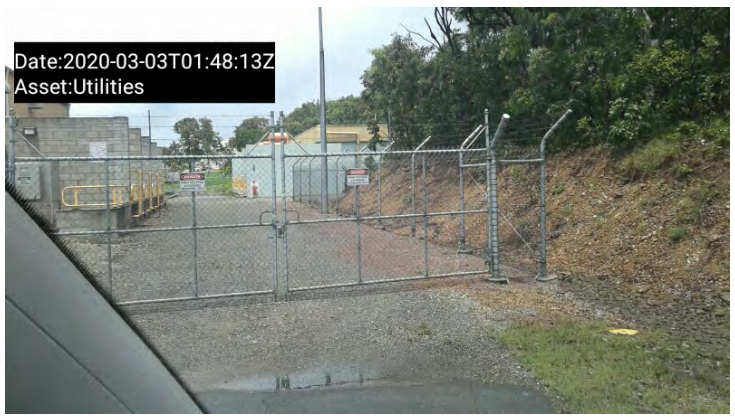
Location	Photo	Comment
Main Area: Quarry Dam Sub Area: Visual Inspection & Infrastructure 		*Q: Confirm infrastructure in place* A: Confirmed floating pump station and associated infrastructure
Main Area: Quarry Dam Sub Area: Visual Inspection & Infrastructure 		*Q: Confirm infrastructure in place* A: Confirmed floating pump station and associated infrastructure

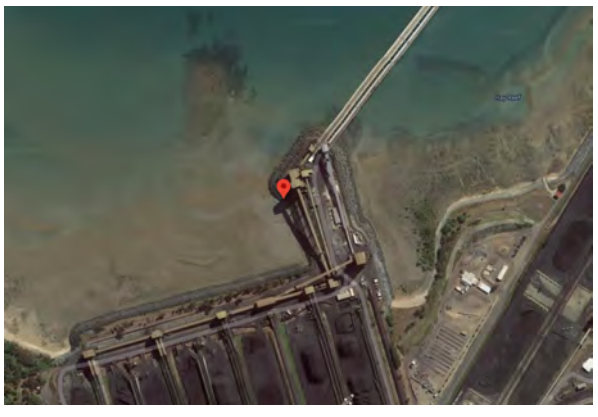
7. Offices and Workshop

Location	Photo	Comment
Main Area: Offices and Workshops Sub Area: All Areas 		*Q: Visit major buildings and if possible smaller type buildings as well* A: Old control tower and sub office confirm makeup, height and size
Main Area: Offices and Workshops Sub Area: All Areas 		*Q: Visit major buildings and if possible smaller type buildings as well* A: Old control tower and sub office
Main Area: Offices and Workshops Sub Area: All Areas 		*Q: Visit major buildings and if possible smaller type buildings as well* A: Lay down warehouse and main workshop close to entrance
Main Area: Offices and Workshops Sub Area: All Areas 		*Q: Visit major buildings and if possible smaller type buildings as well* A: Lay down warehouse and main workshop close to entrance

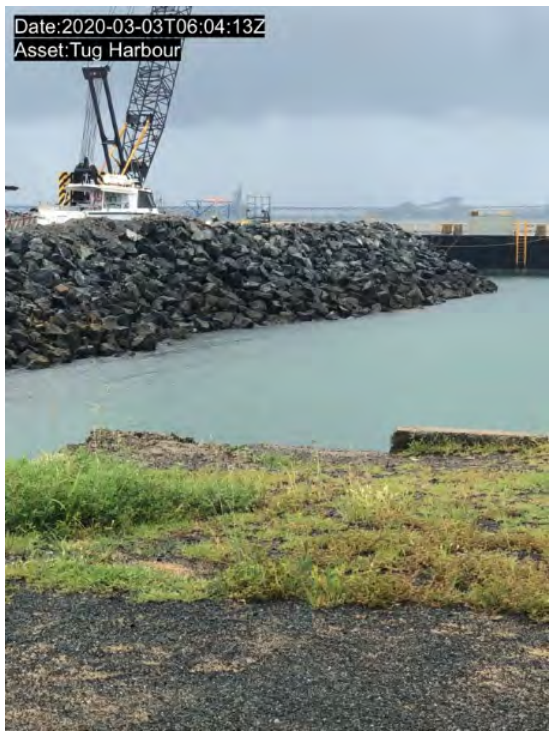
Location	Photo	Comment
Main Area: Offices and Workshops Sub Area: All Areas 		*Q: Visit major buildings and if possible smaller type buildings as well* A: Lay down warehouse and main workshop close to entrance
Main Area: Offices and Workshops Sub Area: All Areas 		*Q: Visit major buildings and if possible smaller type buildings as well* A: Lay down warehouse and main workshop close to entrance
Main Area: Offices and Workshops Sub Area: All Areas 		*Q: Visit major buildings and if possible smaller type buildings as well* A: Lay down warehouse and main workshop close to entrance

8. Utilities

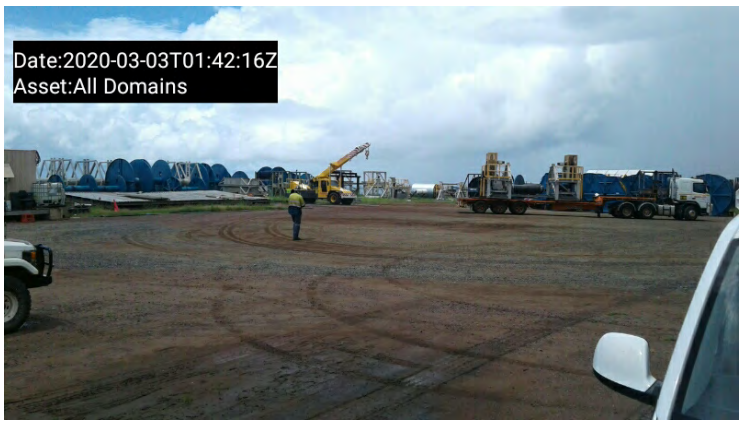
Location	Photo	Comment
Main Area: Utilities Sub Area: In Plant substations 		*Q: Location and verify size and makeup & number of* A: Confirmed, size and makeup will have an increased cost in the Estimate based on current findings
Main Area: Utilities Sub Area: In Plant substations 		*Q: Location and verify size and makeup & number of* A: Confirmed, size and makeup will have an increased cost in the Estimate based on current findings
Main Area: Utilities Sub Area: Main Substations 		*Q: Location and verify size and makeup & number of* A: Confirmed, Main Substation. Size and makeup will have an increased cost in the Estimate based on current findings
Main Area: Utilities Sub Area: Main Substations 		*Q: Location and verify size and makeup & number of* A: Confirmed, Main Substation. Size and makeup will have an increased cost in the Estimate based on current findings

Location	Photo	Comment
Main Area: Utilities Sub Area: In Plant substations 		*Q: Location and verify size and makeup & number of* A: Confirmed, Sub9 close to Surge bin Area. Size and makeup will have an increased cost in the Estimate based on current findings

9. Tug Harbour and All Domains General

Location	Photo	Comment
Main Area: Tug Harbour Sub Area: All Areas 		*Q: Verify locations & makeup of the tug harbour (Possible future required pricing)* A: 6.1 m height restriction on the way into Area
Main Area: Tug Harbour Sub Area: All Areas 		*Q: Verify locations & makeup of the tug harbour (Possible future required pricing)* A: 6.1 m height restriction on the way into Area
Main Area: Tug Harbour Sub Area: All Areas 		*Q: Verify locations & makeup of the tug harbour (Possible future required pricing)* A: 6.1 m height restriction on the way into Area

Location	Photo	Comment
Main Area: Tug Harbour Sub Area: All Areas 		*Q: Verify locations & makeup of the tug harbour (Possible future required pricing)* A: 6.1 m height restriction on the way into Area
Main Area: Tug Harbour Sub Area: All Areas 		*Q: Verify locations & makeup of the tug harbour (Possible future required pricing)* A: 6.1 m height restriction on the way into Area
Main Area: All Domains General Sub Area: All Domains 		*Q: Verify access locations and ease of access* A: Confirm Lay down scaffold areas

Location	Photo	Comment
Main Area: All Domains General Sub Area: All Domains 		*Q: Verify access locations and ease of access* A: Confirm Lay down scaffold areas

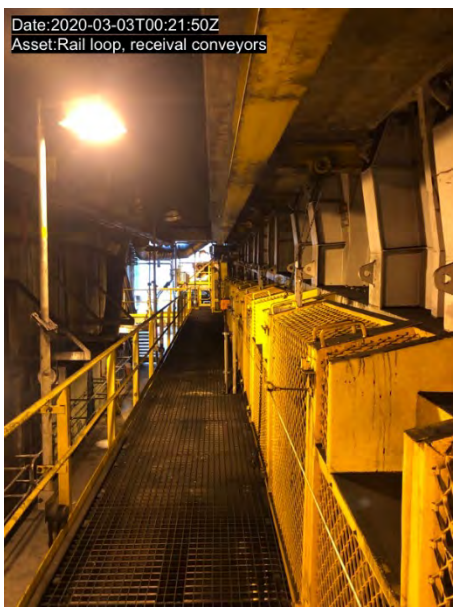
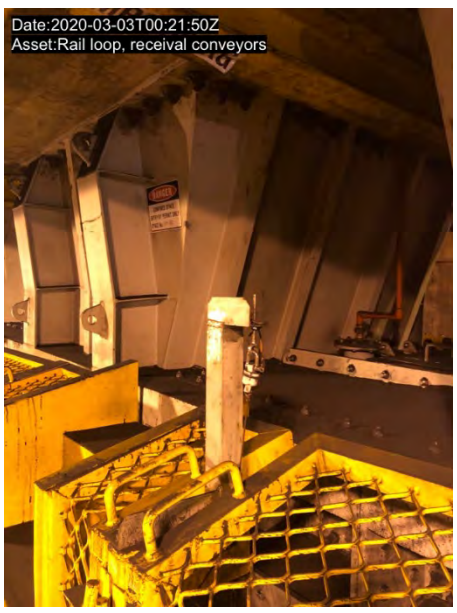
Dalrymple Bay Coal Terminal Photos – General Estimation Photos

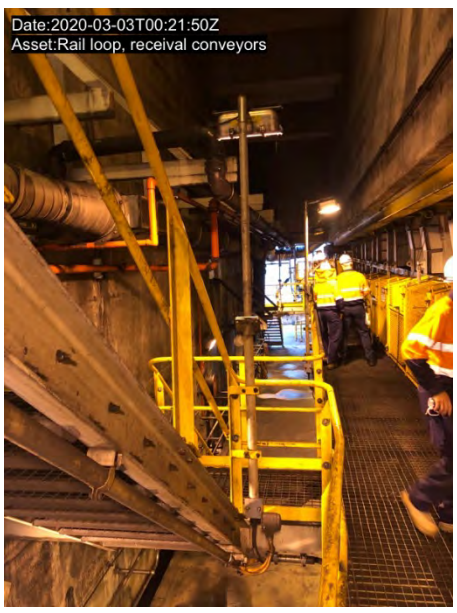
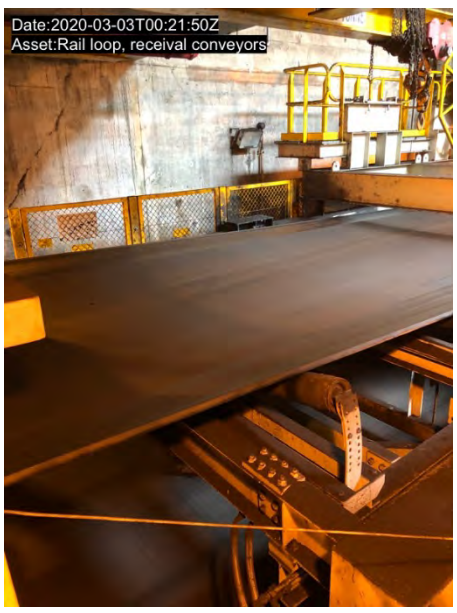
Domains

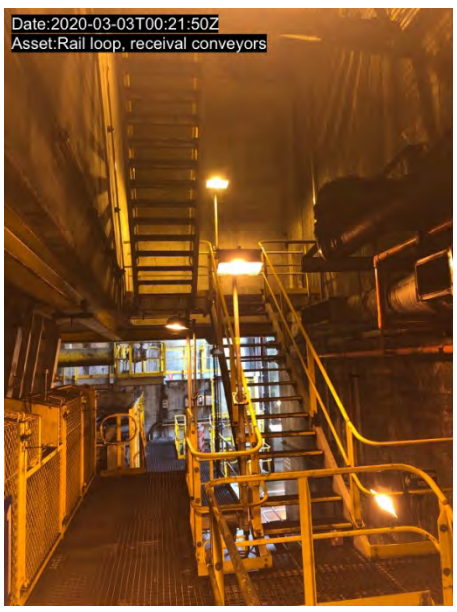
1. Rail loop, receival conveyors
2. Stockyards
3. Seawall and transfer stations
4. Offshore (Jetty & Wharf)
5. Water Management (Dams excl. Quarry)
6. Quarry Dam
7. Offices and Workshops
8. Utilities
9. Tug Harbour and All Domains General

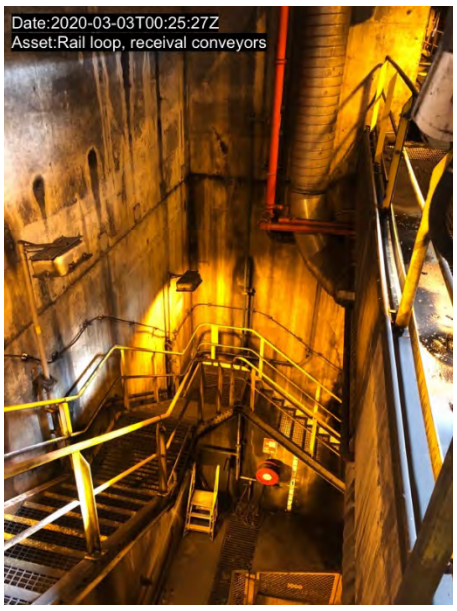
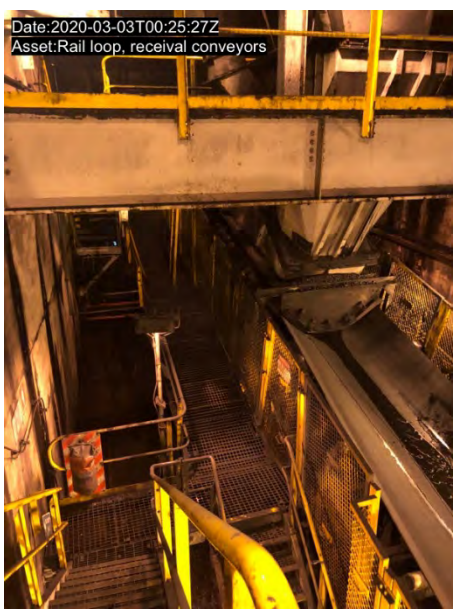
1. Rail loop, receival conveyors

Location	Photo	Comment
• 3.0 De-Construction of Rail Loop, Receival Stations and Conveyors • Removal of Equipment from RRP1, 2, 3 		Entrance/Exit to the RRP3
• 3.0 De-Construction of Rail Loop, Receival Stations and Conveyors • Demolition of Rail Loop 		Typical rail loop footing for overhead catenary system Approx. 600-800m in diameter
• 3.0 De-Construction of Rail Loop, Receival Stations and Conveyors • Demolition of Rail Loop 		Fencing around Area

Location	Photo	Comment
• 3.0 De-Construction of Rail Loop, Receival Stations and Conveyors • Demolition of Drive/Transfer Towers 		In-loading RRP3 showing make-up of building and infrastructure
• 3.0 De-Construction of Rail Loop, Receival Stations and Conveyors • Demolition of Conveyor Tunnels 		In-loading RRP3 sub level 1 showing in-loading grates/hoppers and chutes
• 3.0 De-Construction of Rail Loop, Receival Stations and Conveyors • Demolition of Conveyor Tunnels 		In-loading RRP3 sub level 1 showing in-loading grates/hoppers and chutes

Location	Photo	Comment
• 3.0 De-Construction of Rail Loop, Receival Stations and Conveyors • Demolition of Conveyor Tunnels 		In-loading RRP3 sub level 1 showing in-loading grates/hoppers and chutes and general infrastructure
10. 3.0 De-Construction of Rail Loop, Receival Stations and Conveyors 11. Demolition of Conveyor Tunnels 		In-loading RRP3 sub level 1 showing in-loading grates/hoppers and chutes and general infrastructure
• 3.0 De-Construction of Rail Loop, Receival Stations and Conveyors • Demolition of Conveyor Tunnels 		In-loading RRP3 sub level 1 showing in-loading belts and general infrastructure

Location	Photo	Comment
• 3.0 De-Construction of Rail Loop, Receival Stations and Conveyors • Demolition of Conveyor Tunnels 		In-loading RRP3 sub level 1 showing general infrastructure
• 3.0 De-Construction of Rail Loop, Receival Stations and Conveyors • Demolition of Conveyor Tunnels 		In-loading RRP3 sub level 1 showing belt drives and general infrastructure
• 3.0 De-Construction of Rail Loop, Receival Stations and Conveyors • Demolition of Ground Module Conveyors 		In-loading RRP3 showing concrete make-up and other infrastructure

Location	Photo	Comment
• 3.0 De-Construction of Rail Loop, Receival Stations and Conveyors • Demolition of Ground Module Conveyors 		In-loading RRP3 showing concrete make-up and other infrastructure
• 3.0 De-Construction of Rail Loop, Receival Stations and Conveyors • Demolition of Ground Module Conveyors 		In-loading RRP3 sub level 2 showing concrete make-up and general infrastructure
• 3.0 De-Construction of Rail Loop, Receival Stations and Conveyors • Demolition of Ground Module Conveyors 		In-loading RRP3 sub level 2 showing general infrastructure

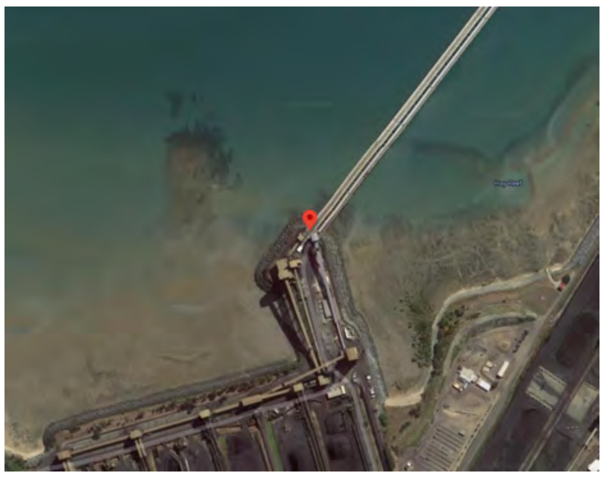
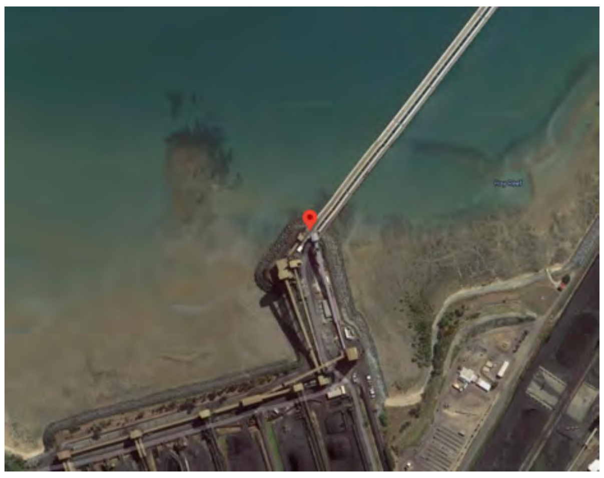
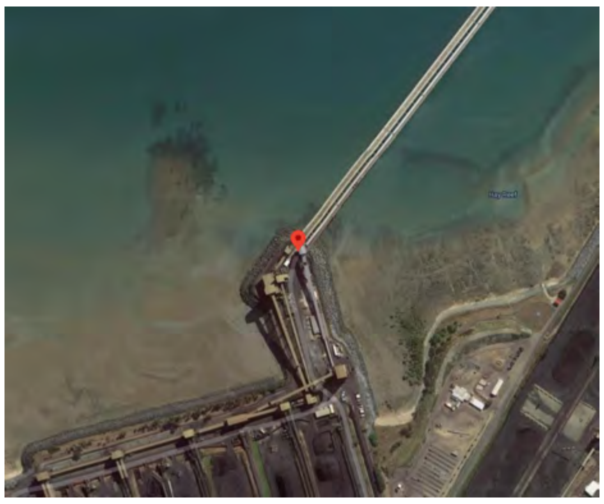
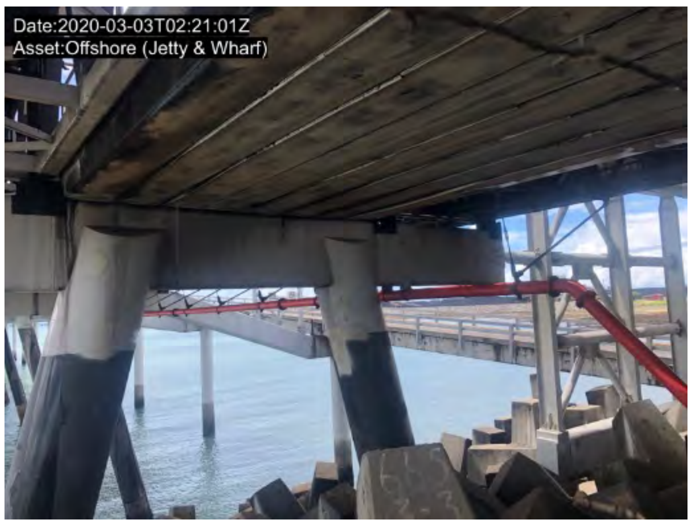
2. Stockyards

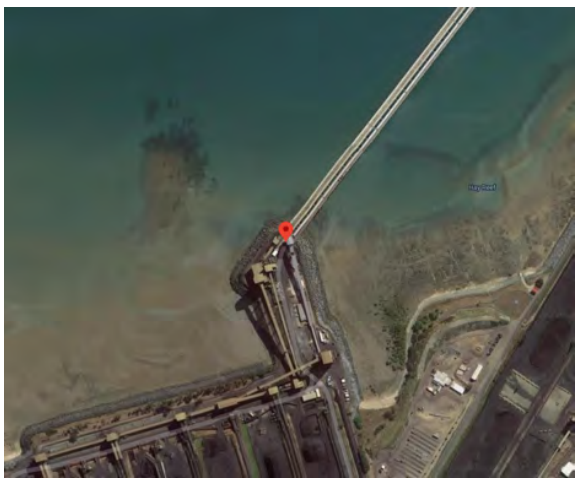
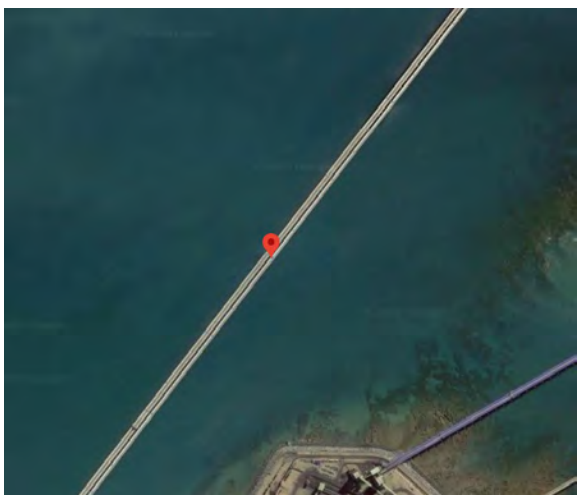
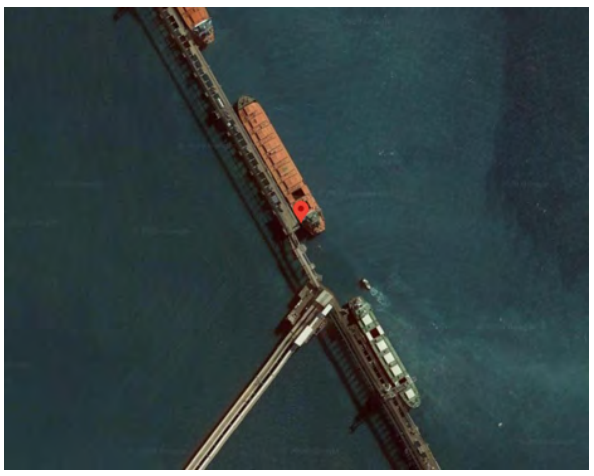
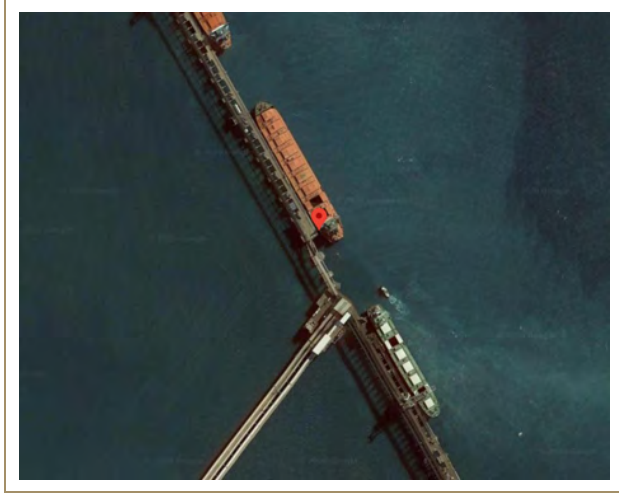
Location	Photo	Comment
None	None	None

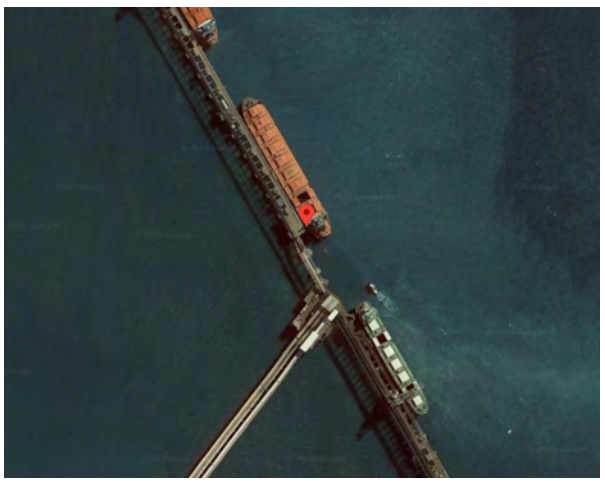
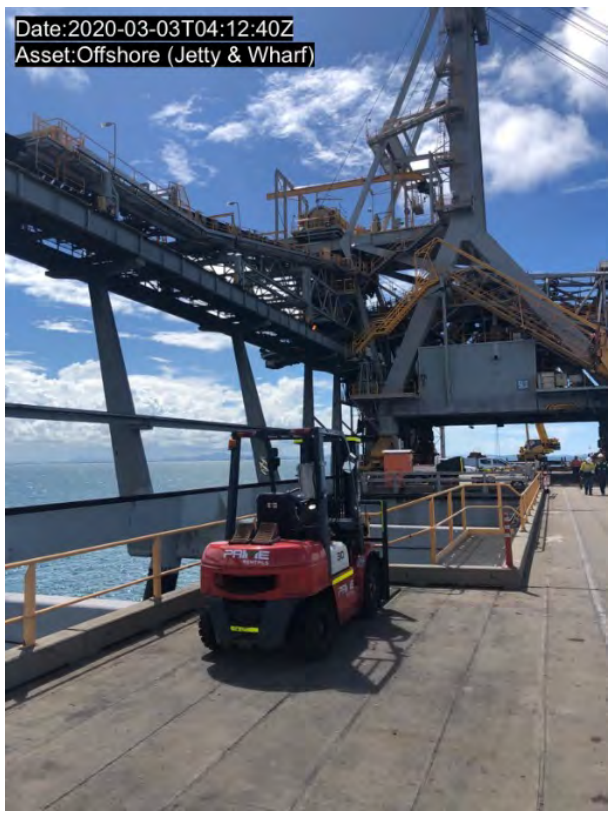
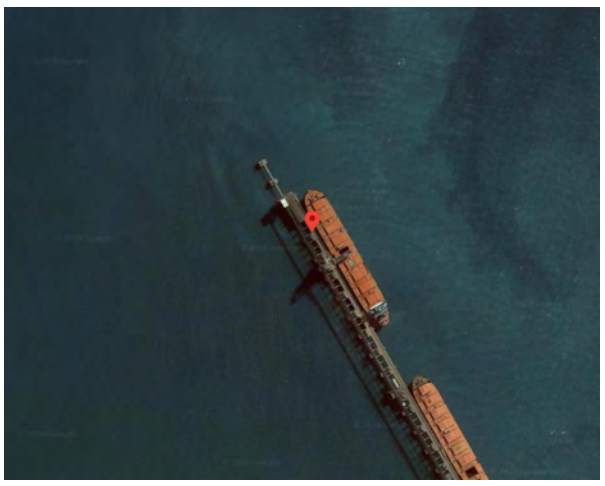
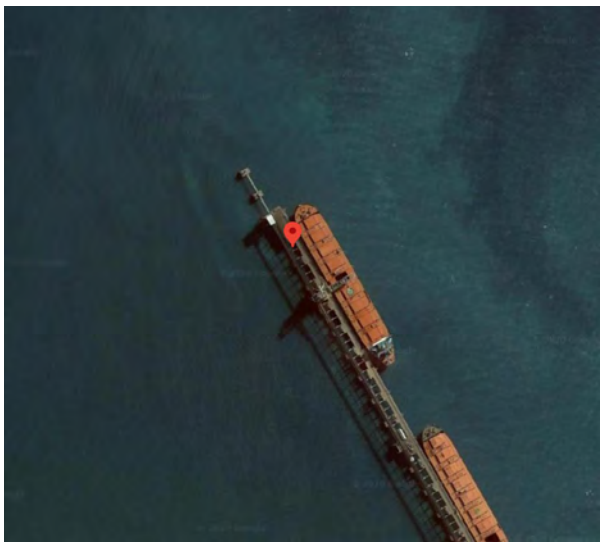
3. Seawall and Transfer Stations

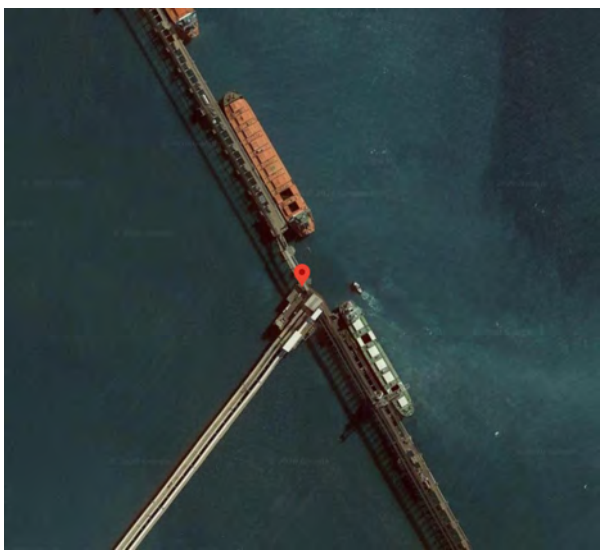
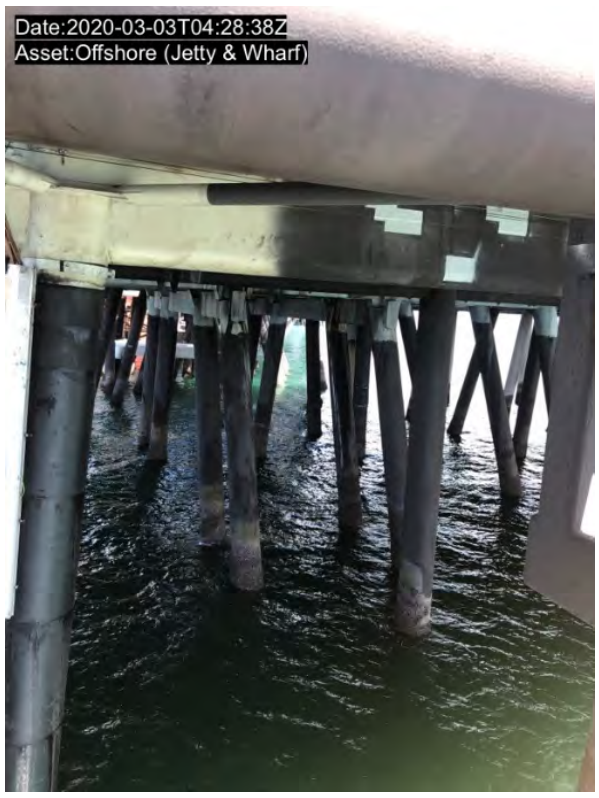
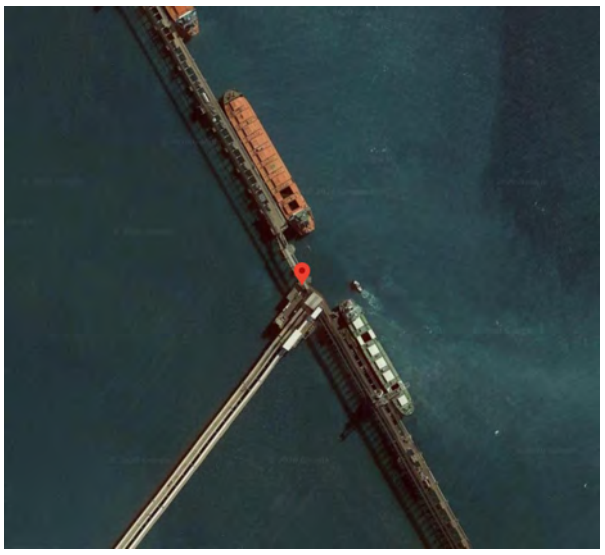
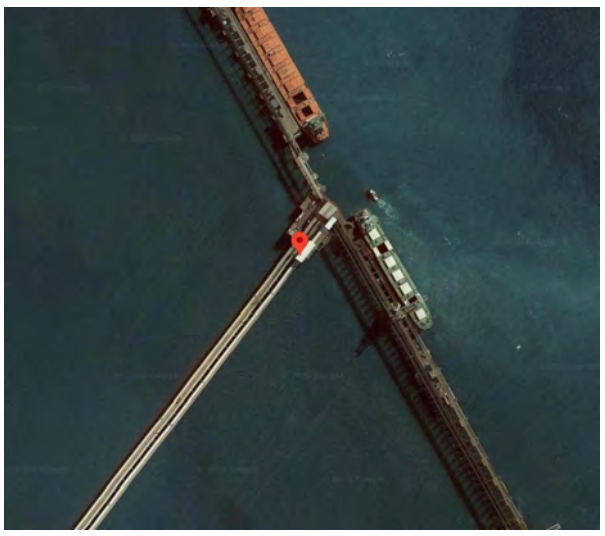
Location	Photo	Comment
None	None	None

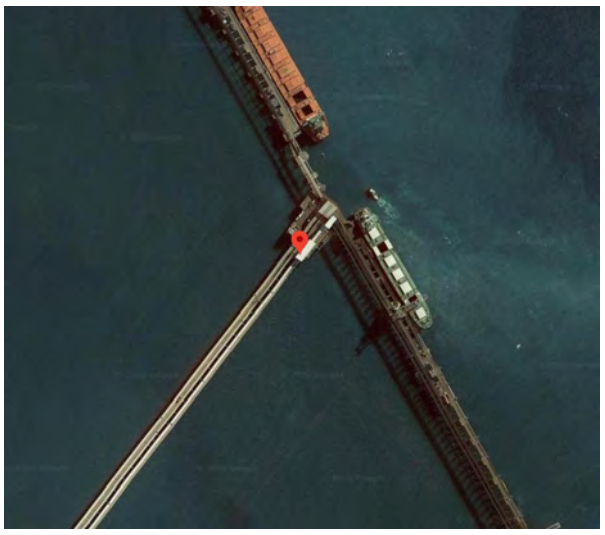
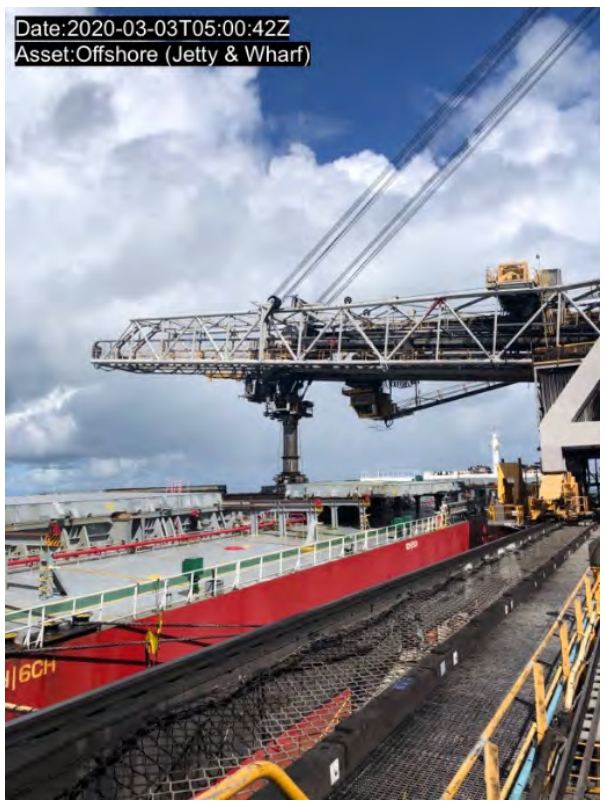
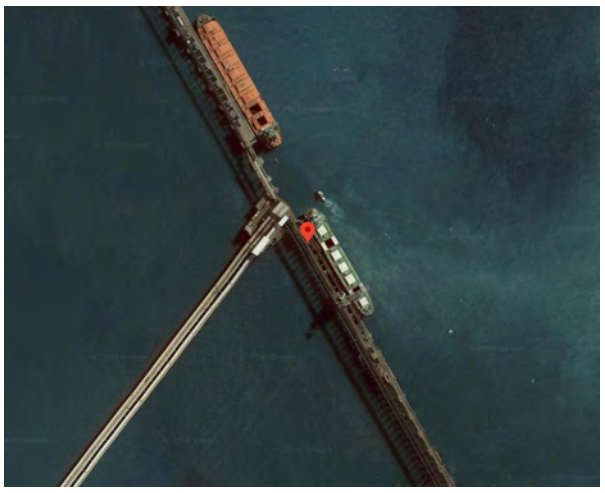
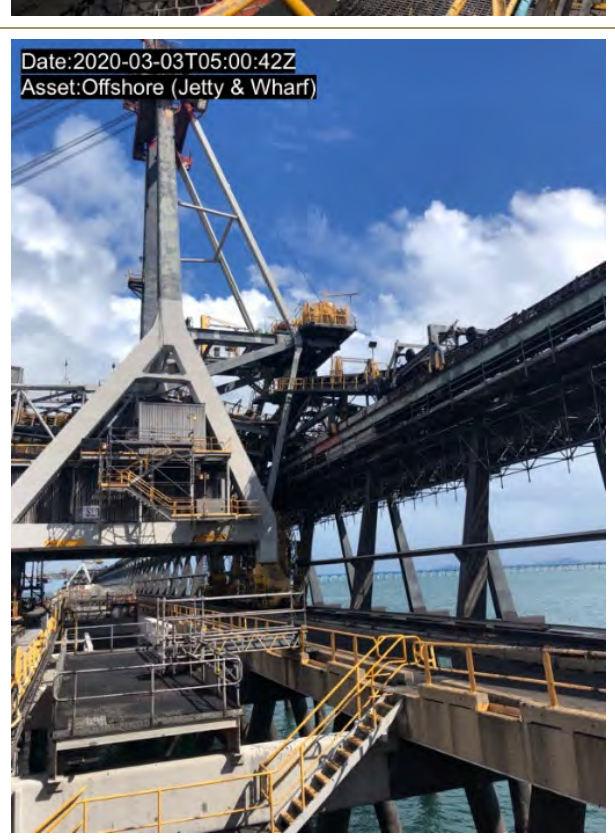
4. Offshore (Jetty & Wharf)

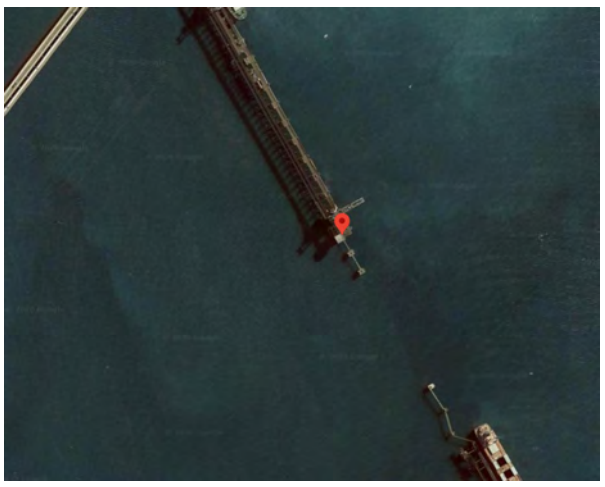
Location	Photo	Comment
• 3.0 De-Construction of Off-Shore Area • Demolition of Jetty Out-loading Conveyors 		Jetty make-up showing underside of structure
• 3.0 De-Construction of Off-Shore Area • Demolition of Jetty Out-loading Conveyors 		Jetty make-up showing underside of structure
• 3.0 De-Construction of Off-Shore Area • Demolition of Jetty Out-loading Conveyors 		Jetty make-up showing underside of structure

Location	Photo	Comment
• 3.0 De-Construction of Off-Shore Area • Demolition of Jetty Out-loading Conveyors 		Jetty make-up showing underside of structure
• 3.0 De-Construction of Off-Shore Area • Demolition of Jetty Out-loading Conveyors 		Out-loading conveyors showing make-up of infrastructure
• 3.0 De-Construction of Off-Shore Area • Demolition of Jetty Deck 		Jetty make-up showing underside of structure
• 3.0 De-Construction of Off-Shore Area • Demolition of Jetty Deck 		Jetty make-up showing underside of structure

Location	Photo	Comment
• 3.0 De-Construction of Off-Shore Area • Demolition of Wharf Deck & Mooring/Berthing Dolphins 		Wharf make-up showing wharf decking structure, conveyors and ship loader
• 3.0 De-Construction of Off-Shore Area • Demolition of Ship loaders 1, 2, 3 		Wharf make-up showing wharf structure underside
• 3.0 De-Construction of Off-Shore Area • Demolition of Ship loaders 1, 2, 3 		Wharf make-up showing wharf decking structure and ship loader boom

Location	Photo	Comment
• 3.0 De-Construction of Off-Shore Area • Removal of Jetty/Wharf Piles 		Wharf make-up showing wharf and jetty piling
• 3.0 De-Construction of Off-Shore Area • Removal of Jetty/Wharf Piles 		Wharf make-up showing general dimensions and infrastructure.
• 3.0 De-Construction of Off-Shore Area • Demolition of Jetty Out-loading Conveyors 		Conveyor make-up showing general infrastructure.

Location	Photo	Comment
• 3.0 De-Construction of Off-Shore Area • Demolition of Jetty Out-loading Conveyors 		Conveyor make-up showing general infrastructure.
• 3.0 De-Construction of Off-Shore Area • Demolition of Ship loaders 1, 2, 3 		Ship loader make-up showing general infrastructure.
• 3.0 De-Construction of Off-Shore Area • Demolition of Ship loaders 1, 2, 3 		Ship loader make-up showing general infrastructure.

Location	Photo	Comment
• 3.0 De-Construction of Off-Shore Area • Removal of Jetty/Wharf Piles 		Wharf make-up showing general infrastructure and berthing dolphins

5. Water Management (Dams excl. Quarry)

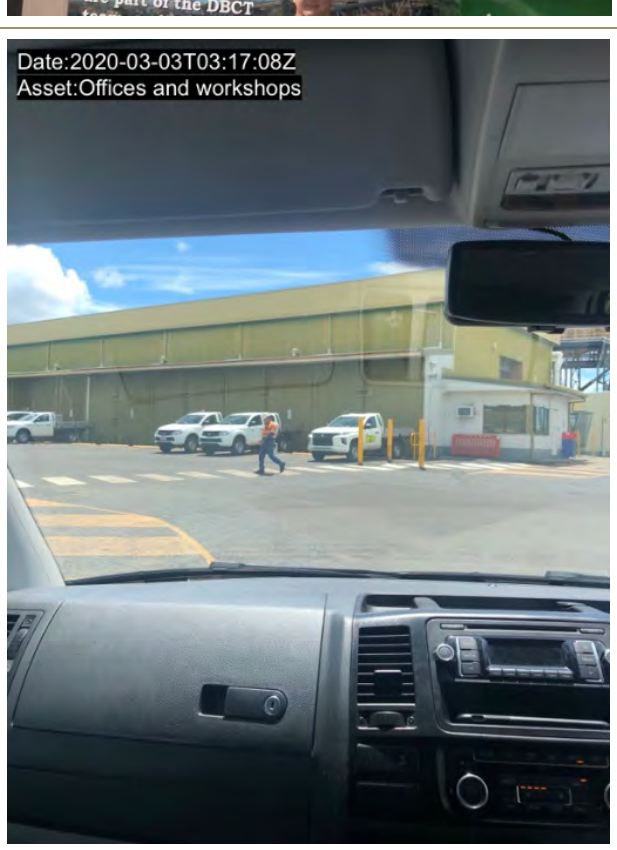
Location	Photo	Comment
• 3.0 De-Construction of Dams Areas • Demolition of Pumphouse/Treatment Plant 		Dam Infrastructure showing general pumping and piping installation.
• 3.0 De-Construction of Dams Areas • Demolition of Pumphouse/Treatment Plant 		Dam Infrastructure showing general pumping and piping installation.
• 3.0 De-Construction of Dams Areas • Demolition of Pumphouse/Treatment Plant 		Dam Infrastructure showing general pumping and piping installation.

6. Quarry Dam

Location	Photo	Comment
None	None	None

7. Offices and Workshop

Location	Photo	Comment
• 3.0 De-Construction of Offices and Workshops – Infrastructure • Demolition of DBCT Operations Buildings, Management Buildings, Stores, Warehouse, Maintenance Building, Security Gates and Car Parks 		Offices and Workshops showing general makeup of Site entrance offices
• 3.0 De-Construction of Offices and Workshops – Infrastructure • Demolition of DBCT Operations Buildings, Management Buildings, Stores, Warehouse, Maintenance Building, Security Gates and Car Parks 		Offices and Workshops showing general makeup of Site entrance offices
• 3.0 De-Construction of Offices and Workshops – Infrastructure • Demolition of DBCT Operations Buildings, Management Buildings, Stores, Warehouse, Maintenance Building, Security Gates and Car Parks 		Offices and Workshops showing general makeup of Site entrance offices and Carparks

Location	Photo	Comment
• 3.0 De-Construction of Offices and Workshops – Infrastructure • Demolition of DBCT Operations Buildings, Management Buildings, Stores, Warehouse, Maintenance Building, Security Gates and Car Parks 		Offices and Workshops showing general makeup of Site entrance offices and Carparks
• 3.0 De-Construction of Offices and Workshops – Infrastructure • Demolition of DBCT Operations Buildings, Management Buildings, Stores, Warehouse, Maintenance Building, Security Gates and Car Parks 		Offices and Workshops showing general makeup of Site entrance offices
• 3.0 De-Construction of Offices and Workshops – Infrastructure • Demolition of DBCT Operations Buildings, Management Buildings, Stores, Warehouse, Maintenance Building, Security Gates and Car Parks 		Offices and Workshops showing general makeup of Workshops and Warehousing

Location	Photo	Comment
• 3.0 De-Construction of Offices and Workshops – Infrastructure • Demolition of DBCT Operations Buildings, Management Buildings, Stores, Warehouse, Maintenance Building, Security Gates and Car Parks 		Offices and Workshops showing general makeup of Workshops and Warehousing

8. Utilities

Location	Photo	Comment
N/A	N/A	N/A

Appendix C
Rates

Item	Qty unit	Res Unit	Estimate Rate	Base Rates	Head Contractor Markup Included		Comments
1.0 Markups					**10.74%**		
2.0 Labour Rates							
Labour A	#	hr	$ 101.66	$ 91.80	$ 101.66		Tradesperson, Formworker, Heavy Plant Op
Labour B	#	hr	$ 93.51	$ 84.44	$ 93.51		Rigger, Scaffolder, Concrete Finisher, Steelfixer, Medium Plant Op
Labour C	#	hr	$ 83.97	$ 75.83	$ 83.97		Pipelayer, Driver, Light Plant Op
Labour D	#	hr	$ 77.43	$ 69.92	$ 77.43		Gen Labour/Trades Assistant
Labour E	#	hr	$ 71.72	$ 64.77	$ 71.72		Entry level labour
Engineering Consultant	#	hr	$ 249.16	$ 225.00	$ 249.16		
3.0 Plant Rate							
300T Mobile Crane	#	hr	$ 720.68	$ 650.80	$ 720.68		
100T Mobile Crane	#	hr	$ 472.64	$ 426.81	$ 472.64		
50T Mobile Crane	#	hr	$ 233.21	$ 210.59	$ 233.21		
25T Mobile Crane	#	hr	$ 185.86	$ 167.84	$ 185.86		
Semi Trailer Truck	#	hr	$ 188.02	$ 169.79	$ 188.02		
Water Cart	#	hr	$ 166.32	$ 150.19	$ 166.32		
30T Excavator	#	hr	$ 229.26	$ 207.03	$ 229.26		
30T Excavator (with Demolition Jaws)	#	hr	$ 295.70	$ 267.03	$ 295.70		
30T Excavator (with Grapple)	#	hr	$ 251.35	$ 226.98	$ 251.35		Allow for this machine at 85% of Shears due to cheaper attachment
Hydraulic Hammer / Rock Saw - 36T to 50T	#	hr	$ 236.38	$ 213.46	$ 236.38		
Jackhammer and hoses	#	hr	$ 184.88	$ 166.95	$ 184.88		
20T Excavator	#	hr	$ 200.32	$ 180.90	$ 200.32		
Tractor Spreader	#	hr	$ 134.43	$ 121.40	$ 134.43		
Tipper Truck	#	hr	$ 220.67	$ 199.27	$ 220.67		
930 Loader	#	hr	$ 282.59	$ 255.19	$ 282.59		
D8 bulldozer	#	hr	$ 348.60	$ 314.80	$ 348.60		Suffcon Earthmoving Rate supplied 10.03.2020
Truck and Dog	#	hr	$ 194.00	$ 175.19	$ 194.00		
Grader	#	hr	$ 217.61	$ 196.51	$ 217.61		
Smooth Drum Roller	#	hr	$ 157.85	$ 142.54	$ 157.85		
Backhoe	#	hr	$ 143.43	$ 129.52	$ 143.43		
Suck up waste truck	#	hr	$ 237.32	$ 214.31	$ 237.32		
Bobcat	#	hr	$ 143.43	$ 129.52	$ 143.43		
Elevated Work Platform	#	hr	$ 133.81	$ 120.83	$ 133.81		
High Pressure Cleaner	#	Day	$ 276.84	$ 250.00	$ 276.84		Megahire - Trailer with HP Diesel Pump & Tank - Self Contained Only Need water which is assumed is available on Si
Mobile Pumping Unit	#	Day	$ 320.03	$ 289.00	$ 320.03		Megahire - Trailer with pump mounted 150mm towable
Waste Storage Container	#	Day	$ 110.74	$ 100.00	$ 110.74		Megahire - 18-20Kl holding tank
Site Vehicle	#	Day	$ 137.31	$ 124.00	$ 137.31		
4.0 Materials Rate							
Topsoil / General Fill Supply	#	m3	$ 48.50	$ 43.80	$ 48.50	Confirmed AJK Contracting - 11.03.2020	
Seed Supply	#	m2	$ 0.17	$ 0.16	$ 0.17		
Construction & Demolition Waste	#	T	$ 208.39	$ 188.18	$ 208.39		Incorporating QLD Government Waste Levy - Updated for Commercial Mackay Regional Council . GST Exclusive
Contaminated Soil Disposal	#	T	$ 350.33	$ 316.36	$ 350.33		Incorporating QLD Government Waste Levy - Updated for Commercial Mackay Regional Council . GST Exclusive
General Waste material disposal	#	T	$ 208.39	$ 188.18	$ 208.39		Incorporating QLD Government Waste Levy - Updated for Commercial Mackay Regional Council . GST Exclusive
Contaminated Material disposal	#	T	$ 350.33	$ 316.36	$ 350.33		Incorporating QLD Government Waste Levy - Updated for Commercial Mackay Regional Council . GST Exclusive
Asbestos Disposal	#	T	$ 265.77	$ 240.00	$ 265.77		Incorporating QLD Government Waste Levy - Updated for Commercial Mackay Regional Council . GST Exclusive
Category 2 - Regulated Waste	#	T	$ 385.57	$ 348.18	$ 385.57		Incorporating QLD Government Waste Levy - Updated for Commercial Mackay Regional Council . GST Exclusive
Supply Gypsum	#	tonnes	$ 171.64	$ 155.00	$ 171.64		LW Confirmed 19.03.2020
Supply Lime	#	tonnes	$ 442.95	$ 400.00	$ 442.95	Same as GHD	
Supply Fertilizer	#	tonnes	$ 498.32	$ 450.00	$ 498.32	DAP Fert prices - 10Year average / per metric tonne - 06.03.2020	
Consumables 1	unit	each	$ 553.68	$ 500.00	$ 553.68		
Consumables 2	unit	each	$ 1,107.37	$ 1,000.00	$ 1,107.37		
Consumables 3	unit	each	$ 2,214.74	$ 2,000.00	$ 2,214.74		
Consumables 4	unit	each	$ 3,875.79	$ 3,500.00	$ 3,875.79		
Consumables 5	unit	each	$ 5,536.84	$ 5,000.00	$ 5,536.84		
Consumables 6	unit	each	$ 2,768.42	$ 2,500.00	$ 2,768.42		
Consumables 7	unit	each	$ 11,073.69	$ 10,000.00	$ 11,073.69		
Tube stock Supply	unit	each	$ 1.11	$ 1.00	$ 1.11		
5.0 Additional Assumptions							
Crusher Hire	#	hr	$ 376.51	$ 340.00	$ 376.51		Extec Tracked Mobile Jaw Crushers (1050mmx750mm jaw) - Rosenlund
Tracked Screening Plant	#	Week	$ 11,073.69	$ 10,000.00	$ 11,073.69		Powerscreen Tracked Screening plants - Rosenlund
Forklift (2-3t)	#	hr	$ 13.29	$ 12.00	$ 13.29		www.megahire.com.au - 2.5T machine with forks $120/day , runs on gas or diesel . Low Util machine no need for
Heavy Lift Vessel (S Class)	#	Day	$ 55,368.43	$ 50,000.00	$ 55,368.43		
OffShore Barge (Storage /Debris Transport)	#	week	$ 12,624.00	$ 11,400.00	$ 12,624.00		
50T crawler crane	#	day	$ 3,543.58	$ 3,200.00	$ 3,543.58		
400T crawler crane	#	day	$ 14,395.79	$ 13,000.00	$ 14,395.79		
Tug - 30T BP + crew	#	day	$ 18,825.27	$ 17,000.00	$ 18,825.27		
Workboat crew transfer vessel	#	day	$ 11,073.69	$ 10,000.00	$ 11,073.69		
Large dumb barge (250')	#	day	$ 3,322.11	$ 3,000.00	$ 3,322.11		
Diamond wire pile cutter on small dumb barge	#	day	$ 6,644.21	$ 6,000.00	$ 6,644.21		
Franna crane	#	day	$ 4,429.47	$ 4,000.00	$ 4,429.47		
Excavator and breaker	#	day	$ 5,536.84	$ 5,000.00	$ 5,536.84		
200T Crane	#	hr	$ 609.05	$ 550.00	$ 609.05		
Travelling Bridge Girder (approx 3T/m @10,000/T delivered)	unit	each	$ 797,305.41	$ 720,000.00	$ 797,305.41		
Lifting Frames x 3	unit	each	$ 332,210.59	$ 300,000.00	$ 332,210.59		
Moving Gantry Cranes	unit	each	$ 1,107,368.62	$ 1,000,000.00	$ 1,107,368.62		
Truck with Extendable Trailer (20m)	#	hr	$ 321.14	$ 290.00	$ 321.14		
Temp Works Supports (Jetty)	unit	each	$ 387,579.02	$ 350,000.00	$ 387,579.02		
Temp Works Supports (Wharf)	unit	each	$ 1,107,368.62	$ 1,000,000.00	$ 1,107,368.62		
Marine Survey	#	each	$ 110,736.86	$ 100,000.00	$ 110,736.86	Bathymetry and Magnetometer	
200T Excavator	#	hr	$ 415.41	$ 375.13	$ 415.41	Using GHD Rates for 200T plus excavator with Operator (Our own rate Labour A)	
Saw Cutting Attachment	#	hr	$ 83.05	$ 75.00	$ 83.05		
Specialist cutting equipment	unit	day	$ 1,661.05	$ 1,500.00	$ 1,661.05		
Punt	unit	day	$ 1,107.37	$ 1,000.00	$ 1,107.37		
300T crawler crane	#	hr	$ 996.63	$ 900.00	$ 996.63	PM added	

Paget Transfer Station - Within Mackay City Boundaries

COMMERCIAL

Fees and charges for commercial waste disposal. Fees are GST inclusive.

Please note that the Queensland Government's Waste Levy has been incorporated in the fees and charges where applicable.

Paget Waste Management Facility - Commercial waste

Paget Waste Management Facility disposal fees are determined by weight of load (except polystyrene).

Disposal type	Fee
General waste**	$239.00 (per tonne)
Clean green waste*	$85.00 (per tonne)
Tree stumps/branches (>0.5m diameter)*	$101.00 (per tonne)
Asbestos	$446.00 (per tonne) (max 250kg)
Retrieval & copy of waste transaction	$23.00
Construction and demolition waste**	$239 (per tonne)

* The tonnage rate applies however; the minimum charge is $10.00 including GST
**The tonnage rate applies however; the minimum charge is $15.00 including GST

other Waste Facilities - COMMERCIAL WASTE *(per cubic metre)

Hogans Pocket Transfer Station - Within municipal boundaries but not within Mackay City boundaries

HOGAN'S POCKET

By appointment only - contact council on 1300 MACKAY (1300 622 529). Hogan's Pocket Landfill disposal fees are determined by weight of load at Paget Waste Management Facility prior to dumping.

Disposal type	Fee
General waste (gate charge)	$207.00 (per tonne)
Requested deep burial, e.g. legal records, insurance claims	$315.00 (per tonne)
Putrescible, offensive or noxious waste	$315.00 (per tonne)
Putrescible, offensive or noxious waste (emergency after-hours disposal)	$1,472.00 (opening fee)
Putrescible, offensive or noxious waste (emergency after-hours disposal)	$533.00 (per hour - after first hour)
Asbestos	$264.00 (per tonne)
Approved contaminated soil	$348.00 (per tonne)
Construction and demolition	$207.00 (per tonne)
Other approved contaminated materials	$348.00 (per tonne)
Regulated waste Category 2	$383.00

Appendix D
Reference documents

References	Report section where referenced
GHD DBCT Rehabilitation Plan and Rehabilitation Cost Estimate, 7 June 2019	Multiple
Lendlease – services, utilities and infrastructure – Queensland enterprise agreement 2016	9
Survey Control Mark Report for PM1070085	12
Port Services Agreement (PSA)	Executive Summary, 3
Queensland Competition Authority Act 1997	Executive Summary

Appendix E
Curricula Vitae

Name	Position/Role
David Plowman	Lead Principal
Deniz Sezgin	Project Manager
Aarash Majoo	Report Coordinator
Lachlan Winterbotham	Lead Estimator
Pierre Vermeulen	Estimator
Paul Moses	Marine Expert
Luke Stalley	Rehabilitation Advisor

David Plowman

Executive Consultant

David's role on the assignment

David's role as Lead Principal (Executive Consultant) was to plan lead and control all activities. David was responsible to the client QCA. David assembled the Assignment Team to address the specific technical issues on a discipline basis and oversaw the approach and project development. David with his experience was intrinsically involved in the development of the pricing approach, risk profiling and strategic direction of Advisian's advice.

Overview

David has over 25 years' experience in the development and delivery of major infrastructure projects, primarily roads. His focus has been on leading bids for large and complex projects.

Through these projects David has demonstrated his ability to strategically lead multi-disciplinary, complex teams and his high-level knowledge and understanding of the development of complex linear infrastructure projects.

David has now been with Advisian for 2 years in the role of Executive Consultant leading various assignments (see below)

David is a leader in the development of major infrastructure projects and has a proven record of using his extensive experience and in-depth understanding of projects and their complexities to develop and implement best practices in project management and delivery. David was a key player in the development of the Advance Rail Group (ARG), a new joint venture in Abu Dhabi. He promoted the developed of a new delivery model in the region utilising Early Contractor Involvement which help saw best value achieved to the client.

David has extensive experience in developing and maintaining strong high-level networks demonstrated through over 20 years' experience in senior management roles in the industry.

Areas of expertise

- Strategic Planning
- Design Management
- Early Contractor Involvement
- Project Costing and Planning
- Major Infrastructure Projects
- Quality Management
- Value Management and Engineering
- Project Management

Relevant experience

Executive Consultant | Advisian | 2017 – Current

- Commercial negotiation SCADA Program Queensland Urban Utilities
- Origin Energy Rehabilitation and Financial Assurance (Assignment Lead) – $ 1.5bn of various assets classes ranging from access roads to major technical plants across all CGS Fields. Tasks included the full site assessment and rehabilitation cost in line with relevant EMP's and legislation. This assignment was undertaken over 18months.
- Queensland Urban Utilities (QUU) – Assignment Lead – Lead ECI in the Technical and Commercial evaluation including successful negotiation and contract signing
- ARTC – Various PMO bids
- Pitamban Toll Road – Patronage, Engineering Cost Planning Business case determination
- Brisbane Metro – Project Delivery Assignment

Executive General Manager, Corporate Development | WDS Limited | 2015 – 2017

Develop and document the WDS strategy, in accordance with the strategic direction and risk profile set by the Board. In conjunction with the CEO, communicate the strategy to internal and external stakeholders and clients. Take direct delivery responsibility on nominated specific strategy objectives including meeting targets set for winning work.

Group General Manager, Major Projects and Engineering Services Director Advance Rail Group | EGM Corporate | Al Habtoor Leighton Group | 2010 – 2014

This role was crucial to the strategic development of the Habtoor Leighton Group following the demise of the building market. David has led the change of business focus from a predominately building business to focus on infrastructure including the establishment of a Water Waste Water business. David led a group of 20 senior members of the company and also served operational roles. David and his team led the development of the Dubai Pearl Project and he also managed the complex financing issues, ensuring HLG maintained its position in difficult times.

Major Projects Director, Director Advance Rail Group John Holland HLG JV | Al Habtoor Leighton Group | 2009 – 2010

- Reset Business Strategy
- Establish Rail Group ARG
- Development Major Projects
- Review Major Bids
- Masdar Bid
- Doha Metro ECI
- Embassies ECI
- Abu Dhabi Carparks
- Lusail Expressway
- Egypt Business Strategy.

Operations Director │ (Bid Director) Cleveland Clinic Hospital Abu Dhabi │ 2008

- Full responsibility to manage and develop bid strategy and Team for the 6bn (AED) Hospital Project
- Bid Strategy
- Study Team Development
- Client liaison
- MEP Deal with BK Gulf
- Value management and value engineering
- Project scheduling, planning and programming
- Quality management
- Design management
- Recruitment.

Interim Alliance Director │Tameer Towers for Al Habtoor-Leighton │2008

- Interim Alliance Direct reporting to the Project Alliance Board for the 6,000M AED Tameer Towers Residential and Commercial Development. Responsibilities included management of all departments in the Alliance Team and playing a key role in:
  - Development of the Alliance Framework
  - The development of target costing
  - Client and developer liaison
- Construction methodology
- Value management and value engineering
- Project scheduling, planning and programming
- Quality management
- Design management
- Recruitment.

Operations Director Reporting to COO Al Habtoor | Leighton Group | 2008

- Various Roles in Strategic Planning of the Al Habtoor Business. Rationalising projects including:
  - Paris Sorbonne University
  - ADNEC Feature Tower
  - ADIC Project Reviews
  - Bid Director MASDAR HQ
- Strategic Assessment of new business venture with clients including liaison with opportunities in the KSA and Al Sharjah.

COO (Interim) | Rivercity Motorway Pty Limited (Australia) | 2005 – 2006

COO on the 2.5billion (AUD) North-South Bypass Tunnel (Brisbane). Full responsibility for all Operations of the company including:

- Design & Construction Management
- Client liaison directly with the Mayor of Brisbane and Advisory bodies
- Continuous strategic presentations to international investors
- Significant community consultation
- Establishment of public listed company charter.

Project Director | Northern Motorway Group Board | Airport Link Bid | 2003 – 2005

- Establishment of Bid team comprising 280 people
- Fully responsibility for preparation of the Consortium and SPV Bid comprising Leighton Contractors and ABN AMRO AECOM
- Strategic Development of Job Winning Strategies
- Client and developer liaison
- Bid Presentations to International Investor
- Liaison with Equity and Debt Arrangers.

Project Director | Leighton Contractors Pty Limited (Australia) | 2003 – 2005

Project Director on the 2.5billion (AUD) North-South Bypass Tunnel (Brisbane) Bid Proposal.

- Establishing the JV between Bilfinger Berger and Leighton Contractors
- Establishment of Bid team comprising 190 people
- Construction and building VE Solutions
- Full responsibility for preparation of the Consortium and SPV Bid comprising Leighton Contractors and ABN AMRO and AECOM
- Strategic Development of Job Winning Strategies
- Client and Developer liaison
- Bid presentations to international investors
- International arrangement of insurance
- Liaison with equity and debt arrangers
- Preparation of IPO documentation
- Public company listings.

National Project Development Manager | Leighton Contractors Pty Limited (Australia) | 2001 – 2003

As National Project Development Manager my role was to establish guidelines for strategic acquisitions of Projects in line with Corporate Policy. Key roles included establishment of Projects Development Manager nationwide to ensure consistent approach to the Market. Key projects include:

- Federation Square (Technical Bid) – 400million (AUD)

- Bahinia Regional Rail PPP Bid Director – 200million
- MCG Cricket Ground Redevelopment – 350million (AUD)
- State Prison Program – 300million (AUD)
- Strategic Opportunities Brisbane 1.5billion (AUD)
- Brisbane Airport Redevelopment – 1.0billion (AUD)
- Brisbane Green Square Project –120million (AUD)
- Project Director for PPP bid for Darwin City Waterfront.

Project Development Manager | Inner City Bypass | Leighton Contractors Pty Limited (Australia) | 1998 – 2000

As Project Development Manager my role was to ensure all aspects of Project Management were addressed. I was responsible for the establishment and daily management of Project Systems and Procedure. Including Project management Group Participation.

- Participant on the PCG and Transition Management
- Plan, lead and control all Project Internal and external communication
- Internal Systems Management
- Client liaison with ALL design related matters.

Senior Design Manager Reporting to Brue Cull/Craig Laslett, Development Manager | Leighton Contractors Pty Limited (Australia) | 1996 – 1998

Following the documentation of the Leighton Design Management Plan I was seconded to the Brisbane division to assess the DMP process and bring into line with National standards. Projects include:

- Wacol Prison Bid Manager
- Marybrough Correction Centre Bid Manager
- Townsville Museum Design Management
- Inner City Bypass.

Design Manager | Leighton Properties Pty Ltd (Australia) | 1996 – 1998

- Development Manager
- Reporting to the Project Development Director Tony Jolly
- Star City Casino 800million (AUD) Sydney

In this role David was responsible to the Client to procure design and construction of key elements of the development including the Lyric Theatre, Showroom, Main Gaming Floor and all F&B outlets.

Design Manager/Project Manager | Leighton Holdings Pty (Australia)

- WANDOO Alliance Design Coordinator (Pre-contract)
- Head Office Fit out Contract Project Manager
- Multicon Fit out Contract Project Manager
- Brisbane Convention and Exhibition Centre (Design Manager Corporate)

Qualifications

- Bachelor of Science (Construction Management), UTS
- Architectural Diploma

Work history

2017 to Current	Executive Consultant, Advisian
2015 to 2017	Executive General Manager, Corporate Development, WDS Limited
2010 to 2014	Group General Manager, Major Projects and Engineering Services Director Advance Rail Group EGM Corporate, Al Abtoor Leighton Group
2009 to 2010	Major Projects Director, Director Advance Rail Group | John Holland HLG JV
2008	Operations Bid Director, Cleveland Clinic Hospital Abu Dhabi
2008	Interim Alliance Director, Leighton Reporting to JV Boa
2008	Operations Director, Leighton Group
2005 to 2006	Chief Operating Officer, RiverCity Motorway Board
2003 to 2005	Project Director, Airport Link, Leighton Contractors Pty Ltd (Australia)
2003 to 2005	Project Director, RiverCity Motorway (Interim) Board
2001 to 2003	National Project Development Manager, Reporting to Deputy Managing Director, Laurie Voyer
1998 to 2000	Project Development Manager, Inner City Bypass
1996 to 1998	Senior Design Manager, Reporting to Brue Cull/Craig Laslett, Development Manager
1996 to 1998	Development Manager, Star City Casino, Leighton Properties Pty Ltd (Australia)
1996 to 1998	Design Manager/Project Manager, Leighton Holdings Pty Ltd (Australia)

Deniz Sezgin

Associate

Deniz's role on the assignment

Deniz's role as Project Manager was to manage the team and the planning of all activities. Deniz was responsible to manage communication with the client QCA and with GHD for exchange of information. Deniz's responsibility was to address all requests and issues arising and providing update on project controls. Deniz with her experience has ensured that all the different activities, reviews and component of the project were completed in the right times and sequences and that the team was kept informed of the relevant information and any changes thereof.

Overview

Deniz is an experienced engineer with over eleven years' experience on a wide range of projects in Australia, USA and Italy. She has undertaken the roles of Project Manager, Commercial Manager and Cost Controller for various clients including Aurizon Facilities Operations, Roads and Maritime Services, Brisbane City Council, Queensland Competition Authority and the Queensland Reconstruction Authority. These roles included working on multi-disciplinary projects ranging from $17 million to $1.5 billion covering rail, road, and tunnels as well as digital and power projects. She has provided expert advice including cost estimating, cost benefit analysis, project financing and risk analysis to client-side assignments and on-site for major international contractors.

Deniz possess a keen eye for detail, particularly in reviewing risks and Contractors' claims, and rapidly identifying key issues and recommending corrective actions or strategies to mitigate risks, and provide cost savings and value for money for the client.

In the United States Deniz worked for a major energy provider managing the cost control and finances for a $190 million project upgrade of the company's Digital systems.

Whilst in Italy, Deniz worked in the planning unit of the Italian Space Agency where she gained experience on their cost estimation, risk analysis and financial planning and was able to apply these on the European Space Agency and NASA cofounded space projects.

Areas of expertise

- Project Management
- Financial Advisory
- Cost Controls
- Cost Estimating
- Cost benefit Analysis
- Risk Identification and Analysis
- Problem Solving
- Project Delivery/Management of Contractors
- Scheduling and Planning
- Decision Modelling
- Commercial Advisory
- VfM Assessment

Relevant experience

Value for Money (VfM) Assessor and Cost Estimator for | Flood Recoveries | Queensland Reconstruction Authority (QRA) | 2014 – 2018

Deniz was involved in the evaluation and assessment of costs incurred for the reconstruction and recovery works following various weather disaster events in Queensland. In this role she was responsible for analysing works completed by different Councils, reconciliation of similar treatments types across Councils, and benchmarking against national and local rates to identify if VfM was achieved. These assessments covered all areas of civil project including, roads, bridges, bulk earthworks etc. and has included assessing projects of various sizes up to $10 million and realised savings due to efficiencies of many thousands to the client. She has also completed cost benefit analysis for several Council projects submitted for review to the authority.

Project Manager | Housing Maintenance Project | Aurizon | 2013 – 2014

Deniz managed contractors for delivery of renovation works on 86 tenanted properties of the Aurizon portfolio. She successfully negotiated project lump sum costs during the project development phase achieving over $6.49 million in cost savings for the client. Some of the project challenges included: an absence of defined scope, agreed costs and timeframes; working with tenanted houses; and the presence of asbestos. Deniz's project management ensured works were carried as per scope, safely and maintained open communication channels between all stakeholders.

Risk Manager and Commercial Management | Legacy Way Project | Brisbane City Council | 2012 – 2013

Deniz provided support in the Commercial Management and Contract Administration for the delivery of the TCC (Tunnel Control Centre) building and for the Legacy Way tunnel project delivery, a $1.5 billion road and tunnel project in Brisbane city. The role involved cost control, review of Contractors claims and variations and resolution of contract issues along with managing risk for the Legacy Way and TCC projects and facilitating risks workshops with the Client and Contractor. Deniz also provided support during tender evaluations and selection process for various work packages. Deniz developed solutions to improve and complete the design to achieve 5 star Nabers and building access requirements, such as, security access on different floors, secure access for deliveries and collectors, and fire evacuation procedures for different floors.

VfM Coordinator | Abigroup Contractors Pty Ltd | 2008 – 2012

Deniz independently developed a new KPI measurement model to drive high performance for the Upgrade of the Pacific Hwy project at Banora Point (total project value ~$350 million). Her model has contributed positively to an integrated alliance team that ensured the project was delivered under budget (-5%), ahead of schedule (two months) and significantly improved project performance (from 64% to 80%). Deniz was also provided support in the Commercial Management and Contract Administration of the Coal Export Terminal in Newcastle where she implemented a very accurate system of cost controlling. The project involved the construction of rail loop, a drop station and formations for stacker reclaimers.

Cost Control and Financial Planner | CdG/Ameren, St Louis Missouri USA | 2018 – 2019

Deniz managed the finances and the cost control for a major upgrade project of Ameren's Digital Systems. The project was initiated to drive Ameren digital and mobile capabilities in work management and geographic information system to integrate current technology into the everyday work lives of field workers, standardize design and planning processes and reduce manual or repetitive tasks. Deniz provided her expertise in managing cost, budgeting and forecasting and helped delivering the project over $10 million under budget. The project presented multiple challenges including deploying an integrated digital system into a highly regulated industry while maintaining full operational services to the customers throughout.

Financial Planner | Italian Space Agency, Rome | 2007 – 2008

Deniz worked in the planning and management control unit of the Agency where she gained invaluable experience by being part of a large high tech organisation.

She completed forecast analysis on costs and duration of space projects using Crystal Ball software that provided a more accurate input measures for the Agency's 'Three Years Spending Plan 2008 – 2010'.

Qualifications

- Doctorate in Business Management Engineering, University of Rome "La Sapienza", Italy

Work history

2012 to Current	Associate, Advisian, Brisbane
2018 to 2019	Financial Planner, CdG contracted to Ameren, St Louis, USA
2008 to 2012	Cost Control and VfM Coordinator, Abigroup Contractors Pty Ltd, Sydney
2007 to 2008	Financial Planner, Italian Space Agency, Rome, Italy

Aarash Majoo

Senior Consultant

Aarash's role on the assignment

Aarash's role as Report Coordinator was intimately involved with the writing and review of the final report. Aarash has been coordinating the entire team write ups to ensure consistence throughout the report and to ensure all the findings discovered during the project were all incorporated and that no details were missing. Aarash experience in data analysis and different roles across project lifecycle ensured that all the data and information was captured and presented flawlessly.

Overview

Aarash has studied dual Mechanical Engineering and Finance degrees, which have led him to pursuing a career as a professional engineer at Advisian. He has experience in the mining, gas and infrastructure sectors, having worked in a variety of different roles across the project lifecycle, including developing business cases, project delivery and optimising existing business processes. Aarash has significant experience in using data analysis to extract valuable information that is used to make informed business decisions.

Areas of expertise

- Advanced Microsoft Excel, incl. VBA
- Financial Modelling and Options Analysis
- Financial & Risk Analysis with @Risk
- Data visualisation using Tableau and PowerBI
- Producing documents with Adobe Indesign
- Data processing with Python

Relevant experience

Lead drafter | Delivery model chapter for preliminary business case | Seqwater | 2019

- Provided delivery model advice for the preliminary business case into the safety upgrade for Somerset Dam. This included hosting a workshop with key employees who
- Provided Pacific National with best practice for train load outs, amalgamating research from suppliers, existing industry operators and planned construction of new load outs.

Analyst | Train load out benchmarking study | Pacific National | 2019

- Developed insight and analysis on train load out data to identify possible improvements that could be made to the load out of 2 existing mines with the least necessary capital expenditure.
- Provided Pacific National with best practice for train load outs, amalgamating research from suppliers, existing industry operators and planned construction of new load outs.

Lead Financial Modeller | Life of Field Operating Expenditure Model | Origin Energy | 2018

- Developed a model to forecast operating expenditure for the upstream business of Origin Energy until end of field. The model was used as input into financial reporting, calculation of NPV and cashflows.
- Worked with engineering, finance and operations teams to develop an operating strategy that was used to forecast costs for each individual cost base. Also developed an individual power model that reflected Origin's strategy for operation of all facilities.
- Assisted in developing business requirements for the systemization of the operating model.

Lead Drafter | Social Infrastructure Preliminary Business Case | Building Queensland | 2018

- Drafted chapters of a preliminary business case for the Gold Coast Convention and Exhibition Centre, particularly relating to the chapters on options generation, conclusions and recommendations.
- Provided strategic feedback to the financial, commercial and economic advisors in regard to their chapters and reports.
- Ensured alignment of the report with Building Queensland's Business Case Development Framework.

Project Manager | Financial Review of Restoration Provision | Origin Energy | 2017 – 2018

- Assignment manager for the development of cost estimates to rehabilitate four assets. Includes managing subcontractors work, liaising with Origin SMEs and other parties.
- Work consisted of reviewing first principles estimates, tenders for upcoming work and actuals from works completed, to provide a holistic view of estimate accuracy.
- Developed a stochastic model in conjunction with Origin Asset SMEs, to quantify risks associated with rehabilitation works.

Data Analyst | Condition Based Assessment | Abbot Point Terminal | 2017 – 2018

- Undertook an assessment into the condition of the terminal, including formulating a methodology to evaluate assets against. This involved developing measurable performance indicators and conducting a visual inspection of the terminal with relevant SMEs.
- Conducted analysis of raw performance data, as well as visual inspection results to provide insight into the performance of the assets. This included highlighting low performing assets, potential future issues and providing recommendations for the issues.
- Involved in writing, compilation and review of final report.

Project Manager | Stakeholder Management System Implementation | QGC | 2017 – 2018

- Implemented a new Stakeholder Management System (SMS) within the QGC business, overcoming technical challenges such as database transfer, single sign on issues and feature implementation
- Consulted with external stakeholder facing staff to produce a business process change, aligning new and old software, preventing duplication of work and increasing usability of the new SMS system
- Conducted training of the new system in offices around Queensland and performed an administrator role being the highest point of contact for the software.

Lead Quality Analyst | Materials Management Plan Quality Assurance | Powerlink | July 2017

- Performed rigorous user and bug testing of the materials management spreadsheet, including checking that business processes were reflected in the spreadsheet logic
- Conducted usability testing, checking for VBA inconsistencies and possible issues
- Recommended additional changes to reduce likelihood of further bugs or issues.

Data Analyst | Financial Accounting of Restoration Provision | Origin Energy | May 2017

- Completed comprehensive breakdown of financial costs to rehabilitate each of Origin's upstream assets, including establishing a granular framework to split treatments into its constituents to ensure clarity
- Conducted financial analysis using Monte Carlo simulations to provide a confidence spread for the individual cost of rehabilitation per asset. This was facilitated using Risk Workshops with Origin employees to ensure a holistic list of possible risks was acquired. Analysis was conducted through use of both Excel VBA and @Risk software
- Completion of a gaps analysis between outputs from various Origin asset management systems, to produce a consolidated asset list for all of Origin's upstream assets.

Analyst | Claims and Cost Management Support for Paradise Dam | SunWater | 2017

- Acted as an independent arbitrator for cost claims against work done at Paradise Dam. Included estimating works completed and fully costing to establish a reasonable claim amount
- Provided a comparative evaluation of project options based on different variables in the project including productivities, splits for night works and acceleration.

Specialist Analysis & Improvement | BHP Billiton Mitsubishi Alliance (BMA) | March – November 2016

- Automated weekly business wide reporting procedures using VBA Macros to extract, manipulate and present data from 1SAP leading to time savings and increased accuracy
- Modelled the financial whole of lift cost to maintain any machine, which is used to make purchasing and replacement decisions. In addition to an understanding of both maintenance engineering and finance, this involved extraction of data from 1SAP and complete automation through VBA

- Writing SQL queries to extract data from mining databases to present and map metrics such as availability of machines, mean time between failure etc. Automated through VBA
- Develop tools to automate data manipulation procedures that help to deliver important information accurately and quickly, for the team to use with individual tasks.

Internship | Queensland Reconstruction Authority | July 2015 – February 2016

Working in the Benchmarking team directly under the Lead Quantity Surveyor:

- Developing spreadsheets with Excel VBA Macros, sent out to councils across Queensland
- Processing large amounts of benchmarking data into useful end results through VBA Macros
- Interpreting tenders from different councils to provide alternative sources of information for benchmarking
- Researching and self-teaching methods to benchmark activities in an efficient and automated manner
- Designing Excel infrastructure to assist the Assurance, Compliance and Value for Money teams to fulfil their individual roles in the authority. This infrastructure was aimed at allowing them to complete the work in an efficient, simultaneous manner across all three departments.

Qualifications

- Bachelor of Engineering (Mechanical) / Bachelor of Commerce (Finance), University of Queensland

Affiliations/Registrations

- Member, Engineers Australia

Work history

2018 to Present	Senior Consultant, Advisian
2017 to Present	Consultant, Advisian
2016 to 2017	Vacation Work at Norman, Disney and Young
2016 to 2016	Specialist Analysis & Improvement, BHP Billiton Mitsubishi Alliance (BMA)
2015 to 2016	Internship, Queensland Reconstruction Authority

Lachlan Winterbotham

Partner

Lachlan's role on the assignment

Lachlan's role as Lead Estimator was to develop the entire scope and the estimate for the project for all the domain with exclusion of the marine one. Lachlan experience for over 20 years of construction management and project management roles as a member of successful tender and project delivery teams on complex infrastructure projects has guaranteed very sound estimates.

Overview

Lachlan is a results-oriented, highly productive project management professional with an ability to operate on various levels whilst maintaining a strong and clear focus on client needs. Lachlan's organised and methodical approach stems from his mechanical background and his ground-up understanding of successful major project execution.

Lachlan's project management capabilities have been honed by over 20 years of construction management and project management roles as a member of successful tender and project delivery teams on complex infrastructure projects. He has an understanding of operating in brownfield as well as greenfield construction environments.

Lachlan has a diverse project background with involvement in water and wastewater developments, civil construction projects, large-scale PV solar projects and fabrication projects. His recent involvement with information technology initiatives rounds out his holistic abilities and project management capabilities. Lachlan has been involved at various lifecycle stages of projects, from tendering and planning through to implementation and execution as well as joining projects in distress as a problem solver. Lachlan has an intensely focused attention to detail and is in continual pursuit of excellence and improvement.

Areas of expertise

- Project Management
- Construction Management
- Tendering and Contract Negotiation
- Multidiscipline Team Management

Relevant experience

Partner | Lidiar Group | 2016 – Current

As Partner in Lidiar Group, Lachlan has headed the technical services aspects for Lidiar Group's clients. Working in series with the project development business unit, the technical services business area supports clients in the project execution phases. Lachlan has directly delivered and coordinated resources to provide project management and construction management services for Lidiar Group's projects. Further to these responsibilities Lachlan lends his vast knowledge in systems management to ensure Lidiar Group's excellence in its Safety, Environment and Quality Management.

Client and project highlights include:

- 2020: Advisian – Dalrymple Bay Coal Terminal
- 2020: JNC Group – Goonumbla Solar Farm
- 2019: Advisian – Origin Energy projects
- 2018-2019: Zinfra – Stockyard Hill Windfarm, Substation and transmission line
- 2018: Renewable Energy Joint Venture – Various green energy project tenders
- 2018: iPipe – Armour Energy, Kincora plant upgrade and Senex gas gathering pre-contract support
- 2017/2018: Zinfra – Various project support and establishment
- 2017: iPipe – Arrow Energy MSA Tender – Pre-Contracts
- 2017: Monadelphous – Eastern Australia Oil and Gas Strategic Planning
- 2016: BMD – Strategic targeting of CSG producers

Project Manager | Daandine Gas Field Expansion Project | 2015 – 2016

Lachlan was appointed because of his diverse experience across gas well connections, HDPE gathering infrastructure construction and construction in brownfield environments. The project Lachlan achieved excellent results, having to manage the project's various stakeholders, completing the project successfully. This expansion consisted of 36km of gathering networks, three multi well pads and the civil, structural, mechanical and electrical installation of three compressors within an operating brownfield site. Lachlan was involved from the tender phase through to project completion.

Project Manager | APLNG West Field Connections and Linear Infrastructure Project | 2014

Lachlan joined the management team, which at the time was facing some challenges. Through efficiencies and applying lean principles, the project was turned around to deliver the anticipated schedule and project margins. The project included the installation of approximately 300 wellsite metering facilities and over 1000km of gas, water and electrical services through the coordination of a direct workforce of roughly 320 people.

Project Manager | GLNG Early Works and Appraisals Project | 2012 – 2013

Lachlan's involvement in the project commenced pre-award and he was integral in the tender, contract negotiation and execution phases. The project's cost-plus contract model drove the need to, not only provide, but clearly demonstrate to the client value for money. Lachlan achieved this by coordinating

his team to maintain strong project controls and provide clear, concise reporting. Lachlan facilitated a safety culture that empowered team members to make safe choices for their own personalised reasons. This resulted in the project achieving an excess of 500 days recordable injury free. Skilled personnel were retained on this project in a cost effective manner despite the high demand for experienced and skilled personnel at the time. This was achieved through the effective use of industrial instruments and constant consultation with the workforce. The scope consisted of a series of multi-well pads, HDPE gas and produced water-gathering networks and was executed with a team of approximately 90 people over a geographical distance in excess of 200km.

Qualifications

- Applied Project Management, Australian Institute of Management, 2012
- Certificate III in Mechanical Engineering

Work history

2016 to Current	Partner, Lidiar Group
2003 to 2016	Project Manager, WDS Limited
2008 to 2012	Various construction management roles

Pierre Vermeulen

Estimator

Pierre's role on the assignment

Pierre's role as Estimator was to develop the entire detailed estimate for the project. His experience as project *controls specialist, management and project accountant and business analyst with a proven background in projects and operations across the mining industry has ensured an extremely comprehensive estimates.*

Overview

Pierre is an experienced project controls specialist, management and project accountant and business analyst with a proven background in projects and operations across the mining, energy, oil and gas and manufacturing industries in Australia, New Zealand and South Africa.

Pierre lends his highly structured accounting disciplines to Project Controls which form efficient, fit for purpose budgeting, performance monitoring and reporting process. Pierre has worked both in large corporations and SME's and is competent in ensuring compliance to structured, disciplined processes and governance. He is comfortable reporting at all levels within a business, from engaging with blue-collar workforce to board-level reporting and presentation.

He is experienced across a range of software platforms and is able to integrate into Lidiar Group's clients' teams with minimal disruption.

Pierre has outstanding dedication to successful project outcomes, excellent leadership skills, able to manage teams to contribute to desired goals and always demonstrates integrity and reliability in every circumstance.

Areas of expertise

- Project Controls and Management
- Estimation
- Operational and Capital Budgeting
- Financial reporting and budget forecasting

Relevant experience

Project Controls Associate | Lidiar Group | 2019 – Current

Pierre provides Project Controls support to Lidiar Group's clients. His involvement includes project scheduling, cost estimation, budget preparation, performance monitoring and reporting and recovery planning. Pierre has led the development of a set of core tools which provide Lidiar Group's clients the necessary information for proactive project management.

Clients and project highlights include:

- 2019: Advisian – Origin Energy CTO and Mainline Deconstruction Projects
- 2019: Ozmac Solar – Oakey II, Susan River, Childers Solar Farms, Kiamal Solar Farm – Construction
- 2019: Nilsen Contracting – Finley Solar Farm – Construction

Commercial Advisor Fibre Procurement | OJI Fibre Solutions Kinleith Mill, New Zealand | 2015 – 2018

Pierre was responsible for managing the budget and forecast requirements for Kinleith Mill in all aspects of fibre, including consumption requirements of fibre to finished product bill of materials. He also managed the daily and weekly raw product usage reporting and cost control of raw product usage for the mill. Pierre engaged and assisted Partners in Performance (PIP), a specialised external performance and efficiency consultant, with the Kinleith efficiency review commissioned by OJI.

Finance Analyst/Estimator | WDS Limited | 2013 – 2014

WDS Mining was a service provider to large underground coal mines in Queensland and New South Wales with services including underground support, underground developments and general provision of services to coal mining proponents.

Pierre was responsible for all aspects of the Mining Division's Cost Estimation activities and tender preparation. This included the development of labour build ups and plant depreciation schedules.

Pierre was responsible for ensuring compliance to WDS's strict corporate and financial governance and was integral ensuring that tender responses met WDS's Go/NoGo gates within the necessary timeframes.

During execution of projects, Pierre assisted the project teams with financial month-end reporting to monitor actual Vs. planned performance.

Project Controls Specialist | BHP Projects Study Hub (Wards Well & GEEP2), Wards Well Study (BMC Coal) | BHP Billiton | 2011 – 2012

Wards Well was an underground greenfield metallurgical coal project with a study budget of A$115m and project execution estimate of approximately A$3-4Bn. The Project consisted of various area studies including an exploration drilling program.

Pierre led the management and review of the overall Study Budget, forecast schedule, progress and monitoring overall cost and time commitments made within the Study. Pierre presented results at the

monthly steering committee meeting and implemented any corrective actions required. Pierre was also responsible for the submission and management of the Strategic Budget Process for the Project (5 and 2 year), as per BHP Billiton guidelines.

Project Controls Specialist | GEMCO GEEP2 Study (BHP Manganese) | BHP Billiton | 2009 – 2011

GEEP2 (Groote Eylandt Mining Company Expansion Project Phase 2) was a brownfield production and logistics expansion project with a study budget of A$40m and project execution estimate of approximately A$300m.

Pierre led the management and review of the overall Study Budget, forecast schedule, progress and monitoring overall cost and time commitments made within the Study. Pierre set up, presented and managed the Investment Evaluation Models for the Project throughout the different phases of assessment and into execution phase. Pierre also Project Managed various smaller related projects, for example the Township Planning Project.

Management Accountant | Gemcogroote Eylandt | BHP Billiton | 2008 – 2009

GEMCO (Groote Eylandt Mining Company) is a BHP Billiton manganese mine situated on Groote Eylandt in the Northern Territory of Australia. GEMCO is one of the world's largest suppliers of manganese ore with an operational budget of +-A$240m.

Pierre developed and managed the site operational budgets (5, 2 and 1 year Budgets) and regularly presented to BHP Senior Management. Pierre developed and tracked monthly revenue and cost forecasts and chaired all monthly cost control and forecast meetings with operational personnel. Pierre prepared the monthly cost variance analysis and controlled the corrective actions required and developed reporting of any variance.

Senior Management Accountant | Sasol Petroleum International, South Africa | 2006 – 2007

Sasol Petroleum International (SPI) forms part of the SASOL group based in Johannesburg, South Africa and specialises in the exploration for natural gas on land and off shore. SPI holds part ownership in several off-shore exploration blocks in Nigeria. SPI also operates in Mozambique (land and off shore)

Pierre's major responsibilities included preparing the budget, forecast and variance interpretation for the SPI West African exploration business and the SPI Mozambique operations. Scheduling and leading forecasting and cost review meetings on a monthly basis and preparation of exploration cost schedules, work in progress schedules and cash call reports for the exploration assets were all part of Pierre's activities.

Management Accountant | Sasol Synthetic Fuels, South Africa | 2003 – 2006

Sasol Synthetic Fuels (SSF) forms part of the SASOL group based in Secunda, South Africa and is the world's largest producer of synthetic fuels through the gasification of low-quality coal using developed and patented technologies.

Pierre's major responsibilities included assisting with the preparation of operational and capital budgets for a sub area within the Sasol Synfuels business and assisting with the preparation of the

monthly operational and capital forecast. Pierre also chaired all monthly cost review meetings at various levels within the organisation.

Qualifications

- Bachelor of Commerce (Accountancy) (Hons), The University of Pretoria, South Africa

Affiliations / Registrations

- Full member of the Chartered Accountants Institute of Australia and New Zealand (CAANZ)

Work history

2019 to Current	Project Controls Associate, Lidiar Group, Brisbane
2015 to 2018	Commercial Advisor Fibre Procurement, OJI Fibre Solutions Kinleith Mill, New Zealand
2013 to 2014	Finance Analyst/Estimator, WDS Limited, Brisbane
2008 to 2012	Project Controls Specialist / Management Accountant, BHP Billiton
2006 to 2007	Senior Management Accountant, Sasol Petroleum International, South Africa
2003 to 2006	Management Accountant, Sasol Synthetic Fuels, South Africa

Paul Moses

Senior Associate

Paul's role on the assignment

Paul's role as the Marine Expert was to determine the scope of works and the estimates for the jetty and wharf domain. Paul's experience with design and delivery of marine and civil infrastructure projects, coastal engineering and dredging was fundamental in establishing the rehabilitation scope for the marine domains and in developing a first principle estimate.

Overview

Paul Moses is a Senior Associate with 30 years' experience in the planning, design and delivery of marine and civil infrastructure projects. His experience includes design of maritime structures, coastal engineering, dredging, environmental planning and economic studies, project management, procurement and construction supervision. Paul has developed specialist skills in asset planning, maintenance, adaptive reuse and rehabilitation of deteriorated or damaged marine and other structures. Before joining WorleyParsons, Paul spent 10 years working for NSW state government in various senior roles associated with the management of key coastal assets on Crown land. Prior to that Paul worked for 10 years as a consulting engineer in maritime design and project management roles.

Relevant experience

Technical Reviewer | Snug Cove Options Study, Eden, NSW | RMS | 2019

Development of viable options for a sheltered commercial & recreational boat precinct at the port of Eden. Paul was involved in steering options and technical reviews of the pre-feasibility study.

Project Director | Forster Boardwalk Extension | MidCoast Council | 2018 – 2019

Technical direction and support to the design team including preparation of surveys and geotechnical site investigation briefs, condition assessment of stone seawall, conceptual and detailed design reviews, planning and REF advice, preparation of technical specification and capital cost estimate.

Peer Reviewer | Humbug Wharf Erosion Study, Weipa, QLD | Rio Tinto | 2019

Review of technical report into the causes of erosion and preparation of alternative short, and long-term, solutions to mitigate risk of further erosion and damage to existing foreshore structures and revetments.

Project Manager | Tweed Heads Travel Lift | NSW Dept of Industry | 2019

Scoping of site geotechnical investigation and preparation of concept design involving replacement of the existing slipway with a travel lift structure. Tasks included, preparation of a basis of design, concept design drawings and capital cost estimate for demolition, earthworks, revetment wall, travel lift structure, lay-by pontoons, washdown pad, drainage and waste water treatment improvements.

Project Manager | Eden Breakwater Wharf Extension | NSW Dept of Industry | 2015 – 2019

Responsible for design and tender phase services of the wharf extension and dredging contracts, which included industry and community consultation, site investigations, engineering design (including dynamic mooring analyses and vessel navigation simulations) cost estimating, environmental impact assessments, planning approval's advice, procurement services and tender evaluation.

Paul was directly involved in the procurement of construction contracts, including risk management, value management, preparation of GC21 tender documents, iNSW gateway process interviews, participation on the evaluation panel for the dredging and marine structures contracts and advice on RFI's received during the tender and construction phases.

Paul provided ongoing technical advice throughout the delivery phase. The construction work was completed two months ahead of schedule and at $1.5million less than the (P50) forecast cost.

Paul also worked with other staff to prepare a budgetary cost estimate for maintenance dredging operations over a 30-year period as well as the preparation of an operation and maintenance plan.

Project Manager | Bluff Harbour Channel Dredging | Southport NZ | 2018 – Ongoing

Development of a Dredging Process Map to aid the feasibility assessment of dredging hard rock (granite) to improve navigation into Bluff Harbour, NZ. Following this, Paul's engagement was extended to conduct a consultation process with dredging industry specialists to measure interest, identify suitable technologies and define site investigation requirements.

Project Manager | Evans Landing Wharf | NQBP | 2017 – 2018

Project Manager for WSCAM investigation and detailed design of re-decking works for the wharf approach using existing precast concrete deck units. The remediation included removal of lead-based paint, repairs to supporting steelwork and protective coatings. Paul's role included technical support on the repair methodology and specific advice on durability of the concrete/steel elements.

Project Manager | North Coast Harbours Costings Study | NSW Dept of Industry | 2018 – 2019

Paul prepared capital cost estimates for redevelopment of the regional ports located at Iluka, Brunswick Heads, Evans Head and Ballina for planning purposes.

Structural Engineer | Lorim Point Tug Berths, Weipa, QLD | Rio Tinto | 2018

Independent review of a former WSCAM inspection of the four berths including recommendation on a more affordable alternative to replacement of the tug berths. The work involved site inspection, liaison with users, review of previous condition reports, additional NDT, analysis and reporting of findings. The work included preparation of a Scope of Work document to effect repairs to ensure a minimum period of 7 years continued safe operation of the facility.

Structural Engineer | Napier Port Wharf 3, NZ | Napier Port| 2017

Paul prepared concept designs to enable use by larger vessels including retrofitting new larger bollards and a fender system to cater for both small vessels (20m LOA) and up to 9000DWT cement carrier within the same berthing area. This was achieved by a series of frontal frames fitted over discrete pile fenders. The frames were designed to accommodate removeable foam fenders. The work included review of drawings and specifications. As a result, the Napier Port was able to improve utilisation of existing berth space.

Project Manager | Pier One Substructure Investigation, Sydney | Pier One Developments| 2017 – 2018

Preparation of a detailed condition assessment report for this century old heritage wharf which supports a 3-storey hotel. The investigation included above and below water inspections of timber, steel and concrete elements of the wharf, adjacent precast concrete seawalls, revetment and land ties. Individual assessments were undertaken for approximately 450 piles using in-house developed software. Specific tasks included design and documentation of remediation works, tender period advice and construction administration and supervision.

Durability Advisor | Pyrmont Bridge Restoration, Sydney | NSW Government| 2017

In association with a major condition review of this heritage timber truss bridge, Paul prepared an issues paper on the likely condition of 115-year-old turpentine piles and further recommendations to verify their integrity. The piles were individually protected with sand-filled concrete caissons approximately 20 years following installation and very little work has been done since that time to verify their integrity. The paper identified potential failure modes and future investigations to mitigate risk.

Construction Supervisor | Mayfield 7 BLB | Stolthaven, NSW| 2017 – 2018

Construction supervision, advice on RFIs, pre-pour inspections, general supervision and reporting on contractor's QA records for piling, reinforced concrete, soil stabilisation works, dredging and scour protection works.

Structural Engineer | Former Tug Berth, Newcastle | Waterway Constructions| 2017

Load rating assessment for wharf and bollards, recommendation on repairs and preliminary design of a new gangway access support system to restore safe access. Review of preliminary repair drawings and specifications to undertake repairs to steel piles and land backed struts.

Project Manager | Coffs Harbour Slipway Hardstand | NSW Dept of Industry| 2016

Alternative design of a temporary crane out facility for slipping boats. The design comprised of a sloping revetment wall in lieu of a vertical edge. The design was to incorporate existing site won rock materials and minimise offsite disposal of in-situ soils. The design also included wastewater capture and storage system. Deliverables included detailed design drawings and specifications.

Project Manager | Manly Wharf Condition Assessment | TMG Developments| 2016

Carried out inspections and managed underwater inspections by commercial dive team. Preparation of a condition assessment report on the steel, timber and reinforced concrete elements, analysis and recommendations on repair works. Responsible for tender documentation including detailed design drawings, specification and pretender cost estimate for a repair works construction package. Paul also led the construction phase support services.

Study Lead | Coffs Harbour Unloading Wharf Fenders | NSW Dept of Industry | 2015

Study lead for evaluation of options to reduce berthing impact loads onto 40 year- old land-backed wharf. The proposed solution comprised new rubber fender units to enable larger vessels to moor alongside. Paul subsequently designed and documented the new fender system.

Project Director | Queens Wharf Safety Audit, Newcastle | Newcastle City Council | 2015

Provided technical support to staff undertaking a condition inspection of wharf and ferry terminal assets in accordance with NSW Maritime's "Procedure for the Assessment of Public Ferry Wharf Safety" The work involved identification of remedial works and reporting on matters of safety and structural integrity.

Project Manager | Townsville Berth 10 | Department of Defence | 2015 – 2016

Conducted berthing and mooring (Optimoor) analyses to define the optimum fender type and arrangement that could be deployed temporarily to accommodate HMAS Canberra and HMAS Adelaide Landing Helicopter Dock (LHD) vessels at Berth 10, Townsville. The existing cone fenders were unsuitable for various reasons including the need to maintain a gap between ship and wharf to allow loading during the full tidal range. Prepared a report to document the optimised fender solution. The commission was extended to include the design of a permanent solution involving two deployable floating fenders, associated pontoons and structural modifications to the wharf.

Study Lead | Coffs Harbour Slipway Options | NSW Dept of Industry | 2015

Investigated options for upgrading the Coffs Harbour Slipway site including identification of suitable proprietary boatlift systems, industry workshop, concept layouts, preliminary engineering designs and reporting.

Project Manager | Coffs Harbour Slipway Remediation | NSW Dept of Industry | 2014 – 2015

Project Manager for the investigation of contaminated soils and sediments at the Port of Coffs Harbour. The study is a comprehensive assessment of both terrestrial and aquatic environments surrounding the slipway site. The work comprises sampling and analysis plans, soil and sediment contamination classifications, risk assessments including bio-monitoring, soil and sediment treatment laboratory trials, remediation options and preparation of a remediation action plan (RAP).

Study Lead | LNG Terminal Upgrade, Abu Dhabi | ADGAS | 2014

Detailed design of a new fender system and upgrade of the existing facility to accommodate up to 177,000m3 gas tankers. The work required a mooring analysis to confirm the adequacy of the mooring dolphins (caissons).

Peer Reviewer | WSCAM Development | Ports Australia | 2013

Paul was selected as a Peer Reviewer on aspects of the Draft Wharf Structures Condition Assessment Manual (WSCAM) Project relating to reinforced concrete elements.

Lead Author | Coastal Assets Inspection Manual | Dept of Trade & Investment | 2013

Lead author of a technical manual to provide DTI Crown Lands with a consistent framework and methodology to assess the condition of their entire coastal assets, including fixed and floating port structures, breakwaters, river entrance works slipway and ship repair facilities, boat ramps and other

public waterside facilities. The manual was tailored to suit the department's existing asset management system. Several asset condition assessments were undertaken by Paul and other engineers to 'road test' the Manual prior to its implementation.

Project Manager | Yamba Jetty Fender Renewal, Yamba, NSW | Crown Lands | 2014

Detailed design of a new fender system for the existing Jetty. The new fender system was designed to reuse the existing steel H-piles below bed and avoid the need to extract piles. This technique also avoided barge-mounted pile driving equipment and removal of the existing fender piles.

Project Manager | Marina Wave Assessment, Port Stephens, NSW | The Anchorage | 2013

Prepared a report on the incident wind wave conditions and determination of design criteria for proposed extensions to the marina.

Technical Reviewer | Ras Laffan Shipyard - Pier 2A, Qatar | 2013

Review of jetty loads, pile design and drawings for a major D&C contract.

Project Manager | Stockton Boat Harbour Options Assessment, Newcastle, NSW | RMS | 2013

Inspection and report on compliance of existing harbour structures, navigation and jetty moorings. Prepare interim report on management options to manage risk. Prepare concept design for dredging and jetty works, cost estimates and final report on options.

Technical Director | NSW Coastal Infrastructure Program | DTI |2013

Preparation of models to assess the priority of major maintenance works to the Department's coastal assets throughout NSW. The work included a risk rating of three alternative 10-year maintenance programs to assist a Gateway Review process.

Study Lead | Cement Import Feasibility Assessment, Newcastle| Confidential Client | 2013

Preparation of a scoping document and subsequent feasibility assessment for importing cement into an existing bulk products terminal in Newcastle Port currently handling other products. The feasibility study considered technical, environmental, tenure and planning aspects of the project.

Project Manager | Newcastle Port Terminal 4 Project Owners Engineer | PWCS| 2013

Reviews of various engineering disciplines on behalf of PWCS. These included, civil, geotechnical, materials handling and mechanical aspects of the project.

Project Engineer | Caltex Wharf Upgrade Project, Kurnell | Caltex | 2013

Reviews of detailed design and documentation of catwalks and access platforms; development of the Basis of Design document; detailed design review of the new mooring dolphin, new breasting dolphins and a submerged sheet pile wall to protect existing structures from deepening of the berth pocket. Paul also provided advice on the proposed methodology for assessing the condition of existing elements subject to chloride-induced corrosion over the past 50 years of service for this 1100m long jetty.

Study Lead | Coffs Harbour Slipway Study | Crown Lands | 2013

The economic appraisal considered various options for upgrading of the slipway at the Port of Coffs Harbour. The work comprised early engagement of key government stakeholders, demand forecasting, on site containment versus off-site disposal of contaminated soils/sediments, concept designs, high-level engineering of three alternative options and 20-year Benefit/Cost modelling. Paul also coordinated a separate peer review of a former geochemical assessment of the site.

Project Director | Tuncurry Fishermen's Catwalks | Crown Lands | 2012

Paul worked with design staff to develop a standard prefabricated steel catwalk design for replacement of 14 timber jetties servicing the Fisherman's Co-operative at Tuncurry. Paul was responsible for reviewing the construction contractor's detailed design calculations, specifications and drawings.

Project Manager | Gladstone Bunker Berth Upgrade | IBS | 2012

Paul was responsible for the detailed design of a new mooring dolphin; catwalk and upgrading of existing wharf fenders and furniture to cater for a larger vessel at the Port of Gladstone. Paul was also involved during the construction phase to advise on pile minimum penetration requirements.

Study Lead | Independent Peer Review | Newcastle Port Terminal 4 | PWCS | 2012

Paul was responsible for conducting design and constructability reviews for the materials offloading facility, a new private roadway bridge and conveyer gallery and a submerged sheet piled wall to support the natural riverbed embankments formed by dredging of new channel and berth pockets.

Project Manager | Taree LGA Coastal Studies | Greater Taree City Council | 2012

Paul's involvement in this project was during the latter stages of the project when most of the technical investigations were completed. Paul took over as Project Manager, responsible for co-ordination of resources to prepare final reports including the Coastal Zone Management Plan and Emergency Action Sub plan.

Project Director | Newcastle Port Channel Berth Dolphin | Waterway Constructions | 2012

Paul worked with a construction contractor to develop a novel and low-cost, low-risk alternative to the tender design for a new dolphin to protect the existing wharf from impact by smaller cruise ships (less than approx. 130m LOA). The design incorporated a prefabricated steel frame that was designed to be installed with very little downtime and disruption to the existing working facility. Paul and a fellow staff member received an innovation award for the alternative design.

Technical Reviewer | Corio Quay, Geelong Port | VIC Ports | 2011

Paul conducted technical review of concept design report that investigated the relocation of vehicle trade from Webb Dock, Port of Melbourne to the Geelong Port facility at Corio Quay.

Project Director | Ex-HMAS Adelaide, Terrigal, NSW | Crown Lands | 2011

Paul was Project Director for this study which involved the environmental monitoring of the seabed sediments, flora and fauna following the scuttling of the ship in waters off Terrigal on the central coast of NSW. The project was a first for the state of NSW and the ship is now a popular recreational diving site.

Technical Reviewer | NCIG Third Coal Loader, Kooragang Island, Newcastle | NCIG | 2011

Paul conducted a technical review on behalf of the project financiers to satisfy their requirements for Practical Completion of Separable Portion 2 of the Berth Construction Contract.

Engineer | Scratchley's Restaurant Remediation, Newcastle | Waterway Constructions | 2011

Working for the Construction Contractor, Paul reviewed and certified the proposed temporary access platforms and shoring works for remediation of the wharf supporting Scratchley's Restaurant, Newcastle.

Project Manager | North Stockton Boat Ramp, Newcastle | NCC | 2011

Paul prepared amendments to the design of this new universal access boat ramp facility and tender documents.

Project Manager | Swansea Channel Dredging | NSW Lands | Pre-2011

Maintenance dredging 68,000m^3 of marine sands from Swansea Channel. This project involved a new delivery model involving industry and local Government resulting in unprecedented value for money [paper NSW Coastal Conference, 2010].

Project and Process Manager | Batemans Bay Marina Redevelopment | NSW Lands | Pre-2011

A landmark $80million privately-financed project on Crown Land to design, construct, operate and maintain a new 490-vessel marina and associated onshore developments including a dry stack and maintenance facility, commercial offices and tourist accommodation. Paul was responsible for EOI and detailed submission processes, preparation of solicitation documents, evaluation process, participation on the Evaluation Panel, management of external legal and probity consultants, risk management and support to the legal team during the negotiation of a long-term lease with the preferred proponent.

Project Manager | Crowdy Head Maintenance Dredging | NSW Lands | Pre-2011

The design, documentation, tender assessment and construction supervision of dredging works to improve navigability of fishing vessels.

Channel Maintenance Strategy | Lake Macquarie CC / NSW Maritime / NSW Lands | Pre-2011

Departmental Representative on a working group formed between Lake Macquarie City Council, NSW Maritime and Lands to monitor the behaviour of the channel and to address short- and long-term navigation requirements.

Project Manager | Dredging at Bermagui and Batemans Bay Harbours | NSW Lands | Pre-2011

Sediment sampling, preparation of report and technical advice on the environmental assessment. Design of dredge basin and site works for management of dredged materials using a CSD and preparation of tender documents. Provided reports and technical advice throughout construction.

Project Manager | Greenwell Point and Jervis Bay Marine Improvements | NSW Lands | Pre-2011

Conducted investigations into the feasibility of expanding small boat facilities at Greenwell Point and Jervis Bay. The work involved preliminary wave assessments, geotechnical and ecological surveys and preparation of concept plans for costing purposes.

Project Manager | Tweed Heads Slipway Refurbishment | NSW Lands | Pre-2011

Independent review of the design documentation for the reconstruction of the Tweed Heads slipway including report on recommended improvements to improve efficiency and environmental performance.

Technical Director | Tweed Heads Harbour Diesel Spill Decontamination | NSW Lands | Pre-2011

Independent review of proposed remediation strategy following a ruptured diesel underground pipeline adjacent to sensitive waters of Terranora Inlet. Introduced changes to the proposed Remediation Action Plan and negotiated with the Department of Environment and other stakeholders to achieve a more cost-effective solution.

Project Manager | Northbank Foreshore Works, Fremantle, WA | Private Developer | Pre-2000

The design, documentation, tender assessment and contract administration of foreshore works including dredging, reclamation, jetties, seawalls and services for a residential/commercial property developer.

Design Manager | Barrack Square Redevelopment, Perth, WA | WA DoT | Pre-2000

The detailed design and documentation of jetty works, dredging, reclamation and seawalls. Superintendent's Representative for this $12milion construction project.

Project Engineer | Port Coogee Estate & Marina, Freemantle, WA | Private Developer | Pre-2000

The preliminary design and costing of land reclamation works, edge treatments and maritime facilities for this seaside residential estate comprising over 800 lots.

Qualifications

- Bachelor of Engineering (Hons II) (Civil), University of Technology, Sydney, 1991

Affiliations/Registrations

- Member, Institution of Engineers, Australia (MIE Aust)
- Chartered Professional Engineer Status (CP Eng), 1997
- NER Registration and Member, Civil College
- Registered Professional Engineer Queensland (RPEQ - Civil)
- Member, PIANC

Publications / Presentations

- Department of Trade and Investment (NSW) Marine Assets Inspection Manual – Lead Author
- Wharf Structures Condition Assessment Manual (WSCAM) – Peer Review
- Swansea Channel Dredging for Reuse. [Moses/Ling, NSW Coastal Conference, 2010] – Co-Author

Work history

2011 to Present	Senior Associate Marine Structures, Advisian (Worley Group), Sydney (Newcastle Office)
2000 to 2011	Senior Engineer, Coastal and Estuary Infrastructure, Land and Property Management Authority, Department of Lands, Land and Water Conservation, Newcastle
1997 to 2000	Senior Engineer, Development and Maritime Section, Sinclair Knight Merz, Perth WA
Pre-1997	Engineer, Maritime and Project Management Branch, Sinclair Knight Merz, Sydney

Luke Stalley

Principal Consultant

Luke's role on the assignment

Luke's role as a Rehabilitation Advisor was to consider environmental aspects of approvals and rehabilitation. Luke's experience with coal export terminals in Queensland aided him to identify environmental components of key demolition and rehabilitation tasks and to review allowances for these with the Estimator for incorporation in the pricing.

Overview

Luke has 25 years' local and international experience as a Project Manager responsible for the planning, design and construction of infrastructure projects. Luke has experience in the delivery of strategic planning, design and construction for rail, port, road, transport, resource, pipeline, bridge and urban development projects. He has experience in impact assessment and the gaining of project approvals and development of environmental management plans for infrastructure and resource developments. He has extensive experience in managing multidisciplinary projects, including the evaluation and management of environmental issues associated with large infrastructure projects and has worked pro-actively with planning teams, project design teams, government (State and local), proponents, regulators, construction personnel, consultants and the community to achieve sustainable outcomes. Luke can integrate strategic considerations into all aspects of decision making in the planning, design, construction and operational project phases. He has expertise options analysis and in the development of mitigation strategies and gaining project approvals being mindful of achieving project goals.

Areas of expertise

- Project management
- Planning and detailed design
- Project assessment and approvals
- Options analysis
- Civil infrastructure
- Multidiscipline projects
- Climate change and sustainability
- Stakeholder engagement

Relevant experience

Project Lead | NWMP Common User Infrastructure | DSDMIP | 2019

The North West Minerals Province Common User Infrastructure (NWMP CUI) project team identified and evaluated a range of potential infrastructure projects that could benefit the region's economic development to prepare a shortlist of infrastructure projects to be progressed. Engagement with local stakeholders to identify existing and potential CUI projects and an assessment of how CUI may benefit individual or multiple projects is the core of this study.

Lead Civil Engineer | Mt Isa to Tennant Creek Rail Strategic Study | DSD/NT/Crwth | 2017

Strategic options study for the Darwin to Townsville supply chain corridor examining a proposed rail link considering the Northern Australia supply chain regional and global economic drivers, freight demand and existing transport infrastructure at Darwin and Townsville Ports plus Road links rail system, freight terminals and depots.

Project Manager | Public Safety Regional Radio Communications | Building Qld | 2017

Detailed Business Case preparation for presentation to BQ Board for a $700M project to provide a new emergency services digital radio communications network for Regional Queensland. Project involved coordination and management technical advisors and engagement with end user customers (Ambulance, Fire and Police) to prepare and review 24 chapters and 10 appendixes to produce the Business Case document.

Principal Environmental Engineer | EMS Review | BHP | 2018

Lead Auditor for review of the BHP's coal operations and Environmental Management System (EMS) to provide an assessment of the status of the system and to focus on what opportunities exist for the EMS to provide increased value to the organisation.

Lead Civil Engineer | Gold Coast Light Rail | TMR | 2017

Audit of the compliance of GoldLinQ's safety management system against the Transport (Rail Safety) Act 2010 and Regulation. Audit examined GoldLinQ Pty Ltd as the accredited rail infrastructure manager and a rolling stock operator plus the SMSs' of construction contractor (CPB) and Operations & Maintenance contractor (Keloids Downer Rail).

Environment Manager | Carmichael Rail Detailed Design | Posco | 2015

Manager of impact assessment, approvals and fauna passage at water crossings, bridges and culverts, for detailed design phase of new 400km long haul coal mine railway

Lead Engineer | Construction Compliance Audits | Wiggins Is. Coal Export Terminal | 2016

Lead Auditor for quarterly environmental compliance audit of contractors and owner for the duration of construction for new coal terminal. The $2.5B construction work involved 5 main contractors and dozens of sub-contractors in activities including earthworks, rail, roadworks, drainage, tunnel works, piling, dams, conveyors, stormwater ponds, barge wharf and mangroves.

Lead Civil Engineer | Abbot Point Port and Wetland EIS | DSD | 2014

Technical review and specialist impact assessment studies coordination for aquatic ecology, surface water and groundwater for major port development EIS for Queensland Department of State Development, adjacent to Great Barrier Reef Marine Park.

Principal Environmental Engineer | Ipswich Motorway Upgrade | TMR | 2010

Lead Environmental Auditor for environmental compliance audit of main Contractor which examined 238 environmental permit conditions (and sub-conditions) for two Environmentally Relevant Activities (ERAs) associated with the project's reverse osmosis treatment plant used in the dewatering of the disused underground coal mines beneath the 8-lane motorway widening.

Alliance Leadership Team | Hale Street Link Bridge | BCC | 2009

Alliance Leadership Team member and lead for the approvals and environmental management during the design and construction of this $370M concrete box cantilever Hale Street Link 'Go Between' bridge for Brisbane City Council.

Principal Environmental Engineer | PNG to Qld Gas Pipeline EIS | AGL Petronas | 2007

Preparation and coordination of an Environmental Impact Statement (EIS), environmental management and approvals process for the FEED phase on this 3,800km $4B project involving route selection and impact assessment for onshore and undersea gas pipelines. Involved review and coordination of 2 EISs, environmental approvals and risk assessment for 18 months

Senior Civil Engineer | Road Planning Design & Construction | TMR | 2005-2010

- Pacific Motorway widening, 8 lanes Nerang to Worongary – motorway and interchanges impact assessment, approvals, design and construction supervision
- Warrego Highway, Plainlands Rd Interchange - lead community consultation and env. design
- More than 30 Review of Environmental Factors (REF)s for Main Roads throughout Queensland

Project Manager | Emergency Services Digital Radio Network, UK | O2 | 2000 – 2005

- Project Manager for the planning approvals, environmental management, detailed design and construction supervision of $250 million infrastructure project for British Telecom (O^2) to implement the new national emergency services TETRA digital radio network in Yorkshire, UK.

Project Civil Engineer | Urban Land Development | 1990 – 2000

- Design of roadworks, stormwater drainage, water and sewerage reticulation for urban development and Main Roads projects. Luke's responsibilities included: design supervision, project management, estimating, contract administration and site construction supervision.

Qualifications

- Master of Environmental Management (UQ)

- Bachelor of Engineering (Civil) (QUT)
- RPEQ, MIEAust, CPEng, NER, APEC Engineer, IntPE(Aus), Member of Colleges of Civil Engineers

Affiliations/Registrations

- Lead Environmental Auditor (Exemplar Global Certification No.13164)

Work history

2009 to Present	Principal Consultant, Advisian
2005 to 2009	Manager Environment, Hyder Consulting Pty Ltd
2000 to 2005	Project Manager, Hyder Consulting (UK) Ltd
1990 to 2000	Project Engineer, Hyder Consulting

Appendix F
Acronyms and abbreviations

Acronym/ abbreviation	Definition
AUs	Access Undertakings
DAUs	Draft Access Undertakings
DBCT	Dalrymple Bay Coal Terminal
DBCTH	DBCT Holdings Pty Ltd
DBCTM	DBCT Management
DCDB	Digital Cadastral Database
DCDB	Digital Cadastral Database
EA	Enterprise Agreement
EWP	Elevated work platform
FTE	Full Time Equivalent
GHD Report	DBCT Rehabilitation Plan and Rehabilitation Cost Estimate (7 June 2019
IT	Information technology
LIDAR	Light Detection and Ranging
MOF	Materials Offloading Facility
MRC	Mackay Regional Council
NQBP	North Queensland Bulk Ports
ODS	Ozone depleting substances
PI	Professional indemnity
PMO	Project Management Office
Project	DBCTM Rehabilitation Review Project
PSA	Port Services Agreement
QCA	Queensland Competition Authority
QCA Act	Queensland Competition Authority Act 1997
QR	Queensland Rail
RRP	Rail receival pits
the Terminal	Dalrymple Bay Coal Terminal
TIC	Terminal Infrastructure Charge
WPI	Wage price index

Appendix G
List of drawings and materials

List of drawings and materials

Drawings/ Document No.	Name	Revision
1104001	Onshore Construction Civil Works Site Earthworks General Layout	D
1104002	Onshore Construction Civil Works Site Earthworks Layout 9900N 10475N -, 12400E - 13300E	K
1104003	Onshore Construction Civil Works Site Earthworks Layout 10475N - 11075N, 12400E - 13300 E	D
1104004	Onshore Construction Civil Works Site Earthworks Layout 10475N - 11675N, 12200E - 13100 E	K
1104005	Onshore Construction Civil Works Site Earthworks Layout 9400N- 10000N , 11700E - 12600E	C
1104006	Onshore Construction Civil Works Site Earthworks and General Arrangement Causeway	H
1104007	Onshore Construction Civil Works Site Earthworks Settling Pond	E
70000001	Site Locality Plan and General notes	D
70000002	DBCT Plant Layout Reference Schematic - Superseded	A
70000008_B	Schematic Layout of Short Gain Expansion and Major Phases 1,2 and 3	A
70000009	General Arrangement Overall Site Layout	A
70000010	General Arrangement Onshore Arrangement	5
70000011	General Arrangement Jetty Arrangement	A
70000012	General Arrangement Wharf Arrangement	A
70000013	Conveyor Flow Diagram	A
70000040	Appointed Wharf Boundary	A
70000021	Conveyor Drives Arrangement L1, L2, L3, L4	D
71000002	Rail Receival Dump Station RRP3 & Conveyors S11 General Arrangement	B
71040051	Row 8 Preparatory Earthworks Cross Sections sheet 1	C
71040052	Row 8 Preparatory Earthworks Cross Sections sheet 2	B
71040053	Row 8 Preparatory Earthworks Cross Sections sheet 3	B
71040054	Row 8 Preparatory Earthworks Cross Sections sheet 4	B
71040055	Row 8 Preparatory Earthworks Cross Sections sheet 5	B
71040056	Row 8 Preparatory Earthworks Cross Sections sheet 6	B
71040057	Row 8 Preparatory Earthworks Cross Sections sheet 7	B
71040083	Bund 5A Development Access Ramp Northern End Sections and Details	B
71040084	Bund 5A Development Northern End Drainage Sections Details	C
71040085	Bund 5A Development Stockyard Drainage General Arrangement	D
71040086	Bund 5A Development Bund Earthworks Arrangement	C

Drawings/ Document No.	Name	Revision
71040222	Row 8 Final Development Water Reticulation Stockpile Spray Water - WM2 Arrangements and Details	B
71040223	Row 8 Final Development Water Reticulation Stockpile Spray Water - WM2 Arrangements and Details Sheet 1	B
71040224	Row 8 Final Development Water Reticulation Stockpile Spray Water - WM2 Arrangements and Details Sheet 2	B
71040382	Bund 6 Development Earthworks Typical Cross Section	C
71040452	Bund 4A Development Bund Earthworks Arrangement	B
71040500	Surge Bin 3 Reclamation area General Arrangement	C
71040502	Surge Bin 3 Reclamation Area Earthworks Site Preparation	C
71040505	Surge Bin 3 Reclamation Area Earthworks Selected Fill Finished Surface Levels	D
71040541	Spindlers Dam Plan	B
71040542	Spindlers Dam Plan Typical sections and Details Sheet 1	B
71040543	Spindlers Dam Plan Typical Sections and Details Alternative Liner Anchor Trench	B
71040544	Spindlers Dam Inlet Plan and Details	B
71040545	Spindlers Dam Sedimentation Pond and Access Typical Sections	B
71040546	Spindlers Dam Access to Sedimentation Pond Longitudinal Sections	B
71040560	Rail Receival Area Dams Upgrade Site Plan	B
71040563	Rail Receival Area Dams Upgrade Layout Plan Sheet 2 of 2	C
71040564	Rail Receival Area Dams Upgrade Layout Plan Sheet 1 of 2	B
71040565	Rail Receival Area Proposed Rail Receival Dam Sections Sheet 2 of 2	B
71040566	Rail Receival Area Rock Filter Wall Section and Fence details	C
71040567	Rail Receival Area Concrete Coal Collection Pits Plan and Section	B
71040568	Rail Receival Area Concrete Coal Collection Pits General Arrangement & Details	B
71040569	Rail Receival Area Concrete Coal Collection Pits Distribution Pit Inlets and Dewatering System	B
71050039	Rail Receival Pits RRP3 Concrete Arrangement Plan	B
71050040	Rail Receival Pits RRP3 Concrete Arrangement Plans - Sheet 1 Plan at RL 12.220	E
71050041	Rail Receival Pits RRP3 Concrete Arrangement Plans - Sheet 2 Plan at RL 1.155 & RL 5.000	D
71050042	Rail Receival Pits RRP3 Concrete Arrangement Sections - Sheet 1	D
71050043	Rail Receival Pits RRP3 Concrete Arrangement Sections - Sheet 2	D
71050044	Rail Receival Pits RRP3 Concrete Arrangement Sections - Sheet 3	D
71050045	Rail Receival Pits RRP3 Concrete Arrangement Sections - Sheet 4	D
71050050	Rail Receival Pits RRP3 rail Anchor Arrangement and Details	D
71050085	Conveyor S11 Tunnel at RRP3 Concrete Arrangement	B

Drawings/ Document No.	Name	Revision
71050086	Conveyor S11 Tunnel at RRP3 Concrete Section and Details	B
71050088	Conveyor S11 Tunnel at RRP3 Reinforcement Segments 1 and 2	B
71050098	Conveyor S11 Tunnel at RRP3 Retaining Walls Reinforcement Sheet 4	B
71050100	Rail receival Pit RRP3 Ground Retention System General Arrangement	B
71050115	Conveyor S1 Access Road Overpass Concrete Culvert Details	B
71050130	Conveyor S11 and S13 Concrete Arrangement Plan	B
71050131	Conveyor S11 Foundation Arrangement Sheet1	C
71050132	Conveyor S11 Foundation Arrangement Sheet2	C
71050140	Conveyor S11 Hay Point Road Underpass Floor and Roof Plans - Elevation and Section	C
71050141	Conveyor S11 Hay Point Road Underpass Floor and Roof Slabs - Reinforced Details	B
71050142	Conveyor S11 Hay Point Road Underpass Wing Walls elevation	B
71050145	Drive tower S11 Foundation Arrangement and Details	B
71050160	Bund 5A Development Transfer Tower S3/S4/S13-S7 Foundation Arrangements	C
71050166	Transfer Tower S13-R5/R6 Foundation Arrangements and Details	C
71050170	Transfer Tower S3/S4/S13-S8 Foundation Arrangement and Pedestal Details	C
71050176	Transfer Tower S13 - R3/R4 Foundation Arrangement and Details	C
71050180	Transfer Tower S13 - S5 Foundation Arrangement and Details	D
71050184	Drive tower S13 Foundation Arrangement Plan and Details	C
71050200	Bund 5A Development General Arrangements	D
71050202	Bund 5A Development Earth Bound Typical Section	C
71050203	Bund 5A Development Retaining Wall Typical Section	C
71050250	Bund & Development General Arrangement	C
71050251	Bund & Development Concrete arrangement Plan	E
71050252	Bund 6 Development Typical Section	B
71050266	Bund & Development Drainage Culverts Arrangement	B
71050267	Bund & Development Drainage Culverts Drain Line A	B
71050268	Bund & Development Drainage Culverts Drain Line B and C	B
71050270	Bund 6 Drainage Culvert Details Drain Lines B and C	B
71050273	Conveyors L1/L2 extension Retaining wall for Seawall Concrete Arrangement Plan and Longitudinal Section	D
71050274	Conveyors L1/L2 Extension Retaining Wall for Seawall Details	C
71050277	Conveyors L1/L2 Extension Tail Pilley Frame Slab Arrangement and Details	B
71050278	Drive Tower R7/R8 Foundation Arrangements and Details	E
71050279	Drive Tower R7/R8 Foundation Details	E

Drawings/ Document No.	Name	Revision
71050280	Drive Tower R7/R8 Foundation Details reinforcement	D
71050283	Conveyors L2 Extension Foundation arrangement	D
71050284	Conveyors L1/L2 Extension Tail Pulley Frame Foundation	B
71050287	Conveyors L1/L2 Extension Retaining Wall Concrete Arrangement Elevation and Section	D
71050295	Conveyors L1/L2 Extension Foundation Arrangement	B
71050300	Bund 4A Development General Arrangement	B
71050301	Bund 4A Development Concrete Arrangement Plan	B
71050302	Bund 4A Development Earth Bund Typical section	B
71050313	Bund 4A Development Rail Beam Sections and details Sheet 1	B
71050314	Bund 4A Development Rail Beam Sections and details Sheet 2	B
71050317	Bund 4A Stackers ST4 Boom storm Cradle	B
71050318	Bund 4A Development Conveyor S8 Drive area Foundation Arrangement	B
71050322	Bund 4A Development Drainage Culverts Arrangement	B
71050396	Bund 4 Modifications SR3A Boom Storm Cradle FTG Concrete Arrangement & Details	B
71050500	Conveyors L11, L11A and L13 Concrete Arrangement Plan	B
71050501	Conveyors L11, L11A Foundation Arrangement sheet 1	C
71050502	Conveyors L11, L11A Foundation Arrangement sheet 2	D
71050511	Drive Tower L11/L11A Concrete Footings Arrangement	B
71050512	Drive Tower L11/L11A Concrete Footings Section & Details sheet 1	B
71050513	Drive Tower L11/L11A Concrete Footings Section & Details sheet 2	B
71050517	Conveyor L13 Foundation Arrangement	B
71050528	Surge Bin complex SB3/SP3 Concrete Slab and Footings Arrangements	E
71060265	Rail Receival Pit RRP3 Superstructure General arrangements	E
71060292	Conveyor S11 Ground Modules - Sheet 1	B
71060308	Drive Tower S11 Structural Arrangements Framing Elevations - Sheet 1	C
71060309	Drive Tower S11 Structural Arrangements Framing Elevations - Sheet 2	D
71060316	Conveyor S13 Structural Arrangements - Sheet 1	D
71060317	Conveyor S13 Structural Arrangements - Sheet 2	C
71060344	Transfer Tower S3/S4/S13-R7/R8 Structural Arrangements Framing Elevations - Sheet 1	D
71060345	Transfer Tower S3/S4/S13-R7/R8 Structural Arrangements Framing Elevations - Sheet 2	D
71060346	Transfer Tower S3/S4/S13-R7/R8 Structural Arrangements Framing Elevations - Sheet 3	E

Drawings/ Document No.	Name	Revision
71060347	Transfer Tower S3/S4/S13-R7/R8 Structural Arrangements Framing Elevations - Sheet 4	E
71060348	Transfer Tower S3/S4/S13-R7/R8 Structural Arrangements Framing Elevations - Sheet 5	D
71060349	Transfer Tower S3/S4/S13-R7/R8 Structural Arrangements Framing Elevations - Sheet 6	F
71060351	Transfer Tower S3/S4/S13-S7 Structural Arrangements Framing Plans	C
71060352	Transfer Tower S3/S4/S13-S7 Structural Arrangements Framing Elevations - Sheet 1	C
71060353	Transfer Tower S3/S4/S13-S7 Structural Arrangements Framing Elevations - Sheet 2	B
71060354	Transfer Tower S3/S4/S13-S7 Structural Arrangements Framing Elevations - Sheet 3	C
71060360	Transfer Tower S13 - R5/R6 Structural Arrangements Framing Plans	C
71060361	Transfer Tower S13 - R5/R6 Structural Arrangements Framing Elevations - Sheet 1	C
71060367	Transfer Tower S3/S4/S13-S8 Structural Arrangements Framing Plans	C
71060368	Transfer Tower S3/S4/S13-S8 Structural Arrangements Framing elevations - Sheet 1	C
71060369	Transfer Tower S3/S4/S13-S8 Structural Arrangements Framing elevations - Sheet 2	B
71060370	Transfer Tower S3/S4/S13-S8 Structural Arrangements Framing elevations - Sheet 3	C
71060396	Drive Tower S13 Access Arrangements and Conveyor S6A Structural Details	C
71060398	Drive Tower S13 Cladding Elevations	B
71060400	Conveyor S7 General Arrangement	B
71060500	Conveyor R7 General Arrangement	B
71060517	Conveyor R7 Gallery GR7A Structural Arrangement	C
71060518	Conveyor R7 Gallery GR7B Structural Arrangement	C
71060531	Conveyor R8 Tail End Structural Arrangement Plan and elevation	B
71060541	Conveyor R8 Gallery GR8A Structural Arrangement	B
71060542	Conveyor R8 Gallery GR8B Structural Arrangement	B
71060575	Drive Tower R7/R8 conveyor L11 Tail End Floor Slab Arrangements and Details	D
71060580	Conveyors L1, L2 Extension Conveyor Ground Modules Central Arrangement and details	B
71060800	Conveyors L11, L11A and L13 General Arrangement	B
71060801	Conveyors L11, Structural Arrangement - Sheet 1	E
71060802	Conveyors L11A Structural Arrangement - Sheet 2	C
71060876	Conveyors L11A Trestles Arrangement	C

Drawings/ Document No.	Name	Revision
71060885	Conveyors L13 Structural Arrangement	D
71060908	Conveyors L13 Trestles Arrangement Sheet 1	C
71060909	Conveyors L13 Trestles Arrangement Sheet 2	C
71060926	Surge Bin Complex SB3/SP3 Structural Arrangements Framing Elevations Sheet 1	C
71060927	Surge Bin Complex SB3/SP3 Structural Arrangements Framing Elevations Sheet 2	C
71060928	Surge Bin Complex SB3/SP3 Structural Arrangements Framing Elevations Sheet 3	C
71060929	Surge Bin Complex SB3/SP3 Structural Arrangements Framing Elevations Sheet 4	C
71062001	Conveyor S7 General Arrangements	1
71062502	Conveyor S11 General Arrangements	1
71062643	Conveyor S11 Trestles	1
71062644	Conveyor S11 Trestles	1
71062645	Conveyor S11 Trestles	2
71080205	Rail Receival Pit RRP3 General Arrangement Elevations	B
71080206	Rail Receival Pit RRP3 General Arrangement Plan & Sections	A
71080214	Rail Receival Pit RRP3 Conveyor BF11 General Arrangement	B
71080285	Conveyor R7 General Arrangements	C
71080292	Conveyor R7 Transfer to L1/L2 General Arrangement	C
71080340	Conveyor S11 General Arrangement	C
71080353	Conveyor S13 General Arrangement	D
71080363	Conveyor S13 Transfer to S6A General Arrangement	B
71080367	Conveyor S13 Retractable Tripper General Arrangement	C
71080389	Conveyor S13 Transfer Tower S13-R7/R8 Transfer Chutes General Arrangement	D
71080395	Conveyor S13 Transfer Tower S13-R7/R8 General Arrangement	D
71080397	Conveyor S13 Transfer Tower S13-S7 Transfer Chutes General Arrangement	D
71080481	L11 Conveyor General Arrangement	B
71080486	Conveyors L11, Transfers R7&R8 to L11 General Arrangement Elevation	B
71080498	Conveyors L11/L11A Drive Tower transfer to L13 General Arrangement Elevation	B
71080506	L11 Conveyor General Arrangement	B
71080511	Conveyors L11A Transfer R1 & R2 to LO11A General Arrangement - Elevation	B
71080573	Conveyor L13 General Arrangement	B
71080608	Belt feeders BF15 & BF 17 Surge Bin SB3 General Arrangement	C
71080610	Layout	

Drawings/ Document No.	Name	Revision
71081605	Conveyor R7 & S7 Drive Unit 1 General Arrangement	E
71084340	Conveyor S13 Transfer to Conveyor S6A General Arrangement and Details	3
71084371	Conveyor S13 Transfer to Conveyor R5 and R6 General Arrangement and Details	3
71084385	Conveyor S13, S3 and S4 Transfer to Conveyor S7 General Arrangement and Details	4
71085820	RRP3 Maintenance Crane A - 35T MRC x 8600 MM Double Girder Crane General arrangement	E
71085821	RRP3 Maintenance Crane B - 35T MRC x 8600 MM Double Girder Crane General arrangement	D
71085822	RRP3 Maintenance cranes Crane 5 -5T MRC x 12000 MM Single Girder Crane ZLK Crane General Arrangement	E
71085825	RRP3 Maintenance cranes Crane B -20T MRC x 714000 MM Single Girder Crane ZLK Crane General Arrangement	F
72030101	Approach Jetty Extension General Arrangement	C
72030103	Approach Jetty Extension Piling Plan Sheet 1 of 5	E
72030104	Approach Jetty Extension Piling Plan Sheet 2 of 5	E
72030105	Approach Jetty Extension Piling Plan Sheet 3 of 5	E
72030106	Approach Jetty Extension Piling Plan Sheet 4 of 5	E
72030107	Approach Jetty Extension Piling Plan Sheet 5 of 5	E
72030110	Approach Jetty Extension Tail End Region General Arrangement	C
72030111	Approach Jetty Extension Head End Region General Arrangement	D
72030112	Approach Jetty Extension Head End Region L15 Transfer L17 Substructure General Arrangement	C
72030147	Approach Jetty Extension Head End Region L17 Tail End Structure Access Arrangements & Details	C
72030201	Berth No 4 General Arrangement	D
72030204	Berth No 4 Piling Plan Sheet 1 of 3	E
72030205	Berth No 4 Piling Plan Sheet 2 of 3	D
72030206	Berth No 4 Piling Plan Sheet 3 of 3	D
72030210	Berth No 4 Wharf Layout	B
72030245	Berth No 4 Ships Access Loader General Arrangement	C
72030300	Berth No 4 Dolphin System Layout	C
72033000	Berth No 4 Dolphin System Layout Overall Arrangement	A
72039100	Approach Jetty Extension Prestressed Concrete Deck Unit Details Typical Details	D
72050002	Conveyor L15A Concrete Arrangement Plan	B
72050015	Transfer Tower L15A/L15 Footing Arrangement	B

Drawings/ Document No.	Name	Revision
72060130	Amenities Building General Arrangement Elevations	B
72060205	Conveyor L17 Conveyor Arrangement Sheet 1	B
72060206	Conveyor L17 Conveyor Arrangement Sheet 2	B
72060220	Conveyor L17 Drive Tower General Arrangement	B
72060300	Conveyor L15A General Arrangement	C
72060301	Conveyor L15A Steelwork Arrangement Sheet 1	D
72060302	Conveyor L15A Steelwork Arrangement Sheet 2	C
72060303	Conveyor L15A Steelwork Arrangement Sheet 3	C
72060304	Conveyor L15A Steelwork Arrangement Sheet 4	C
72060350	Transfer Tower L15A/L15 General Arrangement	B
72060400	Conveyor L15 General Arrangement Plan	D
72060401	Conveyor L15 General Arrangement Elevation	D
72063000	Berth 4 Conveyor L17 General Arrangement	A
72063001	Berth 4 Conveyor L17 General Arrangement	A
72064000	Conveyor L15 Drive Tower Steelwork General Arrangement	A
72064500	Conveyor L8 Tail End Transfer L15 to L8 General Arrangement	1
72065000	Conveyor L15 Transfer Tower Structural General Arrangement	A
72065015	Conveyor L15 Transfer Tower Structural Arrangement Details	A
72089001	Conveyor L15 Steelwork Marking Plan Head End Arrangement	A
72089002	Conveyor L15 Steelwork Marking Plan Head End Belt Wash Marking Plan	2
72089003	Conveyor L15A Steelwork Marking Plan Head End Head Shute	A
72069501	Wharf Structure L17 Tail End Extension General Arrangement Plan View	A
72069502	Wharf Structure L17 Tail End Extension General Arrangement Sections	A
72069503	Wharf Structure L17 Tail End Extension General Arrangement Sections	A
72080051	Berth No 4 Conveyor L17 Drive Tower General Arrangement Elevation	C
72080052	Berth No 4 Conveyor L17 Drive Tower General Arrangement Plans	D
72080401	Conveyor L15 General Arrangement	C
72080406	Conveyor L15 Drive Tower General Arrangement	C
72080412	Conveyor L15 Transfer Tower General Arrangement	B
72080414	Conveyor L15 Head End General Arrangement	C
73000001	Shiploader SL3 Upgrade General Arrangement General Notes and Structural Steel notes	B
73000009	Shiploader SL2 Upgrade General Arrangement General Notes	C
73000010	Shiploader SL2 Upgrade Boom and Shuttle System Upgrade General Arrangement	C
73000016	Shiploader SL1 Upgrade General Arrangement and General Notes	B

Drawings/ Document No.	Name	Revision
73000017	Shiploader Structural Upgrade Boom and Shuttle System Upgrade General Arrangement	A
74001000	Stacker Reclaimer SR4A General Arrangement Elevation	C
74001001	Stacker Reclaimer SR4A General Arrangement Elevation Section	B
74001002	Stacker Reclaimer SR4A General Arrangement Elevation Section	A
74001003	Stacker Reclaimer SR4A General Arrangement Side View	A
74001004	Stacker Reclaimer SR3A General Arrangement Plan View	A
74001005	Stacker Reclaimer SR3A General Arrangement Split	A
74001006	Stacker Reclaimer SR3A General Arrangement Slew Range Without Splitting	B
74001007	Stacker Reclaimer SR3A/4A General Arrangement Stacking	A
74001052	Stacker Reclaimer SR3A/4A General Arrangement Elevation Section	B
74001053	Stacker Reclaimer SR3A/4A General Arrangement Side View	A
74001054	Stacker Reclaimer SR3A/4A General Arrangement Plan View	A
74001055	Stacker Reclaimer SR3A/4A General Arrangement Split	A
74001056	Stacker Reclaimer SR3A/4A General Arrangement Slew Range Without Splitting	A
74002000	Stacker Reclaimer General Elevation General Arrangement	C
74002001	Stacker ST3 General Plan View General Arrangement	C
74002002	Stacker ST3 General Cross Section General Arrangement	B
74002004	Stacker ST3 General Luff Range General Arrangement	C
74050001	Reclaimer RL1 General Reclaimer Complete G.A. rail Track Ground Installation	C
74051000	Stacker Reclaimer SR3A Foundations General Arrangement	A
74051001	Stacker Reclaimer SR3A Foundations General Arrangement Details	A
74052000	Stacker Reclaimer ST3 Foundations General Arrangement	G
74052001	Storm Tie Down Buffer and Anchor General Arrangement	G
74060001	Reclaimer RL1 Portal General Arrangement	E
74060007	Reclaimer RL1 Portal General Arrangement	D
74060021	Reclaimer RL1 Portal General Arrangement	D
74060100	Reclaimer RL1 Slewdeck & Pylon Slewdeck General Arrangement	E
74060200	Reclaimer RL1 Bucket Wheel Boom Steel Structure General Arrangement	G
74060300	Reclaimer RL1 Pylon & Counter Weight Boom General Arrangement	F
74062000	Stacker ST3 Portal General Assembly	C
710625061	Hot Rolled Except Columns	1
710625146	Transfer Tower	1
710625147	Transfer Tower DESC Beam	1
710625148	Transfer Tower DESC Beam	1
710625149	Transfer Tower DESC Beam	1

Drawings/ Document No.	Name	Revision
N/A	DBCT Lidar Data	N/A
70000002	DBCT Plant Layout Reference Schematics Superseded	A
70000008_B	Schematic Layout of Short Gain Expansion and Major Expansion Phases 1, 2 & 3	A
NJ1040003	General Layout and Control Line Details	B
NJ1040004	Dam Wall Typical Sections Sheet 1 of 3	C
NJ1040015	Dam Wall Typical Sections Sheet 2 of 3	C
NJ1040016	Dam Wall Typical Sections Sheet 3 of 3	C
NJ1040033	General Layout and Control Line Details	B
NJ1040034	Dam Wall Typical Sections	B
NJ1040036	Grendon Creek Road Crossing and Typical Sections	B
NJ1040061	Quarry Dam to Rail Loop Dam Pipeline General Notes	E
NJ1040062	Quarry Dam to Rail Loop Dam Pipeline General Arrangements	E
NJ1040069	Quarry Dam to Rail Loop Dam Pipeline Alignment and Elevation Sheet 7 of 8	E
NJ1050004	Pipe Penetrations & Miscellaneous Details	C
NJ1050005	QD to RLD Transfer System Quarry Dam Valve Pit Civil Works General Arrangements and Drawing List	B
71060948	Surge Bin Complex SB3/SP3 Structural Details Sheet 7	B
71050149	Conveyor S13 Foundation Arrangement Sheet 1	B
71050151	Conveyor S13 Foundation Details	E
71050529	Surge Bin Complex SB3/SP3 Concrete Slab and Footings Sections and Details Sheet 1	B
71050530	Surge Bin Complex SB3/SP3 Concrete Slab and Footings Sections and Details Sheet 2	B
71050531	Surge Bin Complex SB3/SP3 Concrete Slab and Footings Sections and Details Sheet 3	B
71050532	Surge Bin Complex SB3/SP3 Concrete Slab and Footings Sections and Details Sheet 4	C
71050533	Surge Bin Complex SB3/SP3 Concrete Slab and Footings Sections and Details Sheet 5	C
71050534	Surge Bin Complex SB3/SP3 Concrete Slab and Footings Sections and Details Sheet 6	D
71050535	Surge Bin Complex SB3/SP3 Concrete Slab and Footings Sections and Details Sheet 7	B
71050504	Conveyor L11 and L11A Foundation Details Sheet 2	D
N/A	Hatch DBCTM Rehabilitation Valuation 2015 Report	N/A
N/A	Turner Townsend review of proposed DBCT Site Rehabilitation Cost 2016 report	N/A

Drawings/ Document No.	Name	Revision
N/A	DBCT GHD Rehabilitation Plan and Rehabilitation Cost Estimate 2019 Report	N/A
N/A	Brookfield DBCTM Master Plan 2019	N/A
N/A	Axiom Rehabilitation Cost Estimate – Basis of Estimates of GHD report	N/A
N/A	Port Services Agreement Signed 4 September 2001 between Port Corporation of Queensland and DBCT Holdings	N/A

Appendix H
RFI Register

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RFI No.	Description	Request Clarification	Response	Ideal File Format	Raised By	Date of Reques	Date Closed	Status
001	Contracts/Agreements	Any relevant contractual documents between QCA/State Govt and DBCTM. These include: - Port Services Agreement - Long-term lease agreements between DBCTM and DBCTH, including folio identifiers (Lot/DP) and any other attachments or appendices - Any other relevant contracts	Link to published excerpts of PSA (in Hatch report) provided by QCA staff (15/01)	-	Aarash Majoo	13/01/2020		Closed
002	Site drawings & photos	General arrangement, design drawings, 3D models etc for all assets within the port. These include: - Dalyrmple Bay - Port of Hay Point - Site Earthworks General Layout drawings 1980 (or more recent if available) - DBCT 7X Project drawings - DBCT Quarry Dam Capacity Increase and Rail Loop Dam drawings - DBCT LIDAR data (taken 20th Sept 2013) or more recent site survey contours - Underground + above ground Services Detail Plans - As-Constructed drawings for all marine structures, including shiploaders, conveyors, transfer towers, dolphins, buildings and wharf furniture. - recent hydrographic survey of the port + hydrosurvey dating back to preconstruction (circa 1980) - Other general arrangement drawings	GHD: - Drawings showing the general layout is best shown on dwg 70000008_B.pdf (see RFI 011 below). GA showing the site is best seen in 70000009.pdf, 70000010.pdf, 70000011.pdf, and 70000012.pdf. - 7X drawings used for the purposes of the Estimate are loaded into this RFI - The Quarry Dam increase and Rail Loop Dam drawings used for the Estimate are located in RFI 012 - LIDAR, refer to DBCT_LIDAR.zip - U/G services see: RFI 014 - As Cons of marine and other structures: Refer to the 7X dwg list above - an example can be found on 72030101.pdf - recent Hydrographic survey: GHD did not have access to or relied on any hydrographic/hydrosurvey assessments. - included in this folder are various initial port Site Earthworks General Layouts, which have the original landform topographical details (refer to 11040001.tif to 11040007.tif;	-	Aarash Majoo	13/01/2020	5/2/20 Hydrographic Survey(s) outstanding	Closed
003	Other documents used by GHD in preparation of their report	These documents include: - Environmental Impact Studies for all expansion pathways from 3X to 7X - DBCT Management Master Plan 2018 - April 2018 - Rehabilitation DBCT Report Update - Rehabilitation Valuation 2015 - Hatch - Sept 2015 - Land Use Plan - Port of Hay Point - North Queensland Bulk Ports Corporation (NQBP) - April 2010 - Insurance Valuation - Dalrymple Bay Coal Terminal Pty Ltd 1st June 2017 - John Foord	Master Plan 2018 provided by QCA staff (15/01) Link to Hatch report provided by QCA staff (15/01) GHD: -423.pdf -DBCT 2018 Master Plan.pdf -Draft EIS Nov2000-Volume -John Foord 2017 DBCT Final Valuation Report -Port-of-Hay-Point-Land-Use-Plan-2010 -Attachment-F-Rehabilitation-Valuation-2015 [H350126-00000-224-230-0001] (Rehabilitation DBCT Report Update - Rehabilitation Valuation 2015 - Hatch - Sept 2015)	-	Aarash Majoo	13/01/2020	4/02/2020	Closed
004	Axiom Cost Estimate	Referenced within the Appendix of the GHD report is an estimate compilation in Excel format. Could you please also provide any other additional supporting documentation that was developed as part of this process. This may include rates lists, productivities associated with plant etc.	GHD: Refer to email from Hiresh Devaser "Confidential - cost estimate model for DBCT Rehabilitation Plan and Cost Estimate" on 21/1/2020	Excel	Aarash Majoo	13/01/2020	21/01/2020	Closed
005	Environmental Documents	Please provide relevant environmental documents that set out the rehabilitation obligations of DBCTM: - Environmental authority - Environmental management plans and licenses - Conditions of approval attached to EIS (possibly CG report) - Contaminated land assessments for onshore areas - Any recent sediment characterization for offshore areas	GHD: '- Environmental authority: See eppr00504513 - environmental authority - permit.pdf and extract from the online EA Register (Copy of ea-register.xlsx) - EMP: See 2018 - Environmental Management.pdf and DBCT Environmental Management Strategy rev8.pdf - Conditions of approval attached to EIS : See 542.pdf and EA eppr00504513.pdf - Contaminated land assessments for onshore areas – We used the EISs, refer to 423.pdf and Draft EIS Nov2000-Volume.zip in RFI 003. - Recent sedimentation characterization for offshore areas – We used the EISs (see RFI 003) and doc 542.pdf	-	Aarash Majoo	13/01/2020	5/02/2020	Closed
006	Site investigation report	The T&T report refers to 'existing photographs contained within an early site investigation report prepared by Coffey Pty Ltd in 1980.	Advisian - don't need these if 1980 topo map is provided.	-	Aarash Majoo	13/01/2020		Closed
007	Hatch report	Hatch 2015 Full rehabilitatoin valuation and any associated files	GHD: '-Attachment-F-Rehabilitation-Valuation-2015 [H350126-00000-224-230-0001] (Rehabilitation DBCT Report Update - Rehabilitation Valuation 2015 - Hatch - Sept 2015)	-	Aarash Majoo	13/01/2020	4/02/2020	Closed
008	3rd Party Quotes/Reports	As per RFI004 any 3rd Party Quotes (Marine Piling Extraction) that was requested/obtained on GHD Estimate as well as details on Earth Moving Volumes	GHD: Refer to email from Hiresh Devaser "Confidential - cost estimate model for DBCT Rehabilitation Plan and Cost Estimate" on 21/1/2020	-	Pierre Vermeulen	13/01/2020	21/01/2020	Closed
009	Development permits	We are generally looking for any development permits related to the site, which relate to the land use being approved and the footprint of the permit.	GHD: We relied only on Environmental Authority permits, as provided for in response to RFI005. We did not rely on any development permits as such.	-	Bill Boylson	14/01/2020	5/02/2020	Closed

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RFI No.	Description	Request Clarification	Response	Ideal File Format	Raised By	Date of Reques	Date Closed	Status
010	Roads & drainage	Any roadworks and drainage plans (including any underground culverts)	GHD: We used the 7X dwgs as provided, as the basis of the quantity estimates assuming that 7X assets (for example, stockpiles) are similar enough to the earlier assets to be able to duplicate for the purposes of a Class 4 estimate. There are no specific "here is a roadworks dwg" or "here is a drainage dwg" but instead there are foundation and structural as-builts from which was derived the quantities. See RFI 002 above for the 7X drawings used. An example of a culvert design under a road can be see in 71050115.pdf.	-	Luke Stalley	14/01/2020	5/02/2020	Closed
011	Asset register	List of assets that are on site, e.g. all conveyors, surge bins, rail loop. With layout plan if available.	GHD: The best drawing showing the assets that was used by GHD is dwg 70000008_B.pdf. This identifies all the major assets. From this, the WBS in the Cost Estimate Model was built up. Minor assets not shown in this drawing (buildings, substations) were identified from reviewing the 7X drawing set, the Underground Services drawing set, and via verbal communications with DBCTM. 70000002.pdf is also a useful drawing, though marked as superseded it is nevertheless useful to help ID different assets.	-	Luke Stalley	14/01/2020	5/02/2020	Closed
012	Dams	Dam general arrangement layout and cross sections, including ancilliary infrastructure and contents	GHD: We used the 7X and NJxx dwgs as listed for the various dams and where there was no specific dam in that drawing pack – we inferred that dams would be similar. An example in the 7X dwg set is 71040541.pdf (Spindler's Dam). Specifically in this folder are the Cardno design for the various post 7X dams but reference to the set in RFI 002 needs to be made.	-	Luke Stalley	14/01/2020	5/02/2020	Closed
013	Waste disposal	Details, location and size of any sites that have been used for landfill/waste disposal.	GHD: Refer to email from Hiresh Devaser "Confidential - cost estimate model for DBCT Rehabilitation Plan and Cost Estimate" on 21/1/2020	-	Luke Stalley	14/01/2020	21/01/2020	Closed
014	Underground tanks	Details, location, sizes and contents of any underground storage tanks (e.g. fuel)	GHD: Included in this RFI is the Underground Services drawings for the complete site from which an assessment on the buried services (includng locations of tanks) were derived in addition to verbal communications with DBCTM to confirm.	-	Luke Stalley	14/01/2020	5/02/2020	Closed
015	Rail Loop clarifications	Within the Axiom portion of the estimate, the disposal rate is split out into a Load Out, Disposal and Transport cost. This rate is applied across the rails and other infrastructure domains – could GHD please confirm if this rate includes the actual cutting and demolition of the lines and infrastructure in anticipation for loading activities, or is this component of the works considered elsewhere within the estimate? If so, please advise where	Our approach to the cost estimate is as follows: decommissioning (GHD); demolition (GHD); disposal (Axiom); remediation (Axiom); rehabilitation (Axiom); and other costs (GHD). Hence, any activities associated with decommissioning and demolition (including cutting) are captured within the GHD aspects of the cost-estimating spreadsheet and not embedded within Axiom's Load Out, Disposal and Transport rates. For example, in relation to the rail loop, receivals and conveyors (Domain 1), the decommissioning costs are captured in cell range A2:F14 of the 'Table 2.1 – Cost Detail' worksheet and the demolition costs are captured in cell range A13:F28 of the 'Table 1.1 – Cost Detail' worksheet. These are all in the Excel model. Please let us know if we've misunderstood your query.	-	Aarash Majoo	7/02/2020	9/02/2020	Closed
016	Rail Loop clarifications	The removal of the QR substation foundation and infrastructure disposal does not appear to allow for deconstructing prior to removal. Could GHD please confirm if this work is included into the load out rate, or is considered elsewhere in the estimate?	GHD confirms that the cost of decommissioning and demolishing the Aurizon substation was inadvertently omitted from the cost estimate. We note the following for Advisian's consideration: - In cell F14 of the 'Other cleaning' worksheet of the cost estimate model, GHD estimated the direct cost of draining transformer oils from the five substation buildings within Domain 8 (Utilities) to be $71,700). Using the inferred unit rate for this, and when accounting for contingency (25%), the indicative cost to clean the Aurizon substation is estimated to be $17,925. - In cell F83 of the 'Table 1.1 – Cost Detail' worksheet of the cost estimate model, GHD estimated the direct cost of demolishing five substation buildings within Domain 8 (Utilities) to be $278,800. Using the inferred unit rate for this, and when accounting for contingency (25%), the indicative cost to demolish the Aurizon substation is estimated to be $69,700. Hence, an indicative cost estimate for decommissioning and demolishing the Aurizon substation is $87,625. We do not consider that mob/de-mob allowances and engineering costs for the overall cost estimate would increase as a result of the Aurizon substation needing to be decommissioned and demolished. Please also note that the indicative cost estimate of $87,625 does not account for the cable runs from the Aurizon substation; however, we do not anticipate that these would be material for the cost estimate.	-	Aarash Majoo	7/02/2020	6/03/2020	Closed

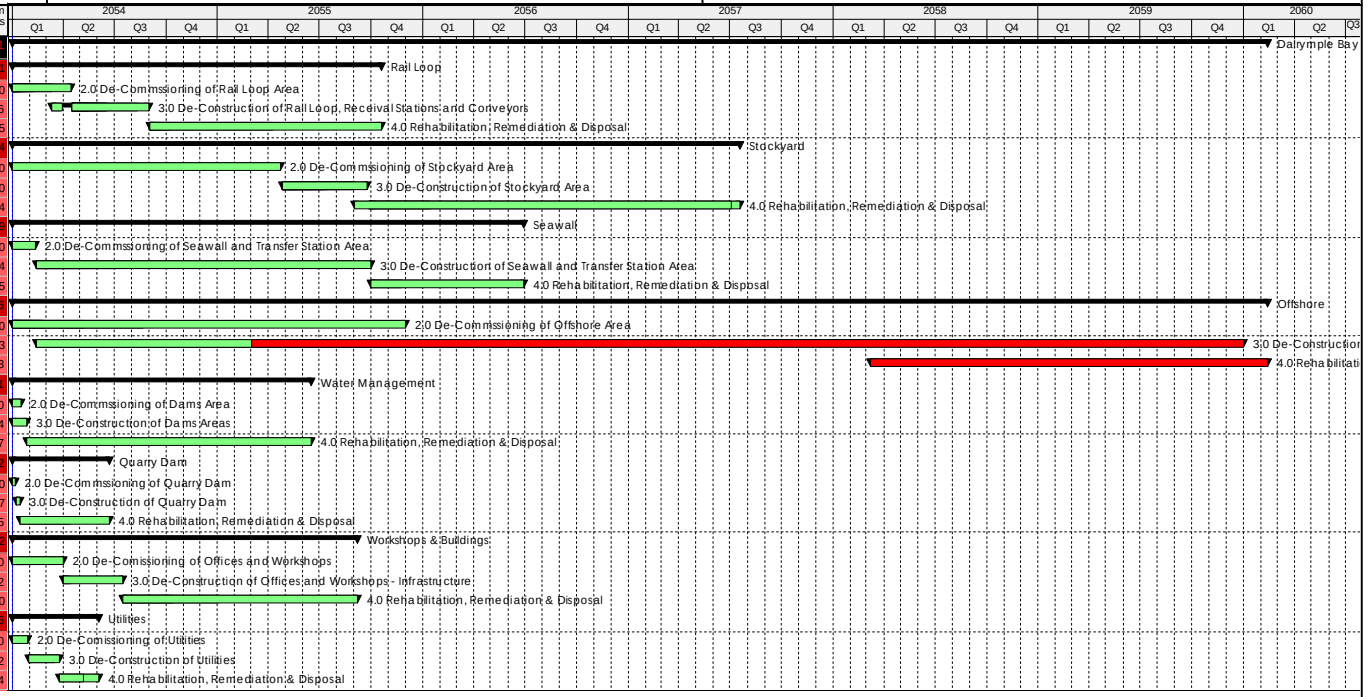
Advisian

RFI No.	Description	Request Clarification	Response	Ideal File Format	Raised By	Date of Reques	Date Closed	Status
017	Offshore area clarifications	a. Could GHD please confirm what is generally included in the item 'Temp Works/Engineered Lifting ($10m)' b. Could GHD please confirm if there was a specific reason to spread the offshore works over an 8 year period?	a)We understand that Advisian's query relates to cell F60 of the 'Table 1.1 – Cost Detail' worksheet in the cost estimate model (2 x $5M = $10M). The temp works / engineered lifting refer to two temporary structural support and transport frames required for the demolition of the wharf, jetty decks and superstructure. More information about this can be found on page 79 of our rehabilitation plan, which states: The $10M also accounts for any strengthening works that may be required to allow the machines and cranes to operate on the jetty and wharf, and to stabilise the structure where removal of some sections may compromise the structure's integrity during the demolition process. b) Refer to email 26/2 (partial response) and to email 28/02 for full response	-	Aarash Majoo	7/02/2020	28/02/2020	Closed
018	Distributable clarifications	a. An allowance for accommodation was made at $60/man/night including meals – could GHD please confirm what the assumptions around accommodation and messing were made (build own camp/catering arrangements etc.) b. Labour rates for the de-commissioning works used a rate of $67/hour for a labourer, could GHD please confirm the details of the 5 labour rates build up.	We understand that Advisian's query relates to cell range C19:F24 of the 'Distributable Costs' worksheet of the cost estimate model. Our assumptions on accommodation and messing, in relation to the decommissioning and demolition work scopes, were that the contractor would rent houses in the area to accommodate their personnel. Personnel would be sharing houses (not 1 house per person). The rate also allows for self-catered meals (a per diem rate).	-	Aarash Majoo	7/02/2020	6/03/2020	Closed
019	Rehabilitation (Axiom) clarifications	Could GHD please confirm if an allowance has been made to include flights/accommodation into the Axiom Estimate as part of the line items based on a % of total directs?	The costs have been captured by 'Contractor Distributables'. Section 4.4 of Axiom's report lists the following inclusions in such distributables: Contractor Distributables (all other installation costs including contractor's mob/demob, site establishment, travel, sustenance and subsistence, construction equipment, unproductive direct labour, maintenance and support labour, staff and supervision, tools and consumables, off-site support, overheads and profit). Section 4.5.3 of Axiom's report also states: All other constructor costs are captured in the Contractors Distributables cost component including such expenses as mobilisation and demobilisation, site establishment, travel and subsistence, small tools and consumables, PPE, construction equipment (including fuel, GET, maintenance etc), contractor's indirect support labour, staff & supervision, business overheads, profit and the like. In the cost estimate Excel model, the Contractor Distributables information/percentages we believe you are after can be found in cell range L6:Z186 of the 'CBS' worksheet within the Axiom component of the workbook. Please let us know if we have misunderstood your query.	-	Aarash Majoo	7/02/2020	9/02/2020	Closed
020	Pre-development digital terrain data and methodology	In order to be able to verify the quantities and volumes of the cut and fill required to bring the area back to natural state, Advisian is seeking additional information and documentation below. Can GHD/QCA please provide the pre-development digital terrain data and methodology from which GHD based the bulk earthworks volumes. - This may take the form of 12d data at best, or it may be a dem or any number of other vector or raster elevation file This RFI was elevated and sent as a separate email due to his relevance on estimates. Refer to seprate email sent on 21/02	The LIDAR information for DBCT and the topographical data on drawings 11-04-001 to 007 were provided to Advisian as part of GHD's response to RFI 002. The modelling generated by GHD that was derived from these source data is not suitable for release to third parties, as it is GHD's intellectual property. We suggest, respectfully, that Advisian use its own modelling methodologies to generate digital terrain data in order to replicate the potential earthworks quantities set out in Table 7-3 of GHD's rehabilitation plan for DBCT. Please contact Jonathan Blakey (copied) at DBCTM if you have any non-technical queries on GHD's responseAwaiting response; Refer to email received 5/3 - QCA has selected (option 2) for Advisian to discuss digital terrain model at GHD office for 1 hour. Following meeting on 17 March 20 Advisian has requested GHD to provide coordinate of some check points. GHD has provided some of teh checkpoints. Advisian has provided QCA recomendation to develop an independent model.	-	Deniz Sezgin	25/02/2020	25/03/2020	Closed
021	Rail Loop drawings	Please provide detailed footing design drawing for the catenary network support structures on the rail loop	For RFIs 21 (Rail Loop drawings) and 27 (Missing Drawings – pad design drawings for Aurizon substation), DBCTM confirms it does not have such drawings but believes that Aurizon Network would. GHD's approach for the rehabilitation cost estimate recognised that DBCTM had no detailed design drawings for the assets described in RFIs 21 and 27. Quantity values etc. were estimated by GHD based on typical designs based on advice from GHD's internal rail team and analysing publically available aerial photographs (i.e. Qld Globe).	-	Pierre Vermeulen	26/02/2020	28/02/2020	Closed
022	Missing Drawings	Please provide drawing no. 71-06-0948 which is referenced on drawing 71-06-0926	GHD commented cost estimate did not rely on or use the drawings sought by Advisian. Nevertheless, DBCTM hprovided those drawings	-	Pierre Vermeulen	26/02/2020	28/02/2020	Closed

RFI No.	Description	Request Clarification	Response	Ideal File Format	Raised By	Date of Reques	Date Closed	Status
023	Missing Drawings	Please provide drawing no. 71-05-0149 which is referenced on drawing 71-05-0166	GHD commented cost estimate did not rely on or use the drawings sought by Advisian. Nevertheless, DBCTM hprovided those drawings	-	Pierre Vermeulen	26/02/2020	28/02/2020	Closed
024	Missing Drawings	Please provide drawing no. 71-05-0151 which is referenced on drawing 71-05-0170	GHD commented cost estimate did not rely on or use the drawings sought by Advisian. Nevertheless, DBCTM hprovided those drawings	-	Pierre Vermeulen	26/02/2020	28/02/2020	Closed
025	Missing Drawings	Please provide drawing no. 71-05-0530 and Drawings No. 71-05-0529 through to -0535 which are referenced on drawing 71-05-0528	GHD commented cost estimate did not rely on or use the drawings sought by Advisian. Nevertheless, DBCTM hprovided those drawings	-	Pierre Vermeulen	26/02/2020	28/02/2020	Closed
026	Missing Drawings	Please provide drawing no. 71-05-0504 (L11 Base Footings)	GHD commented cost estimate did not rely on or use the drawings sought by Advisian. Nevertheless, DBCTM hprovided those drawings	-	Pierre Vermeulen	26/02/2020	28/02/2020	Closed
027	Missing Drawings	Please provide the pad design drawings for the QR substation area. (cross sections showing depth)	For RFIs 21 (Rail Loop drawings) and 27 (Missing Drawings – pad design drawings for Aurizon substation), DBCTM confirms it does not have such drawings but believes that Aurizon Network would. GHD's approach for the rehabilitation cost estimate recognised that DBCTM had no detailed design drawings for the assets described in RFIs 21 and 27. Quantity values etc. were estimated by GHD based on typical designs based on advice from GHD's internal rail team and analysing publically available aerial photographs (i.e. Qld Globe).	-	Pierre Vermeulen	26/02/2020	28/02/2020	Closed
028	Missing Drawings	Please provide pad design drawings for the stockyard (cross sections showing depth)	For RFI28 on pad design drawings for the stockyard, DBCTM has supplied some information for your consideration (see attached). Please note that GHD's approach did not use or rely on the attached; quantity values etc. were estimated by GHD based on typical designs based on advice from GHD's internal materials handling team and analysing publically available aerial photographs (i.e. Qld Globe).	-	Pierre Vermeulen	26/02/2020	28/02/2020	Closed
029	Missing Drawings	Please provide roadway design Cross sections for road between rail receival pit and the stockyards (and, or any other site roads)	Detail design drawings for the site roads were not used. Instead, the area for carparks and roads where mapped by GHD as part of the overall Domain mapping, and then broken out per Domain. For the Cost Estimate, the volume was calculated by using these areas and assuming that the asphalt cap and roadbase to 0.5m in total is scraped up and disposed of.	-	Pierre Vermeulen	26/02/2020	11/03/2020	Closed
030	Missing Drawings	Please provide detail design drawings for T13 and T14 structures including the concrete footings arrangement	Rather than investigating L1/L3 Transfer Tower T13 and L2/L4 Transfer Tower T14, GHD determined that T18 (which there were 7X drawings available for) was similar enough of a design to allow for these design drawings to be used in lieu, and as modified based on an assessment of S13's transfer chute dwgs. Note that within the 7X dwg system, T18 often has the title "DRIVE TOWER R7/R8 CONVEYOR L11" or "CONVEYOR R7/R8 - CONVEYOR L1/L2/L11" See dwgs 71060575, 710625061, 71080486 (which were provided as part of GHD's response to RFI002). Dwg 71080389 gives a GA drawing showing S13 transfer chute onto R7/R8, which then was used to extrapolate similar chutes and their supporting structure.	-	Pierre Vermeulen	26/02/2020	11/03/2020	Closed
031	Missing Drawings	Please provide the general arrangement drawings and footing design for L1, L2, L3 and L4 conveyors along the Sea Wall.	An example of the L1/L2 GA and footing design can be seen on 71060580, which is strictly speaking for the 7X extension, but GHD assessed that the volumes from this extension can be used for the balance of the conveyor ground modules for L1 and L2, for the purposes of generating a quantity estimate. The quantities for L3 and L4 were estimated using L13 as a model in lieu of having 7X drawings for those conveyors. See dwgs 71050500, 71050517, 71060800, 71060885, 71060908, 71060909, 71080498, 71080573 for additional information (which were provided as part of GHD's response to RFI002	-	Pierre Vermeulen	26/02/2020	11/03/2020	Closed

Appendix I
Overall Program

Activity ID	Activity Name	Duration (Months)-1	At Completion Labor Units
Dalrymple Bay Coal Terminal		264.80	304264
Rail Loop		23.00	32891
	2.0 De-Commssioning of Rail Loop Area	3.50	10320
	3.0 De-Construction of Rail Loop, Receival Stations and Conveyors	5.80	7796
	4.0 Rehabilitation, Remediation & Disposal	13.70	14775
Stockyard		43.80	87114
	2.0 De-Commssioning of Stockyard Area	15.90	28090
	3.0 De-Construction of Stockyard Area	5.00	17300
	4.0 Rehabilitation, Remediation & Disposal	22.90	41724
Seawall		30.20	48759
	2.0 De-Commssioning of Seawall and Transfer Station Area	1.40	11220
	3.0 De-Construction of Seawall and Transfer Station Area	19.80	25494
	4.0 Rehabilitation, Remediation & Disposal	9.00	12045
Offshore		73.6	111828
	2.0 De-Commssioning of Offshore Area	23.30	43400
	3.0 De-Construction of Off Shore Area	71.60	62333
	4.0 Rehabilitation, Remediation & Disposal	23.60	6093
Water Management		18.20	4511
	2.0 De-Commssioning of Dams Area	0.50	120
	3.0 De-Construction of Dams Areas	0.80	184
	4.0 Rehabilitation, Remediation & Disposal	16.90	4207
Quarry Dam		5.70	1862
	2.0 De-Commssioning of Quarry Dam	0.20	40
	3.0 De-Construction of Quarry Dam	0.20	67
	4.0 Rehabilitation, Remediation & Disposal	5.30	1755
Workshops & Buildings		20.40	13852
	2.0 De-Comissioning of Offices and Workshops	3.00	2280
	3.0 De-Construction of Offices and Workshops - Infrastructure	3.50	842
	4.0 Rehabilitation, Remediation & Disposal	13.90	10730
Utilities		5.00	3446
	2.0 De-Comissioning of Utilities	0.90	520
	3.0 De-Construction of Utilities	1.80	1492
	4.0 Rehabilitation, Remediation & Disposal	2.30	1434



Remaining Level of Effort
Remaining Work
Actual Work
Critical Remainin...

Appendix J
Advisian Quantity Assessment

N

C 0012

A 0011

B 0011

D 0011

DOMAIN 7a

DOMAIN 5a INDUSTRIAL DAM

QUARRY DAM

DOMAIN 7b

DOMAIN 1b

DOMAIN 7c

HAY POINT ROAD

DOMAIN 1a

RAI RECIEVAL DAM

DOMAIN 5b SPINDLER'S DAM

DOMAIN 5c

RAIL LOOP DAM

LEGEND

- DOMAIN 1 – RAIL LOOP, RECIEVAL AND CONVEYORS
- DOMAIN 2 – STOCKYARDS
- DOMAIN 3 – SEAWALL AND TRANSFER
- DOMAIN 5 – WATER MANAGEMENT
- DOMAIN 6 – QUARRY
- DOMAIN 7 – OFFICES, WORKSHOPS AND OPERATIONS BUILDING

100 0 100 200 300 400 500m

1:5000 (A1) 1:10,000 (A3)

FOR INFORMATION ONLY

Advisian
Worley Group

OneWay to zero harm

ISSUE	DATE	ISSUE DESCRIPTION	DRAWN
A	27.04.20	SKETCH – ISSUED FOR INFORMATION ONLY	TJR

DALRYMPLE BAY COAL TERMINAL
REHABILITATION COST REVIEW
EARTHWORKS SITE PLAN

311001-00034-00-CI-DSK-0001

PLOT DATE & TIME: 23/4/2020 4:46:48 PM
SAVE DATE & TIME: 23/4/2020 4:45:25 PM
USER NAME: tristan.reyne
CTB FILE: WP-Full-Standard.ctb
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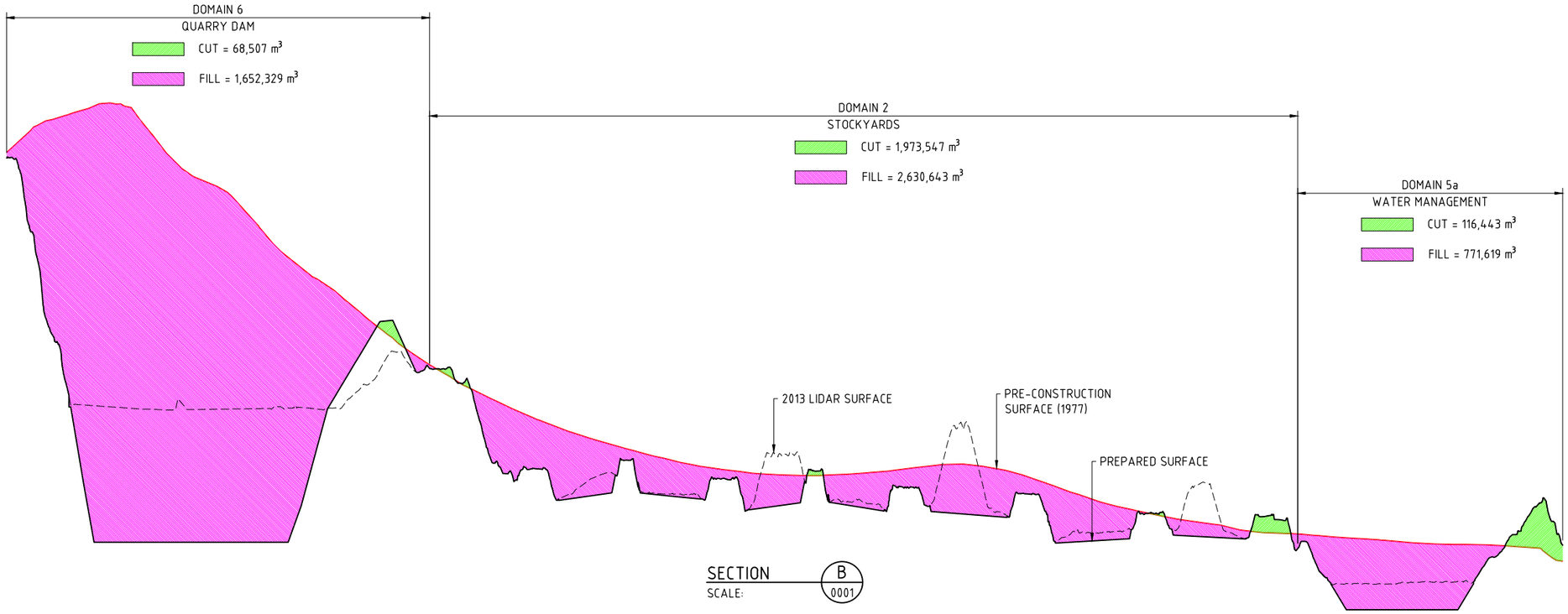
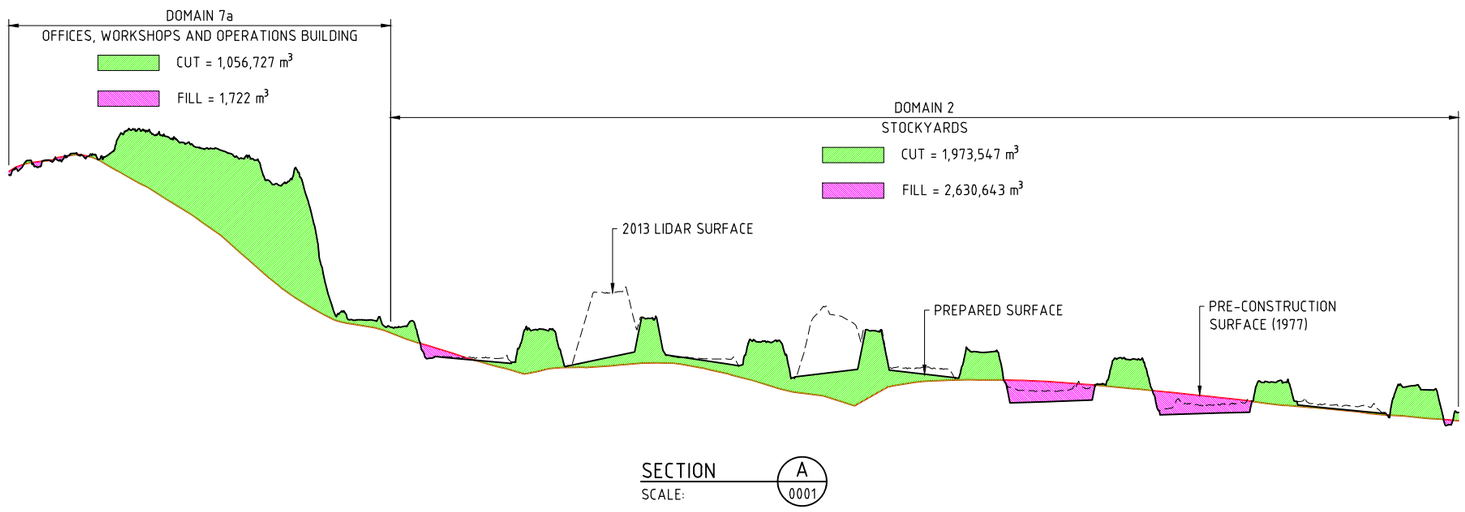
PlotterDWG To PDF.pc3





FOR INFORMATION ONLY

Advisian
Worley Group

OneWay
to zero harm

ISSUE	DATE	ISSUE DESCRIPTION	DRAWN
A	27.04.20	SKETCH - ISSUED FOR INFORMATION ONLY	TJR

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1:2000 (A1) 1:4000 (A3)

10 0 10 20 30 40 50m
1:500 (A1) 1:1000 (A3)

DALRYMPLE BAY COAL TERMINAL REHABILITATION COST REVIEW
EARTHWORKS SITE SECTIONS, SHEET 1

311001-00034-00-CI-DSK-0011

PLOT DATE & TIME: 23/4/2020 9:32:33 PM USER NAME: tristanreyne LOCATION: C:\USERS\TRISTANREYNE\DESKTOP\WORKING\311001-00034\CI\SKT\SITE SECTIONS.DWG
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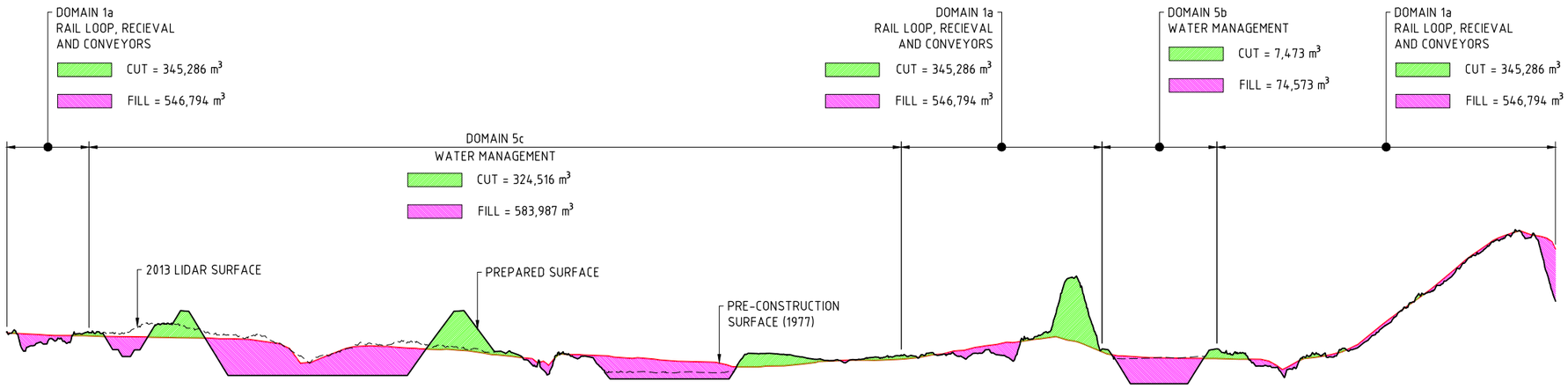

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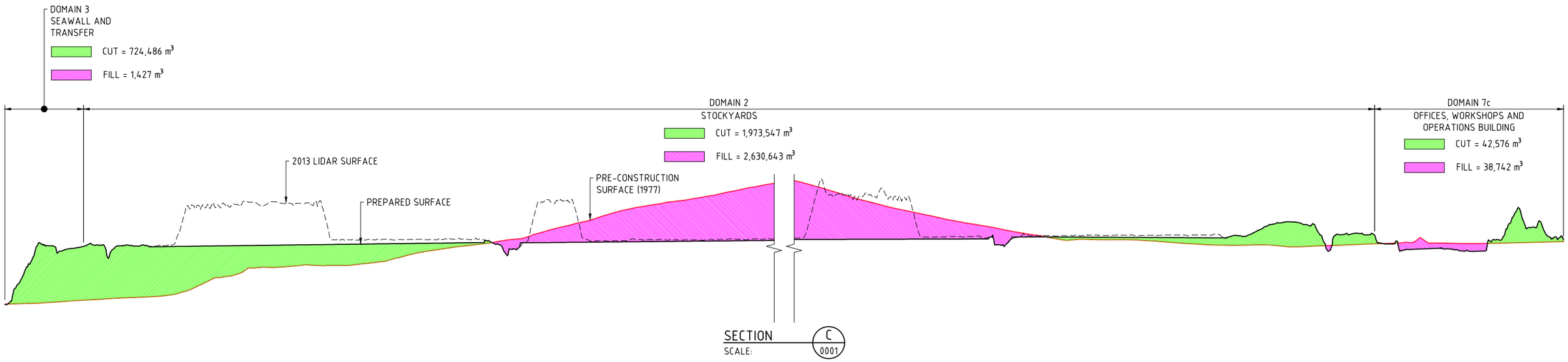

SECTION C
SCALE: 0001

FOR INFORMATION ONLY

Advisian
Worley Group

OneWay
to zero harm

ISSUE	DATE	ISSUE DESCRIPTION	DRAWN
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40 0 40 80 120 160 200m
1:2000 (A1) 1:4000 (A3)

10 0 10 20 30 40 50m
1:500 (A1) 1:1000 (A3)

DALRYMPLE BAY COAL TERMINAL
REHABILITATION COST REVIEW
EARTHWORKS SITE SECTIONS, SHEET 2

311001-00034-00-CI-DSK-0012

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Plotter-DWG To PDF.pc3

Survey Control Mark Report

ADMINISTRATIVE

Mark Number	**107085**		
Alternate Names		Town	
		Local Authority	**MACKAY REGIONAL**
Locality Description	**DALRYMPLE BAY COAL TERMINAL**		
Related Information			

DETAILS

Mark Type	**UNKNOWN**			
Installed By	**LEIGHTON**	Connections	**SP185555**	06-Oct-2005
Installed Date	**01-Oct-2000**		**SP136318**	12-Jan-2001
Mark Condition	**GOOD**			
Last Visited	**06-Oct-2005**			
Sketch Available	**No**			

GDA2020 COORDINATES

Lineage	**Derived**		
Latitude	**21º 17' 27.14003" S**	MGA2020 Easting	**737301.238m**
Longitude	**149º 17' 14.34005" E**	MGA2020 Northing	**7643939.649m**
Hrz Posn Uncertainty	**250.000m**	MGA2020 Zone	**55**
Ellipsoidal Height		MGA2020 Point Scale	**1.00029592**
Vrt Posn Uncertainty		MGA2020 Grid Conv	**0º 49' 51"**
Published	**18-Jan-2020**	Fixed By	**CADASTRAL SURVEY**
Adjustment	**TRANSFORMED TO GDA2020**		

GDA94 TRANSFORMED COORDINATES

Latitude	**21º 17' 27.18666" S**	MGA94 Easting	**737300.483m**
Longitude	**149º 17' 14.31459" E**	MGA94 Northing	**7643938.226m**
Ellipsoidal Height		MGA94 Zone	**55**

AHD HEIGHT

Lineage			
Height		Vertical Uncertainty	
Published		Fixed By	
Origin Mark		NLN Section	
Source			

Project: Dalrymple Bay Coal Terminal
User: Tristan.Reyne
Organization: WorleyParsons Services Pty Ltd
Date: Wed Apr 22 15:28:10 2020
Report File: VOLUME_DOMAIN_1a.rpt

Volumes from tin "SUPER DESIGN" to tin "DEM 197701 mga94z55 strip100" -
(with plan polygon "DOMAIN 1a")

cut volumes are negative
fill volumes are positive

Total cut	-677274.865
Total fill	1205354.069
Total balance	528079.204
ie excess of fill over cut	528079.204

Polygon plan area = 859212.324

Project: Dalrymple Bay Coal Terminal
User: Tristan.Reyne
Organization: WorleyParsons Services Pty Ltd
Date: Wed Apr 22 15:29:55 2020
Report File: VOLUME_DOMAIN_1b.rpt

Volumes from tin "SUPER DESIGN" to tin "DEM 197701 mga94z55 strip100" -
(with plan polygon "DOMAIN 1b")

cut volumes are negative
fill volumes are positive

Total cut	-925.252
Total fill	27337.706
Total balance	26412.455
ie excess of fill over cut	26412.455

Polygon plan area = 21538.373

Project: Dalrymple Bay Coal Terminal
User: Tristan.Reyne
Organization: WorleyParsons Services Pty Ltd
Date: Wed Apr 22 14:26:54 2020
Report File: VOLUME_DOMAIN_2.rpt

Volumes from tin "SUPER DESIGN" to tin "DEM 197701 mga94z55 strip100" -
(with plan polygon "DOMAIN 2")

cut volumes are negative
fill volumes are positive

Total cut	-1973547.076
Total fill	2630643.251
Total balance	657096.176
ie excess of fill over cut	657096.176

Polygon plan area = 1009082.456

Project: Dalrymple Bay Coal Terminal
User: Tristan.Reyne
Organization: WorleyParsons Services Pty Ltd
Date: Wed Apr 22 15:36:59 2020
Report File: VOLUME_DOMAIN_3.rpt

Volumes from tin "SUPER DESIGN" to tin "DEM 197701 mga94z55 strip100" -
(with plan polygon "DOMAIN 3")

cut volumes are negative
fill volumes are positive

Total cut	-724485.604
Total fill	1427.299
Total balance	-723058.306
ie excess of cut over fill	723058.306

Polygon plan area = 92074.200

Project: Dalrymple Bay Coal Terminal
User: Tristan.Reyne
Organization: WorleyParsons Services Pty Ltd
Date: Wed Apr 22 14:13:59 2020
Report File: VOLUME_DOMAIN_5a.rpt

Volumes from tin "SUPER DESIGN" to tin "DEM 197701 mga94z55 strip100" -
(with plan polygon "DOMAIN 5a")

cut volumes are negative
fill volumes are positive

Total cut	-116442.836
Total fill	771618.699
Total balance	655175.863
ie excess of fill over cut	655175.863

Polygon plan area = 129635.854

Project: Dalrymple Bay Coal Terminal
User: Tristan.Reyne
Organization: WorleyParsons Services Pty Ltd
Date: Wed Apr 22 14:14:17 2020
Report File: VOLUME_DOMAIN_5b.rpt

Volumes from tin "SUPER DESIGN" to tin "DEM 197701 mga94z55 strip100" -
(with plan polygon "DOMAIN 5b")

cut volumes are negative
fill volumes are positive

Total cut	-7473.214
Total fill	74573.051
Total balance	67099.836
ie excess of fill over cut	67099.836

Polygon plan area = 25620.411

Project: Dalrymple Bay Coal Terminal
User: Tristan.Reyne
Organization: WorleyParsons Services Pty Ltd
Date: Wed Apr 22 14:14:32 2020
Report File: VOLUME_DOMAIN_5c.rpt

Volumes from tin "SUPER DESIGN" to tin "DEM 197701 mga94z55 strip100" -
(with plan polygon "DOMAIN 5c")

cut volumes are negative
fill volumes are positive

Total cut	-324516.617
Total fill	583986.961
Total balance	259470.344
ie excess of fill over cut	259470.344

Polygon plan area = 349983.320

Project: Dalrymple Bay Coal Terminal
User: Tristan.Reyne
Organization: WorleyParsons Services Pty Ltd
Date: Wed Apr 22 15:45:24 2020
Report File: VOLUME_DOMAIN_6.rpt

Volumes from tin "SUPER DESIGN" to tin "DEM 197701 mga94z55 strip100" -
(with plan polygon "DOMAIN 6")

cut volumes are negative
fill volumes are positive

Total cut	-68507.245
Total fill	1652328.918
Total balance	1583821.673
ie excess of fill over cut	1583821.673

Polygon plan area = 79087.580

Project: Dalrymple Bay Coal Terminal
User: Tristan.Reyne
Organization: WorleyParsons Services Pty Ltd
Date: Wed Apr 22 14:38:51 2020
Report File: VOLUME_DOMAIN_7a.rpt

Volumes from tin "SUPER DESIGN" to tin "DEM 197701 mga94z55 strip100" -
(with plan polygon "DOMAIN 7a")

cut volumes are negative
fill volumes are positive

Total cut	-1056727.454
Total fill	1721.968
Total balance	-1055005.487
ie excess of cut over fill	1055005.487

Polygon plan area = 113046.093

Project: Dalrymple Bay Coal Terminal
User: Tristan.Reyne
Organization: WorleyParsons Services Pty Ltd
Date: Wed Apr 22 14:39:02 2020
Report File: VOLUME_DOMAIN_7b.rpt

Volumes from tin "SUPER DESIGN" to tin "DEM 197701 mga94z55 strip100" -
(with plan polygon "DOMAIN 7b")

cut volumes are negative
fill volumes are positive

Total cut	-130188.793
Total fill	45318.382
Total balance	-84870.411
ie excess of cut over fill	84870.411

Polygon plan area = 91956.661

Project: Dalrymple Bay Coal Terminal
User: Tristan.Reyne
Organization: WorleyParsons Services Pty Ltd
Date: Wed Apr 22 14:39:17 2020
Report File: VOLUME_DOMAIN_7c.rpt

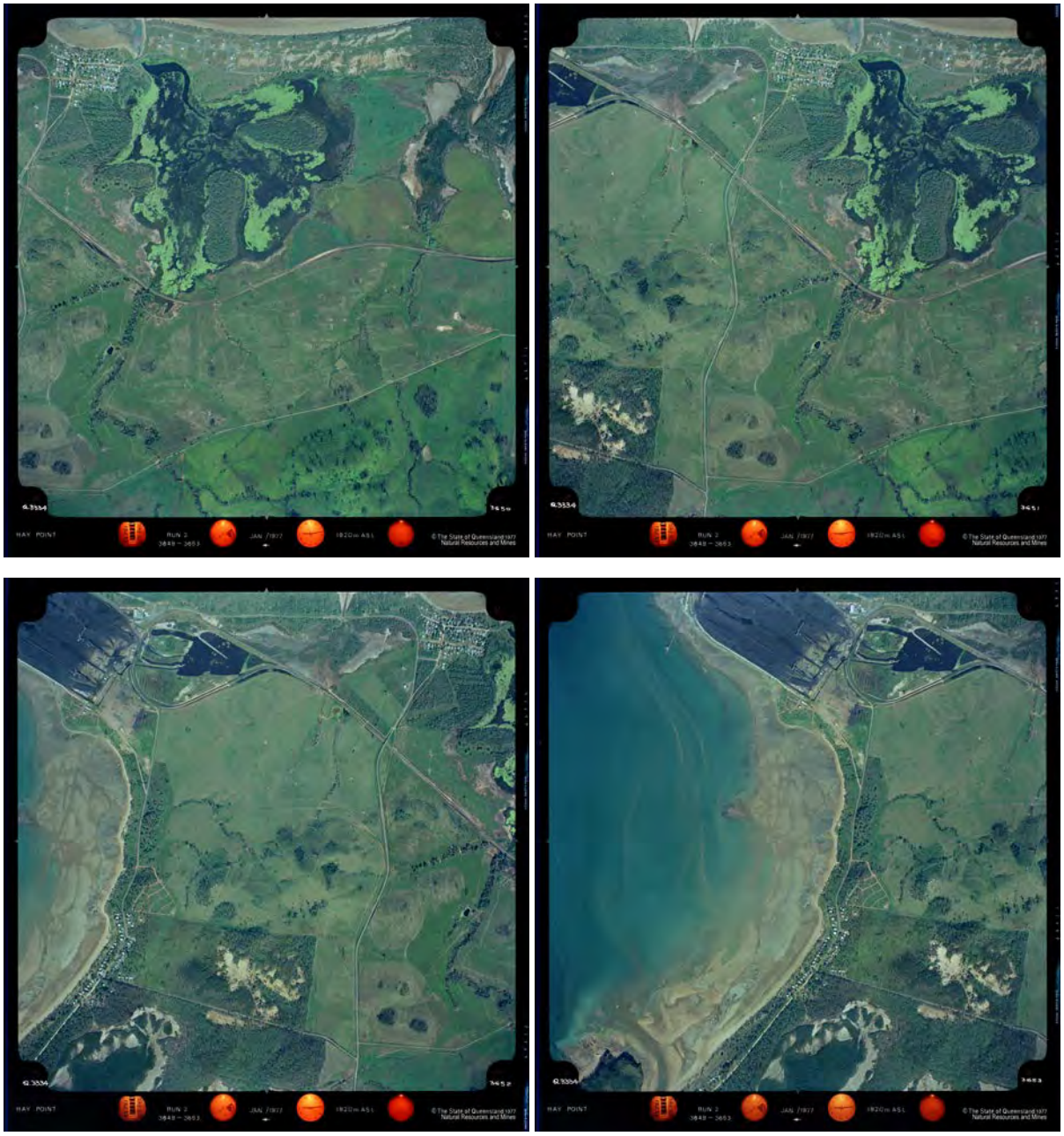
Volumes from tin "SUPER DESIGN" to tin "DEM 197701 mga94z55 strip100" -
(with plan polygon "DOMAIN 7c")

cut volumes are negative
fill volumes are positive

Total cut	-42576.027
Total fill	38741.880
Total balance	-3834.147
ie excess of cut over fill	3834.147

Polygon plan area = 73946.297

Appendix K
Stereographic photos



Appendix L
Indirect costs

EXECUTIVE SUMMARY - DBCT DECONSTRUCTION AND REHABILITATION					
			Adjustments		% of A
A. DIRECT COST		**$ 538,478,649**		**$ 538,478,649**	**100.00%**
LABOUR		$ 39,117,343		$ 39,117,343	7.26%
PLANT		$ 238,062,089		$ 238,062,089	44.21%
MATERIAL		$ 123,963,713		$ 123,963,713	23.02%
DISPOSAL		$ 137,335,505		$ 137,335,505	25.50%
Direct Cost by Domain					
DOMAIN 1 - RAIL LOOP	Link	**$ 84,036,851**		**$ 84,036,851**	**15.61%**
LABOUR		$ 2,928,754		$ 2,928,754	3.49%
PLANT		$ 15,553,857		$ 15,553,857	18.51%
MATERIAL		$ 14,818,992		$ 14,818,992	17.63%
DISPOSAL		$ 50,735,248		$ 50,735,248	60.37%
DOMAIN 2 - STOCKYARD	Link	**$ 159,692,831**		**$ 159,692,831**	**29.66%**
LABOUR		$ 8,640,989		$ 8,640,989	5.41%
PLANT		$ 50,058,265		$ 50,058,265	31.35%
MATERIAL		$ 29,968,991		$ 29,968,991	18.77%
DISPOSAL		$ 71,024,586		$ 71,024,586	44.48%
DOMAIN 3 - SEAWALL	Link	**$ 36,592,743**		**$ 36,592,743**	**6.80%**
LABOUR		$ 4,586,664		$ 4,586,664	12.53%
PLANT		$ 30,269,196		$ 30,269,196	82.72%
MATERIAL		$ 407,399		$ 407,399	1.11%
DISPOSAL		$ 1,329,484		$ 1,329,484	3.63%
DOMAIN 4 - OFFSHORE	Link	**$ 125,812,764**		**$ 125,812,764**	**23.36%**
LABOUR		$ 18,208,462		$ 18,208,462	14.47%
PLANT		$ 103,721,663		$ 103,721,663	82.44%
MATERIAL		$ 3,456,145		$ 3,456,145	2.75%
DISPOSAL		$ 426,494		$ 426,494	0.34%
DOMAIN 5 - WATER MANAGEMENT	Link	**$ 45,243,578**		**$ 45,243,578**	**8.40%**
LABOUR		$ 1,526,583		$ 1,526,583	3.37%
PLANT		$ 12,586,657		$ 12,586,657	27.82%
MATERIAL		$ 29,543,990		$ 29,543,990	65.30%
DISPOSAL		$ 1,586,347		$ 1,586,347	3.51%
DOMAIN 6 - QUARRY DAM	Link	**$ 57,431,625**		**$ 57,431,625**	**10.67%**
LABOUR		$ 1,352,939		$ 1,352,939	2.36%
PLANT		$ 12,702,289		$ 12,702,289	22.12%
MATERIAL		$ 43,375,630		$ 43,375,630	75.53%
DISPOSAL		$ 767		$ 767	0.00%
DOMAIN 7 - OFFICES & WORKSHOPS	Link	**$ 23,908,300**		**$ 23,908,300**	**4.44%**
LABOUR		$ 1,594,779		$ 1,594,779	6.67%
PLANT		$ 11,801,060		$ 11,801,060	49.36%
MATERIAL		$ 2,101,945		$ 2,101,945	8.79%
DISPOSAL		$ 8,410,516		$ 8,410,516	35.18%
DOMAIN 8 - UTILITIES	Link	**$ 5,759,958**		**$ 5,759,958**	**1.07%**
LABOUR		$ 278,174		$ 278,174	4.83%
PLANT		$ 1,369,102		$ 1,369,102	23.77%
MATERIAL		$ 290,621		$ 290,621	5.05%
DISPOSAL		$ 3,822,062		$ 3,822,062	66.36%
PROVISIONAL SUMS - INSERT				**$ -**	
TOTAL A:		**$ 538,478,649**	**$ -**	**$ 538,478,649**	**100.00%**
B. OVERHEADS:					
RECURRING					**% of Total A**
STAFF SALARIES		$ 32,223,599		$ 32,223,599	5.98%
CONSULTANTS (TIER 1 CONTRACTOR COSTS)		$ -		$ -	
SITE LABOUR		$ 13,452,917		$ 13,452,917	2.50%
EMPLOYEE RELATED COSTS		$ 1,076,957		$ 1,076,957	0.20%
MOTOR VEHICLES - CONSTRUCTION		$ 2,235,037		$ 2,235,037	0.42%
LOST TIME LABOUR		$ -		$ -	
TEMPORARY SERVICES (Security)		$ 3,464,311		$ 3,464,311	0.64%
SITE OFFICE EXPENSES		$ 450,000		$ 450,000	0.08%
SITE OFFICES		$ 1,500,000		$ 1,500,000	0.28%
SITE OFFICE REPAIRS AND MAINTENANCE		$ 350,000		$ 350,000	0.06%
CAMP ACCOMODATION		$ -		$ -	
CLEAN UP & RUBBISH REMOVAL		$ 998,400		$ 998,400	0.19%
CLEANING		$ 350,000		$ 350,000	0.06%
SCAFFOLDING		$ -		$ -	
PLANT & EQUIPMENT - OPERATION AND MAINTENANCE OF TEMP FACILITIES		$ 2,500,000		$ 2,500,000	0.46%
SMALL TOOLS		$ 100,000		$ 100,000	0.02%
FREIGHT AND CARTAGE		$ -		$ -	
ENVIRONMENTAL MANAGEMENT		$ 250,000		$ 250,000	0.05%
SAFETY		$ 450,000		$ 450,000	0.08%
TESTING		$ -		$ -	
TRAINING		$ 400,000		$ 400,000	0.07%
ENTERTAINMENT		$ 100,000		$ 100,000	0.02%
FRINGE BENEFITS TAX		$ -		$ -	
INFORMATION TECHNOLOGY		$ 1,213,535		$ 1,213,535	0.23%
TELECOMMUNICATIONS		$ 400,000		$ 400,000	0.07%
LICENSES, PERMITS & STATUTORY FEES		$ 200,000		$ 200,000	0.04%
SURVEY		$ 450,000		$ 450,000	0.08%

PUBLICATIONS		$ -		$ -	
PUBLIC / COMMUNITY RELATIONS		$ 250,000		$ 250,000	0.05%
BUSINESS TRAVEL		$ -		$ -	
R & R TRAVEL		$ -		$ -	
BONDS / BANK GUARANTEE FEES		$ 700,000		$ 700,000	0.13%
DONATIONS		$ -		$ -	
SUBSCRIPTIONS		$ -		$ -	
INSURANCE EXPENSES		$ 3,750,000		$ 3,750,000	0.70%
UNINSURED LOSSES		$ 200,000		$ 200,000	0.04%
LEGAL FEES - EXTERNAL		$ 250,000		$ 250,000	0.05%
INTERNAL CHARGES		$ -		$ -	
DEPOSITS		$ -		$ -	
NON RECURRING				$ -	
ESTABLISH SITE FACILITIES		$ -		$ -	
STAFF RELOCATION AND EXPENSES		$ 250,000		$ 250,000	0.05%
ESTABLISH PLANT & EQUIPMENT		$ -		$ -	
DISESTABLISHMENT		$ -		$ -	
PERSONNEL RECRUITMENT		$ 400,000		$ 400,000	0.07%
MAINTENANCE (10 YEAR MAINTENANCE)		$ -		$ -	
TOTAL B:		**$ 67,964,757**		**$ 67,964,757**	**12.62%**
Total A+B:		**$ 606,443,406**		**$ 606,443,406**	**112.62%**
C. INDIRECT COSTS:					
THREATS AND OPPORTUNITIES					
QUANTITY/DEFINITION RISK (QUANTITY)		$ 19,765,653		$ 19,765,653	3.67%
SCHEDULE RISK ANALYSIS (TIME)		$ 12,776,679		$ 12,776,679	2.37%
DESIGN GROWTH (DESIGN CREEP)		$ 2,000,000		$ 2,000,000	0.37%
ESCALATION RISE AND FALL - RISK		$ -		$ -	
GENERAL UNALLOCATED CONTINGENCY		$ 15,000,000		$ 15,000,000	2.79%
BUYING GAINS		.		$ -	
FOREX		$ 250,000		$ 250,000	0.05%
OTHER		$ -		$ -	
TOTAL THREATS AND OPPORTUNITIES		**$ 49,792,332**		**$ 49,792,332**	**9.25%**
OTHER INDIRECT COST					
ESCALATION		$ -		$ -	
BUYING GAINS		$ -		$ -	
D&C DEVELOPMENT COSTS		$ -		$ -	
DETAIL DESIGN COSTS (D&C CONSULTANTS)		$ 1,200,000		$ 1,200,000	0.22%
CONSTRUCTION PHASE SERVICES - (D&C CONSULTANTS)		$ 750,000		$ 750,000	0.14%
PROOF ENG & DESIGN VERIFICATION		$ 1,500,000		$ 1,500,000	0.28%
ESCALATION ON STAFF		$ -		$ -	
PRE-AWARD Cost - TENDER COSTS		$ 500,000		$ 500,000	0.09%
PRE-AWARD COST - TENDER COST -> PREFERRED		$ 200,000		$ 200,000	0.04%
PRE-AWARD COST - PREFERRED TO AWARD		$ -		$ -	
OTHER		$ -		$ -	
TOTAL OTHER INDIRECT COST		**$ 4,150,000**		**$ 4,150,000**	**0.77%**
TOTAL C:		**$ 53,942,332**		**$ 53,942,332**	**10.02%**
Total A+B+C:		**$ 660,385,739**		**$ 660,385,739**	**122.64%**
D. MARK-UP:					
BRANCH OVERHEAD FEE % of A+B+C		$ 2,000,000		$ 2,000,000	0.37%
CORPORATE OVERHEAD FEE % of A+B+C		$ 2,000,000		$ 2,000,000	0.37%
PROFIT % of A+B+C		$ 54,000,000		$ 54,000,000	10.03%
Total D:		**$ 58,000,000**	**$ -**	**$ 58,000,000**	**10.77%**
Total Tender A+B+C+D:		**$ 660,385,739**		**$ 660,385,739**	**122.64%**
OTHER MARKUPS:					
LEAD-IN DESIGN AND PLANNING COST		$ 2,000,000		$ 2,000,000	0.37%
TEMPORARY WORKS (4% OF DIRECTS)		$ -		$ -	
CONSTRUCTION SUPPORT SERVICES (2% OF DIRECTS)		$ -		$ -	
OPERATION AND MAINTENANCE (O&M) (2% OF DIRECTS)		$ -		$ -	
CONSTRUCTION EQUIPMENT (1% OF DIRECTS)		$ -		$ -	
MAINTENANCE MONITORING		$ 9,250,000		$ 9,250,000	1.72%
OWNERS PROJECT MANAGEMENT COST		$ 50,000,000		$ 50,000,000	9.29%
REHABILITATION STUDY WORKS		$ 13,500,000		$ 13,500,000	2.51%
CLIENT CONTINGENCY INCLUDES CONTRACT RISK TOTAL		$ 30,000,000		$ 30,000,000	5.57%
QLEAVE LEVY	0.475%	$ 3,136,832		$ 3,136,832	0.58%
CLIENT SCHEDULE RISK AND GROUND CONDITIONS (EOT's CLAIMS)	1.30%	$ 8,585,015		$ 8,585,015	1.59%
TUG HARBOUR COST - ONCE OFF	ONCE OFF	$ 37,230,000		$ 37,230,000	
GRAND TOTAL		**$ 814,087,586**	**$ -**	**$ 814,087,586**	**151.18%**