



DATE: June 21, 2021

TO: Mayor and Members of the City Council

VIA: Peter Pirnejad, City Manager

FROM: Paul Nagengast, Project Advisor, Regional Government Services

SUBJECT: CONTRACT CHANGE ORDER NO. ELEVEN (11) TO SHIMMICK CONSTRUCTION CO., IN THE AMOUNT OF \$3,194,181.56 FOR THE CONSTRUCTION OF FLOOD WALL 19 FOR THE LEVEE PROTECTION PLANNING AND IMPROVEMENTS PROJECT (CIP 327-657)

RECOMMENDATION

It is recommended that the City Council adopt the attached resolution authorizing the Mayor to execute Contract Change Order No. Eleven (11) to Shimmick Construction Co., in the amount of \$3,194,181.56 for the construction of Flood Wall 19 for the Levee Protection Planning and Improvements Project (CIP 327-657).

Funding is available in approved construction contingencies in the amount of \$9M from the budget established for the Levee Protection Planning and Improvements Project (CIP 327-657).

EXECUTIVE SUMMARY

Due to cost concerns during the bidding process for the Foster City Levee Improvements Project, the City initiated a sheet pile wall bid alternative for contractors to bid for a section of levee in Phase 1 adjacent to O'Neill Slough, designated as 'Flood Wall 19' on the construction documents. However, after award of the bid and initiation of construction it was determined the alternate sheet pile wall should not be constructed as indicated in the alternate bid addendum. Furthermore, after real time value engineering the sheet pile wall alternative, the originally designed concrete wall is the best quality overall solution for Flood Wall 19.

In order to construct Flood Wall 19 a temporary water protection barrier was approved by City Council on May 25, 2021, in the amount of \$439,963.41, to protect the constructed flood wall work from flood damage. Staff advised City Council, a Contract Change Order to construct Flood Wall 19 would be submitted for approval at the June 21, 2021, City Council meeting. The cost to construct Flood Wall 19 is \$3,194,181.56.

BACKGROUND

During the design and BCDC permitting process, for the length of levee wall along O'Neill Slough and the work area in close proximity to residential properties, it was determined a concrete wall would be the least problematic during construction and the best type of wall for the low soil bearing capacity at this location. A concrete section was designed for Flood Wall 19 instead of sheet piles because the original concern was about driving sheet piles in restricted space, very close to residential properties. Nowhere else on the project are properties as close as they are at this location. Consequently, sheet piles were never structurally vetted for Flood Wall 19 – it was always going to be concrete.

Prior to advertising for bids, the estimated cost to construct the Levee Improvement Project was \$85M with contingencies. Because the bonding for the project was for \$90M, and uncertainty due to Covid-19 pandemic, there was extreme concern the cost to construct the Project would exceed the amount of bonds available for the Project.

Consequently, during the bid period, the City requested a bid alternative be added through an addendum to reduce the cost of construction. The bid alternative was to install permanent steel piles, like the adjacent floodwalls on both sides of Flood Wall 19 along this portion adjacent to O'Neill Slough in lieu of the concrete wall. Without the benefit of complete value engineering to utilize sheet piles at this location, the low bidder for the Project, Shimmick Construction, Co., (Shimmick) bid included the sheet pile alternative in its bid.

The decision to provide Addendum #3, for a sheet pile wall alternative, was because the Contract Documents have robust language for vibration monitoring, noise levels, pre-construction surveys, repair of adjacent property damage, etc. and it was decided to let bidders sort out whether the increase in installation speed, reduction in schedule risk, etc. with a sheet pile alternative outweighed the risk of vibration and property damage contractors would need to repair. Since soil and loading conditions were thought to be the same as in adjacent reaches (and the soil conditions are the same), it was assumed the same sections would work as the sheet pile alternative for Flood Wall 19.

However, after reviewing actual ground elevations along the field-staked alignment for

Flood Wall 19, a thorough geotechnical and structural engineering evaluation of the sheet pile alternative was completed out of an abundance of caution. What was missed/not vetted during bid was how the slough bank (O'Neill Slough) wanders in towards the property fences in places, which means the wall alignment meanders down the bank in places. At those lower bank elevations, there is not enough passive resistance against earthquake loading for the sheet pile alternative bid to work. (A foot vertical difference in ground makes a big difference in the passive resistance.)

Subsequently, it was determined the sheet piles could not provide the required flood protection without greater sheet pile length and unanticipated ground improvement measures such as regrading areas and adding fill material within the slough bank to provide seismic stability. During the value engineering analysis, it was found the necessary Project modifications to utilize sheet piles parallel to O'Neill Slough are affected by the following:

- Dramatic price increases in steel and potential delays related to the procurement of steel would increase cost to use the steel sheet pile alternative and potentially delay the completion of Project due to the restrictions of when contractor can work in Phase 1.
- Phase 1 has the most restrictions related to contractors' ability to work. The restrictions include no work in Phase 1 between January 31 and September 1 and the delays to procure materials could affect the construction schedule by one year.
- There are delays to procuring steel due to world-wide steel shortages from the Covid-19 pandemic affecting construction supply chains.
- Adding fill material and regrading slough embankment triggering environmental impacts not anticipated during Project permitting submittal.
- Further delays due to environmental review of regrading of the O'Neill Slough bank were a real possibility and could affect the timely ability to work in Phase 1.

After the six months of value engineering that has been completed, identifying the aforementioned sheet pile modification challenges, the original concrete wall design remains the best quality and most cost-effective solution.

It needs to be restated, the ability to perform value engineering with actual construction activities being performed by Shimmick has provided the design team real time and materials information. Most noted are the price increases and disruptions to construction supply chains due to the COVID-19 pandemic.

Timing is and always will be of the essence in performing work within Phase 1 with the various permitting agency environmental restrictions affecting Shimmick's ability to work in Phase 1.

On May 6, 2021, City Council adopted Resolution No. 2021-55, authorizing Shimmick to purchase the steel necessary for the coffer dams because of the dams being a more cost-effective solution to protecting the work area from water intrusion. This action was necessary on May 6 due to the price of steel escalating weekly. On May 25, 2021, City Council adopted Resolution No. 2021-76 authorizing the amount of \$439,963.41 to purchase the steel, and to install and remove the steel coffer dams in O'Neill Slough to provide the necessary flood protection during the construction of Flood Wall 19. The City Council Agenda Reports for May 6 and May 25, 2021, are attached for the City Council's reference (Attachment 3 & 4).

City Council has been advised Shimmicks' construction efficiencies and results of environmental surveys to determine nesting birds provided opportunities to complete work in Phase 1. Any work Shimmick can complete in Phase 1, has been facilitated as much as possible to increase the probability of the Project being completed on time and within budget. Any construction related work opportunities due to an environmental survey completed in 2021, or recent construction efficiencies by Shimmick are not a guarantee of similar results in 2022 or later years.

ANALYSIS

The City Council has been advised the Project's construction critical path runs through Phase 1 due to the restrictions in place required by the various permitting agencies. Due to Shimmicks' efficiencies with the sheet pile installation in Phases 2 and 3 and the notification for the ability to work in Phase 1 restricted areas prior to September 1, as well as to maximize cost savings to the City, Shimmick requested, and City Council approved the installation of coffer dams protecting the work to construct Flood Wall 19 prior to City Council action for the construction of Flood Wall 19.

On May 6, 2021, City Council adopted Resolution No. 2021-55 authorizing the purchase of steel necessary for the 2 coffer dams. On May 25, 2021, City Council adopted Resolution No. 2021-76 authorizing the amount of \$439,963.41 to purchase the steel, and to install and remove the steel coffer dams in O'Neill Slough to provide the necessary flood protection during the construction of Flood Wall 19.

After the six months of real time value engineering that has been completed, as well as the impacts of increased cost to construction materials and ability to procure the materials currently being realized, the original concrete wall design remains the best quality and most cost-effective solution.

Tanner Pacific, Inc., has reviewed the cost in the amount of \$3,194,181.56 to construct Flood Wall 19 and finds it reasonable for the work to be completed. The previously approved cost to purchase steel and to install and remove coffer dams to protect the construction work for Flood Wall 19 is not included in the cost to construct the flood wall.

Huffman-Broadway Group has reviewed the work to construct Flood Wall 19 and has indicated the flood wall can be constructed within current permitting requirements.

Staff recommends City Council approve Contract Change Order No. Eleven (11) to construct Flood Wall 19.

FISCAL IMPACT

With the execution of Contract Change Order No. Eleven (11), the total contract change orders costs to date are summarized below:

Construction Contingency	\$ 9,000,000.00
CCO 1-10 (CCO No. 2 was a \$585K credit)	- \$ 1,042,063.78
Contract Change Order No. 11	- <u>\$ 3,194,181.56</u>
Total Available Construction Contingency	\$ 4,763,754.66

Adequate funding has been provided as construction contingencies for this Project from the Project budget (CIP 327-657).

CITY COUNCIL VISION, MISSION, AND VALUE/PRIORITY AREA

The Levee Improvements Project is in alignment to the City Council's adopted Vision and Mission statements, in that it seeks to create a sustainable environment through infrastructure improvements for current and future generations to come. This item is also directly related to the "Facilities and Infrastructure" Value/Priority Area. The key outcome is to make substantial progress toward an improved levee on time and budget to protect the community and critical infrastructure from storms and high tide.

Attachments:

- Attachment 1 – Resolution
- Attachment 2 – Contract Change Order No. Eleven (11)
- Attachment 3 – City Council Agenda Report dated May 6, 2021
- Attachment 4 – City Council Agenda Report dated May 25, 2021