



November 16, 2016

TO: Derek Case
MS 47354

THRU: Dave Becher
NB 82-99

FROM: Robyn Boyd / Julia Mizukata
(425) 576-7045

SUBJECT: Contract 008066
SR 520 Floating Bridge and Landings Project
Federal Aid No.: BR-0520(047)
Change Order No. 195 – Unit Price Reconciliation

Attached for review and execution by HQ Construction is Change Order No. 195 Unit Price Reconciliation.

Description of Change:

This change order provides for the following:

- A final adjustment to unit priced quantities established under Contract 008066 CO 108, PFS Cycle 1 Repair, in accordance with General Provisions Section 1-09.3(1) Unit Priced Change Orders.
- An adjustment to the items paid by calculation to reflect actual amounts paid.
- The addition of 2-layer and 3-layer externally bonded carbon fiber-reinforced polymer (CFRP) systems as a supplement to the 4-layer system identified in Section 3.4 of the Final Gerwick report as specified in CO 108 of this Contract.

The increase or decrease in quantity for the Contract 008066 CO 108 items established with a specific unit of measurement requirement is as follows:

| Item | Description | Qty. Change | Unit | Rev. Final Qty. |
|------|-------------------------------|----------------|------|--------------------|
| 043 | CO108, Epoxy Injection | + 37.92 | S.F. | 1037.92 |
| 044 | CO108, Externally Bonded CFRP | -2565.23 | S.F. | 10,934.77 |
| 045 | CO108, CFRP Topcoat | + 638.93 | S.F. | 14,138.93 |
| 046 | CO108, Spall Repair | + 12.86 | C.F. | 28.86 |

The adjustment to actual amounts paid for the Contract 008066 CO 108 items established to be paid by calculation is as follows:

| <u>Item</u> | <u>Description</u> | <u>Amount Change</u> | <u>Rev. Final Amount</u> |
|-------------|-------------------------------|--------------------------|------------------------------|
| 039 | CO108, Pontoon T Tow | -\$402,975.79 | \$514,437.21 |
| 040 | CO108, Addtnl Pontoon Work | -\$195,094.00 | \$4,906.00 |
| 041 | CO108, Vigor Blocking | -\$294,651.06 | \$5,348.94 |
| 042 | CO108, Addtnl Gerwick Support | +\$83,759.07 | \$333,759.07 |

The installation locations and construction requirements for the 2-layer and 3-layer as opposed to the 4-layer system of externally bonded CFRP are as provided in the subject change order; Change Order 195.

Evolution of Change:

Reimbursement to the Design-Builder for the repair of the Cycle 1 Pontoons Furnished by the State (PFS) under Contract 008066 CO 108 was accomplished primarily through one lump sum item. In addition to the one lump sum item, reimbursement for certain items of work were handled by unit of measurement or by calculation based on actual work performed. These individual items were handled in this manner because WSDOT and KGM did not agree on the quantities, and WSDOT considered that the actual amounts were likely to be less than KGM anticipated.

As a result, based on the following section in the General Provisions of the Contract:

1-09.3(1) UNIT PRICED CHANGE ORDERS

Measurement of unit-priced quantities will be in accordance with Section 1-09.1. Unit prices shall be deemed to include all costs for labor, material, overhead and profit, and shall not be subject to change regardless of any change in the estimated quantities. Unit-priced Change Orders shall initially include an estimated increase in the Contract Price based on estimated quantities. Upon final determination of the quantities, WSDOT will issue a modified Change Order setting forth the final adjustment to the Contract Price.

WSDOT included language in Contract 008066 CO 108 that referred to General Provisions Section 1-09.3(1) and stated that WSDOT will issue a Change Order setting forth the final adjustment to the Contract Price upon completion of all Work specified in CO 108.

In addition to addressing the reconciliation of the amounts paid for the non-lump sum items, WSDOT also needed to address changes to the repair plan associated with the Cycle 1 PFS. These changes were a result of questions that came up as the repair work proceeded, and resulted in changes to the areas of the Pontoons and the number of externally bonded CFRP layers to be installed. Since Contract 008066 CO 108 only involved the construction of a 4-layer system of externally bonded CFRP, WSDOT

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Contract 008066 CO No. 195 - Page 3

agreed to negotiated unit prices for 2-layer and 3-layer systems that would be handled under a future change order, and utilized the unit item established under Contract 008066 CO 108 to provide payment in the interim for the work performed. An adjustment to the actual quantities under each externally bonded CFRP layer system would be made once new items were available for the 2-layer and 3-layer systems.

Approvals obtained for this change order include:

- Project Engineer Level – Robyn Boyd on December 17, 2015
- Region Approval – Dave Becher on December 18, 2015
- HQ Construction Approval - Derek Case on December 21, 2015
- FHWA Approval – Anthony Sarhan on December 23, 2015

Entitlement:

This is a change in accordance with General Provisions Section 1-04.4(1) WSDOT-Initiated Change which results in a change within the general scope of the Contract, and provides an adjustment to actuals for Work performed and paid for through Contract 008066 CO 108 in accordance with General Provisions Section 1-09.3(1).

Change Order Cost:

This change order primarily results in a reduction to the Contract Price due to item quantity adjustments to reflect actual amounts paid. There are no changes to the prices associated with the items paid by quantity or calculation measurement as specified under Contract 008066 CO 108.

There are two new payment items that are created under this change order to address the 2-layer and 3-layer systems of the externally bonded CFRP that was applied instead of a 4-layer system. The requirement and installation of the externally bonded CFRP was already addressed as added work in accordance with General Provisions Section 1-04.4, Changes. As an interim measure to provide payment to the Design-Builder, reimbursement for the 2-layer and 3-layer systems of the externally bonded CFRP were addressed under the Contract item 044, CO108, Externally Bonded CFRP, and the adjustment to actual quantities for each layer system is made under this change order; CO 195. There is no increase to the Contract Price as a result of the two new items as the per unit measurement values are less than for the 4-layer system item; 044, CO 108, Externally Bonded CFRP.

The per square foot prices agreed to in writing by Project Engineer, Robyn Boyd, on August 14, 2014 are as follows:

- 4-layer system = \$99.27/S.F. as approved under Contract 008066 CO 108
- 3-layer system = \$90.34/S.F. 91% of 4-layer system
- 2 layer system = \$80.41/S.F. 81% of 3-layer system

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Contract 008066 CO No. 195 - Page 4

The placement of and quantities associated with the 2-layer and 3-layer systems are minor compared to the areas that received the application of the 4-layer externally bonded CFRP. The primary difference in cost is the amount of material applied; costs such as mobilization support operations are not considered to have changed. On this basis, the cost estimated and agreed to by the Project Engineer is considered appropriate.

Contract Time:

There is no change in Contract Time as a result of this change order.

Attachments:

- Change Order 195
- Change Order No. 195 Checklist
- Approval Documentation

JMM
Attachment
PCO 406
cc: Julie Schurman, NB82-99


**WASHINGTON STATE
DEPARTMENT OF TRANSPORTATION
CHANGE ORDER**

DATE: 12/23/15
Page 1 of 10

CONTRACT NO: 008066 FEDERAL AID NO: BR-0520 (047)
 CONTRACT TITLE: SR 520 / I-5 TO MEDINA - EVERGREEN POINT FLOATING
 CHANGE ORDER NO: 195 RECONCILE CO 108 ITEMS



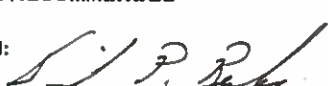

PRIME CONTRACTOR: SW0106139 KIEWIT/GENERAL/MANSON, A JOINT
 33455 6TH AVE S
 FEDERAL WAY WA 98003-6335

- Ordered by Engineer under the terms of Section 1-04.4 of the Standard Specifications
 Change proposed by Contractor

| | |
|--|---|
| ENDORSED BY:  <hr/> CONTRACTOR 1/15/16 <hr/> DATE | SURETY CONSENT: <hr/> ATTORNEY IN FACT <hr/> DATE |
|--|---|

ORIGINAL CONTRACT AMOUNT: 586,561,000.00
 CURRENT CONTRACT AMOUNT: 757,669,717.93
 ESTIMATED NET CHANGE THIS ORDER: -722,343.16
 ESTIMATED CONTRACT TOTAL AFTER CHANGE: 756,947,374.77

Approval Required: Region Olympia Service Center Local Agency

| | |
|---|--|
| <input checked="" type="checkbox"/> APPROVAL RECOMMENDED <input type="checkbox"/> EXECUTED  PROJECT ENGINEER 11/16/2016 <hr/> DATE | <input type="checkbox"/> EXECUTED  STATE CONSTRUCTION ENGINEER 11/21/16 <hr/> DATE |
| <input checked="" type="checkbox"/> APPROVAL RECOMMENDED <input type="checkbox"/> EXECUTED REGIONAL ADMIN:  BY: SR 520 Director of Construction November 17, 2016 <hr/> DATE | OTHER APPROVAL WHEN REQUIRED  SIGNATURE FOR ANTHONY SADEHAN 11/21/16 <hr/> DATE FHWA REPRESENTING |

**WASHINGTON STATE
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CONTRACT NO: 008066

CHANGE ORDER NO: 195

All work, materials, and measurements to be in accordance with the provisions of the Standard Specifications and Special Provisions for the type of construction involved.

This contract is revised as follows:

The first paragraph above is revised to read:

All work, materials, and measurements to be in accordance with the request for proposal (RFP) and the contract documents for this project.

DESCRIPTION:

This change order provides for the following:

- * A final adjustment to unit-priced quantities established under Contract 008066 Change Order No. 108 in accordance with General Provisions Section 1-09.3(1).
- * An adjustment to the items paid by calculation to reflect actual amounts paid.
- * The addition of 2-layer and 3-layer externally bonded carbon fiber-reinforced polymer (CFRP) systems as a supplement to the 4-layer system identified in Section 3.4 of the Final Gerwick report as specified in Contract 008066 Change Order No. 108.

The quantities for the following items shall be increased or decreased by the following amounts:

| Item Description | Qty. Change | Unit | Rev. Final Qty. |
|-----------------------------------|----------------|------|--------------------|
| 043 CO108, Epoxy Injection | + 37.92 | S.F. | 1037.92 |
| 044 CO108, Externally Bonded CFRP | -2565.23 | S.F. | 10,934.77 |
| 045 CO108, CFRP Topcoat | + 638.93 | S.F. | 14,138.93 |
| 046 CO108, Spall Repair | + 12.86 | C.F. | 28.86 |

The calculated quantities for the following items shall be adjusted to actuals as follows:

| Item Description | Amount Change | Rev. Final Amount |
|-----------------------------------|------------------|----------------------|
| 039 CO108, Pontoon T Tow | -\$402,975.79 | \$514,437.21 |
| 040 CO108, Addtnl Pontoon Work | -\$195,094.00 | \$4,906.00 |
| 041 CO108, Vigor Blocking | -\$294,651.06 | \$5,348.94 |
| 042 CO108, Addtnl Gerwick Support | +\$83,759.07 | \$333,759.07 |

CONSTRUCTION REQUIREMENTS:

Surface preparation and application of an externally bonded carbon fiber-reinforced polymer (CFRP) systems shall be performed as outlined in Section 3.4 of the Final Gerwick report on pages 84 through 86 of 008066 Change Order No. 108, and as follows:

- * Pontoon T The application of the CFRP systems shall be as shown on pages 5 and 6 of this change order.

**WASHINGTON STATE
DEPARTMENT OF TRANSPORTATION
CHANGE ORDER**

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CONTRACT NO: 008066

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- * Pontoon U - The application of the CFRP systems shall be similar to Pontoon V as shown on pages 7 through 9 of this change order.
- * Pontoon V - The CFRP system application areas shown on pages 102 and 103 of Change Order No. 108 shall be replaced by the areas shown on pages 7 through 9 of this change order. The direction and number of layers installed shall be as identified in this change order.
- * Pontoon W A 3-layer CFRP system shall be applied to the deck slab as shown on page 10 of this change order.

MEASUREMENT AND PAYMENT:

The Measurement and Payment section of 008066 Change Order No. 108 shall be revised as follows:

Delete the following paragraph:

"Measurement of the externally bonded CFRP material applied for the CFRP system shall be by the square foot of concrete surface area reinforced by the externally bonded CFRP system. Reimbursement will be provided under the new item "Externally Bonded CFRP" at the unit price of \$99.27 per square foot."

And replace with:

"Measurement of the 4 layers of the externally bonded CFRP material applied for the CFRP system shall be by the square foot of concrete surface area reinforced by the externally bonded CFRP system. Reimbursement for the 4 layer CFRP system will be provided under the new item "Externally Bonded CFRP" at the unit price of \$99.27 per square foot."

Measurement of the 2 layers and the 3 layers of the externally bonded CFRP material applied for the CFRP system shall be by the square foot of concrete surface area reinforced by the externally bonded CFRP system.

Reimbursement for the 2 layer CFRP system will be provided under the new item "CO195, Ext Bonded CFRP 2-Layer" at the unit price of \$80.41 per square foot.

Reimbursement for the 3 layer CFRP system will be provided under the new item "CO195, Ext Bonded CFRP 3-Layer" at the unit price of \$90.34 per square foot.

TIME:

There shall be no change in Contract Time as a result of this change order.

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DEPARTMENT OF TRANSPORTATION
CHANGE ORDER**

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| | |
|----------------------------|-----------------------------|
| CONTRACT NO: 008066 | CHANGE ORDER NO: 195 |
|----------------------------|-----------------------------|

| ITEM NO | GROUP NO | STD ITEM | ITEM DESCRIPTION | UNIT MEASURE | UNIT PRICE | EST QTY CHANGE | EST AMT CHANGE |
|---------|----------|----------|--------------------------------|--------------|------------|----------------|----------------|
| 0039 | 01 | | CO108, PONTOON T TOW | CALC | 1.00 | 0.00 | -402,975.79 |
| 0040 | 01 | | CO108, ADDINL PONTOON WORK | CALC | 1.00 | 0.00 | -195,094.00 |
| 0041 | 01 | | CO108, VIGOR BLOCKING | CALC | 1.00 | 0.00 | -294,651.06 |
| 0042 | 01 | | CO108, ADDTNL GERWICK SUPPORT | CALC | 1.00 | 0.00 | 83,759.07 |
| 0043 | 01 | | CO108, EPOXY INJECTION | L.F. | 48.50 | 37.92 | 1,839.12 |
| 0044 | 01 | | CO108, EXTERNALLY BONDED CFRP | S.F. | 99.27 | -2,565.23 | -254,650.38 |
| 0045 | 01 | | CO108, CFRP TOPCOAT | S.F. | 1.67 | 638.93 | 1,067.01 |
| 0046 | 01 | | CO108, SPALL REPAIR | C.F. | 5,184.00 | 12.86 | 66,666.24 |
| 1102 | 01 | | CO195, EXT BONDED CFRP 2-LAYER | S.F. | 80.41 | 1,612.93 | 129,695.70 |
| 1103 | 01 | | CO195, EXT BONDED CFRP 3-LAYER | L.F. | 90.34 | 1,571.85 | 142,000.93 |

-722,343.16

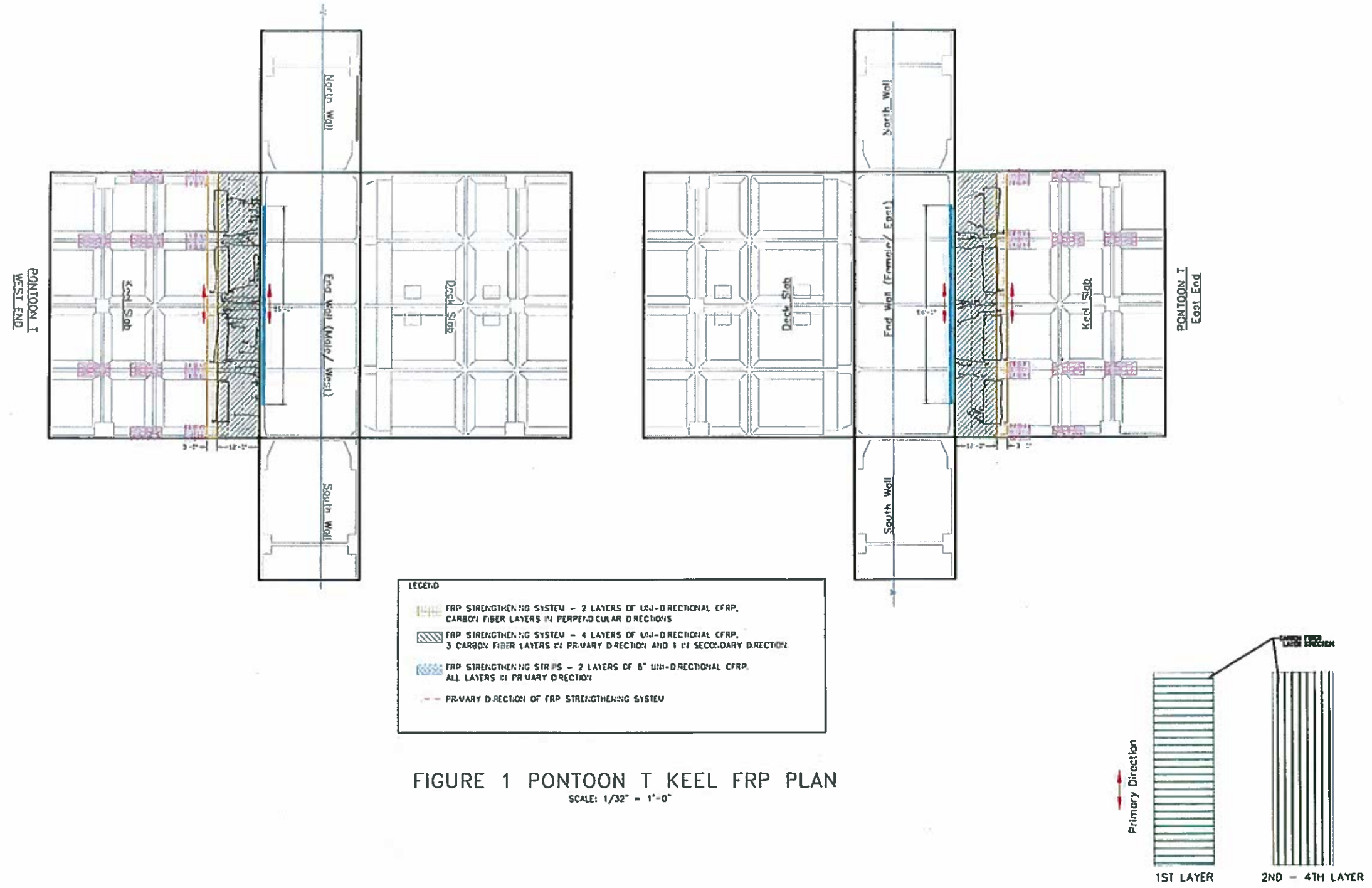
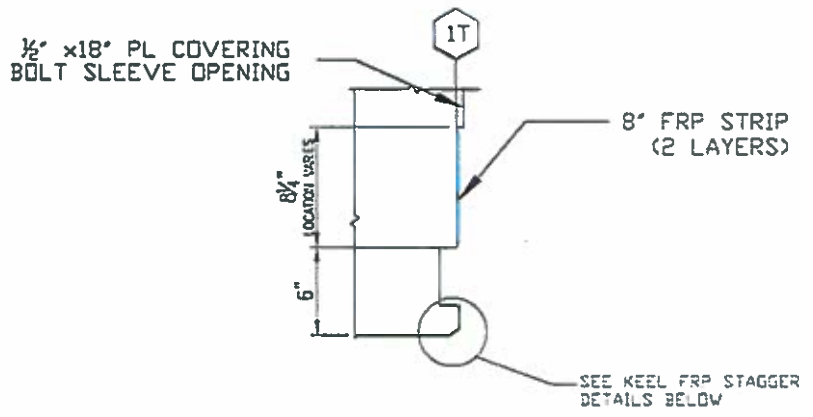
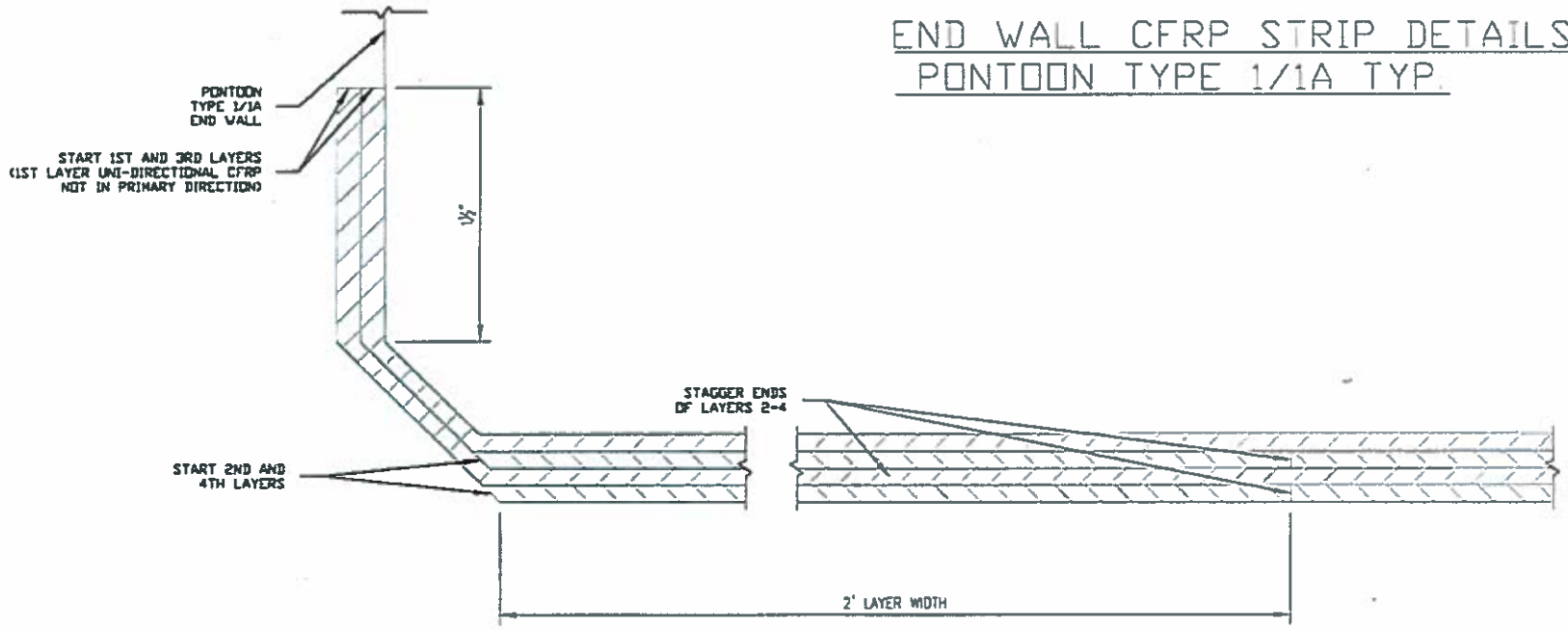


FIGURE 1 PONTON T KEEL FRP PLAN
 SCALE: 1/32" = 1'-0"



END WALL CFRP STRIP DETAILS
PONTOON TYPE 1/1A TYP.



TYPICAL 4 LAYER CFRP STAGGER DETAILS

FIGURE 2 FRP END WALL DETAILS

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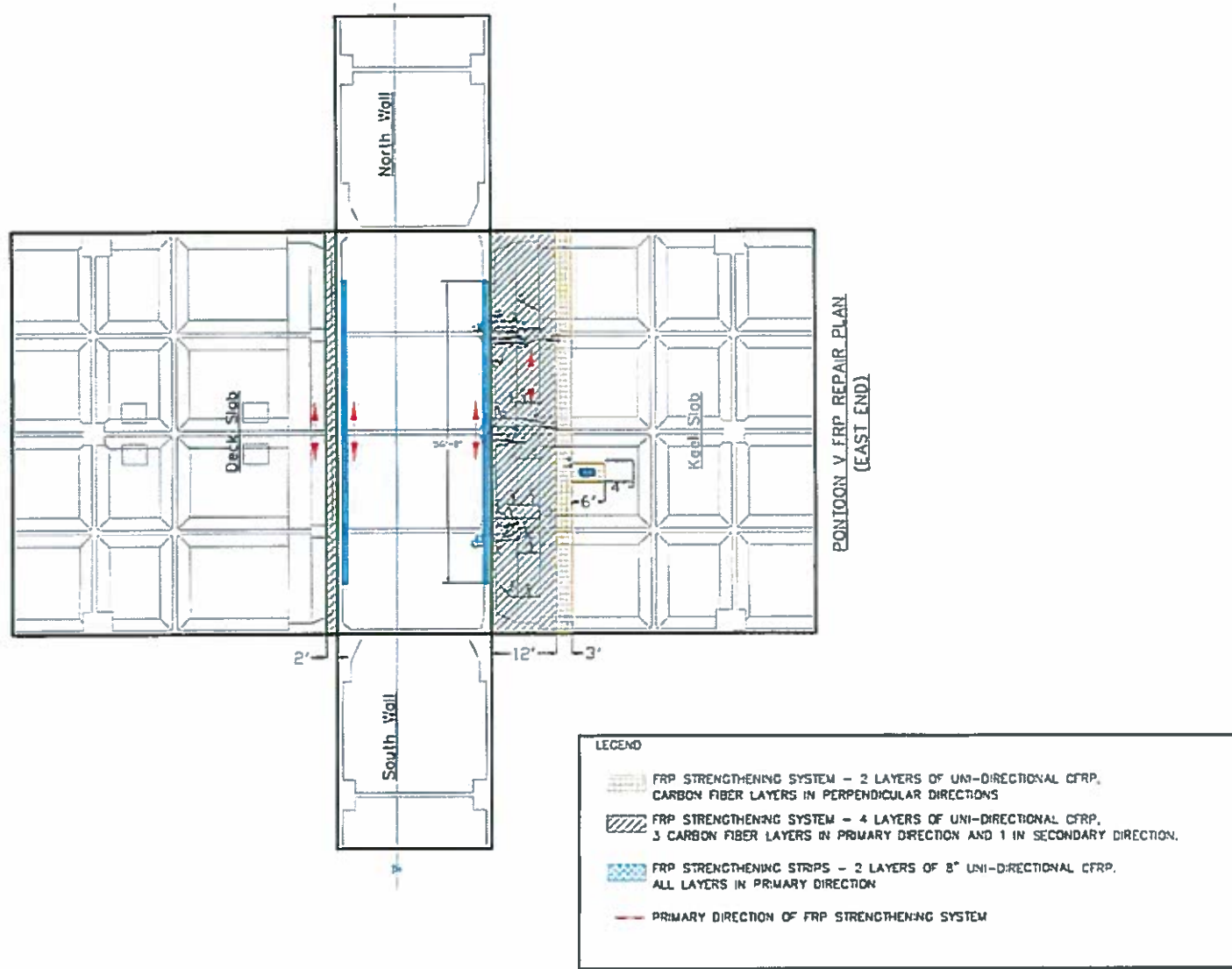
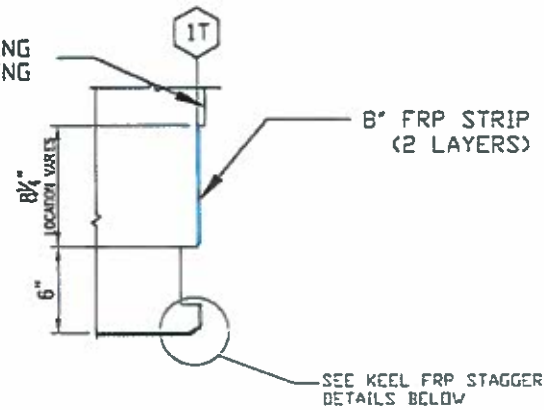


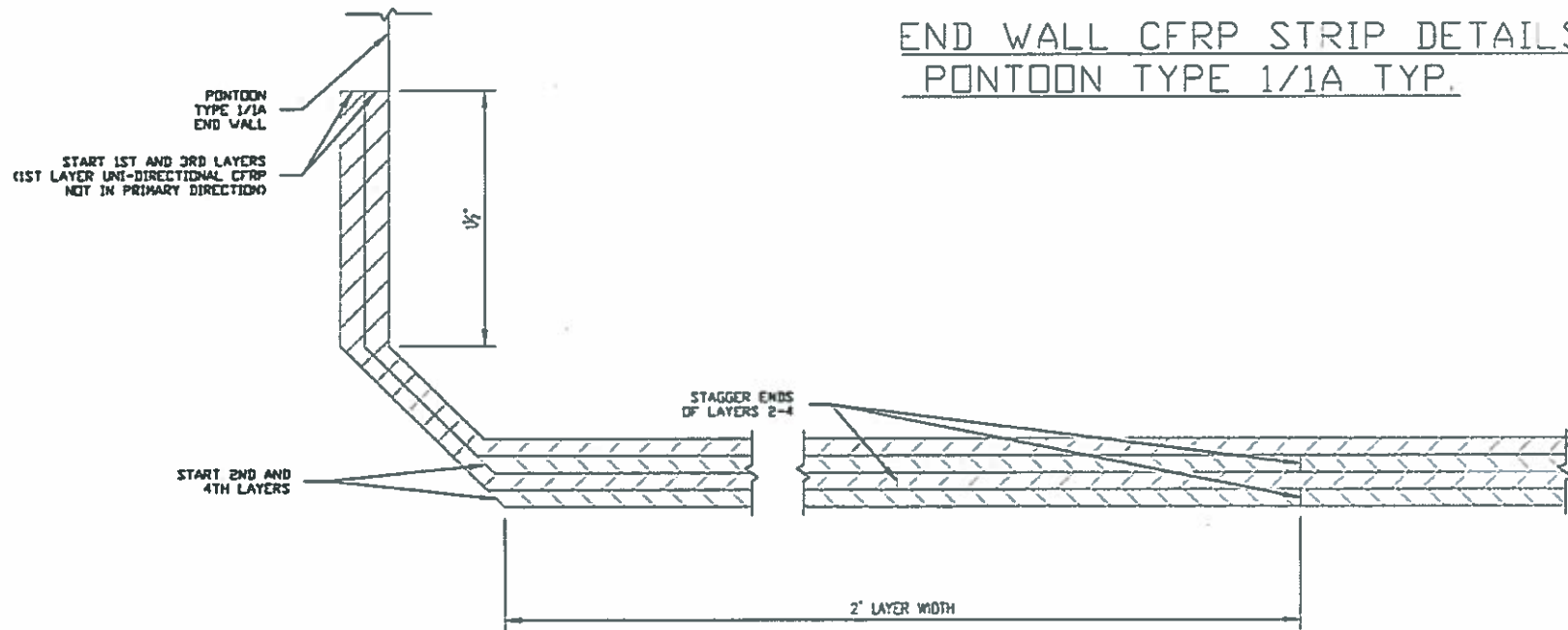
FIGURE 1 PONTON V FRP PLAN (EAST END)

Contract No.: DD8D64
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1/2" x 18" PL COVERING
BOLT SLEEVE OPENING



END WALL CFRP STRIP DETAILS
PONTOON TYPE 1/1A TYP.



TYPICAL 4 LAYER CFRP STAGGER DETAILS

FIGURE 2 FRP END WALL DETAILS

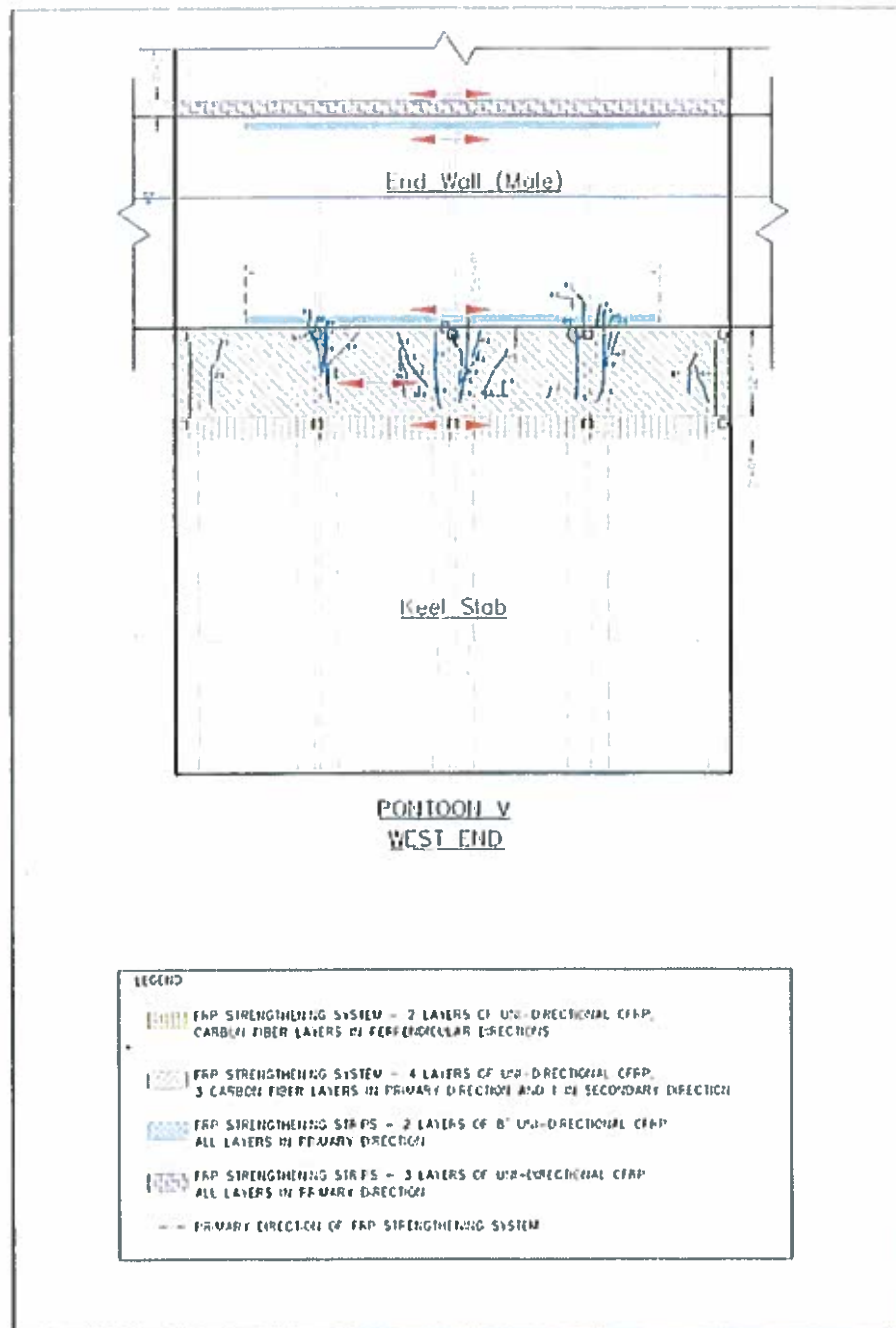
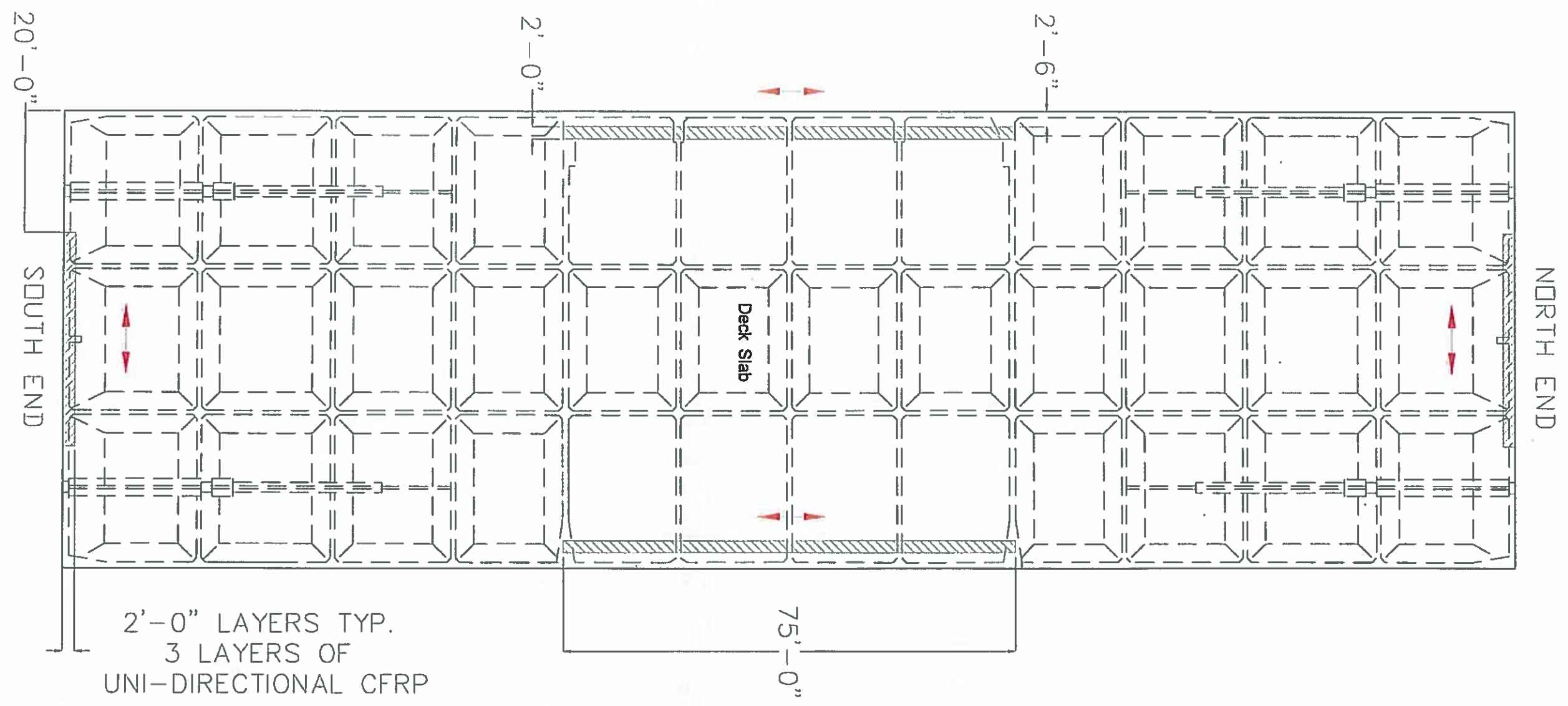


Figure 1. Crack map and CFRP layout for the west end of Pontoon V




DIRECTION OF FRP
STRENGTHENING
SYSTEM

FIGURE 1: PONTOON W DECK FRP PLAN

DESIGN-BUILD CHANGE ORDER CHECKLIST

| | | |
|---|--|--|
| Cont. #: <input type="text" value="008066"/> | Cont. Title: <input type="text" value="SR 520, Evergreen Point Floating Bridge and Landings Project"/> | Approval from State Construction Office Required |
| C.O. #: <input type="text" value="195"/> | C.O. Title: <input type="text" value="Substantial Completion Modifications"/> | |
| <input checked="" type="checkbox"/> Design-Builder initiated. <input checked="" type="checkbox"/> Agency initiated. | | |
| I. Executed by the State Construction Office 1. Cost or credit equal to or exceeding \$200,000.*1 2. Change in the contract documents beyond the scope, intent or termini of the original contract.*2 3. Change in the condition of award. 4. Change in contract time greater than 30 working days. | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No | X X X X |
| II. Executed by the Region 5. Cost or credit greater than \$100,000 but less than \$200,000.*1 6. Change in contract time greater than 10 and less than or equal to 30 working days, must be related to changes implemented by change order. | <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No | |
| III. Executed by the Project Engineer 7. Determination of impacts and/or overhead. 8. Design or construction work that does not comply with the Mandatory Standards. 9. A change to a Chapter 1 General Provision. 10. A change to a technical requirement in any of the following sections: Design Deviations, Geotechnical Design, Pavement, Project Documentation, Bridges and Structures, Control of Materials, MWBE Goals, QMP Requirements, or WSDOT Standard Specifications. 11. Determination of changed condition (Section 1-04.7 of the Request For Proposal). 12. Settlement of a claim (Section 1-09.11(2) of the Request For Proposal). 13. Repair of damage regarding "acts of God" or "acts of the public enemy or of government authorities (Section 1-07.13 of the Request For Proposal). 14. A "no-cost" change based upon a determination of "equal or better". | <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No | X X X X X X X X |

Approvals obtained:

Project Engineer: (REQUIRED) Date:

Region: (REQUIRED) Date:

State Construction Office: Date:

To be completed by the Project Engineer :

CO Reason(s) (See CCIS Source/Outcome):

Change Order Prepared By: Date:

Has change been entered as lesson learned? Yes No N/A

Has design documentation been updated? Yes No N/A

Is change approved by program management? Yes No N/A

To be completed by the Region :

Is the change eligible for Federal participation? Yes No N/A

Change Order Reviewed by: Date:

This form represents the minimum information required by the State Construction Office. *3

*1 Cost or Credit greater than \$200,000 on Federal Stewardship requires FHWA approval (see Construction Manual - Ch. 1-2.4C(3) and Ch. 1-3.4)
 *2 Per RCW 47.28.050, any change beyond \$7,500 that is beyond the original scope shall go through the competitive bidding process.
 *3 Changes that do not meet any of the itemized criteria above may be executed by the PE with Region approval.

DESIGN-BUILD CHANGE ORDER CHECKLIST

SR 520 Corridor Program: Design-Build Change Order Page 2 - Checklist Supplement

Cont. #:
 C.O. #:

To be completed by the Business Manager:

Does this change order require coordination with other SR 520 Projects / Program Areas? Yes No

Coordination has taken place with:

Contract Project (identify your project):

| | | | | | |
|--------------------|--|-------|----------------------|-------|----------------------|
| Pontoon | <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A | Name: | <input type="text"/> | Date: | <input type="text"/> |
| Pontoon Mitigation | <input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A | Name: | <input type="text"/> | Date: | <input type="text"/> |
| Pontoon Moorage | <input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A | Name: | <input type="text"/> | Date: | <input type="text"/> |
| Eastside HOV | <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A | Name: | <input type="text"/> | Date: | <input type="text"/> |
| Evans Creek | <input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A | Name: | <input type="text"/> | Date: | <input type="text"/> |
| FB&L | <input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A | Name: | <input type="text"/> | Date: | <input type="text"/> |
| WCB | <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A | Name: | <input type="text"/> | Date: | <input type="text"/> |
| WABN | <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A | Name: | <input type="text"/> | Date: | <input type="text"/> |

Identified risk has been entered into the SR 520 Risk Management Database: Yes No N/A

Risk ID Number (if pending, identify as Pending):

Project Risk ID No.:
 Project Risk ID No.:
 Project Risk ID No.:

To be coordinated with Program Finance, Budget and Controls Group:

Program Funding Concurrence? Yes No Funding Concurrence Obtained on: Date:
 Is Sales Tax Included in CO Cost? Yes No Is sales tax deferred? Yes No
 Max Payment Curve Changes discussed with: Date:
 Third Party Agreements discussed with: Date:

Coordination with Others:

Design / Technical Lead: Name: Date:
 Maintenance: Name: Date:
 Environmental Commitments: Name: Date: