September 29, 2016

TO: HART Board of Directors

THROUGH: Michael D. Formby
Acting Executive Director

FROM: Chris Takashige
Director of Design and Construction
Officer-in-Charge
John Moore
Project Manager

SUBJECT: KHG – HNTB Technical Design Management
Contract No. CT-HRT-11H0195

Overview
This Contract Change Order compensates the Design-Builder’s designers, HNTB Corporation and its Subconsultants, for technical design management for the period from August 25, 2012, through the design completion date of April 30, 2015. This time period includes the 13-month Archaeological Inventory Survey (AIS) investigation suspension period. It should be noted that all costs associated with the AIS have been previously settled. Requests for additional design work and changed design work extended HNTB’s design duration from August 24, 2012, to an end date of April 30, 2015. HNTB technical design management staff continued to attend numerous meetings with HART, State of Hawaii Department of Transportation (HDOT), Hawaiian Electric Company, Inc. (HECO), the Department of Transportation Services (DTS), the Honolulu Board of Water Supply (BWS), the Core Systems Contractor (CSC), and others for coordination and interface through the end of the design duration. The design management effort continued on a daily basis despite delays due to delayed execution of agreements with property owners and third party agencies. Changes to the work which delayed design completion were beyond the control of HNTB.

The Design-Builder submitted the original Contractor Request for Change No. 36 in October 2014, requesting $6,158,517.00 in compensation relating to HNTB’s technical design management costs. The Design-Builder later reduced its requested compensation amount to $5,602,614.00. HART’s evaluation of the issues, and subsequent discussions/negotiations with the Design-Builder, has reduced the requested compensation amount to $3,810,560.00.

Justification
Technical Design management was expressly excluded from authorized design change orders with the understanding it would be addressed in the future as a separate change order. The approach of
in the project with HART and the Design-Builder during the development and negotiation of the notice to proceed (NTP) delay change orders and again during the AIS suspension period. HNTB was compensated for authorized design changes during this time period.

The considerable amount of change on the Kamehameha Highway Guideway (KHG) Project increased the base design work and extended the design duration thereby increasing HNTB's technical design management effort. In response to the changes to the KHG Project, HNTB submitted and contracted thirty-two (32) change requests for additional technical design work requested by HART after August 2012.

In order to help mitigate design review delays, HNTB repackaged utility designs into smaller packages for agencies such as HDOT, BWS, and HECO. This increased the number of originally anticipated or agreed upon design submittal packages from 39 to 50.

The most significant delays that impacted submittals and increased the schedule duration are as follows:

- Delays with Utility Agency/Third Party Agreements
- Extended design period and design review period due to Third Party Requirements
- Delayed NTP for the Core Systems Contract delayed design interface, which caused redesign of TPSS sites and other system site changes
- Revisions to stations loads and structural modifications to the guideway
- Allowance for Rail Rescue Carts and Storage Cabinets

All work associated with this Contract Change Order is inclusive of all services and deliverables associated with HNTB's Design Management, including but not limited to the following:

- Design management costs for additional design work and changed design work performed in the period from August 25, 2012, through the end of the design duration
- Design management, interface management, coordination, and project documentation, including project controls, quality control, document control, and all other management tasks performed in the period from August 25, 2012, through the end of the design duration

All design management staff, including subconsultant staff, key discipline managers, quality control managers, CADD managers, document control specialists, project control specialists, project schedulers, and project administrative support provided during the period from August 25, 2012, through the end of the design duration. These changes are new items not associated with any prior executed change orders.

The recommended "Fair and Reasonable" compensation is based on the technical design management cost included in the Design-Builder's original Contract, subsequent Contract Change Orders, and level of effort consistent with the needs of the project. It should be noted that the recommended compensation is approximately sixty-two percent (62%) of the Design-Builder's original requested compensation.
Recommendation
HART Board of Directors to approve this bilateral Contract Change Order in the amount of $3,810,560.00 to compensate the Design-Builder’s designers, HNTB and its Subconsultants, for design management for the period of August 25, 2012, through the design completion date of April 30, 2015.

Fiscal Impact
Allocation from KHG budget contingency is required to fund this change value of $3,810,560.00.
HNTB Technical Design Management Costs for KHG Contract
October 17, 2016
Overview

- HNTB’s relationship with Kiewit, the design-builder

- Extension and changes to the design portion of the contract
  - Designer was compensated for changes in design, but technical design management was specifically excluded by HART.
  - Technical design management was the management personnel who actively directed and supported the design team.
Technical Design Management Staff

- Technical Design Management staff includes:
  - Key discipline managers (Geotechnical, Structural, Civil, etc)
  - Quality control managers
  - CADD managers
  - Document control specialists
  - Project control specialists
  - Project schedulers
  - Administrative support
Issues Increasing Technical Design Management Duration
KHG Contract

For Example: The following changes necessitated additional design, and extended the design period and review cycles:

- **Delays with Utility Agency/Third Party Agreements:** Interface with HECO, HDOT, and DTS was delayed due to the delay in obtaining agreements with these agencies.

- **Station Loading and Guideway Structural Modifications:** The final design was impacted by changes to the station loads, guideway alignment and station locations which necessitated significant redesign of the station foundations and guideway structure. The final design of the canopies was not completed by the station designer until 2013 and this impacted the final guideway design.
Cost Overview

- Bi-Lateral Change Order Negotiated with Design-Builder
  KHG: $3,810,560

- Time Period
Justification

- Technical design management was specifically excluded from prior design change orders and agreed to be addressed in the future as a separate change order:
  - A significant number of overlapping changes occurred during this time period making it difficult to estimate the management effort at that time.
  - Deferring compensation allowed HART to review the management effort after completion and negotiate reasonable compensation for this item.
Change Order Cost Analysis
KHG Contract

HNTB’s Original Contract Included:

- 470 calendar days (February 15, 2011 to May 30, 2012)
- $19,770,000 design fee, including design management.

Updated HNTB Contract:

- 556 total calendar days (To August 25, 2012; AIS Suspension period August 2012 through September 2013)
- $20,300,000 total design fee, including design management.
KHG Extended Management Hours - Full Time Equivalent (FTE) Comparison

- HNTB Actual FTEs
- HART Estimated FTEs
- Moving Average

Vertical (Value) Axis Minor Gridlines

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Change Order Cost Analysis
KHG Contract – HART’s Estimate of Costs

Basis of HART’s Estimate of Costs:

- Original contract and subsequent change orders up to August 25, 2012 ≈ $5,400 per day
- Projected forward to the end of the design period, April 30, 2015 (978 days)
- Excluded compensation for the 13-month AIS suspension period (-387 days – August 2012 through September 2013)
- 978 days – 387 days = 591 days times $5,400 = $3,191,400

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<th>Technical Design Management</th>
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<td>Design-Builder Change Analysis Preparation</td>
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<td><strong>Subtotal Costs</strong></td>
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<td><strong>Total</strong></td>
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*No Kiewit mark-up included in agreement
Change Order Cost Analysis

HART’s estimate of costs considered the level of effort required during this time period, including the AIS suspension period. The analysis concluded:

- Technical design management staff classifications are consistent with the on-going tasks and technical needs of the project.
- Significant changes to the design and delayed design completion was beyond the control of the design-builder.
- Requests for additional design work and changed design work extended the design duration.
- The designer was compensated for additional design work and changed design work through the time period of August 25, 2012 to end of design in the Spring of 2015.
- The designer’s extended technical design management costs were expressly excluded from design change orders for the period of August 25, 2012 to the end of design in the Spring of 2015.
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<td>HNTB Change Request</td>
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<td>HART’s Original Estimate</td>
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<tr>
<td>Negotiated Change Order Amount</td>
<td>$3,810,560</td>
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**Difference: 32% Reduction**

Significant reduction due to denial of time during 13 month AIS suspension period and limitation to 2.5 full time equivalent (FTE) personnel after restart.