

Fourth Road Project (Santa Elena/San Ignacio By-Pass)

Progress Report (March 2014)

Project Owner and Employer: Government of Belize, Ministry of Works (MoF)

Project Design Consultant: Halcrow Group Ltd. (Halcrow)

Contract Supervision: Beca International Consultants Limited (Beca)

Completion Date: January 23, 2014

Project Funding: Government of Belize (GoB), Caribbean Development Bank (CDB), Republic of China (Taiwan).

Project Progress

Lot 1: Loma Luz Boulevard

It is estimated that the Lot 1: Loma Luz Boulevard construction works are substantially completed based on the quantum or work completed to date. The contractor was granted an extension taking the contractual completion date to February 13, 2014. Key construction activities conducted during the period includes working through the snag list.

The progress of key construction items are as noted below;

Table: Progress of Key Construction Milestones

Construction Milestones	Programme Completion	Approx. Qty			% Complete
			Total	Complete	
Watermain Installation	N/A	Lm	2,030	2030	100%
BTL Installation	30/05/2013	Lm	2,170	2170	100%
Light pole Installation	01/08/2013	No	55	-	0%
Roundabout Construction	11/07/2013	m ₂	1,385	1,385	100%
Box Drain Construction	13/05/2013	Lm	4,020	4,020	100%
Culvert Construction	10/05/2013	No	2	2	100%
Footpath Construction	18/06/2013	Lm	4,020	4,020	100%
Kerb Construction	09/04/2013	Lm	1,744	1,744	100%
Pavement Earthworks & Subgrade	14/12/2012	m ₂	2,010	2,010	100%
Pavement Sub base	31/05/2013	m ₂	2,010	2,010	100%
Pavement Road base	12/06/2013	m ₂	2,010	2,010	100%
Pavement Surfacing	24/06/2013	m ₂	2,010	2,010	100%
Road Signage	29/07/2013	No	92	92	100%
Road Markings (Chainage)	12/08/2013	Lm	2,010	2,010	80% (RRPM's Missing)

Construction Progress

The contractor has undertaken the following works during the period;

- Action on the Snag list

Consents and Environment

The Contractor's conformity with the Environmental Compliance Plan is being monitored as work progress, and any departures will be advised to the contractor for appropriate rectification measures. To date there have been no environmental incidents reported by the contractor.

In addition to the standard project reporting environmental incidents will be advised to the MoW.

Stakeholders and Land Acquisition

Stake holders:

Beca continues to liaise directly with Ministry of Works (MoW) regarding construction activities and the sequencing and extents of the construction works. The contractor is coordinating the required construction activities on site and their impact on access with local stakeholders, including businesses and private property owners to minimise the negative effects of the construction works.

Liaison with the Town Council and other identified key project stakeholders is on-going as the project progresses.

Land Acquisition

The design alignment and intersections designs for Plum Street, Bishop Martins Street and Trapiche Road have been reviewed to reduce required land acquisition in conjunction with safety and operational improvements land acquisition has been conducted by the MoW at the following locations;

- Adjacent to the Intersection of Trapiche Road
- Approach to the new Macal bridge
- Loma Luz roundabout

The MoW is undertaking required discussions and negotiations with affected property owners regarding land acquisition as part of the works. Construction works are now substantially

complete within the previous sections of private property and construction of the permanent fencing to properties is underway.

Utilities:

Belize water services (BWS)

BWS pipeline installation works are effectively complete with only a minor extension of the watermain required at Trapiche intersection and the Loma Luz roundabout.

Electricity and lighting, Belize Electricity Limited (BEL)

The street light poles have been sourced from a supplier acceptable to the MoW. These are now on site and BEL advises the poles are to be constructed with a draw chords and that BEL will then undertake the necessary cabling and connection's once all are erected.

Telecom, Belize Telemedia Limited (BTL)

Construction of BTL access chambers was directly supervised by BTL.

Drainage:

The contractor completed works to the footpath box drain together with works to increase the existing cemetery street open drain capacity.

Pavement:

As previously noted the contract BoQ has now allowed for undercuts or work associated with fill and leveling quantities. .

Quality Assurance and Materials

Beca continues to review the contractor's Quality Assurance procedures, including review of testing and documentation to ensure compliance with required design specifications and contract documents.

Construction Quality Control

Quality control testing was conducted during the period and is on-going. Testing conducted includes;

- Trench backfill density and moisture content
- Sub-basecourse density and moisture content,
- Basecourse density and moisture content
- Concrete compression testing includes site slump tests,
- Proof rolling, test pits and scalar penetrometer testing of the subgrade.
- Level checks

Test results as noted above are routinely provided to Beca for review by the contractor as the work progress. Results provided to date indicate general compliance with the contract specification.

Photo 1: Loma Luz – Concrete kerb



Lot 2: Macal Bridge

Construction overview

Within tender period, construction yet to commence.

Lot 3: Branch Mouth

It is estimated that the Lot 3: Branch Mouth construction work is approximately 2% complete based on the quantum of work completed to date.

Table: Lot 3: Branch Mouth Progress of Key Construction Milestones

Construction Milestones	Approx. Qty		% Complete	
	Total	Complete		
BTL Installation	Lm	1,350	0	0%
Light pole Installation	No	21	0	0%
Embankment Drain Construction	Lm	700	0	0%
Culvert Construction	No	4	0	0%
Roadside Drain Construction	Lm	1,400	0	0%
Earthworks Ch 2 + 200 to 02 + 450	Lm	650	0	0%
Earthworks Ch 1 + 500 to 02 + 200	Lm	700	0	0%
Pavement Sub base	Lm	700	0	0%
Pavement Road base	Lm	700	0	0%
Pavement Surfacing	Lm	700	0	0%
Road Signage	No	5	0	0%
Road Markings (Chainage)	Lm	7,000	0	0%

Construction progress

The contractor has undertaken the following works during the period;

- Set out CL and embankment
- Bushed $\frac{3}{4}$ of the site
- Stripped topsoil for $\frac{3}{4}$ of the site
- Commenced quarry works
- Established site compound

Consents and Environment

The Contractor's conformity with the Environmental Compliance Plan is being monitored as work progress, and any departures will be advised to the contractor for appropriate rectification measures. To date there have been no environmental incidents reported by the contractor.

In addition to the standard project reporting environmental incidents will be advised to the MoW.

Stakeholders and Land Acquisition

Stake holders:

Beca continues to liaise directly with Ministry of Works (MoW) regarding construction activities and the sequencing and extents of the construction works. The contractor is coordinating the required construction activities on site and their impact on access with local stakeholders, including businesses and private property owners to minimise the negative effects of the construction works.

Land Acquisition

Due to the extended quarry operations the embankment for the works has become much larger and now falls outside the purchased land. The MoW is in the process of securing an additional 50' on either side of the alignment where this is an issue.

Utilities:

Belize water services (BWS)

BWS have advised that they will not require water infrastructure to run along this section.

Electricity and lighting, Belize Electricity Limited (BEL)

BEL has yet to advise on their requirements.

Telecom, Belize Telemedia Limited (BTL)

BTL has advised that they require the same infrastructure as in Lot 1 and Lot 4.

Drainage:

In review the design and BoQ it has been established that the design issued for construction will not work. This is due to the drainage channels being shown to flow in a certain direction, whereas the levels show in falling in the opposite direction, away from the outfall..

Quality Assurance and Materials

Beca continues to review the contractor's Quality Assurance procedures, including review of testing and documentation to ensure compliance with required design specifications and contract documents.

Photo 2: Branch Mouth- Clearing Site



Photo 3: Branch Mouth- Sub- formation Preparation



Lot 4: Joseph Andrew Drive to Benque Road Rehabilitation

It is estimated that the Lot 4: Joseph Andrews Drive to Benque Road Rehabilitation construction work is approximately **55%** complete based on the quantum of work completed to date.

Table: Lot 4: Joseph Andrews Drive

Construction Milestones	Programme Completion	Approx. Qty			% Complete
			Total	Complete	
Watermain Installation	N/A	Lm	2,375	1,425	60%
BTL Installation	30/05/2013	Lm	2,375	630	27%
Light pole Installation	01/08/2013	No	60	-	0%
Roundabout Construction	11/07/2013	m ₂	770	310	40%
Box Drain Construction	13/05/2013	Lm	4,006	3,500	87%
Culvert Construction	10/05/2013	No	4	3	75%
Footpath Construction	18/06/2013	Lm	4,006	2,500	62%
Kerb Construction	09/04/2013	Lm	1,998	228	16%
Pavement Earthworks & Subgrade	14/12/2012	m ₂	2,003	360	18%
Pavement Sub base	31/05/2013	m ₂	2,003	360	18%
Pavement Road base	12/06/2013	m ₂	2,003	-	0%
Pavement Surfacing	24/06/2013	m ₂	2,003	-	0%
Road Signage	29/07/2013	No	103	-	0%
Road Markings (Chainage)	12/08/2013	Lm	2,003	-	0%

Construction Progress

The contractor has undertaken the following works during the period;

- Survey and set out,
- Demolition and site clearance,
- BWS watermain installation,
- Footpath box drain construction,
- Drainage culvert construction.
- Utility installation and crossings
- Footpath construction,
- Side street connections,
- Accommodation Works
- Pavement construction
- Media Kerb Construction

The contractor continued pavement works and the median kerb during the period. The contractor is currently awaiting the water supply to be switched over the new main by BWS. Limited progress was made during November, December and January due to significant period of bad weather.

Health and Safety

No Health and Safety incident was reported by the contractor during the period.

Consent and Environment

The Contractor's conformity with the Environmental Compliance Plan is being monitored as works progress. Any departures will be advised to the contractor for appropriate rectification measures. Sediment discharge and dust generation during the works will be monitored and are to be appropriately controlled by the contractor.

Stakeholders and Land Acquisition

Stakeholders:

The contractor has been managing access to local business, residential properties and the Sacred Heart College as the works progress and is currently constructing accommodation works and substantially complete improvements to the Sacred Heart College pedestrian and vehicular accesses. The Town Council has been consulted regarding the project particularly the Joseph Andrews Drive contract works and a good working relationship has been established. The contractor is working closely with the traffic department regarding the management of traffic during the works including the use of parking restrictions. The project team through the MoW will also continue consultation with the Town Council and community as required, including providing appropriate press releases and project information to the general public and local community as required.

Land Acquisition:

In addition to the review of the alignment intersections designs were reviewed for safety and operational improvements including the potential to reduce the required land acquisition as requested by the MoW. During the period the MoW advised that no land acquisition would be undertaken at the Bullet Tree Intersection and that the design is to be revised to accommodate the existing property boundaries.

Utilities:**Water, Belize Water Services (BWS)**

During the period BWS water main installation were completed from CH 1450 to 800. During investigation works, it was found that the existing water main in this area were shallow which does conflict with the pavement construction. As such it was agreed with BWS that the new main would be commissioned and the existing line rendered redundant. BWS is currently in the process of commissioning the new main and will switch services.

Electricity and lighting, Belize Electricity limited (BEL)

As previously noted the contract works requires that the existing utility poles in the median be relocated to allow for the construction of a new reduced width median and installation of street light poles. Discussions regarding costs and final locations/extents of the relocation works are on-going between the MoW and BEL. The contractor has been instructed to continue working around the existing utility poles as requested by the MoW.

Telecome, Belize Telemedia limited (BTL)

BTL ducting and the associated service pits have been installed during the period as the right hand side box drain and footpath works progress. Works are being directly supervised by BTL staff.

Drainage

The construction drawings include limited drainage information and as such the existing road drainage system has been inspected and it was proposed and agreed to generally mirror and upgrade the existing system as part of the contract works. The existing culvert at 6th street will be checked for capacity and was undersized and has been replaced with a new box culvert. The MoW has requested that additional drainage works be undertaken to improve the culverts downstream drainage system which is likely to be negatively impacted by the additional concentration of storm water flows due to the contract works. These works are currently under investigation. As part of the works at the Munos intersection a new culvert will be required under the main alignment to replicate the existing council drainage system which drains a significant portion of San Ignacio town on the western side of the contract alignment.

Pavement

Following the findings of the Beca pavement assessment options for a revised pavement depth were provided to the MoW for review and approval. The revised pavement option was approved by the MoW and has been incorporated into the construction works and includes a significant reduction in pavement depth which will reduce issues including tying the finished levels into the adjacent properties, existing pedestrian/vehicle accesses, and existing side roads.

The MoW has subsequently requested that the design levels be reduced even further and that the footpath levels match the existing ground levels. As noted this will require the full excavation and reconstruction of the pavement in these areas and the associated additional cost.

Quality Assurance and Materials

Beca is assisting the contractors to develop appropriate Quality Assurance procedure which are required by the contract. Quality control and material testing documentation is being reviewed to ensure compliance with required designation specifications and the contract documents.

Photo 4: Joseph Andrews- Box Drain Construction



Photo 5: Joseph Andrew- Central Island Kerbing



Photo 6: Joseph Andrews Culvert Reinforcing

