Application of New Engineering Contract (NEC) – Joy and Tears from a Main Contractor's Perspective

Contract No. DC/2012/03 Happy Valley Underground Stormwater Storage Scheme

David Tung
26 June 2015
Project Background
Project Background

Flooding in Happy Valley— 24.08.2000, 24.04.2006, 07.06.2008
Sea level ranges between 0.00 mPD and 2.50 mPD
On 24 Sep 2009, max. sea level for typhoon Hagupit was 3.35 mPD
Drainage Improvement Measures

- Lower catchment works
- Replacement
- Downstream
- Storage
- Midstream
- Happy Valley Underground Stormwater Storage Scheme
- Upstream
- Interception
- Hong Kong West Drainage Tunnel
## Project Information

<table>
<thead>
<tr>
<th>Employer</th>
<th>Drainage Services Department</th>
</tr>
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<tbody>
<tr>
<td>Supervisor</td>
<td>Drainage Services Department</td>
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<tr>
<td>Contractor</td>
<td>Chun Wo Construction &amp; Engineering Co. Ltd.</td>
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<tr>
<td>Project Estimate</td>
<td>HK$ 678M</td>
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<tr>
<td>Duration</td>
<td>Sep 2012 – Apr 2018 (67 months)</td>
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<tr>
<td>NEC3 Option</td>
<td>Option C – Target contract with activity schedule</td>
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<tr>
<td>QS consultant</td>
<td>Mott MacDonald Hong Kong Limited</td>
</tr>
<tr>
<td>NEC Advisor</td>
<td>EC Harris / JCP</td>
</tr>
</tbody>
</table>
Project Background

Capacity: 60,000m³
**Project Background**

Scope of Works:

- **Underground storage tank** with capacity of 60,000m³
- **Pumping station** with design capacity of 1.5 m³/s
- 2km long **stormwater drain and sewer**
- Reprovision of **sport pitches surface and landscape** associated works
Challenge
### Challenge 1: 天

#### 暴雨警告信號

<table>
<thead>
<tr>
<th></th>
<th>黃雨</th>
<th>紅雨</th>
<th>黑雨</th>
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<tr>
<td>年平均</td>
<td>20</td>
<td>4.5</td>
<td>1</td>
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<tr>
<td>2014年度</td>
<td>32</td>
<td>9</td>
<td>2</td>
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</tbody>
</table>

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![工地上湿润的地面](image1)

![工地上湿润的地面](image2)
Challenge 2: 地

- 軟泥, 硬石
Challenge 2: 地

- 暗渠, 水喉
Challenge 2: 地

- 電纜
Challenge 2: 地

Horizontal pipe pile wall to retain the soil on top for protection of existing trees
Challenge 3: 人

搶

搶

屎

屎
Challenge 4: 時間

6.6.14 – 19.10.14
Challenge 4: 時間

HEC Substation

24 Dec 2014
**Challenge 4:** 時間

| No. of month | 1  | 2  | 3  | 4  | 5  | 6  | 7  | 8  | 9  | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 | 20 | 21 | 22 | 23 | 24 | 25 | 26 | 27 | 28 | 29 | 30 | 31 | 32 | 33 | 34 | 35 | 36 | 37 | 38 | 39 | 40 |
|--------------|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|
| **Year**     | 2012 | 2013 | 2014 | 2015 |
| **Month**    | 9 | 10 | 11 | 12 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 |
| **Time elapsed** |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |

1st Milestone: Commissioning of Stage 1 Scheme on 03-2015
<p>| No. of month | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 | 20 | 21 | 22 | 23 | 24 | 25 | 26 | 27 | 28 | 29 | 30 | 31 | 32 | 33 | 34 | 35 | 36 | 37 | 38 | 39 | 40 | 41 | 42 | 43 | 44 | 45 | 46 | 47 | 48 | 49 | 50 | 51 | 52 | 53 | 54 | 55 | 56 | 57 | 58 | 59 | 60 | 61 | 62 | 63 | 64 | 65 |
|-------------|---|---|---|---|---|---|---|---|---|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|</p>
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<th>2015</th>
<th>2016</th>
<th>2017</th>
<th>2018</th>
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<td>10</td>
<td>11</td>
<td>12</td>
<td>1</td>
<td>2</td>
<td>3</td>
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<tr>
<td>Time elapsed</td>
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<td></td>
<td></td>
<td></td>
<td></td>
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</tbody>
</table>

一期

二期
Team Building
You make the project a Success
No matter how good or bad the Contract, it is the people working on the Contract who make it a success or not.
“10.1 – The Employer, the Contractor, the Project Manager and the Supervisor shall act as stated in this contract and in a spirit of mutual trust and co-operation”

- Establish partnering spirit
  - Start-up partnering workshop
  - Joint NEC training
  - Set up joint office
- Maintain and improve
  - Setup common goal
  - Champion Group meeting
### Training Programme

<table>
<thead>
<tr>
<th>Date</th>
<th>Event</th>
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<tbody>
<tr>
<td>September 2012</td>
<td>Partnering workshop</td>
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<td>October 2012</td>
<td>Stakeholder workshop</td>
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<td>November 2012</td>
<td>NEC workshops</td>
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<td>December 2012</td>
<td>Extension of NEC pre-contract advisor</td>
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<td>March 2013</td>
<td>NEC advisor’s review</td>
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<td>April 2013</td>
<td>NEC Computer Software</td>
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<tr>
<td>May 2013</td>
<td>NEC Post-contract advisor</td>
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</table>
“Know You Know Me” Workshop

People with the Dominance (D) style tend to be
- Direct
- Results-oriented
- Firm
- Strong-willed
- Forceful

People with the Influence (i) style tend to be
- Outgoing
- Enthusiastic
- Optimistic
- High-spirited
- Lively

People with the Conscientiousness (C) style tend to be
- Analytical
- Reserved
- Precise
- Private
- Systematic

People with the Steadiness (S) style tend to be
- Even-tempered
- Accommodating
- Patient
- Humble
- Tactful
**Good Practice**

- Joint office
- Joint organisation chart
- Project Logo
Joint Organization Chart

Subletting

Inventory
Morning Briefing

• Solve site issue

• EWN

• Focus Group

• Mobile Device
Partnering Scores

Down Trend (due to increased difficulties on site)

Up Trend (after some success cases)

Champion Group
Communication with Community
Communication with Community

Fun Day with DSD and LCSD

- Communication
- Education
Communication with Community
School Visit

St. Paul’s Primary School visit and Drama Performance
School Visit

Student printing posted on the site hoarding
Stakeholder Workshop

Partnering Workshop with Stakeholder
## Experience Sharing

### Site Visit List

<table>
<thead>
<tr>
<th>No.</th>
<th>Date</th>
<th>Title</th>
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</thead>
<tbody>
<tr>
<td>1</td>
<td>15/2/2014</td>
<td>Construction Industry Council</td>
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<tr>
<td>2</td>
<td>19/2/2014</td>
<td>Civil Engineering and Development Department</td>
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<td>3</td>
<td>21/2/2014</td>
<td>Civil Service Bureau (CSB) Staff Exchange</td>
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<tr>
<td>4</td>
<td>26/2/2014</td>
<td>Construction Industry Council</td>
</tr>
<tr>
<td>5</td>
<td>1/3/2014</td>
<td>Hong Kong University of Science and Technology</td>
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<tr>
<td>6</td>
<td>28/5/2014</td>
<td>Considerate Contractors Site Award Scheme</td>
</tr>
<tr>
<td>7</td>
<td>6/6/2014</td>
<td>Beijing Water Authority</td>
</tr>
<tr>
<td>8</td>
<td>21/7/2014</td>
<td>DSD’s 25th anniversary (1)</td>
</tr>
<tr>
<td>9</td>
<td>26/6/2014</td>
<td>Hong Kong University of Science and Technology</td>
</tr>
<tr>
<td>10</td>
<td>28/6/2014</td>
<td>The Hong Kong Institution of Engineers</td>
</tr>
<tr>
<td>11</td>
<td>5/7/2014</td>
<td>The Hong Kong Construction Association</td>
</tr>
<tr>
<td>12</td>
<td>25/8/2014</td>
<td>Pearl River Water Resources Commission</td>
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<tr>
<td>13</td>
<td>31/7/2014</td>
<td>Radio Television Hong Kong (RTHK) Shooting Day</td>
</tr>
<tr>
<td>14</td>
<td>15/8/2014</td>
<td>Xinhua visit</td>
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<td>15</td>
<td>15/8/2014</td>
<td>DSD’s 25th anniversary (Part 2)</td>
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<tr>
<td>16</td>
<td>25/8/2014</td>
<td>Dr Kwan (Hong Kong University) Site Visit</td>
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<td>17</td>
<td>22/9/2014</td>
<td>Water Supplies Department - The New Engineering Contract (NEC) Special Interest Group</td>
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<td>18</td>
<td>27/9/2014</td>
<td>DSD's 25th Anniversary (Part 3)</td>
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<td>19</td>
<td>26/9/2014</td>
<td>The Hong Kong Institution of Engineers - HKIE</td>
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<tr>
<td>20</td>
<td>18/10/2014</td>
<td>The Institution of Civil Engineers (ICE)</td>
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</table>
Experience Sharing

- Sharing in difference media in Hong Kong and International

- NEC Website and Newsletter

- Experience Sharing in MingPao & SingTao

- Sharing in GreenMAG #04 2014
Commendations
Silver award in 21\textsuperscript{th} Considerate Contactor (CCSA) organised by Development Bureau and Construction Industry Council.

Gold award in 21\textsuperscript{st} Considerate Contactor (OEMPA) organised by Development Bureau and Construction Industry Council.
DSD Housekeeping Award

Gold Award in DSD Construction Sites Housekeeping Award Scheme 2013 & 2014
Silver award in Hong Kong Awards for Environmental Excellence 2014 organised by HKPC
Environmental Award

➢ Silver award in Hong Kong Green Award 2014 organised by Hong Kong Green Council
Highly Commended New Engineering Contract (NEC) Large Project of the Year 2015 award
Conclusion
• Traditional Contracts – are driven by a desire to maximum risk transfer.

• New Engineering Contracts – places emphasis on the collaborative management of risk to ensure successful project outcomes.

In Tradition Contracts:

- Employer
- RSS / Consultant
- Contractor
- Subcontractor
- Stakeholder

Joy and Tear
Joy and Tear

In NECs:

- Employer
- Subcontractor
- Stakeholder
- Supervisor
- Contractor

Tear

Joy
In Tradition Contracts:

- Lawyer
- QS
- prolongation

$ Relationship

Joy and Tear
In NECs:

- quick resolution
- without lawyer
- maintain progress

Risk Reduction

- low cost
- Relationship

Joy and Tear
Joy and Tear

Subcontract in NEC:

- PM more involvement subletting procedure
- Contractor cannot choose their favor subcontractor

BUT........

- Designer’s/Employer’s view on subcontracting arrangement and strategies
- Reply to tenderers’ queries in tender interview
  -> minimize speculation; lower tender prices
- Revise design / clarification before award of subcontract
  tender addendum
  -> less dispute & reduce in tender price
- Alternative options (artificial turf)
THANK YOU