

1 INTRO.GR1

2 INTRODUCTION

3
4 This Contract shall be constructed in accordance with the 2026 Standard Specifications for
5 Road, Bridge, and Municipal Construction.
6

7 SPECIAL PROVISIONS

8
9 Several types of Special Provisions are included in this contract; General, Region, Bridges
10 and Structures, and Project Specific. Special Provisions types are differentiated as follows:
11

12 (date)	General Special Provision
13 (*****)	Notes a revision to a General Special Provision 14 and also notes a Project Specific Special 15 Provision.
16 (Regions ¹ date)	Region Special Provision

17
18 **General Special Provisions** are similar to Standard Specifications in that they typically apply
19 to many projects, usually in more than one Region. Usually, the only difference from one
20 project to another is the inclusion of variable project data, inserted as a "fill-in".
21

22 **Region Special Provisions** are commonly applicable within the designated Region. Region
23 designations are as follows:
24

25 <u>Regions¹</u>	
26 ER	Eastern Region
27 NCR	North Central Region
28 NWR	Northwest Region
29 OR	Olympic Region
30 SCR	South Central Region
31 SWR	Southwest Region
32	
33 WSF	Washington State Ferries Division

34
35 **Project Specific Special Provisions** normally appear only in the contract for which they were
36 developed.
37

38 DIVISION1.GR1

39 Division 1 40 General Requirements

41
42 DESWORK.GR1

43 DESCRIPTION OF WORK

44
45 DESWORK1.FR1

46 (March 13, 1995)

47 This Contract provides for the improvement of *** \$\$1\$\$ *** and other work, all in accordance
48 with the attached Contract Plans, these Contract Provisions, and the Standard Specifications.
49

50 DESWORK2.FB1

51 (August 3, 2015)

1 This contract provides for the improvement of *** \$\$1\$\$, *** by cleaning and painting the metal
2 surfaces of the following *** \$\$2\$\$ *** and other work, all in accordance with the Contract
3 Provisions and Standard Specifications.
4
5 Highway & Bridge Location Structure Element
6
7 *** \$\$3\$\$ ***
8
9 1-02.GR1
10 **Bid Procedures and Conditions**
11
12 1-02.1.GR1
13 **Prequalification of Bidders**
14
15 1-02.1.INST1.GR1
16 Section 1-02.1, including title, is deleted and replaced with the following:
17
18 1-02.1.OPT1.GR1
19 **(April 2, 2018)**
20 ***Vacant***
21
22 1-02.4.GR1
23 **Examination of Plans, Specifications and Site of Work**
24
25 1-02.4(1).GR1
26 ***General***
27
28 1-02.4(1).INST1.GR1
29 Section 1-02.4(1) is supplemented with the following:
30
31 1-02.4(1).OPT1.FR1
32 (September 3, 2019)
33 The Reference Information for this project is available for review by the bidder at the
34 following location:
35
36 *** \$\$1\$\$ ***
37
38 The Reference Information includes the following:
39
40 *** \$\$2\$\$ ***
41
42 1-02.6.GR1
43 **Preparation of Proposal**
44
45 1-02.6.INST1.GR1
46 Item number 3 in the second paragraph of Section 1-02.6 is supplemented with the following:
47
48 1-02.6.OPT1.FR1
49 (September 3, 2019)
50 The successful Bidder will be the Bidder submitting the lowest responsive Bid that does
51 not exceed the maximum funds available. The maximum funds available for this Contract
52 is *** \$\$1\$\$ ***.

Submitting a Proposal that exceeds the maximum funds available will result in the Proposal being declared irregular and shall cause the Bid to be rejected by the Contracting Agency. Submitted Proposals that exceed the maximum funds available will be opened publicly in accordance with Section 1-02.12 prior to being rejected.

1-02.6.OPT2.GR1

(November 20, 2023)

The fourth and fifth paragraphs of Section 1-02.6 are deleted.

1-02.6.INST3.GR1

Section 1-02.6 is supplemented with the following:

1-02.6.OPT4.GR1

(November 4, 2024)

The Bidder shall submit a completed Public Works Small and Veteran Business Plan (SVB Plan, WSDOT Form 226-018) with the Bid, when required by the Special Provisions.

For each and every Public Works Small Business Enterprise (PWSBE) or Veteran-Owned Business (VOB) firm listed on the Bidder's completed SVB Plan, the Bidder shall submit a completed PWSVB Subcontractor Written Confirmation Form (WSDOT Form 226-017) that confirms the listed firm is in agreement with the PWSVB participation commitment that the Bidder has made in the Bidder's completed PWSVB Plan. Bidder must submit good faith effort documentation only in the event the Bidder's efforts to solicit sufficient participation have been unsuccessful.

Directions for delivery of the PWSVB Plan, PWSVB Subcontractor Written Confirmation, and good faith effort documentation are included in Section 1-02.9.

1-02.6.OPT5.FR1

(September 7, 2021)

Alternative Bids

The bidding proposal on this project permits the Bidder to submit a Bid on one or more alternatives for the construction *** \$1\$ \$ ***.

Bid Proposal

The bid proposal is composed of the following parts: Base Bid and Alternatives *** \$2\$ \$ *** i.e. A1, A2, etc.

The base bid includes all items that do not change as to quantity, dimension, or type of construction, regardless of which alternative is Bid.

The Alternative portions of the bid proposal contain all items which change as to quantity, dimension, or construction method, depending on which alternative is Bid.

Alternative A1

Alternative A1 is based on constructing the *** \$3\$ \$ ***.

The bid items for Alternative A1 are as listed in the bid proposal.

Alternative A2

Alternative A2 is based on constructing the *** \$4\$ \$ ***.

The bid items for Alternative A2 are as listed in the bid proposal.

Bidding Procedures

The Bidder shall submit a price on each and every item of Work included in the base bid. The Bidder shall also submit prices on each and every item under the alternative on which the Bidder chooses to bid, or, if the Bidder chooses to bid on more than one alternative, the Bidder shall submit prices for each and every item under each alternative chosen. If the Bidder chooses to bid on more than one alternative, the Bidder shall submit their sealed Bid in the envelope provided by the Contracting Agency using the Proposal Form provided. If the Bidder chooses to Bid on more than one alternative, the Bid cannot be accepted electronically via AASHTOWare Project Bids™ "BidExpress®."

The successful Bidder will be determined by the lowest total of an alternative plus the base bid. Award will be based on the lowest total subject to the requirements of Section 1-03.

1-02.6.OPT6.FR1

(August 3, 2015)

Cumulative Alternates Bidding

The Bid Proposal for this Contract requires the Bidder to bid cumulative Alternates as part of the bid. As such the Bidder is required to submit a Base Bid and a bid for each of the Alternate(s).

Bid Proposal

The Bid Proposal includes the following:

1. Base Bid

The Base Bid shall include constructing all items included in the Proposal *except* those items contained in the Alternate(s).

2. Alternate(s)

a. Alternate A1

Based on constructing (** \$1\$ \$ **)

The Bid items for Alternate A1 are as listed in the Bid Proposal.

b. Alternate A2

Based on constructing (** \$2\$ \$ **)

The Bid items for Alternate A2 are as listed in the Bid Proposal.

c. Alternate A3

Based on constructing (** \$3\$ \$ **)

The Bid items for Alternate A3 are as listed in the Bid Proposal.

Bidding Procedures

To be considered responsive the Bidder shall submit a price on each and every Bid item included in the Base Bid and all Alternate(s.)

The successful Bidder will be the Bidder submitting the lowest responsible Bid for the highest order Preference that is within the amount of available funds for the

project. Available funds will be announced immediately prior to the opening of Bids. The following are listed in order from highest to lowest Preference:

1. Preference 1: Lowest total for Base Bid plus Alternate A1 plus Alternate A2 plus Alternate A3, plus etcetera.
2. Preference 2: Lowest total for Base Bid plus Alternate A1 plus Alternate A2 plus Alternate A3.
3. Preference 3: Lowest total for Base Bid plus Alternate A1 plus Alternate A2.
4. Preference 4: Lowest total for Base Bid plus Alternate A1.
5. Preference 5: Lowest total for Base Bid.

The Contracting Agency may, at their discretion, award a Contract for the Base Bid, without any additional Alternates, in the event that all Bids exceed the available funds announced. In any case, the award will be subject to the requirements of Section 1-03.

1-02.6.OPT7.GR1

(November 4, 2025)
Bidder Questionnaire

The Bidder shall submit with their Bid a Bidder Questionnaire form (WSDOT Form #272-022). This shall be filled out for each firm who submitted a bid or quote in attempt to participate in the project whether they were successful or not and include the following information:

1. Firm name;
2. Firm address including ZIP code;
3. Firm's status as a DBE or non-DBE;
4. NAICS code applicable to each scope of work the firm sought to perform in its bid;
5. Age of the firm; and
6. The annual gross receipts of the firm. The Bidder may obtain this information by asking each firm to indicate into what gross receipts bracket they fit (less than \$1 million; \$1-3 million; \$3-6 million; \$6-10 million; \$10-20 million; \$20-30.72 million; or greater than \$30.72 million) rather than requesting an exact figure from the firm.

This form shall be received at the same location and no later than the time required for the delivery of the Proposal. Failure to comply with this requirement will cause this Bid to be considered irregular in accordance with Section 1-02.13.

The Contractor may correct errors to items 2 through 6 above on the Bidder Questionnaire form for a period up to 48 hours after bid opening. Bidder Questionnaire forms that are still incorrect after the correction period will be determined irregular. New

1 Firm/Subcontractors may not be added to the form during the correction period. A Bidder
2 Questionnaire form that fails to list a Firm/Subcontractor that appears on a different form
3 will be considered irregular in accordance with Section 1-02.13.
4

5 1-02.9.GR1

6 **Delivery of Proposal**
7

8 1-02.9.INST1.GR1

9 Section 1-02.9 is supplemented with the following:
10

11 1-02.9.OPT2.GR1

12 **(November 4, 2024)**

13 **PWSVB Document Submittal Requirements**

14 **General**

15 The Bidder shall submit supplemental documents that are identified with the Bidder's
16 company name, Project title, Bid date, and description of all contents (i.e., PWSVB
17 Plan, PWSVB Subcontractor Written Confirmation Documents, and/or PWSVB GFE
18 Documentation).
19

20 Submissions must be made by one of the following methods:
21

- 22 1. Physically in a sealed envelope marked as "BID SUPPLEMENT"; or
- 23 2. By facsimile to the following FAX number: 360-705-6966; or
- 24 3. By e-mail to the following e-mail address: DBEDoc@wsdot.wa.gov; or
- 25 4. Mailed to: Washington State Department of Transportation
26 Room 2D20
27 310 Maple Park Avenue SE
28 Olympia WA 98501-2361
29
30
31
32

33 The Contracting Agency is not responsible for delayed, partial, failed, illegible or
34 partially legible FAX or e-mail document transmissions, and such documents may be
35 rejected as incomplete at the Bidder's risk.
36

37 **Public Works Small and Veteran Business Plan (SVB Plan) (WSDOT Form**
38 **226-018)**

39 The PWSVB Plan shall be received no later than the time required for delivery of the
40 Bid. The Contracting Agency will not open or consider any Bid when the PWSVB
41 Plan is received after the time specified for receipt of Bids or received as specified
42 by this Special Provision. The PWSVB Plan may be submitted in the same envelope
43 as the Bid deposit.
44

45 **PWSVB Subcontractor Written Confirmation (WSDOT Form 226-017) and/or**
46 **GFE Documentation**

47 The PWSVB Subcontractor Written Confirmation Documents and/or GFE
48 Documents are not required to be submitted with the Bid. The SVBE Subcontractor
49 Written Confirmation Document(s) and/or GFE (if any) shall be received either with
50 the Bid or as a Supplement to the Bid. The documents shall be received no later
51 than 48 hours (not including Saturdays, Sundays, and Holidays) after the time for
52 delivery of the Bid. To be considered responsive, Bidders shall submit Written

1 Confirmation Documentation from each SVBE firm listed on the Bidder's completed
2 SVB Plan and/or the GFE as required by Section 1-02.6.
3
4 **NOTE: If the Bid is submitted electronically via Bidx.com through**
5 **AASHTOWare Project Bids™ software "BidExpress®", the PWSVB Plan may**
6 **be attached to the electronic Bid or submitted as a supplemental document as**
7 **defined above.**
8
9 1-02.12.GR1
10 **Public Opening of Proposals**
11
12 1-02.12.INST1.GR1
13 Section 1-02.12 is supplemented with the following:
14
15 1-02.12.OPT1.FR1
16 **(August 3, 2015)**
17 **Date of Opening Bids**
18 The bid opening date for this project is *** \$\$1\$\$ ***. Bids received will be publicly opened
19 and read after 11:00:59 A. M. Pacific Time on this date.
20
21 1-02.12.OPT2.FR1
22 **(October 3, 2022)**
23 **Date of Opening Bids**
24 Proposals will be received by in-person delivery or by courier at the *** \$\$1\$\$ *** reception
25 desk located at the *** \$\$2\$\$ *** on the Bid opening day.
26
27 The Bid opening date for this project is *** \$\$3\$\$ ***. Bids received will be publicly opened
28 and read after 11:00:59 A.M. on this date.
29
30 1-03.GR1
31 **Award and Execution of Contract**
32
33 1-03.2.GR1
34 **Award of Contract**
35
36 1-03.2.INST1.GR1
37 The first sentence of Section 1-03.2 is revised to read:
38
39 1-03.2.OPT1.GR1
40 (April 7, 2008)
41 It is the Contracting Agency's intent to award the Contract within 24 hours of the bid
42 opening.
43
44 1-03.3.GR1
45 **Execution Of Contract**
46
47 1-03.3.INST1.GR1
48 Section 1-03.3 is supplemented with the following:
49

2 **(October 3, 2022)**

3 ***Escrow Bid Documentation***

4 **Scope and Purpose**

5 The purpose of this specification is to preserve the Contractor's bid documentation
6 for use by the Contracting Agency in any litigation between the Contracting Agency
7 and Contractor arising out of this Contract.

8
9 The Contractor shall submit a legible copy of all documentation used to prepare the
10 Bid for this Contract to a escrow institution designated by the Contracting Agency.
11 Such documentation shall be placed in escrow with the escrow institution and
12 preserved by that institution as specified in the following sections of this specification.

13
14 **Bid Documentation**

15 The term "bid documentation" as used in this specification means any writings,
16 working papers, computer printouts, charts, and any other data compilations which
17 contain or reflect all information, data, and calculations used by the Contractor to
18 determine the Bid in bidding for this project. The Contractor shall submit its
19 documentation in whatever format it was created and shall also provide electronic
20 copies. The term "bid documentation" includes but is not limited to Contractor
21 equipment rates, Contractor overhead rates, labor rates, efficiency or productivity
22 factors, arithmetic extensions, and quotations from subcontractors and material
23 providers to the extent that such rates and quotations were used by the Contractor
24 in formulating and determining the amount of the bid. The term "bid documentation"
25 also includes any manuals which are standard to the industry used by the Contractor
26 in determining the bid for this project. Such manuals (including year of publication)
27 may be included in the Bid Documentation by reference. The term does not include
28 bid documents provided by the Contracting Agency for use by the Contractor in
29 bidding on this project.

30
31 **Submittal of Bid Documentation**

32 The Contractor shall submit the bid documentation to the escrow institution. The bid
33 documentation shall be submitted to the escrow institution within seven calendar
34 days after the Contract for this project has been executed by the Contracting Agency.
35 The bid documentation shall be submitted in a sealed container. The container shall
36 be clearly marked "Bid Documentation" and shall also show on the face of the
37 container the Contractor's name, the date of submittal, the project title, and the
38 contract number.

39
40 **Affidavit**

41 The sealed container shall contain, in addition to the bid documentation, an affidavit
42 signed under oath by an individual authorized by the Contractor to execute bidding
43 proposals. The affidavit shall list each bid document with sufficient specificity so a
44 comparison can be made between the list and the bid documentation to ensure that
45 all of the bid documentation listed in the affidavit has been enclosed in the sealed
46 container. The affidavit shall show that the affiant has personally examined the bid
47 documentation and that the affidavit lists all of the documents used by the Contractor
48 to determine the Bid for this project and that all such bid documentation has been
49 enclosed in the sealed container.

Verification

The escrow institution upon receipt of the sealed container shall place the container in a safety deposit box, vault, or other secure place, and immediately notify the Contracting Agency in writing that the container has been received. Upon receipt of such notice, the Contracting Agency will promptly notify the Contractor in writing that the Contracting Agency will open the sealed container to verify that the affidavit has been enclosed and to compare the bid documents listed in the affidavit with the bid documents enclosed in the container to ensure that all of the bid documentation has been submitted and that the copies are legible. The notification will advise the Contractor of the date and time the container will be opened and the name of the Contracting Agency employee who will verify the contents of the container. The Contracting Agency employee verifying the contents of the escrow container will not be involved or connected with the review, evaluation, or resolution of any claim by the Contractor made to the Contracting Agency in connection with the contract for which the verification was made. The Contractor may have representatives present at the opening.

Supplementation

Documents listed in the affidavit but not enclosed in the sealed container through error or oversight shall be submitted in a sealed container within five calendar days after the opening of the original container. Also, any bid documentation that is illegible shall be replaced with legible copies and furnished within five calendar days after the opening of the original container. The face of the container shall show the same information as the original container except the container shall be marked "Supplemental Bid Documentation". The same procedure used in verifying the contents of the original container shall be used in verifying the contents of the supplemental submittal.

Duration and Use

The bid documentation and affidavit shall remain in escrow during the life of the Contract and will be returned to the Contractor by the escrow institution, provided that the Contractor has signed the final contract voucher certification and has not reserved any claims on the final contract voucher certification against the Contracting Agency arising out of the Contract. In the event that claims against the Contracting Agency are reserved on the final contract voucher certification, the bid documentation and affidavit shall remain in escrow. If the claims are not resolved and litigation ensues, the Contracting Agency may serve a request upon the Contractor to authorize the escrow institution, in writing, to release the bid documentation and affidavit in escrow to the Contracting Agency. The Contractor shall respond to the request within 20 days after service of the request. If the Contractor objects or does not respond to the request within 20 days after service of the request, the Contracting Agency may file a motion under the Civil Rules requesting the court to enter an order directing the escrow institution to deliver the bid documentation and affidavit in escrow to the Contracting Agency. The Contractor shall respond to the request within the time required by the then applicable Civil Court Rules for the Superior Court of the State of Washington. If the Contractor objects or does not respond to the request within the time required by the then applicable Civil Rules, the Contracting Agency may file a motion pursuant to such rules requesting the court to enter an order directing the escrow institution to deliver the bid documentation and affidavit in escrow to the Contracting Agency. The escrow institution shall release the bid documentation and affidavit as follows:

1. To the Contracting Agency upon receipt of a letter from the Contractor authorizing the release;
2. To the Contracting Agency upon receipt of a certified copy of a court order directing the release of the documents;
3. To the court for an in camera examination pursuant to a certified copy of a court order;
4. The bid documentation and affidavit shall be returned to the Contractor if litigation is not commenced within the time period prescribed by law.

The Contractor agrees that the sealed container placed in escrow and any supplemental sealed container placed in escrow contain all of the bid documentation used to determine the Bid and that no other bid documentation shall be utilized by the Contractor in litigation over Certified Claims brought by the Contractor arising out of this Contract unless otherwise ordered by the court.

Remedies for Refusal or Failure to Provide Bid Documentation

Failure or refusal to provide bid documentation shall be deemed a material breach of this Contract. The Contracting Agency may at its option refuse to make payment for progress estimates under Section 1-09.9 until the Contractor has submitted the bid documentation required by this specification. The Contracting Agency may at its option terminate the contract for default under Section 1-08.10. These remedies are not exclusive and the Contracting Agency may take such other action as is available to it under the law.

Confidentiality of Bid Documentation

The bid documentation and affidavit in escrow are and will remain the property of the Contractor. The Contracting Agency has no interest in or right to the bid documentation and affidavit other than to verify the contents and legibility of the bid documentation unless litigation ensues between the Contracting Agency and Contractor over Certified Claims brought by the Contractor arising out of this Contract. In the event of such litigation, the bid documentation and affidavit may become the property of the Contracting Agency for use in the litigation as may be appropriate subject to the provisions of any court order limiting or restricting the use or dissemination of the bid documentation and affidavit as provided in the preceding section entitled Duration and Use.

Cost and Escrow Instructions

The cost of the escrow will be borne by the Contracting Agency. The Contracting Agency will provide escrow instructions to the escrow institution consistent with this specification.

1-03.3.INST2.GR1

The first paragraph of Section 1-03.3 is supplemented with the following:

1-03.3.OPT3.GR1

(January 4, 2016)

Within 20 calendar days after the Award date, the successful Bidder shall return WSDOT Form 421-013 with the Contractor's costs for transit, bicycle and pedestrian Work.

1 1-04.GR1
2 **Scope of the Work**
3
4 1-04.2.GR1
5 **Coordination of Contract Documents, Plans, Special Provisions,**
6 **Specifications, and Addenda**
7
8 1-04.2.INST1.GR1
9 Section 1-04.2 is supplemented with the following:
10
11 1-04.2.OPT1.GR1
12 **(November 20, 2023)**
13 **Document Control**
14 This specification applies to project documentation and correspondence that occurs after
15 execution of the Contract. The Contractor shall submit all project documentation and
16 correspondence for this Contract in electronic format utilizing the WSDOT Unifier system.
17 Documents that are received by means other than the WSDOT Unifier system will be
18 rejected, except as allowed by this special provision or specifically approved by the
19 Engineer.
20
21 The Engineer may reject documents that are deemed unsuitable. This includes
22 documents that are illegible, unreadable, locked, etc. Forms that require further
23 information from WSDOT must be unlocked.
24
25 The Contractor shall submit to the Contracting Agency a Unifier Access Request Form
26 (WSDOT Form 134-092) to WSDOT e-Construction Support ([e-
ConstructionSupport@wsdot.wa.gov](mailto:ConstructionSupport@wsdot.wa.gov)) designating all individuals requiring access to
27 WSDOT Unifier no later than 5 days following Contract Award. Training for WSDOT
28 Unifier will be provided by WSDOT at no cost to the Contractor. Throughout the life of the
29 Project, all changes to the Contractor's personnel who require access to the WSDOT
30 Unifier system shall be submitted on a Unifier Access Request Form.
31
32
33 All signed documents shall be in PDF format and will require an electronic signature. An
34 electronic signature is defined as a symbol, or process attached to or logically associated
35 with a record and executed or adopted by a person with the intent to sign the record. All
36 signed documents shall be in PDF format.
37
38 WSDOT has provided an application to be used to apply electronic signatures to the
39 following documents:
40
41 Change Orders that are not Minor Change Orders
42 421-009 Release – Retained Percentage (Except Landscaping)
43 134-146 Final Contract Voucher Certificate
44
45 When the Contract specifies that documentation is to be submitted through other web-
46 based systems, such as the Diversity Management and Compliance System, or email
47 addresses, the Contractor shall utilize those systems and email addresses accordingly.
48
49 Before a Completion Date will be established by the Contracting Agency, all contractor
50 active tasks in Unifier shall be closed out or acknowledged.
51

1 All costs for submitting project documentation electronically shall be included in the
2 Contract prices for the Bid items of Work involved.

3
4 1-04.5.GR1

5 **Procedure and Protest by the Contractor**

6
7 1-04.5.INST1.GR1

8 Section 1-04.5 is supplemented with the following:

9
10 1-04.5.OPT1.GR1

11 ***(January 13, 2021)***

12 ***Project Partnering***

13 The Engineer and the Contractor's Project Manager (PM) will plan and host a Project
14 Partnering workshop as soon as practical after Contract execution. The objective of this
15 Partnering workshop is to promote open lines of communication and teamwork between
16 the Contracting Agency and Contractor staff for the effective completion of the work, and
17 to the standard of quality that will be a source of pride to both the Contracting Agency and
18 the Contractor. Commitments made by both parties shall be memorialized in a Project
19 Partnering Agreement at the conclusion of the Partnering workshop. The Partnering
20 agreement will not affect the terms of the Contract. It is intended only to establish an
21 environment of cooperation and mutual understanding between the parties.

22
23 The planning and execution of the Partnering process is intended to be a collaborative
24 effort between the Engineer and the PM. The length of the partnering workshop should
25 be commensurate with the size and complexity of the project, and familiarity of the parties.
26 For simple projects an expanded pre-construction meeting may suffice. The partnering
27 workshop may be facilitated by the Engineer, the Engineer and PM, or a mutually
28 agreeable Partnering Facilitator (PF). Selection of a PF, dates and location of the
29 workshops, materials needed for the workshop, frequency and location for follow up
30 meetings, and estimated cost associated with this effort should be discussed and agreed
31 to prior to moving forward with the Partnering process.

32
33 An initial 1 day (or half day) facilitated Project Partnering workshop is recommended to
34 initiate the partnering agreement. After the initial Partnering workshop, quarterly follow
35 up meetings on projects with over 120 working days shall be scheduled to evaluate how
36 the Partnering process is working, acknowledge successes and opportunities for
37 improvement.

38
39 The cost to retain the services of a Partnering Facilitator (if mutually selected as the PF),
40 locate and rent a neutral location to hold the workshop (if held offsite), and any additional
41 materials needed to host the workshop, will be paid by the Contractor. The Partnering
42 Field Guide is available as a resource to the Engineer and PM to assist in the planning of
43 the Partnering session(s) at the following link:

44
45 [https://wsdot.wa.gov/publications/fulltext/construction/WSDOTProjects-Partnering-](https://wsdot.wa.gov/publications/fulltext/construction/WSDOTProjects-Partnering-FieldGuide.pdf)
46 [FieldGuide.pdf](https://wsdot.wa.gov/publications/fulltext/construction/WSDOTProjects-Partnering-FieldGuide.pdf)

47
48 The Contracting Agency will reimburse invoice cost for the Contractor provided Partnering
49 Facilitator, facilities and materials at a rate of 50% under the Bid item, "Project Partnering".

50
51 ***Payment***

52 "Project Partnering", by calculation.

1 "Project Partnering" will be calculated and paid for as described above.

2

3 1-05.GR1

4 **Control of Work**

5

6 1-05.1.GR1

7 **Authority of the Engineer**

8

9 1-05.3.GR1

10 **Working Drawings**

11

12 1-05.3.INST1.GR1

13 Section 1-05.3 is supplemented with the following:

14

15 1-05.3.OPT1.FR1

16 (September 3, 2019)

17 When submittals require review by the railroad, the Engineer will require up to *** \$1\$\$
18 *** calendar days from the date the submittals are received until they are returned to the
19 Contractor. If a submittal is returned unapproved and then resubmitted, then an additional
20 review time of up to *** \$2\$\$ *** calendar days will be required.

21

22 If more than *** \$1\$\$ *** calendar days are required for the Engineer's review of any
23 individual submittal or resubmittal, an extension of time will be considered in accordance
24 with Section 1-08.8.

25

26 1-05.3.OPT2.GR1

27 **(October 3, 2022)**

28 **Right and Left Designation**

29 Any right or left designations used to locate Structures throughout the Plans and these
30 Special Provisions are made by facing offshore.

31

32 1-05.3.OPT3.GR1

33 **(October 3, 2022)**

34 **Work Plan**

35 The Contractor shall submit a Work Plan to the Engineer for review. The Work Plan shall
36 include the following minimum requirements:

37

38 1. The Work Plan shall describe the Contractor's proposed methods for
39 accomplishing the Work within the conditions and restrictions of the Contract. It
40 shall describe the nature, approach and sequence of the Work to be performed;
41 the type and location of cranes, barges and other equipment to be used; plans
42 for demolition, debris control and disposal of materials; temporary construction;
43 compliance with environmental provisions; and any unavoidable impacts,
44 necessary safeguards, and mitigating measures.

45

46 2. Where the Contractor's Work would impact the operation and safety of ferry
47 traffic and ferry pedestrian areas, the Work Plan shall detail the methods used
48 to either separate the Work from the ferry traffic or to maintain the area in a safe
49 condition while it is being utilized by ferry passengers.

50

- 1 3. The Work Plan shall be a Type 2 Working Drawing with attached drawings,
2 charts, diagrams and references to the Plans and Progress Schedule as
3 necessary.
4
5 4. The Work Plan shall be updated whenever conditions change or as directed by
6 the Engineer.
7

8 All costs associated with the Work Plan shall be included in the applicable items of Work.
9

10 1-05.4.GR1

11 **Conformity with and Deviations from Plans and Stakes**

12

13 1-05.4.INST1.GR1

14 Section 1-05.4 is supplemented with the following:
15

16 1-05.4.OPT1.GR1

17 **(September 3, 2024)**

18 **Contractor Surveying - Structure**

19 The Contracting Agency has provided primary survey control in the Plans.
20

21 The Contractor shall be responsible for setting, maintaining, and resetting all alignment
22 stakes, slope stakes, and grades necessary for the construction of bridges, noise walls,
23 retaining walls, buried structures, and marine structures. Except for the survey control
24 data to be furnished by the Contracting Agency, calculations, surveying, and measuring
25 required for setting and maintaining the necessary lines and grades shall be the
26 Contractor's responsibility.
27

28 The Contractor shall inform the Engineer when monuments are discovered that were not
29 identified in the Plans and construction activity may disturb or damage the monuments.
30 All monuments noted on the plans "DO NOT DISTURB" shall be protected throughout the
31 length of the project or be replaced at the Contractor's expense.
32

33 Detailed survey records shall be maintained, including a description of the work
34 performed on each shift, the methods utilized, and the control points used. The record
35 shall be adequate to allow the survey to be reproduced. A copy of each day's record shall
36 be provided to the Engineer within three working days after the end of the shift.
37

38 The meaning of words and terms used in this provision shall be as listed in "Definitions of
39 Surveying and Associated Terms" current edition, published by the American Congress
40 on Surveying and Mapping and the American Society of Civil Engineers.
41

42 The survey work by the Contractor shall include but not be limited to the following:
43

- 44 1. Verify the primary horizontal and vertical control furnished by the Contracting
45 Agency and expand into secondary control by adding stakes and hubs as well
46 as additional survey control needed for the project. Provide descriptions of
47 secondary control to the Contracting Agency. The description shall include
48 coordinates and elevations of all secondary control points.
49
50 2. Establish, by placing hubs and/or marked stakes, the location with offsets of
51 foundation shafts and piles.
52

- 1 3. Establish offsets to footing centerline of bearing for structure excavation.
- 2
- 3 4. Establish offsets to footing centerline of bearing for footing forms.
- 4
- 5 5. Establish wing wall, retaining wall, noise wall, and buried structure horizontal
- 6 alignment.
- 7
- 8 6. Establish retaining wall top of wall profile grade.
- 9
- 10 7. Establish buried structure profile grade.
- 11
- 12 8. Establish elevation benchmarks for all substructure formwork.
- 13
- 14 9. Check elevations at top of footing concrete line inside footing formwork
- 15 immediately prior to concrete placement.
- 16
- 17 10. Check column location and pier centerline of bearing at top of footing
- 18 immediately prior to concrete placement.
- 19
- 20 11. Establish location and plumbness of column forms, and monitor column
- 21 plumbness during concrete placement.
- 22
- 23 12. Establish pier cap and crossbeam top and bottom elevations and centerline of
- 24 bearing.
- 25
- 26 13. Check pier cap and crossbeam top and bottom elevations and centerline of
- 27 bearing prior to and during concrete placement.
- 28
- 29 14. Establish grout pad locations and elevations.
- 30
- 31 15. Establish structure bearing locations and elevations, including locations of
- 32 anchor bolt assemblies.
- 33
- 34 16. Establish box girder bottom slab grades and locations.
- 35
- 36 17. Establish girder and/or web wall profiles and locations.
- 37
- 38 18. Establish diaphragm locations and centerline of bearing.
- 39
- 40 19. Establish roadway slab alignment, grades and provide dimensions from top of
- 41 girder to top of roadway slab. Set elevations for deck paving machine rails.
- 42
- 43 20. Establish traffic barrier and curb profile.
- 44
- 45 21. Profile all girders prior to the placement of any deadload or construction live load
- 46 that may affect the girder's profile.
- 47
- 48 22. Establish locations for marine structures including fixed and floating berthing
- 49 structures, vehicle and pedestrian foundations and spans, and marine-based
- 50 buildings.
- 51

1 The Contractor shall provide the Contracting Agency copies of any calculations and
2 staking data when requested by the Engineer.
3
4 The Contractor shall submit the computed elevations at the top of bridge decks as a Type
5 2 Working Drawing. To compute top of bridge deck elevations, elevations shall be taken
6 at the tenth points along the centerline of each girder web from center-to-center of
7 bearing. For girders exceeding 100 feet in length, the elevations shall be taken at
8 equivalent intervals not to exceed 10 feet.
9
10 The Contractor shall ensure a surveying accuracy within the following tolerances:
11
12

	<u>Vertical</u>	<u>Horizontal</u>
13 1. Stationing on structures		±0.02 feet
14 2. Alignment on structures		±0.02 feet
15 3. Superstructure elevations	±0.01 feet	
16	variation from	
17	plan elevation	
18 4. Substructure	±0.02 feet	
19	variation from	
20	Plan grades.	
21		

22 Buried structures shall be within the tolerances described in Section 6-20.3.
23
24 The Contracting Agency may spot-check the Contractor's surveying. These spot-checks
25 will not change the requirements for normal checking by the Contractor.
26
27 When staking the following items, the Contractor shall perform independent checks from
28 different secondary control to ensure that the points staked for these items are within the
29 specified survey accuracy tolerances:
30
31 Piles
32 Shafts
33 Footings
34 Columns
35
36 The Contractor shall calculate coordinates for the points associated with piles, shafts,
37 footings and columns. The Contracting Agency will verify these coordinates prior to
38 issuing approval to the Contractor for commencing with the survey work. The Contracting
39 Agency will require up to seven calendar days from the date the data is received to issuing
40 approval.
41
42 Contract work to be performed using contractor-provided stakes shall not begin until the
43 stakes are approved by the Contracting Agency. Such approval shall not relieve the
44 Contractor of responsibility for the accuracy of the stakes.
45
46 **Payment**
47 Payment will be made for the following bid item when included in the proposal:
48
49 "Structure Surveying", lump sum.
50
51 The lump sum contract price for "Structure Surveying" shall be full pay for all labor,
52 equipment, materials, and supervision utilized to perform the Work specified, including

1 any resurveying, checking, correction of errors, replacement of missing or damaged
2 stakes, and coordination efforts.

3
4 1-05.4.OPT2.GR1

5 **(January 13, 2021)**

6 **Contractor Surveying - Roadway**

7 The Contracting Agency has provided primary survey control in the Plans.

8
9 The Contractor shall be responsible for setting, maintaining, and resetting all alignment
10 stakes, slope stakes, and grades necessary for the construction of the roadbed, drainage,
11 surfacing, paving, channelization and pavement marking, illumination and signals,
12 guardrails and barriers, and signing. Except for the survey control data to be furnished
13 by the Contracting Agency, calculations, surveying, and measuring required for setting
14 and maintaining the necessary lines and grades shall be the Contractor's responsibility.

15
16 The Contractor shall inform the Engineer when monuments are discovered that were not
17 identified in the Plans and construction activity may disturb or damage the monuments.
18 All monuments noted on the plans "DO NOT DISTURB" shall be protected throughout the
19 length of the project or be replaced at the Contractors expense.

20
21 Detailed survey records shall be maintained, including a description of the work
22 performed on each shift, the methods utilized, and the control points used. The record
23 shall be adequate to allow the survey to be reproduced. A copy of each day's record shall
24 be provided to the Engineer within three working days after the end of the shift.

25
26 The meaning of words and terms used in this provision shall be as listed in "Definitions of
27 Surveying and Associated Terms" current edition, published by the American Congress
28 on Surveying and Mapping and the American Society of Civil Engineers.

29
30 The survey work shall include but not be limited to the following:

- 31
- 32 1. Verify the primary horizontal and vertical control furnished by the Contracting
33 Agency, and expand into secondary control by adding stakes and hubs as well
34 as additional survey control needed for the project. Provide descriptions of
35 secondary control to the Contracting Agency. The description shall include
36 coordinates and elevations of all secondary control points.
 - 37
38 2. Establish, the centerlines of all alignments, by placing hubs, stakes, or marks on
39 centerline or on offsets to centerline at all curve points (PCs, PTs, and PIs) and
40 at points on the alignments spaced no further than 50 feet.
 - 41
42 3. Establish clearing limits, placing stakes at all angle points and at intermediate
43 points not more than 50 feet apart. The clearing and grubbing limits shall be 5
44 feet beyond the toe of a fill and 10 feet beyond the top of a cut unless otherwise
45 shown in the Plans.
 - 46
47 4. Establish grading limits, placing slope stakes at centerline increments not more
48 than 50 feet apart. Establish offset reference to all slope stakes. If Global
49 Positioning Satellite (GPS) Machine Controls are used to provide grade control,
50 then slope stakes may be omitted at the discretion of the Contractor
- 51

- 1 5. Establish the horizontal and vertical location of all drainage features, placing
2 offset stakes to all drainage structures and to pipes at a horizontal interval not
3 greater than 25 feet.
- 4
- 5 6. Establish roadbed and surfacing elevations by placing stakes at the top of
6 subgrade and at the top of each course of surfacing. Subgrade and surfacing
7 stakes shall be set at horizontal intervals not greater than 50 feet in tangent
8 sections, 25 feet in curve sections with a radius less than 300 feet, and at 10-
9 foot intervals in intersection radii with a radius less than 10 feet. Transversely,
10 stakes shall be placed at all locations where the roadway slope changes and at
11 additional points such that the transverse spacing of stakes is not more than 12
12 feet. If GPS Machine Controls are used to provide grade control, then roadbed
13 and surfacing stakes may be omitted at the discretion of the Contractor.
- 14
- 15 7. Establish intermediate elevation benchmarks as needed to check work
16 throughout the project.
- 17
- 18 8. Provide references for paving pins at 25-foot intervals or provide simultaneous
19 surveying to establish location and elevation of paving pins as they are being
20 placed.
- 21
- 22 9. For all other types of construction included in this provision, (including but not
23 limited to channelization and pavement marking, illumination and signals,
24 guardrails and barriers, and signing) provide staking and layout as necessary to
25 adequately locate, construct, and check the specific construction activity.
- 26
- 27 10. Contractor shall determine if changes are needed to the profiles or roadway
28 sections shown in the Contract Plans in order to achieve proper smoothness
29 and drainage where matching into existing features, such as a smooth transition
30 from new pavement to existing pavement. The Contractor shall submit these
31 changes to the Engineer for review and approval 10 days prior to the beginning
32 of work.
- 33

34 The Contractor shall provide the Contracting Agency copies of any calculations and
35 staking data when requested by the Engineer.

36

37 The Contractor shall ensure a surveying accuracy within the following tolerances:

	<u>Vertical</u>	<u>Horizontal</u>
39 Slope stakes	±0.10 feet	±0.10 feet
40 Subgrade grade stakes set		
41 0.04 feet below grade	±0.01 feet	±0.5 feet
42		(parallel to alignment)
43		±0.1 feet
44		(normal to alignment)
45		
46		

1	Stationing on roadway	N/A	±0.1 feet
2	Alignment on roadway	N/A	±0.04 feet
3	Surfacing grade stakes	±0.01 feet	±0.5 feet
4			(parallel to alignment)
5			±0.1 feet
6			(normal to alignment)
7			
8	Roadway paving pins for		
9	surfacing or paving	±0.01 feet	±0.2 feet
10			(parallel to alignment)
11			±0.1 feet
12			(normal to alignment)

13
14 The Contracting Agency may spot-check the Contractor's surveying. These spot-checks
15 will not change the requirements for normal checking by the Contractor.
16

17 When staking roadway alignment and stationing, the Contractor shall perform
18 independent checks from different secondary control to ensure that the points staked are
19 within the specified survey accuracy tolerances.
20

21 The Contractor shall calculate coordinates for the alignment. The Contracting Agency will
22 verify these coordinates prior to issuing approval to the Contractor for commencing with
23 the work. The Contracting Agency will require up to seven calendar days from the date
24 the data is received.
25

26 Contract work to be performed using contractor-provided stakes shall not begin until the
27 stakes are approved by the Contracting Agency. Such approval shall not relieve the
28 Contractor of responsibility for the accuracy of the stakes.
29

30 Stakes shall be marked in accordance with Standard Plan A10.10. When stakes are
31 needed that are not described in the Plans, then those stakes shall be marked, at no
32 additional cost to the Contracting Agency as ordered by the Engineer.
33

34 ***Payment***

35 Payment will be made for the following bid item when included in the proposal:
36

37 "Roadway Surveying", lump sum.
38

39 The lump sum contract price for "Roadway Surveying" shall be full pay for all labor,
40 equipment, materials, and supervision utilized to perform the Work specified, including
41 any resurveying, checking, correction of errors, replacement of missing or damaged
42 stakes, and coordination efforts.
43

44 1-05.4.OPT3.GR1

45 ***(April 4, 2011)***

46 ***Licensed Surveyors***

47 The Contractor shall be responsible for reestablishing or locating legal survey markers
48 such as GLO monuments or property corner monuments, conduct boundary surveys to
49 determine Contracting Agency right-of-way locations, and obtain, review and analyze
50 deeds and records as necessary to determine these boundaries. The Contracting Agency
51 will provide "rights of entry" as needed by the Contractor to perform the work.

The Contractor shall brush out or clear and stake or mark the right-of-way lines as designated by the Engineer.

The Contractor shall inform the Engineer when monuments are discovered that were not identified in the Plans and construction activity may disturb or damage the monuments. All monuments noted on the plans "DO NOT DISTURB" shall be protected throughout the length of the project or be replaced at Contractors expense.

When required, the Contractor shall prepare and file a Record of Survey map in accordance with RCW 58.09 and provide a recorded copy to the Contracting Agency. The Contracting Agency will provide all existing base maps, existing horizontal and vertical control, and other material available with Washington State Plane Coordinate information to the Contractor. The Contracting Agency will also provide maps, plan sheets, and/or aerial photographs clearly identifying the limits of the areas to be surveyed. The Contractor shall establish Washington State Plane Coordinates on all points required in the Record of Survey and other points designated in the Contract documents.

Existing right of way documentation, existing base maps, existing horizontal and vertical control descriptions, maps, plan sheets, aerial photographs and all other available material may be viewed by prospective bidders at the office of the Engineer.

The Contractor shall perform all of the necessary calculations for the contracted survey work and shall provide copies of these calculations to the Contracting Agency. Electronic files of all survey data shall be provided and in a format acceptable to the Contracting Agency.

All survey work performed by the Contractor shall conform to all applicable sections of the Revised Code of Washington and the Washington Administrative Code.

The Contractor shall provide all traffic control, signing, and temporary traffic control devices in order to provide a safe work zone.

Payment

Payment will be made in accordance with Section 1-09.6 for the following bid item when included in the proposal:

"Licensed Surveying", Force Account.

For the purpose of providing a common proposal for all bidders, the Contracting Agency has entered an amount for the item "Licensed Surveying" in the bid proposal to become a part of the total bid by the Contractor.

1-05.4.OPT4.GR1

(March 9, 2023)

Contractor Surveying – ADA Features

ADA Feature Staking Requirements

The Contractor shall be responsible for setting, maintaining, and resetting all alignment stakes, and grades necessary for the construction of the ADA features. Calculations, surveying, and measuring required for setting and maintaining the necessary lines and grades shall be the Contractor's responsibility. The Contractor shall build the ADA features within the specifications in the Standard Plans and contract documents.

1
2 **ADA Feature Contract Compliance**

3 The Contractor shall be responsible for completing measurements to verify all ADA
4 features comply with the Contract in the presence of the Engineer.

5
6 **ADA Feature As-Built Measurements**

7 The Contractor shall be responsible for providing the latitude and longitude of each
8 ADA feature as indicated on the ADA Inspection Form(s) (WSDOT Form 224-020).

9
10 The completed ADA Inspection Form(s) (WSDOT Form 224-020) shall be submitted
11 as a Type 3 Working Drawing and transmitted to the Engineer within 30 calendar
12 days of completing the ADA feature. After acceptance, the Contracting Agency will
13 submit the final form(s) to the WSDOT ADA Steward.

14
15
16 **Payment**

17 Payment will be made for the following bid item that is included in the Proposal:

18
19 "ADA Features Surveying", lump sum.

20
21 The lump sum Contract price for "ADA Features Surveying" shall be full pay for all the
22 Work as specified.

23
24 In the instance where an ADA feature does not meet accessibility requirements, all work
25 to replace non-compliant work and then to measure, record the as-built measurements,
26 and transmit the electronic forms to the Engineer shall be completed at no additional cost
27 to the Contracting Agency.

28
29 1-05.9.GR1

30 **Equipment**

31
32 1-05.9.INST1.GR1

33 Section 1-05.9 is supplemented with the following:

34
35 1-05.9.OPT1.FR1

36 **(April 7, 2008)**

37 **General**

38 This specification contains requirements for the use of machine control grading.

39
40 Instead of providing grade control through construction stakes, the Contractor may control
41 grade with equipment that is controlled by a machine control system.

42
43 The Contractor may use any type of equipment and machine control system that produces
44 results meeting the requirements of the Contract.

45
46 Electronic data is provided for the Contractor's convenience, and is not a part of the
47 Contract. No guarantee or warranty is made by the Contracting Agency that electronic
48 data provided to the Contractor: is compatible with any of the systems that are used by
49 the Contractor; is complete; is representative of actual conditions at the project site, or;
50 accurately reflects the quantities and character of the actual Work required. The furnishing
51 of electronic design data or documentation shall not relieve the Contractor from any risks
52 or of any duty to make examinations and investigations as required by Section 1-02.4 or

1 any other responsibility under the Contract or as required by law. Except as provided
2 above, no corrections, additions, or updates of any kind will be made to electronic data
3 provided to the Contractor.
4

5 The Engineer may perform spot checks of the Contractor's machine control grading
6 results, calculations, records, field procedures, and quality control measures. If the
7 Engineer determines that the Work being performed is not achieving results that will meet
8 the Contract requirements, the Contractor shall make corrections to the Work at no
9 additional cost to the Contracting Agency.
10

11 ***WSDOT Responsibilities***

- 12 1. The Engineer will set the initial horizontal and vertical control points for the project
13 as shown in the Contract documents.
14
- 15 2. The Engineer will provide additional datum and scale factor information upon
16 request.
17
- 18 3. After execution of the Contract, the Engineer will make available upon written request
19 the following electronic data used to design the project:
20

21 *** \$\$1\$\$ ***
22

23 Data may be obtained by furnishing a written request to the Engineer at the following
24 address:
25

26 *** \$\$2\$\$ ***
27

28 ***Contractor's Responsibilities***

- 29 1. The Contractor shall provide any information or data that is requested by the
30 Contracting Agency for the purpose of performing the verification of quantities, and
31 quality.
32
- 33 2. The Contractor shall be responsible for any edits or conversions of the Contracting
34 Agencies electronic data whether done by the Contractor or a vendor that is hired by
35 the Contractor to perform such edits or conversions.
36
- 37 3. The Contractor shall be responsible for the accuracy and usability of any data or
38 model that is developed from the Contracting Agencies data.
39
- 40 4. The Contractor shall be responsible for checking and recalibrating Machine Control
41 Equipment as required to achieve results that meet the requirements of the Contract.
42
- 43 5. The Contractor shall be responsible for establishing any additional control points
44 needed to achieve results that meet the requirements of the Contract.
45
- 46 6. The Contractor shall provide the Contracting Agency electronic as-built construction
47 data for the final Roadway surface model in a MicroStation format.
48
- 49 7. One week prior to the start of grading operations the Contractor shall meet with the
50 Engineers staff to review the grading plans, quality processes, and tolerance
51 requirements.
52

1 **Payment**
2 All costs associated with the use of machine control grading equipment are incidental to
3 related items of Work, and no additional payment will be provided.
4
5 1-05.9.OPT2.FR1
6 (March 9, 2023)
7 The Contracting Agency suspects that the following noxious weeds (aquatic or upland) or
8 aquatic invasive species exist within the project boundary:
9
10 *** \$\$1\$\$ ***
11
12 To prevent the spread of noxious weeds and aquatic invasive species, the Contractor
13 shall clean all equipment in accordance with the following:
14
15 1. Permits;
16
17 2. The current edition of the Washington Department of Fish and Wildlife's
18 publication, "Invasive Species Management Protocols"; and
19
20 3. *** \$\$2\$\$ ***
21
22 1-05.14.GR1
23 **Cooperation with Other Contractors**
24
25 1-05.14.INST1.GR1
26 Section 1-05.14 is supplemented with the following:
27
28 1-05.14.OPT1.FR1
29 **(March 13, 1995)**
30 **Other Contracts Or Other Work**
31 It is anticipated that the following work adjacent to or within the limits of this project will
32 be performed by others during the course of this project and will require coordination of
33 the work:
34
35 *** \$\$1\$\$ ***
36
37 1-05.14.OPT2.FR1
38 (March 13, 1995)
39 The Contractor on this project shall provide sufficient room within the right of way for a
40 two-way haul road past the Contractor's operations for use of the *** \$\$1\$\$ *** Contractor.
41
42 1-05.14.OPT3.GR1
43 **(March 20, 2025)**
44 **Speed Safety Camera System Vendor**
45 Coordination with a vendor managed by the Contracting Agency to provide portable
46 Speed Safety Camera Systems (SSCS) when workers are present within the work zone
47 may be required. If a SSCS is used on this Contract, the SSCS vendor's field personnel
48 will need to enter the temporary traffic control zone to place and remove required signage
49 and equipment to implement the automated speed enforcement. The SSCS vendor may
50 document the work zone traffic control setup provided by the Contractor to confirm
51 workers are present prior to commencing operations with the SSCS.
52

The Engineer will set up a coordination meeting between the Contractor's designated traffic control manager, traffic control supervisor, the Contracting Agency, and the SSCS vendor's field personnel a minimum of 5 working days prior to the first anticipated implementation date of the SSCS. At a minimum, coordination will include the following:

1. The anticipated date and time the SSCS vendor will be on site.
2. The expected work area location and temporary traffic control or staged traffic plan that will be in place when the vendor will be on site, including the location(s) of any Contractor-provided Radar Speed Display Sign (RSDS) if included in the project.
3. Location for the SSCS vendor's enforcement unit, photo enforcement sign, and RSDS (may be vendor-provided if one is not provided by the Contractor).
4. Provide contact information between Contractor's traffic control manager, traffic control supervisor, Contracting Agency staff, and SSCS vendor.

1-06.GR1

Control of Material

1-06.INST1.GR1

Section 1-06 is supplemented with the following:

1-06.OPT2.GR1

Buy America Requirements

1-06.OPT2(A).GR1

(October 1, 2025)

General Requirements

In accordance with Buy America requirements contained in 23 CFR 635.410 and 2 CFR 184, the following materials must be produced in the United States:

1. All Iron or Steel Products used in the project. This means all manufacturing processes, from the initial melting stage through the application of coatings, occurred in the United States.
2. All Manufactured Products used in the project. This means the manufactured product was manufactured (final assembly) in the United States.
3. All Construction Materials used in the project. This means that all manufacturing processes for the construction material occurred in the United States.

An article, material, or supply will be classified in one of four categories: 1) Iron or Steel Product, 2) Manufactured Product, 3) Construction Material, or 4) Excluded Material. Only a single category will apply to an item except as follows:

1. With respect to precast concrete products that are classified as Manufactured Products, the components of precast concrete products that consist wholly or predominantly of iron, steel, or combination of both shall meet the requirements for and be tracked as an Iron or Steel Product. The item shall also meet the requirements for and be tracked as a Manufactured Product.

- 1
2
3 2. With respect to intelligent transportation systems and other electronic hardware
4 systems that are classified as Manufactured Products, the cabinets or other
5 enclosures of such systems that consist wholly or predominantly of iron, steel,
6 or a combination of both, shall meet the requirements for and be tracked as an
7 Iron or Steel Products. The item shall also meet the requirements for and be
8 tracked as a Manufactured Product.

9 Some contract items are composed of multiple parts that may fall into different categories.
10 Individual components will be categorized as a Construction Material, a Manufactured
11 Product, an Iron or Steel Product, or an excluded material based on their composition
12 when they arrive at the staging area or work site.
13

14 **Definitions**

- 15 1. Construction Material: Defined as any article, material, or supply brought to the
16 construction site for incorporation into the final product. Construction materials
17 include an article, material, or supply that is or consists primarily of:
18
19 a. Non-ferrous metals including all manufacturing processes, from initial smelting
20 or melting through final shaping, coating, and assembly;
21
22 b. Plastic and polymer-based products including all manufacturing processes, from
23 initial combination of constituent plastic or polymer-based inputs, or, where
24 applicable, constituent composite materials, until the item is in its final form);
25
26 c. Glass including all manufacturing processes, from initial batching and melting of
27 raw materials through annealing, cooling, and cutting);
28
29 d. Fiber optic cable (includes drop cable) including all manufacturing processes,
30 from initial ribboning (if applicable), through buffering, fiber stranding and
31 jacketing, (fiber optic cable also includes the standards for glass and optical
32 fiber);
33
34 e. Optical fiber including all manufacturing processes, from the initial preform
35 fabrication stage, though the completion of the draw;
36
37 f. Lumber including all manufacturing processes, from initial debarking through
38 treatment and planing;
39
40 g. Drywall including all manufacturing processes, from initial blending of mined or
41 synthetic gypsum plaster and additives through cutting and drying of
42 sandwiched panels; or
43
44 h. Engineered wood including all manufacturing processes from the initial
45 combination of constituent materials until the wood product is in its final form.

46
47 If a Construction Material is not manufactured in the United States it shall be
48 considered a Foreign Construction Material.
49

- 50 2. Excluded Material: A material where Buy America requirements do not apply. This
51 includes the following:
52

- 1 a. Materials excluded by Section 70917(c) of the Buy America, Build America Act
2 with respect to aggregates this includes cement and cementitious materials,
3 aggregates such as stone, sand, or gravel or aggregate binding agents or
4 additives. These materials shall be classified as excluded materials based on
5 the composition when brought to the work site. It also includes combinations of
6 these excluded materials when mixtures of Excluded Materials are delivered to
7 the work site without final form for incorporation into the project (i.e. wet concrete
8 and HMA). If they are formed prior to delivery, they are a Manufactured Product
9 and not an Excluded Material.
- 10
- 11 b. Temporary materials that are not being permanently incorporated into the
12 project.
- 13
- 14 c. Raw or minimal processed materials where the article, material, or supply does
15 not fall into any of the categories, as it is not a Manufactured Product, an Iron or
16 Steel Product, or a Construction Material and when these materials are
17 delivered to the work site without final form for incorporation into the product (i.e.
18 seed mix and topsoil). If they are formed prior to delivery, and are not an Iron or
19 Steel Product or a Construction Material, they are a Manufactured Product and
20 not an Excluded Material.
- 21
- 22 3. Iron or Steel Product: An article, material, or supply that consist of wholly or
23 predominantly of iron or steel or a combination of both. To be considered
24 predominantly of iron or steel or a combination of both means that the cost of the iron
25 and steel content exceeds 50 percent of the total cost of all its components. The
26 cost of iron and steel is based on a good faith estimate of the cost of the iron or steel
27 components.
- 28
- 29 4. Manufactured Product: A Manufactured Product includes any item produced as a
30 result of the manufacturing process. Items that should be treated as a manufactured
31 product (rather than a construction material) are: 1) items that consist of two or more
32 of the listed construction materials that have been combined together through a
33 manufacturing process, and 2) items that include at least one of the listed
34 construction materials as defined above, combined with a material that is not listed
35 through a manufacturing process.
- 36
- 37 If a product is not an Iron or Steel Product, a Construction Material, or an Excluded
38 Material, it is a Manufactured Product.
- 39
- 40 If a Manufactured Material is not manufactured in the United States, it shall be
41 considered a Foreign Manufactured Product.
- 42
- 43 5. United States: To further define the coverage, a domestic product is a manufactured
44 steel construction material that was produced in one of the 50 states, the District of
45 Columbia, Puerto Rico, or in the territories and possessions of the United States.
- 46

Iron or Steel Product Requirements

47 Iron or Steel Products that are permanently incorporated into the project shall consist of
48 American-made materials only. Buy America requirements do not apply to temporary steel
49 or iron items, e.g., temporary sheet piling, temporary bridges, steel scaffolding and
50 falsework.
51
52

1 Minor amounts of foreign steel and iron may be utilized in this project provided the cost
2 of the foreign material used does not exceed one-tenth of one percent of the total contract
3 cost or \$2,500.00, whichever is greater.
4

5 American-made material is defined as material having all manufacturing processes
6 occurring domestically.
7

8 If domestically produced steel billets or iron ingots are exported outside of the United
9 States, as defined above, for any manufacturing process then the resulting product does
10 not conform to the Buy America requirements. Additionally, products manufactured
11 domestically from foreign source steel billets or iron ingots do not conform to the Buy
12 America requirements because the initial melting and mixing of alloys to create the
13 material occurred in a foreign country.
14

15 Manufacturing begins with the initial melting and mixing and continues through the coating
16 stage. Any process which modifies the chemical content, the physical size or shape, or
17 the final finish is considered a manufacturing process. The processes include rolling,
18 extruding, machining, bending, grinding, drilling, welding, and coating. The action of
19 applying a coating to steel or iron is deemed a manufacturing process. Coating includes
20 epoxy coating, galvanizing, aluminizing, painting, and any other coating that protects or
21 enhances the value of steel or iron. Any process from the original reduction from ore to
22 the finished product constitutes a manufacturing process for iron.
23

24 Due to a nationwide waiver, Buy America requirements do not apply to raw materials (iron
25 ore and alloys), scrap (recycled steel or iron), and pig iron ore processed, pelletized, and
26 reduced iron ore.
27

28 The following are considered to be steel manufacturing processes:
29

- 30 1. Production of steel by any of the following processes:
 - 31 a. Open hearth furnace.
 - 32 b. Basic oxygen.
 - 33 c. Electric furnace.
 - 34 d. Direct reduction.
 - 35
 - 36
 - 37
 - 38
 - 39
- 40 2. Rolling, heat treating, and any other similar processing.
- 41
- 42 3. Fabrication of the products:
 - 43 a. Spinning wire into cable or strand.
 - 44 b. Corrugating and rolling into culverts.
 - 45
 - 46
 - 47
 - 48 c. Shop fabrication.
 - 49

50 A certification of materials origin will be required for all iron or steel products prior to such
51 items being incorporated into the permanent work. The Contractor will not receive
52 payment until the certification is received by the Engineer. The certification shall be on

WSDOT Form 350-109 provided by the Engineer, or such other form approved by the Contracting Agency, provided it contains the same information as WSDOT Form 350-109.

Manufactured Products and Construction Material Requirements

A Contractor provided certification of materials origin will be required before each progress estimate or payment. The Contractor will not receive payment until the certification is received by the Engineer. The Contractor shall certify that all Manufactured Products and all Construction Materials installed during the current progress estimate period meet the Buy America requirements. The certification shall be on WSDOT Form 350-108 provided by the Engineer, or such other form approved by the Contracting Agency, provided it contains the same information as WSDOT Form 350-108.

Iron or Steel Products in a Manufactured Product

In addition to providing the certification of materials origin for the Manufactured Product, the iron or steel products in a manufactured product are subject to the Buy America requirements as follows:

1. When a precast concrete product is classified as a Manufactured Product, the components that are an Iron or Steel Product shall follow the "Iron or Steel Requirements" of this Specification.
2. When an electronic hardware system such as an intelligent transportation system is classified as a Manufactured Product, the cabinets and the other enclosures of such systems that are an Iron or Steel Product shall follow the "Iron or Steel Requirements" of this Specification.

Waiver for De Minimis Costs

Minor amounts of Foreign Construction Materials and Foreign Manufactured Products may be utilized in this project, provided that the total cost of the Foreign Construction Materials and Foreign Manufactured Products does not exceed \$1,000,000 and does not exceed 5 percent of the total applicable material costs calculated as follows:

$$\frac{\text{Total cost of Foreign Construction Materials} + \text{Total cost of Foreign Manufactured Products}}{\text{Total applicable material costs}} < 0.05$$

The total applicable material costs shall be the sum of the costs of all Construction Materials, all Iron or Steel Products, and all Manufactured Products. Total applicable material costs does not include Excluded Materials.

1-06.OPT2(B).FR1

(March 20, 2025)

The following items of work containing steel, iron or other construction materials are considered to be temporary and are excluded from the Buy America requirements:

*** \$\$1\$\$ ***

1-06.OPT2(C).GR1

(March 20, 2025)

Waiver for Small Grants

Because the federal financial assistance is less than \$500,000, this project is considered a Small Grant. Therefore, the Waiver of Buy America Requirements for De Minimis Costs and Small Grants applies to this project. This waiver removes the domestic preferences

1 for Iron or Steel Products, Manufactured Products, and Construction Materials
2 requirements contained in 2 CFR 184 and 23 CFR 635.410.
3

4 1-06.OPT3.GR1

5 **FTA Buy America Requirements**
6

7 1-06.OPT3(A).GR1

8 **(March 20, 2025)**

9 **General Requirements**

10 Construction materials used in the Project are subject to the domestic preference
11 requirement of the Build America, Buy America Act, Pub. L. 117-58, div. G, tit. IX, §§ 70911
12 - 70927 (2021) and 2 CFR 184 as implemented by the U.S. Office of Management and
13 Budget, the U.S. Department of Transportation, and FTA.
14

15 This Contract is subject to the Federal Transit Administration's (FTA's) Buy America
16 requirements in 49 C.F.R. Part 661 and 49 U.S.C. 5323(j).
17

18 In accordance with Buy America Preferences for Infrastructure Projects requirements
19 contained in 2 CFR 184 and Division G, Title IX - Build America, Buy America Act (BABA),
20 of Public Law 117-58 (Infrastructure Investment and Jobs Act), the following materials
21 must be American-made:
22

- 23 1. All steel and iron used in the project are produced in the United States. This
24 means all manufacturing processes, from the initial melting stage through the
25 application of coatings, occurred in the United States.
26
- 27 2. For manufactured products to be considered produced in the United States, (1)
28 all the manufacturing processes for the product must take place in the United
29 States; and (2) all the components of the product must be of U.S. origin. A
30 component is considered of U.S. origin if it is manufactured in the United States,
31 regardless of the origin of its subcomponents.
32
- 33 3. All construction materials are manufactured in the United States. This means
34 that all manufacturing processes for the construction material occurred in the
35 United States.
36

37 An article, material, or supply will be classified in one of three categories: 1) Steel and
38 Iron, 2) Manufactured Product, or 3) Construction Material. Only a single category will
39 apply to an item and be subject to the requirements of the Buy America requirements of
40 that category. Some contract items are composed of multiple parts that may fall into
41 different categories. Individual components will be categorized as a construction material,
42 manufactured product, or steel and iron based on their composition when they arrive at
43 the staging area or work site. The steel and iron requirements of this specification apply
44 to all construction materials made primarily of steel or iron and used in infrastructure
45 projects. These items include, but are not limited to, structural steel or iron, steel or iron
46 beams and columns, running rail and contact rail. These requirements do not apply to
47 steel or iron used as components or subcomponents of other manufactured products or
48 rolling stock, or to bimetallic power rail incorporating steel or iron components.
49

Definitions

1. Construction Material: Defined as any article, material, or supply brought to the construction site for incorporation into the final product. Construction materials include an article, material, or supply that is or consists primarily of:
 - a. Non-ferrous metals: including all manufacturing processes, from initial smelting or melting through final shaping, coating, and assembly.
 - b. Plastic and polymer-based products (including all manufacturing processes, from initial combination of constituent plastic or polymer-based inputs, or, where applicable, constituent composite materials, until the item is in its final form.
 - c. Glass (including all manufacturing processes, from initial batching and melting of raw materials through annealing, cooling, and cutting);
 - d. Fiber optic cable (includes drop cable) including all manufacturing processes, from initial ribboning (if applicable), through buffering, fiber stranding and jacketing, (fiber optic cable also includes the standards for glass and optical fiber);
 - e. Optical fiber including all manufacturing processes, from the initial preform fabrication stage, through the completion of the draw;
 - f. Lumber including all manufacturing processes, from initial debarking through treatment and planing;
 - g. Drywall including all manufacturing processes, from initial blending of mined or synthetic gypsum plaster and additives through cutting and drying of sandwiched panels; or
 - h. Engineered wood including all manufacturing processes from the initial combination of constituent materials until the wood product is in its final form.
- Construction Materials do not include items of primarily iron or steel; manufactured products; cement and cementitious materials; aggregates such as stone, sand, or gravel; or aggregate binding agents or additives.
- If a Construction Material is not manufactured in the United States it shall be considered a Foreign Construction Material.
2. Manufactured Product: A Manufactured product includes any item produced as a result of the manufacturing process. Items that consist of two or more of the listed construction materials that have been combined together through a manufacturing process, and items that include at least one of the listed materials combined with a material that is not listed through a manufacturing process, should be treated as manufactured products, rather than as construction materials.
3. Manufactured in the United States: A construction material will be considered as manufactured in the United States if all manufacturing processes have occurred in the United States.
4. Structural Steel: Defined as all structural steel products included in the project.

- 1
2 5. United States: To further define the coverage, a domestic product is a manufactured
3 steel construction material that was produced in one of the 50 states, the District of
4 Columbia, Puerto Rico, or in the territories and possessions of the United States.
5

6 ***Steel and Iron Requirements***

7 All steel and iron construction materials that are permanently incorporated into the project
8 shall consist of American-made materials only. Buy America requirements do not apply to
9 temporary steel or iron items, e.g., temporary sheet piling, temporary bridges, steel
10 scaffolding and falsework.
11

12 For iron and steel to be considered as American-made material, all steel and iron
13 manufacturing processes must take place in the United States, except metallurgical
14 processes involving refinement of steel additives.
15

16 If domestically produced steel billets or iron ingots are exported outside of the area of
17 coverage, as defined above, for any manufacturing process then the resulting product
18 does not conform to the Buy America requirements. Additionally, products manufactured
19 domestically from foreign source steel billets or iron ingots do not conform to the Buy
20 America requirements because the initial melting and mixing of alloys to create the
21 material occurred in a foreign country.
22

23 A bidder/proposer must submit to the contracting agency the appropriate Buy America
24 certification with all bids/proposals on FTA-funded contracts, except those subject to a
25 general waiver. A bid/proposal that is not accompanied by a completed Buy America
26 certification must be rejected as non-responsive. This requirement does not apply to
27 lower-tier subcontractors.
28

29 A certification of materials origin will be required for all items comprised of, or containing,
30 steel or iron construction materials prior to such items being incorporated into the
31 permanent work. The Contractor will not receive payment until the certification is received
32 by the Engineer. The certification shall be on WSDOT Form 350-109A provided by the
33 Engineer, or such other form the Contractor chooses, provided it contains the same
34 information as WSDOT Form 350-109A.
35

36 ***Manufactured Products Requirements***

37 Manufactured products that contain steel and iron will follow “Steel and Iron
38 Requirements” of this Specification.
39

40 ***Construction Material Requirements***

41 A Contractor provided certification of materials origin will be required before each
42 progress estimate or payment. The Contractor will not receive payment until the
43 certification is received by the Engineer. The Contractor shall certify that all construction
44 materials installed during the current progress estimate period meets the Build America,
45 Buy America Act. The certification shall be on WSDOT Form 350-111A, or such other form
46 the Contractor chooses, provided it contains the same information as WSDOT Form 350-
47 111A.
48

49 ***Waiver for De Minimis Costs***

50 Minor amounts of Foreign Iron and Steel, Manufactured products and Construction
51 Materials may be utilized in this project, provided that the total cost of the Iron and Steel,

1 Manufactured products and Construction Materials is no more than the lesser of
2 \$1,000,000 or 5 percent of the total applicable material costs calculated as follows:
3
4

$$\frac{\text{Total cost of Foreign Iron Steel, Manufactured Products,} \\ \text{and Construction Materials}}{\text{Total applicable material costs}} < 0.05$$

6
7 The total applicable material costs shall be the sum of the costs all Iron and Steel,
8 Manufactured products and Construction Materials, Total applicable material costs does
9 not include the cost of cement and cementitious materials; aggregates such as stone,
10 sand, or gravel; or aggregate binding agents or additives.
11

12 1-06.OPT3(B).GR1

13 **(March 20, 2025)**

14 **General Requirements**

15 Construction materials used in the Project are subject to the domestic preference
16 requirement of the Build America, Buy America Act, Pub. L. 117-58, div. G, tit. IX, §§ 70911
17 - 70927 (2021) and 2 CFR 184 as implemented by the U.S. Office of Management and
18 Budget, the U.S. Department of Transportation, and FTA.
19

20 This Contract is subject to the Federal Transit Administration's (FTA's) Buy America
21 requirements in 49 C.F.R. Part 661 and 49 U.S.C. 5323(j).
22

23 In accordance with Buy America Preferences for Infrastructure Projects requirements
24 contained in 2 CFR 184 and Division G, Title IX - Build America, Buy America Act (BABA),
25 of Public Law 117-58 (Infrastructure Investment and Jobs Act), must be American-made:
26

- 27 1. All steel and iron used in the project are produced in the United States. This
28 means all manufacturing processes, from the initial melting stage through the
29 application of coatings, occurred in the United States.
30
- 31 2. For manufactured products to be considered produced in the United States, (1)
32 all the manufacturing processes for the product must take place in the United
33 States; and (2) all the components of the product must be of U.S. origin. A
34 component is considered of U.S. origin if it is manufactured in the United States,
35 regardless of the origin of its subcomponents.
36
- 37 3. All construction materials are manufactured in the United States. This means
38 that all manufacturing processes for the construction material occurred in the
39 United States.
40

41 **Waiver for De Minimis Costs**

42 Because the federal financial assistance is less than \$500,000, this project is considered
43 a Small Grant and the Waiver of Buy America Requirements for De Minimis Costs and
44 Small Grants applies to this project. This waiver removes the domestic preferences for
45 iron and steel, manufactured products, and construction materials used in infrastructure
46 projects for this Project.
47

48 1-06.1.GR1

49 **Approval of Materials Prior to Use**
50

1 1-06.1.INST1.GR1
2 Section 1-06.1 is supplemented with the following:
3
4 1-06.1.OPT1.GR1
5 (April 3, 2017)
6 For each proposed material that is required to be submitted for approval using either the
7 QPL or RAM process the Contractor will be allowed to submit for approval two material
8 sources or manufacturers per material type at no cost. Additional material sources or
9 manufacturers may be submitted for approval and will be processed at a cost of \$125.00
10 per material source or manufacturer submitted by QPL submittal and \$400.00 per material
11 submitted by RAM. All costs for processing additional material sources or manufacturers
12 will be deducted from monies due or that may come due to the Contractor. Subject to a
13 request by the Contractor and a determination by the Engineer the costs for processing
14 may be waived.
15
16 1-07.GR1
17 **Legal Relations and Responsibilities to the Public**
18
19 1-07.1.GR1
20 **Laws to be Observed**
21
22 1-07.1.INST1.GR1
23 Section 1-07.1 is supplemented with the following:
24
25 1-07.1.OPT1.GR1
26 **(October 3, 2022)**
27 ***Ferry Tolls and Service***
28 No gratuity of tolls or special service will be granted to the Contractor. Contractor use of
29 ferry service shall be in accordance with the published rates, tolls, and schedules for the
30 general public.
31
32 1-07.1.OPT2.GR1
33 **(October 3, 2022)**
34 ***Ferry Terminal Access and Security***
35 The Contractor shall comply with the following access and security requirements when
36 performing the Work.
37
38 ***Contractor Employee Identification Lists***
39 The Contractor shall submit to the Engineer a list of all personnel who will be working on
40 WSF property or within 300 feet of the WSF marine structures. This list shall contain the
41 Contract number, WSF property, contract description, date site work begins, company
42 name, main office phone number, contact person(s), contact phone number(s), on site
43 personnel employees' names and photo ID numbers.
44
45 ***Contractor Employee I.D. Cards***
46 Contractor employees shall present photo identification to WSF Terminal personnel every
47 time they seek entry onto WSF property for the purpose of performing work or providing
48 services. The same Contractor employee shall be listed on the Contractor Employee
49 Identification List as submitted. The photo ID shall:
50
51 • Contain the full name of the individual.

- Contain a photograph clearly depicting the person's current facial features. (Driver's license is not acceptable.)
- Contain the name of the issuing Contractor organization.
- Shall be laminated or constructed of material so as to be tamper resistant.
- Shall bear a photo ID number issued by the issuing Contractor's organization.

Employees shall wear their photo ID in a visible location at all times while on WSF properties or working area.

Contractor Parking Pass

If parking is allowed in the Contract, the Contractor will be issued a disposable parking pass that allows the vehicle to be parked at a designated location at the terminal on the day of issue and for the period during which services are provided. A pass shall be obtained each day the Contractor's vehicle enters the facility. Any vehicle not displaying a parking pass is subject to being towed at the owner's risk and expense. All vehicles entering WSF facilities are subject to security screening and inspection by Washington State Patrol (WSP) personnel.

Restricted Areas and Employee Areas

All areas on WSF terminals and vessels that are not considered public access areas will be designated with conspicuous signs as "**Restricted Areas**" or "**Employee Only Areas**". Areas will be locked, barricaded, or otherwise physically delineated as needed. Contractor employees who need to enter restricted or employee areas shall obtain permission/direction from WSF personnel. "**Restricted Areas**" require that one person for every five people be in possession of Transportation Workers Identification Card (TWIC) issued by the Transportation Security Administration as required under the Maritime Transportation Security Act. If the Contractor's work will involve extended amounts of time in these areas, they will be required to have personnel with TWIC identification. An unauthorized person in a restricted area constitutes a reportable "Breach of Security" that will be reported by the Contracting Agency to the U.S. Coast Guard National Response Center in Washington, D.C.

Note: "**Restricted Areas**" are Terminal Supervisor's office, security communication rooms, vehicle slips and overhead loading when security gate is closed and vessel is tied up.

Access to the vessel when the traffic arm is down is allowed only with permission from WSF personnel.

Material Delivery

Material deliveries to WSF property shall be pre-arranged with the Engineer.

Equipment Identification

Contractor's derricks, skiffs, and trailers shall be clearly identified with the company's name or logo. At the end of the work shift, all equipment and construction materials shall be picked up and secured in a way that readily identifies the material as belonging to the Contractor.

1 **Payment**
2 All costs associated with conforming to terminal ferry access security requirements shall
3 be included in the unit Contract prices for the associated items of Work.
4
5 1-07.1.OPT3.FR1
6 **(April 3, 2006)**
7 **Confined Space**
8 Confined spaces are known to exist at the following locations:
9
10 *** \$1\$\$ ***
11
12 The Contractor shall be fully responsible for the safety and health of all on-site workers
13 and compliant with Washington Administrative Code (WAC 296-809).
14
15 The Contractor shall prepare and implement a confined space program for each of the
16 confined spaces identified above. The Contractors Confined Space program shall be
17 sent to the Contracting Agency at least 30 days prior to the Contractor beginning work in
18 or adjacent to the confined space. No work shall be performed in or adjacent to the
19 confined space until the plan is submitted to the Engineer as required. The Contractor
20 shall communicate with the Engineer to ensure a coordinated effort for providing and
21 maintaining a safe worksite for both the Contracting Agency's and Contractor's workers
22 when working in or near a confined space.
23
24 All costs to prepare and implement the confined space program shall be included in the
25 bid prices for the various items associated with the confined space work.
26
27 1-07.1.OPT4.FR1
28 **(October 3, 2022)**
29 **Noise Exemption/Variance Conditions**
30 The jurisdiction(s) listed below has granted a nighttime noise exemption and/or variance
31 to its respective noise control code and WAC 173-60 to allow Contracting Agency
32 representatives to perform nighttime Work under the conditions as listed below.
33
34 Jurisdiction Nights Expiration Date
35 *** \$1\$\$ *** *** \$2\$\$\$*** *** \$3\$\$\$ ***
36
37 This exemption/variance allows the Contractor to exceed the local noise ordinance levels.
38 All nighttime Work activities require approved noise exemptions or variances from the
39 listed jurisdiction(s) including nighttime Work within the Contracting Agency's Right-of-
40 Way.
41
42 The Contractor shall perform the following measures to minimize construction noise:
43
44 1. All trucks performing export haul shall have well maintained bed liners as
45 inspected and accepted by the Engineer.
46
47 2. Truck tailgate banging is prohibited. All truck tailgates shall be secured to
48 prevent excessive noise from banging.
49
50 3. A copy of the noise exemption and/or variance shall be kept on the project site
51 at all times.
52

1 4. The Contractor shall mail Nighttime Work Mail Notifications to residents located
2 within *** \$\$\$\$ *** feet of Contracting Agency Right-of-Way within the nighttime
3 Work zone.

4
5 *** \$\$\$ \$ ***
6

7 The Contracting Agency will provide the Nighttime Work Mail Notification, and the
8 Contractor shall submit the following information to the Contracting Agency 20 working
9 days prior to the start of nighttime Work:

- 10
11 • Start date and duration of the nighttime Work.
12
13 • List of the expected nighttime noise sources.
14
15 • List of noise mitigation measures to be implemented.
16

17 The Contractor shall obtain the mailing distribution list of residents and property owners.
18 The Contractor shall hire a Mailing Service to print and distribute by mail the Contracting
19 Agency's provided Nighttime Work Mail Notification to the required residences *** \$\$\$ \$
20 *** working days prior to the start of the night Work.
21

22 The Contractor shall not proceed with nighttime Work unless all conditions listed in this
23 Contract are in place and the Affidavit of Service by Mailing is received by the Contracting
24 Agency 24 hours prior to the start of nighttime Work.
25

26 The Affidavit of Service by Mailing is a notarized document from the Mailing Service
27 stating that the Nighttime Work Mail Notifications were mailed. A list of addresses obtained
28 by the Contractor for the mailing shall be included with the Affidavit.
29

30 **General**

31 Failure of the Contractor to perform all obligations under this Special Provision will result
32 in the suspension of all night Work until a corrective Work plan is accepted by the
33 Engineer. Working days will continue to accrue during the period of suspension.
34

35 The Contractor shall be responsible for obtaining all exemptions or variances to perform
36 nighttime Work outside the project limits such as staging areas. A copy of each exemption
37 or variance obtained by the Contractor shall be provided to the Contracting Agency before
38 proceeding with the nighttime Work.
39

40 Other noise mitigation measures may be required, and it is understood that the Contractor
41 is responsible for devising methods that comply with all ordinances. Compliance with the
42 above noise mitigation measures shall not be considered a warranty that the equipment
43 or the activity will comply with all local regulations.
44

45 **Payment**

46 All costs to comply with the above noise exemption/variance requirements shall be
47 included in the associated items of Work.
48

(October 3, 2022)

Nighttime Construction Work Requirements

The Contractor shall perform nighttime Work within the Contracting Agency's Right-of-Way under the measures listed below to minimize construction noise:

1. All trucks performing export haul shall have well maintained bed liners as inspected and accepted by the Engineer.
2. Truck tailgate banging is prohibited. All truck tailgates shall be secured to prevent excessive noise from banging.
3. The Contractor shall mail Nighttime Work Mail Notifications to residents located within *** \$1\$ \$ feet of Contracting Agency Right-of-Way within the nighttime Work zone.

*** \$2\$ \$

The Contracting Agency will provide the Nighttime Work Mail Notification and the Contractor shall submit the following information to the Contracting Agency 20 working days prior to the start of nighttime Work:

- Start date and duration of the nighttime Work.
- List of the expected nighttime noise sources.
- List of noise mitigation measures to be implemented.

The Contractor shall obtain the mailing distribution list of residents and property owners. The Contractor shall hire a Mailing Service to print and distribute by mail the Contracting Agency's provided Nighttime Work Mail Notification to the required residences *** \$3\$ \$ working days prior to the start of the night Work.

The Contractor shall not proceed with nighttime Work unless all conditions listed in this Contract are in place and the Affidavit of Service by Mailing is received by the Contracting Agency 24 hours prior to the start of nighttime Work.

The Affidavit of Service by Mailing is a notarized document from the Mailing Service stating that the Nighttime Work Mail Notifications were mailed. A list of addresses obtained by the Contractor for the mailing shall be included with the Affidavit.

General

Failure of the Contractor to perform all obligations under this Special Provision will result in the suspension of all night Work until a corrective Work plan is accepted by the Engineer. Working days will continue to accrue during the period of suspension.

The Contractor shall be responsible for obtaining all exemptions or variances to perform nighttime Work outside the project limits such as staging areas. A copy of each exemption or variance obtained by the Contractor shall be provided to the Contracting Agency before proceeding with the nighttime Work.

Other noise mitigation measures may be required, and it is understood that the Contractor is responsible for devising methods that comply with all ordinances. Compliance with the above noise mitigation measures shall not be considered a warranty that the equipment or the activity will comply with all local regulations.

Payment

All costs to comply with the above nighttime Work requirements shall be included in the associated items of Work.

1-07.1.OPT6.FR1

(October 3, 2022)

***** \$1\$\$ *** Noise Exemption/Variance Conditions**

The jurisdiction(s) listed below has granted a nighttime noise exemption and/or variance to its respective noise control code and WAC 173-60 to allow Contracting Agency representatives to perform nighttime Work under the conditions as listed below.

Jurisdiction	Nights	Expiration Date
*** \$2\$\$ ***	*** \$3\$\$***	*** \$4\$\$ ***

This exemption/variance allows the Contractor to exceed the local noise ordinance levels. All nighttime Work activities require approved noise exemptions or variances from the listed jurisdiction(s) including nighttime Work within the Contracting Agency's Right-of-Way.

The Contractor shall perform the following measures to minimize construction noise:

1. All trucks performing export haul shall have well maintained bed liners as inspected and accepted by the Engineer.
2. Truck tailgate banging is prohibited. All truck tailgates shall be secured to prevent excessive noise from banging.
3. A copy of the noise exemption and/or variance shall be kept on the project site at all times.

*** \$5\$\$ ***

General

Failure of the Contractor to perform all obligations under this Special Provision will result in the suspension of all night Work until a corrective Work plan is accepted by the Engineer. Working days will continue to accrue during the period of suspension.

The Contractor shall be responsible for obtaining all exemptions or variances to perform nighttime Work outside the project limits such as staging areas. A copy of each exemption or variance obtained by the Contractor shall be provided to the Contracting Agency before proceeding with the nighttime Work.

Other noise mitigation measures may be required, and it is understood that the Contractor is responsible for devising methods that comply with all ordinances. Compliance with the above noise mitigation measures shall not be considered a warranty that the equipment or the activity will comply with all local regulations.

1
2 **Payment**

3 All costs to comply with the above noise exemption/variance requirements shall be
4 included in the associated items of Work.
5

6 1-07.1(2).GR1

7 **Health and Safety**
8

9 1-07.1(2).INST1.GR1

10 Section 1-07.1(2) is supplemented with the following:
11

12 1-07.1(2).OPT2.GR1

13 **(October 3, 2022)**

14 **Diving and Workboat Safety Requirements**

15 The Contractor shall comply with the requirements of WAC 296-37, "Standards for
16 Commercial Diving Operations" and the requirements contained herein as
17 applicable. The Contractor shall give the Engineer 24 hours advance notice of any
18 planned diving or workboat activity.
19

20 **General Requirements for Communications and Safety**

21 The following requirements shall be followed whenever diving or workboat activity is
22 performed at the ferry terminal:
23

- 24 • Prior to diving and workboat activity, the Contractor shall obtain approval
25 from the Engineer.
- 26
- 27 • Notification shall be made no less than one hour prior to the Diver entering
28 the water.
- 29
- 30 • The Engineer or designee will be responsible for notifying each vessel of
31 the upcoming day's diving or workboat activity.
- 32
- 33 • The Engineer will request that the vessels depart under low power (slow
34 bell) unless otherwise necessary due to weather conditions.
- 35
- 36 • The diving team and workboat operations shall not disrupt the ferry service
37 schedule.
- 38
- 39 • Communications between the Diver and the Diver's Tender shall be
40 maintained at all times.
- 41
- 42 • The Engineer and Masters shall be notified at the completion of diving and
43 workboat activity each day.
44

45 **Slip-Specific Diving Requirements**

46 The following safety rules shall be followed when diving activities are performed
47 within the diving envelope of the ferry slip. The diving envelope is defined as
48 occurring in an active ferry slip being used for vessel operations:
49

- 50 • It includes the area around all of the slip landing aid structures.
51

- A 50-yard by 50-yard box which is bisected by the centerline of the slip and runs from the off-shore portion of the apron toward shore.

A three-member minimum diving team will be required when diving within the diving envelope. The duties of the team members shall include:

- One member shall be diving.
- One member shall be in a skiff, on the trestle or on the transfer span acting as the Diver's Tender. The Diver's Tender shall maintain communication with the Diver, and the Safety Technician, at all times. In addition, the Diver's Tender shall ensure that the diver has safely surfaced and cleared the diving area five minutes prior to the vessel landing, unless the Diver is outside the envelope.
- One member shall act as a Safety Technician. The Safety Technician shall be in a skiff or on shore and shall maintain constant communication with the Diver's Tender.

Upon completion of diving activity, the Safety Technician shall notify the Engineer and Masters. Once the diver has cleared the diving area, the Safety Technician shall directly radio the Master on each arriving vessel and relay the message "DIVER CLEAR". The Engineer will provide the Safety Technician a hand-held radio for this purpose.

Slip-Specific Workboat Requirements

The following safety rules shall be followed when operating workboats at the ferry terminal:

- The workboat shall not pass in front of a ferry vessel when it is closer than 500 yards from the terminal on approach (33 CFR 165.1317).
- While the ferry vessel is making the landing approach to the ferry terminal, workboats shall maintain a 100-yard distance unless moored to a larger anchored vessel or to a landing structure for other than the active slip (33 CFR 165.1317).
- Workboats shall maintain a 25-yard distance from any ferry vessel while ferry vessels are moored at the ferry terminal unless approved by the vessel Master (33 CFR 165.1317).
- Operators of workboats shall be aware of the slip and any vessels that are or will be using the slip.
- Operators of workboats shall be aware of the ferry schedule and when ferry vessels will be departing so that they can position their workboat in a safe operating location in compliance with the requirements noted above.
- The workboat **shall not** cross under the active occupied slip unless the Master has been notified and agrees.

- Workboats shall be moored in locations that will provide visibility to vessel approaches and/or protection from any prop wash that may occur by ferry vessel approaches and departures.

Payment

All costs to comply with this Special Provision covering diver and workboat safety shall be included in related items of Work.

1-07.1(2).OPT3.FR1

(March 9, 2023)

Lead Health Protection Program

The following Structural and non-structural materials located at the project site contain lead-based products:

*** \$1\$ \$ ***

The Contractor shall be fully responsible for the safety and health of all on-site workers and maintain strict compliance with Washington Administrative Code (WAC 296-155-176). The Contractor's Lead Health Protection Program shall be submitted to the Contracting Agency as a Type 2 Working Drawing prior to the Contractor beginning Work involving exposure to materials containing lead. The Contractor shall communicate with the Engineer to ensure a coordinated effort for providing and maintaining a safe worksite for both the Contracting Agency's and Contractor's workers.

Contracting Agency personnel shall be given free and full access to all hygiene and housekeeping facilities including, but not limited to, change areas, showers, and handwashing and eating facilities.

Payment

All costs to comply with this Special Provision for the Lead Health Protection laws and regulations are the responsibility of the Contractor and shall be included in related items of work.

1-07.3.GR1

Fire Prevention and Merchantable Timber Requirements

1-07.3.INST1.GR1

Section 1-07.3 is supplemented with the following:

1-07.3.OPT1.GR1

(August 2, 2004)

The Forest Service Provisions, included in the Appendix to these Special Provisions, are made a part of this contract. The Contractor shall comply with the requirements of these Forest Service provisions at no additional cost to the Contracting Agency.

1-07.3(2).GR1

Merchantable Timber Requirements

1-07.3(2).INST1.GR1

Section 1-07.3(2) is supplemented with the following:

1 1-07.3(2).OPT1.GR1
2 (April 7, 2008)
3 This project contains merchantable timber.
4
5 *Export Restrictions* - DOT Form 410-100, Purchaser Certification for Export
6 Restricted Timber, will be included when the contract is sent to the Contractor for
7 execution. The form shall be completed and signed by the Contractor. The
8 Contractor shall send the original signed form and one copy of the signed form
9 directly to the Washington State Department of Revenue at the address on the form.
10 The Contractor shall send one signed copy along with the other documents required
11 by Section 1-03.3 to the Contracting Agency with the executed contract.
12
13 *State Tax Requirements* - It shall be the Contractor's responsibility to pay to the State
14 Department of Revenue all taxes on harvested timber.
15
16 1-07.4.GR1
17 **Sanitation**
18
19 1-07.4(2).GR1
20 **Health Hazards**
21
22 1-07.4(2).INST1.GR1
23 Section 1-07.4(2) is revised to read:
24
25 1-07.4(2).OPT1.FR1
26 (August 7, 2017)
27 This project site is known to be occupied by transients and therefore contains
28 biological hazards and associated physical hazards. These may include, but not be
29 limited to violent and dangerous individuals, hypodermic needles, garbage, broken
30 glass, human and animal excrement, drug paraphernalia, and other hazards.
31
32 The Contractor shall take precautions and perform any necessary Work required to
33 provide and maintain a safe and healthful jobsite for all workers and the public for
34 the duration of the project in accordance with all applicable laws and contract
35 requirements.
36
37 The Contractor shall ensure that the public, including persons who may be non-
38 English speaking or those who may not be able to recognize potential safety and
39 health hazards within the project area, are not harmed by the Contractors activities.
40
41 Nothing required by this Specification shall operate as a waiver of the Contractor's
42 responsibility for taking all steps necessary to ensure the safety of the public under
43 Section 1-07.23 or responsibility for liability and damages under Section 1-07.14 or
44 for any other responsibility under the Contract or as may be required by law.
45
46 **Health and Safety Plan**
47 The Contractor shall prepare a written Health and Safety Plan. The plan shall
48 be prepared under the supervision of a certified industrial hygienist and shall
49 incorporate all required County, State, and Federal health and safety provisions.
50 The plan shall include requirements of the Federal Occupational Safety and
51 Health Act of 1970 (OSHA), all amendments, and all other applicable health
52 regulations.

Preparation of the Health and Safety Plan shall include an initial site assessment by the industrial hygienist. The plan shall break initial cleanup of the project into identifiable construction areas. The plan shall be submitted to the Engineer prior to commencing cleanup Work. At least one copy of the plan shall be posted at the work site while cleanup Work is in progress. The industrial hygienist shall perform one or more follow-up site assessments as needed to approve the site following completion of the initial site cleanup.

Public Notification

The Contractor shall furnish and install the "No Trespassing" signs shown in the Plans at locations staked by the Engineer at least 72 hours prior to performing site cleanup or any potentially hazardous Work (such as clearing or operating equipment).

At the same time that "No Trespassing" signs are posted, provide written notification of the following to the Engineer and to the chief law enforcement officer of the local governmental entity where the Work will occur:

1. The precise location of each area that is posted "No Trespassing";
2. The date and time that each site was posted "No Trespassing";
3. The date, time, description and duration of the Work to be performed at each site.

At least 72 hours prior to performing site cleanup in Work areas containing encampments (such as tents, makeshift dwellings, sleeping sites, or accumulations of personal property that are not refuse), the Contractor shall post a notification at each encampment area. Each notice shall:

1. Be weather resistant, and written in both English and Spanish.
2. Be affixed to each dwelling or post mounted within 10-feet of each encampment;
3. State the Prime Contractor's company name as the entity that performed the cleanup as required by the Washington State Department of Transportation;
4. Provide the date that the notice is posted;
5. Provide date(s) and time(s) that cleanup will occur;
6. Provide the telephone number, business hours and physical address of the location where stored personal property may be claimed.
7. State that personal property will be stored for 70-days from the date of removal, and if unclaimed within that time, will be disposed of.

At the same time that notifications are posted at encampment areas, provide written notification of the schedule to perform site cleanup to the Engineer and to the following advocacy groups:

\$\$1\$\$

Acceptance of signs and notifications will be based on visual inspection that the sign and notifications meet these requirements.

Site Cleanup of Biological and Physical Hazards

An initial cleanup of the site, including all preparatory work required to make the worksite sanitary and safe in accordance with applicable laws and with the Contract, shall be completed to remove all individuals, encampments, and personal property from areas signed "No Trespassing", and to address all biological and associated physical hazards present on the project. Necessary worker training, on and off site preparations, and personal protective equipment shall be provided by the Contractor to complete this Work. If aggressive or violent individuals are encountered, the Contractor shall notify the local law enforcement agency to assist them in clearing the Work area.

Site cleanup of individual areas identified in the Health and Safety Plan shall be performed no more than 30 days in advance of performing other Work in each area.

The refuse generated by the site cleanup shall become the property of the Contractor and shall be removed from the project. Personal property shall be handled as required by this Specification and applicable laws.

Removal, Storage and Return of Personal Property

Personal property may include radios, audio and video equipment, sleeping bags, tents, stoves and cooking utensils, lanterns, flashlights, bed rolls, tarps, foam, canvas, mats, blankets, pillows, medication, personal papers, photographs, books and other reading materials, luggage, backpacks or other storage containers, clothing, towels, shoes, toiletries and cosmetics, clocks and watches, and eye glasses. Personal property does not include building materials such as wood products, metal, or rigid plastic.

Personal property items that are not refuse, contaminated, illegal or hazardous shall be removed from the Work area and stored at a location near the project site for return to the property owner. Items shall be placed in large transparent plastic bags and stored in a manner that protects them from adverse weather and theft. Reasonable efforts shall be made to place all items from each encampment into a separate bag. Each bag shall be labeled with an inventory to include a brief description of the contents, a description of the location that it was removed from, and the date that it was removed from the Work area. The Contractor shall not open closed items of personal property unless, in its determination, it is necessary to do so to protect public safety.

The Contractor shall retain the property for 70-days.

If the name and contact information of the owner of a personal property item is identified on that item, then for a period of not less than 10-days after removing

1 the property from the Work area, the Contractor shall attempt to notify the
2 apparent owner of the property and make arrangements for the owner to claim
3 the property.
4
5 The Contractor shall release the property to any individual who claims ownership
6 provided they are able to establish ownership by identifying the property and its
7 approximate location. The Contractor shall maintain a record of all property that
8 is claimed. The record shall include a description of the property, the date
9 claimed, and the name of the claimant.
10
11 If personal property is not claimed within 70-days of removal from the
12 encampment, then the property shall become the property of the Contractor and
13 shall be removed from the project.
14
15 **Site Preservation**
16 The Contractor shall preserve the site after initial cleanup of biological and
17 physical hazards.
18
19 On a daily basis and prior to performing any Work in areas where pedestrians
20 or encampments may be present, the Contractor shall verify that the Work area
21 is cleared of all persons not associated with the project. Individuals may seek
22 shelter in dumpsters, equipment, under blankets, or other places hidden from
23 view. Individuals may be disabled, or under the influence of alcohol or drugs
24 and it should not be assumed that loud construction noise will wake them.
25
26 If the worksite becomes unsanitary or unsafe due to new encampments or new
27 biological and associated physical hazards after initial cleanup is completed,
28 then the Contractor shall perform additional site assessment, additional
29 notification and additional cleanup.
30
31 The Engineer may authorize additional site preservation measures. The nature
32 and frequency of these measures will be as agreed to by the Engineer.
33 Additional site preservation measures may include the use of fencing, lighting,
34 or security, provided it is approved in advance by the Engineer. Work performed
35 without Engineer authorization will not be eligible for payment.
36
37 **Measurement**
38 No trespassing signs will be measured per each.
39
40 **Payment**
41 Payment will be made for the following bid items when they are included in the
42 proposal:
43
44 "No Trespassing Sign", per each.
45 The unit contract price per each "No Trespassing Sign" shall be full payment for
46 all Work required to furnish, install, maintain and remove the signs.
47
48 "Health and Safety Plan", lump sum.
49
50 The lump sum unit contract price for "Health and Safety Plan" shall be full
51 payment for all Work associated with the preparation and implementation of the
Health and Safety Plan including the initial and follow up assessment(s) for initial

1 site cleanup, worker training and personal protective equipment, and providing
2 required notifications.
3
4 "FA-Site Cleanup of Bio. And Physical Hazards", by force account as provided
5 in Section 1-09.6.
6
7 Removal and disposal of biological and physical hazards; removal of individuals
8 and encampments; removal, storage, and return of personal property; disposal
9 of unclaimed personal property; additional site assessment, notifications, worker
10 training and personal protective equipment required after the initial site cleanup
11 is completed; and site preservation Work authorized by the Engineer will be paid
12 for by force account in accordance with Section 1-09.6.
13
14 For the purpose of providing a common proposal for all bidders, the Contracting
15 Agency has entered an amount for the item "FA-Site Cleanup of Bio. And
16 Physical Hazards" in the bid proposal to become a part of the total bid by the
17 Contractor.
18
19 1-07.5.GR1
20 **Environmental Regulations**
21
22 1-07.5.INST1.GR1
23 Section 1-07.5 is supplemented with the following:
24
25 1-07.5.OPT1.GR1
26 **(September 20, 2010)**
27 **Environmental Commitments**
28 The following Provisions summarize the requirements, in addition to those required
29 elsewhere in the Contract, imposed upon the Contracting Agency by the various
30 documents referenced in the Special Provision **Permits and Licenses**. Throughout the
31 work, the Contractor shall comply with the following requirements:
32
33 1-07.5.OPT1(A).FR1
34 (August 4, 2014)
35 The Contractor shall submit a written notification to the Engineer no later than 10
36 calendar days prior to beginning any ground disturbing activities *** \$1\$\$. The
37 Contractor shall not commence any such ground disturbing activities until the monitor
38 is present.
39
40 1-07.5.OPT1(B).FR1
41 (April 1, 2019)
42 The Contractor shall notify the Engineer a minimum of *** \$1\$\$ *** calendar days
43 prior to commencing any work in sensitive areas, mitigation areas, and wetland
44 buffers. Installation of construction fencing is excluded from this notice requirement.
45
46 1-07.5.OPT1(C).FR1
47 (April 1, 2019)
48 No *** \$1\$\$ *** is allowed within *** \$2\$\$ *** feet of *** \$3\$\$ ***.
49

1 1-07.5.OPT2.GR1
2 **(August 3, 2009)**
3 **Payment**
4 All costs to comply with this special provision for the environmental commitments and
5 requirements are incidental to the contract and are the responsibility of the Contractor.
6 The Contractor shall include all related costs in the associated bid prices of the contract.
7
8 1-07.5(1).GR1
9 **General**
10
11 1-07.5(1).INST1.GR1
12 Section 1-07.5(1) is supplemented with the following:
13
14 1-07.5(1).OPT1.FR1
15 **(October 3, 2022)**
16 **In-Water Operations Along Marine Shorelines**
17 In-Water Operations along Marine Shorelines shall meet the requirements from ***
18 \$\$1\$\$ ***.
19
20 The Contractor's vessels and equipment operating in support of the Work shall be in
21 adequate water depth and shall use the minimum required propulsion to prevent
22 impacts from propeller wash and grounding to seagrass, kelp, and forage fish
23 spawning beds as shown in the Plans. The Contractor shall not conduct activities
24 that may cause scouring within, or other types of sediment transfer out of or into the
25 seagrass, kelp, and forage fish spawning beds. At no time shall any vessel or
26 temporary floating work contact the ground.
27
28 The Contractor shall not deploy anchors or spuds in seagrass or kelp. The Contractor
29 shall maintain anchor cable tension, set and retrieve anchors vertically, and prevent
30 mooring cables from dragging to avoid impacts to seagrass and kelp.
31
32 To minimize shading of seagrass, the Contractor shall relocate vessels moored over
33 seagrass every fourth day when working within the allowed working dates listed in
34 *** \$\$2\$\$ ***.
35
36 The Contractor shall not allow debris or any type of fuel, solvent or lubricant to enter
37 the water.
38
39 1-07.5(2).GR1
40 **State Department of Fish And Wildlife**
41
42 1-07.5(2).INST1.GR1
43 Section 1-07.5(2) is supplemented with the following:
44
45 1-07.5(2).OPT1.GR1
46 (April 2, 2018)
47 The following Provisions summarize the requirements, in addition to those required
48 elsewhere in the Contract, imposed upon the Contracting Agency by the Washington
49 State Department of Fish and Wildlife. Throughout the work, the Contractor shall
50 comply with the following requirements:
51

1 1-07.5(2).OPT1(A).FR1
2 (April 2, 2018)
3 The Contractor may begin Work below the Ordinary High Water Line on ***
4 \$\$1\$\$ *** and must complete all the Work by *** \$\$2\$\$ ***.
5
6 1-07.5(2).OPT2.GR1
7 (April 2, 2018)
8 All costs to comply with this special provision are incidental to the Contract and are
9 the responsibility of the Contractor. The Contractor shall include all related costs in
10 the associated bid prices of the Contract.
11
12 1-07.5(3).INST1.GR1
13 Section 1-07.5(3) is supplemented with the following:
14
15 1-07.5(3).OPT1.GR1
16 (April 2, 2018)
17 The following Provisions summarize the requirements, in addition to those required
18 elsewhere in the Contract, imposed upon the Contracting Agency by the Washington
19 State Department of Ecology. Throughout the work, the Contractor shall comply with
20 the following requirements:
21
22 1-07.5(3).OPT1(A).FR1
23 (August 3, 2009)
24 A mixing zone is established within which the turbidity standard is waived during
25 actual in-water work. The mixing zone is established to only temporarily allow
26 exceeding the turbidity criteria (such as a few hours or days) and is not
27 authorization to exceed the turbidity standard for the entire duration of the
28 construction. The mixing zone shall not exceed *** \$\$1\$\$ *** feet downstream
29 from the construction area.
30
31 1-07.5(3).OPT1(B).GR1
32 (April 1, 2019)
33 Stormwater, dewatering water, or other authorized non-stormwater discharges
34 that has come into contact with pH modifying substances such as concrete
35 rubble, cast concrete or amended soils, need to be maintained between 6.5 –
36 8.5 standard units (su). If pH exceeds 8.5 su, the Contractor shall immediately
37 discontinue work and initiate treatment to prevent discharges outside the
38 acceptable range from occurring. All neutralization methods used shall be in
39 accordance with the permit. Work may resume once treatment has been
40 implemented and pH of the stormwater or authorized non-stormwater discharge
41 is between 6.5 - 8.5 su or it can be demonstrated that high pH waters will not
42 discharge to surface waters.
43
44 Stormwater, dewatering water, and other authorized non-stormwater discharges
45 are monitored weekly for compliance with the turbidity benchmark (25
46 nephelometric turbidity units (ntu)) and the phone reporting trigger value (250
47 ntu) by the Contracting Agency. When the turbidity benchmark is breached, the
48 best management practices (BMPs) installed on-site are not working adequately
49 and need to be adapted, maintained or more BMPs shall be installed. When the
50 turbidity phone reporting trigger value is breached, immediate action is required
51 in order to lower the turbidity to ≤ 25 ntu or to eliminate the discharge. Daily
52 follow-up discharge samples will be collected at all locations where a discharge

1 of 250 ntu or higher was collected unless the discharge was stopped or
2 eliminated.
3
4 1-07.5(3).OPT2.GR1
5 (April 2, 2018)
6 All costs to comply with this special provision are incidental to the Contract and are
7 the responsibility of the Contractor. The Contractor shall include all related costs in
8 the associated bid prices of the Contract.
9
10 1-07.5(4).GR1
11 **Air Quality**
12
13 1-07.5(4)C.GR1
14 **Asbestos Containing Material**
15
16 1-07.5(4)C.INST1.GR1
17 Section 1-07.5(4)C is supplemented with the following:
18
19 1-07.5(4)C.OPT1.FR1
20 **(October 4, 2021)**
21 **Asbestos Good Faith Investigation**
22 An asbestos Good Faith Investigation (GFI) has been conducted for this project
23 and it has been determined that known Asbestos Containing Material (ACM),
24 and/or Presumed Asbestos Containing Material (PACM), will be disturbed by the
25 work on this project. The asbestos GFI has been provided in Appendix *** \$1\$1\$ \$
26 ***.
27
28 1-07.5(4)C.OPT2.FR1
29 **(October 4, 2021)**
30 **Asbestos Good Faith Investigation**
31 An asbestos Good Faith Investigation (GFI) has been conducted for this project
32 and it has been determined to a reasonable certainty that no known Asbestos
33 Containing Material (ACM) will be disturbed by the work on this project. The
34 asbestos GFI has been provided as Appendix *** \$1\$1\$ \$ ***.
35
36 1-07.5(5).GR1
37 **U.S. Army Corps of Engineers**
38
39 1-07.5(5).INST1.GR1
40 Section 1-07.5(5) is supplemented with the following:
41
42 1-07.5(5).OPT1.GR1
43 (April 2, 2018)
44 The following Provisions summarize the requirements, in addition to those required
45 elsewhere in the Contract, imposed upon the Contracting Agency by the U.S. Army
46 Corps of Engineers. Throughout the work, the Contractor shall comply with the
47 following requirements:
48
49 1-07.5(5).OPT1(B).FR1
50 (February 25, 2013)
51 Temporary fills at *** \$1\$1\$ \$ must be removed within *** \$2\$2\$ \$ calendar
52 days of beginning placement of these fills. This time period may be extended

1 with approval from the Engineer. Requests to extend must be received a
2 minimum of 45 days prior to the expiration of number of days listed above, since
3 the extension is subject to concurrence by the U.S. Army Corps of Engineers.
4

5 1-07.5(5).OPT1(C).GR1
6 (February 25, 2013)
7 Temporary structures and dewatering of areas under the jurisdiction of the U.S.
8 Army Corps of Engineers must maintain normal downstream flows and prevent
9 upstream and downstream flooding to the maximum extent practicable.
10

11 1-07.5(5).OPT1(D).GR1
12 (August 3, 2009)
13 Heavy equipment working in wetlands or mudflats must be placed on mats or
14 other measures taken to minimize soil disturbance as approved by the Engineer.
15

16 1-07.5(5).OPT1(F).GR1
17 (February 6, 2023)
18 The Contractor shall dispose of all creosoted timber, creosote piling and
19 associated debris as shown in the Plans in accordance with current federal,
20 state, and local regulations and provisions, and following Best Management
21 Practices. Handling shall meet the Minimum Functional Standards for Solid
22 Waste Handling, Chapter 173-304 WAC. Disposal shall be made in a landfill
23 which meets the liner and leachate standards of the Criteria for Municipal Solid
24 Waste Landfills, Chapter 173-351 WAC. The Contractor shall provide receipts
25 from the disposal facility to the Engineer. If the material is transported to a
26 transfer station, the Contractor shall obtain documentation indicating that final
27 disposal will comply with the standards referenced above.
28

29 1-07.5(5).OPT2.GR1
30 (April 2, 2018)
31 All costs to comply with this special provision are incidental to the Contract and are
32 the responsibility of the Contractor. The Contractor shall include all related costs in
33 the associated bid prices of the Contract.
34

35 1-07.5(6).GR1
36 ***U.S. Fish and Wildlife Service and National Marine Fisheries Service***
37

38 1-07.5(6).INST1.GR1
39 Section 1-07.5(6) is supplemented with the following:
40

41 1-07.5(6).OPT1.GR1
42 (April 2, 2018)
43 The following Provisions summarize the requirements, in addition to those required
44 elsewhere in the Contract, imposed upon the Contracting Agency by the U.S.
45 Fish/Wildlife Services and the National Marine Fisheries Service. Throughout the
46 work, the Contractor shall comply with the following requirements:
47

48 1-07.5(6).OPT1(B).GR1
49 (April 2, 2018)
50 The Contractor shall place temporary storage piles of erosive materials outside
51 the 100-year floodplain during the rainy season (October 1 through June 1).
52 Material that will be used within 12 hours of deposition is exempt from this

1 requirement. The Contractor shall employ best management practices to
2 prevent sediment delivery to waterbodies, wetlands, or conveyances that drain
3 to such features.
4

5 1-07.5(6).OPT1(C).FR1
6 (April 2, 2018)
7 The Contractor shall not allow temporary floating work platforms to run aground.
8 Anchors and chains shall never contact fish spawning areas in freshwater or
9 eelgrass, kelp, macro algae, or intertidal wetlands as indicated in the Plans.
10 Shading eelgrass, kelp, or macro algae beds by work platforms shall not exceed
11 *** \$\$1\$\$ *** days.
12

13 1-07.5(6).OPT1(D).GR1
14 (April 2, 2018)
15 The Contractor shall provide concrete truck chute cleanout areas to contain
16 fresh concrete and wash water. The Contractor shall dispose of the waste
17 material at a facility permitted to take such waste.
18

19 1-07.5(6).OPT1(E).GR1
20 (April 2, 2018)
21 The Contractor shall not use creosote-treated wood below the Ordinary High
22 Water Mark.
23

24 1-07.5(6).OPT1(F).GR1
25 (April 2, 2018)
26 The Contractor shall remove piles by directly pulling, using vibratory devices, or
27 by cutting the piles below ground level to minimize localized turbidity. If use of a
28 clamshell bucket is necessary due to pile breakage, turbidity curtains will be
29 employed by the Contractor.
30

31 1-07.5(6).OPT1(G).GR1
32 (April 2, 2018)
33 The Contractor shall remove piles and place them directly into a receptacle that
34 prevents sediment or other material from entering waters of the state.
35

36 1-07.5(6).OPT1(H).FR1
37 (April 2, 2018)
38 Contracting Agency staff will monitor sound pressure during in-water pile driving
39 of steel piles, including H-piles, and sheet piles. Results that exceed *** \$\$1\$\$
40 *** will require the Contractor to adjust work methods or employ additional best
41 practices to safely proceed.
42

43 1-07.5(6).OPT1(I).FR1
44 (April 2, 2018)
45 The Contractor shall direct temporary lights for night work away from *** \$\$1\$\$
46 ***.
47

48 1-07.5(6).OPT1(J).FR1
49 (April 2, 2018)
50 The Contractor shall conduct night Work only during the period from 2 hours
51 after sunset to 2 hours before sunrise. Setting up and taking down traffic control

1 are exempt from these time restrictions. Refer to the following website, using the
2 City of *** \$\$1\$\$ *** for sunrise and sunset times:
3
4 <http://www.sunrisesunset.com/usa/washington.asp>
5
6 1-07.5(6).OPT1(K).FR1
7 (April 2, 2018)
8 The Contractor shall conduct night Work only during the period from 1 hour after
9 sunset to 1 hour before sunrise. Setting up and taking down traffic control are
10 exempt from these time restrictions. Refer to the following website, using the
11 City of *** \$\$1\$\$ *** for sunrise and sunset times:
12
13 <http://www.sunrisesunset.com/usa/washington.asp>
14
15 1-07.5(6).OPT1(L).FR1
16 (April 2, 2018)
17 The Contractor must cease Work 2 hours before sunrise. Setting up and taking
18 down traffic control are exempt from these time restrictions. Refer to the
19 following website, using the City of *** \$\$1\$\$ *** for sunrise times:
20
21 <http://www.sunrisesunset.com/usa/washington.asp>
22
23 1-07.5(6).OPT1(M).FR1
24 (April 2, 2018)
25 When night and day time Work is required, the Contractor shall not perform Work
26 from 1 hour before sunrise to 2 hours after sunrise and no Work from 2 hours
27 before sunset to 1 hour after sunset. Setting up and taking down traffic control
28 are exempt from these time restrictions. Refer to the following website, using the
29 City of *** \$\$1\$\$ *** for sunrise and sunset times:
30
31 <http://www.sunrisesunset.com/usa/washington.asp>
32
33 1-07.5(6).OPT1(N).FR1
34 (April 2, 2018)
35 When night and day time Work is required, the Contractor shall not perform Work
36 from 1 hour before sunrise to 2 hours after sunrise. Setting up and taking down
37 traffic control are exempt from these time restrictions. Refer to the following
38 website, using the City of *** \$\$1\$\$ *** for sunrise and sunset times:
39
40 <http://www.sunrisesunset.com/usa/washington.asp>
41
42 1-07.5(6).OPT1(O).GR1
43 (April 2, 2018)
44 The Contractor shall develop a Type 2 Working Drawing to ensure that trash and
45 food waste is collected daily and contained in secured garbage receptacles.
46
47 1-07.5(6).OPT1(P).FR1
48 (September 3, 2019)
49 Between April 1 and September 22, the Contractor *** \$\$1\$\$ *** are restricted
50 to between two hours after sunrise and two hours before sunset. Setting up and
51 taking down traffic control are exempt from these time restrictions. Refer to the
52 following website, using the City of *** \$\$2\$\$ *** for sunrise and sunset times:

1-07.5(6).OPT1(Q).GR1

(September 7, 2021)

Galvanizing and zinc coatings shall not be used below the 100 year mean recurrence interval water surface.

1-07.5(6).OPT2.GR1

(April 2, 2018)

All costs to comply with this special provision are incidental to the contract and are the responsibility of the Contractor. The Contractor shall include all related costs in the associated bid prices of the contract.

1-07.5(6).OPT3.FR1

(November 2, 2022)

Bird Protection and Monitoring

Description

This Work includes preparing a Project-specific Bird Protection Plan, implementation of the Bird Protection Plan, updating the Bird Protection Plan, surveying, monitoring, and reporting of bird activity, actions required in the event nests and species are surveyed and encountered, and Contractor training.

Construction Requirements

No onsite Work may begin on the Project until the Bird Protection Plan has been accepted by the Engineer.

The Contractor shall maintain a copy of the Bird Protection Plan at the Work site and update as necessary to reflect the conditions as the Work progresses.

The Contractor shall take precautions to prevent birds from nesting on bridges, structures, equipment, or other nesting habitat that would be modified or disturbed by Project construction.

The Contractor shall conduct site monitoring and shall report the results of their inspections. From March 15 to September 15, the Contractor shall conduct, at minimum, three inspections during the work week; once on Monday, Wednesday, and Friday, to identify nest starts. The Contractor shall indicate their intended inspection schedule in their Bird Protection Plan.

The Contractor shall remove nest starts as soon as they are discovered in accordance with their Project-specific Bird Protection Plan. If an active nest (i.e., one that has eggs or chicks) is found, the Contractor must immediately stop all associated Work and contact the Engineer before implementing the relevant Project-specific Bird Protection Plan measures. Active nest removal shall not proceed prior to notifying to and receiving approval from the Engineer.

The Contractor shall notify the Engineer if a bird nest is discovered or suspected. The Contractor shall also notify the Engineer if a breeding raptor (or nest or nest start) is suspected or discovered. If a raptor nest (including unoccupied ones outside the breeding season) is found, it shall not be removed.

From September 16 to March 14, the Contractor may discontinue weekly inspections and reports, but shall remove old nests in accordance with the Project-specific Bird Protection Plan. In the rare instance that an active nest is discovered during this time, the Migratory Bird Treaty Act (MBTA) requirements apply and the Contractor must adhere to the Project-specific Bird Protection Plan and applicable Contract provisions. However, the Contractor shall not be responsible for the removal of active nests during this time period.

The Contractor shall train all project staff. The Contractor shall provide a list of training for all Project staff as part of their Bird Protection Plan. The Contractor training shall include an overview of the MBTA and the Bald and Golden Eagle Protection Act, how to identify nesting activity, and what to do if a nest is discovered.

Submittals

The Contractor shall prepare a Project-specific Bird Protection Plan and submit it to the Engineer no later than 10 days after the execution of the Contract. The Plan shall be a Type 2 Working Drawing and apply to *** \$1\$ \$*** during the active nesting season described as March 15 to September 15.

The Contractor's Project-specific Bird Protection Plan shall be prepared and implemented by a qualified biologist. The biologist shall be available to work during day or night to lead, direct, or carry out monitoring, inspection, and activities described in the Project-specific Bird Protection Plan. The Bird Protection Plan shall include the following information on the biologist:

1. Evidence of the qualification for the designated Biologist and a backup Biologist. The evidence of qualification will include at a minimum a bachelor's degree in biology, zoology, natural resource management, environmental science, or a related degree with a science emphasis.
2. Resumé of each biologists' work experience including:
 - a. Description of applicable projects over a five-year period to include a description of the work experience to identify birds and bird nests with the associated projects.
 - b. Duration of each project including start date and finish date.
 - c. Position held for each applicable project.
 - d. Location of each project to include 2 years in the Pacific Northwest.
 - e. References, including the name and contact information for each project.

The Project-specific Bird Protection Plan shall also include:

1. Bird species identified by the Contracting Agency in the MBTA Assessment Report (Appendix *** \$2\$ \$***).

2. Precautions and timeframes taken or to be taken to prevent birds from nesting on bridges, structures, equipment or other nesting habitat that would be modified or disturbed by project construction.
3. Methods, materials, and equipment used to remove nest starts, which are described as partial or complete nests that don't contain eggs or chicks.
4. Containment methods to prevent removed nesting materials from contributing to air or water pollution.
5. Disposal of nesting materials removed in accordance with Section 2-03.3(7)C.
6. Communicating, notifying, and documenting:
 - a. Name and contact information of the Contractor's qualified biologist and one qualified emergency back-up biologist.
 - b. Name and contact information of the Engineer.
 - c. Describe notification, communication, and documentation procedures to follow in the event an active nest (i.e., one that has eggs or chicks) or unanticipated species upon the discovery of a nest.
 - d. Describe notification to follow in the event a raptor nest (even unoccupied ones outside the breeding season) is discovered.
7. The list of Contractor employees that have received Bird Protection training.

Once a week, the Contractor shall submit a Type 1 Working Drawing to the Engineer, detailing their findings from the prior week's inspections.

Payment

Payment will be made for the following bid item when included in the proposal:

"Bird Protection and Monitoring", Lump Sum.

The lump sum Contract price for "Bird Protection and Monitoring" shall be full pay for all the Work as specified.

1-07.6.GR1

Permits and Licenses

1-07.6.INST1.GR1

Section 1-07.6 is supplemented with the following:

1-07.6.OPT1.FR1

(January 2, 2018)

1 The Contracting Agency has obtained the below-listed permit(s) for this project. A copy of
2 the permit(s) is attached as an appendix for informational purposes. Copies of these
3 permits, including a copy of the Transfer of Coverage form, when applicable, are required
4 to be onsite at all times.

5
6 Contact with the permitting agencies, concerning the below-listed permit(s), shall be
7 made through the Engineer with the exception of when the Construction Stormwater
8 General Permit coverage is transferred to the Contractor, direct communication with the
9 Department of Ecology is allowed. The Contractor shall be responsible for obtaining
10 Ecology's approval for any Work requiring additional approvals (e.g. Request for
11 Chemical Treatment Form). The Contractor shall obtain additional permits as necessary.
12 All costs to obtain and comply with additional permits shall be included in the applicable
13 Bid items for the Work involved.

14
15 *** \$\$1\$\$ ***

16
17 1-07.6.OPT3.GB1

18 ***United States Coast Guard***

19
20 1-07.6.OPT3(A).FB1

21 (September 3, 2019)

22 The Contracting Agency has obtained a United States Coast Guard Bridge Permit ***
23 \$\$1\$\$ *** for this project.

24
25 The Contractor shall furnish, install, maintain, and remove all temporary navigation lights,
26 signs, signals, and any other warning devices required by the Coast Guard and as
27 required for public safety on all falsework, cofferdams, or other temporary structure in the
28 waterway.

29
30 The Contractor shall comply with all Coast Guard requirements inclusive of the following
31 Bridge Permit conditions:

- 32
33 1. The construction of falsework, cofferdams or other obstructions, if required, shall
34 be in accordance with plans submitted to and approved by the Commander, 13th
35 Coast Guard District, prior to construction of the bridge. All work shall be so
36 conducted that the free navigation of the waterway is not unreasonably
37 interfered with and the present navigable depths are not impaired. Timely notice
38 of any and all events that may affect navigation shall be given to the District
39 Commander during construction of the bridge. The channel or channels through
40 the structure shall be promptly cleared of all obstructions placed therein or
41 caused by the construction of the bridge to the satisfaction of the District
42 Commander, when in the District Commander's judgment the construction work
43 has reached a point where such action should be taken, but in no case later than
44 90 calendar days after the bridge has been opened to traffic.

- 45
46 2. *** \$\$2\$\$ ***

47
48 The Contractor shall notify the Coast Guard in writing, with a copy to the Engineer, of the
49 work start date at least seven calendar days before beginning any site work and shall at
50 that time designate the Contractor's authorized representative, and work phone number,
51 for coordination on matters that relate to Coast Guard approvals and requirements.
52

1 The Contractor's applications for required Coast Guard construction approvals for this
2 project shall include, but not be limited to, cofferdams, falsework, temporary navigation
3 lighting, work bridges, and other obstructions. These applications shall be submitted to
4 the Coast Guard by the Contractor, with a copy to the Engineer, a minimum of 30 calendar
5 days in advance of the scheduled work. A schedule of when the work is to be performed
6 and when the obstructions are to be permanently removed shall be a part of the
7 Contractor's application.

8
9 The Contractor shall provide the Coast Guard and the Engineer with prompt verbal notice,
10 followed by written notice, of any subsequent changes to this proposed schedule.

11
12 A copy of all Coast Guard approvals shall be provided to the Engineer upon receipt but
13 not later than prior to beginning work on the items of work involved.

14
15 By the 20th of each month, the Contractor shall furnish the Engineer a schedule of the
16 work expected to be performed in the next two months. The Engineer will transmit this
17 information through the Bridge and Structures Office to the Coast Guard so that interested
18 users of the waterway can be notified.

19
20 The Coast Guard contact is:

21
22 Bridge Administrator
23 Thirteenth Coast Guard District
24 915 Second Avenue Suite 3510
25 Seattle, WA 98174-1067
26 D13-pf-d13bridges@uscg.mil
27 Telephone: (206) 220-7282
28

29 All costs in connection with furnishing, installing, maintaining, and removing temporary
30 navigation lights, signs, signals, or other warning devices shall be included in the contract
31 prices for the items of work involved.

32
33 All costs incurred in obtaining the required Coast Guard approvals and in complying with
34 all requirements specified herein shall be included in the contract prices for the items of
35 work involved.

36
37 All costs in connection with delays in the construction caused by the Contractor's failure
38 to obtain the necessary Coast Guard approvals shall be at the Contractor's expense.

39
40 1-07.6.OPT3(B).GB1

41 (September 3, 2019)

42 The Contractor shall comply with all United States Coast Guard requirements.

43
44 The Contractor shall submit a Type 3 Working Drawing consisting of a Navigation Work
45 Plan at least 60-calendar days prior to beginning activities and operations affecting any
46 part of the waterway in the vicinity of the bridge work. The Navigation Work Plan shall
47 include, at a minimum, the following:

- 48
49 1. Lead Contractor contact for the project, with associated email and phone
50 number.
51
52 2. Scheduled on-site start work date and finish work date.

3. Days and times of operation over the nominal work week.
4. Dates and times of stages of work, as applicable for operations involving sequential or staged activities.
5. Location of the Work by latitude and longitude, river mile, and geographic point of land, with latitude and longitude expressed in degrees, minutes, seconds, and thousandths of seconds.
6. Identification and description of barges, vessels and equipment present in the waterway, if any, to facilitate operations. The description shall include vessel type, vessel name (as applicable), means of voice contact (VHF frequencies, cell phone number, etc.) to the vessel, means of anchoring and mooring the vessel and the location of such anchoring and mooring, the extent to which the vessel is encroaching into the defined navigation channel, and lighting support vessels in accordance with the Coast Guard Rules of the Road as applicable.
7. Point of contact phone number available for 24-hour-seven-days-a-week contact from local mariners through the duration of the project.
8. Detailed identification of work operation hazards to mariners, if any, created by operations (cables, buoys, machinery, tools, tows, containment and platform structures, falling debris, etc.), including details such as size, diameter, color as applicable.
9. Precautions regarding the in-water vessels, equipment, and work operation hazards, if any, affecting local mariners such as operating speed and wake, clearance distance, etc.
10. Systems and equipment causing a reduction in the available vertical clearance beneath the bridge, if any, such as containment and platform systems and supports and the equipment necessary to install, maintain, and remove such systems, and the identification of any falling debris hazard to waterway traffic.
11. Description of advisory signage and lighting to be implemented by the Contractor to advise local mariners of the operations, reduced clearances, and presence of work operation hazards, as applicable. The description shall include the advisory message, and placement and orientation of the signage and flashing amber lighting (4-seconds/15 per minute).

The Engineer will submit the Navigation Work Plan to the US Coast Guard contact identified below for concurrent review. Approval from the US Coast Guard and the Engineer is required prior to the US Coast Guard issuing a Local Notice to Mariners advising of the operations, and allowing the operations to commence.

The Contractor shall contact the US Coast Guard for requirements related to the mooring of barges, placement of log booms, and all other equipment that could be a hazard to waterway users.

Provisions shall be made for the removal, on 2 hours notice, of all equipment that would block or partially block, the navigable portion of the waterway.

1
2 The US Coast Guard contact is:
3
4 Bridge Administrator
5 Thirteenth Coast Guard District
6 915 Second Avenue Suite 3510
7 Seattle, WA 98174-1067
8 D13-pf-d13bridges@uscg.mil
9 Telephone: (206) 220-7282
10
11 All costs incurred in contacting the US Coast Guard and in complying with all the
12 requirements specified herein shall be included in the contract prices for the items of work
13 involved.
14
15 All costs in connection with delays in the construction caused by the Contractor's failure
16 to contact the US Coast Guard shall be at the Contractor's expense.
17
18 1-07.7.GR1
19 **Load Limits**
20
21 1-07.7.INST1.GR1
22 Section 1-07.7 is supplemented with the following:
23
24 1-07.7.OPT3.FR1
25 (March 13, 1995)
26 The State has made arrangements with *** \$\$1\$\$ *** for the Contractor's use of the ***
27 \$\$2\$\$ *** shown in the Plans as a haul route for materials coming from *** \$\$3\$\$ *** Site
28 *** \$\$4\$\$ *** and used on this project. The Contractor shall comply with all existing legal
29 restrictions.
30
31 If the Contractor selects different haul routes than those designated, the Contractor shall,
32 at the Contractor's expense, make all arrangements for the use of the haul routes.
33
34 1-07.7.OPT4.FR1
35 (March 13, 1995)
36 The Contractor shall also comply with the further restrictions imposed by the owner of the
37 roads as follows:
38
39 *** \$\$1\$\$ ***
40
41 1-07.7.OPT5.GR1
42 (March 13, 1995)
43 Whenever the Contractor obtains materials from a source other than that provided by the
44 Contracting Agency, or provides a source for materials not designated to come from a
45 source provided by the State and the location of the source necessitates hauling on other
46 than State Highways, the Contractor shall, at the Contractor's expense, make all
47 arrangements for the use of the haul routes.
48
49 1-07.7.OPT6.GR1
50 (March 13, 1995)

1 If the sources of materials provided by the Contractor necessitates hauling over roads
2 other than State Highways, the Contractor shall, at the Contractor's expense, make all
3 arrangements for the use of the haul routes.

4
5 1-07.8.GR1

6 **High-Visibility Apparel**

7
8 1-07.8(1).GR1

9 ***Traffic Control Personnel***

10
11 1-07.8(1).INST1.GR1

12 Section 1-07.8(1) is revised to read:

13
14 1-07.8(1).OPT1.2027.GR1

15 (September 16, 2025)

16 All personnel performing the Work described in Section 2-04 (including traffic control
17 supervisors, flaggers, and others performing traffic control labor of any kind) shall
18 comply with the following:

- 19
20 1. During daylight hours with clear visibility, workers shall wear a high-visibility
21 ANSI/ISEA 107 Type R Class 2 or 3 garment with background material that
22 are fluorescent yellow-green, fluorescent orange-red, or fluorescent red in
23 color; and a high visibility hardhat that is white, yellow, yellow-green,
24 orange, or red in color; and
25
26 2. During hours of darkness (½ hour before sunset to ½ hour after sunrise) or
27 other low-visibility conditions (snow, fog, etc.), workers shall wear a high-
28 visibility ANSI/ISEA 107 Type R Class 2 or 3 garment with background
29 material that are fluorescent yellow-green, fluorescent orange-red, or
30 fluorescent red in color; a high-visibility lower garment meeting ANSI/ISEA
31 107 Class E, and a high visibility hardhat marked with at least 12 square
32 inches of retroreflective material applied to provide 360 degrees of visibility.
33

34 1-07.9.GR1

35 **Wages**

36
37 **1-07.9(1).GR1**

38 ***General***

39
40 1-07.9(1).INST1.GR1

41 Section 1-07.9(1) is supplemented with the following:

42
43 1-07.9(1).OPT1.GR1

44 (January 6, 2025)

45 The Federal wage rates incorporated in this contract have been established by the
46 Secretary of Labor under United States Department of Labor General Decision No.
47 WA20250001.

48
49 The State rates incorporated in this contract are applicable to all construction
50 activities associated with this contract.
51

1 1-07.9(1).OPT2.FR1
2 (January 6, 2025)
3 The Federal wage rates for Highway Construction incorporated in this contract have
4 been established by the Secretary of Labor under United States Department of Labor
5 General Decision No. WA20250001. These rates are applicable to highway
6 construction.
7
8 The Federal wage rates for Building Construction incorporated in this contract have
9 been established by the Secretary of Labor under United States Department of Labor
10 General Decision No. *** \$1\$ \$ ***. These rates are applicable to building
11 construction.
12
13 The State rates incorporated in this contract are applicable to all construction
14 activities associated with this contract.
15
16 1-07.9(1).OPT3.FR1
17 (May 11, 2010)
18 The Federal wage rates for Building Construction incorporated in this contract have
19 been established by the Secretary of Labor under United States Department of Labor
20 General Decision No. *** \$1\$ \$ ***. These rates are applicable to building
21 construction.
22
23 The State rates incorporated in this contract are applicable to all construction
24 activities associated with this contract.
25
26 1-07.9(1).OPT5.FR1
27 (January 6, 2025)
28 The Federal wage rates for Highway Construction incorporated in this contract have
29 been established by the Secretary of Labor under United States Department of Labor
30 General Decision No. WA20250001. These rates are applicable to highway
31 construction.
32
33 The Federal wage rates for Heavy Construction incorporated in this contract have
34 been established by the Secretary of Labor under United States Department of Labor
35 General Decision No. *** \$1\$ \$ ***. These rates are applicable to heavy construction.
36
37 The State rates incorporated in this contract are applicable to all construction
38 activities associated with this contract.
39
40 1-07.9(1).OPT6.FR1
41 (January 6, 2025)
42 The Federal wage rates for Highway Construction incorporated in this contract have
43 been established by the Secretary of Labor under United States Department of Labor
44 General Decision No. WA20250001. These rates are applicable to highway
45 construction.
46
47 The Federal wage rates for Heavy Construction incorporated in this contract have
48 been established by the Secretary of Labor under United States Department of Labor
49 General Decision No. *** \$1\$ \$ ***. These rates are applicable to heavy construction.
50
51 The Federal wage rates for Building Construction incorporated in this contract have
52 been established by the Secretary of Labor under United States Department of Labor

1 General Decision No. *** \$\$2\$\$ ***. These rates are applicable to building
2 construction
3
4 The State rates incorporated in this contract are applicable to all construction
5 activities associated with this contract.
6
7 1-07.9(3).GR1
8 **Apprentices**
9
10 1-07.9(3).INST1.GR1
11 Section 1-07.9(3) is supplemented with the following:
12
13 1-07.9(3).OPT1.GR1
14 **(November 3, 2025)**
15 **Apprentice Utilization**
16 This Contract includes an Apprentice Utilization Requirement. Fifteen percent or
17 more of project Labor Hours shall be performed by Apprentices. Apprentice
18 Utilization will be determined using the L&I online Prevailing Wage Intent & Affidavit
19 (PWIA) system.
20
21 **Definitions**
22 For the purposes of this specification the following definitions apply:
23
24 1. Apprentice is a person enrolled in a State-approved Apprenticeship Training
25 Program.
26
27 2. Apprentice Utilization is the Apprentice labor hours expressed as a
28 percentage of the project Labor Hours based on certified payrolls or the
29 affidavit of wages paid, whichever is least. The percentage is not rounded
30 up.
31
32 3. Apprentice Utilization Requirement is the minimum percentage of
33 apprentice labor hours required by the Contract.
34
35 4. Good Faith Efforts (GFE) describes the Contractor's efforts to meet the
36 Apprentice Utilization Requirement including but not limited to the specific
37 steps as described elsewhere in this specification.
38
39 5. Labor Hours are the total hours performed by all workers receiving an hourly
40 wage who are subject to prevailing wage requirements for Work performed
41 on the Contract as defined by RCW 39.04.310. Labor Hours are determined
42 based on the scope of work performed by the individuals, rather than the
43 title of their occupations in accordance with WAC 296-127.
44
45 6. State-approved Apprenticeship Training Program is an apprenticeship
46 training program approved by the Washington State Apprenticeship
47 Council.
48
49 **Electronic Reporting**
50 The Contractor shall use the PWIA System to submit the "Apprentice Utilization Plan"
51 and GFE documentation. Reporting instructions are available in the application.
52

Apprentice Utilization Plan

The Contractor shall submit an "Apprentice Utilization Plan" by filling out the Apprentice Utilization Plan form (WSDOT Form 424-004) within 30 calendar days of execution, demonstrating how and when they intend to achieve the Apprentice Utilization Requirement. The Plan shall be in sufficient detail for the Engineer to track the Contractor's progress in meeting the utilization requirements and be updated and resubmitted as the Work progresses or when ordered by the Engineer.

If the Contractor is unable to demonstrate ability to meet the Apprentice Utilization Requirement in their Apprentice Utilization Plan, they must use the PWIA system to submit GFE documentation for review and comment with their Apprentice Utilization Plan. The Contractor shall actively seek out opportunities to meet the Apprentice Utilization Requirement during the construction Work.

Contacts

The Contractor may obtain information on State-approved Apprenticeship Training Programs at:

<https://secure.lni.wa.gov/arts-public/#/program-search>

Compliance

In the event the Contractor is unable to achieve the Apprentice Utilization Requirement, the Contractor shall use the PWIA system to submit GFE documentation for review and approval. If GFE documentation was previously submitted as part of the Apprentice Utilization Plan, it shall be updated and resubmitted. The GFE documentation for Apprentice Utilization based on certified payrolls shall be submitted after Substantial Completion but no later than 30 days after Physical Completion. After all affidavits of wages paid have been submitted, if the Apprentice Utilization based on the affidavits of wages paid is less than that of the Apprentice Utilization based on certified payrolls, a GFE shall be submitted based on the lower Apprentice Utilization.

If the Contractor fails to submit GFE documentation or if the Engineer does not approve the GFE, the Contractor will be subject to disciplinary actions as allowed under WAC 468-16-180.

Good Faith Efforts

The GFE shall describe in detail why the Contractor is not or was not able to attain the Apprentice Utilization Requirement. The GFE documentation shall include:

1. Documentation of ongoing correspondence for solicitation of Apprentices from a State-approved Apprenticeship Training Program(s). To be considered ongoing, the correspondence shall be not less than once a quarter, beginning at the start of Work and continuing every three months thereafter. The response from the solicited State-Approved Apprenticeship Training Program(s) when there is a lack of availability of Apprentices shall be included in the correspondence.

And one or more of the following:

- 1
2
3
4
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6
7
8
9
10
11
12
13
14
2. Documentation that shows Contract requirements for TERO, Special Training or Disadvantage Business Enterprise requirements affect the ability to obtain Apprentice Labor Hours on the Contract.
 3. Documentation demonstrating what efforts the Contractor has taken to require subcontractors to solicit and employ Apprentices. Documentation could be posters placed on site, emphasis in subcontracts about employing Apprentices, letters, memos or other correspondence from Contractor to subcontractor that put an emphasis on employing Apprentices.
 4. Documentation of other obstacles the Contractor faced that may demonstrate or solidify a satisfactory explanation of not meeting the Apprenticeship Utilization Requirement.

15
16
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21
22
23

If an Apprentice graduates during employment on a Contract, they may be counted towards a GFE credit for up to one year after their graduation or until the end of the project (whichever comes first) if they remain continuously employed by the same Contractor. Determination of whether or not Contract requirements were met in good faith will be made by subtracting the hours from the journeyman total reported hours for the project and adding them to the apprentice hour total. If the new utilization percentage meets the Contract requirement, the Contractor will be reported as meeting the requirement in good faith.

24
25

Payment

26
27

All costs incurred by the Contractor for complying with this specification shall be included in the Contract prices for the Bid items of Work involved.

28
29

1-07.11.GR1

30

Requirements for Nondiscrimination

31
32

1-07.11.INST1.GR1

33
34

Section 1-07.11 is supplemented with the following:

35
36

1-07.11.OPT1.GR1

37
38

(May 5, 2025)

39
40

Requirement for Affirmative Action to Ensure Equal Employment Opportunity

41
42
43

In accordance with 41 CFR § 60-4.2, the clauses contained in 1-4 below are required to be included in this Contract. Nothing in this contract alters the Contractor's responsibility to comply with all applicable Federal regulations, including but not limited to 41 CFR part 60 as currently existing or later amended.

- 44
45
46
1. The Contractor's attention is called to the "Equal Opportunity Clause and the Standard Federal Equal Employment Opportunity Construction Contract Specifications" set forth herein.

2. The goals and timetables for minority and female participation set by the Office of Federal Contract Compliance Programs, expressed in percentage terms for the Contractor's aggregate work force in each construction craft and in each trade on all construction work in the covered area, are as follows:

Women - Statewide

Timetable

Goal

Until further notice 6.9%

Minorities - by Standard Metropolitan Statistical Area (SMSA)

Spokane, WA:

SMSA Counties:

Spokane, WA 2.8

WA Spokane.

Non-SMSA Counties 3.0

WA Adams; WA Asotin; WA Columbia; WA Ferry; WA Garfield; WA Lincoln; WA Pend Oreille; WA Stevens; WA Whitman.

Richland, WA

SMSA Counties:

Richland Kennewick, WA 5.4

WA Benton; WA Franklin.

Non-SMSA Counties 3.6

WA Walla Walla.

Yakima, WA:

SMSA Counties:

Yakima, WA 9.7

WA Yakima.

Non-SMSA Counties 7.2

WA Chelan; WA Douglas; WA Grant; WA Kittitas; WA Okanogan.

Seattle, WA:

SMSA Counties:

Seattle Everett, WA 7.2

WA King; WA Snohomish.

Tacoma, WA 6.2

WA Pierce.

Non-SMSA Counties 6.1

WA Clallam; WA Grays Harbor; WA Island; WA Jefferson; WA Kitsap; WA Lewis; WA Mason; WA Pacific; WA San Juan; WA Skagit; WA Thurston; WA Whatcom.

Portland, OR:

SMSA Counties:

Portland, OR-WA 4.5

WA Clark.

Non-SMSA Counties 3.8

WA Cowlitz; WA Klickitat; WA Skamania; WA Wahkiakum.

1 These goals are applicable to each nonexempt Contractor's total on-site construction
2 workforce, regardless of whether or not part of that workforce is performing work on
3 a Federal, or federally assisted project, contract, or subcontract until further notice.
4 Compliance with these goals and timetables is enforced by the Office of Federal
5 Contract compliance Programs.
6

7 The Contractor's compliance with the Executive Order and the regulations in 41 CFR
8 Part 60-4 shall be based on its implementation of the Equal Opportunity Clause,
9 specific affirmative action obligations required by the specifications set forth in 41
10 CFR 60-4.3(a), and its efforts to meet the goals. The hours of minority and female
11 employment and training must be substantially uniform throughout the length of the
12 contract, in each construction craft and in each trade, and the Contractor shall make
13 a good faith effort to employ minorities and women evenly on each of its projects.
14 The transfer of minority or female employees or trainees from Contractor to
15 Contractor or from project to project for the sole purpose of meeting the Contractor's
16 goals shall be a violation of the contract, the Executive Order and the regulations in
17 41 CFR Part 60-4. Compliance with the goals will be measured against the total work
18 hours performed.
19

- 20 3. The Contractor shall provide written notification to the Office of Federal Contract
21 Compliance Programs (OFCCP) within 10 working days of award of any construction
22 subcontract in excess of \$10,000 or more that are Federally funded, at any tier for
23 construction work under the contract resulting from this solicitation. The notification
24 shall list the name, address and telephone number of the subcontractor; employer
25 identification number of the subcontractor; estimated dollar amount of the
26 subcontract; estimated starting and completion dates of the subcontract; and the
27 geographical area in which the contract is to be performed. The notification shall be
28 sent to:
29

30 U.S. Department of Labor
31 Office of Federal Contract Compliance Programs Pacific Region
32 Attn: Regional Director
33 San Francisco Federal Building
34 90 – 7th Street, Suite 18-300
35 San Francisco, CA 94103(415) 625-7800 Phone
36 (415) 625-7799 Fax
37

- 38 4. As used in this Notice, and in the contract resulting from this solicitation, the Covered
39 Area is as designated herein.
40

41 In accordance with 41 CFR § 60-4.3, the clauses contained in 1-15 below are required to
42 be included in this Contract. Nothing in this Contract alters the Contractor's responsibility
43 to comply with all applicable Federal regulations, including but not limited to 41 CFR part
44 60 as currently existing or later amended.
45

46 Standard Federal Equal Employment Opportunity Construction Contract Specifications
47

- 48 1. As used in these specifications:
49

- 50 a. "Covered Area" means the geographical area described in the solicitation from
51 which this contract resulted;
52

- 1 b. "Director" means Director, Office of Federal Contract Compliance Programs,
2 United States Department of Labor, or any person to whom the Director
3 delegates authority;
4
- 5 c. "Employer Identification Number" means the Federal Social Security number
6 used on the Employer's Quarterly Federal Tax Return, U.S. Treasury
7 Department Form 941;
8
- 9 d. "Minority" includes:
10
- 11 (1) Black (all persons having origins in any of the Black African racial groups
12 not of Hispanic origin);
13
- 14 (2) Hispanic (all persons of Mexican, Puerto Rican, Cuban, Central American,
15 South American, or other Spanish culture or origin, regardless of race);
16
- 17 (3) Asian and Pacific Islander (all persons having origins in any of the original
18 peoples of the Far East, Southeast Asia, the Indian Subcontinent, or the
19 Pacific Islands); and
20
- 21 (4) American Indian or Alaskan Native (all persons having origins in any of the
22 original peoples of North America and maintaining identifiable tribal
23 affiliations through membership and participation or community
24 identification.)
25
- 26 2. Whenever the Contractor, or any subcontractor at any tier, subcontracts a portion of
27 the work involving any construction trade, it shall physically include in each
28 subcontract in excess of \$10,000 the provisions of these specifications and the
29 Notice which contains the applicable goals for minority and female participation and
30 which is set forth in the solicitations from which this contract resulted.
31
- 32 3. If the Contractor is participating (pursuant to 41 CFR 60-4.5) in a Hometown Plan
33 approved by the U.S. Department of Labor in the covered area either individually or
34 through an association, its affirmative action obligations on all work in the Plan area
35 (including goals and timetables) shall be in accordance with that Plan for those trades
36 which have unions participating in the Plan. Contractors must be able to demonstrate
37 their participation in and compliance with the provisions of any such Hometown Plan.
38 Each Contractor or subcontractor participating in an approved Plan is individually
39 required to comply with its obligations under the EEO clause, and to make a good
40 faith effort to achieve each goal under the Plan in each trade in which it has
41 employees. The overall good faith performance by other Contractors or
42 subcontractors toward a goal in an approved Plan does not excuse any covered
43 Contractor's or subcontractor's failure to take good faith efforts to achieve the Plan
44 goals and timetables.
45
- 46 4. The Contractor shall implement the specific affirmative action standards provided in
47 paragraphs 7a through 7p of this Special Provision. The goals set forth in the
48 solicitation from which this contract resulted are expressed as percentages of the
49 total hours of employment and training of minority and female utilization the
50 Contractor should reasonably be able to achieve in each construction trade in which
51 it has employees in the covered area. Covered construction contractors performing
52 construction work in geographical areas where they do not have a Federal or

1 federally assisted construction contract shall apply the minority and female goals
2 established for the geographical area where the work is being performed. The
3 Contractor is expected to make substantially uniform progress in meeting its goals in
4 each craft during the period specified.

5
6 5. Neither the provisions of any collective bargaining agreement, nor the failure by a
7 union with whom the Contractor has a collective bargaining agreement, to refer either
8 minorities or women shall excuse the Contractor's obligations under these
9 specifications, Executive Order 11246, or the regulations promulgated pursuant
10 thereto.

11
12 6. In order for the nonworking training hours of apprentices and trainees to be counted
13 in meeting the goals, such apprentices and trainees must be employed by the
14 Contractor during the training period, and the Contractor must have made a
15 commitment to employ the apprentices and trainees at the completion of their
16 training, subject to the availability of employment opportunities. Trainees must be
17 trained pursuant to training programs approved by the U.S. Department of Labor.

18
19 7. The Contractor shall take specific affirmative actions to ensure equal employment
20 opportunity. The evaluation of the Contractor's compliance with these specifications
21 shall be based upon its effort to achieve maximum results from its actions. The
22 Contractor shall document these efforts fully, and shall implement affirmative action
23 steps at least as extensive as the following:

24
25 a. Ensure and maintain a working environment free of harassment,
26 intimidation, and coercion at all sites, and in all facilities at which the
27 Contractor's employees are assigned to work. The Contractor, where
28 possible, will assign two or more women to each construction project. The
29 Contractor shall specifically ensure that all foremen, superintendents, and
30 other on-site supervisory personnel are aware of and carry out the
31 Contractor's obligation to maintain such a working environment, with
32 specific attention to minority or female individuals working at such sites or
33 in such facilities.

34
35 b. Establish and maintain a current list of minority and female recruitment
36 sources, provide written notification to minority and female recruitment
37 sources and to community organizations when the Contractor or its unions
38 have employment opportunities available, and maintain a record of the
39 organizations' responses.

40
41 c. Maintain a current file of the names, addresses and telephone numbers of
42 each minority and female off-the-street applicant and minority or female
43 referral from a union, a recruitment source or community organization and
44 of what action was taken with respect to each such individual. If such
45 individual was sent to the union hiring hall for referral and was not referred
46 back to the Contractor by the union or, if referred, not employed by the
47 Contractor, this shall be documented in the file with the reason therefor,
48 along with whatever additional actions the Contractor may have taken.

49
50 d. Provide immediate written notification to the Director when the union or
51 unions with which the Contractor has a collective bargaining agreement has
52 not referred to the Contractor a minority person or woman sent by the

1 Contractor, or when the Contractor has other information that the union
2 referral process has impeded the Contractor's efforts to meet its obligations.

- 3
- 4 e. Develop on-the-job training opportunity and/or participate in training
5 programs for the area which expressly include minorities and women,
6 including upgrading programs and apprenticeship and trainee programs
7 relevant to the Contractor's employment needs, especially those programs
8 funded or approved by the U.S. Department of Labor. The Contractor shall
9 provide notice of these programs to the sources compiled under 7b above.
- 10
- 11 f. Disseminate the Contractor's EEO policy by providing notice of the policy
12 to unions and training programs and requesting their cooperation in
13 assisting the Contractor in meeting its EEO obligations; by including it in
14 any policy manual and collective bargaining agreement; by publicizing it in
15 the company newspaper, annual report, etc.; by specific review of the policy
16 with all management personnel and with all minority and female employees
17 at least once a year; and by posting the company EEO policy on bulletin
18 boards accessible to all employees at each location where construction
19 work is performed.
- 20
- 21 g. Review, at least annually, the company's EEO policy and affirmative action
22 obligations under these specifications with all employees having any
23 responsibility for hiring, assignment, layoff, termination or other
24 employment decisions including specific review of these items with on-site
25 supervisory personnel such as Superintendents, General Foremen, etc.,
26 prior to the initiation of construction work at any job site. A written record
27 shall be made and maintained identifying the time and place of these
28 meetings, persons attending, subject matter discussed, and disposition of
29 the subject matter.
- 30
- 31 h. Disseminate the Contractor's EEO policy externally by including it in any
32 advertising in the news media, specifically including minority and female
33 news media, and providing written notification to and discussing the
34 Contractor's EEO policy with other Contractors and Subcontractors with
35 whom the Contractor does or anticipates doing business.
- 36
- 37 i. Direct its recruitment efforts, both oral and written, to minority, female and
38 community organizations, to schools with minority and female students and
39 to minority and female recruitment and training organizations serving the
40 Contractor's recruitment area and employment needs. Not later than one
41 month prior to the date for the acceptance of applications for apprenticeship
42 or other training by any recruitment source, the Contractor shall send written
43 notification to organizations such as the above, describing the openings,
44 screening procedures, and tests to be used in the selection process.
- 45
- 46 j. Encourage present minority and female employees to recruit other minority
47 persons and women and where reasonable, provide after school, summer
48 and vacation employment to minority and female youth both on the site and
49 in other areas of a Contractor's work force.
- 50
- 51 k. Validate all tests and other selection requirements where there is an
52 obligation to do so under 41 CFR Part 60-3.

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- l. Conduct, at least annually, an inventory and evaluation of all minority and female personnel for promotional opportunities and encourage these employees to seek or to prepare for, through appropriate training, etc., such opportunities.
- m. Ensure that seniority practices, job classifications, work assignments and other personnel practices, do not have a discriminatory effect by continually monitoring all personnel and employment related activities to ensure that the EEO policy and the Contractor's obligations under these specifications are being carried out.
- n. Ensure that all facilities and company activities are nonsegregated except that separate or single-user toilet and necessary changing facilities shall be provided to assure privacy between the sexes.
- o. Document and maintain a record of all solicitations of offers for subcontracts from minority and female construction contractors and suppliers, including circulation of solicitations to minority and female contractor associations and other business associations.
- p. Conduct a review, at least annually, of all supervisors' adherence to and performance under the Contractor's EEO policies and affirmative action obligations.
8. Contractors are encouraged to participate in voluntary associations which assist in fulfilling one or more of their affirmative action obligations (7a through 7p). The efforts of a contractor association, joint contractor-union, contractor-community, or other similar group of which the Contractor is a member and participant, may be asserted as fulfilling any one or more of the obligations under 7a through 7p of this Special Provision provided that the Contractor actively participates in the group, makes every effort to assure that the group has a positive impact on the employment of minorities and women in the industry, ensure that the concrete benefits of the program are reflected in the Contractor's minority and female work-force participation, makes a good faith effort to meet its individual goals and timetables, and can provide access to documentation which demonstrate the effectiveness of actions taken on behalf of the Contractor. The obligation to comply, however, is the Contractor's and failure of such a group to fulfill an obligation shall not be a defense for the Contractor's noncompliance.
9. A single goal for minorities and a separate single goal for women have been established. The Contractor, however, is required to provide equal employment opportunity and to take affirmative action for all minority groups, both male and female, and all women, both minority and non-minority. Consequently, the Contractor may be in violation of the Executive Order if a particular group is employed in substantially disparate manner (for example, even though the Contractor has achieved its goals for women generally, the Contractor may be in violation of the Executive Order if a specific minority group of women is underutilized).
10. The Contractor shall not use the goals and timetables or affirmative action standards to discriminate against any person because of race, color, religion, sex, sexual orientation, gender identity, or national origin.

- 1
2 11. The Contractor shall not enter into any subcontract with any person or firm debarred
3 from Government contracts pursuant to Executive Order 11246.
4
5 12. The Contractor shall carry out such sanctions and penalties for violation of these
6 specifications and of the Equal Opportunity Clause, including suspensions,
7 terminations and cancellations of existing subcontracts as may be imposed or
8 ordered pursuant to Executive Order 11246, as amended, and its implementing
9 regulations, by the Office of Federal Contract Compliance Programs. Any Contractor
10 who fails to carry out such sanctions and penalties shall be in violation of these
11 specifications and Executive Order 11246, as amended.
12
13 13. The Contractor, in fulfilling its obligations under these specifications, shall implement
14 specific affirmative action steps, at least as extensive as those standards prescribed
15 in paragraph 7 of this Special Provision, so as to achieve maximum results from its
16 efforts to ensure equal employment opportunity. If the Contractor fails to comply with
17 the requirements of the Executive Order, the implementing regulations, or these
18 specifications, the Director shall proceed in accordance with 41 CFR 60-4.8.
19
20 14. The Contractor shall designate a responsible official to monitor all employment
21 related activity to ensure that the company EEO policy is being carried out, to submit
22 reports relating to the provisions hereof as may be required by the government and
23 to keep records. Records shall at least include, for each employee, their name,
24 address, telephone numbers, construction trade, union affiliation if any, employee
25 identification number when assigned, social security number, race, sex, status (e.g.,
26 mechanic, apprentice, trainee, helper, or laborer), dates of changes in status, hours
27 worked per week in the indicated trade, rate of pay, and locations at which the work
28 was performed. Records shall be maintained in an easily understandable and
29 retrievable form; however, to the degree that existing records satisfy this requirement,
30 the Contractors will not be required to maintain separate records.
31
32 15. Nothing herein provided shall be construed as a limitation upon the application of
33 other laws which establish different standards of compliance or upon the application
34 of requirements for the hiring of local or other area residents (e.g., those under the
35 Public Works Employment Act of 1977 and the Community Development Block Grant
36 Program).
37

38 Additional assistance for Federal Construction Contractors on contracts
39 administered by Washington State Department of Transportation or by Local
40 Agencies may be found at:

41
42 Washington State Dept. of Transportation
43 Office of Equity and Civil Rights
44 PO Box 47314
45 310 Maple Park Ave. SE
46 Olympia WA
47 98504-7314
48 Ph: 360-705-7090
49 Fax: 360-705-6801
50 <http://www.wsdot.wa.gov/equalopportunity/default.htm>
51

2 **(November 2, 2022)**3 **Special Training Provisions**4 **General Requirements**

5 The Contractor's equal employment opportunity, affirmative action program shall
6 include the requirements set forth below. The Contractor shall provide on-the-job
7 training aimed at developing trainees to journey-level status in the trades involved.
8 The number of training hours shall be *** \$\$1\$\$ ***. Trainees shall not be assigned
9 less than 400 hours per individual per Contract. The Contractor may elect to
10 accomplish training as part of the work of a subcontractor, however, the Prime
11 Contractor shall retain the responsibility for complying with these Special Provisions
12 (achieving the training goal). When the Contractor's training plan includes trainees
13 for subcontractors or lower-tier subcontractors, this special provision shall be
14 included in the subcontract.
15

16 **Trainee Approval**

17 The Contractor shall make every effort to employ/enroll minority and women trainees
18 to the extent such persons are available within a reasonable recruitment area. This
19 training provision is not intended and shall not be used to discriminate against any
20 applicant for training, whether that person is a minority, woman or otherwise. A non-
21 minority male trainee or apprentice may be approved provided the following
22 requirements are met:
23

- 24 1. The Contractor is otherwise in compliance with the contract's Equal
25 Employment Opportunity (EEO) and On-the-Job Training (OJT)
26 requirements and provides documentation of the efforts taken to fill the
27 specific training position with either minorities or females
28
- 29 2. or, if not otherwise in compliance, furnishes evidence of his/her systematic
30 and direct recruitment efforts in regard to the position in question and in
31 promoting the enrollment and/or employment of minorities and females in
32 the craft which the proposed trainee is to be trained
33
- 34 3. and the Contractor has made a good faith effort towards recruiting of
35 minorities and women. As a minimum good faith efforts shall consist of the
36 following:
37
 - 38 a. Distribution of written notices of available employment opportunities
39 with the Contractor and enrollment opportunities with its unions.
40 Distribution should include but not be limited to; minority and female
41 recruitment sources, WSDOT's OJT Support Services Coordinator,
42 and minority and female community organizations.
43
 - 44 b. Records documenting the Contractor's efforts and the outcome of
45 those efforts, to employ minority and female applicants and/or refer
46 them to unions.
47
 - 48 c. Records reflecting the Contractor's efforts in participating in
49 developing minority and female on-the-job training opportunities,
50 including upgrading programs and apprenticeship opportunities.
51

- 1 d. Distribution of written notices to unions and training programs
2 disseminating the Contractor's EEO policy and requesting
3 cooperation in achieving EEO and OJT obligations (and their written
4 responses). For assistance in locating trainee candidates, the
5 Contractor may call WSDOT's OJT Support Services Coordinator at
6 (360) 705-7090 or email ojtssinfo@wsdot.wa.gov.
7

8 No employee shall be employed as a trainee in any classification in which the
9 employee has successfully completed a training course leading to journey-level
10 worker status or in which the employee has been employed as a journey-level
11 worker. The Contractor's records shall document the methods for determining the
12 trainee's status and findings in each case. When feasible, 25 percent of apprentices
13 or trainees in each occupation shall be in their first year of apprenticeship or training.
14

15 For the purpose of this specification, acceptable training programs are those
16 employing trainees/apprentices registered with the following:
17

- 18 1. Washington State Department of Labor & Industries — State
19 Apprenticeship Training Council (SATC) approved apprenticeship
20 agreement:
21

- 22 a. Pursuant to RCW 49.04.060, an apprenticeship agreement shall
23 be;
24

- 25 i. an individual written agreement between an employer and apprentice
26
27 ii. a written agreement between (an employer or an
28 association of employers) and an organization of
29 employees describing conditions of employment for
30 apprentices
31
32 iii. a written statement describing conditions of employment
33 for apprentices in a plant where there is no bona fide
34 employee organization.

35 All such agreements shall conform to the basic standards and other
36 provisions of RCW Chapter 49.04.
37

- 38 2. Apprentices must be registered with U.S. Department of Labor —
39 Apprenticeship Training, Employer, and Labor Services (ATELS) approved
40 program.
41

42 Or
43

- 44 3. Non-ATELS/SATC programs that have been submitted to the Contracting
45 Agency for approval by the FHWA for the specific project.
46

47 **Obligation to Provide Information**

48 Upon starting a new trainee, the Contractor shall furnish the trainee a copy of the
49 approved program the Contractor will follow in providing the training. Upon
50 completion of the training, the Contractor shall provide the Contracting Agency with
51 a certification showing the type and length of training satisfactorily completed by each
52 trainee.

Training Program Approval

The Training Program shall meet the following requirements:

1. The Training Program (DOT Form 272-049) must be submitted to the Engineer for approval **prior to commencing contract work** and shall be resubmitted when modifications to the program occur.
2. The minimum length and type of training for each classification will be as established in the training program as approved by the Contracting Agency.
3. The Training Program shall contain the trades proposed for training, the number of trainees, the hours assigned to the trade and the estimated beginning work date for each trainee.
4. Unless otherwise specified, Training Programs will be approved if the proposed number of training hours equals the training hours required by contract and the trainees are not assigned less than 400 hours each.
5. After approval of the training program, information concerning each individual trainee and good faith effort documentation shall be submitted (on DOT Form 272-050).
6. Flagging programs will not be approved. Other programs that include flagging training will only be approved if the flagging portion is limited to an orientation of not more than 20 hours.
7. It is the intention of these provisions that training is to be provided in the construction crafts rather than clerk-typists or secretarial-type positions. Training is permissible in lower-level management positions such as office engineers, estimators, timekeepers, etc., where the training is oriented toward construction applications. Some off-site training is permissible as long as the training is an integral part of an approved training program.
8. It is normally expected that a trainee will begin training on the project as soon as feasible after start of work, utilizing the skill involved and remain on the project as long as training opportunities exist in the work classification or the trainee reaches journey-level status. It is not required that all trainees be on board for the entire length of the contract. The number trained shall be determined on the basis of the total number enrolled on the contract for a significant period.
9. Wage Progressions: Trainees will be paid at least the applicable ratios or wage progressions shown in the apprenticeship standards published by the Washington State Department of Labor and Industries. In the event that no training program has been established by the Department of Labor and Industries, the trainee shall be paid in accordance with the provisions of RCW 39.12.021, which reads as follows:

Apprentice workers employed upon public works projects for whom an apprenticeship agreement has been registered and approved with the State Apprenticeship Council pursuant to RCW 49.04, must be paid at

1 least the prevailing hourly rate for an apprentice of that trade. Any
2 worker for whom an apprenticeship agreement has not been registered
3 and approved by the State Apprenticeship Council shall be considered
4 to be a fully qualified journey-level worker, and, therefore, shall be paid
5 at the prevailing hourly rate for journey-level worker.
6

7 **Compliance**

8 In the event that the Contractor is unable to accomplish the required training hours
9 but can demonstrate a good faith effort to meet the requirements as specified, then
10 the Contracting Agency will adjust the training goals accordingly.
11

12 **Noncompliance and Sanctions**

13 When a contractor violates EEO provisions of the contract, the Contracting Agency
14 may impose damages in accordance with WSDOT's Equal Opportunity Compliance
15 Program and the FHWA 1273. These damages consist of additional administrative
16 costs including, but not limited to, the inspection, supervision, engineering,
17 compliance, and legal staff time and expenses necessary for investigating, reporting,
18 and correcting violations, as well as loss of federal funding, if any. Damages
19 attributable to a contractor's violations of the EEO provisions may be deducted from
20 progress payments due the Contractor. Before any money is withheld, the Contractor
21 will be provided with a notice of the basis of the violations, the amount to be withheld
22 and provided an opportunity to respond. The monetary value of the sanction will be
23 calculated on a case-by-case basis and based on the damages incurred by the
24 Contracting Agency.
25

26 The Contracting Agency's decision to recover damages for an EEO violation does
27 not limit its ability to suspend or revoke the contractor's pre-qualification status or
28 seek other remedies as allowed by federal or state law. In appropriate circumstances,
29 the Contracting Agency may also refer the Contractor to other state or federal
30 authorities for additional sanctions.
31

32 **Requirements for Non ATELS/SATC Approved Training Programs**

33 Contractors who are not affiliated with a program approved by ATELS or SATC may
34 have their training program approved (by FHWA) provided that the program is
35 submitted for approval on DOT Form 272-049, and the following standards are
36 addressed and incorporated in the Contractor's program:
37

- 38 1. The program establishes minimum qualifications for persons entering the
39 training program.
40
- 41 2. The program shall outline the work processes in which the trainee will
42 receive supervised work experience and training on-the-job and the
43 allocation of the approximate time to be spent in each major process. The
44 program shall include the method for recording and reporting the training
45 completed shall be stated.
46
- 47 3. The program shall include a numeric ratio of trainees to journey-level worker
48 consistent with proper supervision, training, safety, and continuity of
49 employment. The ratio language shall be specific and clear as to application
50 in terms of job site and workforce during normal operations (normally
51 considered to fall between 1:10 and 1:4).
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4. The terms of training shall be stated in hours. The number of hours required for completion to journey-level worker status shall be comparable to the apprenticeship hours established for that craft by the SATC. The following are examples of programs that are currently approved:

CRAFT	HOURS
Laborer	4,000
Ironworker	6,000
Carpenter	5,200-8,000
Construction Electrician	8,000
Operating Engineer	6,000-8,000
Cement Mason	5,400
Teamster	2,100

5. The method to be used for recording and reporting the training completed shall be stated.

Measurement

The Contractor may request that the total number of “training” hours for the contract be increased subject to approval by the Contracting Agency. This reimbursement will be made even though the Contractor receives additional training program funds from other sources, provided such other sources do not prohibit other reimbursement. Reimbursement to the Contractor for off-site training as indicated previously may only be made when the Contractor does one or more of the following and the trainees are concurrently employed on a Federal-aid project:

- 1. contributes to the cost of the training,
- 2. provides the instruction to the trainee,
- 3. pays the trainee’s wages during the off- site training period.

Reimbursement will be made upon receipt of a certified invoice that shows the related payroll number, the name of trainee, total hours trained under the program, previously paid hours under the contract, hours due this estimate, and dollar amount due this estimate. The certified invoice shall show a statement indicating the Contractor’s effort to enroll minorities and women when a new enrollment occurs. If a trainee is participating in a SATC/ATELS approved apprenticeship program, a copy of the certificate showing apprenticeship registration must accompany the first invoice on which the individual appears. Reimbursement for training occurring prior to approval of the training program will be allowed if the Contractor verbally notifies the Engineer of this occurrence at the time the apprentice/trainee commences work. A trainee/apprentice, regardless of craft, must have worked on the contract for at least 20 hours to be eligible for reimbursement.

Training hours that are not in compliance with the approved training plan will not be measured.

Payment

The Contractor will be reimbursed under the item “Training” per hour for each hour of approved training provided under the Contract.

(August 5, 2025)

Public Works Small and Veteran Businesses (PWSVB) and Minority and Women's Business Enterprises (MWBE) Participation

General Statement

The participation of minority, public works small, veteran-owned, and women business enterprises are an important strategic objective for the State of Washington. Contractors shall not create barriers to open and fair opportunities for all businesses, including MWBEs and PWSVBs, to participate in the Work on this Contract.

PWSVB and MWBE Abbreviations and Definitions

Broker - A business firm that provides a bona fide service, that assists in the procurement of personnel, facilities, equipment, materials, or supplies required for the performance of the Contract; or persons/companies who arrange or expedite transactions (i.e., arranging a transaction or service but does not provide a work product or enhancement).

Commercially Useful Function (CUF) – A firm performs a commercially useful function when it is responsible for execution of the work of the contract and is carrying out its responsibilities by performing, managing, and supervising the work involved. To perform a commercially useful function, the firm must also be responsible, with respect to materials and supplies used on the contract, for ordering, negotiating price, paying for, determining quality and quantity, and installing (where applicable) for the material itself.

The PWSVB or MWBE firm does not perform a CUF if its role is limited to that of an extra participant in a transaction, contract, or Project through which the funds are passed to obtain the appearance of PWSVB or MWBE participation.

Good Faith Efforts – Efforts to achieve either the PWSVB Condition of Award (COA) goals at the time of Bid or the PWSVB Commitments in the PWSVB Plan at the completion of the project. The efforts will demonstrate, by their scope, intensity, and appropriateness to the objective, that the bidder can reasonably be expected to fulfill the program requirement.

Manufacturer (PWSVB or MWBE) – An PWSVB or MWBE firm that operates or maintains a factory or establishment that produces on the premises the materials, supplies, articles, or equipment required under the Contract. A Manufacturer shall produce finished goods or products from raw or unfinished material or purchase and substantially alters goods and materials to make them suitable for construction use before reselling them.

Minority Business Enterprise (MBE) – A minority owned business meeting the requirements of RCW 39.19 and WAC 326-20 and certified by the Washington State Office of Minority & Women's Business Enterprises.

Minority owned businesses can be located by searching the directory:

<https://omwbe.wa.gov/directory-certified-businesses>

Minority and Women's Business Enterprises (MWBE) - The combined term to refer to both a Minority Business Enterprises (MBEs) and Women's Business Enterprises (WBEs).

MWBE Goals (Voluntary) – Efforts to provide MWBE opportunities are encouraged in accordance with these Specifications and RCW 39.19.

Goals for voluntary MWBE participation have been established as a percentage of Contractor's total Bid amount.

The Contracting Agency has established the following two voluntary goals:

Minority	10%
Women	6%

Public Works Small Business Enterprise (PWSBE) – A public works small business meeting the requirements of RCW 39.19 and WAC 326-20 and certified by the Washington State Office of Minority & Women's Business Enterprises. Public Works Small businesses can be located by searching the directory:

<https://omwbe.wa.gov/directory-certified-businesses>

Only firms on the OMWBE Certified Business Directory with the PWSBE certification can be used to fulfill the PWSBE mandatory goal.

DBE and SBE are Federal designations and cannot be used to fulfill the mandatory State goal, the business must also have the PWSBE designations.

Public Works Small and Veteran Businesses (PWSVB) – The combined term to refer to both Public Works Small Business Enterprises (PWSBEs) and Veteran-Owned businesses (VOBs).

PWSVB COA Goals – At the time of bid, this is the minimum dollar amount of participation that the Bidder must commit to by submission of the PWSVB Plan and/or by Good Faith Effort (GFE). Each goal is expressed as a percentage of the Bid amount (as shown on the Proposal). There are two separate COA Goals that must be met: one for Public Works Small Business Enterprises and one for Veteran-Owned Businesses.

The Contracting Agency has established the following two enforceable COA Goals:

Public Works Small Business Enterprise (PWSBE) Goal	*** \$1\$ \$ ***
Veteran-Owned Business (VOB) Goal	*** \$2\$ \$ ***

PWSVB Commitment – The dollar amount and scope of work the Bidder indicates on each line of their PWSVB Plan (WSDOT Form 226-018) for each PWSBE or VOB firm. These Commitments will be incorporated into the Contract and shall be considered Contract requirements.

Public Works Small and Veteran Business Plan (PWSVB Plan) - The Plan that shows the dollar amount of the commitments for both Public Works Small Business Enterprises and Veteran-Owned Businesses to meet the PWSVB COA Goals.

Subcontractor, PWSVB or MWBE – An individual, partnership, firm, corporation, or joint venture who meet the definition of a Minority, Public Works Small, Women, or Veteran-Owned Business and who is sublet part of the Contract.

Supplier, PWSVB or MWBE – A firm that owns, operates, or maintains a store, warehouse, or other establishment in which the materials or supplies required for the performance of a Contract are bought, kept in stock, and regularly sold to the public in the usual course of business. To be a Supplier, the PWSVB or MWBE firm must be an established business that engages in as its principal business and in its own name the purchase and sale of the products in question. A Supplier in such items as steel, cement, gravel, stone, and petroleum products need not own, operate, or maintain a place of business if it both owns and operates distribution equipment for the products. Any supplementing of suppliers' own distribution equipment shall be by long-term formal lease agreements and not on an ad-hoc basis. Brokers, packagers, manufacturers' representatives, or other persons who arrange or expedite transactions shall not be regarded as Suppliers within the meaning of this definition.

Veteran-Owned Business (VOB) – A veteran-owned business meeting the requirements of RCW 43.60A.010 and certified by the Department of Veterans Affairs. Veteran-Owned businesses can be located at:

<https://www.dva.wa.gov/veterans-service-members-and-their-families/veteran-owned-businesses>

Women Business Enterprise (WBE) – A women owned business meeting the requirements of RCW 39.19 and WAC 326-20 and certified by the Washington State Office of Minority & Women's Business Enterprises.

Women owned businesses can be located by searching the directory:

<https://omwbe.wa.gov/directory-certified-businesses>

Procedures Prior to Award

PWSVB Goals (Enforceable)

PWSVB COA Goals

The Contractor shall submit their PWSVB Plan (WSDOT Form 226-018) to demonstrate attainment of the PWSBE and VOB COA Goals. PWSBE and VOB Goals are independent. Work shown in the PWSVB Plan shall not apply to both PWSBE and VOB Goals. If the Contractor cannot meet these goals, a Good Faith Effort (GFE) is required.

Demonstrating compliance with the PWSBE and VOB COA Goals is a Condition of Award of this Contract. Failure to comply with these requirements may result in the Bid being found nonresponsive.

PWSVB Commitment

The Contractor is required to utilize each PWSBE or VOB firm identified on their PWSVB Plan (WSDOT Form 226-018) for each scope of work and dollar amount listed. A firm that is registered as both a PWSBE and VOB may split the total commitment between VOB and PWSBE to attain the PWSBE and VOB COA Goals.

1
2 **PWSVB Plan**

3 To be eligible for award of the Contract, the Bidder shall properly complete and
4 submit a Public Works Small and Veteran Business Plan (PWSVB Plan). The
5 PWSVB Plan shall be submitted on WSDOT Form 226-018. The Bidder's
6 PWSVB Plan shall be submitted as specified in Section 1-02.9. The PWSVB
7 Plan must clearly demonstrate how the Bidder intends to meet both the PWSBE
8 and VOB COA Goals. A PWSVB Plan (WSDOT Form 226-018) and instructions
9 on how to properly fill out the form are included in the Proposal package.

10
11 When the Bidder elects to utilize force account Work to meet the PWSBE or
12 VOB COA Goals, as shown on its PWSVB Plan, the Bidder shall not commit
13 more than 50% of the force account bid item amount.

14
15 In the event of arithmetic errors in completing the PWSVB Plan, the amount
16 listed to be applied towards the PWSBE or VOB Goals for each PWSVB firm
17 shall govern and the PSSVB total amount shall be adjusted accordingly.

18
19 To be eligible for inclusion in the PWSVB Plan, PWSBE or VOB firms committed
20 must be certified as described herein prior to the due date for bids on the
21 Contract.

22
23 **Written Confirmation**

24 Prior to the award of the Contract and as specified in Section 1-02.9, the
25 Contractor shall submit the PWSVB Subcontractor Written Confirmation Form
26 (WSDOT Form 226-017) documentation from each PSSVB firm listed on the
27 PWSVB Plan confirming their participation on the Contract for each amount
28 listed in the PWSVB Plan.

29
30 **Selection of Successful Bidder/Good Faith Efforts (GFE)**

31 The Contracting Agency will consider as non-responsive and will reject any Bid
32 Proposal submitted that does not contain a properly completed PWSVB Plan
33 that shows compliance with the PWSBE and VOB COA goals.

34
35 Compliance with the PWSVB COA Goals requirements may be accomplished in
36 one of two ways:

- 37
38 1. By meeting the PWSVB COA Goals
39 Submission of the PWSVB Plan, showing the Bidder has obtained
40 enough PWSBE or VOB participation to meet or exceed each of the
41 PWSVB COA Goals
42
43 2. By documentation that the Bidder made adequate GFE to meet the
44 PWSVB COA Goals
45

46 The Bidder may demonstrate a GFE in whole or part through GFE
47 documentation ONLY IN THE EVENT a Bidder's efforts to solicit sufficient
48 PWSVB participation have been unsuccessful. The Bidder must supply GFE
49 documentation in addition to the PWSVB Plan.

50
51 GFE documentation shall be submitted as specified in Section 1-02.9.
52

Document Submittal Requirements

The Contracting Agency will review the GFE documentation and will determine if the Bidder made an adequate GFE.

GFE Documentation Prior to Award

GFE is evaluated when determining award of a Contract that has PWSVB COA Goals. The efforts employed by the Bidder should be commercially reasonable and demonstrate they are actively and aggressively trying to fulfill the established PWSVB COA Goals. Mere pro forma efforts are not commensurate with a GFE.

The following is a list of types of actions, which would be considered as part of the Bidder's GFE to achieve PWSVB participation. It is not intended to be a mandatory checklist, nor is it intended to be exclusive or exhaustive. Other factors or types of efforts may be relevant in appropriate cases:

1. Soliciting through all reasonable and available means (e.g., attendance at pre-bid meetings, advertising and/or written notices) the interest of all certified PWSVB firms who have the capability to perform the Work of the Contract. The Bidder must solicit this interest within sufficient time to allow the PWSVB to respond to the solicitation. The Bidder must determine with certainty if the PWSVB firms are interested by taking appropriate steps to follow up initial solicitations.
2. Selecting portions of the Work to be performed by PWSVBs to increase the likelihood that the PWSVB COA Goals will be achieved. This includes, where appropriate, breaking out Contract Work items into economically feasible units to facilitate PWSVB participation, even when the Bidder might otherwise prefer to perform these Work items with its own forces.
3. Providing interested PWSVBs with adequate information about the Plans, Specifications, and requirements of the Contract in a timely manner to assist them in responding to a solicitation.
 - a. Negotiating in good faith with interested PWSVBs. It is the Bidder's responsibility to make a portion of the Work available to PWSVBs and to select those portions of the Work or material needs consistent with the available PWSVBs, to facilitate PWSVB participation. Evidence of such negotiation includes the names, addresses, and telephone numbers of PWSVBs that were considered; a description of the information provided regarding the Plans and Specifications for the Work selected for subcontracting; and evidence as to why additional agreements could not be reached for PWSVB firms to perform the Work.
 - b. A Bidder using good business judgment would consider a number of factors in negotiating with subcontractors, including PWSVB subcontractors, and would take a firm's price and capabilities as well as the PWSVB COA Goals into consideration. However, the fact that there may be some additional costs involved in finding

1 and using PWSVBs is not in itself sufficient reason for a Bidder's
2 failure to meet the PWSVB COA Goals, as long as such costs are
3 reasonable. Also, the ability or desire of a Bidder to perform the
4 Work of a Contract with its own organization does not relieve the
5 Bidder of the responsibility to make a GFE. Bidders are not,
6 however, required to accept higher quotes from PWSVB firms if
7 the price difference is excessive or unreasonable.
8

- 9 4. Not rejecting PWSVB firms as being unqualified without sound
10 reasons based on a thorough investigation of their capabilities. The
11 Bidder's standing within its industry, membership in specific groups,
12 organizations, or associations and political or social affiliations (for
13 example union vs. non-union employee status) are not legitimate
14 causes for the rejection or non-solicitation of bids in the Bidder's
15 efforts to meet the PWSVB COA Goals.
16
- 17 5. Making efforts to assist interested PWSVB firms in obtaining bonding,
18 lines of credit, or insurance as required by the recipient or Bidder.
19
- 20 6. Making efforts to assist interested PWSVB firms in obtaining
21 necessary equipment, supplies, materials, or related assistance or
22 services.
23
- 24 7. Effectively using the services of available organizations as allowed on
25 a case-by-case basis to provide assistance in the recruitment and
26 placement of PWSVB firms.
27
- 28 8. Documentation of GFE must include copies of each PWSVB and
29 non-PWSVB subcontractor quotes submitted to the Bidder when a
30 non-PWSVB subcontractor is selected over a PWSVB for Work on
31 the Contract.
32

33 **Administrative Reconsideration of GFE Documentation Prior to Award**

34 A Bidder has the right to request reconsideration if the GFE documentation
35 submitted with their Bid was determined to be inadequate:
36

- 37 1. The Bidder must request within 48 hours of notification of being
38 nonresponsive or forfeit the right to reconsideration.
39
- 40 2. The reconsideration decision on the adequacy of the Bidder's GFE
41 documentation shall be made by an official who did not take part in
42 the original determination.
43
- 44 3. Only original GFE documentation submitted as a supplement to the
45 Bid shall be considered. The Bidder shall not introduce new
46 documentation at the reconsideration hearing.
47
- 48 4. The Bidder shall have the opportunity to meet in person with the
49 official for the purpose of setting forth the Bidder's position as to why
50 the GFE documentation demonstrates a sufficient effort.
51

1 participation as long as the subcontract with the PWSVB or MWBE firm was
2 executed prior to the date the PWSVBE or MWBE firm lost its certification.
3

4 Only take credit for that portion of the total dollar value of the work that is equal
5 to the distinct, clearly defined portion of the Work that the PWSVB or MWBE
6 performs with its own forces. The value of work performed by the PWSVB or
7 MWBE includes the cost of supplies and materials purchased by the PWSVB or
8 MWBE and equipment leased by the PWSVB or MWBE, for its work on the
9 Contract. Supplies, materials, or equipment obtained by a PWSVB or MWBE
10 that are not utilized or incorporated in the Contract work by the PWSVB or
11 MWBE will not be eligible for PWSVB or MWBE credit.
12

13 The supplies, materials, and equipment purchased or leased from the Prime
14 Contractor or its affiliate, including any Contractor's resources available to
15 PWSVB or MWBE subcontractors at no cost, shall not be credited.
16

17 PWSVB or MWBE credit will not be given in instances where the equipment
18 lease includes the operator. The PWSVB or MWBE is expected to operate the
19 equipment used in the performance of its work under the contract with its own
20 forces. Situations where equipment is leased and used by the PWSVB or
21 MWBE, but payment is deducted from the Contractor's payment to the PWSVB
22 or MWBE is not allowed.
23

24 **PWSVB Commitment**

25 Payments to each PWSBE or VOB firm shall demonstrate that the
26 Commitments amounts have been met as shown on the SVB Plan.
27

28 Participation is credited to the PWSVB Commitments upon payment to the
29 PWSBE or VOB.
30

31 **MWBE Goals**

32 Amounts paid to a MWBE will be credited to every MWBE Goal for which
33 they are eligible. Participation may be credited for more than one category.
34

35 Participation is credited to the MWBE Goals upon payment to the eligible
36 MWBE.
37

38 **Prime Contractor Credit for Participation (PWSVB or MWBE)**

39 Only take credit for that portion of the Work performed that the PWSVB or
40 MWBE Prime Contractor did not sublet to other firms.
41

42 **Subcontractor Credit for Participation**

43 When the Prime contractor, subcontractor or lower tier subcontractor are
44 part of a PWSVB or MWBE Plan, the following apply:
45

- 46 1. If a Prime Contractor, subcontractor, or lower tier subcontractor
47 subcontracts a portion of the Work of its contract to another firm,
48 the value of the subcontracted Work may be counted toward the
49 PWSBE or VOB Commitments based on the following conditions:
50

- a. If a PWSBE Prime Contractor, subcontractor, or lower tier subcontractor subcontracts to a PWSBE the value can count toward the PWSBE Commitment.
 - b. If a PWSBE Prime Contractor, subcontractor or lower tier subcontractor subcontracts to a non-PWSBE, the value cannot count toward the PWSBE Commitment.
 - c. If a VOB Prime Contractor, subcontractor, or lower tier subcontractor subcontracts with a VOB the value can count toward the VOB Commitment.
 - d. If a VOB Prime Contractor, subcontractor, or lower tier subcontractor subcontracts with a non-VOB the value cannot count toward the VOB Commitment.
 - e. Work subcontracted to a non-PWSVB does not count towards the PWSVB Commitments.
2. If a Prime Contractor, subcontractor, or lower tier subcontractor subcontracts a portion of the Work of its contract to another firm, the value of the subcontracted Work may be counted toward the MWBE Goals based on the following conditions:
 - a. Work subcontracted to a non-MWBE cannot be counted toward the MWBE goals.
 - b. Work subcontracted to another MWBE can be counted toward every MWBE goal for which the firm holds a certification.
 - c. Work subcontracted by a MWBE firm who also is a PWSVB, will be credited toward the PWSVB Commitment as described in section 1.
 - d. Work subcontracted to a non-MWBE cannot be counted toward the MWBE goals.

Broker Credit for Participation

When a PWSVB or MWBE participates as a broker (i.e., arranging a transaction or service but does not provide a work product or enhancement), only the dollar value of the reasonable fee may count toward the PWSVB Commitments or MWBE Goals. For purposes of PWSVB or MWBE Brokers, a reasonable fee shall not exceed 5 percent of the total cost of the goods or services brokered.

Manufacturer and Supplier Credit for Participation

If materials or supplies are obtained from a PWSVB or MWBE Manufacturer, one hundred percent (100%) of the cost of materials or supplies can count toward the PWSVB Commitments or MWBE Goals.

One hundred percent (100%) of the cost of materials or supplies purchased from a PWSVB or MWBE Supplier may be credited toward meeting the

PWSVB Commitments or MWBE Goals. If the role of the PWSVB or MWBE Supplier is determined to be that of a pass-through, then no credit will be given for its services. If the role of the PWSVB or MWBE Supplier is determined to be that of a Broker, then credit shall be limited to the fee or commission it receives for its services, subject to the provision listed in "Broker Credit for Participation."

Force Account Work

One hundred percent (100%) of the actual amounts paid to a PWSVB or MWBE shall count toward the PWSVB Commitments or MWBE Goals.

Service Provider Credit for Participation

When a PWSVB or MWBE participates as a service provider or consultant and provides a bona fide service such as professional, technical, consultant, or managerial services, 100% of the total cost counts toward the PWSVB Commitments or MWBE Goals if the firm performs a CUF.

Trucking Credit for Participation

PWSVB or MWBE trucking firm participation may only be credited as participation for the value of the hauling services, not for the materials being hauled unless the trucking firm is also certified as a supplier. In situations where the firm's work is priced per ton, the value of the hauling service must be calculated separately from the value of the materials in order to determine credit for hauling.

The PWSVB or MWBE trucking firm must own and operate at least one licensed, insured, and operational truck on the contract. The truck must be of the type that is necessary to perform the hauling duties required under the contract. The firm receives credit for the value of the transportation services it provides on the Contract using trucks it owns or leases, licenses, insures, and operates with drivers it employs.

The PWSVB or MWBE firm may lease additional trucks from another SVBE or MWBE firm. The Work that a PWSVB or MWBE trucking firm performs with trucks it leases from other certified trucking firms qualify for 100% credit.

The trucking Work subcontracted to any non-PWSVB or MWBE trucking firm will not receive credit for Work done on the project. The PWSVB or MWBE trucking firm may lease trucks from a non-PWSVB or MWBE truck leasing company but can only receive credit as PWSVB or MWBE participation if the PWSVB or MWBE firm uses its own employees as drivers.

PWSVB or MWBE credit for a truck broker is limited to the fee/commission that the firm receives for arranging transportation services, subject to the provision listed in "Broker Credit for Participation."

Reporting Participation for Credit

The Contractor and any subcontractor, supplier, service provider, broker, or manufacturer of any tier that utilize PWSVB or MWBE firms to perform Work on the project, shall maintain appropriate records that will enable the

1 Engineer to verify PWSVB and MWBE participation throughout the life of
2 the project.

3
4 Refer to Section 1-08.1 for additional reporting requirements associated
5 with this contract. The Contractor shall report amounts paid in accordance
6 with Section 1-08.1 in order to receive credit for participation.
7

8 **Joint Checks**

9 A joint check is a check between a Subcontractor and the Contractor to the
10 supplier of materials/supplies. The check is issued by the Contractor as payer
11 to the Subcontractor and the material supplier jointly for items to be incorporated
12 into the project. The PWSVB or MWBE must release the check to the supplier,
13 while the Contractor acts solely as the guarantor.
14

15 A joint check agreement must be approved by the Engineer and requested by
16 the PWSVB or MWBE involved using the DBE Joint Check Request Form
17 (WSDOT Form #272-053) prior to its use. The form must accompany the
18 PWSVB or MWBE Joint Check Agreement between the parties involved,
19 including the conditions of the arrangement and expected use of the joint
20 checks.
21

22 The approval to use joint checks and the use will be closely monitored by the
23 Engineer. To receive PWSVB or MWBE credit for performing a CUF with respect
24 to obtaining materials and supplies, the PWSVB or MWBE must “be responsible
25 for negotiating price, determining quality and quantity, ordering the material,
26 installing and paying for the material itself.” The Contractor shall submit DBE
27 Joint Check Request Form for the Engineer approval prior to using a joint check.
28

29 Material costs paid by the Contractor directly to the material supplier are not
30 allowed. If proper procedures are not followed or the Engineer determines that
31 the arrangement results in lack of independence for the SVBE or MWBE
32 involved, no SVBE or MWBE credit will be given for the participation as it relates
33 to the material cost.
34

35 **Changes in PWSVB Commitment**

36 The Contractor shall utilize the PWSVB Commitment (COA) firms to perform all
37 of the Work and supply all of the materials for which each is committed unless
38 otherwise approved in writing by the Engineer. Any reduction in the Work
39 committed to any PWSVB Commitment (COA) firm, or performance of Work
40 previously designated for a PWSVB Commitment (COA) firm by any other firm
41 or by the Contractor’s own forces, shall be considered a termination, and
42 requires the prior written consent of the Engineer. Termination requests shall be
43 submitted in writing to the Engineer, who shall either grant or deny such request
44 in writing. No termination shall become effective unless and until the Engineer
45 provides written approval. Changes to PWSVB Commitments will be
46 documented in accordance with Section 1-04.4 and shall be considered
47 amendments to the Contractor’s PWSVB Plan.
48

49 **Approval of PWSBE Termination**

50 Termination of a PWSVB Commitment (COA) firm is only allowed in whole
51 or in part for good cause and with written approval of the Engineer. If a
52 PWSVB Commitment (COA) firm is terminated without the written approval

1 of the Engineer, the Contractor shall not be entitled to payment for Work or
2 material committed to, but not performed/supplied by, the PWSVB
3 Commitment (COA) firm. In addition, the Contractor may be subject to the
4 remedies set forth elsewhere in this Special Provision.

5
6 Prior to requesting approval to terminate a PWSVB Commitment (COA)
7 firm, the Contractor shall give notice in writing to the PWSVB Commitment
8 (COA) firm with a copy to the Engineer of its intent to request to terminate
9 PWSVB Commitment (COA) Work and shall cite the cause for doing so,
10 with supporting documentation. The PWSVB Commitment (COA) firm shall
11 have five (5) days to respond to the Contractor's notice. The PWSVB
12 Commitment (COA) firm's response shall either support the termination or
13 advise the Engineer and the Contractor of the reasons it objects to the
14 termination.

15 16 **Cause for Termination**

17 The Contractor must have good cause to terminate a PWSVB Commitment
18 (COA) firm. Good cause includes situations where the PWSVB
19 Commitment (COA) firm is unable or unwilling to perform the work of its
20 subcontract. Good cause may exist if:

- 21
22 1. The PWSVB Commitment (COA) firm fails or refuses to execute a
23 written contract.
- 24
25 2. The PWSVB Commitment (COA) firm fails or refuses to perform
26 the work of its subcontract in a way consistent with normal industry
27 standards.
- 28
29 3. The PWSVB Commitment (COA) firm fails or refuses to meet the
30 Contractor's reasonable nondiscriminatory bond requirements.
- 31
32 4. The PWSVB Commitment (COA) firm becomes bankrupt,
33 insolvent, or exhibits credit unworthiness.
- 34
35 5. The PWSVB Commitment (COA) firm is ineligible to work on
36 public works projects because of suspension and debarment
37 proceedings pursuant to federal law or applicable State law.
- 38
39 6. The PWSVB Commitment (COA) firm is ineligible to receive
40 PWSVB COA credit for the type of work involved.
- 41
42 7. The PWSVB Commitment (COA) firm voluntarily withdraws from
43 the project and provides written notice of its withdrawal.
- 44
45 8. The PWSVB Commitment (COA) firm's work is deemed
46 unsatisfactory by the Engineer and not in compliance with the
47 Contract.
- 48
49 9. The PWSVB Commitment (COA) firm's owner dies or becomes
50 disabled with the result that the PWSVB Commitment (COA) firm
51 is unable to complete its work on the Contract.
52

Good cause does not exist if:

1. The Contractor seeks to terminate a PWSVB Commitment (COA) firm so that the Contractor can self-perform the work.
2. The Contractor seeks to terminate a PWSVB Commitment (COA) firm so the Contractor can substitute another PWSVB firm or non-PWSVB firm after Contract Award.
3. The failure or refusal of the PWSVB Commitment (COA) firm to perform its work on the subcontract results from the bad faith or discriminatory action of the Contractor (e.g., the failure of the Contractor to make timely payments or the unnecessary placing of obstacles in the path of the PWSVB Commitment (COA) firm's Work).

Owner-Initiated Changes

In instances where the Engineer makes changes that result in changes to Work that was part of a PWSVB Commitment, the Contractor may be directed to substitute for the Work. The Contractor shall notify the Engineer if any owner-initiated change impacts the PWSVB commitment, prior to any changes to the Contract. Changes will be addressed in accordance with Section 1-04.4.

Contractor-Initiated Changes

The Contractor cannot change the scope or reduce the amount of Work as part of a PWSVB Commitment without good cause. Reducing a PWSVB Commitment is viewed as a partial termination, and therefore subject to the termination procedures above.

Quantity Underruns

If a variation in estimated quantities occurs that affects a PWSVB Commitment, that unmet Commitment will not be considered a termination, provided that the Contractor can demonstrate that the variation in quantities directly impacted the Commitment. The Contractor shall provide such documentation if requested by the Engineer.

The Contractor may be required to substitute other remaining Work to another PWSVB firm to meet the dollar amounts committed to in their PWSVB Plan.

Good Faith Effort (GFE) Documentation After Execution

If the Contractor fails to fulfill the PWSVB Commitment to in their PWSVB Plan, a Good Faith Effort shall be submitted for approval. GFE documentation shall follow the requirements for GFE Documentation Prior to Award.

In addition, the GFE shall address the impact of overruns and underruns on the ability of the Contractor to meet the dollar amounts committed to in their PWSVB Plan. Overruns and underruns may be considered a reason for not attaining the PWSVB dollar amounts committed to in their PWSVB Plan. The GFE shall include enough information for the Engineer to evaluate the impact the overrun or underrun had on the PWSVB participation.

1
2 **Administrative Reconsideration of GFE Documentation After Execution**

3 When the Contracting Agency's GFE documentation review determines a GFE
4 has no merit, the Contractor has the right to request reconsideration of the
5 Contracting Agency's determination.
6

- 7 1. The Contractor must request reconsideration within five (5) working
8 days of notification of GFE documentation being deemed inadequate.
9
10 2. The reconsideration decision on the adequacy of the Contractor's
11 GFE documentation shall be made by an official who did not take part
12 in the original determination.
13
14 3. Only original GFE documentation submitted shall be considered. The
15 Contractor shall not introduce new documentation at the
16 reconsideration hearing.
17
18 4. The Contractor shall have the opportunity to meet in person with the
19 official for the purpose of setting forth the Contractor's position as to
20 why the GFE documentation demonstrates a sufficient effort.
21
22 5. The reconsideration official shall provide the Contractor with a written
23 decision on reconsideration within five (5) working days of the
24 hearing, explaining the basis for their finding.
25

26 **Remedies for Failure to Meet PWSVB Requirements**

27 Upon completion of a project, a Prime Contractor Performance Report will
28 document whether the Contractor met the Commitments in their PWSVB Plan
29 or GFE. Failure to meet the Commitments in the PWSVB Plan or provide an
30 acceptable GFE may lead to the following:
31

- 32 1. Suspension of a Contractor's prequalification; and/or
33
34 2. Withholding from the Contractor of an amount up to the value of the
35 un-met PWSBE or VOB Commitments
36

37 Failure to utilize the PWSVB Commitment (COA) firms listed in the PWSVB Plan
38 for the Work for which they were listed, unless termination was approved in in
39 writing by the Contracting Agency, will be reflected on the Prime Contractor
40 Performance Report.
41

42 **Payment**

43 Compensation for all costs involved with complying with the conditions of this
44 Special Provision and any other associated PWSVB or MWBE requirements are
45 included in payment for the associated Contract items of Work, except otherwise
46 provided in the Specifications.
47

48 1-07.11.OPT7.FR1

49 **(October 3, 2022)**

50 **Federal Small Business Enterprise Participation**

51 The Federal Small Business Enterprise (FSBE) Program is an element of the
52 Disadvantaged Business Enterprise (DBE) in accordance with the requirements of 49

1 CFR Part 26.39. Failure to comply with the requirements of this Specification may result
2 in sanctions as provided by the Contract.
3

4 **FSBE Abbreviations and Definitions**

5 **Broker** – A business firm that provides a bona fide service, such as professional,
6 technical, consultant or managerial services and assistance in the procurement
7 of essential personnel, facilities, equipment, materials, or supplies required for
8 the performance of the Contract; or, persons/companies who arrange or
9 expedite transactions.
10

11 **Certified Business Description** – Specific descriptions of work the FSBE is
12 certified to perform, as identified in the Certified Firm Directory, under the Vendor
13 Information page.
14

15 **Certified Firm Directory** – A database of all Minority, Women, and
16 Disadvantaged Business Enterprises, including those identified as a FSBE,
17 currently certified by Washington State. The on-line Directory is available to
18 Bidders for their use in identifying and soliciting interest from FSBE firms. The
19 database is located under the Firm Certification section of the Diversity
20 Management and Compliance System web page at:
21 <https://omwbe.diversitycompliance.com>.
22

23 Firms certified by OMWBE as SBE, DBE can be used to fulfill the FSBE
24 mandatory goal on a project.
25

26 **Commercially Useful Function (CUF)** – 49 CFR 26.55(c)(1) defines
27 commercially useful function as: “A DBE performs a commercially useful function
28 when it is responsible for execution of the work of the contract and is carrying
29 out its responsibilities by actually performing, managing, and supervising the
30 work involved. To perform a commercially useful function, the DBE must also be
31 responsible, with respect to materials and supplies used on the contract, for
32 negotiating price, determining quality and quantity, ordering the material, and
33 installing (where applicable) and paying for the material itself. To determine
34 whether a DBE is performing a commercially useful function, you must evaluate
35 the amount of work subcontracted, industry practices, whether the amount the
36 firm is to be paid under the contract is commensurate with the work it is actually
37 performing and the DBE credit claimed for its performance of the work, and other
38 relevant factors.”
39

40 **FSBE** – A firm certified by OMWBE as meeting Federal requirements of a small
41 business enterprise. All firms on the OMWBE Certified Firm Directory with the
42 designation of SBE or DBE are FSBEs.
43

44 **Good Faith Efforts** – Efforts to achieve the FSBE Goal or other requirements
45 of this part which, by their scope, intensity, and appropriateness to the objective,
46 can reasonably be expected to fulfill the program requirement.
47

48 **Manufacturer (FSBE)** – A FSBE firm that operates or maintains a factory or
49 establishment that produces on the premises the materials, supplies, articles, or
50 equipment required under the Contract. A FSBE Manufacturer shall produce
51 finished goods or products from raw or unfinished material or purchase and

substantially alters goods and materials to make them suitable for construction use before reselling them.

Reasonable Fee (FSBE) – For purposes of Brokers or service providers a reasonable fee shall not exceed 5% of the total cost of the goods or services brokered.

Regular Dealer (FSBE) – A FSBE firm that owns, operates, or maintains a store, warehouse, or other establishment in which the materials or supplies required for the performance of a Contract are bought, kept in stock, and regularly sold to the public in the usual course of business. To be a Regular Dealer, the FSBE firm must be an established regular business that engages in as its principal business and in its own name the purchase and sale of the products in question. A Regular Dealer in such items as steel, cement, gravel, stone, and petroleum products need not own, operate or maintain a place of business if it both owns and operates distribution equipment for the products. Any supplementing of regular dealers' own distribution equipment shall be by long-term formal lease agreements and not on an ad-hoc basis. Brokers, packagers, manufacturers' representatives, or other persons who arrange or expedite transactions shall not be regarded as Regular Dealers within the meaning of this definition.

FSBE Goal

The Contracting Agency has established a FSBE Goal for this Contract in the amount of: *** \$1\$ \$***

Crediting FSBE Participation

All FSBE subcontractors shall be certified before the subcontract on which they are participating is executed.

FSBE participation is only credited upon payment to the FSBE.

The following are some definitions of what may be counted as FSBE participation.

FSBE Prime Contractor

Only take credit for that portion of the total dollar value of the Contract equal to the distinct, clearly defined portion of the Work that the FSBE Prime Contractor performs with its own forces and is certified to perform.

FSBE Subcontractor

Only take credit for that portion of the total dollar value of the subcontract that is equal to the distinct, clearly defined portion of the Work that the FSBE performs with its own forces and is certified to perform. The value of work performed by the FSBE includes the cost of supplies and materials purchased by the FSBE and equipment leased by the FSBE, for its work on the contract. Supplies, materials or equipment obtained by a FSBE that are not utilized or incorporated in the contract work by the FSBE will not be eligible for FSBE credit.

The supplies, materials, and equipment purchased or leased from the Contractor or its affiliate, including any Contractor's resources available to FSBE subcontractors at no cost, shall not be credited.

1 FSBE credit will not be given in instances where the equipment lease includes
2 the operator. The FSBE is expected to operate the equipment used in the
3 performance of its work under the contract with its own forces. Situations where
4 equipment is leased and used by the FSBE, but payment is deducted from the
5 Contractor's payment to the FSBE is not allowed.
6

7 When the subcontractor is a FSBE, the following apply:
8

- 9 1. If a FSBE subcontracts a portion of the Work of its contract to another
10 firm, the value of the subcontracted Work may be counted toward the
11 FSBE Goal only if the lower-tier subcontractor is also a FSBE.
12
- 13 2. Work subcontracted to a non-FSBE does not count towards the FSBE
14 Goal nor FSBE participation.
15

16 **FSBE Subcontract and Lower Tier Subcontract Documents**

17 There must be a subcontract agreement that complies with 49 CFR Part 26 and
18 fully describes the distinct elements of Work committed to be performed by the
19 FSBE.
20

21 **FSBE Service Provider**

22 The value of fees or commissions charged by a FSBE firm behaving in a manner
23 of a Broker, or another service provider for providing a bona fide service, such
24 as professional, technical, consultant, managerial services, or for providing
25 bonds or insurance specifically required for the performance of the contract will
26 only be credited as FSBE participation, if the fee/commission is determined by
27 the Contracting Agency to be reasonable and the firm has performed a CUF.
28

29 **Temporary Traffic Control**

30 If the FSBE firm is being utilized in the capacity of only "Flagging", the FSBE firm
31 must provide a Traffic Control Supervisor (TCS) and flagger, which are under
32 the direct control of the FSBE. The FSBE firm shall also provide all flagging
33 equipment (e.g. paddles, hard hats, and vests).
34

35 If the FSBE firm is being utilized in the capacity of "Traffic Control Services", the
36 FSBE firm must provide a TCS, flaggers, and traffic control items (e.g., cones,
37 barrels, signs, etc.) and be in total control of all items in implementing the traffic
38 control for the project.
39

40 **Trucking**

41 FSBE trucking firm participation may only be credited as FSBE participation for
42 the value of the hauling services, not for the materials being hauled unless the
43 trucking firm is also certified as a supplier of those materials. In situations where
44 the FSBE's work is priced per ton, the value of the hauling service must be
45 calculated separately from the value of the materials in order to determine FSBE
46 credit for hauling
47

48 The FSBE trucking firm must own and operate at least one licensed, insured
49 and operational truck on the contract. The truck must be of the type that is
50 necessary to perform the hauling duties required under the contract. The FSBE
51 receives credit for the value of the transportation services it provides on the

1 Contract using trucks it owns or leases, licenses, insures, and operates with
2 drivers it employs.
3
4 The FSBE may lease additional trucks from another FSBE firm. The FSBE who
5 leases additional trucks from another FSBE firm receives credit for the value of
6 the transportation services the lessee FSBE provides on the Contract.
7
8 The trucking Work subcontracted to any non-FSBE trucking firm will not receive
9 credit for Work done on the project.
10
11 The FSBE may lease trucks from a truck leasing company (recognized truck
12 rental center), but can only receive credit towards FSBE participation if the FSBE
13 uses its own employees as drivers.
14
15 **FSBE Manufacturer and FSBE Regular Dealer**
16 One hundred percent (100%) of the cost of the manufactured product obtained
17 from a FSBE manufacturer can count as FSBE participation. If the manufacturer
18 is a FSBE, participation may count towards the FSBE Goal.
19
20 Sixty percent (60%) of the cost of materials or supplies purchased from a FSBE
21 Regular Dealer may be credited as FSBE Participation. If the role of the FSBE
22 Regular Dealer is determined to be that of a Broker, then FSBE credit shall be
23 limited to the fee or commission it receives for its services. Regular Dealer
24 status and the amount of credit is determined on a Contract-by-Contract basis.
25 If the regular dealer is a FSBE, participation may count towards the FSBE Goal.
26
27 FSBE firms proposed to be used as a Regular Dealer must be approved before
28 being used on a project. The WSDOT Approved Regular Dealer list published
29 on WSDOT's Office of Equal Opportunity (OEO) web site must include the
30 specific project for which approval is being requested. For purposes of FSBE
31 Goal participation, the Regular Dealer must submit the Regular Dealer Status
32 Request form and receive approval prior to providing any equipment or materials
33 or the signing of a purchase order, invoice, or subcontract.
34
35 Purchase of materials or supplies from a FSBE which is neither a manufacturer
36 nor a regular dealer, (i.e. Broker) only the fees or commissions charged for
37 assistance in the procurement of the materials and supplies, or fees or
38 transportation charges for the delivery of materials or supplies required on a job
39 site, can count as FSBE participation provided the fees are not excessive as
40 compared with fees customarily allowed for similar services. Documentation will
41 be required to support the fee/commission charged by the FSBE. The cost of
42 the materials and supplies themselves cannot be counted toward as FSBE
43 participation.
44
45 **Good Faith Effort Documentation**
46 GFE is evaluated prior to Physical Completion when determining whether the
47 Contractor has satisfied its FSBE Goal.
48
49 The Contracting Agency will measure GFE using the guidance in 49 CFR Part 26,
50 Appendix A. The following is a list of the types of actions which may be considered
51 as part of the Contractor's GFE to achieve FSBE participation. It is not intended to

1 be a mandatory checklist, nor is it intended to be exclusive or exhaustive. Other
2 factors or types of efforts may be relevant in appropriate cases.
3

- 4 1. Solicited through all reasonable and available means the interest of all
5 certified FSBEs who had the capability to perform the Work of the Contract.
6 The Contractor must have solicited this interest within sufficient time to
7 allow the FSBEs to respond to the solicitation. The Contractor must have
8 determined with certainty that the FSBEs were interested by taking
9 appropriate steps to follow up initial solicitations with potential FSBEs.
10
- 11 2. Selected portions of the Work to be performed by FSBEs in order to
12 increase the likelihood that the FSBE Goal would be achieved. This
13 includes, where appropriate, breaking out contract Work items into
14 economically feasible units to facilitate FSBE participation, even when the
15 Contractor might otherwise prefer to perform these Work items with its own
16 forces.
17
- 18 3. Provided interested FSBEs with adequate information about the Plans,
19 Specifications, and requirements of the Contract in a timely manner to
20 assist them in responding to a solicitation.
21
 - 22 a. Negotiated in good faith with interested FSBEs. It is the Contractor's
23 responsibility to make a portion of the Work available to FSBE
24 subcontractors and suppliers and to select those portions of the Work
25 or material needs consistent with the available FSBE subcontractors
26 and suppliers, so as to facilitate FSBE participation. Evidence of such
27 negotiation includes the names, addresses, and telephone numbers
28 of FSBEs that were contacted; a description of the information
29 provided regarding the Plans and Specifications for the Work selected
30 for subcontracting; and evidence as to why additional agreements
31 could not be reached for FSBEs to perform the Work.
32
 - 33 b. A Contractor using good business judgment would consider a number
34 of factors in negotiating with subcontractors, including FSBE
35 subcontractors, and would take a firm's price and capabilities as well
36 as the FSBE Goal into consideration. The fact that there may be
37 some additional costs involved in finding and using FSBEs is not in
38 itself sufficient reason for a Bidder's failure to meet the FSBE Goal,
39 as long as such costs are reasonable. Also, the ability or desire of a
40 Contractor to perform the Work of a Contract with its own
41 organization does not relieve the Contractor of the responsibility to
42 make Good Faith Efforts. Contractors are not, however, required to
43 accept higher quotes from FSBEs if the price difference was
44 excessive or unreasonable.
45
- 46 4. Not rejecting FSBEs as being unqualified without sound reasons based on
47 a thorough investigation of their capabilities. The Contractor's standing
48 within its industry, membership in specific groups, organizations, or
49 associations and political or social affiliations (for example union vs. non-
50 union employee status) are not legitimate causes for the rejection or non-
51 solicitation of bids in the Contractor's efforts to meet the FSBE Goal.
52

- 1 5. Made efforts to assist interested FSBEs in obtaining bonding, lines of credit,
2 or insurance as required by the recipient or Contractor.
- 3
- 4 6. Made efforts to assist interested FSBEs in obtaining necessary equipment,
5 supplies, materials, or related assistance or services.
- 6
- 7 7. Effectively used the services of available minority/women community
8 organizations; minority/women contractors' groups; local, State, and
9 Federal minority/women business assistance offices; and other
10 organizations as allowed on a case-by-case basis to provide assistance in
11 the recruitment and placement of FSBEs.
- 12
- 13 8. Documentation of GFE must include copies of each FSBE and non-FSBE
14 subcontractor quotes submitted to the Bidder when a non-FSBE
15 subcontractor is selected over a FSBE for Work on the Contract.
- 16

17 **Procedures after Execution**

18 **Commercially Useful Function (CUF)**

19 The Contractor may only take credit for the payments made for Work performed
20 by a FSBE that is determined to be performing a CUF. Payment must be
21 commensurate with the work actually performed by the FSBE. This applies to all
22 FSBEs performing Work on a project, if the Contractor wants to receive credit
23 for their participation. The Engineer will conduct CUF reviews to ascertain
24 whether FSBEs are performing a CUF. A FSBE performs a CUF when it is
25 carrying out its responsibilities of its contract by actually performing, managing,
26 and supervising the Work involved. The FSBE must be responsible for
27 negotiating price; determining quality and quantity; ordering the material,
28 installing (where applicable); and paying for the material itself. If a FSBE does
29 not perform "all" of these functions on a furnish-and-install contract, it has not
30 performed a CUF and the cost of materials cannot be counted toward FSBE
31 Goal. Leasing of equipment from a leasing company is allowed. However,
32 leasing/purchasing equipment from the Contractor is not allowed. Lease
33 agreements shall be provided prior to the Subcontractor beginning Work. Any
34 use of the Contractor's equipment by a FSBE may not be credited as countable
35 participation.

36
37 The FSBE does not perform a CUF if its role is limited to that of an extra
38 participant in a transaction, contract, or project through which the funds are
39 passed in order to obtain the appearance of FSBE participation.

40
41 In order for a FSBE traffic control company to be considered to be performing a
42 CUF, the FSBE must be in control of its work inclusive of supervision. The FSBE
43 shall employ a Traffic Control Supervisor who is directly involved in the
44 management and supervision of the traffic control employees and services.

45
46 The following are some of the factors that the Engineer will use in determining
47 whether a FSBE trucking company is performing a CUF:

- 48
- 49 • The FSBE shall be responsible for the management and supervision
50 of the entire trucking operation for which it is responsible on the
51 contract. The owner demonstrates business related knowledge,

shows up on site and is determined to be actively running the business.

- The FSBE itself shall own and operate at least one fully licensed, insured, and operational truck used on the Contract. The drivers of the trucks owned and leased by the FSBE must be exclusively employed by the FSBE and reflected on the FSBE's payroll.
- Lease agreements for trucks shall indicate that the FSBE has exclusive use of and control over the truck(s). This does not preclude the leased truck from working for others provided it is with the consent of the FSBE and the lease provides the FSBE absolute priority for use of the leased truck.
- Leased trucks shall display the name and identification number of the FSBE.

Truck Unit Listing Log

In addition to the subcontracting requirements of Section 1-08.1, each FSBE trucking firm shall submit supplemental information consisting of a completed Primary UDBE/DBE/FSBE Truck Unit Listing Log (WSDOT Form 350-077) and all Rental/Lease agreements (if applicable). The supplemental information shall be submitted in an electronic format to the Engineer prior to any trucking services being performed for FSBE credit. Incomplete or incorrect supplemental information will be returned for correction. The corrected Primary Truck Unit Listing Log and any Updated Primary Truck Unit Listing Logs shall be submitted and accepted by the Engineer no later than ten calendar days of utilizing applicable trucks. Failure to submit or update the DBE Truck Unit Listing Log may result in trucks not being credited as FSBE participation.

Each FSBE trucking firm shall complete a Daily Truck Unit Listing Log for each day that the FSBE performs trucking services for FSBE credit. The Daily Truck Unit Listing Log forms shall be submitted by Friday of the week after the Work was performed by email to the following email address for the region administering the Contract:

Eastern Region - ERRegionOEO@wsdot.wa.gov
North Central Region - NCRegionOEO@wsdot.wa.gov
Northwest Region - NWRegionOEO@wsdot.wa.gov
Olympic Region - ORegionOEO@wsdot.wa.gov
South Central Region - SCRegionOEO@wsdot.wa.gov
Southwest Region - SWRegionOEO@wsdot.wa.gov
Washington State Ferries - FerriesOEO@wsdot.wa.gov

Joint Checking

A joint check is a check between a subcontractor and the Contractor to the supplier of materials/supplies. The check is issued by the Contractor as payer to the subcontractor and the material supplier jointly for items to be incorporated into the project. The FSBE must release the check to the supplier, while the Contractor acts solely as the guarantor.

1 A joint check agreement must be approved by the Engineer and requested by
2 the FSBE involved using the DBE Joint Check Request Form (WSDOT Form
3 #272-053) prior to its use. The form must accompany the FSBE Joint Check
4 Agreement between the parties involved, including the conditions of the
5 arrangement and expected use of the joint checks.
6

7 The approval to use joint checks and the use will be closely monitored by the
8 Engineer. To receive FSBE credit for performing a CUF with respect to obtaining
9 materials and supplies, a FSBE must “be responsible for negotiating price,
10 determining quality and quantity, ordering the material, installing and paying for
11 the material itself.” The Contractor shall submit DBE Joint Check Request Form
12 for the Engineer approval prior to using a joint check.
13

14 Material costs paid by the Contractor directly to the material supplier are not
15 allowed. If proper procedures are not followed or the Engineer determines that
16 the arrangement results in lack of independence for the FSBE involved, no
17 FSBE credit will be given for the FSBE’s participation as it relates to the material
18 cost.
19

20 **Prompt Payment**

21 Prompt payment to all subcontractors shall be in accordance with Section 1-
22 08.1. Prompt payment requirements apply to progress payments as well as
23 return of retainage.
24

25 **Subcontracts**

26 Prior to a FSBE performing Work on the Contract, an executed subcontract
27 between the FSBE and the Contractor shall be submitted to the Engineer. The
28 executed subcontracts shall be submitted by email to the following email
29 address for the region administering the Contract:
30

31 Eastern Region – ERRegionOEO@wsdot.wa.gov
32 North Central Region – NCRegionOEO@wsdot.wa.gov
33 Northwest Region – NWRegionOEO@wsdot.wa.gov
34 Olympic Region – ORegionOEO@wsdot.wa.gov
35 South Central Region – SCRegionOEO@wsdot.wa.gov
36 Southwest Region – SWRegionOEO@wsdot.wa.gov
37 Washington State Ferries – FerriesOEO@wsdot.wa.gov
38

39 **Reporting**

40 The Contractor and all subcontractors/suppliers/service providers that utilize
41 FSBEs to perform work on the project, shall maintain appropriate records that
42 will enable the Engineer to verify FSBE participation throughout the life of the
43 project.
44

45 Refer to Section 1-08.1 for additional reporting requirements associated with this
46 contract.
47

48 **Decertification**

49 When a FSBE is “decertified” from the FSBE program during the course of the
50 Contract, the participation of that FSBE shall continue to count as FSBE
51 participation as long as the subcontract with the FSBE was executed prior to the

decertification notice. The Contractor is obligated to substitute when a FSBE does not have an executed subcontract agreement at the time of decertification.

Sanctions

If it is determined that the Contractor's failure to meet all or part of the FSBE Goal is due to the Contractor's inadequate good faith efforts throughout the life of the Contract, including failure to submit timely, required Good Faith Efforts information and documentation, the Contractor may be required to pay FSBE penalty equal to the amount of the unmet Goal, in addition to the sanctions outlined in Section 1-07.11(5).

Payment

Compensation for all costs involved with complying with the conditions of this Specification and any other associated FSBE requirements is included in payment for the associated Contract items of Work, except otherwise provided in the Specifications.

1-07.12.GR1

Federal Agency Inspection

1-07.12.INST1.GR1

Section 1-07.12 is supplemented with the following:

1-07.12.OPT1.GR1

(October 3, 2023)

Required Federal Aid Provisions

The Required Contract Provisions Federal Aid Construction Contracts (FHWA 1273) Revised October 23, 2023 and the amendments thereto supersede any conflicting provisions of the Standard Specifications and are made a part of this Contract; provided, however, that if any of the provisions of FHWA 1273, as amended, are less restrictive than Washington State Law, then the Washington State Law shall prevail.

The provisions of FHWA 1273, as amended, included in this Contract require that the Contractor insert the FHWA 1273 and amendments thereto in each subcontract, together with the wage rates which are part of the FHWA 1273, as amended. Also, a clause shall be included in each subcontract requiring the subcontractors to insert the FHWA 1273 and amendments thereto in any lower tier subcontracts, together with the wage rates. The Contractor shall also ensure that this section, REQUIRED FEDERAL AID PROVISIONS, is inserted in each subcontract for subcontractors and lower tier subcontractors. For this purpose, upon request to the Engineer, the Contractor will be provided with extra copies of the FHWA 1273, the amendments thereto, the applicable wage rates, and this Special Provision.

1-07.12.OPT2.FR1

(October 3, 2022)

Indian Preference and Tribal Ordinances

This project is located on the *** \$\$1\$\$ ***. It is the Contractor's responsibility to contact the person and/or office listed in this special provision to determine whether any tribal laws or taxes apply. If the tribal laws and taxes do apply, the Contractor shall comply with them in accordance with Section 1-07.1. For informational purposes only, the Work on this project that falls within Tribal Lands is shown on the Summary of Quantities in Group(s) *** \$\$2\$\$ ***.

1
2 Tribal Employment Rights Ordinances (TEROs) may utilize a variety of tools to encourage
3 Indian employment. These tools may include, but are not limited to, TERO fees, Indian
4 hiring preference, Indian-owned business subcontracting preference and/or an Indian
5 training requirement. Other requirements may be a Tribal business license, a required
6 compliance plan and/or employee registration requirements. Every tribe is different and
7 each may be willing to work cooperatively with the Contractor to develop a strategy that
8 works for both parties. For specific details, the Contractor should contact *** \$\$\$\$ ***.

9
10 The state recognizes the sovereign authority of the tribe and supports the tribe's efforts
11 to enforce its rightful and legal ordinances and expects the Contractor to comply and
12 cooperate with the tribe. The costs related to such compliance shall be borne solely by
13 the Contractor, who is advised to contact the tribal representative listed above, prior to
14 submitting a bid, to assess the impact of compliance on the project.

15
16 Although Indian preference cannot be compelled or mandated by the Contracting Agency,
17 there is no limitation whereby voluntary Contractor or subcontractor-initiated preferences
18 are given, if otherwise lawful. 41 CFR 60-1.5(a)7 provides as follows:

19
20 Work on or near Indian reservations --- It shall not be a violation of the equal
21 opportunity clause for a construction or non-construction Contractor to extend a
22 publicly announced preference in employment to Indians living on or near an Indian
23 reservation in connection with employment opportunities on or near an Indian
24 reservation. The use of the word *near* would include all that area where a person
25 seeking employment could reasonably be expected to commute to and from in the
26 course of a work day. Contractors or subcontractors extending such a preference
27 shall not, however, discriminate among Indians on the basis of religion, sex, or tribal
28 affiliation, and the use of such a preference shall not excuse a Contractor from
29 complying with the other requirements as contained in the August 25, 1981
30 Department of Labor, Office of Federal Contract Compliance Programs, Government
31 Contractors Affirmative Actions Requirements.

32
33 1-07.15.GR1

34 **Temporary Water Pollution Prevention**

35
36 1-07.15(1).GR1

37 ***Spill Prevention, Control, and Countermeasures Plan***

38
39 1-07.15(1).INST1.GR1

40 Section 1-07.15(1) is supplemented with the following:

41
42 1-07.15(1).OPT1.GR1

43 (November 2, 2022)

44 The Contractor shall immediately notify the Engineer and the WSF Terminal
45 Supervisor of any spill, including, but not limited to, petroleum products, hydraulic
46 fluid, chemical materials or liquids, and sewage. If neither the Engineer nor the WSF
47 Terminal Supervisor is available, the Contractor shall immediately notify the WSF
48 Operations Center at (206) 515-3456.

49
50 1-07.16.GR1

51 **Protection and Restoration of Property**

1 1-07.16(1).GR1
2 **Private/Public Property**
3
4 1-07.16(1)C.GR1
5 **Private Property**
6
7 1-07.16(1)C.INST1.GR1
8 Section 1-07.16(1)C is supplemented with the following:
9
10 1-07.16(1)C.OPT1.GR1
11 (October 3, 2022)
12 The Contractor shall not access the worksite from adjacent properties without
13 permission from the Engineer. The Contractor shall submit a Type 2 Working
14 Drawing to the Engineer in accordance with Section 1-05.3 prior to accessing
15 the project site from adjacent properties. The Working Drawing shall include the
16 methods, materials, equipment, and restoration measures used to access the
17 worksite.
18
19 1-07.16(1)C.OPT2.GR1
20 (October 3, 2022)
21 The Contractor is not to use adjoining property without first obtaining written
22 permission from adjacent property owner(s), and notifying the Engineer, in
23 writing, when such permission has been granted prior to occupying or using
24 adjoining property.
25
26 1-07.16(2).GR1
27 **Vegetation Protection and Restoration**
28
29 1-07.16(2).INST1.GR1
30 Section 1-07.16(2) is supplemented with the following:
31
32 1-07.16(2).OPT1.GR1
33 (August 2, 2010)
34 Vegetation and soil protection zones for trees shall extend out from the trunk to a
35 distance of 1 foot radius for each inch of trunk diameter at breast height.
36
37 Vegetation and soil protection zones for shrubs shall extend out from the stems at
38 ground level to twice the radius of the shrub.
39
40 Vegetation and soil protection zones for herbaceous vegetation shall extend to
41 encompass the diameter of the plant as measured from the outer edge of the plant.
42
43 1-07.16(4).GR1
44 **Archaeological and Historical Objects**
45
46 1-07.16(4).INST1.GR1
47 Section 1-07.16(4) is supplemented with the following:
48
49 1-07.16(4).OPT1.GR1
50 (December 6, 2004)
51 The project area potentially contains archaeological or historical objects that may
52 have significance from a historical or scientific standpoint. To protect these objects

1 from damage or destruction, the Contracting Agency, at its discretion and expense,
2 may monitor the Contractor's operations, conduct various site testing and perform
3 recovery and removal of such objects when necessary.
4
5 The Contractor may be required to conduct its operations in a manner that will
6 accommodate such activities, including the reserving of portions of the work area for
7 site testing, exploratory operations and recovery and removal of such objects as
8 directed by the Engineer. If such activities are performed by consultants retained by
9 the Contracting Agency, the Contractor shall provide them adequate access to the
10 project site.
11
12 Added work necessary to uncover, fence, dewater, or otherwise protect or assist in
13 such testing, exploratory operations and salvaging of the objects as ordered by the
14 Engineer shall be paid by force account as provided in Section 1-09.6. If the
15 discovery and salvaging activities require the Engineer to suspend the Contractor's
16 work, any adjustment in time will be determined by the Engineer pursuant to Section
17 1-08.8.
18
19 To provide a common basis for all bidders, the Contracting Agency has entered an
20 amount for the item "Archaeological and Historical Salvage" in the Proposal to
21 become a part of the total bid by the Contractor.
22
23 1-07.17.GR1
24 **Utilities and Similar Facilities**
25
26 1-07.17.INST1.GR1
27 Section 1-07.17 is supplemented with the following:
28
29 1-07.17.OPT1.FR1
30 (April 2, 2007)
31 Locations and dimensions shown in the Plans for existing facilities are in accordance with
32 available information obtained without uncovering, measuring, or other verification.
33
34 The following addresses and telephone numbers of utility companies known or suspected
35 of having facilities within the project limits are supplied for the Contractor's convenience:
36
37 *** \$\$1\$\$ ***
38
39 1-07.17.OPT2.FR1
40 (October 3, 2022)
41 Locations and dimensions shown in the Plans for existing facilities are in accordance with
42 available information obtained without uncovering, measuring, or other verification.
43
44 Public and private utilities, or their Contractors, will furnish all work necessary to adjust,
45 relocate, replace, or construct their facilities unless otherwise provided for in the Plans or
46 these Special Provisions. Such adjustment, relocation, replacement, or construction will
47 be done during the prosecution of the work for this project. It is anticipated that utility
48 adjustment, relocation, replacement, or construction within the project limits will be
49 completed as follows:
50
51 *** \$\$1\$\$ ***
52

1 The Contractor shall attend a mandatory utility preconstruction meeting with the Engineer,
2 all affected subcontractors, and all utility owners and their Contractors prior to beginning
3 onsite work.
4
5 The following addresses and telephone numbers of utility companies or their Contractors
6 that will be adjusting, relocating, replacing or constructing utilities within the project limits
7 are supplied for the Contractor's use:
8
9 *** \$\$2\$\$ ***
10
11 *** \$\$3\$\$ ***
12
13 1-07.18.GR1
14 **Public Liability and Property Damage Insurance**
15
16 1-07.18(5).GR1
17 ***Required Insurance Policies***
18
19 1-07.18(5).INST1.GR1
20 The first sentence of Item No. 1 of Section 1-07.18(5) is revised to read:
21
22 1-07.18(5).OPT1.FR1
23 (November 20,2023)
24 1. Owners and Contractors Protective (OCP) Insurance providing bodily injury and
25 property damage liability coverage, with limits of *** \$\$1\$\$ *** per occurrence
26 and per project in the aggregate for each policy period, which will be written
27 solely on Insurance Services Office (ISO) form CG0009 1204, together with
28 Washington State Department of Transportation amendatory endorsement CG
29 2908 0999, specifying the Contracting Agency, the State, the Governor, the
30 Commission, the Secretary, the Department and all officers and employees of
31 the State as named insured.
32
33 1-07.18(5).OPT2.GR1
34 (September 7, 2021)
35 Item number 1 of Section 1-07.18(5) is deleted.
36
37 1-07.18(5).INST2.GR1
38 The first sentence of Item No. 2 of Section 1-07.18(5) is revised to read:
39
40 1-07.18(5).OPT3.GR1
41 (September 7, 2021)
42 2. Commercial General Liability (CGL) Insurance written under ISO Form CG0001
43 with minimum limits of \$1,000,000 per occurrence and in the aggregate for each
44 one-year policy period.
45
46 1-07.18(5).OPT4.FR1
47 (September 7, 2021)
48 2. Commercial General Liability (CGL) Insurance written under ISO Form CG0001
49 with minimum limits of *** \$\$1\$\$ *** per occurrence and in the aggregate for
50 each 1-year policy period.
51

1 1-07.18(5).INST3.GR1

2 Section 1-07.18(5) is supplemented with the following:

3
4 1-07.18(5).OPT5.GR1

5 (October 3, 2022)

6 **Builder's Risk Insurance**

7 Builder's Risk Insurance providing Broad Perils (All Risk) coverage upon any work at
8 the site, to the full insurable value thereof. This insurance shall include the
9 Contractor, its subcontractors of every tier, and the State of Washington as named
10 insured on the policy. Coverage shall be included for all materials and supplies to be
11 incorporated into the work at the jobsite, while in transit to the jobsite, or while stored
12 away from the jobsite.

13
14 1-07.18(5).OPT6.FR1

15 (October 3, 2022)

16 The Contractor shall obtain Contractor's Pollution Liability Insurance (CPL) with
17 minimum "per project" limits of *** \$\$1\$\$ *** per occurrence and in the aggregate for
18 claims, including investigation, defense, or settlement costs and expenses for bodily
19 injury and property damage (including natural resources damages and loss of use of
20 tangible property that has not been physically injured) arising out of:

21
22 a. Pollution conditions caused or made worse by the Contractor's
23 performance of the Work, including clean-up costs for a newly caused
24 condition or a historical condition that is made worse; and;

25
26 b. The vicarious liability of subcontractors of any tier.

27
28 The Contractor shall be Named Insured and the Contracting Agency, the State, the
29 Governor, the Commission, the Secretary, the Department, all officers and
30 employees of the State, and their respective members, directors, officers,
31 employees, agents, and consultants (collectively the "Additional Insureds") shall be
32 included as Additional Insureds, or, as appropriate, a Named Insured, under this
33 policy and coverage.

34
35 1-07.24.GR1

36 **Rights of Way**

37
38 1-07.24.INST1.GR1

39 Section 1-07.24 is supplemented with the following:

40
41 1-07.24.OPT1.FR1

42 (March 13, 1995)

43 The Contracting Agency has not completed the acquisition of title to the following
44 described property:

45
46 *** \$\$1\$\$ ***

47
48 The Contractor shall not perform any work within these limits until ordered to do so by the
49 Engineer. The Contracting Agency has estimated that the above described property will
50 be available *** \$\$2\$\$ ***.

1 1-07.24.OPT2.GR1
2 **(October 3, 2022)**
3 **Sundry Site Plan**
4 The Sundry Site Plan is included in the Plans for the benefit of the Contractor. It is meant
5 to give a graphical representation of the properties in the vicinity of the project site.
6
7 The Sundry Site Plan gives information necessary for locating Right-of-Way (R/W) lines,
8 construction permit boundaries and permanent or construction easements.
9
10 Areas identified within R/W are made available to the Contractor for use as indicated in
11 the Plans and Special Provisions.
12
13 1-07.28.GR1
14 **Railroads**
15
16 1-07.28.INST1.GR1
17 Section 1-07.28 is supplemented with the following:
18
19 1-07.28.OPT1.FR1
20 **(October 3, 2022)**
21 **Additional Requirements for Working with the Railroad**
22 The term Railroad Company shall be understood to mean each of the following railroad
23 companies:
24
25 *** \$\$1\$\$ ***
26
27 The Contractor shall keep the right of way and ditches of the Railroad Company open and
28 clean from any deposits or debris resulting from its operations. The Contractor shall be
29 responsible for the cost to clean and restore ballast of the Railroad Company which is
30 disturbed or becomes fouled with dirt or materials when such deposits or damage result
31 from the Contractor's operations, except as provided elsewhere.
32
33 The Contractor shall cooperate with the Railroad Company and so conduct operations
34 that the necessary reconstruction of its facilities and the removal of existing facilities can
35 be accomplished without interruption of service.
36
37 1-07.28.OPT2.FR1
38 (October 3, 2022)
39 The Contracting Agency has or will enter into an agreement with the Railroad Company
40 as specified in these provisions as contained in Appendix *** \$\$1\$\$ ***.
41
42 1-07.28.OPT3.FR1
43 **(October 3, 2022)**
44 **Construction Work by Railroad Company**
45 The work by the Railroad Company as described below will be performed by the Railroad
46 Company with its own forces at no cost to the Contractor:
47
48 *** \$\$1\$\$ ***
49

1 1-07.28(1).GR1
2 **General**
3
4 1-07.28(1).INST1.GR1
5 Section 1-07.28(1) is supplemented with the following:
6
7 1-07.28(1).OPT1.FR1
8 **(October 3, 2022)**
9 **Contractor's Right of Entry Agreement**
10 The Contractor shall obtain a Right of Entry Agreement from the railroad. For all
11 matters regarding the Contractor's Right of Entry Agreement, the Contractor shall
12 contact:
13
14 *** \$\$1\$\$ ***
15
16 The Contracting Agency has furnished a SAMPLE Contractor's Right of Entry
17 Agreement in Appendix *** \$\$2\$\$ ***. The SAMPLE Contractor's Right of Entry
18 Agreement is an example which represents the Contracting Agency's assessment of
19 the likely terms and conditions prior to Advertisement for Bids. The final terms and
20 conditions will be determined by the Railroad Company after Contract Execution.
21
22 The Contractor is at sole risk for the amount of time it takes to obtain the Right of
23 Entry Agreement from the Railroad Company. Delays in obtaining the right of entry
24 agreement shall not be eligible for a time extension or an equitable adjustment.
25
26 1-07.28(2).GR1
27 **Submittals and Working Drawings**
28
29 1-07.28(2).INST1.GR1
30 Section 1-07.28(2) is supplemented with the following:
31
32 1-07.28(2).OPT1.FR1
33 (October 3, 2022)
34 The Engineer will require up to *** \$\$1\$\$ *** calendar days from the date a Working
35 Drawing is received until it is returned to the Contractor. If a submittal is returned
36 unapproved and then resubmitted, then an additional review time for each
37 subsequent resubmittal of up to *** \$\$2\$\$ *** calendar days will be required.
38
39 1-07.28(6).GR1
40 **Railroad Protective Services**
41
42 1-07.28(6).INST1.GR1
43 Section 1-07.28(6) is supplemented with the following:
44
45 1-07.28(6).OPT1.FR1
46 (October 3, 2022)
47 The Contractor shall notify the Railroad Company a minimum of *** \$\$1\$\$ *** in
48 advance of whenever the Contractor is about to perform Work within Railroad
49 Company property or within 25 feet of the centerline of tracks to enable the Railroad
50 Company to provide flagging or other protective services.
51
52 The Railroad Company's contact to schedule flagging or other protective services is:

1
2 *** \$\$2\$\$ ***
3
4 1-07.28(8).GR1
5 **Measurement and Payment**
6
7 1-07.28(8).INST1.GR1
8 Section 1-07.28(8) is revised to read:
9
10 1-07.28(8).OPT1.GR1
11 (October 3, 2022)
12 The Contracting Agency will make payments to the Railroad for protective services
13 unless:
14
15 1. Such services result from the Contractor's failure to comply with the terms
16 and conditions of its contract with the Contracting Agency or with its
17 Contractor's Right of Entry Agreements with the Railroad Company.
18
19 2. The Contractor fails to obtain authorization from the Engineer prior to
20 coordinating with the Railroad Company for any flagging requiring overtime
21 payments as specified under Railroad Safety and Flagging.
22
23 3. The Contractor arranges for assignment of a railroad flagger and alters
24 project work so that a flagger is no longer needed, and adequate advance
25 notice is not provided to the Railroad Company of such change in the need
26 for a flagger (i.e., causing the Railroad Company to dispatch a flagger
27 billable to the project when one is not required).
28
29 4. The Contractor causes an emergency, as specified under Railroad
30 Operations.
31
32 5. Protective services are required as a result of a request to the Railroad
33 Company for the Contractor's convenience.
34
35 6. The Contract provides for a bid item in the Contract.
36
37 All costs to comply with this Section, unless otherwise stated, are incidental to the
38 Contract and are the responsibility of the Contractor. The Contractor shall include all
39 related costs in the unit Bid prices of the Contract.
40
41 1-08.GR1
42 **Prosecution and Progress**
43
44 1-08.1.GR1
45 **Subcontracting**
46
47 1-08.1.INST1.GR1
48 Section 1-08.1 is supplemented with the following:
49
50 1-08.1.OPT1.GR1
51 (September 2, 2025)

Prior to any subcontractor or lower-tier subcontractor beginning work, the Contractor shall submit to the Engineer a certification (WSDOT Form 420-004) that a written agreement between the Contractor and the subcontractor or between the subcontractor and any lower tier subcontractor has been executed. This certification shall also guarantee that these subcontract agreements include all the documents required by the Special Provision **Federal Agency Inspection**.

A subcontractor or lower-tier subcontractor will not be permitted to perform any work under the contract until the following documents have been completed and submitted to the Engineer:

1. Request to Sublet in accordance with Section 1-08.1(3)), and
2. Contractor and Subcontractor or Lower Tier Subcontractor Certification for Federal-aid Projects (WSDOT Form 420-004).

The Contractor shall submit a completed Monthly Retainage Report (WSDOT Form 272-065) within 15 calendar days after receipt of every monthly progress payment until every subcontractor and lower tier subcontractor's retainage has been released. This form shall be submitted to the Engineer by email to the following email address for the region administering the Contract:

Eastern Region – ERRegionOEO@wsdot.wa.gov
North Central Region – NCRegionOEO@wsdot.wa.gov
Northwest Region – NWRegionOEO@wsdot.wa.gov
Olympic Region – ORRegionOEO@wsdot.wa.gov
South Central Region – SCRegionOEO@wsdot.wa.gov
Southwest Region – SWRegionOEO@wsdot.wa.gov
Washington State Ferries – FerriesOEO@wsdot.wa.gov

The Contractor's records pertaining to the requirements of this Special Provision shall be open to inspection or audit by representatives of the Contracting Agency during the life of the contract and for a period of not less than three years after the date of acceptance of the contract. The Contractor shall retain these records for that period. The Contractor shall also guarantee that these records of all subcontractors and lower-tier subcontractors shall be available and open to similar inspection or audit for the same time period.

1-08.1.OPT3.GR1

(March 13, 1995)

Qualifications of Building Contractor

If the Contractor is not prequalified for building construction or cannot demonstrate satisfactory experience in constructing the general type of building included in the project, it will be mandatory that the building work be subcontracted to a firm which can meet one or both of these criteria.

1-08.1(3).GR1

Subcontractor Approval

1-08.1(3).INST1.GR1

The second sentence in the first paragraph of Section 1-08.1(3) is revised to read:

1-08.1(3).OPT1.GR1

(November 4, 2024)

1 Each request to subcontract shall be submitted through Unifier, Request to Sublet.
2
3 1-08.1(9).GR1
4 ***Submittal of Executed Subcontracts***
5
6 1-08.1(9).INST1.GR1
7 The last sentence of Section 1-08.1(9) is revised to read:
8
9 1-08.1(9).OPT1.GR1
10 (May 5, 2025)
11 The executed subcontracts shall be submitted with the Request to Sublet, through
12 Unifier.
13
14 1-08.3.GR1
15 **Progress Schedule**
16
17 1-08.3(1).GR1
18 ***Progress Schedule Types***
19
20 1-08.3(2).GR1
21 ***General Requirements***
22
23 1-08.3(2)B.GR1
24 **Type B Progress Schedules**
25
26 1-08.3(2)B.INST1.GR1
27 Section 1-08.3(2)B is supplemented with the following:
28
29 1-08.3(2)B.OPT1.FR1
30 (November 20, 2023)
31 In addition to information required in Items 1 through 13, the Progress Schedule
32 shall include the following milestones and/or activities:
33
34 *** \$\$1\$\$ ***
35
36 1-08.4.GR1
37 **Prosecution of Work**
38
39 1-08.4.INST1.GR1
40 The first sentence of Section 1-08.4 is revised to read:
41
42 1-08.4.OPT1.FR1
43 (August 3, 2015)
44 The Contractor shall commence onsite work on or before *** \$\$1\$\$ *** and shall notify
45 the Engineer in writing a minimum of 10 calendar days in advance of the date on which
46 the Contractor intends to begin work.
47
48 1-08.4.OPT2.GR1
49 (August 7, 2006)
50 The Contractor shall begin work no earlier than the begin work date stated in the written
51 notice provided by the Engineer. The Engineer will provide a minimum of 10 calendar
52 days written notice for the date identified as the first working day.

1
2 1-08.4.OPT3.FR1
3 (August 7, 2006)
4 The Contractor shall begin work no earlier than *** \$\$1\$\$ ***.
5
6 1-08.5.GR1
7 **Time for Completion**
8
9 1-08.5.INST1.GR1
10 The third paragraph of Section 1-08.5 is revised to read:
11
12 1-08.5.OPT1.FR1
13 (August 7, 2006)
14 Contract time shall begin on the date stated in the written notice provided to the
15 Contractor. In no case shall the beginning of contract time be prior to ***\$\$1\$\$\$ or later
16 than *** \$\$2\$\$ ***.
17
18 1-08.5.OPT2.FR1
19 (August 7, 2006)
20 Contract time shall begin on the first working day. The first working day shall be *** \$\$1\$\$\$
21 ***.
22
23 1-08.5.INST2.GR1
24 Section 1-08.5 is supplemented with the following:
25
26 1-08.5.OPT7.FR1
27 (March 13, 1995)
28 This project shall be physically completed within *** \$\$1\$\$\$ *** working days.
29
30 1-08.5.OPT8.FR1
31 (March 13, 1995)
32 This project shall be physically completed in its entirety within *** \$\$1\$\$\$ *** working days
33 and the temporary traffic signal portion of the project shall be physically completed within
34 the first *** \$\$2\$\$\$ *** working days.
35
36 1-08.5.OPT9.FR1
37 (December 4, 2006)
38 This project shall be physically completed within *** \$\$1\$\$\$ *** working days.
39
40 Contract time shall begin on the first working day the Contractor starts onsite work or ***
41 \$\$2\$\$\$ ***, whichever occurs first.
42
43 1-08.5.OPT10.FR1
44 (March 13, 1995)
45 This project shall be physically completed within *** \$\$1\$\$\$ *** working days. Contract
46 time shall commence on the first working day:
47
48 1. Following 60 calendar days after contract execution; or,
49
50 2. That the Engineer and the Contractor agree to start work after approval of
51 construction materials is obtained, whichever occurs first.
52

1 The Contractor is allowed a maximum of 60 calendar days after execution of the contract
2 to obtain approvals for construction materials
3
4 1-08.5.OPT11.FR1
5 **(July 2, 2024)**
6 **Incentive for Early Completion**
7 It is essential that the Contracting Agency has full and unrestricted use of the facilities at
8 the earliest possible time. As an incentive to the Contractor, the Contracting Agency will
9 pay the Contractor *** \$1\$\$\$ *** for each working day remaining in the contract after the
10 established *** \$2\$\$\$ *** Completion Date, but not to exceed an amount equal to ***
11 \$3\$\$\$ ***.
12
13 The days eligible for the incentive will be calculated by subtracting the working days
14 elapsed through the date of *** \$4\$\$\$ *** completion from the total working days
15 established in the Special Provision **TIME FOR COMPLETION**.
16
17 1-08.6.GR1
18 **Suspension of Work**
19
20 1-08.6.INST1.GR1
21 Section 1-08.6 is supplemented with the following:
22
23 1-08.6.OPT1.FR1
24 (January 3, 2017)
25 Contract time may be suspended for the HMA mix design evaluation report or for
26 procurement of critical materials (Procurement Suspension). In order to receive a
27 Procurement Suspension, the Contractor shall within 21 calendar days after execution by
28 the Contracting Agency, submit all HMA mix designs not already on the QPL according to
29 Section 5-04.2(1) or place purchase orders for all materials deemed critical by the
30 Contracting Agency for Physical Completion of the Contract. The Contractor shall provide
31 a copy of the completed WSDOT Form 350-042 indicating the date the mix design was
32 submitted, or copies of purchase orders for the critical materials. Such purchase orders
33 shall disclose the purchase order date and estimated delivery dates for such critical
34 material.
35
36 The Contractor shall show the HMA mix design evaluation report or procurement of the
37 critical materials listed below as activities in the Progress Schedule. If the approved
38 Progress Schedule indicates that acceptance of the HMA mix designs or materials
39 procurement are critical activities, and if the Contractor has provided documentation that
40 purchase orders are placed for the critical materials within the prescribed 21 calendar
41 days, then Contract time will be suspended upon Physical Completion of all critical work
42 except that work dependent upon the below listed critical materials:
43
44 *** \$1\$\$\$ ***
45
46 Charging of Contract time will resume upon the Contractor's receipt of a WSDOT mix
47 design evaluation report or delivery of the critical materials to the Contractor, notification
48 that the critical materials are ready for delivery to the Contractor from the Contracting
49 Agency's Materials Laboratory, or *** \$2\$\$\$ *** calendar days after execution by the
50 Contracting Agency, whichever occurs first.
51

1 No additional Procurement Suspension will be provided if the Contractor's HMA mix
2 designs did not meet Contract requirements and are resubmitted.
3
4 1-08.6.OPT2.FR1
5 (February 6, 2023)
6 Contract time may be suspended for procurement of critical materials (Procurement
7 Suspension). In order to receive a Procurement Suspension, the Contractor shall within
8 21 calendar days after execution by the Contracting Agency, place purchase orders for
9 all materials deemed critical by the Contracting Agency for physical completion of the
10 contract. The Contractor shall provide copies of purchase orders for the critical materials.
11 Such purchase orders shall disclose the purchase order date and estimated delivery
12 dates for such critical material.
13
14 The Contractor shall show procurement of the materials listed below as activities in the
15 Progress Schedule. If the approved Progress Schedule indicates that the materials
16 procurement are critical activities, and if the Contractor has provided documentation that
17 purchase orders are placed for the critical materials within the prescribed 21 calendar
18 days, then contract time will be suspended upon physical completion of all critical work
19 except that work dependent upon the below listed critical materials:
20
21 *** \$\$1\$\$ ***
22
23 Charging of contract time will resume upon delivery of the critical materials to the
24 Contractor or *** \$\$2\$\$ *** calendar days after execution by the Contracting Agency,
25 whichever occurs first.
26
27 1-08.9.GR1
28 **Liquidated Damages**
29
30 1-08.9.INST1.GR1
31 Section 1-08.9 is supplemented with the following:
32
33 1-08.9.OPT1.FR1
34 (September 8, 2020)
35 Liquidated damages in the amount of *** \$\$1\$\$ *** per working day will be assessed for
36 failure to physically complete the Contract within the physical completion time specified.
37
38 1-08.9.OPT2.FR1
39 (March 13, 1995)
40 Liquidated damages in the amount of *** \$\$1\$\$ *** per working day will be assessed for
41 failure to physically complete the temporary traffic signal portion of the contract within the
42 physical completion time specified. Liquidated damages in an amount based upon the
43 original contract amount and original time, will be assessed for failure to physically
44 complete the entire project within the physical completion time specified. Such damages
45 will accrue separately for each phase or stage of work. In the event damages occur on a
46 concurrent date, the larger of the two damages will apply for such days.
47
48 1-08.9.OPT3.FR1
49 (April 6, 2009)
50 Delayed completion of *** \$\$1\$\$ *** will result in impacts to the traveling public, increase
51 fuel consumption, increase vehicle operating costs, increase pollution, and cause other
52 inconveniences and harm.

Accordingly, the Contractor agrees:

1. To pay *** \$\$2\$\$ *** liquidated damages per *** \$\$3\$\$ *** for each *** \$\$4\$\$ *** prorated to the nearest *** \$\$5\$\$ *** that the work is not completed as specified in *** \$\$6\$\$ ***.
2. To authorize the Engineer to deduct these liquidated damages from any money due or coming due the Contractor.

1-09.GR1

Measurement and Payment

1-09.3.GR1

Scope of Payment

1-09.3.INST1.GR1

Section 1-09.3 is supplemented with the following:

1-09.3.OPT1.FR1

(August 7, 2017)

Fuel Cost Adjustment

General

The Contracting Agency will make a fuel cost adjustment, either a credit or a payment, for qualifying changes in the index price of on-highway diesel fuel. The adjustment will be applied to partial payments made according to Section 1-09.9.

The adjustment is not a guarantee of full compensation for fuel price changes. Any adjustment provided by this provision shall not obligate the Contracting Agency for any costs due solely to changes in fuel costs beyond the amount adjusted by this provision. The Contracting Agency does not guarantee that fuel will be available at the base fuel cost or monthly fuel cost. No additional adjustment will be made for rates of fuel consumption or actual fuel types that differ from those specified for the purpose of determining the adjustment.

For the purpose of calculating the adjustment, the Base Fuel Cost shall be the Weekly fuel price from the **U.S. Energy Information Administration** website. The website location and directions are as follows:

- <http://www.eia.gov/petroleum/gasdiesel/>
- On the web page, click on the **West Coast less California**, listed under the heading **U.S On-Highway Diesel Fuel Prices*(dollar per gallon)** at the lower end of the web page.
- In the pull down box labeled **Period** pull down **Weekly**.
- Click on the fuel price history found under the column heading **View History** for the line **Diesel (On-Highway) – All Types**.
- On this web page obtain the nearest weekly fuel cost for the Monday occurring three weeks prior to the date that bids are opened. This weekly fuel cost becomes the Base Fuel Cost and is fixed for the duration of the Contract and will be used in calculating all adjustments.

The Monthly Fuel Cost shall be the most recent Monthly fuel price from the U.S. Energy Information Administration website. The website location and directions are as follows:

- <http://www.eia.gov/petroleum/gasdiesel/>
- On the web page, click on the **West Coast less California**, listed under the heading **U.S On-Highway Diesel Fuel Prices*(dollar per gallon)** at the lower end of the web page.
- In the pull down box labeled **Period** pull down **Monthly**.
- Click on the fuel price history found under the column heading **View History** for the line **Diesel (On-Highway) – All Types**.
- On this web page obtain the most current monthly fuel price.

If the specified index ceases to be available for any reason, the Contracting Agency at its discretion will select and begin using a substitute price source or index to establish the Monthly Fuel Cost.

Measurement

No adjustment will be made if the Monthly Fuel Cost is within 10 percent of the Base Fuel Cost. No adjustment will be made for work performed after the authorized Time for Completion.

If the Monthly Fuel Cost is greater than or equal to 110% of the Base Fuel Cost, then:

$$\text{Adjustment} = (\text{Monthly Fuel Cost} - (1.10 \times \text{Base Fuel Cost})) \times Q$$

If the Monthly Fuel Cost is less than or equal to 90% of the Base Fuel Cost, then:

$$\text{Adjustment} = (\text{Monthly Fuel Cost} - (0.90 \times \text{Base Fuel Cost})) \times Q$$

Where $Q = \sum ((\text{Fuel Usage Factor for each Eligible Bid Item}) \times (\text{Quantity paid in the current months progress estimate for each Eligible Bid Item}))$ for all Eligible Bid Items listed below:

<u>Eligible Bid Item</u>	<u>Fuel Usage Factor</u>
*** \$1\$\$ ***	*** \$2\$\$ ***
*** \$3\$\$ ***	*** \$4\$\$ ***

Payment

Payment will be made for the following bid item when included in the bid proposal:

“Fuel Cost Adjustment”, by calculation.

To provide a common proposal for all bidders, the Contracting Agency has entered an amount in the proposal to become a part of the Contractor’s total bid.

1-09.3.OPT2.FR1

(August 6, 2018)

Steel Cost Adjustment

The Contractor may elect to participate in the steel cost adjustments for work permanently incorporated into this Contract. Steel cost adjustment is not a guarantee of full compensation for changes to the cost of steel items; not eligible for all items with steel;

1 and any adjustment provided by this provision will not obligate the Contracting Agency for
2 any costs beyond the amount adjusted by this provision.
3

4 This Special Provision provides the option to opt-in to steel cost adjustments for eligible
5 Bid items. The Contractor is provided one opportunity to opt-in and there are no future
6 opt-out provisions. The steel cost adjustment requirements of this Special Provision apply
7 for the duration of the Contract.
8

9 **General**

10 The Contractor may select Bid items from the list below to be included in the steel
11 cost adjustment. The Contractor is not obligated to select any Bid items or to
12 participate in the steel cost adjustment program. The steel cost adjustment will apply
13 only to the Bid items selected by the Contractor.
14

15 Prior to Contract execution the Contractor shall submit the Steel Cost Adjustment
16 Opt-In Bid Item List, WSDOT Form 410-031, to the WSDOT Contract Ad and Award
17 Office. The form is to be received at the WSDOT Bid Room, located at the
18 Transportation Building, 310 Maple Park Avenue SE, Room 2D20, Olympia, WA
19 98501-2361 or may be submitted by facsimile to the following FAX number, (360)
20 705-6966. The Steel Cost Adjustment Opt-In Bid Item List shall be signed by an
21 authorized representative of the Contractor. Should the Contractor fail to return this
22 document as required no Bid items will be eligible for steel cost adjustment.
23

24 **Steel Index Values**

25 The Contracting Agency will use the Bureau of Labor Statistics (BLS) producer price
26 index (PPI) series Id: WPUSISTEEL1 index value for steel cost adjustments.
27

28 The Base Steel Materials Index Value (BV) will be the most recent value published
29 on the BLS website on the day of bid opening. This value will be fixed on the day of
30 bid opening even if the BLS lists this as a preliminary value. The Monthly Steel
31 Materials Index Value (MV) will be the final index value published on the BLS website
32 for any month during the Contract.
33

34 **Measurement**

35 The Contracting Agency has determined the initial cost basis (ICB) of steel to be ***
36 \$\$1\$\$ ***. This cost basis is reflected in the steel cost adjustment calculations below,
37 is non-negotiable and will be taken as a fixed value for the duration of the Contract.
38

39 For each month that steel material is incorporated into the permanent Work of the
40 Contract or paid for as Materials on Hand and the MV is more than 110 percent or
41 less than 90 percent of the BV the Contractor shall provide the Engineer with the
42 following for each eligible Bid item by the end of the following month:
43

- 44 1. The weight of steel material for the month, and
- 45
- 46 2. Documentation of the weight and shipment to the Contractor of the steel
47 material by bills of lading, invoices, or purchase orders.
48

49 Should the Contractor not provide the required documentation as specified the
50 following shall apply:
51

1. Steel material that has an MV that is more than 110 percent of the BV will not be eligible for a steel cost adjustment.
2. The steel cost adjustment for a Bid item with an MV that is less than 90 percent of the BV will be calculated using a weight of steel determined by the Engineer.

Steel materials will not be eligible for cost adjustments until all requirements of the Contract have been met. Steel added to a Contract as part of a Value Engineering Change Proposal will not be eligible for steel cost adjustment. Steel cost adjustments made in accordance with this Special Provision will not be reflected on payments made to the Contractor until after the index value required for the calculation becomes final. Preliminary index values may be used to establish the BV, but will not be used to establish the MV in calculations.

For each Bid Item selected by the Contractor on the Steel Cost Adjustment Opt-In Bid Item List form a cost adjustment evaluation will be made. A cost adjustment will only be made if the MV for the month the Work associated with the Bid Item is performed differs by more than ten-percent from the BV.

The steel cost adjustment will be determined as follows:

1. If the MV is within ten-percent of the BV, there will be no adjustment.

2. If the MV is more than 110-percent of the BV, then

$$CA = (((MV - BV) \div BV) - 0.10) \times (ICB \times WS)$$

3. If the MV is less than 90-percent of the BV, then

$$CA = (((MV - BV) \div BV) + 0.10) \times (ICB \times WS)$$

Where:

CA = Cost Adjustment, dollars

MV = Monthly Steel Materials Index Value from BLS for the month determined above

BV = Base Steel Materials Index Value taken as the most recent value published on the BLS website on the day of bid opening.

ICB = Initial Cost Basis of steel per pound

WS = Weight of steel (in pounds) eligible for cost adjustment

The following Bid Items are eligible for the steel cost adjustment program for this Project:

*** \$\$2\$\$ ***

Payment

Payment will be made for the following bid item when included in the bid proposal:

“Steel Cost Adjustment”, by calculation.

1 To provide a common proposal for all bidders, the Contracting Agency has entered
2 an amount in the proposal to become a part of the Contractor's total bid.
3
4 1-09.8.GR1
5 **Payment For Material On Hand**
6
7 1-09.8.INST1.GR1
8 The last paragraph of Section 1-09.8 is revised to read:
9
10 1-09.8.OPT1.GR1
11 (August 3, 2009)
12 The Contracting Agency will not pay for material on hand when the invoice cost is less
13 than \$2,000. As materials are used in the work, credits equaling the partial payments for
14 them will be taken on future estimates. Each month, no later than the estimate due date,
15 the Contractor shall submit a letter to the Engineer that clearly states: 1) the amount
16 originally paid on the invoice (or other record of production cost) for the items on hand, 2)
17 the dollar amount of the material incorporated into each of the various work items for the
18 month, and 3) the amount that should be retained in material on hand items. If work is
19 performed on the items and the Contractor does not submit a letter, all of the previous
20 material on hand payment will be deducted on the estimate. Partial payment for materials
21 on hand shall not constitute acceptance. Any material will be rejected if found to be faulty
22 even if partial payment for it has been made.
23
24 1-09.9.GR1
25 **Payments**
26
27 1-09.9(1).GR1
28 ***Retainage***
29
30 1-09.9(1).INST1.GR1
31 Section 1-09.9(1) content and title is deleted and replaced with the following:
32
33 1-09.9(1).OPT1.GR1
34 **(June 27, 2011)**
35 **Vacant**
36
37 DIVISION2.GR2
38
39 **Division 2**
40 **Temporary Features**
41
42 2-03.GR2
43 **Public Convenience and Safety**
44
45 2-03.3.GR2
46 **Construction Requirements**
47
48 2-03.3(1).GR2
49 ***Construction Under Traffic***
50
51 2-03.3(1).INST1.GR2
52 Section 2-03.3(1) is supplemented with the following:

2-03.3(1).OPT1.FB2

(November 3, 2025)

For movable span structures, the Contractor's operations shall be arranged to permit the opening of the moveable span when required by marine traffic in accordance with the **Coast Guard** Special Provision in Section 1-07.6.

2-03.3(1).OPT4.GR2

(September 2, 2025)

The portion of Section 1-07.16(1) that prohibits the merging of construction vehicles with public traffic from an access gained through adjacent properties is rescinded, provided the Contractor's submittal is approved as required below.

Access for Construction

The Contractor may enter and leave the traveled way, auxiliary lanes or shoulders at approved locations other than established legal movements. To obtain approval of such an access location, the Contractor shall submit a request to the Engineer. The Contractor's request shall be submitted to the Engineer at least 30 calendar days prior to the time the use of the access will be required. This submittal shall include a vicinity map indicating the interstate stationing at the centerline of the access, distances from the end of ramp tapers of existing interchanges and a traffic control plan conforming with the requirements specified in Section 2-04.3(5). The access shall meet the following requirements:

- Access to and from the worksite adjacent to a multi-lane facility will only be allowed to and from a closed lane.
- The merging point of construction vehicles and public traffic shall provide a Decision Sight Distance for the traveling public of 1,640 ft in urban areas and 1,360 ft in rural areas.
- In urban areas the access shall not be located within 3,280 ft of the end of a ramp taper, or the centerline of a road approach. In rural areas the access shall not be located within 2,720 ft of the end of a ramp taper or the centerline of a road approach.
- Median crossings within 1.5 miles of the access point shall not be used in conjunction with the access.
- No new median crossings shall be created for use in conjunction within 1.5 miles of the access point.
- Short-duration shoulder stops in the construction zone, utilizing light vehicles properly equipped with warning flashers, will be allowed without a lane closure.
- When in use the access location shall have traffic control in place as per Section 2-04. Unauthorized use of the access from adjacent property is to be prohibited by the use of signing and/or flaggers as conditions warrant.

- The continuity of the existing drainage system shall be maintained through the access site.
- Air borne particulates created as a result of using the access shall be effectively controlled.
- The access location shall not adversely affect wetlands or other sensitive areas.

At the completion of the project, the Contractor shall restore the area of the access site to its original, pre-contract, condition. Any damage to the traveled way, shoulders, auxiliary lanes, side slopes or other items caused by the access shall be repaired. All work to comply with this provision or to build, maintain, provide erosion control, control airborne particulates, ensure that drainage continues through the access site, provide traffic control when necessary, remove the temporary access and restore the surrounding area when no longer required for use are the responsibility of the Contractor. The Contractor shall include all related costs in the bid prices of the contract.

2-03.3(1).OPT5.FR2

(November 4, 2024)

Lane, ramp, shoulder, and roadway closures are only permitted as follows:

*** \$\$1\$\$ ***

If the Engineer determines the permitted closure hours adversely affect traffic, the Engineer may adjust the hours accordingly. The Engineer will notify the Contractor in writing of any change in the closure hours. Exceptions to these restrictions are listed below and when applicable take precedence over closures listed above. The Engineer may also consider on a case-by-case basis additional exceptions following a written request by the Contractor.

Lane, ramp, shoulder, and roadway closures are not allowed on any of the following:

1. A holiday,
2. A holiday weekend; holidays that occur on Friday, Saturday, Sunday or Monday are considered a holiday weekend. A holiday weekend includes Saturday, Sunday, and the holiday.
3. After *** \$\$2\$\$ *** on the day prior to a holiday or holiday weekend, and
4. Before *** \$\$3\$\$ *** on the day after the holiday or holiday weekend.
5. The two-hour period prior to and the two-hour period after the following special events:

*** \$\$4\$\$ ***

It shall be the Contractor's responsibility to obtain the dates and times of all events.

Traffic Delays

When Automated Flagger Assistance Devices (AFADs) or flaggers are used to control traffic, traffic shall not be stopped for more than *** \$\$5\$\$ *** minutes at any time. All traffic congestion shall be allowed to clear before traffic is delayed again.

If the delay becomes greater than *** \$\$6\$\$ *** minutes, the Contractor shall immediately begin to take action to cease the operations that are causing the delays. If the *** \$\$7\$\$ *** minute delay limit has been exceeded, as determined by the Engineer, the Contractor shall provide to the Engineer, a written proposal to revise their work operations to meet the *** \$\$8\$\$ *** minute limit. This proposal shall be accepted by the Engineer prior to resuming any work requiring traffic control.

There shall be no delay to medical, fire, or other emergency vehicles. The Contractor shall alert all flaggers and personnel of this requirement.

General Restrictions

Construction vehicles using a closed traffic lane shall travel only in the normal direction of traffic flow unless expressly allowed in an accepted traffic control plan. Construction vehicles shall be equipped with flashing or rotating amber lights.

No two consecutive on-ramps, off-ramps, or intersections shall be closed at the same time and only one ramp at an interchange shall be closed, unless specifically shown in the Plans.

Roads or ramps that are designated as part of a detour shall not be closed or restricted during the implementation of that detour, unless specifically shown in the Plans.

Controlled Access

No special access or egress shall be allowed by the Contractor other than normal legal movements or as shown in the Plans.

Contractor's vehicles of 10,000 GVW or greater shall not exit or enter a lane open to public traffic except as follows:

Egress and ingress shall only occur during the hours of allowable lane closures, and:

1. For exiting an open lane of traffic, by decelerating in a lane that is closed during the allowable hours for lane closures.
2. For entering an open lane of traffic, by accelerating in a closed lane during the allowable hours for lane closures.

Traffic control vehicles are excluded from the gross vehicle weight requirement. If placing construction signs will restrict traveled lanes, then the work will be permitted during the hours of allowable lane closures.

Advance Notification

The Contractor shall notify the Engineer in writing of any traffic impacts related to lane closure, shoulder closure, sidewalk closure, or any combination for the week by 12:00 p.m. (noon) Wednesday the week prior to the stated impacts.

The Contractor shall notify the Engineer in writing ten working days in advance of any traffic impacts related to full roadway closure, ramp closure, or both.

The Contractor shall notify the Engineer in writing of any changes to the stated traffic impacts a minimum of 48 hours prior to the traffic impacts.

2-03.3(1).OPT6.GR2

(April 14, 2014)

Physical reductions of the width of thru travelling lanes are subject to the following restrictions:

The Contractor shall not reduce the travelled way to a single lane with a clear width of less than 16 feet for a duration that exceeds 4 calendar days without prior approval of the Engineer. The Contractor shall submit a request for a width reduction that exceeds 4 calendar days to the Engineer no later than 30 calendar days prior to the start of the proposed width reduction. At a minimum, this request shall include:

1. Schedule showing the planned beginning date and end date of the width reduction.
2. Plans showing the limits and cross-sections showing the clear distance provided during the width reduction.
3. Details of available detour routes.
4. Plan to provide temporary windows of a minimum 16 foot width periodically during the width reduction, where possible.

The Engineer will reply, in writing, to the request within 7 calendar days. The Contractor shall immediately notify the Engineer if there are any changes to the schedule for the width reduction.

2-03.3(1).OPT7.FR2

(October 3, 2022)

Public Notification

The Contractor shall furnish and install information signs that provide advance notification of a ramp closure, roadway closure, or both, a minimum of *** \$1\$ \$ *** working days prior to the closure. Sign locations, messages, letter sizes, and sign sizes are shown in the Plans.

The Contractor shall notify *** \$2\$ \$ ***, in writing, a minimum of *** \$3\$ \$ *** working days prior to each closure. The Contractor shall furnish copies of these notifications to the Engineer.

2-03.3(1).OPT8.FR2

(October 3, 2022)

Maintenance and Protection of Ferry Traffic

*** \$1\$ \$ *** is a single-slip terminal. The slip must remain fully operational during all phases of construction.

The Contractor shall not interfere with terminal or vessel operations of the slips such that ferries do not arrive or depart on time. Every effort shall be made to ensure that

1 construction materials and equipment remain within the bounds of designated
2 staging areas as outlined in the Special Provisions.
3
4 The Contractor shall promptly and diligently remove any equipment, workers, or
5 materials from the traveled way and shall promptly and diligently move any vessels,
6 equipment, materials, or workers from the slip a minimum of 10 minutes prior to the
7 scheduled or anticipated arrival of a ferry until 5 minutes subsequent to the departure
8 of the ferry.
9
10 A safe environment for ferry operations, including vessels, vehicles, Washington
11 State Ferries employees, and passengers — both offshore and on the dock — shall
12 be maintained at all times.
13
14 The Contractor shall shield welding activities from ferries to protect the vision of the
15 captains to the satisfaction of the Engineer. Welding activities shall be shielded to
16 protect the safety of all persons in the area. Shielding is defined as surrounding the
17 work area with a material through which light or spark are not transmitted.
18
19 The Contractor shall assign one employee to monitor approaching vessels and alert
20 other workers to evacuate the work area if required. The worker will be equipped with
21 an air horn or similar device suitable to warn workers and a radio capable of
22 communicating with the ferry vessel captains.
23
24 Temporary steel plates shall not be used on the vehicle or pedestrian traveled way
25 in any location for more than three calendar days.
26
27 **Payment**
28 All costs associated with maintenance and protection of traffic shall be incidental to
29 and included in all other items of work.
30
31 2-03.3(1).OPT9.GR2
32 **(October 3, 2022)**
33 **Maintenance and Protection of Ferry Traffic**
34 The Contractor shall maintain access to and from the ferry vessels for both
35 pedestrian and vehicular traffic at all times. The Contractor shall promptly and
36 diligently remove any equipment, employees, or materials that would impede or delay
37 ferry vessel arrivals or departures. The Contractor shall provide and maintain such
38 barriers, barricades, signs, and lighting necessary to protect and safeguard
39 pedestrians and vehicles as shown in the Plans. The Contractor shall keep all
40 sidewalks, crosswalks, and other pedestrian routes and access points open and clear
41 at all times unless permitted otherwise by the Engineer in an approved traffic control
42 plan.
43
44 Temporary steel plates shall not be used on the vehicle or pedestrian traveled way
45 in any location for more than three calendar days.
46
47 **Payment**
48 All costs associated with maintenance and protection of traffic shall be incidental to
49 and included in other items of work.
50
51 2-03.3(1).OPT10.GR2
52 **(September 3, 2024)**

- 1 If July 4 occurs on a Tuesday, the prior Monday is considered to be part of a holiday
2 weekend. If July 4 occurs on a Thursday, the following Friday is considered to be part
3 of a holiday weekend.
4
- 5 2-04.GR2
6 **Temporary Traffic Control**
7
- 8 2-04.2.GR2
9 **Materials**
10
- 11 2-04.2(9-35).GR2
12 **Temporary Traffic Control Materials**
13 Section 9-35 is supplemented with the following:
14
- 15 2-04.2(9-35).OPT1.GR2
16 **(January 10, 2022)**
17 **Automated Flagger Assistance Devices**
18 Automated Flagger Assistance Devices (AFADs) shall meet the requirements of the
19 MUTCD Red/Yellow Lens Automated Flagger Assistance Devices.
20
- 21 2-04.2(9-35).OPT2.GR2
22 (September 2, 2025)
23 Temporary portable transverse rumble strips shall be one of the following:
24
- 25 1. RoadQuake 2 Temporary Portable Rumble Strip manufactured by Plastic Safety
26 Systems, Inc. (black in color)
27 2. RoadQuake 2F Folding Temporary Portable Rumble Strip manufactured by
28 Plastic Safety Systems, Inc. (black in color)
29 3. An approved equal that is black in color and meets the following criteria:
30 a. Length will be a minimum of 11 feet long.
31 b. Width will be a minimum of 10 inches.
32 c. Provides a bevel on leading edge.
33 d. Weighs a minimum of 100 lbs.
34 e. No greater than ¾-inch profile height.
35 f. Flexible along the length of the strip to facilitate conformity to the road
36 surface.
37 g. Withstands temperatures 0 to 180 degrees Fahrenheit without degradation
38 in deployment, use or safety.
39 h. Function on roads with posted speed limits up to 70 mph; and retain original
40 placement with minimal movement such that performance is not
41 compromised.
42 i. Deemed safe by the manufacturer for use by motorcycles.
43
- 44 2-04.2(9-35).OPT3.GR2
45 **(November 4, 2024)**
46 **Mobile Barrier Trailer System**
47 Mobile Barrier Trailer (MBT) system shall be as manufactured by Mobile Barriers
48 LLC.
49
- 50 The MBT system submitted for approval shall meet the following criteria:
51

1. Be a MASH Test Level 3 compliant rigid wall barrier trailer that can be used with a standard semi-tractor.
2. Be equipped with an impact attenuator that is MASH Test Level 3 compliant.
3. Provide protection of a work area of up to 100 feet, excluding the impact attenuator and semi-tractor.
4. Include a minimum 9.5kW generator, integrated work area lighting, and 120/240V power outlets throughout the barrier.
5. Include a programmable matrix message/arrow board.
6. Have LED clearance and side-marker lights mounted on the barrier trailer.
7. Be colored safety yellow or orange.
8. Have flashing or rotating amber lights.

Contact information for MBT systems:

Mobile Barriers LLC
24918 Genesee Trail Road
Golden, CO 80401
Phone: (303) 526-5995
E-mail: sales@mobilebarriers.com
Website: www.mobilebarriers.com

2-04.2(9-35).OPT4.FR2
(September 2, 2025)

Movable Barriers

Movable Barriers shall consist of one Barrier Transfer Machine (BTM) and *** \$\$1\$\$ *** linear feet of MASH 2016 TL-3 or TL-4 compliant Movable Barriers).

The system shall be leased from (or provider of an approved equal):

Lindsay Transportation Solutions, LLC.
18135 Burke Street, Suite 100
Omaha, NE 68002
Phone 402-889-5453
Toll Free: 866-404-5049
Website: <https://www.lindsay.com/usca/en/infrastructure/>

MOOVOP
2915 Ogletown Road
Newark Delaware 19713
Phone 321-430-2770
Website: <https://moovop.com/>

To be considered an equal, the system shall meet the following criteria:

1. Barrier must be MASH TL-3 compliant with a maximum of 51 inches deflection.

- 1 2. Barrier must be a minimum of 18 inches wide at the base and a minimum of 32
- 2 inches tall.
- 3 3. Barrier must work in conjunction with a movable barrier transfer machine
- 4 capable of a single pass barrier shift of 15 feet.
- 5 4. The transfer time for one mile of barrier shall be fifteen minutes or less.
- 6

7 2-04.2(9-35.4).GR2

8 **Sequential Arrow Signs**

9 Section 9-35.4 is supplemented with the following:

10

11 2-04.2(9-35.4).OPT1.GR2

12 **(January 6, 2025)**

13 **GPS and Remote Communications Requirements**

14 Sequential Arrow Signs (Arrow Boards) on this project shall also have the following

15 communication abilities:

16

- 17 1. Arrow Boards capable of transmitting or providing Work Zone Data
- 18 Exchange (WZDx) Specification compliant data feeds from the arrow board
- 19 or the Arrow Boards central server to the Contracting Agency.
- 20
- 21 2. Arrow Boards shall transmit its GPS coordinates (latitude and longitude)
- 22 with an accuracy of 30-foot diameter of its actual location.
- 23
- 24 3. Arrow Boards shall transmit its GPS coordinates and display mode of
- 25 operation data to a compatible publicly accessible navigation app service.
- 26
- 27 4. Arrow Boards shall transmit status and location as follows:
- 28
- 29 a. Mode change within 2 minutes.
- 30
- 31 b. Location (if moved more than 500 feet) within 2 minutes.
- 32
- 33 c. Health checks every 60 minutes.
- 34
- 35 d. Current display mode posted on Board (e.g., left or right chevron,
- 36 arrow direction, four corner flash, etc.).
- 37
- 38 e. Transport vs Display mode.
- 39

40 2-04.2(9-35.8).GR2

41 **Vacant**

42 Section 9-35.8 is revised to read:

43

44 2-04.2(9-35.8).OPT1.GR2

45 **(March 20, 2025)**

46 **Radar Speed Display Sign**

47 Radar Speed Display Signs (RSDS) shall consist of a fully self-contained see-

48 through trailer with power supply and an LED speed indicator display with a one-

49 direction radar. Above or below the display shall be the message "YOUR SPEED" or

50 "YOUR SPEED IS" in letters of 5 to 8 inches in height. The lowest portion of the

51 display shall be high enough to be visible over concrete barriers or safety drums and

1 a 36"x48" speed limit sign as shown on the approved traffic control plan shall be
2 mounted above the speed display.
3
4 The radar speed measurement shall provide a minimum detection distance of 1000
5 ft. and have an accuracy of +/- 1 mile per hour. The radar shall be mounted so
6 detection will function when located behind concrete barrier or drums.
7
8 The numeric speed display range shall be 0 to 99 MPH with numerals of 18 inches
9 in height minimum, amber in color with a black background with automatic dimming
10 for nighttime operations.
11
12 A speed indicator display violation alert shall not be displayed. Flashing of the
13 displayed detected speed is not allowed. The speed indicator shall have a maximum
14 speed cutoff. Detected speeds more than 25 MPH over the posted speed shall not
15 be displayed and speeds under 25 MPH shall not be displayed.
16
17 The unit shall have traffic data collection capabilities. Traffic data shall be collected
18 and transmitted to the Engineer upon request.
19
20 2-04.2(9-35.14).GR2
21 ***Portable Temporary Traffic Control Signal***
22
23 2-04.2(9-35.14).INST3.GR2
24 Section 9-35.14 is supplemented with the following:
25
26 2-04.2(9-35.14).OPT3.GR2
27 **(May 5, 2025)**
28 **Residential Driveway Temporary Signal**
29 The Residential Driveway Temporary Signal (RDTS) shall be manufactured by the
30 same company as the Portable Temporary Traffic Control Signals.
31
32 The cart or trailer platform shall have ample batteries and solar charging capabilities
33 to ensure extended run times without external charging. The platforms shall be
34 equipped with 110v charger to facilitate external charging. The platform shall be
35 painted highway safety orange.
36
37 The RDTS shall consist of a three-section signal face in an inverted "T" configuration
38 comprising a 12-inch steady circular red signal indication on top and two adjacent 8-
39 inch or 12-inch flashing yellow arrow indications below. The device shall include a
40 NO TURN ON RED sign (R10-11b) with a regulatory plaque displaying the legend
41 TURN ONLY IN DIRECTION OF ARROW. The RDTS shall be used only for
42 residential driveways and should be positioned on the near side of the residential
43 driveway.
44
45 2-04.3.GR2
46 **Construction Requirements**
47
48 2-04.3.INST1.GR2
49 Section 2-04.3 is supplemented with the following:
50
51 2-04.3.OPT1.FR2
52 (April 1, 2013)

1 The Contracting Agency will provide the following labor, equipment and/or materials
2 resources to the Contractor for use on the project.
3
4 *** \$\$1\$\$ ***
5
6 The Contractor shall notify the Engineer when each resource is to be utilized and shall
7 provide a minimum of *** \$\$2\$\$ *** working days advance notice to allow any necessary
8 arrangements to be made.
9
10 2-04.3.OPT2.FR2
11 (May 20, 2020)
12 The Contracting Agency has arranged for the Washington State Patrol (WSP) to perform
13 the following tasks during the project:
14
15 *** \$\$1\$\$ ***
16
17 There shall be no entitlement for any impacts for any reason as a result of WSP personnel.
18
19 WSP personnel may not be used for any other work without prior acceptance from the
20 Engineer. The acceptance will identify the added work allowed, the terms under which the
21 WSP personnel may be used for the added work, and how the cost of the added work will
22 be shared by the Contractor and Contracting Agency.
23
24 This resource is provided at no additional cost to the Contractor for the initial *** \$\$2\$\$
25 *** hours and includes all costs (e.g., WSP labor, vehicle miles, etc.). Additional hours of
26 WSP personnel may be requested by the Contractor. If allowed by the Engineer, the cost
27 for these hours will be shared by the Contracting Agency and the Contractor. The
28 Contractor's share of the cost for additional hours will be one-half of the amount billed by
29 the law enforcement agency.
30
31 All costs for cancelled work due to unsuitable weather will be shared by the Contracting
32 Agency and the Contractor. The Contractor's share of the cost for cancelled work will be
33 one-half of the amount billed by the law enforcement agency, regardless of when the
34 actual work occurs. All costs for cancelled work for any other reason shall be the full
35 responsibility of the Contractor.
36
37 The Contractor's share of costs for additional hours of uniformed law enforcement
38 personnel will be credited to the Contracting Agency under the bid item "WSP
39 Reimbursement", by calculation.
40
41 2-04.3(1).GR2
42 ***Traffic Control Management***
43
44 2-04.3(1).INST1.GR2
45 Section 2-04.3(1) is supplemented with the following:
46
47 2-04.3(1).OPT1.GR2
48 **(September 2, 2025)**
49 **Work Zone Safety Contingency**
50 Enhancements to improve the effectiveness of the accepted traffic control plans to
51 increase the safety of the work zones shall be discussed on a weekly basis between
52 the Contractor and the Contracting Agency. Enhancements shall be mutually agreed

1 upon by the Contractor and Engineer prior to performing any Work to implement the
2 enhancement.
3
4 Enhancements do not include the use of Uniformed Police Officers or WSP, address
5 changes to the allowed work hour restrictions, or changes to the staging plans in the
6 Contract (if applicable). If allowed by the Engineer, these items will be addressed in
7 accordance with Section 1-04.4.
8
9 The Contractor shall be solely responsible for submitting any traffic control plan
10 revision to implement the enhancement in accordance with Section 2-04.3(2).
11
12 2-04.3(1).OPT2.GR2
13 (October 3, 2022)
14 The Traffic Control Supervisor shall be certified by one of the following:
15
16 The Northwest Laborers-Employers Training Trust
17 27055 Ohio Ave.
18 Kingston, WA 98346
19 (360) 297-3035
20 <https://www.nwlett.edu>
21
22 Evergreen Safety Council
23 12545 135th Ave. NE
24 Kirkland, WA 98034-8709
25 1-800-521-0778
26 <https://www.esc.org>
27
28 The American Traffic Safety Services Association
29 15 Riverside Parkway, Suite 100
30 Fredericksburg, Virginia 22406-1022
31 Training Dept. Toll Free (877) 642-4637
32 Phone: (540) 368-1701
33 <https://atssa.com/training>
34
35 Integrity Safety
36 13912 NE 20th Ave.
37 Vancouver, WA 98686
38 (360) 574-6071
39 <https://www.integritysafety.com>
40
41 US Safety Alliance
42 (904) 705-5660
43 <https://www.ussafetyalliance.com>
44
45 K&D Services Inc.
46 2719 Rockefeller Ave.
47 Everett, WA 98201
48 (800) 343-4049
49 <https://www.kndservices.net>
50
51 2-04.3(1).OPT3.GR2
52 (January 5, 2015)

The primary TCS shall have a minimum of 500 hours of experience providing traffic control as a TCS or traffic control labor on multilane highways with a speed limit of 55 mph or greater. The Contractor shall submit a certification of the TCS's experience with the TCS designation. Documentation of experience shall be available upon request by the Engineer.

2-04.3(4).GR2

Traffic Control Labor

2-04.3(4).INST1.GR2

Section 1-10.3 is supplemented with the following:

2-04.3(4).OPT1.FR2

(May 20, 2020)

Contractor Provided Uniformed Police Officers

The Contractor shall provide, direct, and monitor Uniformed Police Officers having jurisdiction to control traffic in accordance with the Plans. A uniformed police officer (UPO) is a sworn police officer from a local law enforcement agency or a Washington State Patrol officer. The UPO shall provide traffic control as shown in an accepted traffic control plan.

The following contact information for potential service providers is supplied for the Contractor's convenience:

*** \$\$1\$\$ ***

2-04.3(6).GR2

Traffic Control Devices

2-04.3(6).INST1.GR2

Section 2-04.3(6) is supplemented with the following:

2-04.3(6).OPT1.GR2

(September 3, 2025)

Automated Flagger Assistance Devices

General

Where shown on an accepted traffic control plan, the Contractor shall provide, operate and maintain AFADs.

An AFAD is a self-contained, portable traffic control system that enables a flagger to avoid standing on the roadway while still controlling road users alternating through a single open lane.

AFAD Operation

Each AFAD shall be controlled only by a flagger who has been trained on the operation of the AFADs by a manufacturer or supplier representative in addition to the requirements in accordance with Section 1-10.3(1)A. The flagger shall be positioned to visually see both the AFAD and approaching traffic. When this is not feasible, digital alternatives are allowable. The flagger is prohibited from leaving the AFAD unattended at any time while the AFAD is in operation and controlling traffic.

If AFAD repairs are required, the Contractor shall control traffic with flaggers and stop/slow paddles and the AFAD shall be repaired or replaced within 48 hours.

AFAD Location and Use

An AFAD shall only be used in situations where there is only one lane of approaching traffic in the direction to be controlled. AFADs shall not be used within 1500 feet of existing or temporary traffic signals. When used at night, the AFAD location shall be illuminated in accordance with Section 2-04.3(4)A.

The AFAD may be positioned up to the edge of the open travel lane without any lateral clearance, but only the AFAD gate arm can be within the open travel lane when traffic is being stopped. The AFAD shall be delineated by at least 3 transverse channelization devices in advance when not within a closed lane or shoulder.

The "STOP HERE ON RED" R10-6 (24"x36", B/W) or R10-6a (24"x36", B/W) sign may be attached to the AFAD below the Red/Yellow lens. The AFAD may have a supplemental amber LED changeable message sign with minimum 10-inch characters attached to provide road users additional information, provided it does not block any signal display or signage.

The Engineer may order adjustments to the location as needed based on traffic and field conditions. The Contractor shall avoid placing the AFAD within or immediately following horizontal and/or vertical curves when feasible.

Setup and Takedown

During the setup and take down operation of the work area, the AFAD display shall be set to a yellow flash mode when the signal heads are deployed into normal operating position.

Except during setup prior to use and removal after use, the AFAD shall be removed from the work zone clear zone when not in use unless protected by barrier or guardrail.

2-04.3(6).OPT2.GR2

(January 2, 2018)

Radar Speed Display Sign

Where shown on an approved traffic control plan or where ordered by the Engineer, the Contractor shall provide, operate, and maintain radar speed display signs (RSDS). A RSDS shall be placed with a minimum of 4 ft. of lateral clearance to edge of a travelled lane and be delineated by channelization devices. The Contractor shall remove the RSDS from the clear zone when not in use unless protected by barrier or guardrail.

2-04.3(6).OPT3.FR2

(April 15, 2024)

Smart Work Zone System

Where shown on an approved traffic control plan, the Contractor shall provide, operate, maintain, and remove a Smart Work Zone System. A Smart Work Zone System (SWZS) uses portable roadside sensor information to display real-time dynamic work zone traffic information and instructions to motorists on a series of Portable Changeable Message Signs (PCMSs) approaching a work zone.

The SWZS shall be capable of communicating three types of work zone traffic information:

1. **Queue detection warning** for slowed or queued traffic ahead.
2. **Dynamic lane merge** guidance to use all open lanes up to the lane closure tapers and zipper merge instructions during times of congestion.
3. **Work zone travel delay** for current work zone delays in minutes.

In locations with multiple SWZS setups each setup shall be capable of operating independently. One SWZS Technician may operate all systems concurrently.

Vendor

The Contractor shall select an independent vendor listed below to provide the SWZS as shown on an approved SWZS Plan:

Highway Specialties LLC

Phone: (360) 437-1900

Website: <https://www.highwayspecialties.com>

Hill and Smith Inc.

Phone: (302) 328-3220

Website: https://www.hillandsmith.com/portfolio_category/its-smart-work-zone/

ICONE by ICONE Products

Phone: (315) 626-6800

Website: <http://iconeproducts.com/>

Road-Tech Safety Services, Inc.

Phone: (888) 762-3832

Website: <https://www.road-tech.com/>

SolarTech

Phone: (610) 391-8600

Website: <http://solartechnology.com/>

Street Smart

Phone: (888) 653-6800

Website: <https://www.streetsmartrental.com/smart-work-zones/>

Superior Traffic Services

Phone: (888) 928-5999

<https://www.superiortrafficservices.com/>

Ver-Mac

Phone: (888) 488-7446

Website: <https://www.ver-mac.com/en/jamlogic-software/smart-work-zones>

WANCO

Phone: (800) 972-0755

Devices and Communications

The Contractor and/or Vendor shall provide all devices necessary to operate the system in accordance with the accepted traffic control plans and these specifications.

The traffic sensors shown in the traffic control plans in advance of lane closure tapers are used to operate the SWZS by detecting vehicle speed approaching the lane closures, where queuing is expected. Typically, these traffic sensors use Doppler radar technology.

Separate side-fire traffic sensor(s), Wavetronix SmartSensor HD or similar accepted by the Engineer, shall be post-mounted or trailer-mounted to obtain traffic volume/speed data where shown in the traffic control plans. If not shown, then the side-fire traffic sensor shall be placed after the final lane closure taper but before lanes are reopened or any open on-ramps to measure the following:

1. Traffic volume, in vehicles per hour per open lane
2. Speed – time graph used to determine the median & 85th percentile speed in each open lane

The Contractor shall use and relocate as necessary side-fire traffic sensor(s) at locations compatible with lane closures. As an alternative, multiple side-fire traffic sensors can be used throughout the project limits provide the traffic volume/speed data remains accurate.

A vendor website or other wireless remote system is required for monitoring SWZS functions and remote management of PCMS messages.

Technician

The Vendor shall provide a technician skilled in the operation of all system equipment and software. The technician may be an employee of the Vendor or someone trained and authorized by the Vendor to operate the system. The technician shall be independent of the Contractor and Traffic Control Supervisor but shall collaborate and coordinate as appropriate. The technician shall be on site while the SWZS is in use and able to respond to system issues in person.

Duties of the Technician include, but are not limited to, the following:

1. Program the automated, real-time operation of the SWZS with traffic sensor trigger speed thresholds and PCMS messages shown on the approved SWZS Plan.
2. Service, debug, troubleshoot, and maintain all SWZS components.
3. Maintain SWZS equipment maintenance logs.
4. Collect and process system data and provide data as described below:
 - a. **System Data** – System data shall include:

- i. Data in table format of traffic volume (vehicles per hour per each open lane), 50th-percentile traffic speed of all open lanes, and 85th-percentile traffic speed of all open lanes for 15-minute intervals organized by Day and Hour of day for each SWZS implementation measured by the side-fire traffic sensor.
 - ii. Day and Hour of day each traffic sensor was triggered, and the message displayed on each PCMS while the SWZS is in use.
- b. **Agency Access to System Data** – Provide password protected access to the Engineer and identified Agency personnel to the System Data via a dedicated website or other wireless remote system.
 - c. **Provide System Data to Agency** – At the completion of the Project, provide System Data logs in an electronic format approved by the Engineer.
5. Immediately respond to all system failures in accordance with the **Smart Work Zone System Failure Protocol** section of these Specifications.

Operation

Operate the SWZS according to the following:

Scheduled Use

Use a dynamic lane merge, queue detection warning, and work zone travel delay system on the following roadway(s), locations, and work operations:

*** \$\$\$ ***

Installation, Relocation, Removal, and Storage

The Contractor shall store, install, relocate, and remove all the SWZS components as follows:

1. Install all components with the SWZS Technician's concurrence at least 30 minutes prior to commencing the first lane closure
2. Relocate components as necessary with the SWZS Technician's concurrence
3. Assist the Technician as needed when the Smart Work Zone System Failure Protocol occurs
4. Remove all components within the Work Zone Clear Zone within 60 minutes when no longer required unless components are placed behind guardrail or barrier.

Initial SWZS Turn-On Meeting

The Contractor shall arrange a meeting at least one week before the initial system turn-on.

1 The meeting shall include the Contractor, Traffic Control Manager, Traffic Control
2 Supervisor, Alternative Traffic Control Supervisor (if applicable), SWZS
3 Technician, and WSDOT Project Engineering Office staff.

4
5 During this meeting, the following topics should be discussed at a minimum:
6

- 7 1. Provide and review the approved traffic control plans, including lane
8 closure plans and the associated SWZS plan that will be used.
9
- 10 2. Review roles and responsibilities for implementation of the SWZS.
11
- 12 3. Provide contact information for critical personnel.
13
- 14 4. Provide a schedule of the anticipated operation times, dates and
15 durations for the initial operation.
16
- 17 5. Review Measurement and Payment for duties related to SWZS
18 installation, operation, and removal.
19

20 **SWZS Operation Coordination and Collaboration**

21 The Contractor shall notify the Engineer at least 72 hours in advance of using
22 the SWZS including providing a schedule of the anticipated operation times,
23 dates and durations for each subsequent operation.
24

25 The Contractor's Traffic Control Management shall coordinate and collaborate
26 as needed for the successful implementation of the SWZS and associated lane
27 closures. Any delays and associated costs due to implementing the SWZS shall
28 be at the Contractor's expense.
29

30 **Smart Work Zone System Failure Protocol**

31 In the event of a failure, perform the following protocol:
32

- 33 1. **SWZS Technician** – Upon discovery of the malfunction, perform the
34 following:
35
 - 36 a. Immediately notify Contractor Traffic Control Management.
 - 37 b. Begin troubleshooting the SWZS to address the malfunction.
 - 38 c. If the malfunction is not resolved within 15 minutes, notify Contractor
39 Traffic Control Management. The SWZS shall be taken out of service
40 and repaired within 12 hours of the malfunction.
41
- 42 2. **Contractor Traffic Management** – After receiving the initial notification of
43 the malfunction, perform the following:
44
 - 45 a. Notify the Traffic Control Supervisor.
 - 46 b. Prepare crews to immediately implement the Emergency PCMS
47 Implementation if the malfunction is not resolved within 15 minutes.
48
 - 49 c. Notify the Engineer of the malfunction and failure protocol status.
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- d. Collaborate with SWZS Technician to provide replacement parts needed to make repairs to the SWZS within 12 hours of the system or a system component malfunction.
- 3. **Emergency PCMS Implementation** – If the SWZS Technician has not resolved the issue within 15 minutes, perform following failure protocol:
 - a. Install two PCMSs as described below until the SWZS is repaired, functioning properly, and back in service or until all lane closures have been reopened. The PCMSs may be from the SWZS if needed.
 - i. PCMS #1: Maintain positioned 0.5 ± mile in advance of traffic queue, relocated as necessary, except when no traffic queue is present. PCMS #1 may be truck-mounted.

<u>Phase 1</u>	<u>Phase 2</u>
SLOW OR	NEXT
STOPPED	#
TRAFFIC	MILES

Where “#” is the approximate queue length rounded up to the nearest mile

- ii. PCMS #2: Place 1.5 ± mile in advance of first lane closure taper. Program message as appropriate. Phase 1 is to describe the current lane closure in place. Phase 2 is to describe the distance ahead to the beginning of the first lane closure rounded up to the nearest 0.5 mile interval. For example, if a double right lane closure is 1.5 mile ahead, the PCMS message would be: “2 RIGHT LANES CLOSED” / “1.5 MILE AHEAD”.

2-04.3(6).OPT4.FR2
(April 15, 2024)
Queue Warning System

Where shown on an accepted traffic control plan, the Contractor shall provide, operate, maintain, and remove a Queue Warning System. A Queue Warning System (QWS) uses portable roadside sensor information to display real-time traffic queue information to motorists on Portable Changeable Message Signs (PCMS) approaching a work zone. QWS is a simplified smart work zone system intended for work zone queues up to 2 miles, measured from the first lane closure taper, but may be modified for queuing up to 3 miles by extending spacing between the two PCMSs from 1± mile to 1.5 ± mile spacing and adjusting the PCMS messages. Traffic sensor placement remains unchanged.

The QWS shall be capable of communicating two types of work zone traffic information:

- 1. **Queue detection warning** for slowed or queued traffic ahead.
- 2. **Dynamic lane merge** guidance to use all open lanes up to the lane closure tapers and to take turns at merges during times of congestion.

In locations with multiple QWS setups each setup shall be capable of operating independently. One QWS Technician may operate all systems concurrently.

Vendors

The Contractor shall select an independent vendor listed below to provide a QWS as shown on an accepted traffic control plan:

Highway Specialties LLC

Phone: (360) 437-1900

Website: <https://www.highwayspecialties.com>

Hill and Smith Inc.

Phone: (302) 328-3220

Website: https://www.hillandsmith.com/portfolio_category/its-smart-work-zone/

ICONE by ICONE Products

Phone: (315) 626-6800

Website: <http://iconeproducts.com/>

Road-Tech Safety Services, Inc.

Phone: (888) 762-3832

Website: <https://www.road-tech.com/>

SolarTech

Phone: (610) 391-8600

Website: <http://solartechnology.com/>

Street Smart

Phone: (888) 653-6800

Website: <https://www.streetsmartrental.com/smart-work-zones/>

Superior Traffic Services

Phone: (888) 928-5999

Website: <https://www.superiortrafficservices.com>

Ver-Mac

Phone: (888) 488-7446

Website: <https://www.ver-mac.com/en/jamlogic-software/smart-work-zones>

WANCO

Phone: (800) 972-0755

Website: <https://www.wanco.com>

Devices and Communications

The Contractor and/or Vendor shall provide all devices necessary to operate the system in accordance with the accepted traffic control plans and these specifications.

The traffic sensors shown in the traffic control plans in advance of lane closure tapers are used to operate the SWZS by detecting vehicle speed approaching the lane closures, where queuing is expected. Typically, these traffic sensors use Doppler radar technology.

A vendor website or other wireless remote system is required for monitoring QWS functions and remote management of PCMS messages.

Technician

The Vendor shall provide a technician skilled in the operation of all system equipment and software. The technician may be an employee of the Vendor or someone trained and authorized by the Vendor to operate the system. The technician may be Contractor or subcontractor personnel, including the Traffic Control Supervisor. The technician is not required be on site while the QWS is in use but must be able to respond to any system issues remotely.

Duties of the Technician or trained traffic control personnel include, but are not limited to, the following:

1. Program the automated, real-time operation of the QWS with traffic sensor trigger speed thresholds and PCMS messages shown on the accepted traffic control plan or in these Specifications.
2. Service, debug, troubleshoot, and maintain all QWS components.
3. Maintain QWS equipment maintenance logs.
4. Immediately respond to all system failures in accordance with the **Queue Warning System Failure Protocol** section of these Specifications.

Operation

Operate the QWS according to the following:

Scheduled Use

Use the QWS on the following roadway(s), locations, and work operations:

*** \$\$1\$\$ ***

Installation, Relocation, Removal, and Storage

The Contractor or subcontractor shall store, install, relocate, and remove all the QWS components as follows:

1. Install all QWS components with the QWS Technician's concurrence prior to commencing the first lane closure.
2. Relocate components as necessary with the QWS Technician's concurrence.
3. Assist the Technician as needed when the Queue Warning System Failure Protocol occurs.
4. Remove all components within the Work Zone Clear Zone when no longer required unless components are placed behind guardrail or barrier.

QWS Operation Coordination and Collaboration

The Contractor shall notify the Engineer at least 72 hours in advance of using the QWS including providing a schedule of the anticipated operation times, dates and durations for each subsequent operation.

The Contractor's Traffic Control Management shall coordinate and collaborate as needed for the successful implementation of the QWS and associated lane closures. Any delays and associated costs due to implementing the QWS shall be at the Contractor's expense.

Queue Warning System Failure Protocol

In the event of a failure that is not resolved within 15 minutes, reprogram QWS PCMSs to display the following message for the remainder of the Scheduled Use duration:

PCMS 1		PCMS 2	
<u>Phase 1</u>	<u>Phase 2</u>	<u>Phase 1</u>	<u>Phase 2</u>
WATCH	NEXT	(Lane)	1
FOR SLOW	2	(Closure)	MILE
TRAFFIC	MILES	(Description)	AHEAD
2.0 SEC	2.0 SEC	2.0 SEC	2.0 SEC

PCMS 1 placed 2± miles from first lane closure taper

PCMS 2 placed 1± mile from first lane closure taper

(Lane Closure Description) message is similar to LEFT LANE CLOSED or LEFT 2 LANES CLOSED.

If the QWS as modified for queuing up to 3 miles, then modify the messaging as follows:

PCMS 1		PCMS 2	
<u>Phase 1</u>	<u>Phase 2</u>	<u>Phase 1</u>	<u>Phase 2</u>
WATCH	NEXT	(Lane)	1.5
FOR SLOW	3	(Closure)	MILES
TRAFFIC	MILES	(Description)	AHEAD
2.0 SEC	2.0 SEC	2.0 SEC	2.0 SEC

PCMS 1 placed 3± miles from first lane closure taper

PCMS 2 placed 1.5± miles from first lane closure taper

2-04.3(6).OPT5.GR2

(October 3, 2022)

Temporary Portable Transverse Rumble Strips

Where shown on a traffic control plan, the Contractor shall provide, install, and maintain temporary portable transverse rumble strips.

Temporary portable transverse rumble strips may be used on two-way, two-lane roadways in conditions requiring traffic to stop.

1 Do not place temporary portable transverse rumble strips on sharp horizontal or
2 vertical curves, through pedestrian crossings or on bicycle routes. When placed on
3 roadways used by bicyclists a minimum clear path of 4 feet shall be provided at each
4 edge of the roadway or on each paved shoulder if feasible.

5
6 The Contractor shall remove the temporary portable transverse rumble strips in their
7 entirety when they are no longer needed.

8
9 All damage caused by removing temporary portable transverse rumble strips shall
10 be repaired by the Contractor at no additional cost to the Contracting Agency.

11
12 2-04.3(6).OPT6.GR2

13 **(November 4, 2024)**

14 **Mobile Barrier Trailer System**

15 As shown on a traffic control plan or directed by the Engineer, the Contractor shall
16 provide, transport, install, relocate, and maintain a mobile barrier trailer (MBT)
17 system. The mobile barrier system shall be available, on-site, for the entire duration
18 of their projected use.

19
20 The Contractor shall provide a semi-tractor truck operator to haul and operate the
21 MBT system and a MBT system technician qualified to set up and operate the
22 features of the MBT system. Both workers shall have completed a minimum of 4
23 hours of training on use and operation of the MBT system from the MBT system
24 manufacturer within the past 2 years.

25
26 Placement, movement, and removal of a MBT system shall be within a stationary
27 lane closure. The MBT system shall be placed in a closed lane adjacent to the active
28 work space. The MBT shall be placed parallel to the adjacent open lane.

29
30 The wall of the mobile barrier shall not encroach into the adjacent open lane. Work
31 area lights shall not produce any glare to traffic. Channelizing devices shown
32 adjacent to the mobile barrier shall be removed. Place the channelizing devices back
33 as the mobile barrier moves within the work zone.

34
35 Do not use the MBT to guide traffic across lanes or shoulders.

36
37 When the MBT system is not in use, it shall be located outside the work zone clear
38 zone or placed behind a barrier or guardrail.

39
40 **Submittals**

41 Within 21 calendar days of execution of the contract, the Contractor shall submit
42 proof of rental agreement or ownership documentation for the MBT system.

43
44 **Working Drawings**

45 The Contractor shall submit the MBT system information, as a Type 1
46 Working Drawing. The information shall include the following:

- 47
48 1. FHWA's acceptance letter for compliance with MASH Test Level 3
49
50 2. Manufacturer's instructions
51

2-04.3(6).OPT7.GR2

(September 2, 2025)

Movable Barriers

This Work consists of supplying, transporting, installing, relocating, and maintaining the Movable Barriers and Barrier Transfer Machine (BTM) as shown on the traffic control plans.

The Contractor shall notify the Engineer in writing a minimum of 15 working days in advance of the pickup date. The Contractor shall load the Movable Barriers and BTM on trailers, lowboys, or similar conveyances and haul it between the pickup location and the job site.

The Contractor shall be responsible for furnishing the accepted personnel and equipment necessary for loading and unloading the Movable Barriers and BTM. The locations for initial placement of the system shall be accepted by the Engineer. When the Engineer determines that the Movable Barriers and BTM is no longer required, the Contractor shall return the system to the supplier.

The Contractor shall submit Type 1 Working Drawing listing the Movable Barriers and BTM operators and mechanics certified by supplier to the Engineer for acceptance. Certified operators and mechanics shall have been trained in the manufacturer's recommended operations, maintenance, and repair procedures for the Movable Barriers and BTM. Training shall be obtained through supplier and be completed prior to the initial pickup date. Only accepted personnel shall operate, maintain, or repair the Movable Barriers and BTM.

On-site storage locations for the BTM are shown on the accepted traffic control plans. The BTM shall be stored at these locations when not actively moving the Movable Barriers.

BTM Operation

All proposed positions of the Movable Barriers will be shown on the accepted traffic control plans. The BTM shall be used to move the Movable Barriers for access to the construction or to change traffic lane configuration site only during the lane closure or traffic switch hours specified in the subsection Public Convenience and Safety of the Special Provision LEGAL RELATIONS AND RESPONSIBILITIES TO THE PUBLIC. Traffic control devices shown on the accepted traffic control plans shall be in place prior to the Movable Barriers shift.

Movable Barriers and BTM Maintenance and Repair

The Contractor shall be responsible for fueling, lubricating, and performing all maintenance on the BTM recommended by the manufacturer. Movable Barriers shall be inspected daily for cracks, chips, spalls, dirt, and traffic marks. The Contractor shall be responsible for the repair or replacement of the BTM and any section of Movable Barriers damaged while in the Contractor's possession at no cost to the Contracting Agency.

2-04.3(6)B.GR2

Sequential Arrow Signs (Arrow Boards)

2-04.3(6)B.INST1.GR2

Section 2-04.3(6)B is supplemented with the following:

2-04.3(6)B.OPT1.GR2

(January 6, 2025)

Initial Arrow Board Turn-On Meeting

The Contractor shall arrange a meeting at least one week before the initial Arrow Board turn-on.

The meeting shall include the Contractor, Traffic Control Manager, Traffic Control Supervisor, Alternative Traffic Control Supervisor (if applicable), and WSDOT Project Engineering Office staff.

During this meeting, the Contractor shall perform the following:

1. A complete and thorough demonstration to show that communication elements listed in Section 9-35.4 are operating properly.
2. A complete and thorough demonstration to show the data feed is being received by the Contracting Agency.

Arrow Board Failure

If Arrow Board repairs are required, the Contractor shall control traffic with Arrow Board without GPS and remote communication abilities, and the Arrow Board needing repairs shall be repaired or replaced within 48 hours.

Arrow Boards shall be deactivated immediately when the unit is not in use in accordance with the accepted traffic control plan.

Any data service costs for communications will be included in the unit cost per hour for Sequential Arrow Sign.

2-04.3(6)J.GR2

Portable Temporary Traffic Control Signal System (PTSS)

2-04.3(6)J.INST1.GR2

Section 2-04.3(6)J is supplemented with the following:

2-04.3(6)J.OPT1.GR2

(May 5, 2025)

Residential Driveway Temporary Signal (RDTs)

The PTSS shall include a residential driveway temporary signal (RDTs) when a residential driveway falls between mainline portable temporary traffic control signals used for alternating one-lane two-way traffic control.

Where shown on an accepted traffic control plan or where ordered by the Engineer, the Contractor shall provide, operate and maintain a RDTs. The RDTs shall only be used as part of a complete PTSS conforming to the requirements of the NEMA TS 5 Standard. Each RDTs unit shall be programmable as part of the PTSS to serve approaches without a dedicated phase. In the event multiple RDTs units are required, all units shall be capable of being programmed with individual timing programs based on their placement within the work zone.

Each RDTS and the mainline portable temporary traffic control signals shall be programmed with a malfunction management system that monitors active signal and RDTS indications and verifies safe and proper operation. If a malfunction is detected, a fault mode shall be triggered and set the RDTS signals to flashing red mode. A fault mode shall be detected when:

- A conflicting or potential unsafe signal indication scenario occurs
- Communication between the RDTS and the rest of the PTSS is lost for more than 1,000 milliseconds
- A signal lamp is lost for more than 1,000 milliseconds, unless one instance of signal indication at the signal loss location is active and functioning properly

Upon a fault mode detection, the malfunction management system shall text the primary and alternate Traffic Control Supervisor (TCS) via text message or email.

The Contractor shall perform repairs and adjustments as necessary. For fault modes, the Contractor shall respond immediately replacing the RTDS with flagger traffic control until repairs can be made. The Contractor shall either repair the PTSS including the RDTS or replace with a backup within 24 hours.

Each RDTS shall have a mechanism for monitoring battery voltage. In the event of low battery condition, the RDTS shall text to alert the primary and alternate TCS.

The PTSS, including all RDTSs, shall be equipped to an interface with a Remote Monitoring System (RMS) capable of reporting signal location, battery voltage, and system faults. The active timing program operating the PTSS shall always be available and viewable through the RMS website. The RMS shall maintain a history of each signal in the PTSS including total operating hours, alerts, and the location of the PTSS trailer.

The PTSS, including all RDTSs, shall have the ability to communicate via 900 MHz wireless radio as a primary data communication method between units. If wireless connectivity is not feasible, hardwired connectivity is an acceptable alternative; however, the communication cable shall not intrude into the direct work area or obstruct vehicular and pedestrian traffic. The communication system shall work for a minimum distance of one (1) mile under normal operating conditions with a clear line of sight. The radio system shall conform to the applicable Federal Communication Commission requirements and all applicable state and local requirements.

2-04.4.GR2

Measurement

2-04.4(2).GR2

Item Bids With Lump Sum for Incidentals

1 2-04.4(2).INST1.GR2
2 Section 2-04.4(2) is supplemented with the following:
3
4 2-04.4(2).OPT2.GR2
5 (January 10, 2022)
6 "Automated Flagger Assistance Device" will be measured by the hour for the time
7 that each AFAD is operating as shown on the accepted traffic control plan.
8
9 2-04.4(2).OPT3.GR2
10 (January 2, 2018)
11 "Radar Speed Display Sign" will be measured by the hour for the time that each sign
12 is operating as shown on an approved Traffic Control Plan.
13
14 2-04.4(2).OPT5.GR2
15 (September 2, 2025)
16 "Operation of Smart Work Zone System" will be measured by the hour the system is
17 actively operating as defined in Section 2-04.3(6) as supplemented in these special
18 provisions. When the smart work zone system malfunctions for longer than 15-
19 minutes or if the smart work zone system is not used in accordance with the
20 applicable approved Smart Work Zone System traffic control plan, no measurement
21 will be made for the smart work zone system for that hour. Payment for all other Work
22 to implement and decommission the SWZS will be made under the applicable items
23 shown in the Proposal.
24
25 2-04.4(2).OPT6.GR2
26 (May 20, 2020)
27 "Contractor Provided Uniformed Police Officer" will be measured by the hour.
28
29 2-04.4(2).OPT7.GR2
30 (September 2, 2025)
31 "Operation of Queue Warning System" will be measured by the hour each system is
32 actively operating as defined in Section 2-04.3(6) as supplemented in these special
33 provisions. When the Queue Warning System malfunctions for longer than 15
34 minutes or is not used in accordance with the applicable accepted traffic control plan,
35 no measurement will be made for the queue warning system for that hour. Payment
36 for all other Work to implement and decommission the Queue Warning System will
37 be made under the applicable items shown in the Proposal.
38
39 2-04.4(2).OPT8.GR2
40 (October 3, 2022)
41 "Temporary Portable Transverse Rumble Strips" will be measured per each one time
42 for each array consisting of three rumble strips in operation at any one time. This
43 price shall include installation, maintaining, and relocating throughout the life of the
44 project and final removal from the project site.
45
46 2-04.4(2).OPT9.GR2
47 (November 4, 2024)
48 "Mobile Barrier Trailer System" will be measured by the day for the time that mobile
49 barrier system is installed as shown on a traffic control plan. A day will begin at
50 midnight (12:00 AM) and end at 11:59 PM. Portions of a day will be rounded up.
51

1 2-04.4(2).OPT10.GR2
2 (November 4, 2024)
3 "Operating the BTM" will be measured by the hour for the time that the BTM is
4 operating on the job site as shown on the accepted traffic control plans.
5
6 2-04.5.GR2
7 **Payment**
8
9 2-04.5(2).GR2
10 ***Item Bids With Lump Sum for Incidentals***
11
12 2-04.5(2).INST1.GR2
13 Section 2-04.5(2) is supplemented with the following:
14
15 2-04.5(2).OPT1.GR2
16 (September 2, 2025)
17 "Automated Flagger Assistance Device", per hour.
18 The unit Contract price, when applied to the number of hours measured for this item
19 in accordance with Section 2-04.4(2), shall be full pay to provide, maintain and
20 remove the AFAD as described including transporting, installing and resetting the
21 devices.
22
23 All costs for controlling AFADs shall be included in the unit Contract price per hour
24 for "Flaggers".
25
26 2-04.5(2).OPT2.GR2
27 (September 2, 2025)
28 "Radar Speed Display Sign", per hour.
29 The unit Contract price, when applied to the number of units measured for this item
30 in accordance with Section 2-04.4(2), shall be full compensation for all costs incurred
31 by the Contractor in performing the Work for procuring all radar speed display signs
32 required for the project and for transporting these signs to and from the project.
33
34 2-04.5(2).OPT3.GR2
35 (September 2, 2025)
36 "Operation of Smart Work Zone System", per hour.
37 The unit Contract price, when applied to the number of units measured for this item
38 in accordance with Section 2-04.4(2) shall be full compensation for all costs incurred
39 by the Contractor, SWZS Vendor, and SWZS Technician for mobilizing and
40 demobilizing the smart work zone system components; the hardware, software,
41 traffic sensors, and other required equipment; maintenance data logs; traffic data
42 logs; Contracting Agency access to Smart Work Zone System data; and wireless
43 system operations including Contracting Agency access. Payment for all other Work
44 to implement and decommission the SWZS will be made under the applicable items
45 shown in the Proposal.
46
47 2-04.5(2).OPT4.GR2
48 (September 2, 2025)
49 "Operation of Queue Warning System", per hour.
50 The unit Contract price, when applied to the number of units measured for this item
51 in accordance with Section 2-04.4(2) shall be full compensation for all costs incurred
52 by the Contractor, Vendor, and/or Queue Warning System Technician for mobilizing

1 and demobilizing the queue warning system components; the hardware, software,
2 traffic sensors, and other required Queue Warning System equipment; maintenance
3 data logs; traffic data logs; and wireless system operations including Contracting
4 Agency access. Payment for all other Work to implement and decommission the
5 Queue Warning System will be made under the applicable items shown in the
6 Proposal.
7
8 2-04.5(2).OPT5.GR2
9 (May 20, 2020)
10 "Contractor Provided Uniformed Police Officer", per hour.
11
12 The unit Contract price per hour for "Contractor Provided Uniformed Police Officer"
13 shall be full pay for performing the Work as specified and as shown in the Plans,
14 including all costs for arrangement for and supervision of a uniformed law
15 enforcement personnel and vehicles to participate in the Contractor's traffic control
16 activities.
17
18 2-04.5(2).OPT6.GR2
19 (September 2, 2025)
20 "Temporary Portable Transverse Rumble Strips", per each.
21 The unit Contract price, when applied to the number of units measured for this item
22 in accordance with Section 2-04.4(2), shall be full compensation for all costs incurred
23 by the Contractor in performing the Work as described.
24
25 2-04.5(2).OPT7.GR2
26 (November 2, 2022)
27 "Work Zone Safety Contingency", by force account.
28
29 All costs as authorized by the Engineer will be paid for by force account as specified
30 in Section 1-09.6.
31
32 For purpose of providing a common proposal for all bidders, the Contracting Agency
33 has entered an amount for the item "Work Zone Safety Contingency" in the Proposal
34 to become a part of the Contractor's total bid.
35
36 The Engineer may choose to use existing bid items for the implementation of the
37 agreed upon enhancement.
38
39 2-04.5(2).OPT8.GR2
40 (September 2, 2025)
41 "WSP Reimbursement", by calculation.
42
43 "WSP Reimbursement" will be calculated and paid for as described in Section 2-04.3.
44
45 2-04.5(2).OPT9.GR2
46 (November 4, 2024)
47 "Mobile Barrier Trailer System", per day.
48 The unit Contract price shall be full compensation for all costs incurred by the
49 Contractor in performing the Work.
50
51 2-04.5(2).OPT10.GR2
52 (September 2, 2025)

1 "Movable Barriers", lump sum.
2 The lump sum Contract payment for "Movable Barriers" shall be full pay for all costs
3 associated with leasing the Movable Barriers and BTM, transporting them to the
4 jobsite, placing the Movable Barriers in its initial position in accordance with the
5 accepted traffic control plans, fueling, lubricating, and performing maintenance of
6 BTM, and returning the system to supplier upon completion of the project.
7
8 "Operating the BTM", per hour.
9 The unit Contract price per hour for "Operating the BTM" shall be full pay for
10 operating the BTM to move the Movable Barriers as shown on the accepted traffic
11 control plans.
12
13 DIVISION3.GR3
14
15 **Division 3**
16 **Earthwork**
17
18 3-01.GR3
19 **Clearing, Grubbing, and Roadside Cleanup**
20
21 3-01.1.GR3
22 **Description**
23 3-01.1.INST1.GR3
24 Section 3-01.1 is supplemented with the following:
25
26 3-01.1.OPT1.FR3
27 (March 13, 1995)
28 Clearing and grubbing on this project shall be performed within the following limits:
29
30 *** \$\$1\$\$ ***
31
32 3-01.3.GR3
33 **Construction Requirements**
34
35 3-01.3(1).GR3
36 **Clearing**
37
38 3-01.3(1).INST1.GR3
39 Item number 1 of Section 3-01.3(1) is revised to read:
40
41 3-01.3(1).OPT1.GR3
42 (April 2, 2018)
43 1. Trees identified for removal shall be felled into the Contracting Agency right of
44 way or areas that will be cleared of vegetation.
45
46 3-01.3(4).GR3
47 **Roadside Cleanup**
48
49 3-01.3(4).INST1.GR3
50 Section 3-01.3(4) is supplemented with the following:
51

1 3-01.3(4).OPT1.FR3
2 (January 5, 1998)
3 *** \$\$1\$\$ ***
4
5 3-01.5.GR3
6 **Payment**
7
8 3-01.5.INST1.GR3
9 The first and second paragraphs of Section 3-01.5 are revised to read:
10
11 3-01.5.OPT1.FR3
12 (August 7, 2017)
13 Payment will be made for the following bid items when they are included in the proposal:
14
15 All costs for clearing and grubbing on this project shall be included in the *** \$\$1\$\$
16 ***.
17
18 3-02.GR3
19 **Removal of Structures and Obstructions**
20
21 3-02.1.GR3
22 **Description**
23
24 3-02.1.INST1.GR3
25 Section 3-02.1 is supplemented with the following:
26
27 3-02.1.OPT1.GR3
28 (March 13, 1995)
29 This work shall consist of removing miscellaneous traffic items.
30
31 3-02.1.OPT2.GR3
32 **(October 4, 2021)**
33 ***Removal and Disposal of Asbestos Material***
34 This work shall consist of removing, handling, and disposing of Asbestos Containing
35 Material and Presumed Asbestos Containing Material identified in the Good Faith
36 Investigation (GFI). The Contractor shall remove and dispose of asbestos in any and all
37 areas as identified in the GFI.
38
39 3-02.1.OPT3.GR3
40 (March 13, 1995)
41 This work shall consist of removing portions of an existing box culvert in preparation for
42 extending the box culvert.
43
44 3-02.1.OPT5.GR3
45 **(February 25, 2021)**
46 ***Decommissioning Wells***
47 The Contractor shall decommission wells at the locations as shown in the Plans.
48
49 3-02.2.GR3
50 **Vacant**
51

1 3-02.2.INST1.GR3
2 Section 3-02.2 is supplemented with the following:
3
4 3-02.2.OPT1.GR3
5 (February 25, 2021)
6 Materials shall conform to WAC 173-160-381 for the type of well scheduled for
7 decommissioning.
8
9 3-02.3.GR3
10 **Construction Requirements**
11
12 3-02.3.INST1.GR3
13 Section 3-02.3 is supplemented with the following:
14
15 3-02.3.OPT1.FR3
16 **(September 7, 2021)**
17 **Removal of Obstructions**
18 The following miscellaneous Obstructions shall be removed and disposed of:
19
20 *** \$\$1\$\$ ***
21
22 3-02.3.OPT2.FR3
23 **(March 13, 1995)**
24 **Removing Miscellaneous Traffic Items**
25 The following miscellaneous traffic items shall be removed and disposed of:
26
27 *** \$\$1\$\$ ***
28
29 3-02.3.OPT3.FR3
30 **(June 6, 2022)**
31 **Removal and Disposal of Hazardous Material**
32 Hazardous material is suspected to exist on this project. Approximate limits of
33 contamination are identified in the Plans. The site history, prior studies and/or test results
34 indicate a potential for encountering *** \$\$1\$\$ ***.
35
36 Copies of the environmental reports are available for review at
37 <https://ftp.wsdot.wa.gov/contracts/>. All necessary permits for this work will be furnished
38 by the Contracting Agency. The Contractor is responsible for all work, records, and reports
39 required to perform the work described in this section. The Contracting Agency will
40 perform all testing of suspected hazardous or contaminated material.
41
42 The Contractor shall notify the Engineer 10 working days prior to beginning work in the
43 area identified in the Plans as contaminated. The Contractor shall notify the Engineer
44 immediately if contamination is discovered in areas other than those identified in the Plans
45 or is suspected through observations such as an oily sheen or discolored soils that may
46 or may not emit strong chemical odors.
47
48 **Contaminated Soil and Hazardous Material**
49 The Engineer will determine the limits of excavation required. All material that is
50 designated by the Engineer to be removed shall be handled and stored in a manner that
51 prevents the spread of contamination to adjacent soil or water. Separate stockpiles shall

be maintained for known hazardous or contaminated material and for suspected hazardous or contaminated material. The Contractor shall transport hazardous or contaminated material and dispose of it at a permitted facility. The Contractor shall provide the Engineer with a copy of the shipping manifest or bill of lading indicating the amount of material hauled to disposal and bearing the disposal site operator's confirmation for receipt of the material. Manifests shall be submitted in accordance with Section 1-07.5(7).

Contaminated Water

All water that is removed from the areas of contamination, including free water that leaches from contaminated soil stockpiles or water that is suspected of being contaminated, shall be collected, handled and stored in a manner that prevents the spread of contamination to adjacent soil or water. The Contractor shall transport contaminated water and dispose of it at a permitted facility. The Contractor shall provide the Engineer with a copy of the shipping manifest or bill of lading indicating the amount of material hauled to disposal and bearing the disposal site operator's confirmation for receipt of the material. Manifests shall be submitted in accordance with Section 1-07.5(7).

3-02.3.OPT4.GR3

(October 4, 2021)

Removal and Disposal of Asbestos Material

Prior to performance of any contract work, the Contractor shall obtain all permits from and provide notification to, the Washington State Department of Labor and Industries, the Washington State Department of Ecology, the local clean air agency, and other permitting and regulatory agencies with jurisdiction over the work involving asbestos as the laws, rules, and regulations require.

Prior to commencing asbestos related work, the Contractor shall submit as a Type 1 Working Drawing any and all written verification of approvals and notifications that have been given and/or obtained from the required jurisdictional agencies. The Contractor shall include a schedule of activities for all work involving asbestos removal as part of the Type 1 Working Drawing. Asbestos related work shall also be shown on the Contractor's project progress schedule.

The Contractor shall designate a Washington State Certified Asbestos Supervisor (CAS), certified in accordance with WAC 295-65-012, to supervise the asbestos removal and to ensure that the handling and removal of asbestos is accomplished by certified asbestos workers, pursuant to Washington State Department of Labor and Industries standards. The Contractor shall ensure that the removal and disposal of asbestos meets the requirements of EPA regulation 40 CFR Part 61, local health department regulations, and all other applicable regulations.

The Contractor shall ensure the safety of all workers, visitors to the site, and the public in accordance with all applicable laws, rules, and regulations.

3-02.3.OPT6.FB3

(June 26, 2000)

Salvage of Removed Structure Items

All *** \$1\$\$ *** of the existing bridge or structure being removed shall remain the property of the Contracting Agency.

The Contractor shall transport the specified salvaged items to the following location:

- 1 ***\$\$2\$\$\$***
2
3 The Contractor shall stack the material where directed by the Engineer. The Contractor
4 shall contact the Engineer at least five working days prior to scheduled delivery of the
5 items to confirm delivery arrangements.
6
7 3-02.3.OPT7.GR3
8 **(February 25, 2021)**
9 **Decommissioning of Wells**
10 1. Protect the well in place until decommissioned.
11
12 2. The Contractor shall provide the Department of Ecology (Ecology) a Notice of Intent
13 (NOI) prior to decommissioning a well. A pdf of the NOI shall be provided to the
14 Engineer within 24 hours of submittal to Ecology. A pdf of any Ecology required well
15 reports shall be provided to the Engineer within 24 hours of submittal to the Ecology.
16 Well reports shall include tag numbers, coordinates or other data required by Ecology
17 for incorporation into the Ecology database for wells.
18
19 3. Licensed well drillers shall be utilized in accordance with Chapter 18.104 RCW, the
20 Washington Well Construction Act.
21
22 4. The Contractor shall comply with WAC 173-160-381 which describes the standards
23 for decommissioning a well.
24
25 5. The Contractor shall comply with WAC 173-160-261 requiring all dug wells to have
26 a proper cap to prevent injury and contamination.
27
28 6. The Contractor shall comply with local laws pertaining to the decommissioning of
29 wells.
30
31 7. This Work shall be completed prior to physical completion of the project or as agreed
32 upon with the Engineer.
33
34 3-02.3(2).GR3
35 **Removal of Bridges, Box Culverts, and Other Drainage Structures**
36
37 3-02.3(2).INST1.GR3
38 Section 3-02.3(2) is supplemented with the following:
39
40 3-02.3(2).OPT1.FB3
41 (June 26, 2000)
42 The Contractor shall remove existing Bridge *** \$\$1\$\$\$ *** after routing traffic onto ***
43 \$\$2\$\$\$ ***.
44
45 3-02.3(2).OPT2.FB3
46 (June 26, 2000)
47 The Contractor shall remove existing Bridge ***\$\$1\$\$\$*** in stages as shown in the
48 Plans.
49
50 3-02.3(2).OPT3.FB3
51 (June 26, 2000)

1 The Contractor shall remove the following portions of Bridge *** \$\$1\$\$ **, as shown
2 in the Plans:
3
4 *** \$\$2\$\$ **

5
6 3-02.3(2).OPT7.FB3
7 **(June 26, 2000)**
8 **Removal Limits in Water**
9 The existing piers of Bridge *** \$\$1\$\$ ** within the wetted perimeter of the *** \$\$2\$\$
10 *** which do not conflict with new construction shall be removed to elevation ***
11 \$\$3\$\$ **. All broken concrete, and other bridge removal debris shall be removed
12 from the bottom of the *** \$\$4\$\$ **.

13
14 3-02.3(2).OPT10.GB3
15 **Use of Explosives**
16

17 3-02.3(2).OPT10(B).FB3
18 (January 2, 2018)
19 The Contractor may use explosives in the demolition of *** \$\$1\$\$ **.

20
21 If explosives are used for any removal operation, the Contractor shall:
22

23 1. Conform with Section 1-07.22, including providing notice of the time and
24 duration of the blasting operation to all residents and property owners within
25 the safety zone.
26

27 2. Submit a Type 2 Working Drawing consisting of a detailed blasting plan.
28

29 3. Perform a pre-blast survey to document the pre-blast condition of all
30 structures within the safety zone, and provide copies of the pre-blast survey
31 to the Engineer.
32

33 4. Obtain permits and approvals from all applicable governmental agencies.
34

35 The blasting plan shall include, at a minimum, the following:
36

37 1. Show all stages of the demolition work.
38

39 2. Show details of all “pre-weakening” of the bridge, including locations and
40 extent of the Structure modifications.
41

42 3. Specify the explosive and charge type and quantity.
43

44 4. Specify the firing sequence.
45

46 5. Specify the fall direction and fall sequence of the bridge, and show locations
47 and details of all cables and structure attachments used for control.
48

49 6. Show details of drill holes and explosive placement.
50

51 7. Specify types of ground vibration monitoring equipment and show the
52 locations of such equipment.

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8. Specify how noise and shock waves are kept to a minimum.
9. Specify fragment, dust, and debris control.
10. Name, address, and phone number(s) of the licensed explosives expert supervising the operation.
11. Specify safety and security procedures, including, but not limited to, the following:
 - a. Methods of storage and transportation.
 - b. Measures taken to secure the blasting materials at all times, including all non-working hours.
 - c. Measures taken to secure the bridge site at all times during and after installation of all charges and after blasting.
 - d. Safeguards against accidental discharge.
 - e. Safety zone limits.
 - f. Barricade locations.
 - g. Location of firing device, warning signals, warning signs.
 - h. Communication procedures for notifying the Engineer, nearby residents, and all personnel of impending blasting.

The Contractor shall enlist a licensed, experienced explosives expert to supervise all stages of explosive work, including hole drilling and explosive placement, safety procedures, and blasting operations.

At least five to ten working days prior to the scheduled blast, a pre-blast conference shall be held to discuss the blasting plan, all pre-blast preparations of the bridge, the pre-blast, blast, and post-blast procedures, and the responsibilities and activities of the personnel and equipment involved. Those attending shall include, at a minimum, the project superintendent, the licensed explosives expert assigned to supervise the work, and the work crew leaders responsible for performing the pre-blast and post-blast activities.

Traffic shall not be allowed in the vicinity during blasting operations.

All damage as a result of the Contractor's blasting operations shall be repaired by the Contractor at no additional expense to the Contracting Agency in accordance with Sections 1-07.13 and 1-07.14.

1 3-02.3(2).OPT11.GB3

2 **(January 2, 2018)**

3 **Requirements for Closing Bridge to Traffic Prior to Beginning Removal**

4 The Contractor shall not close the existing bridge to traffic, and shall not begin bridge
5 removal operations, until the following conditions are met:

- 6
- 7 1. The Contractor's bridge demolition plan Working Drawing submittal has
8 been processed and all comments from the Engineer have been
9 addressed.
 - 10
 - 11 2. The Contractor has received the Engineer's acceptance of all shop
12 drawings and materials submittals for materials required for the work to be
13 executed during the closure.
 - 14
 - 15 3. The Contractor has submitted a Type 1 Working Drawing consisting of a
16 report on the status of material delivery. The report shall specify the
17 materials already available at the site, the materials yet to arrive at the site,
18 and the scheduled delivery dates of the materials yet to arrive at the site,
19 with written verification from the supplier or copies of confirmed purchase
20 orders indicating the delivery dates of the materials yet to arrive at the site.
 - 21
 - 22 4. The Contractor shall provide an updated progress schedule in accordance
23 with Section 1-08.3 confirming that the scheduled delivery of materials will
24 meet the schedule to complete the work within the allowed time. The
25 Contractor shall supplement the progress schedule with a written narrative
26 describing the assumed production rates and planned resource allocations
27 that support the bridge construction activity durations provided in the
28 progress schedule.
 - 29
 - 30 5. The Contractor has received the Engineer's concurrence to proceed.

31

32 3-02.3(2).OPT12.GR3

33 **(June 26, 2000)**

34 **Removing Portions of Existing Box Culvert**

35 The Contractor shall remove, to the limits shown in the Plans, the existing wingwalls,
36 wingwall footings, aprons, and parapet walls of the box culvert to be extended.

37

38 3-02.3(3).GR3

39 ***Removal of Pavement, Sidewalks, Curbs, and Gutters***

40

41 3-02.3(3).INST1.GR3

42 Section 3-02.3(3) is supplemented with the following:

43

44 3-02.3(3).OPT1.FR3

45 **(September 8, 1997)**

46 The approximate thickness of the *** \$\$1\$\$ *** pavement is *** \$\$2\$\$ ***.

47

48 3-02.4.GR3

49 **Vacant**

50

51 3-02.4.INST1.GR3

52 Section 3-02.4 is re-titled to **Measurement** and supplemented with the following:

1
2 3-02.4.OPT1.GR3
3 (December 4, 2006)
4 Hazardous material excavation including haul will be measured by the cubic yard. All
5 excavated material will be measured in the position it occupied before the excavation was
6 performed. An original ground measurement will be taken using cross-section or digital
7 terrain modeling survey techniques. The original ground will be compared with a survey
8 of the excavation area taken after the work is completed.
9
10 3-02.4.OPT2.GR3
11 (September 8, 1997)
12 Pavement removal will be measured by the square yard.
13
14 3-02.4.OPT3.GR3
15 (October 25, 1999)
16 Sidewalk removal will be measured by the square yard.
17
18 3-02.4.OPT4.GR3
19 (September 8, 1997)
20 Curb removal will be measured by the linear foot.
21
22 3-02.5.GR3
23 **Payment**
24
25 3-02.5.INST1.GR3
26 Section 3-02.5 is revised by the following:
27
28 3-02.5.OPT1.FR3
29 (August 7, 2017)
30 Payment will be made for the following bid item when it is included in the proposal.
31
32 All costs for the removal of structures and obstructions shall be included in *** \$\$1\$\$ ***.
33
34 3-02.5.INST2.GR3
35 Section 3-02.5 is supplemented with the following:
36
37 3-02.5.OPT2.GR3
38 (February 25, 2021)
39 "Decommissioning Wells", lump sum including all Work as specified and payment to
40 regulatory agencies for any associated fees for monitoring or decommissioning of wells.
41
42 3-02.5.OPT7.GR3
43 (December 4, 2006)
44 "Hazardous Material Handling And Disposal", by force account as provided in Section 1-
45 09.6.
46
47 All costs associated with storing stockpiled hazardous waste and contaminated soils,
48 collecting, handling and storing contaminated water, loading the stockpiled material into
49 the hauling conveyance for transport to the disposal site, and transporting and disposing
50 of hazardous or contaminated materials at an approved facility will be paid by force
51 account under the item "Hazardous Material Handling And Disposal".
52

1 To provide a common basis for all bidders, the Contracting Agency has entered an amount
2 in the proposal to become a part of the Contractor's total bid.
3
4 "Hazardous Material Excavation Incl. Haul", per cubic yard.
5 The unit contract price for "Hazardous Material Excavation Incl. Haul" shall be full pay for
6 all costs associated with excavating the material designated to be removed, hauling it to
7 the stockpile location, and stockpiling the excavated material.
8
9 3-02.5.OPT8.GR3
10 (September 30, 1996)
11 "Removing Miscellaneous Traffic Item", lump sum.
12
13 3-02.5.OPT11.GR3
14 (September 30, 1996)
15 "Removal and Disposal of Asbestos Material", lump sum.
16
17 3-02.5.OPT12.GR3
18 (June 26, 2000)
19 "Removing Portion of Conc. Box Culv.", lump sum.
20
21 The lump sum contract price for "Removing Portion of Conc. Box Culv." shall be full pay
22 for preparing the box culvert for the extension by removing and disposing of all concrete
23 and other debris specified.
24
25 3-02.5.OPT13.FR3
26 (September 30, 1996)
27 "Removing *** \$\$1\$\$ *** Pavement", per square yard.
28
29 3-02.5.OPT15.GR3
30 (June 26, 2000)
31 All costs in connection with removing the box culvert wingwalls, footings, aprons, and
32 parapet wall and disposing of concrete and other debris as specified shall be included in
33 the unit contract prices for the items of work involved in the extension of the box culvert(s).
34
35 3-02.5.OPT16.FR3
36 (November 3, 1999)
37 "Removing *** \$\$1\$\$ *** Sidewalk", per square yard.
38
39 3-02.5.OPT17.FR3
40 (September 8, 1997)
41 "Removing *** \$\$1\$\$ *** Curb", per linear foot.
42
43 3-03.GR3
44 **Roadway Excavation and Embankment**
45
46 3-03.1.GR3
47 **Description**
48
49 3-03.1.INST1.GR3
50 Section 3-03.1 is supplemented with the following:
51

1 3-03.1.OPT1.GR3
2 (July 2, 2024)
3 This work shall consist of furnishing and installing geofoam lightweight fill as specified in
4 the Plans and in these Provisions.
5
6 3-03.2.GR3
7 **Vacant**
8
9 3-03.2.INST1.GR3
10 Section 3-03.2, including title, is deleted and replaced with the following:
11
12 3-03.2.OPT1.GR3
13 **(July 2, 2024)**
14 **Materials**
15 Geofoam lightweight fill shall be constructed with rigid cellular polystyrene geofoam in
16 accordance with ASTM D6817. The geofoam type shall be as shown in the Plans. If the
17 Plans do not specify a type, EPS Type 22 shall be used.
18
19 In addition to the requirements of ASTM D6817, geofoam shall contain a flame-retardant,
20 additive, and shall have Underwriters Laboratories, Inc. (UL) Certification of Classification
21 BRYX, as to External Fire Exposure and Surface Burning Characteristics. Geofoam
22 should be considered combustible and/or subject to damage from extreme heat; and
23 should not be exposed to open flame or any source of ignition. Geofoam shall be treated
24 to prevent insect attack and shall be protected from vector intrusion.
25
26 Each geofoam block shall be marked with the manufacturer's identification and type.
27
28 Polyethylene sheeting shall have a minimum thickness of 20 mils and conform to ASTM
29 Designation D4801-08, Type 3.
30
31 Granular material placed to fill damaged pockets of EPS geofoam shall conform to
32 Section 9-03.13(1), Sand Drainage Blanket, and have a maximum particle size of ½ inch.
33
34 Conc. Class 4000 for Load Distribution Slab shall conform to Section 6-02.2.
35
36 Joint filler shall conform to Section 9-04.3.
37
38 Joint sealer shall conform to Section 9-04.11.
39
40 3-03.3.GR3
41 **Construction Requirements**
42
43 3-03.3.INST1.GR3
44 Section 3-03.3 is supplemented with the following:
45
46 3-03.3.OPT1.GR3
47 **(July 2, 2024)**
48 **Submittals**
49 At least 30 calendar days prior to the start of Work requiring the placement of geofoam
50 lightweight fill, the Contractor shall submit a Type 3 Working Drawing for approval of the
51 following:
52

1. A plan sheet showing a profile and section view of the embankment. The drawing shall clearly indicate the size, type, location and orientation of all geofoam blocks.
2. The location and type of connectors.
3. Ballasting or guying techniques.
4. Placement methods for geofoam blocks and polyethylene sheeting.
5. Manufacturer's recommendations for handling, storing, cutting, and connecting the geofoam blocks.

Prior to the delivery of the geofoam blocks, the Contractor shall furnish the Engineer with a copy of manufacturer's test reports or a third party's certified test report showing that the geofoam blocks meet the physical properties of the specified type of geofoam.

Acceptance

The Contractor shall submit a Manufacturer's Certificate of Compliance in accordance with Section 1-06.3 to the Engineer for approval prior to using the geofoam blocks. The Manufacturer's Certificate of Compliance shall include current inspection reports showing that the geofoam manufacturer is in compliance with a UL follow-up service program for both flame-retardant and physical properties.

The Contractor shall submit technical data, details, and test data for geofoam block connectors. Technical data shall include computer generated stress-strain data and the accompanying curves shall be produced from compressive testing and supplied to the Engineer. The curves and/or data shall clearly indicate the stress at 1% strain and the modulus of elasticity.

If material source changes during construction, a new Manufacturer's Certificate of Compliance shall be required.

Preconstruction Meeting

A preconstruction meeting shall be held at least 5 working days before the Contractor begins Work. The meeting shall be at the site to discuss construction procedures, personnel, and equipment, and other elements as specified herein.

Those attending shall include:

(Representing the Contractor) The superintendent, on site supervisors, all foreman, and inspection personnel.

(Representing the Contracting Agency) The Engineer, key inspection personnel, representatives from the WSDOT Construction Office, Materials Laboratory Geotechnical Division, and Bridge and Structures office.

If the Contractor's key personnel change, or if the Contractor proposes a significant revision of the approved submittal, an additional conference shall be held before construction operations are performed.

1 **Protection and Storage**

2 The manufacturer's recommendations for the handling and storage of the geofoam blocks
3 shall be strictly adhered to.

4
5 Blocks damaged during transit, handling, storage, or by the Contractor's operation shall
6 be replaced by the Contractor at no additional cost to the Contracting Agency.

7
8 Geofoam that will be exposed to sunlight for more than 90 days shall be covered with
9 opaque material to prevent ultraviolet light degradation.

10
11 The geofoam shall not be loaded with construction equipment or other vehicles until the
12 distribution slab has been installed and cured. Construction and equipment loads on the
13 distribution slab shall be limited to those shown in the Plans. The Contractor shall prevent
14 geofoam from coming into contact with petroleum-based solvents including but not limited
15 to gasoline and diesel fuel.

16
17 **Existing Ground Preparation**

18 The existing ground shall be prepared and graded as shown in the Plans. There shall be
19 no holes or protruding objects. The Contractor shall compact all subgrade areas to the
20 density required in Section 2-03.3(14)C, Method C.

21
22 **Geofoam Block Placement**

23 Geofoam blocks shall be placed to the lines and grades shown in the Plans. The surface
24 of a layer of geofoam blocks to receive additional geofoam blocks shall be constructed
25 with a variation in surface tolerance of no more than 0.05 feet in any ten-foot interval. All
26 blocks shall accurately fit relative to adjacent blocks. No gaps greater than 0.08 feet will
27 be allowed on vertical joints.

28
29 The finished surface of vertical sides of geofoam embankment shall be constructed to
30 within a tolerance of ± 0.5 inch of the indicated location.

31
32 Blocks placed in a row in a particular layer shall be offset 2.0 feet relative to blocks placed
33 in adjacent rows of the same layer so that joints between blocks do not continue between
34 block rows, as shown in the Plans. To avoid continuous joints, each subsequent layer of
35 blocks shall be rotated on the horizontal plane 90 degrees from the direction of placement
36 of the previous layer placed.

37
38 To prevent blocks sliding during construction, connector plates shall be placed between
39 horizontal layers of blocks. Connectors shall be galvanized steel multi-barbed connectors
40 or a urethane adhesive. Each connector shall have a lateral holding strength of at least
41 60 pounds when tested with the required geofoam. Connectors shall be placed in
42 accordance with the geofoam manufacturer's recommendations.

43
44 Geofoam blocks having damage shall be handled as follows:

- 45
46 1. Blocks with less the one cubic foot damaged and with less than 20 percent of
47 the total volume of the block damaged will be considered undamaged.
48
49 2. Blocks with more than one cubic foot but less than 36 cubic feet of damage may
50 be filled with sand, provided the total damage does not exceed 20 percent of the
51 total block volume.
52

1 3. Blocks with over 36 cubic feet of damage or more than 20 percent of the block
2 volume damaged may not be used.
3
4 The undamaged portions of blocks with over 36 cubic feet of damage or more than 20
5 percent of the block volume damaged may be used where smaller blocks are required
6 provided that the entire damaged area is removed.
7
8 Blocks shall be cut using a saw or hot wire.
9
10 The Contractor shall provide temporary weighting and guying, as necessary to anchor the
11 geofoam until all the blocks are built into a homogeneous mass, and the load distribution
12 slab, soil cover, and pavement section are in place.
13
14 Polyethylene sheeting shall be placed over the geofoam blocks as detailed in the Plans.
15
16 Polyethylene sheeting shall be flexible and, by its own weight, shall cover and conform
17 closely to 90-degree edges and corners of geofoam blocks at ambient temperatures
18 above 45 degrees Fahrenheit, without additional heating of the polyethylene sheeting.
19
20 Polyethylene sheeting shall be free from pin holes, tears, and any defects which could
21 cause leakage of liquid through the polyethylene sheeting. Damaged sheeting shall be
22 replaced by the Contractor at no additional cost to the Contracting Agency. Adjacent
23 panels of polyethylene sheeting shall overlap a minimum of 2 feet and shall be in contact
24 with each other at the overlaps. All seams shall be welded or bonded. Shop and field
25 fabricated seams shall be made following the Manufacturer's recommendations and shall
26 have a minimum bonded width of 2 inches with a bonded seam shear strength of 320
27 pounds minimum per ASTM D751 and shall fail in the base geomembrane material (film
28 tear bond mode). Seams shall have an adhesion peel strength of 20 pounds per inch
29 minimum in accordance with ASTM D751 and shall fail in the base geomembrane material
30 (film tear bond mode)
31
32 ***Load Distribution Slab***
33 The Contractor shall visually inspect and repair all damaged areas in the polyethylene
34 sheeting prior to placing concrete for the load distribution slab.
35
36 The load distribution slab shall be placed as shown in the Plans and cured in accordance
37 with Section 6-02.3(11) for other concrete.
38
39 All longitudinal, transverse, and construction joints shall be sealed after the concrete has
40 cured with poured rubber joint sealer.
41
42 Any cracks in the load distribution slab greater than 0.02 inches shall be sealed with crack
43 sealer.
44
45 3-03.3(2).GR3
46 ***Rock Cuts***
47
48 3-03.3(2).INST1.GR3
49 Section 3-03.3(2) is supplemented with the following:
50

2 (September 2, 2025)

3 **Rock Slope Scaling and Removal and Disposal of Rock Slope Scaling Debris**

4 The Contractor shall remove loose rock and soil from the existing rock slope locations
5 shown in the Plans or as specified by the Engineer, and shall remove and dispose of
6 all rock slope scaling debris generated by the work.

7
8 **Equipment**

9 Rock slope scaling shall be performed with scaling bars, portable hydraulic
10 wedges, air pillows, hand drills, splitters, and other mechanical or hand tools
11 demonstrated to be effective in performing the work to the satisfaction of the
12 Engineer.

13
14 **Submittals**

15 The Contractor shall submit a rock slope scaling plan as a Type 2 Working
16 Drawing. The rock slope scaling plan shall include, but not be limited to, the
17 following:

- 18
19 1. Documented work experience of all rock slope scaling supervisors
20 and scalers scheduled to be working on the project. Rock slope
21 scaling supervisors shall have at least 1,500 hours of documented
22 experience as a rock slope scaler. Rock slope scalers shall have at
23 least 1,000 hours of documented experience as a rock slope scaler.
24
- 25 2. The proposed construction sequence and schedule.
- 26
27 3. The type of tools and equipment to be used for rock scaling
28 purposes.
- 29
30 4. The number of rock slope scaling crews to be employed on the
31 project, with a rock slope scaling crew defined as one qualified
32 scaling supervisor and two qualified scalers.
- 33
34 5. Operation plan for collection, removal and disposal of all rock slope
35 scaling debris generated by the rock slope scaling work.
- 36
37 6. Operation plan for protection of roadway surface, railroad facilities,
38 structures, utilities, and other facilities adjacent to the rock slope
39 scaling locations.
- 40
41 7. If the Roadway is exposed to the collection of rock slope scaling
42 debris, the submittal shall include the equipment and procedure to be
43 used to clear the Roadway for public use between rock slope scaling
44 operations.

45
46 The Contractor shall not begin rock slope scaling operations until receiving the
47 Engineer's approval of the rock slope scaling plan.

48
49 **Rock Slope Scaling Construction Requirements**

50 As a first item of work, the Contractor shall clear the rock slope of trees and
51 woody vegetation within the work zone within 15 feet of the slope crest or as
52 otherwise specified by the Engineer. Clearing shall conform to Sections 3-01.1

1 and 3-01.3(1), and the requirement that the vegetation shall be close cut, leaving
2 the root wad intact.
3
4 The Contractor shall conduct rock slope scaling operations in accordance with
5 the details shown in the Plans, the traffic control restrictions and requirements
6 shown in the Plans and specified in the Special Provisions, and the rock slope
7 scaling plan as approved by the Engineer. The size and work experience of the
8 rock slope scaling crew as defined above shall be maintained at all times.
9
10 Rock slope scaling shall begin at the top of the rock slope and work shall
11 proceed down slope, removing loose rock and soil as the work progresses. The
12 extent of rock slope scaling shall be as shown in the Plans and as adjusted in
13 the field by the Engineer.
14
15 **Rock Slope Scaling Debris Collection and Removal**
16 The Contractor shall collect, remove and dispose of all rock slope scaling debris
17 generated by the work, including all rock debris within the limits of the project
18 present at the base of the slope at the beginning of the project. Ditches and
19 benches shall be cleared of all rock slope scaling debris and returned to original
20 functional condition as specified by the Engineer
21
22 The Contractor shall break up any rocks that are too large to transport into
23 manageable sized pieces for haul.
24
25 Rock slope scaling debris collection and removal shall be conducted in
26 accordance with the traffic control restrictions and requirements shown in the
27 Plans and specified in the Special Provisions, and the rock slope scaling plan
28 as approved by the Engineer.
29
30 Except when the Plans or Special Provisions specify a Contracting Agency
31 provided site for disposal of all or specific portions of the rock slope scaling
32 debris, all rock slope scaling debris shall be disposed of at a site conforming to
33 Section 3-03.3(7)C.
34
35 3-03.3(7).GR3
36 ***Disposal of Surplus Material***
37
38 3-03.3(7).INST1.GR3
39 Section 3-03.3(7) is supplemented with the following:
40
41 3-03.3(7).OPT1.FR3
42 (March 13, 1995)
43 Surplus materials may be disposed of within the Contracting Agency furnished site,
44 as detailed in the Plans. For informational purposes the maximum capacity of this
45 site is *** \$\$1\$\$ *** cubic yards, neat line measurement.
46
47 3-03.3(7).OPT2.FR3
48 (March 13, 1995)
49 Surplus materials may be disposed of by widening embankments at the following
50 locations, as may be designated by the Engineer :
51
52 *** \$\$1\$\$ ***

1
2 For informational purposes the maximum capacity of the embankment widening sites
3 is *** \$\$2\$\$ *** cubic yards, neat line measurement
4
5 3-03.3(7).OPT3.GR3
6 (March 13, 1995)
7 The Contractor is not required to utilize the Contracting Agency provided site(s), and
8 may make arrangements, at the Contractor's expense, for the disposal of waste
9 materials, and shall protect the Contracting Agency from all damages arising from
10 the Contractor's waste disposal operations.
11
12 3-03.3(7).OPT4.GR3
13 (March 13, 1995)
14 It is anticipated that the waste site(s) provided by the Contracting Agency will not be
15 of sufficient size or capacity to dispose of all excess materials. Therefore, it will be
16 necessary for the Contractor to make arrangements, at the Contractor's expense, for
17 the disposal of excess waste materials and shall protect the Contracting Agency from
18 all damages that may arise from the waste disposal operations.
19
20 3-03.3(14).GR3
21 **Embankment Construction**
22
23 3-03.3(14)C.GR3
24 **Compacting Earth Embankments**
25
26 3-03.3(14)C.INST1.GR3
27 Section 3-03.3(14)C is supplemented with the following:
28
29 3-03.3(14)C.OPT1.GR3
30 (March 13, 1995)
31 All embankments, except waste embankments, shall be compacted using
32 Method A.
33
34 3-03.3(14)I.GR3
35 **Embankments at Bridge and Trestle Ends**
36
37 3-03.3(14)I.INST1.GB3
38 Section 3-03.3(14)I is supplemented with the following:
39
40 3-03.3(14)I.OPT1.FB3
41 (March 13, 1995)
42 The approach embankments at the ends of *** \$\$1\$\$ *** shall be constructed
43 *** \$\$2\$\$ *** before undertaking the construction of the end piers.
44
45 3-03.4.GR3
46 **Measurement**
47
48 3-03.4.INST1.GR3
49 Section 3-03.4 is supplemented with the following:
50
51 3-03.4.OPT1.GR3
52 (March 13, 1995)

1 The embankment widening for guardrail will be measured by the cubic yard, between the
2 original roadway slope and the neat lines of the widened embankment.
3
4 3-03.4.OPT2.GR3
5 (September 3, 2024)
6 Only one determination of the original ground elevation will be made on this project.
7 Measurement for roadway excavation and embankment will be based on the original
8 ground elevations recorded previous to the award of this contract.
9
10 If discrepancies are discovered in the ground elevations which will materially affect the
11 quantities of earthwork, the original computations of earthwork quantities will be adjusted
12 accordingly.
13
14 Earthwork quantities will be computed, either manually or by means of electronic data
15 processing equipment, by use of the average end area method or by the finite element
16 analysis method utilizing digital terrain modeling techniques.
17
18 Electronic Design Files will be available by request for the Bidder's inspection before the
19 opening of Bids.
20
21 3-03.4.OPT3.GR3
22 (March 13, 1995)
23 Only one determination of the original ground elevation will be made on this project.
24 Measurement for roadway excavation and embankment will be based on the original
25 ground elevations recorded previous to the award of this contract. Control stakes will be
26 set during construction to provide the Contractor with all essential information for the
27 construction of excavation and embankments.
28
29 If discrepancies are discovered in the ground elevations which will materially affect the
30 quantities of earthwork, the original computations of earthwork quantities will be adjusted
31 accordingly.
32
33 Earthwork quantities will be computed, either manually or by means of electronic data
34 processing equipment, by use of the average end area method or by the finite element
35 analysis method utilizing digital terrain modeling techniques.
36
37 Copies of the ground cross-section notes will be available for the bidder's inspection,
38 before the opening of bids, at the Engineer's office and at the Region office.
39
40 Upon award of the contract, copies of the original ground cross-sections will be furnished
41 to the successful bidder on request to the Engineer.
42
43 3-03.4.OPT4.GR3
44 (April 5, 2010)
45 Rock slope scaling will be measured by the crew hour.
46
47 Rock slope scaling debris removal including haul will be measured by the cubic yard in
48 the hauling conveyance at the point of removal from the work site.
49
50 3-03.4.OPT5.GR3
51 (July 2, 2024)
52 Measurement of geofoam lightweight fill will be by the in-place volume in cubic yards.

1
2 3-03.5.GR3
3 **Payment**
4
5 3-03.5.INST1.GR3
6 Section 3-03.5 is supplemented with the following:
7
8 3-03.5.OPT1.GR3
9 (September 30, 1996)
10 "Embankment in Place", per cubic yard.
11
12 The unit contract price per cubic yard shall be full pay to perform the work as specified,
13 including terracing the existing slope.
14
15 3-03.5.OPT2.FR3
16 (March 13, 1995)
17 All costs in connection with the preparation of waste sites and waste deposits shall be
18 included in the *** \$\$1\$\$ ***.
19
20 3-03.5.OPT3.GR3
21 (April 5, 2010)
22 "Rock Slope Scaling", per crew hour.
23 The unit contract price per crew hour for "Rock Slope Scaling" shall be full pay for
24 performing the work as specified.
25
26 "Rock Slope Scaling Debris Removal Incl. Haul", per cubic yard.
27 The unit contract price per cubic yard for "Rock Slope Scaling Debris Removal Incl. Haul"
28 shall be full pay for performing the work as specified, including collection, removal and
29 disposal of all rock debris within the limits of the project present at the base of the slope
30 at the beginning of the project.
31
32 All costs in connection with felling of trees and woody vegetation from the site as
33 specified, and collection, removal and disposal of all trees and woody vegetation cut and
34 removed from the slope, shall be included in the lump sum contract price for "Clearing
35 and Grubbing".
36
37 3-03.5.OPT4.GR3
38 (July 2, 2024)
39 "Geofoam Lightweight Fill", per cubic yard.
40
41 The unit contract price per cubic yard for "Geofoam Lightweight Fill" shall be full pay for
42 performing the Work as specified.
43
44 3-05.GR3
45 **Subgrade Preparation**
46
47 3-05.3.GR3
48 **Construction Requirements**
49
50 3-05.3(1).GR3
51 ***Subgrade for Surfacing***
52

1 3-05.3(1).INST1.GR3
2 Section 3-05.3(1) is supplemented with the following:
3
4 3-05.3(1).OPT1.GR3
5 (March 13, 1995)
6 The subgrade shall be trimmed with an automatically controlled machine.
7
8 3-05.3(1).OPT2.GR3
9 (September 2, 2025)
10 A subgrade trimmer is not required but all portions of Section 3-03 shall apply as
11 though a subgrade trimmer were specified.
12
13 3-07.GR3
14 **Structure Excavation**
15
16 3-07.3.GR3
17 **Construction Requirements**
18
19 3-07.3(1).GR3
20 **General Requirements**
21
22 3-07.3(1)C.GR3
23 **Removal of Unstable Base Material**
24
25 3-07.3(1)C.INST1.GR3
26 Section 3-07.3(1)C is supplemented with the following:
27
28 3-07.3(1)C.OPT1.FB3
29 (September 8, 2020)
30 If the soil in the footing excavation *** \$\$1\$\$ *** is disturbed and becomes
31 unsuitable before placement of the concrete footing, the Contractor shall
32 excavate below the plan grade a maximum of 1 foot, as determined by the
33 Engineer, and backfill with gravel backfill for foundations.
34
35 3-07.3(3).GR3
36 **Construction Requirements, Structure Excavation, Class A**
37
38 3-07.3(3)B.GR3
39 **Excavation Using Open Pits – Extra Excavation**
40
41 3-07.3(3)B.INST1.GR3
42 Section 3-07.3(3)B is supplemented with the following:
43
44 3-07.3(3)B.OPT1.FB3
45 (September 2, 2025)
46 Extra excavation and open pit excavation, as defined in this section, will not be
47 allowed at the following location(s):
48
49 *** \$\$1\$\$ ***
50
51 Shoring for the excavation sites specified above shall be Structural Shoring in
52 accordance with Section 3-07.3(3)D. The Contractor shall submit Type 2E

1 Working Drawings consisting of shoring plans in accordance with Section 3-
2 07.3(3)D.
3
4 3-07.3(3)B.OPT2.FR3
5 (April 1, 2019)
6 The Contracting Agency has identified the following areas where the Contractor
7 may dig open pits or perform extra excavation without shoring or cofferdams
8 provided slope stability is evaluated using limit equilibrium methods:
9
10 *** \$\$1\$\$ ***
11
12 **Submittals and Design Requirements**
13 At the locations identified above, the temporary excavation slopes shall be
14 designed by an engineer or engineering geologist licensed in Washington State.
15 The Contractor shall submit Type 2E Working Drawings for the areas identified
16 above. The Type 2E Working Drawings may address each site individually, as
17 groups, or in entirety. The design shall use limit equilibrium slope stability
18 methods and software and shall be completed in conformance with the WSDOT
19 *Geotechnical Design Manual* M 46-03. The design shall be based on site specific
20 conditions and shall include a stability assessment of interim or intermediate
21 stages if they are used and shall include all applicable surcharge loads including
22 those from construction equipment or stock piled materials. Required submittal
23 elements include, at a minimum, the following:
24
25 1. A plan view showing the limits of the excavation and its relationship to
26 traffic, Structures, utilities and other pertinent project elements. If the
27 stability of the excavation requires no-load zones or equipment
28 setback distances, those shall be shown on the plan view.
29
30 2. A typical or controlling cross section showing the proposed
31 excavation, original ground line, and locations of traffic, existing
32 Structures, utilities, site constraints, surcharge loads, or other
33 conditions that could affect the stability of the slope. If the stability of
34 the excavation requires no-load zones or equipment setback
35 distances, those shall be shown in cross section.
36
37 3. A summary clearly describing subsurface conditions and groundwater
38 conditions, sequencing considerations, and governing assumptions.
39
40 4. Supporting calculations for the design of the excavation, the soil and
41 material properties selected for design, and the justification for the
42 selection for those properties, in accordance with the WSDOT
43 *Geotechnical Design Manual* M 46-03.
44
45 5. Safety factors, or load and resistance factors used, and justification
46 for their selection, in accordance with the WSDOT *Geotechnical*
47 *Design Manual* M 46-03, and referenced AASHTO design manuals.
48
49 6. A monitoring plan to evaluate the excavation performance throughout
50 its design life.
51

1 7. Any supplemental subsurface explorations made by the Contractor to
2 meet the requirements for geotechnical design of excavation slopes,
3 in accordance with the WSDOT *Geotechnical Design Manual* M 46-
4 03.
5
6 3-07.3(3)D.GR3
7 **Shoring and Cofferdams**
8
9 3-07.3(3)D.INST1.GR3
10 Section 3-07.3(3)D is supplemented with the following:
11
12 3-07.3(3)D.OPT1.GB3
13 (March 13, 1995)
14 The Contractor shall protect the existing pavement from damage due to the
15 Contractor's operations and shall shore all excavation adjacent to the existing
16 pavement.
17
18 3-07.3(3)D.OPT2.GB3
19 (August 2, 2010)
20 The Contractor shall protect the existing track and facilities of the Railroad
21 Company from damage due to the Contractor's operations, and shall shore all
22 excavation adjacent to the existing railroad track. Shoring shall be steel sheet
23 piling designed for a Cooper E-80 loading according to the American Railway
24 Engineering and Maintenance Association (AREMA) Manual For Railway
25 Engineering. Damage to the railroad track or railroad facilities, due to the
26 Contractor's operations, will be repaired by the Railroad at the Contractor's
27 expense.
28
29 3-07.3(3)D.OPT3.FB3
30 (March 13, 1995)
31 Because of the nearness of the work to the existing *** \$\$1\$\$, *** the Contractor
32 shall protect the *** \$\$2\$\$ *** during the *** \$\$3\$\$ ***.
33
34 3-07.4.GR3
35 **Measurement**
36
37 3-07.4.INST1.GR3
38 The subsection **Lower Limits** of Section 3-07.4 is supplemented with the following:
39
40 3-07.4.OPT1.GB3
41 (January 4, 2010)
42 Under girders, at end pier embankments, the lower limit will follow a line parallel to the
43 bottom of the girders and three feet below them.
44
45 3-09.GR3
46 **Construction Geosynthetic**
47
48 3-09.1.GR3
49 **Description**
50
51 3-09.1.INST1.GR3
52 Section 3-09.1 is supplemented with the following:

3-09.1.OPT1.GR3

(November 17, 1997)

Geosynthetic Reinforced Slope

The Contractor shall furnish and construct geosynthetic reinforced slopes in accordance with the details shown in the Plans, these specifications, or as directed by the Engineer.

3-09.2.GR3

Materials

3-09.2(9-03.14).GR3

Borrow

Section 9-03.14 is supplemented with the following:

3-09.2(9-03.14).OPT1.FR3

(November 17, 1997)

Borrow for Geosynthetic Reinforced Slope

All backfill material used in the reinforced soil zone of the geosynthetic reinforced slope shall be free draining, free from organic or otherwise deleterious material and shall conform to the gradation for *** \$1\$ \$*** borrow, except that the percent passing a No. 200 sieve shall be 7 to 12 percent, and the SE shall be 15 minimum. The material shall be substantially free of shale or other soft, poor durability particles, and shall not contain recycled materials, such as glass, shredded tires, portland cement concrete rubble, or asphaltic concrete rubble. The backfill material shall meet the following requirements:

<u>Property</u>	<u>Test Method</u>	<u>Allowable Test Value</u>
Los Angeles Wear,		
500 rev.	AASHTO T 96	35 percent max.
Degradation	WSDOT Test Method 113	15 min.
pH	AASHTO T 289-91	4.5 to 9

Reinforced slope backfill material satisfying these gradation, durability and chemical requirements shall be classified as nonaggressive.

3-09.2(9-07.7).GR3

Welded Wire Reinforcement

Section 9-07.7 is supplemented with the following:

3-09.2(9-07.7).OPT1.GR3

(February 6, 2023)

Welded wire fabric for the slope facing, including all facing anchor pins and tie-bars, shall conform to the requirements of AASHTO M 336. Welded wire fabric, anchor pins, and tie-bars shall be galvanized after fabrication in accordance with ASTM A641 (2 oz./ft² minimum). All damage to galvanizing shall be repaired with Galvanizing Repair Paint in accordance with Section 9-08.1(2)B.

3-09.2(9-33.2(2)).GR3

Geosynthetic Properties For Retaining Walls and Reinforced Slopes

Section 9-33.2(2) is supplemented with the following:

1 3-09.2(9-33.2(2)).OPT1.FR3
 2 (January 2, 2012)
 3 **Geosynthetic Properties for Reinforced Slopes**
 4 Geotextile reinforcement (primary and secondary) in geosynthetic reinforced slopes
 5 shall conform to the properties specified in Tables 7 and 11.
 6

7 If geogrid reinforcement is used for wrapped face reinforced slope construction, the
 8 geotextile material placed at the wall face to retain the backfill material as shown in
 9 the Plans shall conform to the properties of Table 7.
 10

11 Wide strip geosynthetic strengths are minimum average roll values (i.e., the average
 12 test results for any sampled roll in a lot shall meet or exceed the values shown in the
 13 table). These wide strip strength requirements apply only in the geosynthetic
 14 direction perpendicular to the slope face. Wide width tensile strength testing is in
 15 conformance with the most recently approved ASTM geosynthetic test procedure
 16 (ASTM D4595 for geotextiles, and ASTM D6637 for geogrids), except for
 17 geosynthetic sampling and specimen conditioning, which are in accordance with
 18 WSDOT Test Methods 914 and 915, respectively.
 19

20 **Table 11:** Long-term tensile strength, T_{al} , required for geosynthetic reinforcement
 21 used in geosynthetic reinforced slopes.
 22

³ Slope Location	Vertical Spacing of Primary Reinforcement Layers	Primary Reinforcement Layer Distance from Top of Reinforced slope	^{1,2} Minimum Long-Term Tensile Strength, T_{al} , for Primary Reinforcement	¹ Minimum Ultimate Tensile Strength (ASTM D4595 or D6637) for Secondary Reinforcement
\$1\$	***\$2\$***	***\$3\$***	***\$4\$***	1300 lbs/ft.

23
 24 ¹These long-term tensile strength requirements apply only in the geosynthetic
 25 direction perpendicular to the slope face.
 26

27 ² T_{al} shall be determined in accordance with WSDOT Standard Practice T925.

28
 29 ³Reinforced slopes ***\$5\$*** are classified as Class ***\$6\$*** structures.
 30

31 3-09.2(9-33.2(2)).OPT2.GR3
 32 (August 4, 2014)
 33 **Geosynthetic Properties for Turf Reinforcement Mat**
 34 The turf reinforcement mat shall be a three-dimensional non-degradable polymer mat
 35 conforming to the properties indicated in Table 12. All geosynthetic properties are
 36 minimum average roll values. The average test results for any sampled roll in a lot
 37 shall meet or exceed the values shown in the table.
 38

39 **Table 12:** Turf Reinforcement Mat Property Requirements.
 40

Property	Test Method	Minimum Property Requirements
Tensile Strength, Minimum in Machine and X-Machine direction	ASTM D 6818	10 lbs/in.
Thickness	ASTM D 6525	0.5 inch
UV Resistance	ASTM D 4355 @ 500 hours	70%

3-09.2(9-33.4(1)).GR3

Source Approval

Section 9-33.4(1) is supplemented with the following:

3-09.2(9-33.4(1)).OPT1.GR3

(April 5, 2004)

Geosynthetic Reinforced Slope Primary Reinforcement

Geosynthetic products which are qualified for use in geosynthetic reinforced structures for primary reinforcement (Classes 1, 2, or both) are listed in the current Qualified Products List (QPL).

For geosynthetic products proposed for use as primary reinforcement which are not listed in the current QPL, the Contractor shall submit test information and the calculations used in the determination of T_{al} performed in accordance with WSDOT Test Method 925 to the State Materials Laboratory in Tumwater for evaluation. The Contracting Agency will require up to 30 calendar days after receipt of the information to complete the evaluation.

Source approval for reinforced slope primary reinforcement geosynthetic materials listed in the current QPL, or as approved based on data developed and submitted in accordance with WSDOT Test Method 925, will be based on conformance to the applicable values in Tables 7 and 11.

3-09.2(9-33.4(1)).OPT2.GR3

(April 5, 2004)

Geosynthetic Reinforced Slope Secondary Reinforcement

The Contractor shall submit to the Engineer the following information regarding the geosynthetic secondary reinforcement product(s) proposed for use:

Manufacturer's name and current address,
Full product name,
Geosynthetic structure, including fiber/yarn type, and
Geosynthetic polymer type(s).

If the geosynthetic source has not been previously evaluated or included in the QPL, a sample of each proposed geosynthetic shall be submitted to the State Materials Laboratory in Tumwater for evaluation. A maximum of 14 calendar days will be required for this testing once the samples and required product information arrive at the Materials Laboratory. Source approval will be based on conformance to the applicable values in Tables 7 and 11. Source approval will not be the basis of acceptance of specific lots of material unless the lot sampled can be clearly identified,

1 and the number of samples tested and approved meet the requirements of WSDOT
2 Test Method 914.
3
4 3-09.2(9-33.4(1)).OPT3.GR3
5 **(November 17, 1997)**
6 **Geosynthetic Reinforced Slope Turf Reinforcement Mat**
7 Approval of source for turf reinforcement mat will be by Manufacturer's Certificate of
8 Compliance.
9
10 3-09.2(9-33.4(3)).GR3
11 **Acceptance Samples**
12 Section 9-33.4(3) is supplemented with the following:
13
14 3-09.2(9-33.4(3)).OPT1.GR3
15 **(November 17, 1997)**
16 **Geosynthetic Reinforced Slope Primary Reinforcement**
17 Geotextile acceptance testing shall meet the requirements of Table 7, and both
18 geotextile and geogrid acceptance testing shall meet the required ultimate tensile
19 strength T_{ult} as provided in the QPL for the selected product(s). If the selected
20 product(s) are not listed in the current QPL, the result of the testing for T_{ult} must be
21 greater than or equal to T_{ult} as determined from the product data submitted and
22 approved by the State Materials Laboratory during source approval. If the results of
23 the testing show that the reinforced slope primary geosynthetic reinforcement lot
24 does not meet the specified properties, the roll or rolls which were sampled will be
25 rejected, and additional sampling and testing will be performed as specified.
26
27 3-09.2(9-33.4(3)).OPT2.GR3
28 **(April 5, 2004)**
29 **Geosynthetic Reinforced Slope Secondary Reinforcement**
30 If the results of the testing show that the reinforced slope secondary reinforcement
31 geosynthetic lot does not meet the properties specified in Table 7 (geotextiles only)
32 and Table 11 (geotextiles and geogrids), the roll or rolls which were sampled will be
33 rejected, and additional sampling and testing will be performed as specified.
34
35 3-09.2(9-33.4(3)).OPT3.GR3
36 **(November 17, 1997)**
37 **Geosynthetic Reinforced Slope Turf Reinforcement Mat**
38 Acceptance of turf reinforcement mat will be by Manufacturer's Certificate of
39 Compliance.
40
41 3-09.2(9-33.4(4)).GR3
42 **Acceptance by Certificate of Compliance**
43 Section 9-33.4(4) is supplemented with the following:
44
45 3-09.2(9-33.4(4)).OPT1.GR3
46 **(November 17, 1997)**
47 **Reinforced Slope**
48 The Contractor shall provide a Manufacturer's Certificate of Compliance to the
49 Engineer, including polymer type in addition to all information as specified, for all
50 quantities of reinforced slope geosynthetic material, including primary and secondary
51 reinforcement materials, and erosion mat material when specified in the Plans.
52

1 3-09.3.GR3

2 **Construction Requirements**

3
4 3-09.3.INST1.GR3

5 Section 3-09.3 is supplemented with the following:

6
7 3-09.3.OPT1.GR3

8 **(September 2, 2025)**

9 ***Geosynthetic Reinforced Slope Construction Requirements***

10 **Submittals**

11 The Contractor shall submit to the Engineer, a minimum of 14 calendar days prior to
12 beginning construction of each reinforced slope, detailed plans for each reinforced
13 slope and as a minimum, the submittals shall include the following:

- 14
15 1. Detailed reinforced slope plans showing the actual lengths proposed for the
16 geosynthetic reinforcing layers and the locations of each geosynthetic
17 product proposed for use in each of the geosynthetic reinforcing layers.
- 18
19 2. The Contractor's proposed reinforced slope construction method, including
20 any proposed forming systems, types of equipment to be used and
21 proposed erection sequence.
- 22
23 3. Manufacturer's Certificate of Compliance, samples of the reinforced slope
24 geosynthetic(s) and sewn seams for the purpose of acceptance as
25 specified.
- 26
27 4. Details of geosynthetic reinforced slope corner construction, including
28 details of the positive connection between the slope sections on both sides
29 of the corner.
- 30
31 5. Details of terminating a top layer of reinforced slope geosynthetic and
32 backfill due to a changing reinforced slope profile.

33
34 Approval of the Contractor's proposed reinforced slope construction details and
35 methods shall not relieve the Contractor of their responsibility to construct the
36 reinforced slopes in accordance with the requirements of these Specifications.

37
38 **Reinforced Slope Construction**

39 The Contractor shall excavate for the reinforced slope in accordance with Section 3-
40 07, and conforming to the limits and construction stages shown in the Plans.

41
42 The Contractor shall direct all surface runoff from adjacent areas away from the
43 reinforced slope construction site.

44
45 The Contractor shall begin reinforced slope construction at the lowest portion of the
46 excavation and shall place each layer horizontally as shown in the Plans. The
47 Contractor shall complete each layer entirely before beginning the next layer.

48
49 Geotextile splices shall consist of a sewn seam or a minimum 1 ft overlap. Geogrid
50 splices shall consist of adjacent geogrid strips butted together and fastened using
51 hog rings, or other methods approved by the Engineer, in such a manner to prevent
52 the splices from separating during geogrid installation and backfilling. The Contractor

1 shall offset geosynthetic splices in one layer from those in the other layers such that
2 the splices shall not line up vertically. Splices parallel to the slope face will not be
3 allowed, as shown in the Plans.
4

5 Primary reinforcing geosynthetic shall be cut to the length shown in the Plans. For
6 geogrids, the end of the primary reinforcing located at the face of the slope shall be
7 cut so that the cut ribs extend no more than 0.6 inch but not less than 0.2 inch from
8 the cross ribs. For geogrids, the length of the reinforcement required as shown in
9 the Plans shall be defined as the distance between the geosynthetic facing and the
10 last geogrid node at the end of the reinforcement in the slope backfill.
11

12 The Contractor shall stretch out the geosynthetic in the direction perpendicular to the
13 slope face to ensure that no slack or wrinkles exist in the geosynthetic prior to
14 backfilling. Soil piles or the geosynthetic manufacturer's recommended method shall
15 be used to hold the geosynthetic in place until the specified cover material is placed.
16

17 The Contractor shall place fill material on the geosynthetic in lifts such that 6 inches
18 minimum of fill material is between the vehicle or equipment tires or tracks and the
19 geosynthetic at all times. The Contractor shall remove all particles within the backfill
20 material greater than 3 inches in size. Turning of vehicles on the first lift above the
21 geosynthetic will not be permitted. The Contractor shall not end dump fill material
22 directly on the geosynthetic without the prior approval of the Engineer.
23

24 Should the geosynthetic be damaged or the splices disturbed, the backfill around the
25 damaged or displaced area shall be removed and the damaged strip of geosynthetic
26 replaced by the Contractor at no expense to the Contracting Agency.
27

28 The Contractor shall place and compact the reinforced slope backfill in accordance
29 with the reinforced slope construction sequence detailed in the Plans. The minimum
30 compacted backfill lift thickness of the first lift above each geosynthetic layer shall be
31 6 inches. The maximum compacted lift thickness anywhere within the reinforced
32 slope shall be 10 inches.
33

34 The Contractor shall compact each layer to 95 percent of maximum density. The
35 water content of the reinforced slope backfill shall not exceed the optimum water
36 content by more than 3 percent. The Contractor shall not use sheepsfoot rollers or
37 rollers with protrusions. Rollers which weigh more than 6,000 lbs shall be used with
38 the vibrator turned off. The Contractor may use rollers which weigh 6,000 lbs or less
39 with the vibrator turned on with the prior approval of the Engineer.
40

41 The Contractor shall construct slope corners at the locations shown in the Plans, and
42 in accordance with the reinforced slope corner construction sequence and method
43 submitted by the Contractor and approved by the Engineer. Slope angle points with
44 an interior angle of less than 150 degrees shall be considered to be a corner. The
45 slope corner shall provide a positive connection between the sections of the
46 reinforced slope on each side of the corner such that the slope backfill material
47 cannot spill out through the corner at any time during the design life of the reinforced
48 slope. The Contractor shall construct the slope corner such that the reinforced slope
49 sections on both sides of the corner attain the full geosynthetic layer embedment
50 lengths shown in the Plans.
51

Where required by reinforced slope profile grade, the Contractor shall terminate top layers of reinforced slope geosynthetic and backfill in accordance with the method submitted by the Contractor and approved by the Engineer. The end of each layer at the top of the slope shall be constructed in a manner which prevents slope backfill material from spilling out the face of the slope throughout the life of the reinforced slope. If the profile of the top of the slope changes at a rate of 1V:1H or steeper, this change in top of slope profile shall be considered to be a corner.

Tolerances

The Contractor shall complete the base of the reinforced slope excavation to within plus or minus 3 inches of the staked elevations unless otherwise directed by the Engineer. The Contractor shall place the external slope dimensions to within plus or minus 2 inches of that staked on the ground. The Contractor shall space the reinforcement layers vertically to within plus or minus 1 inch of that shown in the Plans.

The completed reinforced slope(s) shall meet the following tolerances:

	<u>Tolerance</u>
Deviation from the design slope and horizontal alignment for the slope face, when measured along a 10-foot straight edge at the midpoint of each reinforced slope layer, shall not exceed:	5 inches
Deviation from the overall design slope per 10 feet of reinforced slope height shall not exceed:	3 inches

3-09.3.OPT2.FR3

(August 2, 2010)

Turf Reinforced Mat Installation

Splices in the Turf Reinforced Mat shall be butted together and the splice shall be held together with hog rings, or other methods approved by the Engineer, in a manner that will prevent the splice from separating during installation and backfilling.

The face of the reinforced slope shall be cleared of all rocks, dirt clods, vegetation, trash and other obstructions that may cause the mat to bridge the ground surface. The mat shall be unrolled in the direction of water flow with the flat side against the ground.

The turf reinforcement mat shall be anchored at the shoulder of the slope in an anchor trench a minimum of 12 inches deep and 6 inches wide. The anchor trench shall be excavated prior to placing the erosion mat on the slope. Heavy duty steel pins or polyethylene pegs shall be used to anchor the mat to the slope face. Steel pins shall be a minimum 0.2 inch diameter, with a 1.5 inch diameter steel washer secured at the head of the pin. Polyethylene pegs shall be "T" type or have a 1.5 inch diameter washer secured at the head of the peg. All pins or pegs shall be 12 inches long minimum. Hog rings, or other methods approved by the Engineer, shall be used to attach the turf reinforcement mat to the cross ribs of the primary reinforcing at the face of the slope. The ties shall be as durable and strong as the material to which they are tied. The turf

reinforcement mat shall be securely attached to the cross ribs by tie(s) centered between the pins or pegs.

Upon completion of the mat installation, *** \$1\$\$ inch(es) of Topsoil Type *** \$2\$\$ shall be spread over the turf reinforcement mat by drop spreader, blower truck, cyclone spreader, or by shovels, rakes, and brooms. The Topsoil shall be lightly raked or brushed into the mat apertures to completely fill the mat thickness. The slope shall be seeded with grass seed by broadcast or hydroseeding in accordance with Sections 8-01 and 9-14, and as specified in the Contract Provisions.

3-09.3.OPT3.GR3

(November 17, 1997)

Geosynthetic Wrapped Slope Facing Construction

The Contractor shall use a temporary form system to minimize sagging of the geosynthetic facing elements during construction. A typical example of a temporary form system and sequence of reinforced slope construction required when using this form are detailed in the Plans.

Geosynthetic reinforcement splices exposed at the slope face shall prevent loss of backfill material through the face. The splicing material exposed at the slope face shall be as durable and strong as the material to which the splices are tied.

The Contractor shall compact the zone within 3 ft of the slope face without causing damage or distortion to the slope face or reinforcing layers by using light mechanical tampers approved by the Engineer.

The wall face shall be stepped vertically rather than using a battered forming system. Boston Ivy shall be placed in the slope face through the geosynthetic reinforcement layers in the horizontal portion of each step as indicated in the Plans. The first row of ivy plants shall be placed in the bottom layer of the reinforced slope. Rows of plants shall be spaced vertically no more than 16 ft apart. Plants within a row shall be spaced horizontally 6 to 7 ft apart. Holes placed through the reinforcement shall be the minimum size necessary to install the plants.

3-09.3.OPT4.GR3

(November 17, 1997)

Welded Wire Facing Construction

The Contractor shall install welded wire facing as shown in the Plans. Horizontally adjacent facing panels shall be butted together such that no gap between facing panels exists. Butted together facing panel splices shall be offset from each other in adjacent layers so that the splices do not line up with one another from layer to layer.

If secondary geosynthetic reinforcement is specified, secondary reinforcement splices transverse to the slope shall be butted together and the splice shall be held together with hog rings, or other methods approved by the Engineer in the manner that will prevent the splice from separating during geosynthetic installation and backfilling.

The front 3 inches to 6 inches of reinforced slope backfill at the slope face, as shown in the Plans, shall be thoroughly mixed with lime, 16-16-16 fertilizer, and grass seed to create a vegetated face. Lime shall be applied at a rate 6.0 lbs/cy, fertilizer at a rate of 0.7 lbs/cy, and grass seed at a rate of 0.4 lbs/cy.

1 The Contractor shall compact the zone within one meter of the slope face without causing
2 damage or distortion to the slope face or reinforcing layers by using light mechanical
3 tampers approved by the Engineer. The maximum outward bulge of the face between
4 primary reinforcement layers shall not exceed 3 inches.

5
6 3-09.3.OPT5.GR3

7 **(November 17, 1997)**

8 ***Installing Guardrail Posts in Geosynthetic Reinforced Slopes***

9 The Contractor shall install guardrail posts as shown in the Plans after completing the
10 reinforced slopes. The Contractor shall install the posts in a manner that prevents bulging
11 of the slope face and prevents ripping, tearing, or pulling of the geosynthetic
12 reinforcement. Holes through the geosynthetic reinforcement shall be the minimum size
13 necessary for the post. The Contractor shall demonstrate to the Engineer prior to
14 beginning guardrail post installation that the installation method will not rip, tear, or pull
15 the geosynthetic reinforcement.

16
17 3-09.4.GR3

18 **Measurement**

19
20 3-09.4.INST1.GR3

21 Section 3-09.4 is supplemented with the following:

22
23 3-09.4.OPT1.FR3

24 (September 2, 2025)

25 Geosynthetic reinforced slope will be measured by the square foot of face of completed
26 reinforced slope, measured in the plane of the slope.

27
28 ***\$1\$*** borrow including haul will be measured as specified in Section 3-03.4.

29
30 Structure excavation Class B including haul will be measured as specified in Section 3-
31 07.4 and to the limits shown in the Plans.

32
33 3-09.5.GR3

34 **Payment**

35
36 3-09.5.INST1.GR3

37 Section 3-09.5 is supplemented with the following:

38
39 3-09.5.OPT1.FR3

40 (November 17, 1997)

41 "Geosynthetic Reinforced Slope", per square foot.

42 "*** \$1\$ *** Borrow Incl. Haul", per ton or per cubic yard.

43 "Structure Excavation Class B Incl. Haul", per cubic yard.

44
45 The unit contract price per square foot for "Geosynthetic Reinforced Slope" shall be full
46 pay to perform the work as specified, including compaction of the backfill material, and
47 furnishing and installing the facing materials, plantings, and any temporary forming
48 system used.

49

2 **Division 4**
3 **Aggregates and Bases**

4
5 4-01.GR4

6 **Production from Quarry and Pit Sites**

7
8 4-01.2.GR4

9 **Material Sources, General Requirements**

10
11 4-01.2.INST1.GR4

12 Section 4-01.2 is supplemented with the following:

13
14 4-01.2.OPT1.GR4

15 ***(March 13, 1995)***

16 ***Permits For Pit Operations In King County***

17 The Contractor is advised that King County may require the Contractor to meet any or all
18 of the following listed conditions before considering issuance of a temporary permit for pit
19 operations within King County:

- 20
21 1. Security fences and locking gates shall be installed where deemed necessary
22 by the King County Department of Building. Cable or wire gates are not
23 acceptable.
24
25 2. Hours of operation shall be limited to: 7:00 a.m. to 7:00 p.m.
26
27 3. Access roads shall be improved and maintained to the satisfaction of the King
28 County Department of Public Works. A haul road agreement for County road
29 maintenance may be required.

30
31 All roads shall be swept, washed, or both, by the Contractor at the Contractor's
32 expense as often as the Department of Building deems necessary.

33
34 Property shall have functional access to an arterial level street.

- 35
36 4. All operations will have to be approved by King County Flood Control for
37 drainage plans, Washington State Department of Ecology, and Puget Sound Air
38 Pollution Control Authority.

39
40 Those properties near or adjacent to any water body shall have written approval
41 from the State of Washington Department of Fisheries.

42
43 The Contractor shall obtain a mining reclamation permit from the State of
44 Washington Department of Natural Resources for sites of over three acres in
45 size of disturbed land or resulting in pit walls more than thirty feet high and
46 steeper than one to one slope.

- 47
48 5. No stockpiling of foreign excavated material is permitted on the site except for
49 those materials to be used in the land rehabilitation of the subject property.
50
51 6. No signs other than signs required by Chapter 24.42, King County Zoning Code
52 are authorized as a result of the temporary permit.

1
2 7. Plans required:
3

4 a. Scale of Plot Plans
5

6 Site Size: less than 10 acres 1 inch = 50 feet
7
8 10 to 100 acres 1 inch = 100 feet
9
10 over 100 acres 1 inch = 200 feet
11

12 b. Contours
13

14 Show existing and proposed contours at 5-foot intervals. If existing and
15 proposed contours are superimposed upon one another it must be
16 clear as to which is which. Plans which incorporate a screening
17 process may be required by the County to distinguish said contours.
18

19 Finished contours must show how the property can be used under the
20 existing zoning. Plans showing daylighting of property to road grade
21 or below with high 2:1 slope walls will no longer be permitted within the
22 R, S, or G zones. The plans must contain large terraces which will
23 permit the lot sizes and roads that are permitted within the zone.
24

25 c. Sections
26

27 Show a minimum of two sections in each direction.
28

29 d. Maximum Slope
30

31 Cuts shall not be steeper in slope than two horizontal to one vertical
32 unless the owner furnishes a soils engineering or an engineering
33 geology report certifying that the site has been investigated and
34 indicating that the proposed deviation will not endanger any private
35 property or result in the deposition of debris on any public way or
36 interfere with any existing drainage course.
37

38 e. Fill Slopes
39

40 No fill shall be made which creates an exposed surface steeper in slope
41 than two horizontal to one vertical.
42

43 f. Benches on Slopes
44

45 There shall be a 10 foot wide bench sloped into the hillside for every
46 50 feet in height.
47

48 g. Setbacks
49

50 Material and vegetation shall be left in its natural state:
51

52 50 feet from any FP, A, G, S, or R zoned property;

1
2 20 foot setback which includes a 6 foot high planted berm along
3 any public right-of-way;
4
5 20 feet from M, B, or CG zoned property;
6
7 10 feet from QM or FR zoned property.
8
9 Plans shall show type of vegetation existing within the buffer zones.
10
11 h. Drainage
12
13 All drainage facilities shall be designed to carry surface waters to the
14 nearest practical street, storm drain, or natural water-course.
15 Adequate provision shall be made to prevent any surface waters from
16 damaging the face of an excavation or fill. All slopes shall be protected
17 from surface water runoff from above by berms or swales.
18
19 The Contractor is further advised that King County may require conditions which are in
20 addition to the foregoing list and that the County may reject permit applications at its
21 discretion because of the proposed operations proximity to schools, residential
22 neighborhoods, hospitals, arterials, or for other environmental conditions.
23
24 When there are discrepancies between the requirements of the State and the County the
25 more stringent specifications shall apply.
26
27 Should the Contractor fail to comply with any requirements of a temporary permit obtained
28 in the Contracting Agency's name, the Contracting Agency will take the necessary action
29 to meet these requirements and any costs incurred by the Contracting Agency will be
30 deducted from monies due or to become due the Contractor.
31
32 4-01.3.GR4
33 **State Furnished Material Sources**
34
35 4-01.3.INST1.GR4
36 Section 4-01.3 is supplemented with the following:
37
38 4-01.3.OPT1.FR4
39 (March 13, 1995)
40 The following source of stockpiled materials is made available at no cost to the Contractor:
41
42 Stockpile Site *** \$\$1\$\$, a source for \$\$2\$\$, *** is located in the *** \$\$3\$\$ of Section
43 \$\$4\$\$, Township \$\$5\$\$ North, Range \$\$6\$\$, *** W.M., as shown in the Plans.
44
45 4-01.3.OPT2.FR4
46 (September 2, 2025)
47 The following source of materials is made available at no cost to the Contractor:
48
49 *** \$\$1\$\$ Site \$\$2\$\$ *** a source for the production of *** \$\$3\$\$ *** is located in the
50 *** \$\$4\$\$ of Section \$\$5\$\$, Township \$\$6\$\$ North, Range \$\$7\$\$ *** W.M., as shown
51 in the Plans.
52

1 In the event that the Contractor proposes to provide these materials from another source,
2 adjustment of quantities shall be made in accordance with Section 4-01.4(1). Such
3 adjustment will be based on the relative specific gravity of the sources. A specific gravity
4 of *** \$\$8\$\$ *** for the State-provided source will be used for comparative purposes. The
5 comparative specific gravity of Contractor provided sources will be determined by
6 AASHTO Test Method T-85 on the Saturated Surface Dry Basis by the Headquarters
7 Materials Laboratory.
8
9 4-01.6.GR4
10 **Payment**
11
12 4-01.6.INST1.GR4
13 The second paragraph of Section 4-01.6 is supplemented with the following:
14
15 4-01.6.OPT1.FR4
16 (June 03, 1996)
17 If the Contractor elects not to use the Contracting Agency furnished source(s) of material,
18 the following items of work shall not be performed on this project.
19
20 *** \$\$1\$\$ ***.
21
22 If the Contractor submits unit price(s) in the amount of zero for the above item(s) of work
23 that do not have an estimated amount included in the proposal, the Contracting Agency
24 will accept the Contractor's proposal as being notice of the Contractor's intent not to utilize
25 the Contracting Agency furnished source.
26
27 After execution of the contract, should the Contractor decide to utilize the source(s)
28 furnished by the Contracting Agency, the Contractor will be permitted to do so, provided
29 that for those items listed above for which zero has been entered on the proposal, the
30 work required shall be performed at the Contractor's expense.
31
32 4-01.6.OPT2.FR4
33 (March 13, 1995)
34 The Contractor is advised that while use of the Contracting Agency-furnished materials
35 source(s) is not mandatory, the following items of work in *** \$\$1\$\$ Site \$\$2\$\$ *** must
36 be performed:
37
38 *** \$\$3\$\$ ***
39
40 4-01.6.OPT3.FR4
41 (March 13, 1995)
42 The use of *** \$\$1\$\$ Site \$\$2\$\$ *** is mandatory and that all work in the site shall be
43 performed.
44
45 4-02.GR4
46 **Stockpiling Aggregates**
47
48 4-02.2.GR4
49 **General Requirements**
50

1 4-02.2(7).GR4
2 **Removing Aggregates From Stockpiles**
3
4 4-02.2(7).INST1.GR4
5 Section 4-02.2(7) is supplemented with the following:
6
7 4-02.2(7).OPT1.FR4
8 (March 13, 1995)
9 Materials for use on this project are being produced and stockpiled under another
10 contract. The material being produced is shown in the Plans as existing in stockpile
11 at the following location:
12
13 *** \$\$1\$\$ ***
14
15 It is expected that the material will be available to the Contractor in ample time for
16 the Contractor's use. However, any delay shall not constitute a claim by the
17 Contractor against the Contracting Agency for additional compensation. Should the
18 Contractor be delayed by reason of insufficient material in the stockpile, the
19 Contractor will be granted an extension of time equal to the time actually lost by
20 reason of such delay.
21
22 4-02.2(7).OPT2.FR4
23 (March 13, 1995)
24 *** \$\$1\$\$ *** are existing in stockpiles at the location and in the amounts shown in
25 the Plans.
26
27 The Contractor may obtain material from other sources provided they are approved
28 by the Engineer and provided the Contractor makes all arrangements and pays all
29 expenses required for the acquisition of the materials.
30
31 If the Contractor chooses to use the materials existing in stockpiles, the Contractor
32 shall pay promptly to the Treasurer of *** \$\$2\$\$ *** County, as may come due, a sum
33 owing at the rates specified below based on the quantity of materials allowed by the
34 Engineer on the final or periodic estimates:
35
36 *** \$\$3\$\$ ***
37
38 4-02.5.GR4
39 **Payment**
40
41 4-02.5.INST1.GR4
42 Section 4-02.5 is supplemented with the following:
43
44 4-02.5.OPT1.FR4
45 (March 13, 1995)
46 The unit contract price per cubic yard for *** \$\$1\$\$ *** shall be full pay for the purchase,
47 loading, hauling, and placing of materials provided in stockpile or, if so chosen by the
48 Contractor, for the furnishing, hauling, and placing of materials obtained by the Contractor
49 from an approved source of the Contractor's own choice and acquisition.
50

Standard Specifications	Item	Maximum Size Sieve: 100% Pass	Nominal Maximum Size Sieve: 100% Pass¹	Other Specifications Sieves #4 and Larger	Specification Sieves: #8 to #100	#200 Sieve	Sand Equivalent	Fracture²	Other
9-03.10	Gravel Base		2	5		6	10		Dust Ratio 10

4-05.GR4

Ballast and Crushed Surfacing

4-05.3.GR4

Construction Requirements

4-05.3(5).GR4

Shaping and Compaction

4-05.3(5).INST1.GR4

Section 4-05.3(5) is supplemented with the following:

4-05.3(5).OPT1.GR4

(March 13, 1995)

The top surface of the final lift of surfacing material on each mainline roadway shall be trimmed using a trimming machine that maintains grade and transverse slopes automatically, through sensors that respond to reference lines on both edges of each roadway.

The minimum width to be trimmed shall be the travelled way plus sufficient width for the treads of the paving machine.

The trimmed surface shall be smooth and uniform with no chatter or ripples.

4-SA1.GR4

(September 2, 2025)

GRAVEL BASE

Description

This Work shall consist of constructing one or more layers of gravel base upon a prepared Subgrade in accordance with these Specifications and in conformity with the lines, grades, depth, and typical cross-section shown in the Plans or as established by the Engineer.

Materials

Materials shall meet the requirements of the following section:

Gravel Base

9-03.10

- 1 **Construction Requirements**
2 Gravel base shall be uniformly spread upon the prepared Subgrade to the depth, width, and
3 cross-section shown in the Plans. Construction methods used shall meet the applicable
4 requirements of Sections 4-05.3.
5
- 6 **Measurement**
7 Gravel base will be measured in the same manner prescribed for the measurement of crushed
8 surfacing materials as set forth in Section 4-05.4.
9
- 10 **Payment**
11 Payment will be made for the following Bid item when shown in the Proposal:
12
13 "Gravel Base", per ton, or per cubic yard.
14
- 15 DIVISION5.GR5
- 16 **Division 5**
17 **Surface Treatments and Pavements**
18
- 19 5-01.GR5
- 20 **Cement Concrete Pavement Rehabilitation**
21
- 22 5-01.1.GR5
- 23 **Description**
24
- 25 5-01.1.INST1.GR5
26 Section 5-01.1 is supplemented with the following:
27
- 28 5-01.1.OPT1.GR5
29 (September 7, 2021)
30 This work consists of repairing partial depth spalls using polyester concrete.
31
- 32 5-01.2.GR5
- 33 **Materials**
34
- 35 5-01.2.INST1.GR5
36 Section 5-01.2 is supplemented with the following:
37
- 38 5-01.2.OPT1.GR5
39 **(September 2, 2025)**
40 **Partial Depth Spall Repair – Polyester Concrete**
41 The components of the polyester concrete system shall be provided through a single
42 system provider. The polyester concrete system will be accepted based on submittal to
43 the Engineer of a Manufacturer's Certificate of Compliance conforming to Section 1-06.3.
44
- 45 **Polyester Concrete Binder**
46 Polyester concrete binder shall have the following properties:
47
- 48 1. Be an unsaturated isophthalic polyester-styrene co-polymer.
49
50 2. The binder content shall be 12% +/- 1% of the weight of the dry aggregate.
51

1
2
3
4
5

3. Be used with a promoter that is compatible with suitable methyl ethyl ketone peroxide and cumene hydroperoxide initiators.
4. Meet the requirements of the following tables.

Resin		
Property	Requirement	Test Method
Viscosity	75 - 200 cps (RVT No.1 Spindle, 20 RPM at 77°F)	ASTM D2196
Specific Gravity	1.05 to 1.10 at 77°F	ASTM D1475

6

Resin with Initiator		
Property	Requirement	Test Method
Contain gamma-methacryloxypropyltrimethoxysilane, an organosilane ester silane coupler	>1%	Nuclear Magnetic Resonance
Elongation	35 percent, minimum Type I specimen, thickness 0.25 ± 0.03" at Rate = 0.45 inch/minute.	ASTM D638
	Sample Conditioning: 18/25/50+5/70	ASTM D618
Tensile Strength	2,500 psi, minimum Type I specimen, thickness 0.25 ± 0.03" at Rate = 0.45 inch/minute.	ASTM D638
	2,500 psi, minimum Type I specimen, thickness 0.25 ± 0.03" at Rate = 0.45 inch/minute.	ASTM D618

7
8
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10
11
12

Primer

Primer for the substrate concrete surface shall be a wax-free low odor, high molecular weight methacrylate primer, and consist of a resin, initiator, and promoter. The primer shall conform to the following requirements:

Resin		
Property	Requirement	Test Method
Viscosity	25 cps maximum (Brookfield RVT with UL adapter, 50 RPM at 77°F)	ASTM D2196
Volatile Content	30% maximum	ASTM D2369
Specific Gravity	0.90 minimum at 77°F	ASTM D1475
Vapor Pressure	1.0 mm Hg, maximum at 77°F	ASTM D 323

13

Resin with Initiator		
Property	Requirement	Test Method

Flash Point	180°F minimum	ASTM D 3278
Initiator for the methacrylate resin shall consist of a metal drier and peroxide. If supplied separately from the resin, the metal drier shall not be mixed with the peroxide directly; a VIOLENT EXOTHERMIC REACTION will occur.		

The primer shall be stored in a cool dry place and protected from freezing and exposure to temperature in excess of 100°F.

Aggregates

The polyester concrete aggregate (coarse and fine) shall be thoroughly washed and kiln dried.

Polyester concrete aggregates shall be manufactured from sand and gravel in accordance with the provisions of Section 4-01. Fine aggregate shall consist of natural sand only. Reclaimed Portland cement concrete aggregate shall not be used.

Polyester concrete aggregate shall have the following properties:

Polyester Concrete Aggregate Gradation	
Sieve Size	Percent Passing
1/2"	100
3/8"	98 minimum
#4	62-85
#8	45-67
#16	29-50
#30	16-36
#50	5-20
#100	0-7
#200	0-3

Properties of Polyester Concrete Aggregate		
Property	Test Method	Requirement
Los Angeles Wear	AASHTO T96	35% max at 500 rev
Degradation Factor	WSDOT T113	30 minimum
Clay lumps and Friable Particles	AASHTO M6	3.0% by weight
Coal and lignite	AASHTO M6	0.25% by weight
Particles of specific gravity less than 2.0	AASHTO M6	1.0% by weight
Crushed particles	AASHTO T335	<45% Crushed Particles, retained on the No. 8 Sieve
Weighted-average aggregate absorption	AASHTO T84 and T85	<1%
Mohs Hardness	Mohs Hardness Test	≥7
Aggregate shall comply with the following properties at the time of mixing the polyester concrete: The combined aggregate shall have a maximum of 45 percent crushed particles. Fine aggregate shall conform to Section 9-03.13.		

The moisture content of the aggregate shall not exceed one half of the aggregate absorption at the time of mixing with the polyester resin binder.

Sand for Abrasive Finish

Sand for abrasive sand finish shall have the following properties:

1. Be commercial-quality blast sand.
2. Have a minimum of 85 percent passing the No. 8 sieve and a maximum of 10 percent passing the No. 20 sieve when tested under AASHTO Test Method T27.
3. Be kiln dried and protected from moisture until time of placement. At the time of application on the polyester concrete, the moisture content of the sand for abrasive finish shall not exceed 0.5 percent.

5-01.3.GR5

Construction Requirements

5-01.3(5).GR5

Partial Depth Spall Repair

5-01.3(5).INST1.GR5

Section 5-01.3(5) is supplemented with the following:

5-01.3(5).OPT1.GR5

(November 4, 2024)

Partial Depth Spall Repair - Polyester Concrete

Manufacturer's Technical Representative

The Contractor shall have the services of a qualified polyester concrete manufacturer's technical representative physically present at the job site during the first shift of polyester concrete placement. The manufacturer's technical representative shall assist the Contractor in training the Contractor's personnel and providing technical assistance in preparing the concrete surface, applying primer, and mixing, placing, and curing the polyester concrete. If the polyester concrete Work is unsatisfactory, or additional training or technical assistance is needed the Contractor shall have the services of the manufacturer's at the job site for additional time as deemed necessary by the Engineer to correct the deficiency.

Mix Design

The properties of the polyester concrete, when the polyester resin binder and polyester concrete aggregates are combined in the proportions of the approved mix design, shall be as follows:

Property	Test Method	Requirement
Portland Cement Concrete Saturated Surface Dry Bond Strength	California Test 551	500 psi minimum at 24 hrs. and 70°F ± 1°F (without primer, at 12% resin content by weight of the dry aggregate, on Saturated Surface Dry Specimen)

PCC Saturated Surface-Dry Bond Strength (Adhesive)	California Test 551	700 psi, minimum at 24 hours and 70°F ± 1°F (at 12% resin content by weight of the dry aggregate), HMWM primed surface
Abrasion Resistance	California Test 550	<2g weight loss (at 12% resin content by weight of the dry aggregate)
Modulus of Elasticity	ASTM C 469	1,000,000 psi to 2,000,000 psi (at 12% resin content by weight of the dry aggregate)
Portland Cement Concrete Dry Surface Bond Strength (Adhesive) – Primer installation window verification	California Test 551	700 psi, minimum at 24 hours and 70° ± 1°F (at 12% resin content by weight of the dry aggregate), HMWM primed surface. polyester concrete placed against primed surface two hours after Primer application.

The Contractor shall prepare and submit a Type 2 Working Drawing consisting of the polyester concrete design mix and mixing procedure. The mix design shall include a recommended initiator percentage for the expected application temperature.

Delivery and Storage of Materials

All components shall be shipped in strong, substantial containers bearing the manufacturers label specifying batch/lot number, brand name, and quantity. If bulk resin is to be used, the Contractor shall notify the Engineer in writing 10 days prior to the delivery of the bulk resin to the job site. Bulk resin is any resin that is stored in containers in excess of 250 gallons.

All components shall be shipped in strong, substantial containers bearing the manufacturers label specifying batch/lot number, brand name, and quantity. If bulk resin is to be used, the Contractor shall notify the Engineer in writing 10 days prior to the delivery of the bulk resin to the job site. Bulk resin is any resin that is stored in containers in excess of 250 gallons.

All materials shall be delivered in their original containers bearing the manufacturer's label, specifying date of manufacturing, batch number, trade name brand, quantity, and mixing ratio. Each shipment of polyester concrete binder and primer shall be accompanied by a Safety Data Sheet (SDS). Bulk resin containers shall be identified by one of the following methods

1. A label on each container as specified above, or

2. A marking on each container that uniquely identifies the container, accompanied by documentation that unequivocally identifies the Manufacturer's Certificate of Compliance that is associated with the material in that container.

Equipment and Containment

The Contractor shall submit a Type 1 Working Drawing consisting of all equipment for cleaning the concrete and steel surfaces and mixing and applying the polyester concrete.

The primer, and abrasive blasting materials, shall be contained and restricted to the surface receiving the polyester concrete only, and shall not escape to the surrounding environment. The Contractor shall submit a Type 1 Working Drawing consisting of the method and materials used to collect and contain the primer, and abrasive blasting materials.

Surface Preparation

Removal of the existing pavement shall not damage any pavement to be left in place. Any existing pavement that is to remain that has been damaged shall be repaired at the Contractor's expense. If jackhammers are used for removing pavement, they shall not weigh more than 30 pounds, and chipping hammers shall not weigh more than 15 pounds. All power driven hand tools used for the removal of pavement shall be operated at angles less than 45 degrees as measured from the surface of the pavement to the tool. The patch limits shall extend beyond the spalled area a minimum of 3 inches. Repair areas shall be kept square, rectangular or circular. Repair areas that are within 12 inches of another repair area shall be combined.

A vertical cut shall be made to a minimum depth of 2 inches around the perimeter to be patched using a saw or core drill as marked by the Engineer. The Contractor shall remove material within the perimeter of the saw cut to a depth of 2 inches, or to sound concrete as determined by the Project Engineer.

The concrete surfaces shall be prepared by removing all material which may act as a bond breaker between the surface and the polyester concrete. The surfaces to receive the polyester concrete shall be sand blasted and all loose material removed. All sandblasting residue shall be removed.

Spall repair shall not be done in areas where dowel bars are encountered.

When a partial depth repair is placed directly against an adjacent longitudinal joint, a bond-breaking material such as polyethylene film, roofing paper, or other material as accepted by the Engineer shall be placed between the existing concrete and the area to be patched.

Working transverse joints or cracks adjacent to or within the repair area require placement of a compressible insert. The new joint or crack shall be formed to the same width as the existing joint or crack. The compressible joint material shall be placed into the existing joint 1 inch below the depth of repair. The compressible insert shall extend at least 3 inches beyond each end of the patch boundaries.

1	Patches that abut the Lane/Shoulder joint require placement of a formed edge,
2	along the slab edge, even with the surface.
3	
4	If the concrete surfaces become contaminated, the contaminated areas shall be
5	re-cleaned by abrasive blasting at the Contractor's expense.
6	
7	Precautions shall be taken to ensure that no dust or debris leaves the roadway
8	and that all traffic is protected from rebound and dust. Appropriate shielding shall
9	be provided as required at no additional cost to the Contracting Agency and shall
10	be approved by the Engineer. The Contractor shall reseal all joints in accordance
11	with Section 5-05.3(8)B.
12	
13	Primer Application
14	Application of the primer and the polyester concrete shall not begin if rain is
15	forecast within 12-hours of completion of the Work. The area receiving the
16	primer shall be dry and had no rain within the past 12 hours. Immediately prior
17	to applying the primer, loose material shall be removed using oil and moisture
18	free compressed air.
19	
20	The Contractor shall apply the primer to the prepared concrete and steel
21	surfaces before placing the polyester concrete.
22	
23	The primer shall be worked into the concrete in a manner to assure complete
24	coverage of the area receiving polyester concrete.
25	
26	If the primed surface becomes contaminated, the contaminated area shall be
27	cleaned by abrasive blasting and re-primed.
28	
29	The primer shall not be allowed to run into drainage structures, joints or working
30	cracks.
31	
32	Mixing Components
33	The components of the polyester concrete binder shall be thoroughly blended
34	just prior to mixing with the aggregate. The polyester concrete shall be
35	thoroughly mixed prior to placing.
36	
37	The Contractor shall prevent any cleaning chemicals from reaching the polyester
38	concrete mix during the mixing operations.
39	
40	Polyester Concrete Placement
41	Under no circumstances shall any primer or polyester concrete be allowed to
42	run into drainage structures, joints or working cracks.
43	
44	Place polyester concrete within two hours of placing the primer.
45	
46	Polyester concrete shall be placed within 15 minutes following initiation.
47	Polyester concrete that is not placed within this time shall be discarded.
48	
49	The surface temperature of the area receiving the polyester concrete shall be
50	the same as specified for the primer.
51	

1 The polyester concrete shall be consolidated in accordance with the
2 manufacturer's recommendations.
3
4 **Finished Polyester Concrete Surface**
5 All repair areas shall be struck off level with the adjacent concrete. Forms shall
6 be coated with suitable bond release agent to permit ready release of forms.
7
8 Sand for abrasive finish shall be broadcast onto surface to uniformly cover any
9 smooth or glossy areas immediately after finishing and before resin gelling
10 occurs. The completed surface shall be free of any smooth or glossy areas. After
11 the polyester concrete has cured, any smooth or glossy areas shall be repaired
12 by the Contractor in the manner recommended by the System Provider and
13 approved by the Engineer at no additional cost. The surface texture of polyester
14 concrete shall be uniform and impervious to moisture.
15
16 **Curing**
17 The polyester concrete shall be cured in accordance with the manufacturer's
18 recommendations. The Contractor shall measure the compressive strength of
19 the cured polyester concrete with a rebound hammer in accordance with ASTM
20 C 805.
21
22 The readings of the rebound hammer used shall be correlated to the
23 compressive strength of the polyester concrete product in accordance with
24 ASTM C 805 Section 5.4, and the Contractor shall submit a Type 1 Working
25 Drawing of this correlation.
26
27 Traffic and equipment shall not be permitted on the polyester concrete until it
28 achieves a compressive strength of 2,500 psi (or higher, if specified in the plans)
29 based on the rebound hammer manufactures correlation of rebound number to
30 compressive strength for the rebound hammer used.
31
32 5-01.3(9).GR5
33 **Cement Concrete Pavement Grinding**
34
35 5-01.3(9).INST1.GR5
36 Section 5-01.3(9) is supplemented with the following:
37
38 5-01.3(9).OPT1.GR5
39 (April 1, 2013)
40 The Contractor shall grind a test section 1500 foot long across the full width of a lane
41 for evaluation by the Engineer to determine if the Work meets the Specifications. If
42 the Specifications have been met the Contractor may proceed with the remaining
43 cement concrete pavement grinding. If the Specifications have not been met, the
44 Contractor shall make adjustments and another test section shall be completed.
45
46 5-01.3(10).GR5
47 **Pavement Smoothness**
48
49 5-01.3(10).INST1.GR5
50 Section 5-01.3(10) is supplemented with the following:
51

1 5-01.3(10).OPT1.GR5
2 (February 6, 2023)
3 This Contract includes Weigh-in-Motion (WIM) sensors and additional surface
4 smoothness requirements within the WIM evaluation area.
5
6 The WIM evaluation area is 400 feet in length, beginning 275 feet before the WIM
7 Site Index Station. The width of the WIM evaluation area includes all lanes where
8 sensors are present and extends 0.75 feet beyond the edge of the lane(s).
9
10 The completed surface shall be sufficiently smooth such that a 6-inch diameter
11 circular plate, 0.125 inches thick, cannot be passed beneath a 16-foot straightedge
12 placed on the surface parallel to the centerline of the roadway, when evaluated as
13 described in ASTM E1318-09 (2017), Section 6.1.5.
14
15 Deviations within the WIM evaluation area that are in excess of these requirements
16 will not be accepted and shall be corrected by one of the following methods:
17
18 1. Remove and replace the final roadway surface layer, or
19
20 2. Remove material from high places by grinding with an accepted grinding
21 machine, or
22
23 3. By other method accepted by the Engineer.
24
25 Correct defects until there are no deviations anywhere within the WIM evaluation
26 area that are greater than allowable tolerances.
27
28 5-02.GR5
29 **Bituminous Surface Treatment**
30
31 5-02.3.GR5
32 **Construction Requirements**
33
34 5-02.3(3).GR5
35 ***Application of Emulsified Asphalt and Aggregate***
36
37 5-02.3(3).INST1.GR5
38 Section 5-02.3(3) is supplemented with the following:
39
40 5-02.3(3).OPT1.FR5
41 (August 5, 2013)
42 The grades of emulsified asphalt to be used for New Construction bituminous surface
43 treatments shall be *** \$1\$ \$*** for the first application and *** \$2\$ \$*** for the
44 second application.
45
46 5-02.3(3).OPT2.FR5
47 (August 5, 2013)
48 The grade of emulsified asphalt to be used for bituminous surface treatment Seal
49 Coats shall be *** \$1\$ \$***.
50

1 5-02.4.GR5
2 **Measurement**
3
4 5-02.4.INST1.GR5
5 Section 5-02.4 is supplemented with the following:
6
7 5-02.4.OPT2.GR5
8 (March 13, 1995)
9 The additional cost involved in the construction of bituminous surface treatment for road
10 approach will be measured per each for each road approach treated, regardless of
11 location, length, width or design.
12
13 5-02.5.GR5
14 **Payment**
15
16 5-02.5.INST1.GR5
17 Section 5-02.5 is supplemented with the following:
18
19 5-02.5.OPT2.GR5
20 (February 5, 2001)
21 "Bituminous Surface Treatment For Road Approach", per each.
22 The unit contract price per each for "Bituminous Surface Treatment For Road Approach"
23 shall be in addition to payments made for the mineral aggregate and asphalt.
24
25 5-02.5.OPT3.GR5
26 **(August 5, 2013)**
27 **CRS-2P Cost Price Adjustment**
28 The Contracting Agency will make a CRS-2P Cost Price Adjustment, either a credit or a
29 payment, for qualifying changes in the reference cost of asphalt binder. The adjustment
30 will be applied to partial payments made according to Section 1-09.9 for the following bid
31 items when they are included in the proposal:
32
33 "Emulsified Asphalt CRS-2P"
34
35 The adjustment is not a guarantee of full compensation for changes in the cost of
36 emulsified asphalt CRS-2P. The Contracting Agency does not guarantee that
37 emulsified asphalt CRS-2P will be available at the reference cost.
38
39 The Contracting Agency will establish the asphalt binder reference cost twice each
40 month and post the information on the Agency website at:
41 [https://wsdot.wa.gov/business-wsdot/contracts/about-public-works-](https://wsdot.wa.gov/business-wsdot/contracts/about-public-works-contracts/payments-reporting/asphalt-binder-reference-cost)
42 [contracts/payments-reporting/asphalt-binder-reference-cost](https://wsdot.wa.gov/business-wsdot/contracts/about-public-works-contracts/payments-reporting/asphalt-binder-reference-cost). The reference cost will
43 be determined using posted prices furnished by Poten & Partners, Inc. If the selected
44 price source ceases to be available for any reason, then the Contracting Agency will
45 select a substitute price source to establish the reference cost.
46
47 The base cost established for this contract is the reference cost posted on the Agency
48 website for the period immediately preceding the bid opening date.
49
50 Adjustments will be based on the most current reference cost for Western
51 Washington or Eastern Washington as posted on the Agency website, depending on
52 where the work is performed. For work completed after all authorized working days

are used, the adjustment will be based on the posted reference cost during which contract time was exhausted. The adjustment will be calculated as follows:

No adjustment will be made if the reference cost is within 5% of the base cost.

If the reference cost is greater than or equal to 105% of the base cost, then
Adjustment = (Current Reference Cost – (1.05 x Base Cost)) x (Q x 0.65).

If the reference cost is less than or equal to 95% of the base cost, then
Adjustment = (Current Reference Cost – (0.95 x Base Cost)) x (Q x 0.65).

Where Q = total tons of Emulsified Asphalt CRS-2P paid in the current month's progress payment.

"CRS-2P Cost Price Adjustment", by calculation.

"CRS-2P Cost Price Adjustment" will be calculated and paid for as described in this section. For the purpose of providing a common proposal for all bidders, the Contracting Agency has entered an amount in the proposal to become a part of the total bid by the Contractor.

5-02.5.OPT4.GR5

(January 3, 2017)

AC-15P Cost Price Adjustment

The Contracting Agency will make an AC-15P Cost Price Adjustment, either a credit or a payment, for qualifying changes in the reference cost of asphalt binder. The adjustment will be applied to partial payments made according to Section 1-09.9 for the following bid items when they are included in the proposal:

"Modified Asphalt Cement AC-15P"

The adjustment is not a guarantee of full compensation for changes in the cost of modified asphalt cement AC-15P. The Contracting Agency does not guarantee that modified asphalt cement AC-15P will be available at the reference cost.

The Contracting Agency will establish the asphalt binder reference cost twice each month and post the information on the Agency website at: <https://wsdot.wa.gov/business-wsdot/contracts/about-public-works-contracts/payments-reporting/asphalt-binder-reference-cost>. The reference cost will be determined using posted prices furnished by Poten & Partners, Inc. If the selected price source ceases to be available for any reason, then the Contracting Agency will select a substitute price source to establish the reference cost.

The base cost established for this contract is the reference cost posted on the Agency website for the period immediately preceding the bid opening date.

Adjustments will be based on the most current reference cost for Western Washington or Eastern Washington as posted on the Agency website, depending on where the work is performed. For work completed after all authorized working days are used, the adjustment will be based on the posted reference cost during which contract time was exhausted. The adjustment will be calculated as follows:

1 No adjustment will be made if the reference cost is within 5% of the base cost.
2
3 If the reference cost is greater than or equal to 105% of the base cost, then
4 Adjustment = (Current Reference Cost – (1.05 x Base Cost)) x Q .
5
6 If the reference cost is less than or equal to 95% of the base cost, then
7 Adjustment = (Current Reference Cost – (0.95 x Base Cost)) x Q .
8
9 Where Q = total tons of Modified Asphalt Cement AC-15P paid in the current month's
10 progress payment.
11
12 "AC-15P Cost Price Adjustment", by calculation.
13
14 "AC-15P Cost Price Adjustment" will be calculated and paid for as described in this
15 section. For the purpose of providing a common proposal for all bidders, the
16 Contracting Agency has entered an amount in the proposal to become a part of the
17 total bid by the Contractor.
18
19 5-04.GR5
20 **Hot Mix Asphalt**
21
22 5-04.2.GR5
23 **Materials**
24
25 5-04.2(2).GR5
26 ***Mix Design – Obtaining Project Approval***
27
28 5-04.2(2).INST1.GR5
29 Section 5-04.2(2) is supplemented with the following:
30
31 5-04.2(2).OPT1.FR5
32 **(January 3, 2011)**
33 **ESAL's**
34 The number of ESAL's for the design and acceptance of the HMA shall be ***
35 \$\$1\$\$ *** million.
36
37 5-04.2(9-03.8(7)).GR5
38 ***HMA Tolerances, Specification Limits and Adjustments***
39 The second paragraph of item number 1 of Section 9-03.8(7) is revised to read:
40
41 5-04.2(9-03.8(7)).OPT1.GR5
42 (September 8, 2020)
43 These tolerance and specification limits constitute the allowable limits as described
44 in Section 1-06.2. The tolerance limit for aggregate shall not exceed the limits of the
45 control points, except the No. 8 tolerance is ± 4% from the JMF, the No. 200 tolerance
46 is ± 2.0% from the JMF with a minimum of 2% and a maximum of 8.0% passing the
47 No. 200 sieve, other tolerance limits for sieves designated as 100 percent passing
48 will be 99-100.
49
50 5-04.3.GR5
51 **Construction Requirements**
52

1 5-04.3.INST1.GR5
2 Section 5-04.3 is supplemented with the following:
3
4 5-04.3.OPT4.FR5
5 (January 3, 2017)
6 The expected percentage of new asphalt binder in the HMA is *** \$\$1\$\$ ***. Should the
7 actual percentage of new asphalt binder required by the job mix formula for HMA
8 produced with Agency-provided aggregate vary by more than plus or minus 0.3-percent
9 an adjustment in payment will be made. The adjustment in payment (plus or minus) will
10 be based on the invoice cost to the Contractor. When RAP and/or RAS are used in the
11 production of HMA the adjustment will be reduced by the percentage of RAP and/or RAS
12 asphalt binder. No adjustment will be made when the Contractor elects not to use a
13 Contracting Agency provided source.
14
15 5-04.3(1).GR5
16 ***Weather Limitations***
17
18 5-04.3(1).INST1.GR5
19 The first sentence of Section 5-04.3(1) is revised to read:
20
21 5-04.3(1).OPT1.FR5
22 (August 3, 2009)
23 HMA for wearing course shall not be placed on any travelled way from *** \$\$1\$\$ ***
24 and through March 31st of the following year without written approval from the
25 Engineer.
26
27 5-04.3(3).GR5
28 ***Equipment***
29
30 5-04.3(3)C.GR5
31 ***Pavers***
32
33 5-04.3(3)C.INST1.GR5
34 Section 5-04.3(3)C is supplemented with the following:
35
36 5-04.3(3)C.OPT1.GR5
37 (April 4, 2016)
38 Reference lines will be required for both outer edges of the traveled way for
39 each mainline roadway for vertical control in accordance with Section 5-
40 04.3(3)C.
41
42 5-04.3(3)D.GR5
43 ***Material Transfer Device or Material Transfer Vehicle***
44
45 5-04.3(3)D.OPT1.GR5
46 (April 4, 2016)
47 Section 5-04.3(3)D is deleted in its entirety.
48
49 5-04.3(3)D.INST1.GR5
50 Section 5-04.3(3)D including title is revised to read:
51

1 5-04.3(3)D.OPT2.GR5
2 **(August 1, 2011)**
3 **Material Transfer Vehicle**
4 Direct transfer of HMA from the hauling equipment to the paving machine will
5 not be allowed in the top 0.30-feet of the pavement section of hot mix asphalt
6 (HMA) used in traffic lanes with a depth of 0.08-feet or greater. A material
7 transfer vehicle (MTV) shall be used to deliver the HMA from the hauling
8 equipment to the paving machine. HMA placed in irregularly shaped and minor
9 areas such as road approaches, tapers, and turn lanes are excluded from this
10 requirement.
11
12 The MTV shall mix the HMA after delivery by the hauling equipment and prior to
13 lay down by the paving machine. Mixing of the HMA shall be sufficient to obtain
14 a uniform temperature throughout the mixture.
15
16 5-04.3(9).GR5
17 **HMA Mixture Acceptance**
18
19 5-04.3(9).INST1.GR5
20 Section 5-04.3(9) is supplemented with the following:
21
22 5-04.3(9).OPT1.FR5
23 **(August 1, 2016)**
24 **Visual Evaluation**
25 The following HMA will be accepted by visual evaluation:
26
27 *** \$\$1\$\$ ***
28
29 5-04.3(10).GR5
30 **HMA Compaction Acceptance**
31
32 5-04.3(10).INST1.GR5
33 The column in Table 14 of Section 5-04.3(10), titled "Statistical Evaluation of HMA
34 Compaction is Required for", is supplemented with the following:
35
36 5-04.3(10).OPT1.GR5
37 (April 3, 2017)
38 • Any HMA for which the specified course thickness is greater than 0.10 feet and
39 the HMA is placed in the shoulder.
40
41 5-04.3(10)D.GR5
42 **HMA Compaction – Visual Evaluation**
43
44 5-04.3(10)D.INST2.GR5
45 The last sentence in Section 5-04.3(10)D is revised to read:
46
47 5-04.3(10)D.OPT1.GR5
48 (April 4, 2016)
49 HMA that is used for preleveling shall be compacted with a pneumatic tire
50 roller unless otherwise approved by the Engineer.
51

1 5-04.3(12).GR5
2 **Joints**
3
4 5-04.3(12).INST1.GR5
5 Section 5-04.3(12) is supplemented with the following:
6
7 5-04.3(12).OPT1.GR5
8 (January 5, 2004)
9 The HMA overlay shall be feathered to produce a smooth riding connection to the
10 existing pavement.
11
12 HMA utilized in the construction of the feathered connections shall be modified by
13 eliminating the coarse aggregate from the mix at the Contractor's plant or the
14 commercial source or by raking the joint on the roadway, to the satisfaction of the
15 Engineer.
16
17 5-04.3(13).GR5
18 **Surface Smoothness**
19
20 5-04.3(13).INST1.GR5
21 The first four paragraphs of Section 5-04.3(13) are revised to read:
22
23 5-04.3(13).OPT1.FR5
24 (November 3, 2025)
25 Pavement surface smoothness for this project will include International Roughness
26 Index (IRI) testing that will be completed by the Contracting Agency. The Contracting
27 Agency will perform the IRI testing on each through lane, climbing lane, and passing
28 lane, greater than one mile in length and these lanes will be subject to
29 incentive/disincentive adjustments. IRI testing for a lane will be reported every 0.01
30 mile by averaging the IRI data for the left and right wheelpath within the section.
31
32 Bridge approaches and bridge decks that are located within the lanes specified to be
33 tested and are paved with HMA will be included in the IRI testing. Bridge structures,
34 approach slabs and 0.02 miles on either side of the bridge structures and approach
35 slabs will be eligible for price adjustment incentives and excluded from disincentive
36 adjustments.
37
38 Ramps, shoulders and tapers will not be included in IRI testing for pavement
39 smoothness and will not be subject to incentive adjustments. They will be subject to
40 parallel and transverse 10-foot surface requirements, corrective work and
41 disincentive adjustments.
42
43 Upon completion of the paving operation the Contractor shall notify the Engineer that
44 the roadway is ready for IRI testing. Notification shall not take place until the following
45 conditions are met for all lanes to be tested on the project:
46
47 1. All lanes are open to traffic, unrestricted and in their final configuration.
48
49 2. All permanent pavement markings are in place or temporary pavement
50 markings to the satisfaction of the Engineer.
51

1 If requested by the Engineer the Contractor shall sweep the roadway immediately
2 prior to testing. If the sweeping is needed as a result of the Contractor's operation it
3 shall be the responsibility and expense of the Contractor. Should the Contracting
4 Agency not be able to complete the testing as a result of the Contractor's Work the
5 testing will be rescheduled and any additional costs to the Contracting Agency will
6 be deducted from monies due or that may become due the Contractor.
7

8 It is the intent that the testing will be completed and the results provided to the
9 Contractor within 30 calendar days of the Contractor's notification that the roadway
10 is ready for testing. If weather or other conditions exist which are determined by the
11 Engineer to be unsuitable for IRI testing of the pavement then the testing will be
12 deferred until favorable conditions are available and the 30 calendar days extended.
13

14 Provided that all other Work required for Substantial Completion has been
15 completed; the day following the Contractor's notification that the roadway is ready
16 for IRI testing through the day the IRI data is provided to the Contractor will be
17 nonworking days in accordance with Section 1-08.5.
18

19 Corrective work for pavement smoothness may be taken by the Contractor prior to
20 IRI testing. After completion of the IRI testing the Contractor shall measure the
21 smoothness of each 0.01 mile section with an IRI greater than 125 with a 10-foot
22 straightedge within 14 calendar days or as approved by the Engineer. The Contractor
23 shall identify all locations that require corrective work and provide the straight edge
24 measurements at each location that exceeds the allowable limit to the Engineer. If all
25 measurements in a 0.01 section comply with the smoothness requirements the
26 Contractor shall provide the maximum measurement to the Engineer and a statement
27 that corrective work is not required. Unless approved by the Engineer, corrective
28 work shall be taken by the Contractor for pavement identified by the Contractor or
29 Engineer that does not meet the following requirements:
30

- 31 1. The completed surface of all courses shall be of uniform texture, smooth,
32 uniform as to crown and grade, and free from defects of all kinds.
33
- 34 2. The completed surface of the wearing course shall not vary more than 1/8
35 inch from the lower edge of a 10-foot straightedge placed on the surface
36 parallel to the centerline.
37
- 38 3. The completed surface of the wearing course shall vary not more than 1/4
39 inch in 10 feet from the rate of transverse slope shown in the Plans.
40

41 All corrective work shall be completed at no additional expense, including traffic
42 control, to the Contracting Agency. Pavement shall be repaired by one or more of the
43 following methods:
44

- 45 1. Diamond grinding; repairs shall not reduce pavement thickness by more
46 than 1/4 inch.
47
- 48 2. Removal and replacement of the HMA wearing course.
49
- 50 3. By other method approved by the Engineer.
51

1 For repairs following IRI testing the repaired area shall be checked by the Contractor
2 with a 10-foot straightedge to ensure it no longer requires corrective work. With
3 approval of the Engineer a lightweight profiler, California profilograph or other device
4 may be used in place of the 10-foot straight edge.

5
6 If correction of the roadway as listed above either will not or does not produce
7 satisfactory results as to smoothness or serviceability the Engineer may accept the
8 completed pavement and a credit will be calculated in accordance with Section 5-
9 04.5. Under these circumstances the decision whether to accept the completed
10 pavement or to require corrective work as described above shall be vested entirely
11 in the Engineer.

12
13 During the last review of this roadway, which was conducted on *** \$\$1\$\$ **, by the
14 Contracting Agency the following IRI (inches/mile) values were obtained. The IRI
15 values are informational only and are average IRI values for 0.10 mile sections.
16 Additional information may be available for review at the Engineer's Office.

17
18 ***

SR	Begin	End	IRI	IRI
			Running Avg	Running Avg
	Milepost	Milepost	NB/EB	SB/WB
			(Inch/mile)	(Inch/mile)
\$\$2\$\$	\$\$3\$\$	\$\$4\$\$	\$\$5\$\$	\$\$6\$\$

19 ***

20
21 5-04.3(13).INST2.GR5

22 The second sentence of Section 5-04.3(13) is deleted and replaced with the following:

23
24 5-04.3(13).OPT2.FR5

25 (March 13, 1995)

26 The completed surface of the wearing course of the following sections of Roadway
27 shall not vary more than 1/4 inch from the lower edge of a 10-foot straightedge placed
28 on the surface parallel to centerline:

29
30 1. *** \$\$1\$\$ **

31
32 The completed surface of the wearing course of all other sections of Roadway shall
33 not vary more than 1/8 inch from the lower edge of a 10-foot straightedge placed on
34 the surface parallel to centerline.

35
36 5-04.3(13).INST3.GR5

37 The second sentence of Section 5-04.3(13) is revised to read:

38
39 5-04.3(13).OPT3.GR5

40 (January 5, 2004)

1 The completed surface of the wearing course shall not vary more than 1/4 inch from
2 the lower edge of a 10-foot straightedge placed on the surface parallel to centerline.
3
4 5-04.3(13).INST4.GR5
5 Section 5-04.3(13) is supplemented with the following:
6
7 5-04.3(13).OPT4.GR5
8 (February 6, 2023)
9 This Contract includes Weigh-in-Motion (WIM) sensors and additional surface
10 smoothness requirements within the WIM evaluation area.
11
12 The WIM evaluation area is 400 feet in length, beginning 275 feet before the WIM
13 Site Index Station. The width of the WIM evaluation area includes all lanes where
14 sensors are present and extends 0.75 feet beyond the edge of the lane(s).
15
16 The completed surface shall be sufficiently smooth such that a 6-inch diameter
17 circular plate, 0.125 inches thick, cannot be passed beneath a 16-foot straightedge
18 placed on the surface parallel to the centerline of the roadway, when evaluated as
19 described in ASTM E1318-09 (2017), Section 6.1.5.
20
21 Deviations within the WIM evaluation area that are in excess of these requirements
22 will not be accepted and shall be corrected by one of the following methods:
23
24 1. Remove and replace the final roadway surface layer, or
25
26 2. Remove material from high places by grinding with an accepted grinding
27 machine, or
28
29 3. By other method accepted by the Engineer.
30
31 Correct defects until there are no deviations anywhere within the WIM evaluation
32 area that are greater than allowable tolerances.
33
34 5-04.3(14).GR5
35 ***Planing Bituminous Pavement***
36
37 5-04.3(14).INST1.GR5
38 Section 5-04.3(14) is supplemented with the following:
39
40 5-04.3(14).OPT1.FR5
41 (January 5, 2004)
42 The Contractor shall perform the planing operations no more than *** \$\$1\$\$ ***
43 calendar days ahead of the time the planed area is to be paved with HMA, unless
44 otherwise allowed by the Engineer in writing.
45
46 5-04.3(14).OPT2.GR5
47 (January 5, 2004)
48 At the start of the planing operation the Contractor shall plane a 500 foot test section
49 to be evaluated by the Engineer for compliance with the surface tolerance
50 requirements. The test section shall have a minimum width of 10 feet. If the planing
51 is in accordance with the surface tolerance requirements, the Contractor may begin
52 production planing. If the planing is not in conformance with the surface tolerance

1 requirements, the Contractor shall make adjustments to the planing operation and
2 then plane another test section.
3
4 If at any time during the planing operation the Engineer determines the required
5 surface tolerance is not being achieved, the Contractor shall stop planing. Planing
6 shall not resume until the Engineer is satisfied that specification planing can be
7 produced or until successful completion of another test section. The forward speed
8 during production planing shall not exceed the speed used for the test section.
9
10 The completed surface after planing and prior to paving shall not vary more than 1/4
11 inch from the lower edge of a 10-foot straightedge placed on the surface parallel or
12 transverse to the centerline. The planed surface shall have a matted texture and the
13 difference between the high and low of the matted surface shall not exceed 1/8 inch.
14
15 Pavement repair operations, when required, shall be accomplished prior to planing.
16
17 5-04.3(14).OPT3.GR5
18 **(March 13, 1995)**
19 **Vertical Edge Planing**
20 During planing of bituminous pavement in the travelled lanes, the Contractor shall
21 coordinate the planing and paving operations such that the planed roadway surface
22 shall not remain unpaved at the end of the work day. The Contractor shall have a
23 contingency plan to ensure that no planed areas remain unpaved due to equipment
24 breakdown or other emergency.
25
26 5-04.3(14).OPT4.GR5
27 **(August 3, 2009)**
28 **Beveled Edge Planing**
29 A beveled edge shall be constructed in areas that will not be paved during the same
30 work shift.
31
32 The Contractor shall use a beveled cutter on the mandrel of the planing equipment,
33 or other approved method(s), to eliminate the vertical edge(s). The beveled edge(s)
34 shall be constructed at a 4:1 slope.
35
36 5-04.5.GR5
37 **Payment**
38
39 5-04.5.INST2.GR5
40 Section 5-04.5 is supplemented with the following:
41
42 5-04.5.OPT1.FR5
43 (November 3, 2025)
44 "Smoothness Compliance Adjustment" by calculation.
45
46 ***Smoothness Compliance Adjustments***
47 Smoothness Compliance Adjustments will be based on the requirements in Section 5-
48 04.3(13) and the following calculations:
49
50 1. Final IRI acceptance and incentive/disincentive payments for pavement
51 smoothness will be calculated on an IRI value per 0.10 mile in accordance with
52 the price adjustment schedule.

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20

- a. For sections of a lane that are a minimum of 0.01 mile and less than 0.10 mile, the price adjustment will be calculated using the average of the 0.01 mile IRI values and the price adjustment prorated for the length of the section.
 - b. For bridges, approach slabs and 0.02 miles on either side the price adjustment will be calculated independently from other measured lanes.
 - c. IRI values per 0.01 miles that were measured prior to corrective work will be included in the 0.10 mile price adjustment for sections with corrective work.
2. A smoothness compliance adjustment will be calculated in the sum of minus \$250.00 for each and every section of single traffic lane 0.01 miles in length in that does not meet the 10-foot straight edge requirements in Section 5-04.3(13).

The price adjustment schedule for this contract shall be *** \$1\$ ***.

Price Adjustment Schedule

IRI for each 0.10 mi. section	Pay Adjustment Schedule 1	Pay Adjustment Schedule 2	Pay Adjustment Schedule 3
in. / mi.	\$ / 0.10 mi.	\$ / 0.10 mi.	\$ / 0.10 mi.
< 30	600	600	600
30	600	600	600
31	580	580	580
32	560	560	560
33	540	540	540
34	520	520	520
35	500	500	500
36	480	480	480
37	460	460	460
38	440	440	440
39	420	420	420
40	400	400	400
41	380	380	380
42	360	360	360
43	340	340	340
44	320	320	320
45	300	300	300
46	280	280	280
47	260	260	260
48	240	240	240
49	220	220	220
50	200	200	200
51	180	180	180
52	160	160	160
53	140	140	140
54	120	120	120
55	100	100	100

56	80	80	80
57	60	60	60
58	40	40	40
59	20	20	20
60	0	0	0
61	0	0	0
62	0	0	0
63	0	0	0
64	0	0	0
65	0	0	0
66	-20	0	0
67	-40	0	0
68	-60	0	0
69	-80	0	0
70	-100	0	0
71	-120	0	0
72	-140	0	0
73	-160	0	0
74	-180	0	0
75	-200	0	0
76	-220	-20	0
77	-240	-40	0
78	-260	-60	0
79	-280	-80	0
80	-300	-100	0
81	-320	-120	0
82	-340	-140	0
83	-360	-160	0
84	-380	-180	0
85	-400	-200	0
86	-420	-220	0
87	-440	-240	0
88	-460	-260	0
89	-480	-280	0
90	-500	-300	0
91	-520	-320	0
92	-540	-340	0
93	-560	-360	0
94	-580	-380	0
95	-600	-400	0
96	-620	-420	0
97	-640	-440	0
98	-660	-460	0
99	-680	-480	0
100	-700	-500	0
101	-720	-520	0
102	-740	-540	0
103	-760	-560	0
104	-780	-580	0
105	-800	-600	0

106	-820	-620	0
107	-840	-640	0
108	-860	-660	0
109	-880	-680	0
110	-900	-700	0
111	-920	-720	0
112	-940	-740	0
113	-960	-760	0
114	-980	-780	0
115	-1000	-800	0
116	-1020	-820	0
117	-1040	-840	0
118	-1060	-860	0
119	-1080	-880	0
120	-1100	-900	0
121	-1120	-920	0
122	-1140	-940	0
123	-1160	-960	0
124	-1180	-980	0
≥125	-1200	-1000	0

5-04.5.OPT2.GR5

(January 13, 2021)

Asphalt Cost Price Adjustment

The Contracting Agency will make an Asphalt Cost Price Adjustment, either a credit or a payment, for qualifying changes in the reference cost of asphalt binder. The adjustment will be applied to partial payments made according to Section 1-09.9 for the following bid items when they are included in the proposal:

“HMA Cl. ____ PG ____”

“HMA for Approach Cl. ____ PG ____”

“HMA for Preleveling Cl. ____ PG ____”

“HMA for Pavement Repair Cl. ____ PG ____”

“Commercial HMA”

The adjustment is not a guarantee of full compensation for changes in the cost of asphalt binder. The Contracting Agency does not guarantee that asphalt binder will be available at the reference cost.

The Contracting Agency will establish asphalt binder reference costs twice each month and post the information on the Agency website at: <https://wsdot.wa.gov/business-wsdot/contracts/about-public-works-contracts/payments-reporting/asphalt-binder-reference-cost>. The reference cost will be determined using posted prices furnished by Poten & Partners, Inc. If the selected price source ceases to be available for any reason, then the Contracting Agency will select a substitute price source to establish the reference cost.

Price adjustments will be calculated one time per month. No price adjustment will be made if the Current Reference Cost is within +/-5% of the Base Cost. Reference costs for projects located in Eastern versus Western Washington shall be selected from the column

1 in the WSDOT website table labeled “Eastern”, or “Western”, accordingly. The adjustment
2 will be calculated as follows:

3
4 If the reference cost is greater than or equal to 105% of the base cost, then
5 Asphalt Cost Price Adjustment = (Current Reference Cost – (1.05 x Base Cost)) x (Q
6 x 0.056).

7
8 If the reference cost is less than or equal to 95% of the base cost, then
9 Asphalt Cost Price Adjustment = (Current Reference Cost – (0.95 x Base Cost)) x (Q
10 x 0.056).

11
12 Where: **Current Reference Cost** is selected from the website table based on
13 the “Date Effective” that immediately precedes the current month’s
14 progress estimate end date. For work completed after all authorized
15 working days are used, the adjustment will be based on the posted
16 reference cost during which contract time was exhausted.

17
18 **Base Cost** is selected from the website table based on the “Date
19 Effective” that immediately precedes the contract bid opening date, and
20 shall be a constant for all monthly adjustments.

21
22 **Q** = total tons of all classes of HMA paid in the current month’s progress
23 payment.

24
25 “Asphalt Cost Price Adjustment”, by calculation.

26 “Asphalt Cost Price Adjustment” will be calculated and paid for as described in this
27 section. For the purpose of providing a common proposal for all bidders, the Contracting
28 Agency has entered an amount in the proposal to become a part of the total bid by the
29 Contractor.

30
31 5-04.5.OPT3.GR5

32 (April 4, 2016)

33 “Asphalt Binder Revision” by calculation.

34 “Asphalt Binder Revision” shall be calculated and paid for as described in Section 5-04.3.

35
36 5-05.GR5

37 **Cement Concrete Pavement**

38 39 **5-05.1.GR5**

40 **Description**

41
42 5-05.1.INST1.GR5

43 Section 5-05.1 is supplemented with the following:

44
45 5-05.1.OPT1.GR5

46 (August 6, 2012)

47 This Work consists of furnishing and placing pigmented, textured, or textured and
48 pigmented cement concrete pavement at the locations and depth as shown in the Plans.

49 50 **5-05.2.GR5**

51 **Materials**

52

1 5-05.2.INST1.GR5
2 Section 5-05.2 is supplemented with the following:
3
4 5-05.2.OPT1.GR5
5 (November 20, 2023)
6 Pigment color for "brick red" cement concrete pavement shall match SAE AMS-STD-595
7 Color #32169. The pigment shall be incorporated in accordance with the manufacturer's
8 recommendations.
9
10 5-05.2.OPT2.FR5
11 (November 20, 2023)
12 Pigment color for cement concrete pavement shall match SAE-AMS-STD-595 Color # ***
13 \$\$1\$\$ ***
14
15 The pigment shall be incorporated in accordance with the manufacturer's
16 recommendations.
17
18 5-05.3.GR5
19 **Construction Requirements**
20
21 5-05.3.INST1.GR5
22 Section 5-05.3 is supplemented with the following:
23
24 5-05.3.OPT1.GR5
25 ***(August 6, 2012)***
26 ***Pigmented Cement Concrete***
27 Curing shall be in accordance with Section 5-05.3(13) and be applied to the surface in
28 accordance with the manufacturer's recommendations. If liquid membrane-forming
29 concrete curing compound is used it shall meet the requirements of ASTM C 309 Type 1-
30 D.
31
32 The Contractor shall provide a 2 foot by 2 foot sample panel, that has been cured a
33 minimum seven days, showing the color of cement concrete to the Engineer for
34 acceptance before placing any pigmented cement concrete pavement.
35
36 5-05.3.OPT2.FR5
37 ***(August 6, 2012)***
38 ***Textured Cement Concrete***
39 Textured cement concrete pavement pattern shall be one chosen from the manufacturers
40 and patterns listed below:
41
42 *** \$\$1\$\$ ***
43
44 A mat or stamp shall be used to imprint the pattern into the concrete surface.
45
46 Curing shall be in accordance with Section 5-05.3(13) and be applied to the surface in
47 accordance with the manufacturer's recommendations. If liquid membrane-forming
48 concrete curing compound is used it shall meet the requirements of ASTM C 309 Type 1-
49 D.
50

1 5-05.3.OPT3.FR5

2 **(September 3, 2024)**

3 ***Textured Cement Concrete with Colored Release Agent***

4 Textured cement concrete pavement pattern shall be one chosen from the manufacturers
5 and patterns listed below:

6
7 *** \$\$1\$\$ ***

8
9 A dark gray release agent shall be used with the mat or stamp to imprint the pattern into
10 the concrete surface in accordance with the manufacturer's recommendations.

11
12 Curing shall be in accordance with Section 5-05.3(13)A and be applied to the surface in
13 accordance with the manufacturer's recommendations. The liquid membrane-forming
14 concrete curing compound shall meet the requirements of ASTM C 309 Type 1-D.

15
16 5-05.3(1).GR5

17 ***Concrete Mix Design for Paving***

18
19 5-05.3(1).INST1.GR5

20 Item number 1 of Section 5-05.3(1) is supplemented with the following:

21
22 5-05.3(1).OPT1.GR5

23 (January 2, 2018)

24 Coarse aggregate derived from the recycling of Cement Concrete Pavement
25 removed from the project may be used as coarse aggregate or blended with coarse
26 aggregate for Cement Concrete Pavement. The Contractor shall remove all
27 bituminous material, joint sealant and backer material from the existing pavement
28 prior to removal for recycling. The recycled concrete aggregates shall meet the
29 requirements of Section 9-03.21(1)B. Cement Concrete Pavement experiencing
30 carbonate silica reaction, sulfate reaction, D cracking or any other conditions that
31 may affect concrete durability shall not be used. Cement Concrete Pavement mix
32 designs using recycled concrete aggregates will require the use of Low Alkali Cement
33 or 25 percent Class F fly ash by total weight of the cementitious materials or the
34 Contractor shall submit evidence that other ASR mitigating measures control
35 expansion in accordance with Section 9-03.1(1).

36
37 5-05.3(1).INST2.GR5

38 Section 5-05.3(1) is supplemented with the following:

39
40 5-05.3(1).OPT2.GR5

41 **(November 20, 2023)**

42 ***Aggregate for Textured Cement Concrete Pavement***

43 Fine aggregate and coarse aggregate shall be a combined gradation in accordance
44 with Section 9-03.1(5) and have a nominal maximum aggregate size equal to ½-inch,
45 ¾-inch, 1-inch, or 1-½-inch sieve.

46
47 The Contractor shall select the nominal maximum aggregate size that allows the
48 specified textured cement concrete pavement pattern to be imprinted into the
49 concrete surface to the depth specified for the textured pattern. If the textured cement
50 concrete pattern is unsatisfactory, the Contractor shall remove and replace the
51 concrete pavement at no expense to the Contracting Agency.

1 5-05.3(12).GR5
2 **Surface Smoothness**
3

4 5-05.3(12).INST1.GR5
5 The third paragraph of Section 5-05.3(12) is replaced with the following:
6

7 5-05.3(12).OPT1.GR5
8 (January 7, 2019)
9 Operate the inertial profiler in accordance with AASHTO R 57. Collect two
10 longitudinal traces, one in each wheel path. Collect profile data in a continuous pass
11 including areas excluded from pay adjustments for each section paved. The
12 Contractor shall determine when each section is to be tested except that the
13 minimum length to be tested shall be 528 feet unless accepted by the Engineer.
14 Where a completed section of concrete pavement abuts a segment to be completed
15 later in the project, the 50 feet adjacent to uncompleted section shall be included in
16 the testing and incentive/disincentive for the uncompleted segment. Provide seven
17 calendar days notice to the Engineer prior to testing.
18

19 5-05.3(12).INST2.GR5
20 Section 5-05.3(12) is supplemented with the following:
21

22 5-05.3(12).OPT2.GR5
23 (February 6, 2023)
24 This Contract includes Weigh-in-Motion (WIM) sensors and additional surface
25 smoothness requirements within the WIM evaluation area.
26

27 The WIM evaluation area is 400 feet in length, beginning 275 feet before the WIM
28 Site Index Station. The width of the WIM evaluation area includes all lanes where
29 sensors are present and extends 0.75 feet beyond the edge of the lane(s).
30

31 The completed surface shall be sufficiently smooth such that a 6-inch diameter
32 circular plate, 0.125 inches thick, cannot be passed beneath a 16-foot straightedge
33 placed on the surface parallel to the centerline of the roadway, when evaluated as
34 described in ASTM E1318-09 (2017), Section 6.1.5.
35

36 Deviations within the WIM evaluation area that are in excess of these requirements
37 will not be accepted and shall be corrected by one of the following methods:
38

- 39 1. Remove and replace the final roadway surface layer, or
40
41 2. Remove material from high places by grinding with an accepted grinding
42 machine, or
43
44 3. By other method accepted by the Engineer.
45

46 Correct defects until there are no deviations anywhere within the WIM evaluation
47 area that are greater than allowable tolerances.
48

49 5-05.3(17).GR5
50 **Opening to Traffic**
51

1 5-05.3(17).INST2.GR5

2 Section 5-05.3(17) is revised to read:

3
4 5-05.3(17).OPT1.GR5

5 **(August 7, 2017)**

6 **Maturity Testing for Concrete Pavement**

7 The pavement shall not be opened to traffic until the Strength-Maturity Relationship
8 (SMR) demonstrates the pavement has a minimum compressive strength of 2,500
9 psi and approval of the Engineer. The pavement shall be cleaned prior to opening
10 to traffic.

11
12 The Contractor shall establish a Maturity Value on the approved concrete mix through
13 the use of a testing program following the WSDOT Maturity Method Test Procedure
14 for estimating concrete strength.

15
16 The Contractor shall establish the SMR at least 14 calendar days prior to the
17 production pours. The Contractor shall notify the Engineer 7 days prior to performing
18 the SMR as to the time, date and location where the SMR will be performed. The
19 Contractor shall allow WSDOT the opportunity to place maturity loggers in the test
20 cylinders in order to calibrate the WSDOT maturity meter. A SMR shall be developed
21 for each mix used on the project. Referenced SMRs from previous projects will not
22 be allowed.

23
24 The Contractor shall be responsible for the installation of the maturity logger/sensors
25 within the concrete pavement pour area. For panel replacements performed under
26 Section 5-01, place a minimum of four loggers/sensors at two different locations. Two
27 in one of the first few panel replacements and two in the last panel replacement of
28 the day, each day. For continuous concrete paving operations performed under
29 Section 5-05, place a minimum of four loggers/sensors, two at the beginning and two
30 at the end of the concrete pour, each day. The Contractor shall maintain the integrity
31 of the logger/sensors and wires during concrete pouring, finishing and curing
32 operations or until the maturity information is no longer needed.

33
34 The Contractor shall perform the Quality Control Procedure to Verify the Strength-
35 Maturity Relationship on days 1 and 2 of concrete placement as indicated in the test
36 procedure.

37
38 The Contractor shall develop a Quality Control Plan based on the Strength-Maturity
39 Relationship to monitor and provide remedial action to ensure the concrete meets
40 design strengths.

41
42 Any alteration in mix proportions or source or type of any material, in excess of those
43 tolerable by batching variability shall require the development of a new SMR prior to
44 its use at the Contractors time and expense. Alterations include a change in type,
45 source, or proportion of cement, fly ash, coarse aggregate, fine aggregate, or
46 admixtures. A change in water-to-cementitious material ratio greater than 5.0 percent
47 requires the development of a new SMR.

48
49 **Maturity Method Test Procedure**

50 This test method provides a procedure for estimating concrete strength by means of
51 the maturity method. The maturity method is based on strength gain as a function of

temperature and time. This method is a modification of ASTM C1074 covering the procedures for estimating concrete strength by means of the maturity method.

The maturity method consists of three steps:

- Develop Strength-Maturity Relationship
- Estimate in-place strength
- Verify Strength-Maturity Relationship.

The Nurse-Saul “temperature-time factor (TTF)” maturity index shall be used in this test method, with a datum temperature of 0 °C (32 °F).

Apparatus

- If the maturity meter has input capability for datum temperature, verify that the proper value of the datum temperature has been selected prior to each use.
- Intellirock maturity system (or approved equivalent). This system shall include the logger/sensor, handheld reader, and software.
- The data obtained from the maturity meter shall be unalterable and un-interruptible.
- The same brand and type of maturity meters shall be used in the field as those used to develop and verify the strength-maturity relationship.
- Logger/sensor wire grade shall be larger than or equal to 20 awg.

Contractors Procedure to Develop Strength-Maturity Relationship

Step	Action
1	For every concrete design that will be evaluated by the maturity method, prepare a minimum of 21 cylinders in accordance with FOP for AASHTO T 23. Additional cylinders should be cast to avoid having to repeat the procedure. The mixture proportions and constituents of the concrete shall be the same as those of the job concrete whose strength will be estimated using this practice. The minimum size of each batch shall be approximately 3 m ³ (4 yd ³). A mobile mixer may be used for batching provided it is to be used on the project. Calibration documentation shall be provided to the Engineer prior to batching.
2	Fresh concrete testing for each batch shall include concrete placement temperature, slump, and air content in accordance with FOP for AASHTO T 309, FOP for AASHTO T 119, and FOP for AASHTO T 152.
3	Embed loggers/sensors in at least two cylinders. Loggers/sensors shall be placed 2-4 inches from any surface. Activate the loggers/sensors.
4	Cure the cylinders in accordance with FOP for AASHTO T 23.
5	Perform compression strength tests in accordance with FOP for AASHTO T 22 to target 2,500 psi for opening to traffic. In targeting the opening to traffic requirement and to properly characterize and validate the maturity calibration curve at least three target cylinder breaks must be broken prior to 2,500 psi. Test three cylinders at each age and compute the average strength. The cylinders with loggers/sensors may be tested if additional cylinders are needed.

1
2
3

	<p>If a cylinder is obviously defective (for example, out of round, not square, damaged due to handling), the cylinder shall be discarded. If an individual cylinder strength is greater than 10 percent outside the average of three cylinders, the cylinder can be considered defective and be discarded. When two of the three cylinders are defective, a new batch must be evaluated unless additional acceptable cylinders are available.</p>
6	At each test age, record the individual and average values of maturity and strength for each batch on a permanent data sheet
7	<p>Plot the average strengths as a function of the average maturity values, with data points shown. Using a computer spreadsheet program such as Microsoft Excel, calculate a point-to-point interpolation through the data. The resulting curve is the strength-maturity relationship to be used for estimating the strength of the concrete mixture placed in the field.</p> <p>When developing the SMR, the spreadsheet software allows the Contractor to develop the corresponding maturity equation, which defines the SMR. The Engineer should carefully examine the data for "outliers", faulty cylinder breaks, or faulty maturity readings. The Engineer should use judgment to determine if certain points should be discarded, or retested, or whether the entire SMR should be regenerated.</p>

Contractors Procedure to Estimate In-Place Strength

Step	Action
1	Prior to or at the time of concrete placement, install loggers/sensors at the frequency specified. Loggers/sensors shall be placed a minimum of 2 ft. from a panel edge 4 to 5 inches from the panel surface. Loggers/sensors may be tied to reinforcing steel, but should not be in direct contact with the reinforcing steel or formwork.
2	As soon as practical after concrete placement, connect and activate the maturity meter(s).
3	The Contractor shall provide to the Engineer, prior to opening the pavement to traffic, encrypted data files (with software to read the files) of the maturity data from the loggers/sensors. Data shall be provided until the maturity is at a value that is equal to or greater than the required strength for that concrete mixture, as determined by the SMR. Additionally, data shall be provided on a record log.

4
5
6
7

Contractors Quality Control Procedure to Verify Strength-Maturity Relationship

Step	Action
------	--------

1	At the specified verification interval make three cylinders in accordance with FOP for AASHTO T 23.
2	Embed a logger/sensor in one cylinder. Loggers/sensors shall be placed 2-4 inches from any surface. Activate the logger/sensor as soon as possible.
3	Cure the cylinders in accordance with FOP for AASHTO T 23.
4	Perform compression strength tests on all three of the cylinders in accordance with FOP for AASHTO T 22 to verify strength and time to reach 2,500 psi for opening to traffic. Compute the average strength of the cylinders. If a cylinder is obviously defective (for example, out of round, not square, damaged due to handling), the cylinder shall be discarded. If any individual cylinder strength is greater than 10 percent outside the average of three cylinders, that cylinder will be considered defective and be discarded. When two of the three cylinders are defective, the verification procedure will have to be repeated starting at step 1.
5	Record on a permanent data sheet the maturity value at the time of compression testing and individual and average strengths established from the cylinder breaks. Also record the predicted strength based on the SMR established for that particular concrete design, and the percent difference between average and predicted values. The SMR is verified when the predicted strength established from the average SMR and the cylinder breaks are within 10 percent. A copy of the data sheet and an encrypted file for the maturity data shall be provided to the Engineer on a daily basis.

- 1
- 2
- 3 5-05.4.GR5
- 4 **Measurement**
- 5
- 6 5-05.4.INST1.GR5
- 7 Section 5-05.4 is supplemented with the following:
- 8
- 9 5-05.4.OPT1.GR5
- 10 (August 6, 2012)
- 11 Pigmented, textured, or textured and pigmented cement concrete pavement will be
- 12 measured by the square yard placed.
- 13
- 14 5-05.5.GR5
- 15 **Payment**
- 16
- 17 5-05.5.INST1.GR5
- 18 Section 5-05.5 is supplemented with the following:
- 19
- 20 5-05.5.OPT2.GR5
- 21 (August 6, 2012)
- 22 "Pigmented Cement Concrete Pavement", per square yard
- 23 The unit Contract price per square yard for Pigmented Cement Concrete Pavement shall
- 24 be full pay for all costs incurred to perform the Work in this Specification.
- 25

- 1 5-05.5.OPT3.GR5
2 (August 6, 2012)
3 "Textured Cement Concrete Pavement", per square yard
4 The unit Contract price per square yard for Textured Cement Concrete Pavement shall
5 be full pay for all costs incurred to perform the Work in this Specification.
6
7 5-05.5.OPT4.GR5
8 (August 6, 2012)
9 "Textured and Pigmented Cement Concrete Pavement", per square yard
10 The unit Contract price per square yard for Textured and Pigmented Cement Concrete
11 Pavement shall be full pay for all costs incurred to perform the Work in this Specification.
12
13 5-05.5.OPT5.GR5
14 (August 5, 2013)
15 All costs in connection with conducting concrete pavement maturity testing and surface
16 cleaning prior to opening to traffic shall be included in the unit Contract price per cubic
17 yard for "Cement Conc. Pavement" and per square yard for "Replace Cement Concrete
18 Panel", if either or both of the items are included in the Contract.
19

20 5-SA1.FR5
21 **(August 7, 2017)**
22 **JUST IN TIME TRAINING**

23 **Description**

24 Just In Time Training (JITT) is a formal class for the joint training of Contractor and Contracting
25 Agency employees that will be associated with the construction or rehabilitation of Cement
26 Concrete Pavement.
27

28 **Construction Requirements**

29 ***Training***

30 The Contractor shall provide a JITT instructor who is experienced with the specified
31 pavement construction methods, materials, and tests. The instructor shall not be an
32 employee of the Contractor or the Contracting Agency. JITT shall be at a facility provided
33 by the Contractor unless otherwise agreed to by the Engineer.
34

35 The following personnel are required to attend the JITT:
36

- 37 1. Representing the Contractor: The Superintendent, foremen and key
38 construction personnel associated with the work.
39 2. Representing the Contracting Agency: Up to ***\$1\$*** Contracting Agency
40 staff selected by the Engineer.
41

42 JITT shall meet the following requirements:
43

- 44 1. At least 4 hours long or a length agreed to by the Engineer.
45 2. Cover all aspects of work methods, equipment and materials the Contractor is
46 proposing to use.
47 3. Conducted within 3 miles of the job site or at a mutually agreed to location.
48 4. Completed before the start of paving.
49 5. Conducted during normal working hours.
50 6. At the Contractors option, JITT may be an extension of a prepaving conference.
51

1 **Submittals**
2 A minimum of 5 calendar days before JITT the Contractor shall submit to the Engineer
3 the instructor's name and qualifications, the JITT facility's location, and 1 copy each of
4 any course, handout, and presentation materials.
5

6 **Payment**
7 Payment will be made for each of the following items that are included in the Proposal:

8
9 "Just In Time Training", lump sum.

10
11 The lump sum Contract payment shall be full compensation for all costs incurred by the
12 Contractor in providing "Just In Time Training".
13

14 DIVISION6.GR6

15 **Division 6**
16 **Structures**

17
18 6-01.GR6

19 **General Requirements for Structures**

20
21 6-01.5.GR6

22 **Work Access and Temporary Structures**

23
24 6-01.5.INST1.GR6

25 Section 6-01.5 is re-titled and revised to read:

26
27 6-01.5.OPT1.FB6

28 **(April 1, 2019)**

29 **Work Access**

30 The Contractor shall construct work access to accommodate all work within the wetted
31 perimeter, or vertically above the sensitive area, of *** \$1\$ \$ **, as shown in the plans
32 or staked by the Engineer. The Contractor shall construct and remove the work access in
33 accordance with all environmental regulations and permits, including those specified in
34 Sections 1-07.5 and 1-07.6.
35

36 **Submittals**

37 The Contractor shall submit Type 2 Working Drawings of the work access, except
38 that if the Contractor chooses an access alternative using a work trestle structure,
39 the Working Drawings shall be Type 2E. The Contractor shall design the work access
40 structure to withstand all applicable loads in accordance with accepted design codes.
41 The Contractor shall specify the design code(s) in the design calculations and
42 working drawings.
43

44 The Contractor shall include information with the work access submittal on the
45 construction equipment that will use the work access. The Contractor shall specify
46 the type and model of construction equipment to be used, and shall include
47 equipment catalogue cuts with capacities and geometry. The Contractor shall include
48 anticipated wheel or track loads, axle spacings, outrigger geometry and reactions,
49 crane pick angles and reach, and other equipment details.
50

1 6-01.5.OPT1(A).FB6
2 **(April 6, 2015)**
3 **Waterway Clearance Requirements**
4 One span of the work access structure shall provide more than *** \$\$1\$\$ ***
5 horizontal clearance between supporting piers. The bottom of the superstructure of
6 the work access structure shall be at elevation *** \$\$2\$\$ *** or higher. All waterborne
7 debris that accumulates against the work access structure shall be removed by the
8 Contractor.
9

10 6-01.5.OPT1(B).GB6
11 **(April 6, 2015)**
12 **Payment**
13 Payment will be made in accordance with Section 1-09.3 for the following bid item:
14
15 "Work Access - ____", lump sum.
16

17 6-01.5.OPT2.FB6
18 **(August 6, 2018)**
19 **Temporary Bridge**
20 The Contractor shall design, furnish, erect, maintain, and remove a temporary bridge,
21 including substructure, in accordance with this Special Provision and the details shown in
22 the Plans unless otherwise accepted by the Engineer.
23

24 **Geometric Requirements**
25 The temporary bridge shall conform to the following geometric requirements:
26
27 1. The temporary bridge shall be an overall minimum length of *** \$\$1\$\$ ***.
28
29 2. The minimum width on the temporary bridge between barriers or railings
30 shall be *** \$\$2\$\$ ***.
31
32 3. The temporary bridge superstructure shall provide a minimum vertical
33 clearance of *** \$\$3\$\$ *** to *** \$\$4\$\$ ***.
34

35 **Design Requirements**
36 The temporary bridge shall conform to the following design requirements:
37
38 1. The temporary bridge, including the barriers or railings, shall be designed
39 in accordance with the latest edition of the AASHTO LRFD Bridge Design
40 Specifications. Barriers or railings shall be designed to TL-2, minimum, with
41 a minimum height of 32-inches, except where the Plans require a higher
42 test level and railing height. Seismic design shall conform to AASHTO
43 LRFD Seismic Guide Specification Section 3.6.
44
45 2. The minimum vehicular live load used for design shall be 75 percent of HL-
46 93, unless otherwise specified in the Contract Plans.
47
48 3. The driving surface of the temporary bridge shall be durable, skid resistant
49 deck, with an initial skid number of at least 35 and maintaining a skid
50 number of 26 minimum, in accordance with AASHTO T 242.
51

- 1 4. Notwithstanding the requirements of Section 1-06.1, the materials used by
2 the Contractor to compose the temporary bridge may be salvaged steel,
3 provided that the use of such salvaged steel shall be subject to inspection
4 and approval by the Contractor's engineer of record and acceptance by the
5 Engineer. For salvaged steel materials where the grade of steel cannot be
6 positively identified, the design stresses for the steel shall conform to
7 Section 6-02.3(17)B3.
8
9 5. In addition to the criteria specified in Item 1, the temporary bridge
10 substructure shall be designed in accordance with the WSDOT
11 Geotechnical Design Manual (M46-03).
12

13 **Submittals**

14 The Contractor shall submit Type 3E Working Drawings of the temporary bridge
15 including an erection plan and procedure conforming to Section 6-03.3(7)A.
16

17 If the temporary bridge is to be in place for greater than 90 calendar days, the
18 Contractor shall submit a Type 2E Working Drawing consisting of a load rating report
19 prepared in accordance with the *AASHTO Manual for Bridge Evaluation* and WSDOT
20 *Bridge Design Manual LRFD* M23-50 Chapter 13.
21

22 **Construction and Removal**

23 The Contractor shall construct the temporary bridge in accordance with the working
24 drawings and erection plan as accepted by the Engineer, environmental permit
25 conditions specified in Section 1-07.5 as supplemented in these Special Provisions
26 and as shown in the Plans, and in accordance with the details shown in the Plans.
27 The Contractor shall maintain the temporary bridge, including the driving surface, for
28 the life of the temporary bridge in this project.
29

30 All welding, repair welding, and welding inspection, of steel components of the
31 temporary bridge shall conform to the Section 6-03.3(25) and 6-03.3(25)A
32 requirements specified for steel bridges.
33

34 After the temporary bridge is no longer needed the Contractor shall remove the
35 temporary bridge.
36

37 **Payment**

38 Payment will be made in accordance with Section 1-09.3 for the following bid item:
39

40 "Temporary Bridge____", lump sum.
41

42 6-02.GR6

43 **Concrete Structures**

44
45 6-02.2.GR6

46 **Materials**

47
48 6-02.2.INST1.GR6

49 Section 6-02.2 is supplemented with the following:
50

6-02.2.OPT2.GB6

(September 8, 2020)

Epoxy Bonding Agent For Surfaces And For Steel Reinforcing Bar Dowels

Epoxy bonding agent for surfaces shall be Type II, as specified in Section 9-26.1. Epoxy bonding agent for steel reinforcing bar dowels shall be either Type I or Type IV, as specified in Section 9-26.1. The grade and class of epoxy bonding agent shall be as recommended by the resin manufacturer.

6-02.2.OPT4.GB6

(November 2, 2022)

Epoxy Crack Sealing Materials

Epoxy sealing paste shall be a thixotropic compound.

Epoxy injection resin shall be a moisture-insensitive, two-component material capable of restoring the structural integrity of a structure by structurally bonding cracks, delaminations and hollow planes. Resin formulations shall be hydrophilic with variable viscosity to allow full depth penetration in cracks having a width of 6 mils and greater.

Epoxy injection resin, when mixed with the hardener in accordance with the manufacturer's written instructions, shall cure to a non-shrink solid material. The material shall be capable of curing in less than 24 hours.

Epoxy injection resin shall have the following physical properties:

Solids Content, by weight (minimum)	98 percent
Viscosity (maximum) at 77F (Brookfield)	700 cps
Compressive Yield Strength (minimum)	12,000 psi
Minimum Flexural Strength (ASTM D 790)	10,000 psi
Bond Strength (minimum)	500 psi

The Contractor shall submit a Type 2 Working Drawing consisting of sample of the material of the epoxy sealing paste and epoxy injection resin together with sufficient directions and technical data for its use.

The Contractor shall submit a Type 1 Working Drawing consisting of the Safety Data Sheet (SDS) for each type of epoxy sealing paste and epoxy injection resin.

6-02.2.OPT26.GB6

(April 6, 2015)

Rapid Cure Silicone Sealant

Rapid cure silicone sealant shall be Dow Corning 902 RCS Joint Sealant.

The Contractor shall deliver the joint sealant to the job site in the sealant manufacturer's original sealed container. Each container shall be marked with the sealant manufacturer's name and lot or batch number. Each lot or batch shall be accompanied by the manufacturer's Safety Data Sheet (SDS), and Manufacturer's Certificate of Compliance, identifying the lot or batch number, and certifying that the materials conform to the properties stated on the product data sheet.

The backer rod shall be closed cell expanded polyethylene foam as recommended by the sealant manufacturer. The diameter of the backer rod shall be as recommended by the sealant manufacturer for the expansion joint opening at the time of installation.

6-02.2.OPT27.GB6

(April 6, 2015)

Polyester Concrete

Polyester Resin Binder

The resin shall be an unsaturated isophthalic polyester-styrene co-polymer.

Prior to adding the initiator, the resin shall conform to the following requirements:

Viscosity:	75 to 200 cps (20 rpm at 77F, RVT No. 1 spindle)	ASTM D 2196
Specific Gravity:	1.05 to 1.10 at 77F	ASTM D 1475
Styrene Content:	45% to 50% by weight of polyester styrene resin	ASTM D2369

The hardened resin shall conform to the following requirements:

Elongation:	35% minimum w/ thickness 0.25" \pm 0.04"	ASTM D 638
Tensile Strength:	2,500 psi minimum w/ thickness 0.25" \pm 0.04"	ASTM D 638
Conditioning	18 hours/77F/50% + 5 hours/158F	ASTM D 618
Silane Coupler:	1.0% minimum (by weight of polyester-styrene resin)	

The silane coupler shall be an organosilane ester, gammamethacryloxypropyltrimethoxysilane. The promoter/hardeners shall be compatible with suitable methyl ethyl ketone peroxide (MEKP) and cumene hydroperoxide (CHP) initiators. MEKP and CHP initiators shall be used as recommended by the manufacturer.

Polyester resin binder will be accepted based on submittal to the Engineer of a Manufacturer's Certificate of Compliance.

High Molecular Weight Methacrylate (HMWM) Resin

In addition to the viscosity and density properties, and the promoter/initiator system, specified in Section 6-09.2, the HMWM resin for polyester concrete shall conform to the following requirements:

Flash Point:	180F minimum	ASTM D 3278
Tack-Free Time:	400 minutes maximum	California Test 551

1 Prior to adding initiator, the HMWM resin shall have a maximum volatile content of
2 30 percent, when tested in conformance with ASTM D 2369.
3
4 HMWM resin will be accepted based on submittal to the Engineer of a Manufacturer's
5 Certificate of Compliance.
6
7 **Aggregate**
8 The aggregate shall be from a WSDOT approved pit site and shall be thoroughly
9 washed and kiln dried.
10
11 The aggregate shall conform to Section 9-03.1(5)B for either 1/2-inch or 3/8-inch
12 maximum nominal aggregate size.
13
14 The combined aggregate shall have a maximum of 45 percent crushed particles.
15 Fine aggregate shall conform to Section 9-03.13.
16
17 Aggregate absorption shall not exceed 1.0 percent. The moisture content of the
18 aggregate shall not exceed one half of the aggregate absorption at the time of mixing
19 with the polyester resin binder. The aggregate temperature shall be between 45F
20 and 100F at the time of mixing.
21
22 **Sand for Abrasive Finish**
23 The sand for abrasive finish shall conform to Section 6-09.2, and the aggregate
24 moisture content requirements specified above.
25
26 6-02.2.OPT28.GB6
27 **(April 6, 2015)**
28 **Elastomeric Concrete**
29 Elastomeric concrete shall be one of the following three products:
30
31 BASF/Watson Bowman Acme Wabo Crete II
32
33 D. S. Brown Delcrete
34
35 R. J. Watson Poly-Tron
36
37 The elastomeric concrete aggregate shall be as specified, gradated, and packaged by
38 the elastomeric concrete manufacturer.
39
40 The primer shall be as recommended by the elastomeric concrete manufacturer.
41
42 The Contractor shall deliver the elastomeric concrete components to the job site in the
43 elastomeric concrete manufacturer's original sealed containers. Each container shall be
44 marked with the sealant manufacturer's name and lot or batch number. Each lot or batch
45 shall be accompanied by the manufacturer's Safety Data Sheet (SDS), and
46 Manufacturer's Certificate of Compliance, identifying the elastomeric concrete
47 manufacturer and the lot or batch number, and certifying that the materials conform to the
48 properties stated in the product data sheet.
49
50 6-02.2.OPT46.GB6
51 **Bridge Supported Utilities**
52

1 6-02.2.OPT46(A).GB6
2 (June 26, 2000)
3 Inserts shall be of the type and model specified in the Plans. Inserts shall be galvanized
4 in accordance with AASHTO M 111.
5
6 6-02.2.OPT46(B).GB6
7 (September 3, 2019)
8 Hanger rods, and associated nuts and washers, shall conform to Section 9-06.5(1), and
9 shall be galvanized in accordance with ASTM F2329.
10
11 Steel bars and plates shall conform to ASTM A 36 and shall be galvanized in accordance
12 with AASHTO M 111.
13
14 6-02.2.OPT46(C).GB6
15 (September 3, 2019)
16 Horizontal strut bolts or threaded rods, and associated nuts and washers, shall conform
17 to Section 9-06.5(1), and shall be galvanized in accordance with ASTM F2329.
18
19 Pre-formed fabric pads shall be composed of multiple layers of duck, impregnated and
20 bound with high quality oil resistant synthetic rubber, compressed into resilient pads. The
21 pre-formed fabric pads shall conform to latest edition of MIL C 882 and the following
22 requirements. The number of plies shall be as required to produce the specified
23 thickness, after compression and vulcanizing.
24
25 Pre-formed fabric pads shall have a shore A hardness of 90±5 in accordance with ASTM
26 D 2240.
27
28 Pre-formed fabric pads for bridge utility supports will be accepted based on the
29 Manufacturer's Certificate of Compliance that the material furnished conforms to these
30 specifications.
31
32 6-02.2.OPT46(D).GB6
33 (June 26, 2000)
34 Pipe rolls or pipe saddles shall be of the type and model specified in the Plans.
35
36 6-02.2.OPT46(E).GB6
37 (September 3, 2019)
38 Anchor straps shall conform to ASTM A 36 and shall be galvanized after fabrication in
39 accordance with AASHTO M 111.
40
41 Anchor bolts, and associated nuts and washers, shall conform to Section 9-06.5(4), and
42 shall be galvanized in accordance with ASTM F2329.
43
44 6-02.2.OPT48.GB6
45 **(April 30, 2001)**
46 **Bridge Drain Risers**
47 Spacer bars and riser bars for the drain riser assembly shall conform to ASTM A 36.
48

1 6-02.2.OPT58.GB6
2 **(September 8, 2020)**
3 **Core Drilled Bridge Deck Drain**
4 Bridge deck drain pipe sleeve shall be any smooth wall, non-perforated, PVC pipe of the
5 diameter and minimum wall thickness specified in the Plans.
6
7 Epoxy bonding agent shall be Type II conforming to Section 9-26.1. The grade and class
8 of the epoxy bonding agent shall be as recommended by the bonding agent manufacturer.
9
10 6-02.2.OPT60.GB6
11 **(April 6, 2015)**
12 **Seismic Retrofit Materials**
13 Components fabricated and constructed for seismic retrofit work shall conform to the
14 following requirements:
15
16 6-02.2.OPT60(B).GB6
17 (April 6, 2015)
18 Steel pipe shall conform to ASTM A 53, Grade B, Type E or S, galvanized. The pipe
19 shall be Schedule 40, except as otherwise specified in the Plans.
20
21 PVC pipe shall be any smooth wall, non-perforated, PVC pipe of the diameter and
22 minimum wall thickness or Schedule specified in the Plans.
23
24 6-02.2.OPT60(C).GB6
25 (November 20, 2023)
26 Steel bars, plates and shapes shall conform to ASTM A36 except that structural
27 shapes may conform to ASTM A992.
28
29 Epoxy bonding agent, where shown in the Plans for bonding steel components to
30 concrete, shall be Type II as specified in Section 9-26.1. The grade and class of
31 epoxy bonding agent shall be as recommended by the bonding agent manufacturer.
32
33 All steel components and assemblies for seismic restrainers, except as otherwise
34 specified, shall be galvanized after fabrication in accordance with AASHTO M 111.
35
36 Bolts, nuts, and washers shall conform to Section 9-06.5(3) and shall be galvanized
37 after fabrication in accordance with ASTM F2329.
38
39 Resin bonded anchors shall conform to Sections 6-02.3(18)A and 9-06.4.
40 Additionally, the threaded anchor rods for seismic retrofit elements shall conform to
41 either ASTM A193 Grade B7 or ASTM F1554 Grade 105, and shall conform to the
42 appropriate supplemental requirements for grade and manufacturer's identification,
43 and charpy impact testing (15-foot-pounds minimum at 40F). Results of the charpy
44 impact testing for the production lot(s) including the anchor rods furnished for seismic
45 retrofit components and assemblies shall be submitted to the Engineer along with
46 the Manufacturer's Certificate of Compliance.
47
48 6-02.2.OPT60(D).GB6
49 (September 8, 2020)
50 High-strength steel rods for longitudinal seismic restrainer assemblies shall conform
51 to ASTM F 1554 Grade 105, including Supplemental Requirements S2, S3, and S5.

1 Nuts, and couplers if required, shall conform to ASTM A 563 Grade DH. Washers
2 shall conform to ASTM F 436.
3
4 High-strength steel rods and associated couplers, nuts and washers shall be
5 galvanized after fabrication in accordance with ASTM F2329.
6
7 6-02.2.OPT60(F).GB6
8 **(September 8, 2020)**
9 **Column Jacketing Materials**
10 All metal components shall conform to ASTM A 36, and shall be painted in
11 accordance with Section 6-07.3(9), and Section 6-03.3(30) as supplemented in these
12 Special Provisions. Metal surfaces in contact with grout shall be considered in
13 contact with concrete for the purposes of Section 6-07.3(9).
14
15 Grout shall conform to the requirements of Section 9-20.3(4) and the following
16 requirements:
17
18 The grout shall be a pumpable mix capable of filling the annulus between the
19 concrete column and steel column jacket assembly. The grout shall be free of
20 lumps and undispersed cement, and shall not show any visible signs of
21 separation of water and cement during pumping operations.
22
23 Aggregate conforming to Section 9-03.1(5) with a maximum aggregate size of 3/8
24 inch may be used to extend the grout. Mortar shall conform to Section 9-20.4(2).
25
26 Epoxy bonding agent for filling grout voids shall be Type II, as specified in Section 9-
27 26.1. The grade and class of epoxy bonding agent shall be as recommended by the
28 bonding agent manufacturer.
29
30 6-02.2.OPT61.GB6
31 **(September 8, 2020)**
32 **Precast Prestressed Concrete Stay-In-Place Panels**
33 Concrete shall have an initial strength at strand release of at least 5,000 psi, and a 28
34 day minimum compressive strength as specified in the Plans.
35
36 Prestressing reinforcement strand shall conform to Section 9-07.10, except that the
37 diameter shall be as specified in the Plans. The strand shall be provided by a
38 manufacturer and facility capable of producing 1/2" diameter strand with an average bond
39 pull-out force of 16.0 kips when tested in accordance with ASTM A1081. Test reports for
40 ASTM A1081 shall be submitted with the Manufacturer's Certificate of Compliance, and
41 testing shall have been performed on strand produced within the previous 36 months.
42
43 Grout shall conform to Section 9-20.3(2).
44
45 Leveling bolts shall conform to Section 9-06.5(1), and shall be galvanized after fabrication
46 in accordance with AASHTO M 232.
47
48 Backer rod shall be closed cell expanded polyethylene foam.
49
50 6-02.3.GR6
51 **Construction Requirements**
52

1 6-02.3.INST1.GR6

2 Section 6-02.3 is supplemented with the following:

3
4 6-02.3.OPT1.GB6

5 **(September 7, 2021)**

6 **Epoxy Crack Sealing**

7 The materials being used may be dermatetic. The Contractor's contact with and use of
8 the materials shall conform to the requirements specified in the SDS for each material,
9 and all personnel shall be provided with appropriate clothing and protective garments.

10
11 All materials shall be stored and protected from ignition sources as recommended by the
12 material manufacturer.

13
14 The cracks shall be cleaned of efflorescence, deteriorated concrete and other surface
15 debris, by vacuuming, flushing, routing, sawing or other means as required.

16
17 Entry ports shall consist of tubes, tees or other valve devices as recommended by the
18 resin manufacturer. The ports shall be placed at intervals along each crack in accordance
19 with the manufacturer's written instructions for the resin being used. The holes for the
20 entry ports shall be drilled with a hollow bit with an attached vacuum chuck to prevent
21 concrete dust from becoming embedded in the crack.

22
23 The exposed crack surfaces and the areas around the entry ports shall be sealed with
24 epoxy sealing paste and cured in accordance with the resin manufacturer's written
25 instructions, to attain a seal capable of withstanding the applied injection pressures.

26
27 The Contractor shall furnish the services of a factory trained technical representative to
28 perform the epoxy crack sealing injection.

29
30 Injection shall be accomplished with a pressure or injection machine compatible with the
31 resin selected for use and shall begin at the lowest port and continue until there is
32 evidence of the resin at the entry port directly above and adjacent to the port being
33 pumped. When material travel is indicated, the nozzle shall be moved to the port that
34 shows resin. The previously pumped port shall be sealed. Injection shall continue until
35 the crack is completely filled. On wide cracks where resin travel between ports will be
36 rapid, two or more ports may be pumped simultaneously. On exceptionally large cracks,
37 a formulation (dependent upon crack width, ambient temperature, modulus requirements
38 and other variables) of epoxy resin and fine sands shall be used as recommended by the
39 resin manufacturer.

40
41 After all ports have been pumped and the crack is full, the epoxy resin shall be cured
42 without disturbance in accordance with the resin manufacturer's written instructions as
43 necessary to ensure development of the full bond capacity of the material.

44
45 After the epoxy has cured completely, the epoxy sealing paste and port stems shall be
46 ground flush with the original surface of the concrete.

47
48 At the discretion of the Engineer, cores shall be taken after the repair is completed to
49 confirm penetration and bonding. The number and locations of such cores will be as
50 specified by the Engineer. These cores shall be submitted to the Engineer for testing in
51 the State Materials Laboratory. The Contractor shall submit a Working Drawing for repair
52 of core holes in accordance with Section 6-01.16.

1
2 6-02.3.OPT2.GB6
3 **Bridge Supported Utilities**
4
5 6-02.3.OPT2(A).GB6
6 (August 3, 2015)
7 The Contractor shall furnish and install inserts for the bridge utility supports as shown in
8 the Plans. The Contractor shall verify that the hanger rods freely hang plumb in their
9 inserts, and shall make adjustments to the inserts as necessary and as accepted by the
10 Engineer prior to utility installation.
11
12 6-02.3.OPT2(B).GB6
13 (June 26, 2000)
14 The Contractor shall furnish and install the bridge utility supports, and the utility pipe or
15 conduit pipe, as shown in the Plans.
16
17 6-02.3.OPT2(C).FB6
18 (June 26, 2000)
19 The Utility Company will furnish material for and install *** \$1\$\$. The Contractor shall
20 install *** \$2\$\$ furnished by the *** \$3\$\$.
21
22 The Contractor shall notify the utility company a sufficient time in advance and shall
23 cooperate with the utility company in order that the utility furnished items may be installed
24 in the structure.
25
26 6-02.3.OPT8.GB6
27 **Seismic Retrofit**
28
29 6-02.3.OPT8(B).GB6
30 (April 6, 2015)
31 **Seismic Retrofit Demolition Plan**
32 The Contractor shall submit Type 2 Working Drawings showing the method of
33 removing the specified portions of the existing bridges required by the seismic retrofit
34 work. The Working Drawings shall show the sequence of demolition and removal,
35 the type of equipment to be used in all demolition and removal operations, and details
36 of the methods and equipment used for containment, collection, and disposal of all
37 debris. The Working Drawings shall show all stages of demolition.
38
39 6-02.3.OPT8(C).GB6
40 (April 6, 2015)
41 **Column Jacket Installation Plan**
42 The Contractor shall submit Type 2E Working Drawings describing the column jacket
43 installation plan. The submittal shall include at a minimum, the following:
44
45 1. Step by step installation procedure.
46
47 2. The methods of cleaning and preparing the existing column surfaces prior
48 to installing the column jacket assembly.
49
50 3. The methods of containing, collecting, and disposing of the debris
51 generated by cleaning and preparing the existing column surfaces.
52

- 1 4. The methods of containing, collecting, and disposing of all excess grout
2 generated during the grouting process.
- 3
- 4 5. The locations of grout injection valves, and the methods and materials used
5 to remove them following use, and to fill the void following removal.
- 6
- 7 6. The method of sealing the gap between the existing column surface and
8 the column jacket assembly prior to grouting.
- 9
- 10 7. The method and materials used to clamp and brace the column jacket
11 assembly in place during field assembly and grouting.
- 12
- 13 8. The proposed grout mix with manufacturer's data sheets.
- 14
- 15 9. The equipment used to pump the grout and monitor the grout pressure and
16 the quantity of grout injected.
- 17
- 18 10. The method, materials, and equipment used to fill grout voids within the
19 column jacket assembly, and to finish the exposed surface flush after repair.
- 20
- 21 11. The method, materials, and equipment used to field repair all damaged
22 primer coatings, and to field apply the intermediate and finish coats of paint.
- 23

24 6-02.3.OPT8(D).GB6

25 **(April 6, 2015)**

26 **Column Jacket Shop Drawings**

27 The Contractor shall submit column jacket shop drawings as Type 2 Working
28 Drawings. The shop drawings shall include, at a minimum, the following:

- 29
- 30 1. Plan, elevation, and sections of the jacket system and all components, with
31 all dimensions and tolerances.
- 32
- 33 2. Field measurements of the existing column(s).
- 34
- 35 3. All material designations.
- 36
- 37 4. Location of horizontal and vertical splices.
- 38
- 39 5. Location of spacers and method of attachment.
- 40
- 41 6. Welds and welding procedures.
- 42

43 6-02.3.OPT8(E).GB6

44 **(September 8, 2020)**

45 **Field Measuring Existing Bridge Columns**

46 The Contractor shall field measure the dimensions (diameter, or width and thickness,
47 as appropriate for column shape) of the existing bridge columns receiving column
48 jackets prior to preparing column jacket assembly shop drawings. The following
49 locations shall be field measured as a minimum for each column:

- 50
- 51 1. Top of footing or footing pedestal.
- 52

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- 2. Bottom of crossbeam.
- 3. Mid-height of column.

The Contractor shall field measure the column height from top of footing or footing pedestal to bottom of crossbeam for each column.

The Contractor shall tabulate these field measured dimensions and submit them to the Engineer along with the column jacket assembly shop drawings.

Where site conditions, such as traffic control requirements or deeply buried foundations, create difficulties for field measuring buried portions of the bridge columns, the Contractor may request a waiver of the pre-fabrication field measuring requirements for specific columns. If the Engineer concurs with the Contractor's request for a waiver of the pre-fabrication field measuring requirement for specific columns, and for columns identified in the Special Provisions as already designated with a waiver, the Contractor shall:

- 1. Field measure the diameter, or width and thickness, as appropriate for the column shape, of the above ground portion of the column receiving the waiver.
- 2. Fabricate the column jacket to a length exceeding the column height (2'-0" or ten percent of the estimated column height, whichever is greater) based on the original plans and other available site data. The shop drawing details shall specify the column jacket fabrication length, and the assumed column height based on the available information.
- 3. Submit the method, template, and equipment used to field cut the top of the column jacket assembly at installation.

The Contractor shall submit the request for a waiver of the pre-fabrication field measuring requirement prior to preparing column jacket assembly shop drawings, and shall not submit shop drawings until receiving the Engineer's confirmation of the waiver request and completing all field measurements still required.

6-02.3.OPT8(F).FB6
(April 6, 2015)

The column(s) at the Bridge and Pier location(s) specified below has (have) received a waiver of the pre-fabrication field measuring requirement, and no separate waiver request from the Contractor is required for this (these) specific column(s):

*** \$\$1\$\$ ***

However, the Contractor shall conform to all other requirements specified above for columns receiving a waiver of the pre-fabrication field measuring requirement.

1 6-02.3.OPT8(G).FB6
2 **(April 6, 2015)**
3 **Field Measuring for Seismic Retrofit Components**
4 The Contractor shall field measure dimensions of existing items and members of
5 Bridge No(s). *** \$\$1\$\$ *** prior to preparing shop drawings for fabricated steel
6 components and assemblies.
7
8 The Contractor shall field measure dimensions of the following items:
9
10 *** \$\$2\$\$ ***
11
12 The Contractor shall tabulate these field measured dimensions and submit them to
13 the Engineer along with the shop drawing submittals for the corresponding steel
14 components and assemblies.
15
16 6-02.3.OPT8(H).GB6
17 **(September 2, 2025)**
18 **Removing Portions of Existing Concrete**
19 The Contractor shall remove portions of existing concrete required by the seismic
20 retrofit work in accordance with Section 3-02.3(2)A2 and as shown in the Plans.
21
22 The Contractor shall dispose of all materials removed by the demolition operations
23 in accordance with Section 3-02.3.
24
25 The Contractor shall roughen, clean, and saturate the existing concrete surfaces
26 bonding to the fresh concrete in accordance with Section 6-02.3(12).
27
28 6-02.3.OPT8(J).GB6
29 **(April 6, 2015)**
30 **Drilling Holes and Setting Steel Reinforcing Bars, and Placing Concrete**
31 The Contractor shall drill holes for, and set, steel reinforcing bars into the existing
32 concrete as shown in the Plans in accordance with Section 6-02.3(24)C as
33 supplemented in these Special Provisions.
34
35 6-02.3.OPT8(K).GB6
36 **(April 6, 2015)**
37 **Installing and Tensioning High-Strength Steel Bar Reinforcement**
38 The Contractor shall furnish and install high-strength steel bars as shown in the
39 Plans. The hole through existing concrete shall be core drilled. The concrete surface
40 in contact with the high-strength steel bar bearing plate shall be coated with epoxy
41 bonding agent just prior to stressing the high-strength steel bar. After stressing, the
42 high-strength steel bar shall be grouted in accordance with Section 6-02.3(26)H.
43
44 6-02.3.OPT8(L).GB6
45 **(November 20, 2023)**
46 **Longitudinal Seismic Restrainers**
47 The Contractor shall submit Type 1 Working Drawings consisting of shop drawings
48 of the steel components of the longitudinal seismic restrainer assemblies in
49 accordance with Section 6-03.3(7).
50

1 The Contractor shall core drill holes through the pier diaphragm for the high-strength
2 steel bar as shown in the Plans. The Contractor shall set the PVC pipe in place with
3 epoxy bonding agent as shown in the Plans.
4

5 Holes for the resin bonded anchors for the longitudinal seismic restrainer anchorages
6 shall be located and drilled in accordance with Section 6-02.3(18)A, and as follows:
7

- 8 1. The bottom layer of steel reinforcing bars in the slab in the vicinity of the
9 longitudinal seismic restrainer anchorage as shown in the Plans shall be
10 located and marked on the concrete surface.
11
- 12 2. Using the anchorage assembly as a template, the Contractor shall align and
13 slightly shift the anchorage assembly as required so that the holes avoid
14 the existing steel reinforcing bars.
15
- 16 3. The Contractor shall drill holes for the resin bonded anchors with the
17 anchorage assembly in position as a template.
18
- 19 4. If, after shifting the anchorage assembly, conflicts still exist between hole
20 locations and existing steel reinforcing bars, the Contractor may, with the
21 Engineer's approval, core drill holes at the conflict locations.
22

23 The surface of the concrete in contact with the anchorage assembly shall be coated
24 with Type II epoxy bonding agent conforming to Section 9-26.2, with the grade and
25 class as recommended by the epoxy bonding agent manufacturer. The longitudinal
26 seismic restrainer anchorage assembly shall be set in place within the set time
27 specified in the manufacturer's data sheet for the epoxy bonding agent.
28

29 All longitudinal seismic restrainers at a pier shall be installed so that the free end (the
30 end with the gap as shown in the Plans) shall be on the same side of the pier.
31

32 6-02.3.OPT8(M).GB6

33 **(September 2, 2025)**

34 **Column Jacketing**

35 The steel column jacket assembly for each column shown in the Plans shall be
36 fabricated in accordance with the shop drawings.
37

38 The Contractor shall excavate and shore as required to expose the column surface
39 below ground to the top of the existing footing or footing pedestal. Dirt, debris and
40 any surface attachments shall be removed from the surface of the column in
41 accordance with the Contractor's column jacket installation plan.
42

43 For specific columns for which the Engineer confirms a waiver of the pre-fabrication
44 field measuring of the column height dimension, the Contractor shall field measure
45 the column height upon completion of the excavation. The Contractor shall field cut
46 the top of the column jacket assembly using the method, template, and equipment
47 as specified in the pre-fabrication field measuring waiver request submittal.
48

49 The Contractor shall position the steel column jacket around the existing column
50 using spacers to center the assembly. The spacers may be welded to the inside of
51 the jacket and, if used, shall be placed and attached as shown in the shop drawings.
52

Field welded complete penetration groove welds of the column jacket assemblies shall be inspected in accordance with Section 6-03.3(25)A. Field weld inspection shall be performed by a certified welding inspector (CWI). The Contractor shall not begin welding until receiving acceptance of the joint fit-up from the CWI. The CWI shall randomly monitor the intermediate stages of welding. The CWI's daily reports and nondestructive testing reports indicating compliance with contract requirements shall be submitted as a Type 1 Working Drawing upon completion of the last column jacket in the Contract.

The Contractor shall install external grout injection valves for use in filling the cavity with grout. The valves shall be spaced such that the grout will uniformly fill the gap between the jacket assembly and the column surface. The grout pump shall be equipped with a pressure gauge to monitor grout pressures. The grouting equipment shall be sized to enable the grout to be pumped in one continuous operation. The mixer shall be capable of continuously agitating the grout.

The production grout compressive strength shall be measured using four inch diameter by eight inch cylinders, cast and cured in accordance with Section 6-02.3(5)H. The cylinders shall attain a 7-day minimum compressive strength of 4,000 psi.

The gap between the column jacket assembly and the existing column surface at the base of the assembly shall be sealed in accordance with the column jacket installation plan.

The grouting operation shall conform to Section 6-02.3(6)A.

The grouting operation shall begin from the base of the assembly and from the base of each successive lift. The Contractor shall pump grout into the assembly while maintaining a uniform level grout head around the column.

The Contractor shall limit the height of each lift of grout to minimize undulations and displacements of the surface of the column jacket assembly during grouting. For column jacket assemblies of circular (constant radius) cross section, the height of each lift of grout shall be limited to 20 feet maximum, except as otherwise accepted by the Engineer. For column jacket assemblies with cross sections of all other shapes, the height of each lift of grout shall be limited to 8 feet maximum, except as otherwise accepted by the Engineer.

The Contractor may restrain the column jacket assembly within the specified tolerances during grouting operations by using a bracing system in accordance with the column jacket installation plan. Except as otherwise shown in the Plans, restraints for the bracing system shall not pass through the column. Except when a bracing system is used, placement of the next grout lift shall not begin until the previous grout lift has hardened.

The Contractor shall contain and collect all grout outside the column jacket assembly.

When the assembly is completely grouted to the top, the Contractor shall place mortar conforming to Section 9-20.4(2) over the top of the grout at the top of the assembly, and shall slope the mortar to drain.

1 All clamps, valves, injection ports, lifting ears, and other attachments shall be
2 removed not less than 24 hours after completing grouting operations at the column.
3 The Contractor shall fill all voids with mortar conforming to Section 9-20.4(2), and
4 shall finish them flush with the exterior surface of the column jacket assembly. The
5 Contractor shall not remove the attachments by flame cutting.
6

7 Seven calendar days after completing the grouting of a column jacket assembly, the
8 Engineer will inspect the assembly for voids between the steel casing and the grout.
9 The Contractor shall completely fill all voids detected by the Engineer by injecting
10 epoxy bonding agent into the lowest point of each void and venting at the highest
11 point. The exposed epoxy bonding agent shall be finished flush with the exterior
12 surface of the column jacket assembly.
13

14 After inspection for voids and epoxy injection of voids is complete, steel surfaces with
15 damaged primer coat shall be repaired with field primer in accordance with Section
16 6-07.3(9). The primer repair shall be followed by application of the intermediate and
17 finish field coats of paint to all exposed steel surfaces in accordance with Section 6-
18 07.3(9) and Section 6-03.3(30) as supplemented in these Special Provisions.
19

20 Backfill shall not be placed against the column jacket assembly until the finish coat
21 of paint is completely cured, based on the cure duration recommended by the paint
22 manufacturer. The Contractor shall fill and compact the excavation with native
23 backfill, except as otherwise specified in the Plans, in accordance with Section 3-
24 07.3(1)E.
25

26 6-02.3.OPT9.GB6

27 ***(January 7, 2019)***

28 ***Polyester Concrete***

29 **Manufacturer's Technical Representative**

30 The Contractor shall have the services of a qualified polyester concrete
31 manufacturer's technical representative physically present at the job site. The
32 manufacturer's technical representative shall assist the Contractor in training the
33 Contractor's personnel and providing technical assistance in preparing the header
34 blockout surface, applying primer, and mixing, placing, and curing the polyester
35 concrete.
36

37 **Mix Design**

38 Polyester concrete shall be composed of the following three components – polyester
39 resin binder, high molecular weight methacrylate (HMWM) resin, and aggregate, in
40 accordance with Section 6-02.2 as supplemented in these Special Provisions.
41

42 The Contractor shall prepare and submit a Type 1 Working Drawing consisting of the
43 polyester concrete design mix and mixing procedure. The mix design shall include a
44 recommended initiator percentage for the expected application temperature, and the
45 recommended amount of polyester resin binder as a percentage of the dry weight of
46 aggregate. The amount of peroxide initiator used shall result in a polyester concrete
47 set time between 30 and 120 minutes during placement as determined by California
48 Test 551, Part 2, "Method of Test For Determination of Set Time of Concrete Overlay
49 and Patching Materials", by Gilmore Needles. Accelerators or inhibitors may be
50 required as recommended by the polyester resin binder supplier.
51

1 **Delivery and Storage of Materials**

2 All materials shall be delivered in their original containers bearing the manufacturer's
3 label, specifying date of manufacturing, batch number, trade name brand, and
4 quantity. Each shipment of polyester resin binder and HMWM resin shall be
5 accompanied by a Safety Data Sheet (SDS).
6

7 The material shall be stored in accordance with the manufacturer's
8 recommendations.
9

10 Sufficient material to perform the entire polyester concrete application shall be in
11 storage at the site prior to any field preparation.
12

13 **Equipment and Containment**

14 The Contractor shall submit a Type 1 Working Drawing consisting of all equipment
15 for cleaning the concrete and steel surfaces, and mixing and applying the polyester
16 concrete.
17

18 The HMWM resin, and abrasive blasting materials, shall be contained and restricted
19 to the surface receiving the polyester concrete only, and shall not escape to the
20 surrounding environment. The Contractor shall submit a Type 1 Working Drawing
21 consisting of the method and materials used to collect and contain the HMWM resin,
22 and abrasive blasting materials.
23

24 **Surface Preparation**

25 The concrete and steel surfaces shall be prepared by removing all material which
26 may act as a bond breaker between the surface and the polyester concrete. Surface
27 cleaning shall be by abrasive blasting. Precautions shall be taken to ensure that no
28 dust or debris leaves the bridge deck and that all traffic is protected from rebound
29 and dust.
30

31 If the concrete or steel surfaces become contaminated, the contaminated areas shall
32 be recleaned by abrasive blasting.
33

34 **Application of Prime Coat**

35 Application of the HMWM prime coat and the polyester concrete shall not begin if
36 rain is forecast within 12-hours of completion of the Work. The area receiving the
37 prime coat shall be dry and had no rain within the past 12 hours. Immediately prior
38 to applying the prime coat, the surfaces shall be cleaned to remove accumulated
39 dust and any other loose material.
40

41 The concrete bridge deck surface shall be between 50F and 85F when applying the
42 prime coat.
43

44 The Contractor shall apply one coat of promoted/initiated wax-free HMWM resin to
45 the prepared concrete and steel surfaces immediately before placing the polymer
46 concrete. The promoted/initiated resin shall be worked into the concrete in a manner
47 to assure complete coverage of the area receiving polyester concrete. A one pint
48 sample of each batch of promoted/initiated HMWM resin shall be retained and
49 submitted to the Engineer at the time of primer application.
50

51 The prime coat shall cure for 30 minutes minimum before beginning placement of
52 the polyester concrete. Placement of the polymer concrete shall not proceed until the

1 Engineer verifies that the HMWM resin was properly promoted and initiated, as
2 evidenced by the HMWM batch sample.

3
4 If the primed surface becomes contaminated, the contaminated area shall be cleaned
5 by abrasive blasting and reprimed.
6

7 **Mixing Equipment for Polyester Concrete**

8 Polyester concrete shall be mixed in mechanically operated mixers in accordance
9 with the mix design as approved by the Engineer. The mixer size shall be limited to
10 a nine cubic yard maximum capacity, unless otherwise approved by the Engineer.

11
12 The aggregate and resin volumes shall be recorded for each batch along with the
13 date of each recording. A printout of the recordings shall be furnished to the Engineer
14 at the end of each work shift.

15
16 The Contractor shall prevent any cleaning chemicals from reaching the polyester mix
17 during the mixing operations.
18

19 **Mixing Components**

20 The polyester resin binder in the polyester modified concrete shall be approximately
21 12 percent by weight of the dry aggregate. The Contractor shall specify the exact
22 percentage in the mix design Working Drawing submittal.
23

24 The polyester resin binder shall be initiated and thoroughly blended just prior to
25 mixing the aggregate and binder. The polyester concrete shall be thoroughly mixed
26 prior to placing.
27

28 **Polyester Concrete Placement**

29 The polyester concrete shall be placed within two hours of placing the prime coat.

30
31 Polyester concrete shall be placed within 15 minutes following initiation. Polyester
32 concrete that is not placed within this time shall be discarded.
33

34 The surface temperature of the area receiving the polyester concrete shall be the
35 same as specified above for the HMWM prime coat.
36

37 The polyester concrete shall be consolidated in accordance with the manufacturer's
38 recommendations.
39

40 **Finished Polyester Concrete Surface**

41 The finished surface of the polyester concrete shall be smooth and uniform as to
42 crown and grade in accordance with Section 6-02.3(10)D3.
43

44 Finishing equipment used shall strike off the polyester concrete to the established
45 grade and cross section.
46

47 The polyester concrete shall receive an abrasive sand finish. The sand finish shall
48 be applied by hand immediately after strike-off and before gelling occurs. Sand shall
49 be broadcast onto the surface to affect a uniform coverage of a minimum of 0.8
50 pounds per square yard.
51

Curing

The polyester concrete shall be cured in accordance with the manufacturer's recommendations. The Contractor shall measure the compressive strength of the cured polyester concrete with a rebound hammer in accordance with ASTM C 805. The readings of the rebound hammer used shall be correlated to the compressive strength of the polyester concrete product in accordance with ASTM C 805 Section 5.4, and the Contractor shall submit a Type 1 Working Drawing of this correlation.

Traffic and equipment shall not be permitted on the polyester concrete until it achieves a compressive strength of 2500 psi based on the rebound hammer readings and the correlation chart for the rebound hammer used.

6-02.3.OPT10.GB6

(January 7, 2019)

Elastomeric Concrete

Elastomeric concrete shall be composed of the following three components – two-component polyurethane resin binder, and aggregate, in accordance with Section 6-02.2 as supplemented in these Special Provisions.

Manufacturer's Technical Representative

The Contractor shall have the services of a qualified elastomeric concrete manufacturer's technical representative physically present at the job site. The manufacturer's technical representative shall assist the Contractor in training the Contractor's personnel and providing technical assistance in preparing the header blackout surface, applying primer, and mixing, placing, and curing the elastomeric concrete.

Delivery and Storage of Materials

All materials shall be delivered in their original containers bearing the manufacturer's label, specifying date of manufacturing, batch number, trade name brand, and quantity. Each shipment of polyurethane resin binder shall be accompanied by a Safety Data Sheet (SDS).

The materials shall be stored in accordance with the manufacturer's recommendations.

Sufficient material to perform the entire elastomeric concrete application shall be in storage at the site prior to any field preparation.

Equipment and Containment

The Contractor shall submit a Type 1 Working Drawing consisting of all equipment for cleaning the concrete and steel surfaces, and mixing and applying the elastomeric concrete.

The abrasive blasting materials shall be contained and restricted to the surface receiving the elastomeric concrete only and shall not escape to the surrounding environment. The Contractor shall submit a Type 1 Working Drawing consisting of the method and materials used to collect and contain the abrasive blasting materials.

Surface Preparation

The concrete and steel surfaces shall be prepared by removing all material which may act as a bond breaker between the surface and the elastomeric concrete,

1 including the removal of all loose, deteriorated, or otherwise unsound concrete. Steel
2 surfaces shall be cleaned and prepared to an SSPC SP-10 surface condition.
3 Surface cleaning shall be by abrasive blasting.
4

5 Precautions shall be taken to ensure that no dust or debris leaves the bridge deck
6 and that all traffic is protected from rebound and dust.
7

8 If the concrete or steel surfaces become contaminated, the contaminated areas shall
9 be recleaned by abrasive blasting.
10

11 Freshly placed concrete shall be cured for a minimum of 14 calendar days before
12 application of primer and elastomeric concrete.
13

14 **Application of Prime Coat**

15 Application of the prime coat and the elastomeric concrete shall not begin if rain is
16 forecast within 12-hours of completion of the Work. The area receiving the prime coat
17 shall be dry and had no rain within the past 12 hours. Immediately prior to applying
18 the prime coat, the surfaces shall be cleaned to remove accumulated dust and any
19 other loose material.
20

21 The concrete bridge deck surface shall be between 50F and 85F when applying the
22 prime coat.
23

24 The Contractor shall apply primer in accordance with the elastomeric concrete
25 manufacturer's recommendations and shall limit the extent of primer application to
26 that surface area that can be covered by a layer of elastomeric concrete before
27 primer cure.
28

29 If the primed surface becomes contaminated, the contaminated area shall be cleaned
30 by abrasive blasting and reprimed.
31

32 **Mixing Components**

33 The Contractor shall mix the elastomeric concrete components and the resultant
34 mixture in accordance with the equipment and procedure recommended by the
35 elastomeric concrete manufacturer.
36

37 **Elastomeric Concrete Placement**

38 The elastomeric concrete shall be placed on the liquid prime coat within the time
39 limits specified by the manufacturer. Elastomeric concrete shall be placed in layers
40 not to exceed the maximum depth recommended by the elastomeric concrete
41 manufacturer. At locations deep enough to require placement of multiple layers of
42 elastomeric concrete, each layer shall be cured, and the top of the previous layer
43 roughened, as recommended by the elastomeric concrete manufacturer before
44 placement of the next layer.
45

46 Elastomeric concrete shall be placed within five minutes of initiation.
47

48 The surface temperature of the area receiving the elastomeric concrete shall be the
49 same as specified above for the prime coat.
50

1	Finished Elastomeric Concrete Surface	
2	The finished surface of the elastomeric concrete shall be smooth and uniform as to	
3	crown and grade in accordance with Section 6-02.3(10)D3.	
4		
5	Finishing tools or equipment used shall strike off the elastomeric concrete to the	
6	established grade and cross section.	
7		
8	The finished surface of elastomeric concrete shall receive an abrasive sand finish.	
9	The sand finish shall be applied by hand immediately after strike-off and before	
10	gelling occurs. Sand shall be broadcast onto the surface to affect a uniform coverage	
11	of a minimum of 0.8 pounds per square yard.	
12		
13	Curing	
14	The elastomeric concrete shall be cured in accordance with the manufacturer's	
15	recommendations. The Contractor shall measure the compressive strength of the	
16	cured elastomeric concrete with a rebound hammer in accordance with ASTM C805.	
17	The readings of the rebound hammer used shall be correlated to the compressive	
18	strength of the elastomeric concrete product in accordance with ASTM C805 Section	
19	5.4, and the Contractor shall submit a Type 1 Working Drawing of this correlation.	
20		
21	Traffic and equipment shall not be permitted on the elastomeric concrete until it	
22	achieves a compressive strength of 2500 psi based on the rebound hammer readings	
23	and the correlation chart for the rebound hammer used.	
24		
25	6-02.3(2).GR6	
26	<i>Proportioning Materials</i>	
27		
28	6-02.3(2).INST1.GR6	
29	Section 6-02.3(2) is supplemented with the following:	
30		
31	6-02.3(2).OPT1.GB6	
32	(September 8, 2020)	
33	Expansion Joint Header Concrete	
34	Expansion joint header concrete shall have a minimum compressive strength of	
35	4,000 psi at 28 days. Unless the Plans or Special Provisions specify a different	
36	strength, the concrete shall achieve a minimum compressive strength of 2,500 psi	
37	based on early break cylinders prior to allowing traffic to pass across the expansion	
38	joint.	
39		
40	Type III cement conforming to Section 9-01.2(1) may be used.	
41		
42	The nominal maximum size aggregate shall be 1-1/2 inch.	
43		
44	Section 6-02.3(3) notwithstanding, non-chloride accelerating admixtures conforming	
45	to the following specifications may be used:	
46		
47	Admixture	Specifications
48	Accelerating	Section 9-23.6(4)
49		
50	Water Reducing/Accelerating	Section 9-23.6(6)
51		

1 6-02.3(4).GR6

2 **Ready-Mix Concrete**

3
4 6-02.3(4)A.GR6

5 **Qualification of Concrete Suppliers**

6
7 6-02.3(4)A.INST1.GR6

8 Section 6-02.3(4)A is revised to read:

9
10 6-02.3(4)A.OPT1.2027.GR6

11 (November 25, 2025)

12 Batch Plant Prequalification requires a certification by the National Ready Mix
13 Concrete Association (NRMCA). Information concerning NRMCA certification
14 may be obtained from the NRMCA at 900 Spring Street, Silver Springs, MD
15 20910 or online at www.nrmca.org. The NRMCA certification shall be valid for a
16 2-year period from the date of certificate. The following documentation shall be
17 submitted to the Engineer; a copy of the current NRMCA Certificate of
18 Conformance, the concrete mix design(s) (WSDOT Form 350-040), along with
19 copies of the truck list, batch plant scale certification, admixture dispensing
20 certification, and volumetric water batching devices (including water meters)
21 verification.

22
23 For central-mixed concrete, the mixer shall be equipped with a timer that
24 prevents the batch from discharging until the batch has been mixed for the
25 prescribed mixing time. A mixing time of 1 minute will be required after all
26 materials and water have been introduced into the drum. Shorter mixing time
27 may be allowed if the mixer performance is tested in accordance with (AASHTO
28 M157 Annex A1 Concrete Uniformity Requirements). Tests shall be conducted
29 by an independent testing lab or by a commercial concrete producer's lab. If the
30 tests are performed by a producer's lab, the Engineer or a representative will
31 witness all testing.

32
33 For shrink-mixed concrete, the mixing time in the stationary mixer shall not be
34 less than 30 seconds or until the ingredients have been thoroughly blended.

35
36 For transit-mixed or shrink-mixed concrete, the mixing time in the transit mixer
37 shall be a minimum of 70 revolutions at the mixing speed designated by the
38 manufacturer of the mixer. Following mixing, the concrete in the transit mixer
39 may be agitated at the manufacturer's designated agitation speed.

40
41 All transit-mixers shall be equipped with an operational revolution counter and a
42 functional device for measurement of water added. All mixing drums shall be
43 free of concrete buildup and the mixing blades shall meet the minimum
44 Specifications of the drum manufacturer. A copy of the manufacturer's blade
45 dimensions and configuration shall be on file at the concrete producer's office.
46 A clearly visible metal data plate (or plates) attached to each mixer and agitator
47 shall display: (1) the maximum concrete capacity of the drum or container for
48 mixing and agitating, and (2) the rotation speed of the drum or blades for both
49 the agitation and mixing speeds. Mixers and agitators shall always operate
50 within the capacity and speed-of-rotation limits set by the manufacturer. Mixers,
51 when fully loaded, shall keep the concrete uniformly mixed. All mixers and
52 agitators shall be capable of discharging the concrete at a steady rate. Only

those transit-mixers which meet the above requirements will be allowed to deliver concrete to a Contracting Agency project covered by these Specifications.

In transit-mixing, mixing shall begin within 30 seconds after the cement is added to the aggregates.

For each project, at least biannually, or as required, the Plant Manager will examine mixers and agitators to check for buildup of hardened concrete or worn blades. If this examination reveals a problem, or if the Engineer wishes to test the quality of the concrete, slump tests may be performed with samples taken at approximately the $\frac{1}{4}$ and $\frac{3}{4}$ points as the batch is discharged. The maximum allowable slump difference shall be as follows:

If the average of the two slump tests is < 4 inches, the difference shall be < 1 inch or if the average of the two slump tests is > 4 inches, the difference shall be $< 1\frac{1}{2}$ inches.

If the slump difference exceeds these limits, the equipment shall not be used until the faulty condition is corrected. However, the equipment may continue in use if longer mixing times or smaller loads produce batches that pass the slump uniformity tests.

All concrete production facilities will be subject to verification inspections at the discretion of the Engineer. Verification inspections are a check for: current scale certifications; accuracy of water metering devices; accuracy of the batching process; and verification of coarse aggregate quality.

If the concrete producer fails to pass the verification inspection, the following actions will be taken:

1. For the first violation, a written warning will be provided.
2. For the second violation, the Engineer will give written notification and the Contracting Agency will assess a price reduction equal to 15 percent of the invoice cost of the concrete that is supplied from the time of the infraction until the deficient condition is corrected.
3. For the third violation, the concrete supplier is suspended from providing concrete until all such deficiencies causing the violation have been permanently corrected and the plant and equipment have been reinspected and meets all the prequalification requirements.
4. For the fourth violation, the concrete supplier shall be disqualified from supplying concrete for 1 year from the date of disqualification. At the end of the suspension period the concrete supplier may request that the facilities be inspected for prequalification.

6-02.3(4)D.GR6

Temperature and Time For Placement

6-02.3(4)D.INST1.GR6

The last paragraph of Section 6-02.3(4)D is revised to read:

6-02.3(4)D.OPT1.2027.GR6

(November 3, 2025)

When conditions are such that the concrete may experience an accelerated initial set, the Engineer may require a shorter time to discharge. The time to discharge in the above table may be extended 15 minutes upon request from the Contractor and concurrence of the Engineer. Time extensions greater than 15 minutes require a Type 3 Working Drawing submittal. The submittal shall include:

1. An explanation of why an extended placement time is necessary for the Work.
2. The proposed concrete mix design, including the specified dosage of chemical admixtures for the anticipated range of concrete temperatures and details regarding when the admixtures are to be introduced into the mix. Type B (retarding) or Type D (water-reducing and retarding) chemical admixtures are required for structural or self-consolidating concrete.
3. Technical data sheets and supporting information from the admixture supplier indicating the appropriate chemical admixture dosage for the anticipated concrete temperatures, haul times, and working times.
4. The haul distance and estimated range of haul times.
5. The proposed maximum time to discharge for the mix(es) shall not exceed 3 hours.

6-02.3(5).GR6

Acceptance of Concrete

6-02.3(5)B.GR6

Certification of Compliance

6-02.3(5)B.INST1.GR6

The first paragraph of Section 6-02.3(5)B is revised to read:

6-02.3(5)B.OPT1.2027.GR6

(November 3, 2025)

The concrete producer shall provide a Certificate of Compliance for each truckload of concrete. The Certificate of Compliance shall verify that the delivered concrete is in compliance with the mix design and shall include:

Manufacturer plant (batching facility)
Contracting Agency Contract number
Date
Time batched
Truck No.
Quantity (quantity batched this load)
Type of concrete by class and producer design mix number

1 Cement producer, type, and Mill Certification No. (The mill test number as
2 required by Section 9-01.3 is the basis for acceptance of cement.)
3 Fly ash (if used) brand and Class
4 Accepted aggregate gradation designation
5
6 6-02.3(6).GR6
7 **Placing Concrete**
8
9 6-02.3(6)B.GR6
10 **Placing Concrete in Foundation Seals**
11
12 6-02.3(6)B.INST1.GR6
13 Section 6-02.3(6)B is supplemented with the following:
14
15 6-02.3(6)B.OPT1.GB6
16 (June 26, 2000)
17 If, in the opinion of the Engineer, water conditions at the time of construction do
18 not require seals for footing construction, the Engineer may specify that the
19 seals be omitted. In such a case the Contractor shall lower and construct the
20 footing, as shown in the Plans, at the elevation shown in the Plans for the bottom
21 of seal. The height of the pier shaft or columns shall be adjusted accordingly.
22
23 No adjustment will be allowed in the unit contract prices for concrete, steel
24 reinforcing bar, and excavation by reason of any increase or decrease in
25 quantities involved due to the deletion of seals.
26
27 6-02.3(6)B.OPT2.GB6
28 (June 26, 2000)
29 If, in the opinion of the Engineer, water conditions at the time of construction do
30 not require seals for construction, the Engineer may specify that the seals be
31 omitted. In such a case, the Contractor shall excavate only to the bottom of
32 footing elevation and shall construct the footing as shown in the Plans.
33
34 No adjustment will be allowed in the unit contract prices for concrete, steel
35 reinforcing bar, and excavation by reason of any increase or decrease in
36 quantities involved due to the deletion of seals.
37
38 6-02.3(9).GR6
39 **Precast Concrete Panels**
40
41 6-02.3(9)A.GR6
42 **Shop Drawings**
43
44 6-02.3(9)A.INST2.GR6
45 The list included in the third paragraph of Section 6-02.3(9)A is supplemented with
46 the following:
47
48 6-02.3(9)A.OPT6.GB6
49 (September 8, 2020)
50 7. Construction sequence and method of forming the precast prestressed
51 concrete stay-in-place panels.
52

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20 6-02.3(9)E.GR6
21 **Finishing**
22
23 6-02.3(9)E.INST1.GR6
24 Section 6-02.3(9)E is supplemented with the following:
25
26 6-02.3(9)E.OPT6.GB6
27 (September 8, 2020)
28 The Contractor shall furnish a Class 2 surface finish, as specified in Section 6-
29 02.3(14)B, on all surfaces of the precast prestressed concrete stay-in-place
30 panels, except as otherwise noted. The top surface of all panels shall be
31 textured using a metal tined comb. It shall leave striations in the fresh concrete
32 1/4-inch deep by at least 1/8-inch wide, spaced at 2 to 3 times the groove width
33 apart, and oriented perpendicular to the prestressing strand. The timing and
34 method used shall produce the required texture without displacing larger
35 particles of aggregate. Areas of mortar buildup more than 1/4 inch above the top
36 surface of the panel shall be removed.
37
38 6-02.3(9)F.GR6
39 **Tolerances**
40
41 6-02.3(9)F.INST1.GR6
42 Section 6-02.3(9)F is supplemented with the following:
43
44 6-02.3(9)F.OPT1.GB6
45 (September 8, 2020)
46 The precast prestressed concrete stay-in-place panels shall not exceed the
47 following scalar tolerances:
48
49 Length (perpendicular to strands): $\pm 3/16$ inch
50
51 Width (parallel to strands): $\pm 1/4$ inch
52

1	Thickness:	+ 1/4, -1/8 inch
2		
3	Squareness (difference in diagonal lengths):	± 1/4 inch
4		per 5 feet,
5		± 1/2" max.
6		
7	Vertical location of strand group C.G.:	± 1/16 inch
8		
9	Vertical location of individual strands:	± 1/8 inch
10		
11	Horizontal location of strands:	± 1/4 inch
12		
13	Strand or bar projection from ends:	± 1/2 inch
14		
15	Camber (either upward or downward)	± 1/4 inch
16	at time of placement on structure:	per ten feet
17		

18 Precast prestressed concrete stay-in-place panels with tolerances exceeding
19 those specified above, or with hairline cracks visibly apparent radiating from the
20 strand at the end of the panel and extending more than three inches along the
21 panel will be subject to evaluation by the Engineer for possible rejection.

22
23 6-02.3(9)G.GR6

24 **Handling and Storage**

25
26 6-02.3(9)G.INST1.GR6

27 Section 6-02.3(9)G is supplemented with the following:

28
29 6-02.3(9)G.OPT6.GB6

30 (September 8, 2020)

31 Precast prestressed concrete stay-in-place panels shall be maintained in a flat
32 and level position, without any twisting, at all times. Supports shall be oriented
33 transverse to the prestressed strands, extend the full width of the panel, and be
34 located in a manner to minimize elastic and time-dependent deformation of the
35 panels.

36
37 Unloading and reloading at a site other than the bridge site will be permitted only
38 under the direct supervision of the Engineer. The panels shall not be stacked,
39 unless otherwise allowed by the Engineer. If such permission is granted, the
40 panel supports shall be in the same vertical plane and shall be of sufficient height
41 to prevent damage to the lifting bar loops. The Contractor shall have received
42 the Engineer's verification that the bottom panel of the stack is flat and level,
43 without any twisting, prior to stacking additional panels. The Contractor shall
44 not stack panels on top of adjacent girders of the structure.

45
46 6-02.3(9)I.GR6

47 **Erection**

48
49 6-02.3(9)I.INST1.GR6

50 Section 6-02.3(9)I is supplemented with the following:

51

1 6-02.3(9)I.OPT6.GB6
2 (September 8, 2020)
3 The precast prestressed concrete stay-in-place panels shall be at least 60 days
4 old at the time of placing bridge deck concrete. The Contractor shall place the
5 panels atop the prestressed girders as shown in the Plans, adjusting the leveling
6 bolts as required to match the level of adjacent panels and accommodate
7 camber.
8
9 The grout pad shall be placed after the panels have been fully adjusted for grade
10 and camber. The exposed portion of the grout pad forms that are intended to
11 be left in place permanently shall be tinted to match the color of the adjacent
12 concrete surfaces and shall be secured with an accepted adhesive or other
13 method as accepted by the Engineer.
14
15 Prior to placing the bridge deck steel reinforcing bars and concrete, the
16 Contractor shall place a backer rod at the intersection between panels as shown
17 in the Plans. All intersections between panels shall be sealed to prevent leakage
18 during concrete placement. Prior to placing the bridge deck concrete, the
19 surface of the panels shall be cleaned of all foreign materials and saturated with
20 water for a minimum of 4 hours before fresh concrete is placed.
21
22 6-02.3(10).GR6
23 ***Bridge Decks and Bridge Approach Slabs***
24
25 6-02.3(10)D.GR6
26 **Concrete Placement, Finishing, and Texturing**
27
28 6-02.3(10)D.INST1.GR6
29 Section 6-02.3(10)D is supplemented with the following:
30
31 6-02.3(10)D.OPT1.GB6
32 **(August 4, 2008)**
33 **Repairing Slab Left Exposed After Removing Existing Curb or Sidewalk**
34 The concrete exposed by the removal of the existing curb or sidewalk shall be
35 removed to a depth of 1-inch below finished grade or to the top of the existing
36 roadway deck steel reinforcing bars, whichever is less. The Contractor shall not
37 remove concrete below the top of the existing steel reinforcing bars. The
38 Contractor shall not damage the bond between the existing steel reinforcing bars
39 and the concrete.
40
41 After roughening, cleaning and wetting the surface in accordance with Section
42 6-02.3(12), the Contractor shall place concrete over the surface to the finish
43 grade of the adjacent concrete roadway deck using a modified Class 4000
44 concrete mix. The maximum aggregate size in the modified Class 4000
45 concrete mix shall be 3/8 inch. The finished portion of the deck shall have the
46 same texture, slope and grade as that of the existing deck.
47
48 6-02.3(10)D.OPT2.GB6
49 **(August 4, 2008)**
50 **Repairing Slab Left Exposed After Removing Existing Curb and Railbase**
51 After roughening and cleaning the concrete exposed by the removal of the
52 existing curb and railbase, that portion of the exposed surface not covered by

1 the new traffic barrier shall be coated with epoxy mortar and finished to have the
2 same texture, slope and grade as that of the existing deck.
3

4 6-02.3(10)D.OPT3.GB6
5 **(September 2, 2025)**
6 **Bridge Drain Risers**
7 The Contractor shall submit a Type 2 Working Drawing consisting of the method
8 of removing the bridge drain grate nipple extrusion, the method of grinding the
9 existing curb as necessary for bridge drain riser installation, and the method of
10 cleaning the existing drain casting surfaces in contact with the drain risers. The
11 shop drawings and weld procedures for the drain riser assemblies shall be
12 submitted in accordance with Sections 6-03.3(7) and 6-03.3(25).
13

14 The existing bridge drain grate bolt, debris from removing the nipple extrusion
15 and cleaning the drain casting contact surfaces, and all debris in the bridge drain
16 cavity, shall be disposed of in accordance with Section 3-02.3.
17

18 After cleaning the bridge drain casting contact surfaces, the Contractor shall
19 install the spacer bars and riser bars of the bridge drain riser assembly as shown
20 in the Plans.
21

22 All exposed surfaces of the spacer bars and riser bars following installation shall
23 be painted with two coats of paint conforming to Section 9-08.1(2)F. Each coat
24 shall have a minimum dry film thickness of two mils.
25

26 6-02.3(10)D.OPT3(A).GB6
27 **(August 4, 2008)**
28 A minimum of four slotted holes, each 2 inches long and 3/4 inches high, shall
29 be provided on each bridge drain riser. The slotted holes shall be located at the
30 bottom of the riser, two on the traffic side of the assembly and one each on the
31 short ends of the assembly. Risers shall be installed to be flush with the
32 proposed roadway profile and shall maintain uniform contact with the existing
33 drain. This portion of work shall be completed prior to the installation of the
34 membrane waterproofing.
35

36 The membrane waterproofing shall extend to the bottom of and all around the
37 bridge drain riser, except that the Contractor shall ensure that the slotted holes
38 of the bridge drain riser assembly remain open and unplugged by the membrane
39 waterproofing. Water seeping under the overlay shall be allowed to drain
40 through the slotted holes and into the bridge drains.
41

42 After all the items of work on this project have been completed, the Contractor
43 shall clean and flush all the bridge drains.
44

45 6-02.3(10)D.OPT5.GB6
46 **(September 2, 2025)**
47 **Plugging Existing Bridge Drain**
48 The Contractor shall submit a Type 2 Working Drawing consisting of the method
49 and materials used to plug the existing bridge drains specified in the Plans to be
50 plugged. The submittal shall include the following:
51

1. Material used to plug the drain outlet, and method of securing the plug in position.
 2. The type of concrete material used to fill the drain cavity.
 3. The method used to remove the exposed drainpipe, if removal is specified in the Plans.
- All cut, damaged, and exposed metal surfaces to remain, including the drain outlet plug if metal components are used, shall be painted with two coats of paint conforming to Section 9-08.1(2)F. Each coat shall have a minimum dry film thickness of two mils.
- When the removal of exposed drainpipe is specified in the Plans, the Contractor shall remove the embedded anchors a minimum of one inch beneath the existing concrete surface. The void left by removal of the embedded anchors shall be filled with mortar conforming to Section 9-20.4(2). The mortar shall match the color of the existing concrete surface as near as practicable.
- All materials removed from the bridge drains specified in the Plans to be plugged shall be disposed of as specified in Section 3-02.3.
- 6-02.3(10)D.OPT12.GB6
(September 2, 2025)
Core Drilled Bridge Deck Drain
The Contractor shall core drill drain holes through the bridge deck of the bridges and in the locations shown in the Plans. The Contractor shall grind the concrete bridge deck to provide a taper at the top of the cored hole if shown in the Plans. The Contractor shall contain, collect and dispose of the concrete cores and debris in accordance with Section 3-02.3.
- The Contractor shall coat the surfaces of the cored holes with epoxy bonding agent, and shall set a bridge deck drain pipe sleeve in place as shown in the Plans. The Contractor shall ensure that the void between the cored hole surface and the outside of the pipe sleeve is completely filled with epoxy bonding agent. The Contractor shall take appropriate measures to prevent the epoxy bonding agent from escaping from the void and shall secure the pipe sleeve in position until the epoxy bonding agent is cured.
- 6-02.3(10)F.GR6
Bridge Approach Slab Orientation and Anchors
- 6-02.3(10)F.INST1.GR6
Section 6-02.3(10)F is supplemented with the following:
- 6-02.3(10)F.OPT2.GB6
(August 4, 2008)
The pavement end of the bridge approach slab shall be constructed parallel to the pavement seat.
- 6-02.3(10)F.OPT3.FB6
(August 4, 2008)

1 The pavement end of the bridge approach slab shall be constructed parallel to
2 the pavement seat for bridge(s) No. *** \$\$1\$\$ ***. The pavement end of the
3 bridge approach slab shall be constructed normal to the roadway center line for
4 bridge(s) No. *** \$\$2\$\$ ***.

5
6 6-02.3(13).GR6
7 **Expansion Joints**
8
9 6-02.3(13).INST1.GR6
10 Section 6-02.3(13) is supplemented with the following:
11
12 6-02.3(13).OPT7.GB6
13 **Expansion Joint Modification**
14
15 6-02.3(13).OPT7(B).GB6
16 **(April 6, 2015)**
17 **Expansion Joint Demolition Plan**
18 The Contractor shall submit Type 2 Working Drawings showing the method of
19 removing the specified portions of the existing bridge expansion joints. The
20 Working Drawings shall show the sequence of demolition and removal, the type
21 of equipment to be used in all demolition and removal operations, and details of
22 the methods and equipment used for containment, collection, and disposal of all
23 debris. The Working Drawings shall show all stages of demolition.
24
25 6-02.3(13).OPT7(C).GB6
26 **(April 6, 2015)**
27 **Joint Preparation and Installation Procedure**
28 The Contractor shall submit a Type 1 Working Drawing consisting of the sealant
29 manufacturer's recommended joint preparation and installation procedure.
30
31 6-02.3(13).OPT7(D).FB6
32 **(April 6, 2015)**
33 **Field Measuring Existing Bridge Expansion Joints**
34 The Contractor shall field measure the following dimensions of the existing
35 bridge expansion joints of Bridge No(s). *** \$\$1\$\$ ***:
36
37 1. Length along the roadway surface and the horizontal and vertical
38 surfaces of the concrete curb.
39
40 2. Opening width at both curb lines and at the centerline of the roadway
41 surface.
42
43 The Contractor shall submit a Type 1 Working Drawing consisting of the field
44 measured dimensions.
45
46 6-02.3(13).OPT7(E).FB6
47 **(September 2, 2025)**
48 **Removing Portions of Existing Bridge Expansion Joints**
49 The Contractor shall remove all concrete, expansion joint materials, overlay, dirt
50 and debris at the bridge expansion joints of Bridge No(s). *** \$\$1\$\$ *** within
51 the blockout dimensions shown in the Plans.
52

1 Concrete removal shall conform to Section 3-02.3(2)A2 and the following
2 restriction on power driven tools:
3
4 1. Jack hammers no heavier than the nominal 30 pound class.
5
6 2. Chipping hammers no heavier than the nominal 15 pound class.
7
8 No other power driven equipment shall be used to remove concrete in the vicinity
9 of the bridge expansion joints. The power driven tools shall be operated at
10 angles less than 45 degrees as measured from the surface of the deck to the
11 tool.
12
13 The Contractor shall dispose of all materials removed from the bridge expansion
14 joints in accordance with Section 3-02.3.
15
16 For polyester concrete headers, or elastomeric concrete headers, the Contractor
17 shall clean and prepare all existing concrete surfaces bonding to the header in
18 accordance with the **Polyester Concrete** or **Elastomeric Concrete** subsection,
19 respectively, to Section 6-02.3 as supplemented in these Special Provisions.
20 For concrete headers, the Contractor shall clean and prepare all existing
21 concrete surfaces bonding to the header in accordance with Section 6-
22 02.3(12)B.
23
24 6-02.3(13).OPT7(F).GB6
25 **(April 6, 2015)**
26 **Drilling Holes and Setting Steel Reinforcing Bars**
27 The Contractor shall drill holes for, and set, steel reinforcing bars into the existing
28 concrete as shown in the Plans in accordance with Section 6-02.3(24)C as
29 supplemented in these Special Provisions.
30
31 6-02.3(13).OPT7(G).GB6
32 **(April 6, 2015)**
33 **Placing Polyester Concrete or Elastomeric Concrete Headers**
34 The Contractor shall form the polyester concrete or the elastomeric concrete
35 headers in accordance with either the **Polyester Concrete** or the **Elastomeric**
36 **Concrete** subsection to Section 6-02.3 as supplemented in these Special
37 Provisions. The Contractor shall remove all forms from the bridge expansion
38 joints after casting and curing the polyester concrete or the elastomeric concrete
39 headers.
40
41 6-02.3(13).OPT7(H).GB6
42 **(September 8, 2020)**
43 **Placing Concrete Headers**
44 The Contractor shall form, cast, and cure, the concrete headers in accordance
45 with Section 6-02.3 and as shown in the Plans. Unless the Plans or Special
46 Provisions specify a different strength, the concrete headers shall have attained
47 a minimum compressive strength of 2,500 psi before the Contractor may allow
48 traffic to pass across the expansion joint.
49

1 6-02.3(13).OPT7(I).GB6
2 **(September 8, 2020)**
3 **Placing Expansion Joint Sealant**
4 The Contractor shall have the services of a qualified sealant manufacturer's
5 technical representative physically present at the job site to assist in assuring
6 the proper installation of the rapid cure silicone sealant, provide technical
7 assistance for the use of the joint sealant, train the Contractor's personnel
8 installing the joint sealant, and to observe and inspect the installation of at least
9 the first complete joint.
10
11 The joint sealant shall not be placed against concrete until at least seven days
12 after concrete placement. The joint sealant shall not be placed against polyester
13 concrete or elastomeric concrete until a time period recommended by the
14 sealant manufacturer.
15
16 The Contractor shall clean the bridge expansion joints of all forms, dirt, form oil,
17 grease, and other deleterious material. The Contractor shall clean and prepare
18 the entire joint surface receiving the joint sealant in accordance with the
19 manufacturer's joint preparation procedure, and as recommended by the
20 sealant manufacturer's technical representative, including two stage abrasive
21 blasting surface preparation and compressed air cleaning. All steel surfaces to
22 be in contact with the joint sealant shall be cleaned to an SSPC-SP10 condition.
23 The joint receiving the sealant shall be sound, clean, dry, and frost free.
24
25 After the cleaned and prepared joint has received the Engineer's acceptance for
26 joint dimensions, alignment, and preparation, the Contractor shall apply the
27 primer, as recommended by the sealant manufacturer, to all surfaces to be in
28 contact with the joint sealant. The primer shall dry and cure for the time period
29 recommended by the sealant manufacturer for the surface type.
30
31 After the primer is cured, the Contractor shall place the backer rod, and place
32 the rapid cure silicone sealant in accordance with the joint installation procedure.
33
34 If the joint width at the time of installation is less than 1-inch or greater than three
35 inches, the Contractor shall not proceed with the expansion joint modification
36 until the installation procedure is revised as recommended by the sealant
37 manufacturer's technical representative.
38
39 After installing the rapid cure silicone sealant, the Contractor shall flood the joint
40 area with water. If leakage is detected, the bridge expansion joint system shall
41 be repaired by the Contractor, as recommended by the sealant manufacturer.
42
43 6-02.3(13).OPT7(J).GB6
44 **(September 2, 2025)**
45 **Placing Expansion Joint Sealant**
46 The Contractor shall have the services of a qualified sealant manufacturer's
47 technical representative physically present at the job site to assist in assuring
48 the proper installation of the rapid cure silicone sealant, provide technical
49 assistance for the use of the joint sealant, train the Contractor's personnel
50 installing the joint sealant, and to observe and inspect the installation of at least
51 the first complete joint.
52

1 Prior to scarifying the concrete deck for the modified concrete overlay, the
2 Contractor shall remove all expansion joint materials and debris from the
3 existing expansion joints, and shall dispose of these materials and debris as
4 specified in Section 3-02.3.

5
6 Prior to placing the modified concrete overlay, the Contractor shall install a
7 temporary form as shown in the Plans to fill the expansion joint gap. The
8 temporary form shall preserve the expansion joint gap during the modified
9 concrete overlay placement, and shall not damage the joint or the concrete
10 overlay upon removal. The Contractor shall submit Type 2 Working Drawing
11 consisting of the type of temporary form material, and the method of installation
12 and removal.

13
14 The joint sealant shall not be placed against concrete (including concrete
15 overlay except for polyester concrete overlay) until at least seven days after
16 concrete placement.

17
18 After placing the modified concrete overlay and rounding the corner of the
19 overlay at the joints with a 3/8 inch radius, the Contractor shall clean the bridge
20 expansion joints of all temporary forms, dirt, form oil, grease, and other
21 deleterious material. The Contractor shall clean and prepare the entire joint
22 surface receiving the joint sealant in accordance with the manufacturer's joint
23 preparation procedure, and as recommended by the sealant manufacturer's
24 technical representative, including two stage abrasive blasting surface
25 preparation and compressed air cleaning. All steel surfaces to be in contact with
26 the joint sealant shall be cleaned to an SSPC-SP10 condition. The joint
27 receiving the sealant shall be sound, clean, dry, and frost free.

28
29 After the cleaned and prepared joint has received the Engineer's acceptance for
30 joint dimensions, alignment, and preparation, the Contractor shall apply the
31 primer, as recommended by the sealant manufacturer, to all surfaces to be in
32 contact with the joint sealant. The primer shall dry and cure for the time period
33 recommended by the sealant manufacturer for the surface type.

34
35 After the primer is cured, the Contractor shall place the backer rod, and place
36 the rapid cure silicone sealant in accordance with the joint installation procedure.

37
38 If the joint width at the time of installation is less than 1-inch or greater than three
39 inches, the Contractor shall not proceed with the expansion joint modification
40 until the installation procedure is revised as recommended by the sealant
41 manufacturer's technical representative and as approved by the Engineer.

42
43 After installing the rapid cure silicone sealant, the Contractor shall flood the joint
44 area with water. If leakage is detected, the bridge expansion joint system shall
45 be repaired by the Contractor, as recommended by the sealant manufacturer.

46
47 6-02.3(13)C.GR6
48 **Modular Expansion Joint System**
49
50 6-02.3(13)C.INST1.GR6
51 Section 6-02.3(13)C is supplemented with the following:
52

(September 8, 2020)

Acceptable Manufacturers

The following manufacturers are known to have prequalified modular expansion joint system details by successfully completing fatigue testing in accordance with Section 6-02.3(13)C:

1. The D.S. Brown Company
P.O. Box 158
300 E. Cherry Street
North Baltimore, Ohio 45872-0158
Tel. (419) 257-3561
Fax (419) 257-2200
www.dsbrown.com
2. Watson Bowman ACME Corporation
95 Pineview Drive
Amherst, New York 14228-2166
Tel. (716) 691-7566
Fax (716) 691-9239
www.wbacorp.com
3. Mageba USA, LLC
575 Lexington Ave Fl-4
New York, New York 10022-6146
Tel. (212) 644-3335
Fax (212) 644-3339
www.magebausa.com

Design Axle Loads and Impact Factors

The vertical load range for fatigue design shall be a 32.0 kip tandem. This tandem shall be taken as two 16.0 kip axles spaced four feet apart. Only one of these tandem axles must be considered in the design, unless the joint opening exceeds four feet. The load range shall be increased by the dynamic load allowance (Impact Factor) of 75%. Load factors shall be applied in accordance with Table 3.4.1-1 of the AASHTO LRFD Bridge Design Specifications, current edition and latest interims.

The vertical load for strength design shall be a 50.0 kip tandem. This tandem shall be taken as two 25.0 kip axles spaced four feet apart. Only one of these tandem axles must be considered in the design, unless the joint opening exceeds four feet. This load shall be increased by the dynamic load allowance (Impact Factor) of 75%. Load factors shall be applied in accordance with Table 3.4.1-1 of the AASHTO LRFD Bridge Design Specifications, current edition and latest interims.

The horizontal load range for fatigue design shall be *** \$1\$ percent of the amplified vertical load range (LL+IM) specified above. For modular expansion joint systems installed on vertical grades in excess of five percent, the horizontal component of the amplified vertical load range (LL+IM) specified above shall be added to this horizontal load range.

1 The horizontal load for strength design shall be 20 percent of the amplified
2 vertical load (LL+IM) specified above. For modular expansion joint systems
3 installed on vertical grades in excess of five percent, the horizontal component
4 of the amplified vertical load (LL+IM) specified above shall be added to this
5 horizontal load.
6

7 **Fatigue Testing Laboratory**

8 The following facilities are known to be capable of performing the fatigue testing
9 specified in Section 6-02.3(13)C:
10

- 11 1. Structural Engineering Testing Laboratory (SETL)
12 University of Washington
13 Seattle, WA
14 SETL Director:
15 Dr. Dawn Lehman: (206) 715-2108
16 SETL Manager
17 Vince Chaijaroen: (206) 543-7433
18
- 19 2. Bowen Laboratory
20 Purdue University
21 West Lafayette, IN
22 Director of Bowen Laboratory:
23 Dr. Amit Varma: (765) 496-3419
24
- 25 3. ATLSS Engineering Research Center
26 Lehigh University
27 Bethlehem, PA
28 ATLSS Engineering Research Center Director:
29 Dr. Richard Sause: (610) 758-3565
30 ATLSS Engineering Research Center Administrative Director:
31 Dr. Chad Kusco: (610) 758-5299
32

33 6-02.3(14).GR6

34 ***Finishing Concrete Surfaces***

35

36 6-02.3(14)C.GR6

37 **Pigmented Sealer for Concrete Surfaces**

38

39 6-02.3(14)C.INST1.GR6

40 Section 6-02.3(14)C is supplemented with the following:
41

42 6-02.3(14)C.OPT1.GB6

43 (April 6, 2009)

44 The color of the pigmented sealer shall be Washington Gray.
45

46 6-02.3(14)C.OPT2.GB6

47 (April 6, 2009)

48 The color of the pigmented sealer shall be Mt. St. Helens Gray.
49

50 6-02.3(14)C.OPT3.GB6

51 (April 6, 2009)

52 The color of the pigmented sealer shall be Mt. Baker Gray.

1		
2	6-02.3(14)C.OPT4.GB6	
3	(April 6, 2009)	
4	The color of the pigmented sealer shall be Cascade Green.	
5		
6	6-02.3(14)C.OPT5.FB6	
7	(April 6, 2009)	
8	The color for the following structure feature(s) shall match the specified color(s):	
9		
10	Structure and Feature	Pigmented Sealer Color
11	*** \$1\$ \$ ***	*** \$2\$ \$ ***
12		
13	6-02.3(17).GR6	
14	<i>Falsework and Formwork</i>	
15		
16	6-02.3(17)C.GR6	
17	Falsework and Formwork at Special Locations	
18		
19	6-02.3(17)C.INST1.GR6	
20	Section 6-02.3(17)C is supplemented with the following:	
21		
22	6-02.3(17)C.OPT1.FB6	
23	(October 3, 2022)	
24	Falsework opening over railroad tracks shall be approved by the Railroad	
25	Company in accordance with Section 1-07.28 and the Special Provisions. The	
26	Contractor shall notify the Railroad Company at least *** \$1\$ \$ *** working days	
27	prior to erecting falsework over a track, and shall include the dimensions of the	
28	opening and the duration of the restricted clearance in the submittal.	
29		
30	6-02.3(17)K.GR6	
31	Concrete Forms on Steel Spans	
32		
33	6-02.3(17)K.INST1.GR6	
34	The first paragraph of Section 6-02.3(17)K is revised to read as follows:	
35		
36	6-02.3(17)K.OPT1.GB6	
37	(August 3, 2015)	
38	Except as otherwise specified, concrete forms on all steel structures shall be	
39	removable and shall not remain in place. Where needed, the forms shall have	
40	openings for truss or girder members. Each opening shall be large enough to	
41	leave at least 1-1/2 inches between the concrete and steel on all sides of the	
42	steel member after the forms have been removed. Unit contract prices cover all	
43	costs related to these openings.	
44		
45	Permanent metal forms may be used to form that portion of the concrete slab	
46	inside the webs of the steel box girders, subject to the following requirements:	
47		
48	1. Metal forms shall be 18 gage minimum thickness, zinc coated, steel	
49	sheet conforming to ASTM A 653 Coating Designation G 210. All	
50	accessories shall conform to ASTM A 36 or Section 9-06.1 with a zinc	
51	coating of 2.0 ounces per square foot.	
52		

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2. Forms shall be designed by the Contractor to support the plastic concrete, metal forms, steel reinforcing bars, and a construction live load of 60 pounds per square foot. Deflection of the metal form shall not exceed 1/360 of the span. Camber of the metal form shall not exceed the anticipated deflection. The working unit stress shall not exceed 0.725 of the specified yield strength of the metal form material.
3. The metal forms shall provide for the full depth of the deck slab above the uppermost portions of the form. Bottom transverse steel reinforcing bars of the deck slab shall be at least 1 inch clear of the metal forms at all points. Forms or supports shall not be welded to girder flanges.
4. The bridge deck concrete shall be placed continuously between the transverse construction joints shown in the Plans, except in an emergency when the Engineer authorizes an interruption in the concrete placement. In such an emergency, the Contractor shall construct a transverse joint at the bottom of a flute and shall field drill 1/4 inch weep holes through the metal form at 12 inch centers along the line of the joint.
5. All zinc coating on exposed metal form damaged or removed during construction shall be repaired with one coat of paint conforming to Section 9-08.1(2)B, two mils minimum dry film thickness.
6. Should the Engineer determine that inspection of the underside of the hardened slab is warranted, the Contractor shall remove at least one section of metal form in each span at no extra cost to the Contracting Agency. If excessive honeycomb or other defects are found, the Contractor shall, if required by the Engineer, remove additional form sections at no additional expense to the Contracting Agency, and shall revise concrete placing methods as required to produce sound concrete. All unacceptable concrete shall be removed or repaired.
7. Complete layout, details, and a description of materials, for the permanent metal forms shall be included in the Contractor's falsework and formwork submittal as specified in Section 6-02.3(16).
8. No adjustment will be made to the lump sum contract price for "Bridge Deck - ____" for additional quantities of materials required because of the use of the permanent forms.

44 6-02.3(24).GR6

45 ***Reinforcement***

46
47 6-02.3(24)C.GR6

48 **Placing and Fastening**

49
50 6-02.3(24)C.INST1.GR6

51 Section 6-02.3(24)C is supplemented with the following:
52

6-02.3(24)C.OPT1.GB6

(September 8, 2020)

Drilling Holes for, and Setting, Steel Reinforcing Bar Dowels

Where called for in the Plans, holes shall be drilled into existing concrete to the size and dimension shown in the Plans. The Contractor may use any method for drilling the holes provided the method selected does not damage the concrete and the steel reinforcing bar that is to remain. Core drilling will be required when specifically noted in the Plans.

The Contractor shall exercise care in locating and drilling the holes to avoid damage to existing steel reinforcing bars and concrete. Location of the holes may be shifted slightly with the acceptance of the Engineer in order to avoid damaging the existing steel reinforcing bars. All damage caused by the Contractor's operations shall be repaired by the Contractor in accordance with Section 1-07.13.

Steel reinforcing bars shall be set into the holes noted in the Plans with epoxy resin. The holes shall be cleaned before placing the resin.

The Contractor shall demonstrate, to the satisfaction of the Engineer, that the method used for setting the steel reinforcing bars completely fills the void between the steel reinforcing bar and the concrete with epoxy resin. Dams shall be placed at the front of the holes to confine the epoxy and shall not be removed until the epoxy has cured in the hole.

6-02.4.GR6

Measurement

6-02.4.INST1.GR6

Section 6-02.4 is supplemented with the following:

6-02.4.OPT1.FB6

(September 8, 2020)

*** \$1\$ contains the following approximate quantities of materials and work:

*** \$2\$ ***

The quantities are listed only for the convenience of the Contractor in determining the volume of work involved and are not guaranteed to be accurate. The prospective bidders shall verify these quantities before submitting a bid. No adjustments other than for accepted changes will be made in the lump sum Contract price for *** \$3\$ *** even though the actual quantities required may deviate from those listed.

6-02.4.OPT3.FB6

(September 8, 2020)

"Modular Expansion Joint System____" contains the following approximate quantities of materials and work:

*** \$1\$ ***

The quantities are listed only for the convenience of the Contractor in determining the volume of work involved and are not guaranteed to be accurate. The prospective bidders

1 shall verify these quantities before submitting a bid. No adjustments other than for
2 accepted changes will be made in the applicable modular expansion joint system lump
3 sum Contract price for "Modular Expansion Joint System____" even though the actual
4 quantities required may deviate from those listed.
5
6 6-02.4.OPT8.FB6
7 (September 8, 2020)
8 Expansion joint modification contains the following approximate quantities of materials
9 and work:
10
11 *** \$\$1\$\$ ***
12
13 The quantities are listed only for the convenience of the Contractor in determining the
14 volume of work involved and are not guaranteed to be accurate. The prospective bidders
15 shall verify these quantities before submitting a bid. No adjustments other than for
16 accepted changes will be made in the lump sum Contract price for "Expansion Joint
17 Modification____" even though the actual quantities required may deviate from those
18 listed.
19
20 6-02.4.OPT24.GB6
21 (August 6, 2012)
22 Epoxy crack sealing will be measured by the linear foot along the sealed crack at the
23 concrete surface.
24
25 6-02.4.OPT26.GB6
26 (June 26, 2000)
27 Modify bridge drain will be measured per each for each bridge drain modified.
28
29 6-02.4.OPT27.GB6
30 (June 26, 2000)
31 Plugging existing bridge drain will be measured per each for each bridge drain plugged.
32
33 6-02.4.OPT32.GB6
34 (April 6, 2015)
35 Core drilled bridge deck drain will be measured per each for each bridge deck drain core
36 drilled and completed with a PVC pipe sleeve.
37
38 6-02.4.OPT43.GB6
39 (April 6, 2015)
40 Longitudinal seismic restrainer will be measured per each.
41
42 6-02.4.OPT44.FB6
43 (September 8, 2020)
44 Seismic retrofit contains the following approximate quantities of materials and work:
45
46 *** \$\$1\$\$ ***
47
48 The quantities are listed only for the convenience of the Contractor in determining the
49 volume of work involved and are not guaranteed to be accurate. The prospective bidders
50 shall verify these quantities before submitting a bid. No adjustments other than for
51 accepted changes will be made in the lump sum Contract price for "Seismic Retrofit -
52 _____" even though the actual quantities required may deviate from those listed.

1
2 6-02.4.OPT45.FB6
3 (September 8, 2020)
4 Column jacketing contains the following approximate quantities of materials and work:
5
6 *** \$\$1\$\$ ***
7
8 The quantities are listed only for the convenience of the Contractor in determining the
9 volume of work involved and are not guaranteed to be accurate. The prospective bidders
10 shall verify these quantities before submitting a bid. No adjustments other than for
11 accepted changes will be made in the lump sum Contract price for "Column Jacketing -
12 _____" even though the actual quantities required may deviate from those listed.
13
14 6-02.5.GR6
15 **Payment**
16
17 6-02.5.INST3.GR6
18 The fifth and sixth bid items under Section 6-02.5 are supplemented with the following:
19
20 6-02.5.OPT20.GB6
21 (April 6, 2015)
22 The contract quantity specified for "Steel Reinf. Bar for Bridge" includes the quantity for
23 the epoxy-coated steel reinforcing bars located in the substructure of the bridge(s)
24 included in this project.
25
26 6-02.5.INST4.GR6
27 Section 6-02.5 is supplemented with the following:
28
29 6-02.5.OPT26.FB6
30 (August 2, 2010)
31 "Bridge Deck - _____", lump sum.
32 The lump sum contract price for "Bridge Deck - _____" shall be full pay for constructing
33 the reinforced concrete portions of the steel bridge superstructure, including *** \$\$1\$\$
34 ***.
35
36 6-02.5.OPT33.GB6
37 (April 6, 2015)
38 "Expansion Joint Modification _____", lump sum.
39
40 6-02.5.OPT49.GB6
41 (August 1, 2011)
42 "Epoxy Crack Sealing", per linear foot.
43
44 Payment for taking and submitting cores to the Engineer for testing, as specified by the
45 Engineer, will be by force account in accordance with Section 1-09.6. For the purpose of
46 providing a common Proposal for all Bidders, the Contracting Agency has entered an
47 amount for the item "Force Account Epoxy Crack Sealing Cores" in the bid proposal to
48 become a part of the total bid by the Contractor.
49
50 6-02.5.OPT51.GB6
51 (June 26, 2000)
52 "Modify Bridge Drain", per each.

1
2 6-02.5.OPT52.GB6
3 (June 26, 2000)
4 "Plugging Existing Bridge Drain", per each.
5
6 6-02.5.OPT53.FB6
7 (June 26, 2000)
8 All costs in connection with *** \$\$1\$\$ *** bridge drains as specified shall be included in
9 the unit contract price per square yard for *** \$\$2\$\$ ***.
10
11 6-02.5.OPT58.GB6
12 (April 6, 2015)
13 "Core Drilled Bridge Deck Drain", per each.
14
15 6-02.5.OPT59.FB6
16 (April 6, 2015)
17 All costs in connection with constructing the core drilled bridge deck drains as specified
18 shall be included in the *** \$\$1\$\$ ***.
19
20 6-02.5.OPT71.GB6
21 (April 6, 2015)
22 "Longitudinal Seismic Restrainer", per each.
23
24 6-02.5.OPT72.GB6
25 (April 6, 2015)
26 "Seismic Retrofit - _____", lump sum.
27
28 6-02.5.OPT73.GB6
29 (April 6, 2015)
30 "Column Jacketing - _____", lump sum.
31
32 6-02.5.OPT91.FB6
33 **(June 26, 2000)**
34 **Bridge and Structures Minor Items**
35 For the purpose of payment, such bridge and structures items as *** \$\$1\$\$ *** etc., for
36 which there is no pay item included in the proposal, are considered as bridge and
37 structures minor items. All costs in connection with furnishing and installing these bridge
38 and structures minor items as shown and noted in the Plans and as outlined in these
39 specifications and in the Standard Specifications shall be included in the *** \$\$2\$\$ ***
40
41 6-02.5.OPT92.FB6
42 **(June 26, 2000)**
43 **Bridge Supported Utilities**
44 All costs in connection with placing *** \$\$1\$\$ *** through the superstructure of *** \$\$2\$\$
45 *** as shown in the Plans, including all *** \$\$3\$\$ *** , shall be included in the *** \$\$4\$\$
46 ***
47
48 6-02.5.OPT93.GB6
49 (June 26, 2000)
50 No additional compensation will be made by reason of any delay or other expense to the
51 Contractor caused by coordination with the utility company or by installing utility company
52 furnished items. However, any unavoidable delays to the Contractor caused by

1 coordination with the utility company or resulting from installing utility company furnished
2 items will be adjusted in accordance with Section 1-08.8.
3
4 6-03.GR6
5 **Steel Structures**
6
7 6-03.3.GR6
8 **Construction Requirements**
9
10 6-03.3(7).GR6
11 ***Shop Plans***
12
13 6-03.3(7)A.GR6
14 **Erection Methods**
15
16 6-03.3(7)A.INST1.GR6
17 The list in the second paragraph of Section 6-03.3(7)A is supplemented with the
18 following:
19
20 6-03.3(7)A.OPT1.GB6
21 (April 6, 2015)
22 8. If the Contractor selects a girder launching method as the erection
23 procedure, the Contractor shall submit plan details of the nose beam, roller
24 assemblies, jacks, blocking, tow lines and control lines, and shall prepare
25 an erection procedure that describes the method and equipment involved
26 in the launching procedure, the elevation and alignment control and
27 corrective measures enforced during the launching process, the methods
28 of monitoring and adjusting the tow line and control line loads during the
29 launching process, and the spare jacks, tow lines, control lines, and other
30 critical field erection equipment provided to ensure a continuous and safe
31 operations.
32
33 6-03.3(7)A.OPT2.GB6
34 (April 6, 2015)
35 8. The method and equipment used to drill holes, and ream existing rivet holes
36 following rivet removal, through and in the existing gusset plates and steel
37 members.
38
39 6-03.3(25).GR6
40 ***Welding and Repair Welding***
41
42 6-03.3(25).INST1.GR6
43 Section 6-03.3(25) is supplemented with the following:
44
45 6-03.3(25).OPT2.GB6
46 (April 6, 2015)
47 **Electroslag Welding - Narrow Gap (ESW-NG) Procedure**
48 The ESW-NG procedure may be used for groove welds in bridge members and
49 member components up to four inches thick subject to the following requirements:
50

Qualification Testing

Unless the Contractor submits previously performed qualification testing documents, the Contractor shall provide the opportunity for Contracting Agency representatives to witness all qualification testing.

HAZ Specimens, Type and Number of Tests for ESW-NG

For all compression members including ESW-NG of compression members, CVN testing of the HAZ is not required. However, for welds deposited by ESW-NG on tension and reversal members, additional CVN tests of the HAZ shall be performed to qualify the process. The CVN tests for the HAZ shall be the following:

1. Five specimens shall be removed from the quarter-thickness section of the HAZ on each side of the procedure qualification welded joint in accordance with the ESW-NG Tension Member CVN Test Plate Detail as shown in the Plans.
2. The weld fusion line shall be revealed by etching the transverse-to-weld section.
3. The notch location shall be in the base metal within 1/16 inch from the weld fusion line. If the weld curvature does not permit the entire notch to be placed within 1/16 inch from the fusion line, then one end of the notch shall be placed on the fusion line while the remaining portion of the notch extends away from the fusion line into the base metal.

If different grades of steel such as 36 and 50 or 50 and 50W are joined by ESW-NG, the procedure qualification tests shall be conducted on the same two grades of steel. If transition joints between thick and thin members are made, the WPS shall be conducted on the same joint preparation (having the same thicknesses and joint transition slope). The heat affected zone CVN toughness specimens shall be extracted from both sides of the transition joint.

Test Results Required for ESW-NG

HAZ

For CVN toughness determination in welds carrying applied tensile stress, five specimens taken at the quarter-thickness location on both sides of the ESW-NG weld shall be tested. The highest and lowest values shall be discarded. The test is successful if the following criteria are achieved for the three remaining tests:

1. The average CVN toughness shall be a minimum of 15 foot-pounds at 40F.
2. No more than one specimen shall have a CVN toughness less than 15 foot-pounds at 40F.
3. No specimen shall have a CVN toughness value below 10 foot-pounds at 40F.

1 6-03.3(27).GR6
2 **High Strength Bolt Holes**
3
4 6-03.3(27)B.GR6
5 **Reamed and Drilled Holes**
6
7 6-03.3(27)B.INST1.GR6
8 The second sentence of the first paragraph of Section 6-03.3(27)B is revised to read:
9
10 6-03.3(27)B.OPT1.FB6
11 (September 8, 2020)
12 Reamers and drills shall be directed mechanically, non hand-held, except as
13 otherwise noted. The Contractor may ream and drill holes through *** \$\$1\$\$ ***
14 of Bridge No(s) *** \$\$2\$\$ *** using hand-held reamers and drills, provided that
15 the method and equipment used conforms to the erection plan as accepted by
16 the Engineer in accordance with Section 6-03.3(7)A as supplemented in these
17 Special Provisions. Unless otherwise shown in the Plans, all holes reamed and
18 drilled for bolted connections with existing gusset plates and steel members
19 shall be 1/16 inch larger than the bolt diameter specified in the Plans for the
20 connection.
21
22 6-03.3(28).GR6
23 **Shop Assembly**
24
25 6-03.3(28)A.GR6
26 **Method of Shop Assembly**
27
28 6-03.3(28)A.INST1.GR6
29 Section 6-03.3(28)A is supplemented with the following:
30
31 6-03.3(28)A.OPT1.GB6
32 (August 5, 2013)
33 The girders shall also be shop assembled either completely or progressively in
34 the transverse direction. The transverse shop assembly shall consist of a
35 minimum of two adjacent girders, with pier diaphragms, intermediate
36 diaphragms and cross bracing, and temporary bracing between girders at the
37 end of the shop assembly (longitudinally). Staging of the transverse shop
38 assembly shall proceed along with the longitudinal shop assembly. Each next
39 stage of the transverse shop assembly shall be assembled to one of the previous
40 transverse shop assemblies, repositioned if necessary, and pinned to ensure
41 accurate alignment. Unless otherwise specified, the girders shall be blocked or
42 supported in the no-load position.
43
44 After acceptance of the shop assembly by the Engineer, pier diaphragms,
45 intermediate diaphragms and cross bracing utilized in the transverse shop
46 assembly shall be removed from the girders and shipped to the bridge
47 construction site each as individual units. Shop bolted connections in the
48 diaphragms and cross bracing shall be completed and fully tightened to the
49 minimum tension specified during the shop assembly. Fully tightened
50 connections shall be inspected prior to shipping.
51

1 6-03.3(28)B.GR6
2 **Check of Shop Assembly**
3
4 6-03.3(28)B.INST1.GR6
5 Section 6-03.3(28)B is supplemented with the following:
6
7 6-03.3(28)B.OPT1.GB6
8 (August 3, 2015)
9 If an assembly or stage of assembly is not accepted by the Engineer,
10 deficiencies shall be corrected and the assembly or stage of assembly shall be
11 resubmitted to the Engineer for acceptance.
12
13 6-03.3(30).GR6
14 **Painting**
15
16 6-03.3(30).INST1.GR6
17 Section 6-03.3(30) is supplemented with the following:
18
19 6-03.3(30).OPT1.FB6
20 (August 3, 2009)
21 Paint for the new steel shall be applied in accordance with Section 6-07.3(9). The
22 color of the top coat, when dry, shall match *** \$1\$ \$ ***.
23
24 6-03.3(30).OPT6.FB6
25 (April 6, 2015)
26 The Contractor shall paint all galvanized structural steel components of the following
27 specified items in accordance with Section 6-07.3(11):
28
29 *** \$1\$ \$ ***
30
31 The color of the top coat, when dry, shall match *** \$2\$ \$ ***.
32
33 6-03.3(38).GR6
34 **Placing Superstructure**
35
36 6-03.3(38).INST1.GR6
37 Section 6-03.3(38) is supplemented with the following:
38
39 6-03.3(38).OPT1.GB6
40 (August 3, 2015)
41 All concrete located below the permanent location of the steel girders shall be
42 completely covered to protect the concrete from staining from rusty water.
43
44 The Contractor shall submit a Type 2 Working Drawing consisting of a concrete
45 surface protection plan. The submittal shall include, but not be limited to, describing
46 all material components of the surface protection system, including material
47 specifications and thicknesses of all components, dimensions of all sub-units and
48 details of how the sub-units are assembled to create the combined system, the
49 method of installing the system, including all means of fastening the system to or
50 holding the system against the concrete surfaces, the methods of maintaining the
51 system in place during superstructure construction, and the methods of repairing
52 damage to the system during superstructure construction.

1
2 Removal of the concrete surface protection system will be performed by Contracting
3 Agency forces at a later date.
4
5 6-03.3(39).GR6
6 ***Swinging the Span***
7
8 6-03.3(39).INST1.GR6
9 Section 6-03.3(39) is supplemented with the following:
10
11 6-03.3(39).OPT1.GB6
12 (June 26, 2000)
13 The Contractor shall measure and submit to the Engineer camber values at the
14 points indicated in the Plans at each of the following times:
15
16 1. After the spans are swung.
17
18 2. After roadway slab placement.
19
20 6-03.4.GR6
21 **Measurement**
22
23 6-03.4.INST1.GR6
24 Section 6-03.4 is supplemented with the following:
25
26 6-03.4.OPT1.FB6
27 (August 6, 2007)
28 Structural low alloy steel contains the following approximate steel quantities:
29
30

Bridge	Quantity
*** \$1\$ \$ ***	*** \$2\$ \$ ***

31
32
33 6-03.5.GR6
34 **Payment**
35
36 6-03.5.INST1.GR6
37 The second bid item under Section 6-03.5 is supplemented with the following:
38
39 6-03.5.OPT1.GB6
40 (August 6, 2007)
41 All costs in connection with furnishing and installing steel girder pipe railing as shown in
42 the Plans shall be included in the lump sum Contract price for "Structural Low Alloy Steel".
43
44 6-03.5.INST2.GR6
45 Section 6-03.5 is supplemented with the following:
46
47 6-03.5.OPT7.FB6
48 (June 26, 2000)
49 All costs in connection with furnishing, installing, and maintaining the concrete surface
50 protection system as specified shall be included in the *** \$1\$ \$ ***.
51

1 6-04.GR6
2 **Timber Structures**
3
4 6-04.3.GR6
5 **Construction Requirements**
6
7 6-04.3(1).GR6
8 ***Storing and Handling Material***
9
10 6-04.3(1).INST1.GR6
11 Section 6-04.3(1) is supplemented with the following:
12
13 6-04.3(1).OPT1.GB6
14 (March 6, 2000)
15 The Contractor shall provide and maintain a water pump or pumps, and associated
16 equipment adequate for use in fire control, on the project at all times. This
17 requirement does not relieve the Contractor of responsibility as specified in Section
18 1-07.14.
19
20 6-04.3(1).OPT2.GB6
21 (January 2, 2018)
22 After removing the existing timber deck and prior to installing the replacement timber
23 deck, the Contractor shall clean the top contact surfaces of the supporting timber and
24 steel stringers and floorbeams. After cleaning, the top contact surfaces shall be
25 prepared as follows:
26
27 **Steel Supporting Members**
28 The top flanges of the steel stringers and floor beams shall be uniformly covered
29 with a heavy coat of hot asphalt binder (Grade PG 58-22 or Grade PG 64-22 for
30 Western Washington (west of the Cascade Mountain Crest), and Grade PG 64-
31 28 for Eastern Washington (east of the Cascade Mountain Crest)) conforming
32 to Section 9-02.1(4).
33
34 **Timber Supporting Members**
35 The Contractor shall furnish and install asphalt roofing felt over the top contact
36 surface of all timber stringers, bridging, and blocking. The asphalt roofing felt
37 shall be attached to the timber with 7/8 inch long galvanized roofing nails spaced
38 at 2'-0" centers, unless otherwise shown in the Plans. The asphalt roofing felt
39 shall weigh at least 65 pounds per one-hundred square feet and extend at least
40 2 inches on each side of the member being covered.
41
42 6-04.5.GR6
43 **Payment**
44
45 6-04.5.INST1.GR6
46 Section 6-04.5 is supplemented with the following:
47
48 6-04.5.OPT1.FB6
49 (March 6, 2000)
50 All costs in connection with providing and maintaining fire control equipment at the
51 construction and material storage site as specified shall be included in the *** \$1\$ ***.
52

1 6-04.5.OPT2.FB6
2 (March 6, 2000)
3 All costs in connection with cleaning and preparing the top contact surfaces of the
4 supporting timber and steel members as specified prior to redecking shall be included in
5 the *** \$\$1\$\$ ***.
6
7 6-05.GR6
8 **Piling**
9
10 6-05.2.GR6
11 **Materials**
12
13 6-05.2.INST1.GR6
14 Section 6-05.2 is supplemented with the following:
15
16 6-05.2.OPT1.GB6
17 **(April 6, 2015)**
18 **Micropiles**
19 Materials for micropiles shall consist of the following:
20 Admixtures for grout shall conform to Section 9-23.6. Admixtures that control bleed,
21 improve flowability, reduce water content, and retard set may be used in the grout, subject
22 to the review and acceptance of the Engineer. Admixtures shall be compatible with the
23 grout and mixed in accordance with the manufacturer's recommendations. Accelerators
24 are not permitted. Admixtures containing chlorides are not permitted.
25
26 All cement shall be Portland cement conforming to Section 9-01.2(1).
27
28 Centralizers and spacers shall be fabricated from schedule 40 PVC pipe or tube, steel.
29 Wood shall not be used. Centralizers and spacers shall be securely attached to the
30 reinforcement; sized to position the reinforcement within 3/8 inch of plan location from
31 center of micropile; sized to allow grout tremie pipe insertion to the bottom of the drillhole;
32 and sized to allow grout to freely flow up the drillhole and casing and between adjacent
33 reinforcing bars.
34
35 Encapsulation (double corrosion protection) shall be shop fabricated using high-density,
36 corrugated polyethylene tubing conforming to the requirements of AASHTO M 252 with a
37 nominal wall thickness of 1/32 inch. The inside annulus between the reinforcing bars and
38 the encapsulating tube shall be a minimum of 1/4 inch and be fully grouted with grout as
39 defined below.
40
41 Epoxy coating shall conform to Section 9-07.3. Bearing plates and nuts encased in the
42 micropile concrete footing need not be epoxy coated.
43
44 Fine aggregate for sand-cement grout shall be sand conforming to AASHTO M 45.
45
46 Grout shall be a neat cement or sand/cement mixture with a minimum seven day
47 compressive strength of 4,000 psi in accordance with Section 9-20.3(4).
48
49 Steel pipe casing for micropiles shall have the diameter and at least the minimum wall
50 thickness shown in the Working Drawings. Steel pipe casing shall conform to one of the
51 following:
52

1. ASTM A 252, Grade 2 or 3. If the casing is to be welded, the carbon equivalency (CE) as defined in AWS D 1.1, Section XI 5.1, shall not exceed 0.45, and the sulfur content shall not exceed 0.05 percent.
2. API 5L Grade X52 or better.
3. API 5CT Grade N80 or better.
4. Another equivalent steel pipe specification acceptable to the Engineer.

The manufacturer or fabricator of steel piling shall furnish a certificate of compliance in accordance with Section 1-06.3 stating that the piling being supplied conforms to these specifications. The certificate of compliance shall include test reports for tensile and chemical tests. Samples for testing shall be taken from the base metal, steel, coil or from the manufactured or fabricated piling. The certificate of compliance shall be in English units. As an alternative to steel pipe with mill certificate of compliance documentation, new structural grade or mill secondary steel pipe may be furnished for micropile casing without certified mill test reports under the following conditions:

1. The steel pipe shall meet or exceed the mechanical requirements of API 5L Grade X52 or better or API 5CT Grade N80 or better.
2. The CE shall not exceed 0.45 and the sulfur content shall not exceed 0.05 percent, if welding of the casing is required.
3. Two unique coupon tests with reports, conforming to ASTM A 370, including Annex A2, shall be provided for each truckload of pipe supplied.
4. The pipe shall be free of defects (dents, cracks, and tears).

The alternate testing for non-mill certified steel pipe is not permitted if domestic steel is required for the project.

Welded circumferential joints in pipe shall develop the strength of the pipe section. Threaded pipe joints shall develop at least the nominal resistance used in the design of the micropile.

Structural steel plates and shapes for micropile top attachments shall conform to either ASTM A 36 or ASTM A 572 Grade 50.

Reinforcing steel shall be deformed bars in accordance with Sections 9-07.4 or 9-07.11. When a bearing plate and nut are required to be threaded onto the top end of reinforcing bars for the micropile top to footing anchorage, the threading may be continuous spiral deformed ribbing provided by the bar deformations or may be cut into a reinforcing bar. If threads are cut into a reinforcing bar, the next larger bar number designation from that shown on the Plans shall be provided, at no additional cost to the Contracting Agency. Reinforcing bars for micropiles shall be epoxy coated in accordance with Section 6-02.3(24)H and 9-07.3.

Bar tendon couplers, if required, shall develop the ultimate tensile strength of the bars.

1 6-05.3.GR6

2 **Construction Requirements**

3
4 6-05.3.INST1.GR6

5 Section 6-05.3 is supplemented with the following:

6
7 6-05.3.OPT1.FB6

8 **(October 3, 2022)**

9 ***Micropiles***

10 **General Requirements**

11 The Contractor is responsible for the design, installation and testing of micropiles
12 and micropile top attachments for this project. The Contractor shall select the
13 micropile type, size, micropile top attachment, installation means and methods, shall
14 estimate the ground-to-grout bond value, and shall determine the required grout
15 bond length and final micropile diameter. The Contractor shall design and install
16 micropiles that will develop the load capacities specified in the Plans. The micropile
17 load capacities shall be verified by verification and proof load testing, and shall meet
18 the test acceptance criteria specified in this Special Provision.

19
20 **Contractor's Experience Requirements and Submittal**

21 The micropile Contractor shall be experienced in the construction and load testing of
22 micropiles and have successfully constructed at least three projects in the last five
23 years involving construction totaling at least 50 micropiles of equal or greater
24 capacity than required for this project. The Contractor shall submit construction
25 details, structural details and load test results for at least three previous successful
26 micropile load tests from different projects of similar scope to this project.

27
28 The micropile Contractor shall design the micropile system. The micropile system
29 shall be designed by a Professional Engineer, licensed under Title 18 RCW State of
30 Washington, with experience in the design and construction of at least three
31 successfully completed micropile projects over the past five years, with micropiles of
32 equal or greater capacity than required in these plans and specifications. The on-site
33 foremen and drill rig operators shall also have experience on at least three projects
34 over the past five years installing micropiles of equal or greater capacity than required
35 for this project.

36
37 The Contractor shall submit a Type 2 Working Drawing consisting of the completed
38 project reference list, including a brief project description with the owner's name and
39 current phone numbers. This Working Drawing submittal shall also include a
40 personnel list for the micropile system designer, supervising Engineer, drill rig
41 operators and on-site foremen to be assigned to the project. The personnel list shall
42 contain a summary of each individual's experience and be complete enough for the
43 Engineer to determine whether each individual satisfies the required qualifications.

44
45 **Definitions**

46 **Alignment Load (AL):** A minimum initial load (5 percent FDL) applied to micropile
47 during testing to keep the testing equipment correctly positioned.

48
49 **Factored Design Load (FDL):** The factored design load expected to be applied to the
50 micropile. The factored design load (FDL) is as specified in the bridge Plans.

1 Maximum Test Load: The maximum load to which the micropile is subjected during
2 testing. The load shall be 1.5 x FDL for verification load tests and 1.0 x FDL for proof
3 load tests.

4
5 Proof Load Test: Incremental loading of a production micropile, recording the total
6 movement at each increment.

7
8 Verification Load Test: Non-production micropile load test performed to verify the
9 design of the micropile system and the construction methods proposed, prior to
10 installation of production micropiles.

11 **Micropile Design Requirements**

12 The micropiles shall be designed to meet the specified loading conditions, as shown
13 in the Plans. The Contractor shall design the micropiles, and the micropile top to
14 footing connections using the Load and Resistance Factor Design (LRFD) method.

15
16
17 Steel pipe used for micropile permanent casing shall incorporate an additional 1/16
18 inch thickness of sacrificial steel for corrosion protection. Where required as shown
19 in the Plans, corrosion protection of the internal steel reinforcing bars, consisting of
20 encapsulation (double corrosion protection), epoxy coating, or grout, shall be
21 provided in accordance with Section 6-05.2 as supplemented in these Special
22 Provisions. Where permanent casing is used for a portion of the micropile,
23 encapsulation shall extend at least five feet into the casing.

24 **Micropile Design Submittals**

25 The Contractor shall submit Type 3E Working Drawings consisting of complete
26 design calculations and working drawings with all details, dimensions, quantities,
27 ground profiles, and cross-sections necessary to construct the micropile structure.
28 The Contractor shall verify the limits of the micropile structure and ground survey
29 data before preparing the detailed working drawings.

30 **Design Calculations**

31 Design calculations shall include the following items:

- 32 1. A written summary report which describes the overall micropile design and
33 its compatibility with the anticipated subsurface conditions as described by
34 the contract test hole boring logs, the Summary of Geotechnical Conditions
35 provided in the Appendix to the Special Provisions, and the geotechnical
36 report(s) prepared for this project.
- 37 2. Applicable code requirements and design references.
- 38 3. Micropile structure critical design cross-section(s) geometry including soil
39 strata and piezometric levels and location, magnitude and direction of
40 design applied loadings, including slope or external surcharge loads.
- 41 4. Design criteria including, soil shear strengths (friction angle and cohesion),
42 unit weights, and ground-to-grout bond values and micropile drillhole
43 diameter assumptions for each soil strata.
- 44 5. Load and resistance factors (for Load and Resistance Factor Design) used
45 in the design of the ground-to-grout bond values, the ground-to-grout bond
46
47
48
49
50
51
52

length, surcharges, soil/rock and material unit weights, steel, grout, and concrete materials.

The bond zone for micropiles shall be below the following elevations:

*** \$\$1\$\$ ***

6. Design calculation sheets with the project number, micropile structure location, designation, date of preparation, initials of designer and checker, and page number at the top of each page. An index page shall be included with the design calculations.
7. Design notes including an explanation of any symbols and computer programs used in the design.
8. Other design calculations as required.

Working Drawings

The Contractor shall submit Type 3E Working Drawings.

The working drawings shall include all information required for the construction and quality control of the piling. Working drawings shall include the following items:

1. A plan view of the micropile structure identifying:
 - a. A reference baseline and elevation datum.
 - b. The offset from the construction centerline or baseline to the face of the micropile structure at all changes in horizontal alignment.
 - c. Beginning and end of micropile structure stations.
 - d. Right-of-way and permanent or temporary construction easement limits, location of all known active and abandoned existing utilities, adjacent structures or other potential interference. The centerline of any drainage structure or drainage pipe behind, passing through, or passing under the micropile structure.
 - e. Subsurface exploration locations shown on a plan view of the proposed micropile structure alignment with appropriate reference base lines to fix the locations of the explorations relative to the micropile structure.
2. An elevation view of the micropile structure(s) identifying:
 - a. Elevation view showing micropile locations and elevations; vertical and horizontal spacing; batter and alignment and the location of drainage elements (if applicable).
 - b. Existing and finish grade profiles both behind and in front of the micropile structure.

- 1 3. Design parameters and applicable codes.
- 2
- 3 4. General notes for constructing the micropile structure including the overall
- 4 construction sequence, micropile installation sequence, means and
- 5 methods to prevent damage to existing adjacent piles and micropiles,
- 6 installation tolerances, and other special construction requirements.
- 7
- 8 5. Start date and time schedule and micropile installation schedule providing
- 9 the following:
- 10
- 11 Micropile number
- 12 Micropile Factored Design Load
- 13 Type and size of reinforcing steel
- 14 Type and size of steel casing
- 15 Minimum total bond length
- 16 Total micropile length
- 17 Micropile top attachment
- 18
- 19 6. Micropile structure typical sections including micropile spacing and
- 20 inclination; minimum drill hole diameter; pipe casing and reinforcing bar
- 21 sizes and details; splice types and locations; centralizers and spacers; grout
- 22 bond zone and casing plunge lengths and corrosion protection details; and
- 23 connection details to the substructure footing, anchorage, plates, etc.
- 24
- 25 7. A typical detail of verification and production proof test micropiles defining
- 26 the micropile length, minimum drill hole diameter, inclination, and load test
- 27 bonded and unbonded test lengths.
- 28
- 29 8. Details, dimensions, and schedules for all micropiles, casing and reinforcing
- 30 steel, including reinforcing bar bending details.
- 31
- 32 9. Details and dimensions for micropile structure appurtenances such as
- 33 barriers, coping, drainage gutters, fences, etc. (if applicable).
- 34
- 35 10. Details for constructing micropile structures around drainage facilities (if
- 36 applicable).
- 37
- 38 11. Details for terminating micropile structures and adjacent slope construction
- 39 (if applicable).
- 40

41 When plan dimensions are changed due to field conditions or for other reasons, the
42 Contractor shall submit revised Type 3E Working Drawings, including supporting
43 design calculations. Within 30 days after completion of the work, the Contractor shall
44 submit as-built drawings to the Engineer, conforming to the requirements specified
45 for Type 3E Working Drawings in Section 1-05.3.

46 **Construction Submittals**

47 The Contractor shall submit Type 2E Working Drawings consisting of the following
48 for the micropile system or systems to be constructed:

- 49 1. Discussion of how the Contractor's construction methods accommodate
- 50 and are compatible with the anticipated subsurface conditions as described
- 51
- 52

1 in the contract test hole boring logs, the Summary of Geotechnical
2 Conditions provided in the Appendix to the Special Provisions, and the
3 geotechnical report(s) prepared for this project.
4

- 5 2. If welding of casing is proposed, the Contractor shall submit the proposed
6 welding procedure in accordance with Section 6-03.3(25).
7
- 8 3. Manufacturer's information, model, size, and type of equipment to be used
9 for installing micropiles, with appropriate manufacturer's literature for
10 review. Include detailed description of the drilling equipment and methods
11 proposed to be used to provide drillhole support and prevent detrimental
12 ground movements.
13
- 14 4. Information on headroom and space requirements for installation
15 equipment that verify the proposed equipment can perform at the site. Plan
16 describing how surface water, drill flush, and excess waste grout will be
17 controlled, contained, collected, and disposed of.
18
- 19 5. Certified mill test reports for the reinforcing steel and certified mill test
20 reports or independent test reports for non-mill certified steel casing used
21 in micropile installation. The ultimate strength, yield strength, elongation,
22 and material properties composition shall be included.
23
- 24 6. Grouting Plan. The plan shall include complete descriptions, details, and
25 supporting calculations for the following:
26
- 27 a. Grout mix design and type of materials to be used in the grout
28 including certified test data and trial batch reports.
29
 - 30 b. Grouting equipment, including capacity and relation to the grouting
31 demand and working conditions as well as provisions for back-up
32 equipment and spare parts.
33
 - 34 c. Types and sizes of grout hoses, connections, and grout delivery
35 systems.
36
 - 37 d. Methods and equipment for placing, positioning, and supporting
38 the steel pipe casing and reinforcing bars. Centralizers and
39 spacers shall permit the free flow of grout without misalignment of
40 the reinforcing bar(s) and permanent casing.
41
 - 42 e. Methods and equipment for accurately monitoring and recording
43 the grout depth, grout volume and grout pressure as the grout is
44 being placed. The Contractor shall estimate the grout take. There
45 will be no extra payment for grout overruns.
46
 - 47 f. Procedures and schedules for grout batching, mixing, and
48 pumping including provisions for handling drilling fluid and for post
49 grouting.
50
 - 51 g. Grouting rate calculations, when requested by the Engineer. The
52 calculations shall be based on the initial pump pressures or static

head on the grout and losses throughout the placing system, including anticipated head of drilling fluid to be displaced.

h. Contingency procedures for handling blockage of ducts or equipment breakdowns.

i. Estimated curing time for grout to achieve specified strength. During production, grout shall be tested in accordance with the **Grout Testing** subsection of this Special Provision.

j. Procedure and equipment for Contractor monitoring of grout quality.

7. Detailed plans for the proposed micropile load testing method. This shall include all drawings, details, and structural design calculations necessary to describe the proposed test method, reaction load system capacity and equipment setup, types and accuracy of apparatus to be used for applying and measuring the test loads and micropile top movements in accordance with the **Micropile Load Tests** subsection of this Special Provision.

8. Calibration reports and data for each test jack, pressure gauge and master pressure gauge and electronic load cell to be used. The calibration tests shall have been performed by an independent testing laboratory within 90 calendar days of the date submitted.

9. Discussion of the Contractor's contingency plan if a verification load test or a proof load test fails.

Pre-construction Meeting

A pre-construction meeting will be scheduled by the Engineer and held prior to the start of micropile construction. The prime Contractor, micropile specialty Contractor, and excavation Contractor shall attend the meeting. The pre-construction meeting will be conducted to clarify the construction requirements for the work, to coordinate the construction schedule and activities, and to identify contractual relationships and delineation of responsibilities amongst the prime Contractor and the various subcontractors - specifically those pertaining to excavation for micropile structures, anticipated subsurface conditions, micropile installation and testing, micropile structure survey control and site drainage control.

Site Drainage Control

The Contractor shall control and properly dispose of drill flush and construction related waste, including excess grout, in accordance with Section 1-07.5(3) as supplemented in these Special Provisions and all applicable local codes and regulations. The Contractor shall provide positive control and discharge of all surface water that will affect construction of the micropile installation. The Contractor shall maintain all pipes or conduits used to control surface water during construction. The Contractor shall repair damage caused by surface water in accordance with Section 1-07.13. Upon substantial completion of the work, the Contractor shall remove surface water control pipes or conduits from the site. Alternatively, with the concurrence of the Engineer, pipes or conduits that are left in place may be fully grouted and abandoned or left in a way that protects the structure and all adjacent facilities from migration of fines through the pipe or conduit and potential ground loss.

Excavation

The Contractor shall coordinate the work and the excavation so the micropile structures are safely constructed. The Contractor shall perform the micropile construction and related excavation in accordance with the Plans and approved submittals.

Micropile Allowable Construction Tolerances

The centerline of piling shall not be more than 3 inches from indicated plan location.

The pile-hole alignment of vertical micropiles shall be plumb within 2 percent of total-length plan alignment. The pile-hole alignment of micropiles inclined up to 1:6 shall be within 4-percent of plan alignment. The pile-hole alignment of micropiles inclined greater than 1:6 shall be within 7-percent of plan alignment.

The top elevation of micropile shall be ± 1 inch maximum from vertical elevation indicated.

The centerline of reinforcing steel shall not be more than 1/2 inch from indicated location.

Drilling

The drilling equipment and methods shall be suitable for drilling through the conditions to be encountered, without causing damage to any overlying or adjacent structures or services. The drill hole shall be open along its full length to at least the design minimum drill hole diameter prior to placing grout and reinforcement. Temporary casing or other approved method of micropile drill hole support will be required in caving or unstable ground to permit the micropile shaft to be formed to the minimum design drill hole diameter. The Contractor's proposed method(s) to provide drill hole support and to prevent ground movements shall have received the concurrence of the Engineer. Use of drilling fluid containing bentonite is not allowed.

Ground Heave or Subsidence

During construction, the Contractor shall observe the conditions in the vicinity of the micropile construction site on a daily basis for signs of ground heave or subsidence. The Contractor shall immediately notify the Engineer if signs of movements are observed. The Contractor shall immediately suspend or modify drilling or grouting operations if ground heave or subsidence is observed, if the micropile structure is adversely affected, or if adjacent structures are damaged from the drilling or grouting. If the Engineer determines that the movements require corrective action, the Contractor shall take corrective actions necessary to stop the movement or perform repairs.

When due to the Contractor's methods or operations or failure to follow the specified/approved construction sequence, the costs of providing corrective actions will be borne by the Contractor in accordance with Section 1-07.13.

Pipe Casing and Reinforcing Bars Placement and Splicing

Reinforcement may be placed either prior to grouting or placed into the grout-filled drill hole before temporary casing (if used) is withdrawn. Reinforcement surface shall be free of deleterious substances such as soil, mud, grease or oil. Micropile cages and reinforcement groups, if used, shall be sufficiently robust to withstand the installation and grouting process and the withdrawal of the drill casings without

1 damage or disturbance. Grout shall provide one inch minimum cover over bare or
2 epoxy coated bars (1/4-inch on bar couplers) or 1/2 inch minimum cover over the
3 encapsulation of encapsulated bars.

4
5 The Contractor shall check micropile top elevations and adjust all installed micropiles
6 to the planned elevations.

7
8 Permanent casing, if specified, shall be installed to the minimum tip elevations shown
9 in the Plans.

10
11 Centralizers and spacers shall be provided at 10 feet centers maximum spacing. The
12 upper and lower most centralizer shall be located a maximum of 5 feet from the top
13 and bottom of the micropile. The central reinforcement bars with centralizers shall be
14 lowered into the stabilized drill hole and set. The reinforcing steel shall be inserted
15 into the drill hole to the desired depth. Bars shall not be driven or forced into the hole.
16 The Contractor shall re-drill and reinsert reinforcing steel when necessary to facilitate
17 insertion.

18
19 Lengths of casing and reinforcing bars to be spliced shall be secured in proper
20 alignment and in a manner to avoid eccentricity or angle between the axes of the two
21 lengths to be spliced. Splices and threaded joints shall meet the requirements of
22 Section 6-05.2 as supplemented in these Special Provisions. Threaded pipe casing
23 joints shall be located at least two casing diameters (OD) from a splice in any
24 reinforcing bar. When multiple bars are used, bar splices shall be staggered at least
25 one foot.

26 27 **Grouting**

28 Micropiles shall be primary grouted the same day the load transfer bond length is
29 drilled. The Contractor shall complete the load transfer bond length drilling and
30 primary grouting of a micropile before beginning work on another micropile in the
31 same footing or pile cap.

32
33 Prior to grouting, the drill hole shall be flushed with water and/or air to remove drill
34 cuttings.

35
36 The grouting equipment shall be colloidal mixers only and shall produce a grout free
37 of lumps and undispersed cement. Contractor shall have means and methods of
38 measuring the grout quantity and pumping pressure during the grouting operations.
39 The grout pump shall be equipped with a pressure gauge to monitor grout pressures.
40 A second pressure gauge shall be placed at the point of injection into the micropile
41 top. The pressure gauges shall be capable of measuring pressures of 150 psi or
42 twice the actual grout pressures used, whichever is greater. The grout shall be kept
43 in agitation prior to mixing. Grout shall be placed within one hour of mixing. The
44 grouting equipment shall be sized to enable each micropile to be grouted in one
45 continuous operation.

46
47 The grout shall be injected from the lowest point of the drill hole and injection shall
48 continue until uncontaminated grout flows from the top of the micropile. The grout
49 may be pumped through grout tubes, casing, hollow-stem augers, or drill rods.
50 Temporary casing, if used, shall be extracted in stages ensuring that after each length
51 of casing is removed the grout level is brought back up to the ground level before the
52 next length is removed. Additional grout shall be placed by the use of a tremie pipe

at all times. The tremie pipe shall always extend below the level of the existing grout in the drill hole. The grout pressures and grout takes shall be controlled to prevent excessive heave or fracturing of rock or soil formations. Upon completion of grouting, the grout tube may remain in the hole, but must be filled with grout.

If the Contractor elects to use a postgrouting system, working drawings and details shall be submitted to the Engineer for review in accordance with the **Construction Submittals** subsection of this Special Provision.

Grout Testing

Grout within the micropile verification and proof test micropiles shall attain the minimum specified seven day design compressive strength prior to load testing. During placement of initial verification micropiles, proof test micropiles, and production micropiles, micropile grout will be sampled and tested by the Engineer for compressive strength in accordance with WSDOT Test Method 813 and AASHTO T 106 at a frequency of no less than one set of three 2 inch grout cubes from each grout plant each day of operation or per every 10 micropiles, whichever occurs more frequently. The compressive strength will be the average of the 3 cubes tested. The Contractor is responsible for sampling and testing additional grout cubes as necessary for early breaks prior to verification and proof testing.

If a compressive strength test fails, the Engineer may require the Contractor to proof test some or all of the production micropiles installed since the last grout batch that met the specified compressive strength.

Grout consistency, as measured by grout density, shall be tested by the Contractor just prior to the start of micropile grouting in accordance with API RP-13B-1 at a frequency of at least one test per micropile. For the grout to be approved for use, the specific gravity reported by the test shall be between 1.8 and 1.9. The Contractor's grout consistency test equipment shall be calibrated by an independent testing laboratory. The Contractor shall not use test equipment greater than 180-calendar days past the most recent calibration date, until such equipment is recalibrated by an independent testing laboratory.

Micropile Installation Records

The Contractor shall prepare and submit Type 1 Working Drawings consisting of full-length installation records for each micropile installed, including all grout volumes, pressures, and installation methods used. The records shall be submitted no later than the end of each work week and within 24 hours after all micropile installation is completed. The data shall be recorded in the micropile installation log. A separate log shall be provided for each micropile.

Micropile Load Tests

The Contractor shall perform verification and proof testing of micropiles at the locations specified in this Special Provision, the Plans or as otherwise specified by the Engineer. Tests shall be performed using a tension load test in accordance with ASTM D 3689 or a compression load test in accordance with ASTM D 1143, except as modified by this Special Provision.

Completed production micropiles may be used as part of the reaction frame for proof load testing. No reaction bearing elements of the load test frame for verification and proof load testing of micropiles shall bear on existing structure elements.

Verification Load Tests

The Contractor shall perform pre-production verification micropile testing to verify the design of the micropile system and the construction methods proposed prior to installing any production micropiles. Sacrificial verification test micropiles shall be constructed in conformance with the Working Drawing submittal. Verification test micropiles shall be installed at the following locations:

*** \$\$\$

Verification load tests shall be performed to verify that the Contractor installed micropiles will meet the required compression and tension load capacities and load test acceptance criteria and to verify that the length of the micropile load transfer bond zone is adequate. The Contractor shall submit Type 2 Working Drawings consisting of the micropile verification load test results for the Engineer's acceptance prior to the installation of production micropiles.

The drilling-and-grouting method, casing length and outside diameter, reinforcing bar lengths, reinforcing bar size and strength, and depth of embedment for the verification test micropile(s) shall be identical to those specified for the production micropiles at the given locations. The verification test micropile structural steel sections shall be sized to safely resist the maximum test load.

The jack, bearing plates, and stressing anchorage shall be positioned at the beginning of the test such that unloading and repositioning during the test will not be required.

Testing Equipment and Data Recording

Testing equipment shall include dial gauges, dial gauge support, jack and pressure gauge, electronic load cell, and a reaction frame. The load cell is required only for the creep test portion of the verification test. The Contractor shall provide a description of test setup and jack, pressure gauge and load cell calibration curves in accordance with the **Working Drawings** subsection of this Special Provision. Additionally, the Contractor shall not use test jacks, pressure gauges and master pressure gauges, and electronic load cells greater than 90 calendar days past their most recent calibration date, until such items are recalibrated by an independent testing laboratory.

The Contractor shall design the testing reaction frame to be sufficiently rigid and of adequate dimensions such that excessive deformation of the testing equipment does not occur.

The Contractor shall apply and measure the test load with a hydraulic jack and pressure gauge. The pressure gauge shall be graduated in 75 psi increments or less. The jack and pressure gauge shall have a pressure range of no more than twice the anticipated maximum test pressure. Jack ram travel shall be sufficient to allow the test to be done without resetting the equipment. The Contractor shall monitor the creep test load hold during verification tests with both the pressure gauge and the electronic load cell. The Contractor shall use the load cell to accurately maintain a constant load hold during the creep test load hold increment of the verification test.

The Contractor shall measure the micropile top movement with a dial gauge capable of measuring to 1 mil (0.001 inch). The dial gauge shall have a travel sufficient to allow the test to be done without having to reset the gauge. The Contractor shall visually align the gauge to be parallel with the axis of the micropile and support the gauge independently from the jack, micropile or reaction frame. The Contractor shall use two dial gauges when the test setup requires reaction against the ground or single reaction micropiles on each side of the test micropile.

The required load test data shall be recorded by the Contractor.

Verification Test Loading Schedule

The Contractor shall test the verification micropiles to a maximum test load of 1.5 times the micropile Factored Design Load shown in the Plans. The verification micropile load tests shall be made by incrementally loading the micropile in accordance with the following cyclic load schedule:

AL = Alignment Load FDL = Factored Design Load

LOAD	HOLD TIME
AL	1 minute
0.075 FDL	4 minutes
0.150 FDL	4 minutes
0.225 FDL	4 minutes
0.300 FDL	4 minutes
0.375 FDL	4 minutes
AL	1 minute
0.150 FDL	1 minute
0.300 FDL	1 minute
0.375 FDL	1 minute
0.450 FDL	4 minutes
0.525 FDL	4 minutes
0.600 FDL	4 minutes
0.675 FDL	4 minutes
0.750 FDL	4 minutes
AL	1 minute
0.300 FDL	1 minute
0.600 FDL	1 minute
0.675 FDL	1 minute
0.750 FDL	1 minute
0.825 FDL	4 minutes
0.900 FDL	4 minutes
1.00 FDL	60 minutes
	(Creep Test Load Hold)
AL	1 minute
0.300 FDL	1 minute
0.600 FDL	1 minute
0.900 FDL	1 minute
0.975 FDL	4 minutes
1.050 FDL	4 minutes
1.125 FDL	4 minutes
1.200 FDL	4 minutes
1.275 FDL	4 minutes

1	1.350 FDL	4 minutes
2	1.425 FDL	4 minutes
3	1.500 FDL	4 minutes
4		(Maximum Test Load)
5	1.200 FDL	4 minutes
6	0.900 FDL	4 minutes
7	0.600 FDL	4 minutes
8	0.300 FDL	4 minutes
9	AL	15 minutes

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After the hold time at each load, Micropile top movement shall be measured and recorded. The verification test micropile shall be monitored for creep at the 1.000 Factored Design Load (FDL). Micropile movement during the creep test shall be measured and recorded at 1, 2, 3, 4, 5, 6, 10, 20, 30, 50, and 60 minutes. The alignment load shall not exceed 5 percent of the FDL load. Dial gauges shall be reset to zero after the initial AL is applied.

The acceptance criteria for micropile verification load tests are:

1. The micropile shall sustain the first 1.000 FDL test load with no more than the following total vertical movement at the top of the micropile, relative to the position of the top of the micropile prior to testing.

*** \$\$\$
2. At the end of the 1.000 FDL creep test load increment, test micropiles shall have a creep rate not exceeding 0.040 inch/log cycle time (1 to 10 minutes) or 0.080 inch/log cycle time (6 to 60 minutes). The creep rate shall be linear or decreasing throughout the creep load hold period.
3. Failure does not occur at the maximum test load of 1.005 FDL. Failure is defined as a slope of the load versus deflection curve (at end of increment) exceeding 0.025 inches/kips or at which attempts to further increase the test load simply result in continued micropile movement.

The Engineer will provide the Contractor written acceptance or rejection of the verification load tests within five working days.

Verification Test Micropile Rejection

If a verification tested micropile fails to meet the acceptance criteria, the Contractor shall modify the design, the construction procedure, or both, and shall perform another verification test incorporating the revisions. These modifications may include modifying the installation methods, increasing the bond length, or changing the micropile type. Any modification that necessitates changes to the structure will require the Engineer's review and acceptance. Any modifications of design or construction procedures or cost of additional verification test micropiles and load testing shall be at no additional expense to the Contracting Agency. At the completion of verification testing, test micropiles shall be removed down to an elevation two feet below finished ground line, except as otherwise specified in the Plans or by the Engineer.

Proof Load Tests

The Contractor shall proof load test the specified number of production micropiles at locations specified by the Engineer. Additional proof tests will be required if modifications are made in the micropile installation methods subsequent to the first production micropile, or if any of the proof tests fail.

Proof Test Loading Schedule

Proof tests shall be conducted by incrementally loading the micropile in accordance with the following schedule:

AL = Alignment Load	FDL = Factored Design Load
LOAD	HOLD TIME
AL	1 minute
0.10 FDL	4 minutes
0.20 FDL	4 minutes
0.30 FDL	4 minutes
0.40 FDL	4 minutes
0.50 FDL	4 minutes
0.60 FDL	4 minutes
0.70 FDL	4 minutes
0.80 FDL	4 minutes
0.90 FDL	4 minutes
1.00 FDL	10 or 60 minutes
	(Creep Test)
0.75 FDL	4 minutes
0.50 FDL	4 minutes
0.25 FDL	4 minutes
AL	4 minutes

Depending on performance, either a 10 minute or 60 minute creep test shall be performed at the maximum test load of 1.0067 FDL. Where the micropile top movement between 1 and 10 minutes exceeds 0.040 inch, the maximum test load shall be maintained an additional 50 minutes. Movements shall be recorded at 1, 2, 3, 5, 6, 10, 20, 30, 50 and 60 minutes. The alignment load shall not exceed 5 percent of FDL. Dial gauges shall be reset to zero after the initial AL is applied.

The acceptance criteria for micropile proof load tests are:

1. The micropile shall sustain the maximum test load of 1.00 FDL with no more than the following total vertical movement at the top of the micropile, relative to the position of the top of the micropile prior to testing.

*** \$\$\$

2. At the end of the 1.00 FDL creep test load increment, test micropiles shall have a creep rate not exceeding 0.040 inch/log cycle time (1 to 10 minutes) or 0.080 inch/log cycle time (6 to 60 minutes). The creep rate shall be linear or decreasing throughout the creep load hold period.

1 **Proof Test Micropile Rejection**

2 If a proof-tested micropile fails to meet the acceptance criteria, the Contractor shall
3 proof test another micropile as selected by the Engineer. For failed micropiles the
4 Contractor shall submit a Type 2 Working Drawing consisting of a repair procedure.
5 For further construction of subsequent micropiles, the Contractor shall modify the
6 design, the construction procedure, or both. These modifications may include
7 installing replacement micropiles, incorporating failed micropiles at not more than 50
8 percent of the maximum load attained, post grouting, modifying installation methods,
9 increasing the bond length, or changing the micropile type. Any modification that
10 necessitates changes to the structure design will require the Engineer's review and
11 acceptance.

12
13 6-05.3(5).GR6

14 ***Manufacture of Steel Piles***

15
16 6-05.3(5).INST1.GR6

17 Section 6-05.3(5) is supplemented with the following:

18
19 6-05.3(5).OPT1.GB6

20 **(September 8, 2020)**

21 **Furnishing St. Piling**

22 Welding for steel pipe piling shall conform to AWS D1.1/D1.1M, latest edition,
23 Structural Welding Code, and Section 6-03.3(25), except that all weld filler metal shall
24 be low hydrogen material selected from Table 4.1 in AASHTO/AWS
25 D1.5M/D1.5:2020 Bridge Welding Code.

26
27 Welding and joint geometry for the seam, whether it be longitudinal or helical, shall
28 be qualified in accordance with Clause 4, Qualification, of the AWS D1.1/D1.1M,
29 latest edition, Structural Welding Code. In addition, charpy V-notch (CVN) testing in
30 accordance with Clause 4, Part D, of the AWS D1.1/D1.1M, latest edition, Structural
31 Welding Code, shall be performed. CVN testing shall include five tests at 0°F. The
32 acceptance threshold for the five samples shall meet an average value of 20-foot-
33 pounds CVN for the set of test coupons and a minimum value of 15-foot-pounds CVN
34 for any individual test coupon. The Contractor may submit documentation of prior
35 qualification to the Engineer to satisfy this requirement.

36
37 Dimensional tolerances shall conform to the material specification that the steel pipe
38 piling is manufactured under, and, at a minimum, the following requirements:

- 39
40 1. Out-of-roundness shall be within 1-percent of the nominal outside diameter.
41
42 2. Deviation from a straight line, parallel to the centerline of the pile, shall not
43 exceed 0.001 times the length of the pile.
44
45 3. The maximum radial offset of the strip/plate edges shall be 1/8-inch. The
46 offset shall be transitioned with a taper weld and the slope shall not be less
47 than a 1 in 2.5 taper.
48
49 4. The bead height of weld reinforcement shall not exceed 3/16-inch.
50
51 5. Misalignment of weld beads for double-sided welded pipe shall not exceed
52 1/8-inch.

1
2 6. The wall thickness shall not be less than 95-percent or greater than 110-
3 percent of the specified nominal thickness.
4
5 All seams and skelp splices shall be complete penetration welds. Skelp splices in
6 spiral welded (helical seam) pipe shall not be located within 12 inches of a girth shop
7 or field weld.
8
9 All skelp splices shall be 100 percent radiographically or ultrasonically inspected in
10 accordance with either API 5L Annex E Section E.4 or E.5, or Table 6.2 and Clause
11 6 Part E, F or G in AWS D1.1/D1.1M, latest edition, Structural Welding Code.
12 Additionally, 10-percent of the total length of seam welds for both longitudinal and
13 helical welded pipe, and one pipe diameter length of seam centered on any skelp
14 splice intersection, shall be randomly inspected as specified above. If repairs are
15 required in more than 10-percent of the welds examined, additional inspection shall
16 be performed. The additional inspection shall be made on both sides of the repair
17 for a length equal to 10-percent of the length of the pipe outside circumference. If
18 repairs are required in more than 10-percent of welds examined in the second
19 sample, 100-percent of the entire seam on the pile shall be inspected.
20
21 All seams and splices shall be 100 percent visually inspected in accordance with the
22 acceptance criteria for statically loaded non-tubular connections in Table 6.1 of the
23 AWS D1.1/D1.1M, latest edition, Structural Welding Code. Repairs shall conform to
24 Section 5.26 of the AWS D1.1/D1.1M, latest edition, Structural Welding Code, using
25 approved repair and weld procedures.
26
27 Each length of steel pipe pile shall be marked with paint stencil, no closer than six
28 inches to the end of the pipe, with the name of the manufacturer, material
29 specification and grade of pipe, steel heat number, nominal pipe diameter, and wall
30 thickness.
31
32 6-05.3(6).GR6
33 ***Splicing Steel Casings and Steel Piles***
34
35 6-05.3(6).INST1.GR6
36 Section 6-05.3(6) is supplemented with the following:
37
38 6-05.3(6).OPT1.GB6
39 **(September 8, 2020)**
40 **Furnishing St. Piling**
41 Welding for steel pipe piling shall conform to AWS D1.1/D1.1M, latest edition,
42 Structural Welding Code, and Section 6-03.3(25), except that all weld filler metal shall
43 be low hydrogen material selected from Table 4.1 in AASHTO/AWS
44 D1.5M/D1.5:2020 Bridge Welding Code.
45
46 Welding and joint geometry for splices shall be qualified in accordance with Clause
47 4, Qualification, of the AWS D1.1/D1.1M, latest edition, Structural Welding Code. In
48 addition, charpy V-notch (CVN) testing in accordance with Clause 4, Part D, of the
49 AWS D1.1/D1.1M, latest edition, Structural Welding Code, shall be performed. CVN
50 testing shall include five tests at 0°F. The acceptance threshold for the five samples
51 shall meet an average value of 20-foot-pounds CVN for the set of test coupons and
52 a minimum value of 15-foot-pounds CVN for any individual test coupon. The

1 Contractor may submit documentation of prior qualification to the Engineer to satisfy
2 this requirement.
3
4 Ends of steel pipe piling shall be prepared for splicing in accordance with AWS
5 D1.1/D1.1M, latest edition, Structural Welding Code.
6
7 All splices shall be complete penetration groove welds using continuous backing
8 rings of 1/4 inch minimum thickness. Tack welds shall be located in the root of the
9 complete penetration groove weld.
10
11 Shop splices shall be 100 percent visually and ultrasonically inspected in accordance
12 with the acceptance criteria for statically loaded non-tubular connections in Table 6.1
13 and the acceptance criteria in Table 6.2 in AWS D1.1/D1.1M, latest edition, Structural
14 Welding Code. Repairs for shop and field splices shall conform to Section 5.26 of
15 AWS D1.1/D1.1M, latest edition, Structural Welding Code, using approved repair and
16 weld procedures.
17
18 Field splice welds and welders shall be further qualified, tested and inspected as
19 follows:
20
21 1. Welder qualification shall be performed on sample full girth sections of steel
22 pipe pile to be used, in the same position and using the same weld joint as
23 for production pile splicing. At the Contractor's option, these tests may be
24 performed on the test piles during test pile installation.
25
26 2. Weld qualification tests shall be conducted in the presence of the
27 Contractor's CWI and a representative of the Contracting Agency.
28
29 3. Field welded test joints for welder qualification shall be inspected as
30 specified above for shop splices.
31
32 4. Production pile field splices shall be inspected as specified above for shop
33 splices, within the limits designated for UT inspection as shown in the Plans.
34 All welds shall be 100 percent visually inspected. The Engineer and the
35 Contractor's CWI reserve the right to request UT inspection of splices in
36 any pile location.
37
38 Quality control for field welding shall be conducted by an AWS Certified Welding
39 Inspector (CWI). The Contractor shall not begin pile splicing operations until
40 receiving the CWI's approval of the joint fit-up. The CWI shall inspect 100 percent of
41 all field welds in accordance with the criteria and requirements specified above. All
42 field splices shall have received the CWI's approval prior to Engineer acceptance.
43
44 The CWI shall prepare a Type 1 Working Drawing documenting the results of the
45 nondestructive quality control inspection of all field welds, and shall submit the report
46 to the Engineer within five working days of the completion of the final pile splice in
47 the project or as otherwise requested by the Engineer.
48
49 6-05.3(10).GR6
50 **Test Piles**
51

1 6-05.3(10).INST1.GR6
2 Section 6-05.3(10) is supplemented with the following:
3
4 6-05.3(10).OPT1.FB6
5 (March 6, 2000)
6 The Contractor shall furnish and drive *** \$\$1\$\$ *** test piles at the following
7 locations or at locations designated by the Engineer:
8
9 *** \$\$2\$\$ ***
10
11 The *** \$\$3\$\$ *** test piles shall be driven in the location of permanent piles and the
12 number of permanent *** \$\$4\$\$ *** piles required for this project has been reduced
13 by the appropriate number.
14
15 6-05.3(11).GR6
16 ***Driving Piles***
17
18 6-05.3(11)D.GR6
19 ***Achieving Minimum Tip Elevation and Bearing***
20
21 6-05.3(11)D.INST1.GR6
22 Section 6-05.3(11)D is supplemented with the following:
23
24 6-05.3(11)D.OPT2.GB6
25 (August 3, 2015)
26 The areas where piles are to be driven are adjacent to highly developed areas.
27 It is essential that vibration and noise resulting from pile driving be held to a
28 minimum. Unless otherwise allowed by the Engineer, pile driving shall be done
29 during regular daytime working hours. The Contractor shall select pile driving
30 equipment which will minimize noise and vibration. When, in the opinion of the
31 Engineer, noise or vibration are excessive, the Contractor will be required to use
32 a hammer that does not exceed the minimum specifications by more than 10
33 percent for the type and capacity of piling being driven. If pre-boring, jetting, or
34 other special methods are not specified elsewhere in the contract and are
35 ordered by the Engineer to reduce noise or vibration, such change in method
36 shall be considered a change, subject to the terms of Section 1-04.4.
37
38 6-05.3(11)D.OPT3.FB6
39 (August 3, 2015)
40 The *** \$\$1\$\$ *** piles *** \$\$2\$\$ *** shall be placed in prebored holes drilled to
41 elevation *** \$\$3\$\$ ***.
42
43 The holes shall be of adequate diameter to isolate the pile from skin friction. The
44 hole around the pile due to oversize boring shall be filled with dry sand or pea
45 gravel after the pile is placed.
46
47 6-05.3(11)D.OPT4.FB6
48 (August 3, 2015)
49 The *** \$\$1\$\$ *** piles *** \$\$2\$\$ *** shall be prebored to elevation *** \$\$3\$\$ ***.
50
51 The diameter of the preboring shall be adjusted to provide for full contact
52 between the pile casing and the surrounding soil without shattering the soil

1 formation. It is estimated that the required diameter for preboring will be
2 approximately 1 inch less than the pile diameter; however, the diameter shall be
3 adjusted by the Contractor as specified by the Engineer to accomplish the
4 results described above. Jetting will not be permitted. The Contractor shall
5 follow preboring immediately with the placing of the pile casing to prevent
6 sloughing into the excavated hole.
7
8 6-05.3(11)D.OPT9.FB6
9 (April 6, 2015)
10 The Contractor is advised that overdriving is anticipated for piles driven at the
11 following location(s):
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Location(s)	Approx. Magnitude of Overdriving Anticipated to Reach Minimum Tip Elev.
*** \$\$1\$\$ ***	*** \$\$2\$\$ ***

The Contractor shall size the hammer and pile to accommodate overdriving of
this magnitude without premature refusal or pile damage.

6-05.4.GR6
Measurement
6-05.4.INST1.GR6
Section 6-05.4 is supplemented with the following:
6-05.4.OPT1.FB6
(March 6, 2000)
Measurement for preboring for *** \$\$1\$\$ *** pile will be per linear foot of hole drilled.
6-05.4.OPT6.GB6
(April 6, 2015)
Micropiles will be measured per each, for each micropile installed and accepted.
Micropile verification load testing will be measured per each for each successfully
completed and accepted micropile verification load test.
Micropile proof load testing will be measured per each for each successfully completed
and accepted micropile proof load test.
6-05.5.GR6
Payment
6-05.5.INST1.GR6
Section 6-05.5 is supplemented with the following:
6-05.5.OPT1.FB6
(March 6, 2000)
“Preboring For ***\$\$1\$\$\$*** Pile”, per linear foot.

1 The unit contract price per linear foot for “Preboring For ***\$\$2\$\$\$ Pile” shall be full pay
2 for performing the work as specified, including removal and disposal of excavated soils
3 from preboring, and backfilling.
4
5 6-05.5.OPT6.GB6
6 (April 6, 2015)
7 “Micropile”, per each.
8 The unit contract price per each for "Micropile" shall be full pay for performing the Work
9 as specified.
10
11 “Micropile Verification Load Testing”, per each.
12 “Micropile Proof Load Testing”, per each.
13 The unit contract price per each for “Micropile Verification Load Testing” and “Micropile
14 Proof Load Testing” shall be full pay for performing the Work as specified.
15
16 6-06.GR6
17 **Bridge Railings**
18
19 6-06.2.GR6
20 **Materials**
21
22 6-06.2.INST1.GR6
23 Section 6-06.2 is supplemented with the following:
24
25 6-06.2.OPT1.GB6
26 (November 20, 2023)
27 Chain link fence fabric shall conform to the Section 9-16.1(1)B requirements for Type 1
28 fence.
29
30 Fittings, fabric bands, stretcher bars, tie wire, and other fence hardware, shall conform to
31 Section 9-16.1.
32
33 Pipe for posts and longitudinal members shall conform to ASTM A 53, Grade B, Type E
34 or S, galvanized, and shall be Schedule 40 unless otherwise shown in the Plans.
35
36 Steel bars, plates, and shapes shall conform to ASTM A36, and shall be galvanized in
37 accordance with AASHTO M 111, except that structural shapes may conform to ASTM
38 A992.
39
40 Bolts, nuts, and washers shall conform to Section 9-06.5(3) and shall be galvanized after
41 fabrication in accordance with AASHTO M 232.
42
43 Resin bonded anchors shall conform to Section 6-02.3(18)A and Section 9-06.4.
44
45 6-06.2.OPT2.GB6
46 (March 6, 2000)
47 Epoxy resin shall conform to Section 9-26.1.
48

6-06.2.OPT7.GB6

(April 6, 2015)

Tamper Proof Nuts for steel Bridge Railing Type BP

Tamper proof nuts for steel Bridge Railing Type BP shall be one of the following products from one of the following manufacturers:

Vandlgard-Nut VCN151-6 (zinc)

Manufactured by

Simi Fastening Systems

4615 Industrial St. Bldg. No. 1-P

Simi Valley, CA 93063

(800) 959-8256

FAX (805) 581-9162

www.simifast.com

Local Supplier

Northwest Fasteners Inc.

15127 Washington Avenue SW

Lakewood, WA 98498

(253) 582-1671

FAX (253) 581-3131

Trigroove Nut ZTRN37C (Zamak 5 zinc alloy AC41A)

Breakaway Nut ZNB37C (Zamak 5 zinc alloy AC41A)

Manufactured by

Screw & Supply Inc.

1712 Church Street

Holbrook, NY 11741

(800) 223-1316

FAX (631) 567-3057

www.screwsupply.com

Local Supplier

Tacoma Screw Products Inc.

2001 Center Street

Tacoma, WA 98409

(800) 562-8192

FAX (253) 272-2719

Spanner Nut 1N.386 (zinc alloy)

Manufactured by

TamperProof Screw Company Inc.

30 Laurel Street

Hicksville, NY 11801

(516) 931-1616

FAX (516) 931-1654

www.tamperproof.com

Trident Tamper Resistant Nut 37CNTNZ (Zamak 5 zinc alloy AC41A)

Breakaway Nut 37CNBAWZ (Zamak 5 zinc alloy AC41A)

Breakaway Nut 37CNBAWS (stainless steel alloy 304)

Manufactured by

Tanner Bolt & Nut Company

4302 Glenwood Road

Brooklyn, NY 11210

(800) 456-2658

FAX (888) 434-3215

www.tannerbolt.com

6-06.2.OPT8.FB6

(November 20, 2023)

Bridge Railing Type Snow Fence and Bridge Railing Type Wire Fabric Fence

Wire fabric shall be 8 gage diameter, 2 inch square wire mesh conforming to ASTM F2453 Type 2 and galvanized after fabrication in accordance with AASHTO M 111.

1 HSS tubes shall conform to ASTM A500, Grade B.

2

3 Steel bars, plates, and shapes shall conform to either ASTM A36 or ASTM A992.

4

5 The railing assembly shall be galvanized after fabrication in accordance with AASHTO M

6 111.

7

8 Anchor rods shall be fully threaded, conforming to ASTM F593 Type 302. Washers shall

9 conform to ASTM A193 Grade B7, galvanized in accordance with AASHTO M 232. Nuts

10 shall be tamper proof, as one of the following products from one of the associated

11 manufacturers:

12

13 Vandlgard-Nut VCN151-6 (zinc)	
14 Manufactured by	Local Supplier
15 Simi Fastening Systems	Northwest Fasteners Inc.
16 4615 Industrial St. Bldg. No. 1-P	15127 Washington Avenue SW
17 Simi Valley, CA 93063	Lakewood, WA 98498
18 (800) 959-8256	(253) 582-1671
19 FAX (805) 581-9162	FAX (253) 581-3131
20 www.simifast.com	
21	
22 Trigroove Nut ZTRN37C (Zamak 5 zinc alloy AC41A)	
23 Breakaway Nut ZNB37C (Zamak 5 zinc alloy AC41A)	
24 Manufactured by	Local Supplier
25 Screw & Supply Inc.	Tacoma Screw Products Inc.
26 1712 Church Street	2001 Center Street
27 Holbrook, NY 11741	Tacoma, WA 98409
28 (800) 223-1316	(800) 562-8192
29 FAX (631) 567-3057	FAX (253) 272-2719
30 www.screwsupply.com	
31	
32 Spanner Nut 1N.386 (zinc alloy)	
33 Manufactured by	
34 TamperProof Screw Company Inc.	
35 30 Laurel Street	
36 Hicksville, NY 11801	
37 (516) 931-1616	
38 FAX (516) 931-1654	
39 www.tamperproof.com	
40	
41 Trident Tamper Resistant Nut 37CNTNZ (Zamak 5 zinc alloy AC41A)	
42 Breakaway Nut 37CNBAWZ (Zamak 5 zinc alloy AC41A)	
43 Breakaway Nut 37CNBAWS (stainless steel alloy 304)	
44 Manufactured by	
45 Tanner Bolt & Nut Company	
46 4302 Glenwood Road	
47 Brooklyn, NY 11210	
48 (800) 456-2658	
49 FAX (888) 434-3215	
50 www.tannerbolt.com	
51	

The railing assembly shall be shop painted or powder coated after galvanizing in accordance with Section 6-07.3(11). The color of the finish coat, when dry, shall match the color *** \$1\$ \$ ***.

6-06.3.GR6

Construction Requirements

6-06.3(2).GR6

Metal Railings

6-06.3(2).INST1.GR6

Section 6-06.3(2) is supplemented with the following:

6-06.3(2).OPT1.GB6

(November 20, 2023)

Bridge Railing Type Chain Link Fence

The Contractor shall install anchor bolts for each post anchorage as shown in the Plans. Alternatively, the Contractor may install resin bonded anchors at each post anchorage, in accordance with Section 6-02.3(18)A and Section 9-06.4.

Longitudinal members shall be connected to the steel posts as shown in the Plans.

The Contractor shall install the chain link fence fabric in accordance with Section 8-12.3(1)D, except as otherwise noted. The chain link fence fabric shall be fastened to the posts and longitudinal members at a maximum spacing of 14 inches.

6-06.3(2).OPT2.GB6

(March 6, 2000)

Bridge Railing Type Chain Link Fence

The post blockouts shall be formed with a steel sleeve of the diameter and thickness specified in the Plans. The steel sleeve shall be galvanized after fabrication in accordance with AASHTO M 111. The Contractor shall fill the bottom portion of the railing post with expanded polystyrene as shown in the Plans.

The Contractor shall install the steel posts in the post blockouts as shown in the Plans. The posts shall be installed vertically, set in position with epoxy resin, and braced to maintain the vertical position until the epoxy resin hardens.

Longitudinal members shall be connected to the steel posts as shown in the Plans.

The Contractor shall install the chain link fence fabric in accordance with Section 8-12.3(1)D, except as otherwise noted. The chain link fence fabric shall be fastened to the posts and longitudinal members at a maximum spacing of 14 inches.

6-06.3(2).OPT7.GB6

(November 20, 2023)

Bridge Railing Type Snow Fence and Bridge Railing Type Wire Fabric Fence

The railing shall be fabricated and installed in accordance with the shop drawings. The railing panels shall be installed parallel to the top of the associated concrete surface and the railing posts shall be installed perpendicular to the associated concrete surface.

1
2 The Contractor shall install anchor bolts for each post anchorage as shown in the
3 Plans. Alternatively, the Contractor may install resin bonded anchors at each post
4 anchorage, in accordance with Section 6-02.3(18)A and Section 9-06.4.
5
6 After completing erection, the Contractor shall repair all metal surfaces with damaged
7 paint or powder coatings and exposed metal with a field repair coating in accordance
8 with Section 6-07.3(9)I and Section 6-07.3(11)A (for paint) or Section 6-07.3(11)B (for
9 powder coating). The color of the finish coat of the field repair coating, when dry, shall
10 match the color specified in Section 6-06.2.
11
12 6-06.5.GR6
13 **Payment**
14
15 6-06.5.INST1.GR6
16 Section 6-06.5 is supplemented with the following:
17
18 6-06.5.OPT1.FB6
19 (March 6, 2000)
20 All costs in connection with constructing Bridge Railing Type *** \$1\$ \$ *** shall be
21 included in the *** \$2\$ \$ ***.
22
23 6-07.GR6
24 **Painting**
25
26 6-07.1.GR6
27 **Description**
28
29 6-07.1.INST1.GR6
30 Section 6-07.1 is supplemented with the following:
31
32 6-07.1.OPT1.FB6
33 (August 3, 2009)
34 This work shall consist of cleaning and painting all exposed metal surfaces of Bridge
35 No(s). *** \$1\$ \$ *** , in accordance with Section 6-07.3(10), except as otherwise noted
36 below.
37
38 Portions of the structure(s) excluded from this work include:
39
40 *** \$2\$ \$ ***
41
42 6-07.1.OPT2.FB6
43 (August 3, 2009)
44 This work shall consist of cleaning and painting the exposed timber surfaces of Bridge
45 No(s). *** \$1\$ \$ *** , in accordance with Section 6-07.3(13) as supplemented in these
46 Special Provisions and as specified below:
47
48 *** \$2\$ \$ ***
49
50 6-07.3.GR6
51 **Construction Requirements**
52

1 6-07.3(10).GR6
2 **Painting Existing Steel Structures**
3
4 6-07.3(10).INST1.GR6
5 Section 6-07.3(10) is supplemented with the following:
6
7 6-07.3(10).OPT1.FB6
8 (August 3, 2009)
9 The Contractor *** \$\$1\$\$ *** paint the existing utility company conduits attached to
10 the structure, such as sewer, water, gas and telephone. The Contractor shall protect
11 the utilities from damage due to operations on the bridges.
12
13 6-07.3(10).OPT2.GB6
14 (August 3, 2009)
15 Light fixtures and lenses, including navigation, aircraft, flag pole luminaire, and
16 luminaire light fixtures and lenses, shall not be painted and shall be kept clean from
17 paint. The Contractor shall remove all paint from the light fixtures and lenses due to
18 the painting operation.
19
20 6-07.3(10).OPT4.GB6
21 (August 3, 2015)
22 In the cleaning operation, particular attention shall be paid to cleaning the grid deck.
23 Any means acceptable to the Engineer, in addition to flushing, as required to clean
24 dirt, oil and grease from the grid surfaces in accordance with SSPC-SP 1 shall be
25 used.
26
27 6-07.3(10)A.GR6
28 **Containment**
29
30 6-07.3(10)A.INST1.GR6
31 Section 6-07.3(10)A is supplemented with the following:
32
33 6-07.3(10)A.OPT1.GB6
34 (August 3, 2009)
35 The Contractor shall adequately protect all gears, machinery, mechanical
36 equipment, electrical equipment, navigation and clearance light lenses, motors,
37 sheaves and cables and all other equipment which might become damaged by
38 and during the cleaning and painting operations. Should the Contractor's
39 operation foul or otherwise contaminate the lubricated surfaces, the Contractor
40 shall, if directed by the Engineer, clean and relubricate the surfaces at the
41 Contractor's expense.
42
43 6-07.3(10)A.OPT2.FB6
44 (September 7, 2021)
45 The following bridge(s) have a wind speed/gust threshold:
46

Bridge	Wind Speed/Gust Threshold (miles per hour)
Bridge No(s). *** \$\$1\$\$ ***	*** \$\$2\$\$ ***

47
48 Each day, the Contractor shall review the five-day wind speed/gust forecast for
49 each bridge site from the Western Region Headquarters of the National Weather

Service at www.wrh.noaa.gov. The Contractor shall lower or withdraw tarps, plastic exterior, and other containment components presenting an exposed face to the wind when either of the following apply:

1. When wind speeds or gusts exceeding the threshold are forecast by the National Weather Service.
2. When the structure site weather station records wind speeds or gusts exceeding the threshold.

The containment system may be restored after 2 hours without winds or gusts exceeding the threshold, and no forecast of such wind speeds or gusts to return within 24 hours.

Weather Station

Prior to installing any components of a containment system on a bridge with a specified wind speed/gust threshold, the Contractor shall install a wireless weather station on the bridge at a location acceptable to the Engineer. The Contractor shall provide one of the following wireless weather station systems, or an accepted equal:

1. Davis Instruments Vantage Pro2 model 06163.
2. Weather Hawk 916 Wireless Weather Station.
3. Columbia Weather Systems Capricorn FLX.

The Contractor shall submit a Type 2 Working Drawing consisting of details of the selected wireless weather station system, including installation and operation details. The Contractor shall install wireless display console units for both the Contracting Agency's and the Contractor's use at locations acceptable to the Engineer. The Contractor shall protect the wireless weather station system from damage during all paint removal, surface cleaning, and paint application operations.

The Contractor shall maintain a log of daily weather data updated on a daily basis. The log shall be available to the Engineer for review at any time during the project. The weather data shall be tabulated in the form of a spreadsheet. At a minimum, the weather data shall indicate the high and low temperature, relative humidity, maximum wind speed and direction, wind gusts, and rainfall. If requested by the Engineer, the Contractor shall submit a Type 1 Working Drawing of weather data. Upon request, the Contractor shall provide wireless access to the weather station data.

At the end of the Contract, the wireless weather station and all associated system components shall be removed from the bridge and become the property of the Contractor.

6-07.3(10)D.GR6

Surface Preparation Prior to Overcoat Painting

1 6-07.3(10)D.INST1.GR6
2 Section 6-07.3(10)D is supplemented with the following:
3
4 6-07.3(10)D.OPT1.FB6
5 (April 6, 2015)
6 The following steel surfaces of Bridge No(s). *** \$1\$ \$ shall receive surface
7 preparation in accordance with SSPC SP1 followed by cleaning in accordance
8 with this Section:
9
10 *** \$2\$ \$ ***
11
12 6-07.3(10)E.GR6
13 **Surface Preparation - Full Paint Removal**
14
15 6-07.3(10)E.INST1.GR6
16 Section 6-07.3(10)E is supplemented with the following:
17
18 6-07.3(10)E.OPT1.FB6
19 (April 5, 2010)
20 The following steel surfaces of Bridge No(s). *** \$1\$ \$ shall receive full paint
21 removal surface preparation in accordance with this Section:
22
23 *** \$2\$ \$ ***
24
25 6-07.3(10)I.GR6
26 **Paint Color**
27
28 6-07.3(10)I.INST1.GR6
29 Section 6-07.3(10)I is supplemented with the following:
30
31 6-07.3(10)I.OPT1.FB6
32 (August 3, 2009)
33 The color of the top coat, when dry, shall match *** \$1\$ \$ ***.
34
35 6-07.3(10)N.GR6
36 **Field Coating Application Methods**
37
38 6-07.3(10)N.INST1.GR6
39 Section 6-07.3(10)N is supplemented with the following:
40
41 6-07.3(10)N.OPT1.GB6
42 (August 3, 2009)
43 Spray painting will be permitted for the application of paint to the surfaces of the
44 steel grid roadway decking and steel grid catwalks, provided every precaution
45 or means necessary to prevent any damage due to spraying operations or from
46 wind borne paint is taken, provided further that if satisfactory results are not, in
47 the opinion of the Engineer, obtained with the spraying application, the
48 Contractor shall revert to the use of brushes. In the event spray painting is used
49 on the steel grid roadway decking, the application shall be made only from the
50 underside of the roadway, and then only at such times as traffic has been
51 diverted to other lanes. A protective covering shall be placed immediately over

1 areas of the roadway decking being spray painted to prevent damage from wind
2 borne paint.
3
4 6-07.3(11).GR6
5 ***Painting or Powder Coating of Galvanized Surfaces***
6
7 6-07.3(11).INST1.GR6
8 Section 6-07.3(11) is supplemented with the following:
9
10 6-07.3(11).OPT1.FB6
11 (August 3, 2009)
12 The color of the finish coat, when dry, shall match *** \$\$1\$\$ ***
13
14 6-08.GR6
15 **Bituminous Surfacing on Structure Decks**
16
17 6-08.3.GR6
18 **Construction Requirements**
19
20 6-08.3.INST1.GR6
21 Section 6-08.3 is supplemented with the following:
22
23 6-08.3.OPT1.FB6
24 ***(October 29, 2020)***
25 ***Surfacing Removal and Paving Equipment Load and Spacing Restrictions***
26 The following bridge(s) is (are) subject to the requirements and restrictions of this Special
27 Provision:
28
29 *** \$\$1\$\$ ***
30
31 The gross vehicle weight (GVW) of the surfacing removal and paving train vehicles
32 (planers, scrapers, haul trucks, asphalt pavers, MTD/V, and rollers) allowed on the bridge
33 shall not exceed the maximum GVW specified in the Plans and the spacing of the vehicles
34 shall not be less than that specified in the Plans unless otherwise accepted as described
35 in the **Submittal of Alternative Surfacing Removal and HMA Paving Trains** subsection
36 of this Special Provision.
37
38 The Contractor shall submit a Type 2 Working Drawing consisting of the proposed
39 methods and equipment to be used to remove surfacing and apply HMA overlay to the
40 bridge deck. The Working Drawing shall include catalogue cuts, make, model, axle
41 spacing, and gross weights of all surfacing removal equipment, pavers, rollers, and haul
42 trucks used to conduct surfacing removal and paving operations on the bridge. The
43 Working Drawing shall show the surfacing removal train units and paving train units and
44 associated support equipment that is simultaneously on the bridge, in longitudinal section.
45 The longitudinal section shall show the units in operational order. The details shall show
46 or specify means of confirming in the field that the equipment units conform to and do not
47 exceed the load limits specified in the Plans.
48
49 ***Submittal of Alternative Surfacing Removal and HMA Paving Trains***
50 During the Bid period, prospective Bidders may submit a maximum of two surfacing
51 removal and HMA paving trains for review and comment. The submittal shall consist of
52 the maximum gross vehicle weights including loaded weights for removal equipment, haul

1 trucks, rollers, pavers, etc., the axle spacing of the equipment and the minimum spacing
2 between adjacent pieces of equipment. Submittals must be received by the Contracting
3 Agency's representative identified in the Notice to All Planholders by 5:00 PM one week
4 prior to Bid opening. Electronic submittals will be accepted. All submittals received by
5 the required date and time, both accepted and not accepted, will be posted on the
6 Contract Ad & Award information page no later than the Friday prior to Bid opening.

7
8 6-08.3(2).GR6

9 ***Contractor Survey for Grade Controlled Structure Decks***

10
11 6-08.3(2).INST1.GR6

12 Section 6-08.3(2) is supplemented with the following:

13
14 6-08.3(2).OPT1.FB6

15 (January 3, 2017)

16 The Contractor survey requirements specified in this Section and associated
17 Sections 6-08.3(2)A, 6-08.3(2)B and 6-08.3(2)C do not apply to the following Grade
18 Controlled Structures in this Contract:

19
20 *** \$\$1\$\$ ***

21
22 6-08.3(5).GR6

23 ***Full Depth Removal of Bituminous Pavement from Structure Decks***

24
25 6-08.3(5).INST1.GR6

26 Section 6-08.3(5) is supplemented with the following:

27
28 6-08.3(5).OPT1.FB6

29 (January 2, 2018)

30 Rotary milling/planing equipment shall not be used to remove the existing surfacing
31 from the bridge deck of the following bridge(s):

32
33 *** \$\$1\$\$ ***

34
35 6-08.3(5).OPT2.FB6

36 (January 2, 2018)

37 Rotary milling/planing equipment conforming to Section 6-08.3(5)B may be used to
38 remove all but the bottom 0.10-foot layer of existing surfacing from the bridge deck
39 of the following bridge(s):

40
41 *** \$\$1\$\$ ***

42
43 Rotary milling/planing equipment shall not be used to remove the bottom 0.10-foot
44 layer of existing surfacing from the bridge deck of these bridges.

45
46 6-10.GR6

47 **Concrete Barrier**

48
49 6-10.3.GR6

50 **Construction Requirements**

1 6-10.3(5).GR6
2 **Temporary Barrier**
3
4 6-10.3(5).INST1.GR6
5 The first paragraph of Section 6-10.3(5) is revised to read:
6
7 6-10.3(5).OPT1.GR6
8 (February 3, 2020)
9 For temporary barrier, the Contractor shall use precast concrete barrier type F.
10 Temporary concrete barrier type F shall comply with Standard Plan requirements and
11 cross-sectional dimensions, except that: (1) it may be made in other lengths than
12 those shown in the Standard Plan, and (2) it may have permanent lifting holes no
13 larger than 4 inches in diameter or lifting loops.
14
15 6-10.5.GR6
16 **Payment**
17
18 6-10.5.INST1.GR6
19 Section 6-10.5 is supplemented with the following:
20
21 6-10.5.OPT1.GR6
22 (August 1, 2016)
23 The following paragraph is added immediately following the bid item, "Temporary Barrier":
24
25 The unit contract price per linear foot for "Temporary Barrier" shall include all costs
26 for furnishing, placing, maintaining, replacing, and cleaning barrier delineation.
27
28 6-10.5.OPT2.FB6
29 (March 6, 2000)
30 All costs in connection with constructing *** \$\$1\$\$ *** barrier shall be included in the ***
31 \$\$2\$\$ ***.
32
33 **6-12.GR6**
34 **Noise Barrier Walls**
35
36 6-12.2.GR6
37 **Materials**
38
39 6-12.2.INST1.GR6
40 Section 6-12.2 is supplemented with the following:
41
42 6-12.2.OPT1.GB6
43 **(September 8, 2020)**
44 **Precast Concrete Noise Barrier Walls**
45 Grout for encapsulating dowel bars shall conform to Section 6-02.3(26)H.
46
47 Grout pads at the bases of precast concrete panels shall conform to Section 6-02.3(20).
48
49 Base plates and anchor bolt templates shall conform to ASTM A 36. Base plates shall be
50 corrosion protected by one of the following methods:
51
52 1. One coat of paint conforming to Section 9-08.1(2)F.

2. Galvanized after fabrication in accordance with AASHTO M 111.

3. Galvanized after fabrication in accordance with ASTM B 695, Class 5, Type 1.

Anchor rods shall conform to ASTM F 1554 Grade 105. Nuts shall conform to ASTM A 563. Washers shall conform to ASTM F 436, except that plate washers conforming to ASTM A 36 may be used. Nuts and washers, and a minimum of 1'-0" of the exposed end of the anchor rod, shall be corrosion protected by one of the following methods:

1. One coat of paint conforming to Section 9-08.1(2)F.

2. Galvanized after fabrication in accordance with ASTM F2329.

3. Galvanized after fabrication in accordance with ASTM B 695, Class 5, Type 1.

The cone head end, 1'-0" minimum, of Rod A and steel reinforcing Bar B, as identified in the Standard Plans, shall be painted with one coat paint conforming to Section 9-08.1(2)F.

The sealant system for the vertical joint between precast concrete panels shall consist of a polyurethane sealant conforming to Section 9-04.2(3) and a closed cell foam backer rod conforming to ASTM C 1330 Type C. The polyurethane sealant shall be tested for compatibility with the closed cell foam backer rod in accordance with Section 9-04.2(3).

6-12.2.OPT2.FB6

(September 8, 2020)

Masonry Noise Barrier Walls

Concrete masonry units (CMU's) shall conform to ASTM C 90, Grade N, Type 1. Concrete masonry units shall have a density between 100 and 115 pounds per cubic foot. Shrinkage shall not exceed 0.065 percent.

CMU's will be accepted based on a Manufacturer's Certificate of Compliance. The Manufacturer's Certificate of Compliance shall include test results, conducted within the previous twelve months, as required to document compliance with the material requirements specified in these Special Provisions.

The concrete masonry unit faces shall be nominal 8 by 16 inches with thicknesses as specified in the Plans. Concrete masonry unit surface texture and color shall be as follows:

*** \$\$1\$\$ ***

Special shapes shall be provided to complete the work as specified in the Plans.

The Contractor shall submit Type 2 Working Drawings consisting of four samples of each type of concrete masonry unit block specified for use on the project.

Grout for concrete masonry units shall conform to ASTM C 476 for fine grout.

Mortar for concrete masonry units shall conform to ASTM C 270, Type S. The color shall be natural gray. The Contractor shall mix the mortar in a mechanical mixer of one sack

1 minimum capacity for a minimum of three minutes after all materials have been added
2 before using the mortar.

3
4 Masonry sealer shall be a silane based water repellent selected from one of the following,
5 or an accepted equal:

- 6
7 1. Baracade Silane 40, manufactured by Euclid.
8 2. MasterProtect H 200, manufactured by Master Builder Solutions.
9 3. Florok Enviro-Shield 40, manufactured by Chargar.

10
11 The Contractor shall submit Type 1 Working Drawings consisting of the manufacturer's
12 recommended masonry sealer application procedure.

13
14 The parge coating applied to the top of the masonry wall shall be a waterproof cement-
15 base coating selected from one of the following, or an accepted equal:

- 16
17 1. Conproseal, manufactured by Chargar.
18 2. MasterSeal 581, manufactured by Master Builder Solutions.
19 3. Tamoseal, manufactured by Euclid.

20
21 The sealant system for the vertical expansion joints shall consist of a polyurethane sealant
22 conforming to Section 9-04.2(3) and a closed cell foam backer rod conforming to Section
23 9-04.2(3)A.

24
25 6-12.3.GR6

26 **Construction Requirements**

27
28 6-12.3(1).GR6

29 ***Submittals***

30
31 6-12.3(1).INST1.GR6

32 Section 6-12.3(1) is supplemented with the following:

33
34 6-12.3(1).OPT1.GB6

35 (August 3, 2015)

36 The Contractor shall submit a field survey of the existing groundline along each noise
37 barrier wall alignment. The Contractor shall obtain field topographical information for
38 the existing ground within ten feet of the noise barrier wall alignment, except as
39 further limited by the Contracting Agency Right of Way and construction easements
40 for this project. The Contractor shall ensure a vertical survey accuracy of 0.1 foot.
41 The Contractor shall establish horizontal survey control at ten foot intervals, or at six
42 inches differential vertical elevation from the adjacent point on the alignment,
43 whichever is less.

44
45 The Contractor shall submit Type 2 Working Drawings consisting of the field survey,
46 including all field notes. If the Engineer confirms that the groundline condition along
47 the noise barrier wall alignment at the time of construction requires revisions to the
48 noise barrier wall details shown in the Plans, the Engineer will provide revised noise
49 barrier wall Plan details to the Contractor within 14 calendar days.

50
51 The Contractor shall complete the field survey as a first item of noise barrier wall
52 work.

6-12.3(6).GR6

Precast Concrete Panel Fabrication and Erection

6-12.3(6).INST1.GR6

Section 6-12.3(6) is supplemented with the following:

6-12.3(6).OPT1.FB6

(April 5, 2004)

The Contractor shall form a *** \$1\$ \$ finish, as specified in the Plans and Section 6-02.3(14) as supplemented in these Special Provisions, on the surface of the precast concrete panel facing the traffic side.

The Contractor shall form a *** \$1\$ \$ finish, as specified in the Plans and Section 6-02.3(14) as supplemented in these Special Provisions, on the surface of the precast concrete panel facing the residential area, except as otherwise noted. The surfaces of the pilaster shall receive either a Class 2 surface finish in accordance with Section 6-02.3(14)B, if pigmented sealer is being applied, or a Class 1 surface finish in accordance with Section 6-02.3(14)A, if pigmented sealer is not being applied.

6-12.3(7).GR6

Masonry Wall Construction

6-12.3(7).INST1.GR6

Section 6-12.3(7) is supplemented with the following:

6-12.3(7).OPT1.GB6

(August 3, 2015)

Masonry Wall

The Contractor shall construct the masonry wall in accordance with the standards of masonry installation specified in Chapter 21 of the International Building Code.

All masonry wall construction workers shall be thoroughly trained and experienced in the necessary crafts, shall be completely familiar with the specified requirements and methods needed for proper completion of the work, and shall be supervised at the construction site at all times by the supervising journey-level masons.

Sample Masonry Wall Panel

The Contractor shall demonstrate Work quality and methods by constructing a 48-inch by 48-inch sample panel of each type of masonry wall and submitting them as Type 2 Working Drawings. The sample panel shall be constructed by the supervising journeyman mason specified by the Contractor. The sample panel shall show the general construction and appearance of the installed concrete masonry units. The Contractor shall construct the sample panel on a transportable platform and shall relocate the sample panel as specified by the Engineer as construction progresses.

If any of the supervising journeyman masons are replaced during the project, each replacement supervising journeyman mason shall construct another sample panel as a requirement for being accepted by the Engineer for the supervising position.

1 The Contractor shall construct all masonry walls in accordance with the quality of the
2 sample panel. All masonry wall construction not consistent with the quality of the
3 accepted sample panel shall be reconstructed by the Contractor at no additional cost
4 to the Contracting Agency.

5
6 The Contractor shall maintain the sample panel at the project site until all the noise
7 barrier walls are accepted by the Engineer, at which time all sample panels shall
8 become the property of the Contractor and shall be disposed of in accordance with
9 Section 2-02.3.

10 11 **General Requirements**

12 All masonry materials stored on the project site shall be stored off the ground and
13 protected from weather. Concrete masonry units that are chipped, cracked, or
14 spalled on the faces or edges shall not be used.

15
16 The Contractor shall lay up all walls in running bond, unless otherwise shown in the
17 Plans, and all walls shall be plumb, level, and true to the lines and dimensions as
18 shown in the Plans. All head and bed joints shall be solidly filled with mortar for a
19 distance in from the face of the wall or unit not less than the thickness of the
20 longitudinal face shells.

21 22 **Mortar**

23 Mortar joints shall be of uniform thickness, ½ inch maximum. The Contractor shall
24 not change coursing or bonding after beginning work on a wall. The Contractor shall
25 tool all joints flush with adjacent surfaces to a dense brushed finish. The split face
26 side of wall shall have a concave smooth joint. The scored split faces shall have a
27 rake joint to match the depth of the scores.

28 29 **Temperature**

30 When air temperatures fall below 40F, grout mixing water and aggregate shall be
31 heated to produce a grout temperature between 40F and 120F. While grouting the
32 concrete masonry units, and for at least 24 hours after grouting the units, the
33 Contractor shall maintain the temperature of the concrete masonry units above
34 freezing. When atmospheric temperatures fall below 20F, the Contractor shall erect
35 enclosures around the concrete masonry units being grouted and shall maintain the
36 enclosures for at least 24 hours after grouting the units.

37
38 The Contractor shall not perform masonry wall work when the air temperature is
39 below 40F on a falling thermometer, or when it is likely that the temperature will fall
40 below 40F before the mortar has set, except when appropriate provisions have been
41 made to heat and enclose the concrete masonry units and the work area. The
42 Contractor may begin masonry wall work at 34F on a rising thermometer.

43 44 **Grouting Cells**

45 Cells with steel reinforcing bars shall be grouted solid and compacted. Vertical cells
46 with steel reinforcing bars shall be aligned and filled to provide a continuous
47 unobstructed opening of the dimensions indicated, but in no case less than two
48 inches by three inches. The Contractor shall provide cleanout openings at the bottom
49 of all cells to be filled at each stage of grout placement where the height of grout
50 placement is greater than four feet. The Contractor shall remove all overhanging
51 mortar and other obstructions and debris from the insides of the cells being grouted.

1 The Contractor shall seal all cleanouts, after the Engineer has inspected and
2 accepted the cells. The Contractor shall place grout in lifts of eight feet or less.
3
4 **Top Course**
5 The Contractor shall cover the tops of all exposed walls not being worked on with a
6 waterproof membrane, secured in place. All unfinished work shall be stepped back
7 for joining to new work. Toothing shall not be performed.
8
9 The top course shall be a solid grouted bond beam unit. The Contractor shall apply
10 a parge coat to the top of the wall.
11
12 **Cleaning Exposed Surfaces**
13 The Contractor shall clean all exposed masonry at the end of each day's work. After
14 final pointing, the Contractor shall remove all mortar spots and droppings. The
15 Contractor shall cut out all defective joints and repoint the joints solidly with mortar.
16 The Contractor shall protect all work from damage, stain, and discoloring.
17
18 The Contractor shall perform additional final cleaning prior to applying the pigmented
19 sealer. The Contractor shall remove all large particles of mortar before wetting the
20 wall. The Contractor shall saturate the concrete masonry units with clean water and
21 shall flush all loose mortar and dirt from the wall surface. The Contractor shall scrub
22 the wall surface with a stiff brush and a masonry cleaning solution, in accordance
23 with the cleaning solution manufacturer's instructions. The Contractor shall
24 thoroughly wash the wall surface of all cleaning solution, dirt, and mortar crumbs with
25 clean pressurized water. The Contractor shall not use acid cleaning solutions to
26 clean the wall surface. The Contractor shall protect all wall surfaces adjacent to the
27 sections of wall being cleaned.
28
29 **Masonry Sealer**
30 All exposed masonry surfaces shall receive two coats of masonry sealer, applied to
31 either one foot minimum below finish ground line or to the base of the bottom row of
32 masonry blocks, whichever is higher, from one of the masonry sealer products
33 specified in Section 6-12.2 as supplemented in these Special Provisions. The
34 masonry sealer shall be applied in accordance with the manufacturer's
35 recommendations.
36
37 6-12.5.GR6
38 **Payment**
39
40 6-12.5.INST1.GR6
41 Section 6-12.5 is supplemented with the following:
42
43 6-12.5.OPT1.GB6
44 (April 5, 2004)
45 All costs in connection with performing the field survey of the existing groundline of the
46 noise barrier wall alignment, and submitting the field survey to the Engineer, shall be
47 included in the lump sum contract price for "Structure Surveying".
48
49 **6-13.GR6**
50 **Structural Earth Walls**
51

6-13.2.GR6

Materials

6-13.2.INST1.GR6

Section 6-13.2 is supplemented with the following:

6-13.2.OPT1.GB6

(September 2, 2025)

Welded Wire Faced Structural Earth Wall Materials

Welded Wire Mats and Backing Mats

Welded wire fabric for welded wire mats, welded wire form facing units, and backing mats shall conform to AASHTO M 336, and shall be fabricated from plain wire fabric conforming to AASHTO M 336 Grade 65.

The minimum clear opening dimension of the backing mat, or the combination of welded wire form facing unit with geosynthetic wall facing wrap, shall not exceed the minimum particle size of the wall facing backfill as specified below.

Welded wire fabric for welded wire mats, welded wire form facing units, and backing mats shall be galvanized after fabrication in accordance with either ASTM A641 (two ounces minimum per square foot) or AASHTO M 111. All damage to the galvanizing shall be repaired with one coat of paint conforming to Section 9-08.1(2)B.

Backfill for Welded Wire Faced Structural Earth Wall

The coarse, granular material used for the wall facing backfill placed immediately behind the wall face, as shown in the Plans, shall conform to the following gradation requirements:

1. The minimum particle size shall be no less than the width of the minimum opening dimension in the backing mat or the geosynthetic wall facing wrap.
2. The maximum particle size shall be no greater than six inches for welded wire reinforced walls, and no greater than four inches for geosynthetic reinforced walls.

Proprietary Materials

Hilfiker Welded Wire Retaining Wall (WWW) System

Welded wire fabric wire size for backing mats shall be W2.1 minimum for wall face backing layers of 1'-6" maximum thickness, and shall be W2.5 minimum for wall face backing layers between 1'-6" and 2'-0".

Construction geotextile for wall facing shall conform to the requirements in Section 9-33.1 for Construction Geotextile for Underground Drainage, Moderate Survivability, Class A.

Tensar Wire Form Retaining Wall System

Wire support struts shall conform to AASHTO M 336, and shall be galvanized after fabrication in accordance with either ASTM A641 (two ounces minimum per square foot) or AASHTO M 111. All damage to the galvanizing shall be repaired with one coat of paint conforming to Section 9-08.1(2)B.

Geosynthetic connection rods shall be manufactured from high-density polyethylene with either fiberglass inclusions or oriented polypropylene, as recommended by Tensar Earth Technologies, Inc.

Geosynthetic separating the wall facing backfill from the welded wire faced structural earth wall backfill shall conform to the requirements in Section 9-33.1 for Construction Geotextile for Underground Drainage, Moderate Survivability, Class A.

Tensar Geogrid Materials

Geogrid reinforcement and geosynthetic wall facing wrap shall conform to Section 9-33.1, and shall be a product listed in Appendix D of the current WSDOT Qualified Products List (QPL). The values of T_{al} and T_{ult} as listed in the QPL for the products used shall meet or exceed the values required for the wall manufacturer's reinforcement design as specified in the structural earth wall design calculation and working drawing submittal.

The minimum ultimate tensile strength of the geogrid shall be a minimum average roll value (the average test results for any sampled roll in a lot shall meet or exceed the values shown in Appendix D of the current WSDOT QPL). The strength shall be determined in accordance with ASTM D6637 for multi-rib specimens.

For geogrid reinforcement and geosynthetic wall facing wrap, the ultraviolet (UV) radiation stability, in accordance with ASTM D4355, shall be a minimum of 70 percent strength retained after 500 hours in the weatherometer.

The longitudinal (i.e., in the direction of loading) and transverse (i.e., parallel to the wall or slope face) ribs that make up the geogrid shall be perpendicular to one another.

The Engineer will take random samples of the geogrid materials at the job site. Approval of the geogrid materials will be based on testing of samples from each lot. A "lot" shall be defined as all geogrid rolls sent to the project site produced by the same manufacturer during a continuous period of production at the same manufacturing plant having the same product name. The Contracting Agency will require 14 calendar days maximum for testing the samples after their arrival at the WSDOT Materials Laboratory in Tumwater, WA.

The geogrid samples will be tested for conformance to the specified material properties. If the test results indicate that the geogrid lot does not meet the specified properties, the roll or rolls which were samples will be rejected. Two additional rolls for each roll tested which failed from the lot previously tested will then be selected at random by the Engineer for sampling and retesting. If the retesting shows that any of the additional rolls tested do not meet the specified properties, the entire lot will be rejected. If the test results from all the rolls retested meet the specified properties, the entire lot minus the roll(s) which failed will be accepted.

1 All geogrid materials which have defects, deterioration, or damage, as
2 determined by the Engineer, will be rejected. All rejected geogrid materials
3 shall be replaced at no expense to the Contracting Agency.
4

5 Except as otherwise noted, geogrid identification, storage and handling
6 shall conform to the requirements specified in Section 3-09.2. The geogrid
7 materials shall not be exposed to temperatures less than -20°F and greater
8 than 122°F.
9

10 6-13.2.OPT2.GB6

11 **(September 2, 2025)**

12 ***Precast Concrete Panel Faced Structural Earth Wall Materials***

13 **General Materials**

14 **Concrete Leveling Pad**

15 Leveling pad concrete shall be commercial concrete in accordance with Section
16 6-02.3(2)B.
17

18 **Proprietary Materials**

19 **ARES Modular Panel Wall System**

20 **Tensor Geogrid Materials**

21 Geogrid reinforcement shall conform to Section 9-33.1 and shall be a
22 product listed in Appendix D of the current WSDOT Qualified Products List
23 (QPL). The values of T_{al} and T_{ult} as listed in the QPL for the products used
24 shall meet or exceed the values required for the wall manufacturer's
25 reinforcement design as specified in the structural earth wall design
26 calculation and working drawing submittal.
27

28 The minimum ultimate tensile strength of the geogrid shall be a minimum
29 average roll value (the average test results for any sampled roll in a lot shall
30 meet or exceed the values shown in Appendix D of the current WSDOT
31 QPL). The strength shall be determined in accordance with ASTM D6637
32 for multi-rib specimens.
33

34 The ultraviolet (UV) radiation stability, in accordance with ASTM D4355,
35 shall be a minimum of 70 percent strength retained after 500 hours in the
36 weatherometer.
37

38 The longitudinal (i.e., in the direction of loading) and transverse (i.e., parallel
39 to the wall or slope face) ribs that make up the geogrid shall be
40 perpendicular to one another. The maximum deviation of the cross-rib from
41 being perpendicular to the longitudinal rib (skew) shall be no more than 1
42 inch in 5 feet of geogrid width. The maximum deviation of the cross-rib at
43 any point from a line perpendicular to the longitudinal ribs located at the
44 cross-rib (bow) shall be 0.5 inches.
45

46 The Engineer will take random samples of the geogrid materials at the job
47 site. Approval of the geogrid materials will be based on testing of samples
48 from each lot. A "lot" shall be defined as all geogrid rolls sent to the project
49 site produced by the same manufacturer during a continuous period of
50 production at the same manufacturing plant having the same product name.
51 The Contracting Agency will require 14 calendar days maximum for testing

1 the samples after their arrival at the WSDOT Materials Laboratory in
2 Tumwater, WA.
3
4 The geogrid samples will be tested for conformance to the specified material
5 properties. If the test results indicate that the geogrid lot does not meet the
6 specified properties, the roll or rolls which were samples will be rejected.
7 Two additional rolls for each roll tested which failed from the lot previously
8 tested will then be selected at random by the Engineer for sampling and
9 retesting. If the retesting shows that any of the additional rolls tested do not
10 meet the specified properties, the entire lot will be rejected. If the test results
11 from all the rolls retested meet the specified properties, the entire lot minus
12 the roll(s) which failed will be accepted.
13
14 All geogrid materials which have defects, deterioration, or damage, as
15 determined by the Engineer, will be rejected. All rejected geogrid materials
16 shall be replaced at no expense to the Contracting Agency.
17
18 Except as otherwise noted, geogrid identification, storage and handling
19 shall conform to the requirements specified in Section 3-09.2. The geogrid
20 materials shall not be exposed to temperatures less than -20F and greater
21 than 122F.
22
23 Rubber bearing pads shall be a type and grade as recommended by Tensar
24 Earth Technologies, Inc.
25
26 Geosynthetic joint cover for all horizontal and vertical joints shall be a non-woven
27 geosynthetic as recommended by Tensar Earth Technologies, Inc. Adhesive
28 used to attach the geosynthetic to the rear of the precast concrete facing panel
29 shall be as recommended by Tensar Earth Technologies, Inc.
30
31 **Reinforced Earth Wall**
32 Reinforcing strips shall be shop fabricated from hot rolled steel conforming to
33 ASTM A572 Grade 65 or approved equal and shall be galvanized after
34 fabrication in accordance with AASHTO M 111. Damage to the galvanizing shall
35 be repaired with one coat of paint conforming to Section 9-08.1(2)B.
36
37 Bolts and nuts shall conform to Section 9-06.5(3) and shall be galvanized in
38 accordance with ASTM F2329.
39
40 Rubber bearing pads shall be a type and grade as recommended by the
41 Reinforced Earth Company.
42
43 Vertical joint filler between panels, when specified in the structural earth wall
44 working drawings, shall be two-inch square, flexible open cell polyether foam
45 strips, Grade UU-34, as recommended by the Reinforced Earth Company.
46
47 Filter fabric joint cover for all horizontal and vertical joints, when specified in the
48 structural earth wall working drawings, shall be a pervious woven polypropylene
49 filter fabric as recommended by the Reinforced Earth Company. Adhesive used
50 to attach the fabric material to the rear of the precast concrete facing panel shall
51 be as recommended by the Reinforced Earth Company.
52

1	MSE Plus Wall
2	Pins connecting the soil reinforcing mesh to the precast concrete panels shall
3	conform to AASHTO M 336, plain wire, and shall be galvanized after fabrication
4	in accordance with AASHTO M 111. Damage to the galvanizing shall be repaired
5	with one coat of paint conforming to Section 9-08.1(2)B.
6	
7	Bearing pads shall be serrated high-density polyethylene (HDPE) copolymer
8	pads as recommended by SSL, LLC.
9	
10	Filter fabric joint cover for all horizontal and vertical joints shall be non-woven
11	geosynthetic conforming to AASHTO M 288. Adhesive used to bond the
12	geosynthetic to the rear of the precast concrete facing panel shall be as
13	recommended by SSL, LLC.
14	
15	
16	6-13.2.OPT2(A).GB6
17	(August 3, 2015)
18	Lock + Load Retaining Wall System
19	Stainless steel wire and wire rods shall conform to ASTM A 580.
20	
21	Stainless steel bars, plates and shapes shall conform to ASTM A 276 Type 304.
22	
23	The maximum particle size of the backfill material within 1'-6" of the back face
24	of the precast concrete facing panel shall not exceed 3/4 inches.
25	
26	6-13.2.OPT3.GB6
27	(September 2, 2025)
28	Concrete Block Faced Structural Earth Wall Materials
29	General Materials
30	Concrete Block
31	Acceptability of the blocks will be determined based on the following:
32	
33	1. Visual inspection.
34	
35	2. Compressive strength tests, conforming to Section 6-13.3(4).
36	
37	3. Water absorption tests, conforming to Section 6-13.3(4).
38	
39	4. Manufacturer's Certificate of Compliance in accordance with Section
40	1-06.3.
41	
42	5. Freeze-thaw tests conducted on the lot of blocks produced for use in
43	this project, as specified in Section 6-13.3(4).
44	
45	6. Copies of results from tests conducted on the lot of blocks produced
46	for this project by the concrete block fabricator in accordance with the
47	quality control program required by the structural earth wall
48	manufacturer.
49	
50	The blocks shall be considered acceptable regardless of curing age when
51	compressive test results indicate that the compressive strength conforms to the

1 28-day requirements, and when all other acceptability requirements specified
2 above are met.
3
4 Testing and inspection of dry cast concrete blocks shall conform to ASTM C 140,
5 and shall include block fabrication plant approval by WSDOT prior to the start of
6 block production for this project.
7
8 **Mortar**
9 Mortar shall conform to ASTM C 270, Type S, with an integral water repellent
10 admixture as accepted by the Engineer. The amount of admixture shall be as
11 recommended by the admixture manufacturer. To ensure uniform color, texture,
12 and quality, all mortar mix components shall be obtained from one manufacturer
13 for each component, and from one source and producer for each aggregate.
14
15 **Geosynthetic Soil Reinforcement**
16 Geogrid reinforcement shall conform to Section 9-33.1, and shall be a product
17 listed in Appendix D of the current WSDOT Qualified Products List (QPL). The
18 values of T_{al} and T_{ult} as listed in the QPL for the products used shall meet or
19 exceed the values required for the wall manufacturer's reinforcement design as
20 specified in the structural earth wall design calculation and working drawing
21 submittal.
22
23 The minimum ultimate tensile strength of the geogrid shall be a minimum
24 average roll value (the average test results for any sampled roll in a lot shall
25 meet or exceed the values shown in Appendix D of the current WSDOT QPL).
26 The strength shall be determined in accordance with ASTM D 6637, for multi-rib
27 specimens.
28
29 The ultraviolet (UV) radiation stability, in accordance with ASTM D 4355, shall
30 be a minimum of 70 percent strength retained after 500 hours in the
31 weatherometer.
32
33 The longitudinal (i.e., in the direction of loading) and transverse (i.e., parallel to
34 the wall or slope face) ribs that make up the geogrid shall be perpendicular to
35 one another. The maximum deviation of the cross-rib from being perpendicular
36 to the longitudinal rib (skew) shall be no more than 1 inch in 5 feet of geogrid
37 width. The maximum deviation of the cross-rib at any point from a line
38 perpendicular to the longitudinal ribs located at the cross-rib (bow) shall be 0.5
39 inches.
40
41 The gap between the connector and the bearing surface of the connector tab
42 cross-rib shall not exceed 0.5 inches. A maximum of 10 percent of connector
43 tabs may have a gap between 0.3 inches and 0.5 inches. Gaps in the remaining
44 connector tabs shall not exceed 0.3 inches.
45
46 The Engineer will take random samples of the geogrid materials at the job site.
47 Acceptance of the geogrid materials will be based on testing of samples from
48 each lot. A "lot" shall be defined as all geogrid rolls sent to the project site
49 produced by the same manufacturer during a continuous period of production at
50 the same manufacturing plant having the same product name. The Contracting
51 Agency will require 14 calendar days maximum for testing the samples after their
52 arrival at the WSDOT Materials Laboratory in Tumwater, WA.

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The geogrid samples will be tested for conformance to the specified material properties. If the test results indicate that the geogrid lot does not meet the specified properties, the roll or rolls which were sampled will be rejected. Two additional rolls for each roll tested which failed from the lot previously tested will then be selected at random by the Engineer for sampling and retesting. If the retesting shows that any of the additional rolls tested do not meet the specified properties, the entire lot will be rejected. If the test results from all the rolls retested meet the specified properties, the entire lot minus the roll(s) which failed will be accepted.

All geogrid materials which have defects, deterioration, or damage, as determined by the Engineer, will be rejected. All rejected geogrid materials shall be replaced at no expense to the Contracting Agency.

Except as otherwise noted, geogrid identification, storage and handling shall conform to the requirements specified in Section 3-09.2. The geogrid materials shall not be exposed to temperatures less than -20F and greater than 122F.

Drainage Geosynthetic Fabric

Drainage geosynthetic fabric shall be a non-woven geosynthetic conforming to the requirements in Section 9-33.1, for Construction Geotextile for Underground Drainage, Moderate Survivability, Class B.

Proprietary Materials

Allan Block Wall

Wall backfill material placed in the open cells of the precast concrete blocks and placed in the one to three foot zone immediately behind the precast concrete blocks shall be crushed granular material conforming to Section 9-03.9(3).

GEO WALL Structural Earth Retaining Wall System

Connection pins shall be fiberglass conforming to the requirements of Basalite Concrete Products, LLC.

KeyGrid Wall

KeyStone connection pins shall be fiberglass conforming to the requirements of Keystone Retaining Wall Systems, Inc.

Landmark Retaining Wall

Lock bars shall be made of a rigid polyvinyl chloride polymer conforming to the following requirements:

Property	Value	Specification
Specific Gravity	1.4 minimum	ASTM D 792
Tensile Strength at yield	2,700 psi minimum	ASTM D 638

Lock bars shall remain sealed in their shipping containers until placement into the wall. Lock bars exposed to direct sunlight for a period exceeding two months shall not be used for construction of the wall.

Mesa Wall

Block connectors for block courses with geogrid reinforcement shall be glass fiber reinforced high-density polypropylene conforming to the following minimum material specifications:

<u>Property</u>	<u>Specification</u>	<u>Value</u>
Polypropylene	ASTM D 4101	
	Group 1 Class 1 Grade 2	73 ± 2 percent
Fiberglass Content	ASTM D 2584	25 ± 3 percent
Carbon Black	ASTM D 4218	2 percent minimum
Specific Gravity	ASTM D 792	1.08 ± 0.04
Tensile Strength	ASTM D 638	
at yield		8,700 ± 1,450 psi
Melt Flow Rate	ASTM D 1238	0.37 ± 0.16 ounces/10 min.

Block connectors for block courses without geogrid reinforcement shall be glass fiber reinforced high-density polyethylene (HDPE) conforming to the following minimum material specifications:

<u>Property</u>	<u>Specification</u>	<u>Value</u>
HDPE	ASTM D 1248	
	Type III Class A Grade 5	68 ± 3 percent
Fiberglass Content	ASTM D 2584	30 ± 3 percent
Carbon Black	ASTM D 4218	2 percent minimum
Specific Gravity	ASTM D 792	1.16 ± 0.06
Tensile Strength	ASTM D 638	
at yield		8,700 ± 725 psi
Melt Flow Rate	ASTM D 1238	0.11 ± 0.07 ounces/10 min.

6-13.3.GR6

Construction Requirements

6-13.3.INST1.GR6

Section 6-13.3 is supplemented with the following:

6-13.3.OPT1.GB6

(April 4, 2011)

Welded Wire Faced Structural Earth Wall

Welded wire faced structural earth walls shall be constructed of only one of the following wall systems.

The Contractor shall make arrangements to purchase the welded wire mats, welded wire form facing units, geogrid reinforcement, backing mats, facing elements, fasteners, geosynthetic connection rods, construction geotextile for wall facing, and all necessary incidentals from the source identified for each wall system:

Hilfiker Welded Wire Retaining Wall (WWW) System

Hilfiker is a registered trademark of Hilfiker Retaining Walls.

Hilfiker Retaining Walls

1902 Hilfiker Lane

Eureka, CA 95503-5711

1 (707) 443-5093
2 FAX (707) 443-2891
3 www.hilfiker.com
4
5 Tensar Wire Form Retaining Wall System
6 Tensar is a registered trademark of Tensar Corporation
7
8 Tensar Corporation
9 2500 Northwinds Parkway Suite 500
10 Atlanta, GA 30009
11 (770) 344-2090
12 FAX (678) 281-8546
13 www.tensarcorp.com
14

15 6-13.3.OPT2.GB6

16 **(January 10, 2022)**

17 ***Precast Concrete Panel Faced Structural Earth Wall***

18 Precast concrete panel faced structural earth walls shall be constructed of only one of the
19 following wall systems. The Contractor shall make arrangements to purchase the precast
20 concrete panels, soil reinforcement, attachment devices, joint filler, and all necessary
21 incidentals from the source identified with each wall system:
22

23 ARES Modular Panel Wall System

24 ARES Modular Panel Wall System is a registered trademark of Tensar
25 Corporation
26

27 Tensar Corporation
28 2500 Northwinds Parkway Suite 500
29 Atlanta, GA 30009
30 (770) 344-2090
31 FAX (678) 281-8546
32 www.tensarcorp.com
33

34 MSE Plus Wall

35 MSE Plus Wall is a registered trademark of SSL, LLC
36

37 SSL, LLC
38 4740 Scotts Valley Drive Suite E
39 Scotts Valley, CA 95066
40 (831) 430-9300
41 FAX (831) 430-9340
42 www.mseplus.com
43

44 Reinforced Earth Wall

45 Reinforced Earth is a registered trademark of the Reinforced Earth Company.
46

47 The Reinforced Earth Company
48 9025 East Kenyon Ave. Suite 200
49 Denver, CO 80237
50 (303) 790-1481
51 FAX (303) 790-1461
52 www.reinforcedearth.com

1
2 6-13.3.OPT2(A).GB6
3 (August 3, 2015)
4 Lock + Load Retaining Wall System
5 Lock + Load is a registered trademark of Lock + Load Retaining Walls, Ltd.
6
7 Lock + Load Retaining Walls, Ltd.
8 1681 Chestnut Street Suite 400
9 Vancouver, BC V6J 4M6 Canada
10 (604) 732-9990
11 FAX: (604) 676-2705
12 www.lock-load.com
13
14 6-13.3.OPT3.GB6
15 **(January 2, 2018)**
16 **Concrete Block Faced Structural Earth Wall**
17 Concrete block faced structural earth walls shall be constructed of only one of the
18 following wall systems. The Contractor shall make arrangements to purchase the
19 concrete blocks, soil reinforcement, attachment devices, joint filler, and all necessary
20 incidentals from the source identified with each wall system:
21
22 Allan Block Wall
23 Allan Block Wall is a registered trademark of the Allan Block Corporation
24
25 Allan Block Corporation
26 7424 W 78th Street
27 Bloomington, MN 55439
28 (800) 899-5309
29 FAX (952) 835-0013
30 www.allanblock.com
31
32 GEOWALL Structural Earth Retaining Wall System
33 GEOWALL is a registered trademark of Basalite Concrete Products, LLC
34
35 Basalite Concrete Products LLC
36 3299 International Place
37 Du Pont, WA 98327-7707
38 (800) 964-9424
39 FAX: (253) 964-5005
40 www.basalite.com
41
42 Redi-Rock Positive Connection System
43 Redi-Rock Positive Connection System is a registered trademark of Redi-Rock
44 International, LLC
45
46 Redi-Rock International, LLC
47 05481 US 31 South
48 Charlevoix, MI 49720
49 (866) 222-8400
50 FAX (231) 237-9521
51 www.redi-rock.com
52

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Tensor Corporation
2500 Northwinds Parkway Suite 500
Atlanta, GA 30009
(770) 334-2090
FAX (678) 281-8546
www.tensorcorp.com

Landmark Retaining Wall System is a registered trademark of Anchor Wall Systems, Inc.

Grid Wall

Keystone Retaining Wall Systems, Inc.
4444 West 78th Street
Minneapolis, MN 55435
(800) 747-8971
FAX (952) 897-3858
www.keystonewalls.com

Submittals

Section 6-13.3(2) is supplemented with the following:

(January 3, 2011)

The following geotechnical design parameters shall be used for the design of the structural earth wall(s):

Soil Properties	Wall Backfill	Retained Soil	Foundation Soil
Unit Weight (pcf)	***\$2\$***	***\$3\$***	***\$4\$***
Friction Angle (deg)	***\$5\$***	***\$6\$***	***\$7\$***
Cohesion (psf)	***\$8\$***	***\$9\$***	***\$10\$***

1 For the Service Limit State, the wall shall be designed to accommodate a
2 differential settlement of *** \$11\$ per 100 feet of wall length.
3
4 For the Extreme Event I Limit State, the wall shall be designed for a horizontal
5 seismic acceleration coefficient k_h of *** \$12\$ g and a vertical seismic
6 acceleration coefficient k_v of *** \$13\$ g.
7
8 6-13.3(4).GR6
9 ***Precast Concrete Facing Panel and Concrete Block Fabrication***
10
11 6-13.3(4).INST1.GR6
12 Section 6-13.3(4) is supplemented with the following:
13
14 6-13.3(4).OPT1.GB6
15 **(April 3, 2017)**
16 **Specific Fabrication Requirements for Precast Concrete Panel Faced**
17 **Structural Earth Walls**
18 **ARES Modular Panel Wall System**
19 The concrete mix for precast concrete facing panels shall be a Contractor mix
20 design in accordance with Section 6-02.3(2)A, producing a minimum
21 compressive strength at 28 days of 4,500 psi. The Contractor mix design for
22 precast concrete facing panels shall not include Type III cement unless
23 otherwise allowed by the Engineer.
24
25 6-13.3(4).OPT1(A).GB6
26 **(August 3, 2015)**
27 **Lock + Load Retaining Wall System**
28 Concrete for precast concrete panels and counterfort members shall conform to
29 ASTM C 1116 Type III, with cement and aggregate gradation as recommended
30 by Lock + Load Retaining Walls, Ltd, slump and air content as specified in this
31 Section, and a minimum compressive strength at 28 days of 5,500 psi. The fiber
32 reinforcement shall be mixed in the concrete at a minimum reinforcement ratio
33 of 3.0 pounds per cubic yard and as specified by Lock + Load Retaining Walls,
34 Ltd.
35
36 Full size precast concrete facing panels for Lock + Load retaining walls shall be
37 2'-8" wide and 1'-4" tall.
38
39 Precast concrete counterfort members shall be fabricated, handled, stored, and
40 shipped in accordance with the requirements specified in this Section for precast
41 concrete facing panels.
42
43 6-13.3(5).GR6
44 ***Precast Concrete Facing Panel and Concrete Block Erection***
45
46 6-13.3(5).INST1.GR6
47 Section 6-13.3(5) is supplemented with the following:
48

1 6-13.3(5).OPT2.GB6

2 (April 2, 2012)

3 **Specific Erection Requirements for Precast Concrete Block Faced Structural**
4 **Earth Walls**

5 **Landmark Retaining Wall**

6 When placing each course of concrete blocks, the Contractor shall pull the
7 blocks towards the front face of the wall until the male key of the bottom face of
8 the upper block contacts and fits into the female key of the top face of the
9 supporting block below.

10
11 A maximum gap of 1/8-inch is allowed between adjacent concrete blocks, except
12 for the base course set of concrete blocks placed on the leveling pad. A
13 maximum gap of 1-inch is allowed between adjacent base course concrete
14 blocks, provided geosynthetic reinforcement for drains is in place over the gap
15 at the back face of the concrete blocks.

16
17 Lock bars shall be installed in the female key of the top face of all concrete block
18 courses receiving geogrid reinforcement. Gaps between adjacent lock bars in
19 the key shall not exceed 3-inches. The lock bar shall be installed flat side up,
20 with the angled side to the back of the concrete block, as shown in the shop
21 drawings.

22
23 Geogrid reinforcement shall be placed and connected to concrete block courses
24 specified to receive soil reinforcement. The leading edge of the geogrid
25 reinforcement shall be maintained within 1-inch of the front face of the
26 supporting concrete blocks below. Geogrid panels shall be abutted for 100
27 percent backfill coverage with less than a 4-inch gap between adjacent panels.

28
29 Backfill shall be placed and compacted level with the top of each course of
30 concrete blocks, and geogrid reinforcement placed and connected to concrete
31 block courses specified to receive soil reinforcement, before the Contractor may
32 continue placing the next course of concrete blocks.

33
34 **Mesa Wall**

35 For all concrete block courses receiving geogrid reinforcement, the fingers of
36 the block connectors shall engage the geogrid reinforcement apertures, both in
37 the connector slot in the block, and across the block core. For all concrete block
38 courses with intermittent geogrid coverage, a #3 steel reinforcing bar shall be
39 placed, butt end to butt end, in the top block groove, with the butt ends being
40 placed at a center of a concrete block.

41
42 6-13.3(7).GR6

43 **Backfill**

44
45 6-13.3(7).INST1.GR6

46 Section 6-13.3(7) is supplemented with the following:
47

1 6-13.3(7).OPT1.GB6
2 **(August 3, 2015)**
3 **Specific Backfill Requirements for Precast Concrete Panel Faced Structural**
4 **Earth Walls**
5 **Lock + Load Retaining Wall System**
6 The Contractor shall begin placement and compaction of backfill above the tail
7 of the counterfort member first, then towards the back face of the precast
8 concrete facing panel, followed by placement and compaction of the remainder
9 of the backfill layer. The zone for compaction by plate compactor equipment
10 only, with no soil density testing requirement, shall be within 1'-4" of the back
11 face of the precast concrete facing panel.
12
13 6-13.3(8).GR6
14 **Guardrail Placement**
15
16 6-13.3(8).INST1.GR6
17 The first paragraph of Section 6-13.3(8) is supplemented with the following:
18
19 6-13.3(8).OPT1.GR6
20 (November 3, 2025)
21 Guardrail posts placed inside vertically oriented pipes shall be constructed in
22 accordance with Section 8-11.3(1)A.
23
24 **6-14.GR6**
25 **Geosynthetic Retaining Walls**
26
27 6-14.2.GR6
28 **Materials**
29
30 6-14.2(9-33.2(2)).GR6
31 **Geosynthetic Properties For Retaining Walls and Reinforced Slopes**
32 Section 9-33.2(2) is supplemented with the following:
33
34 6-14.2(9-33.2(2)).OPT1.FB6
35 **(August 7, 2006)**
36 **Geosynthetic Properties For Temporary Geosynthetic Retaining Walls**
37 Wide strip geosynthetic strengths provided in Table 10 are minimum average roll
38 values. The average test results for any sampled roll in a lot shall meet or exceed
39 the values shown in the table. These wide strip strength requirements apply only in
40 the geosynthetic direction perpendicular to the wall face. The test procedures
41 specified in the table are in conformance with the most recently approved ASTM
42 geosynthetic test procedures, except for geosynthetic sampling and specimen
43 conditioning, which are in accordance with WSDOT Test Methods 914 and 915,
44 respectively.
45
46 **Table 10:** Wide strip tensile strength required for the geosynthetic reinforcement
47 used in geosynthetic retaining walls.
48

	Wall Location	Vertical Spacing of Reinforcement Layers	Reinforcement Layer Distance from Top of Wall	Minimum Tensile Strength Based on ASTM D4595 for Geotextiles and ASTM D6637 for Geogrids
	\$1\$	***\$2\$***	***\$3\$***	***\$4\$***
1				
2				
3	6-15.GR6			
4	Soil Nail Walls			
5				
6	6-15.2.GR6			
7	Materials			
8				
9	6-15.2.INST1.GR6			
10	Section 6-15.2 is supplemented with the following:			
11				
12	6-15.2.OPT1.GB6			
13	(August 3, 2015)			
14	Permanent Soil Nail Materials and Components			
15	A soil nail system is a structural system used to transfer tensile loads to soil. A soil nail			
16	system may also be specified in the Plans as a nail. A soil nail system includes all steel			
17	reinforcing bars, anchorage devices, grout, coatings, sheathings and couplers if used.			
18				
19	The Contractor shall either select a soil nail system from the Qualified Products List, or			
20	submit a Type 2 Working Drawing consisting of the following information:			
21				
22	1.	Catalogue cuts or Manufacturer's Certificates of Compliance for centralizers and		
23		grout admixtures.		
24				
25	2.	Manufacturer's Certificate of Compliance for bearing plates, nuts, steel		
26		reinforcing bars, tendon encapsulation tubing, and welded shear studs. The		
27		Manufacturer's Certificate of Compliance for the nuts shall confirm compliance		
28		with the specified strength requirements.		
29				
30	If the Contractor selects a permanent soil nail system from the Qualified Products List			
31	(QPL), the Contractor shall submit a Type 1 Working Drawing consisting of a certificate			
32	from the permanent soil nail system fabricator/supplier confirming that the material			
33	specifications of the permanent soil nail system components as furnished conform to			
34	those specified in the QPL.			
35				
36	Component Material Specifications			
37	Bearing plates shall conform to ASTM A 36, ASTM A 529, ASTM A 536, ASTM A 572,			
38	ASTM A 588, or AASHTO M 270.			
39				
40	Centralizers shall be fabricated from plastic, steel, or material which is			
41	nondetrimental to the prestressing steel. Wood shall not be used.			
42				
43	Grout shall be a neat cement grout or a sand-cement grout conforming to Section 9-			
44	20.3(4). The compressive strength for the grout shall be as required by the soil nail			
45	manufacturer. Grout components shall be as follows:			

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Admixtures shall conform to the requirements of Section 9-23.6. Expansive admixtures and accelerators will not be permitted. Admixtures shall be mixed in accordance with the manufacturer's recommendations.

Aggregates shall conform to the requirements of Section 9-03.

Cement shall conform to the requirements of Section 9-01, and shall not contain lumps or other indications of hydration.

Nuts shall conform to either ASTM A 563, Grade B, Hexagonal, ASTM A 536 Grade 100-70-03, ASTM A 29 Grades 12L14, 1215, or C1045, AASHTO M 169 Grades 1117 or 12L14, ASTM A 513 Type 5 Grade 1026, ASTM A 521 Class CF, ASTM A 897 Grade 125/80/10M, or ASTM A 519 Grade 1026, and shall be capable of developing 100 percent of the GUTS of the soil nail. The nuts shall be fitted, where necessary, with a special wedge washer or spherical seat such that the nut bears uniformly on the bearing plate.

Washers shall conform to either ASTM F 436, ASTM A 536 Grade 80-55-06 or ASTM A 47 Grade 32510.

Soil nails shall be deformed steel reinforcing bars conforming to AASHTO M 31, Grade 60 minimum, and Section 9-07.2. All soil nails, except those specified in the Plans to be encapsulated, shall be epoxy-coated in accordance with Sections 6-02.3(24)H and 9-07.3. The soil nails shall be of the type and size specified in the Plans. The soil nails shall not be spliced. The soil nails shall be threaded at the bearing plate end a minimum of six inches. The threading shall be continuous spiral deformed ribbing. Alternatively, threads may be cut into the soil nail if the bar size is increased to the next larger size from the size specified in the Plans at no additional cost to the Contracting Agency.

Tendon encapsulation, when specified in the Plans to provide additional corrosion protection, shall be fabricated from one of the following:

1. High density corrugated polyethylene (PE) tubing conforming to the requirements of ASTM D 3350 Class PE335520C or Class PE335400C, ASTM D 1248, and AASHTO M 252 and having a nominal wall thickness of 40 mils.
2. Corrugated, polyvinyl chloride (PVC) tubing conforming to ASTM D 1784, Class 13464-B, and having a nominal wall thickness of 40 mils.

The soil nails shall be centralized within the sheathing with a minimum 0.2 inch grout cover over the soil nail inside the sheath. The encapsulation shall be constructed at the factory under controlled conditions. Field construction of the encapsulation will not be permitted.

Welded shear studs shall conform to Section 9-06.15, and shall be welded in accordance with Section 6-03.3(25).

1 6-15.3.GR6

2 **Construction Requirements**

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4 6-15.3(8).GR6

5 **Soil Nail Testing And Acceptance**

6

7 6-15.3(8)A.GR6

8 **Verification Testing**

9

10 6-15.3(8)A.INST1.GR6

11 Section 6-15.3(8)A is supplemented with the following:

12

13 6-15.3(8)A.OPT1.FB6

14 (April 5, 2004)

15 Soil nail verification tests shall be conducted as follows:

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17

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22 6-17.GR6

23 **Permanent Ground Anchors**

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25 6-17.1.GR6

26 **Description**

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28 6-17.1.INST1.GR6

29 Section 6-17.1 is supplemented with the following:

30

31 6-17.1.OPT1.GB6

32 (January 7, 2013)

33 This work also consists of furnishing, field locating, installing, stressing and testing rock

34 bolts and rock dowels.

35

36 6-17.2.GR6

37 **Materials**

38

39 6-17.2.INST1.GR6

40 Section 6-17.2 is supplemented with the following:

41

42 6-17.2.OPT1.GB6

43 **(November 2, 2022)**

44 **Permanent Ground Anchor Materials and Components**

45 A permanent ground anchor system is a structural system used to transfer tensile loads

46 to soil or rock. A permanent ground anchor system may also be specified in the Plans as

47 an anchor, a ground anchor, or a tieback. A permanent ground anchor system includes

48 all prestressing steel, anchorage devices, grout, coatings, sheathings and couplers if

49 used.

50

51 The Contractor shall either select a permanent ground anchor system from the Qualified

52 Products List or submit a Type 2 Working Drawing consisting of the following information:

1. Catalogue cuts or Manufacturer's Certificates of Compliance for anchorage covers, bond breaker, centralizers, corrosion inhibiting grease, end caps, grout admixtures, and strand tendon spacers.
2. Manufacturer's Certificates of Compliance for anchor heads, anchor head wedges, bar tendon nuts, bar tendon couplers, tendon encapsulation tubing, trumpet assemblies, and bar tendons or strand tendons. The Manufacturer's Certificates of Compliance for the anchorhead wedges (grippers), and bar tendon nuts and couplers, shall confirm compliance with the specified strength requirements.

If the Contractor selects a permanent ground anchor system from the Qualified Products List (QPL), the Contractor shall submit a Type 1 Working Drawing consisting of a certificate from the permanent ground anchor system fabricator/supplier confirming that the material specifications of the permanent ground anchor system components as furnished conform to those specified in the QPL.

Component Material Specifications

Anchorage covers shall have a minimum thickness of 0.20 inches and shall conform to either ASTM A 53 for pipe, or ASTM A 500 for tubing, or ASTM A 36, ASTM A 529, ASTM A 572, ASTM A 588, or AASHTO M 270 for fabricated steel.

Anchorheads shall conform to either ASTM A 36, AASHTO M 169 Grades 1040 or 1045, ASTM A 521 Grade 1045, ASTM A 576 Grade 1045, or ASTM A 536 Grade 80-55-06.

Bearing plates shall conform to either ASTM A 36, ASTM A 572, ASTM A 588, AASHTO M 270, ASTM A 529, or ASTM A 536.

Anchorhead wedges (grippers) shall conform to AASHTO M 169 Grade 12L14, case hardened 0.012 to 0.015 inches deep to Rockwell C 59 to 65.

Bar tendon nuts shall conform to either ASTM A 29 Grade C1045, ASTM A 521 Class CF, AASHTO M 169 Grades 1117 or 1144, or ASTM A 536 Grade 100-70-03, and shall be capable of developing 100 percent of the GUTS of the bar tendon.

Bondbreaker shall conform to the requirements of Section 4.7 of the Post-Tensioning Institute "Recommendations for Prestressed Rock and Soil Anchors", and shall be fabricated from a smooth plastic tube or pipe having the following properties:

1. Resistant to chemical attack from aggressive environments, grout or grease;
2. Resistant to aging by ultra-violet light;
3. Fabricated from material nondetrimental to the tendon;
4. Capable of withstanding abrasion, impact, and bending during handling and installation;
5. Enable the tendon to elongate during testing and stressing; and
6. Allow the tendon to remain unbonded after lock-off.

Centralizers shall be fabricated from plastic, steel, or material which is nondetrimental to the prestressing steel. Wood shall not be used.

Corrosion inhibiting grease shall conform to the requirements of Section 3.2.5 of the Post-Tensioning Institute, "Specification For Unbonded Single Strand Tendons".

Couplers for bar tendons, if required, shall be furnished by the manufacturer of the bar tendons and shall be AASHTO M 169 Grades 1045, 1117 or 1144, ASTM A 519 Grade 1026, or equivalent steel developing 100 percent of the GUTS of the bar tendon without evidence of any failure. Couplers shall not be placed in the bond zone. Couplers for strand tendons will not be allowed.

End caps shall conform to ASTM D 3350 Class PE324420C, Class PE334410C, or Class PE335400C, ASTM D 1248, and AASHTO M 252, ASTM D 1784 Class 1346B, ASTM A 653, or ASTM A 36.

Grout shall be a neat cement grout or a sand-cement grout conforming to Section 9-20.3(4). The compressive strength for the grout shall be as required by the tieback manufacturer. Grout components shall be as follows:

Admixtures shall conform to the requirements of Section 9-23.6. Expansive admixtures shall only be added to the grout used for filling sealed encapsulations, trumpets and anchorage covers. Accelerators will not be permitted. Admixtures shall be compatible with prestressing steels and mixed in accordance with the manufacturer's recommendations.

Aggregates shall conform to the requirements of Section 9-03.

Cement shall conform to the requirements of Section 9-01, and shall not contain lumps or other indications of hydration.

Prestressing steel shall consist of either bar tendons with an ultimate tensile strength of 150 ksi conforming to AASHTO M 275 Type II, or strand tendons with an ultimate tensile strength of 270 ksi conforming to AASHTO M 203. The Contractor shall submit Type 1 Working Drawings consisting of certified mill test results and typical stress-strain curves along with samples from each heat, properly marked, for the prestressing steel. The typical stress-strain curve shall be obtained by conventional industry standard practices. The guaranteed ultimate strength, yield strength, elongation, and composition shall be specified.

Strand tendon spacers shall be fabricated from plastic, steel, or material which is nondetrimental to the prestressing steel. Wood shall not be used.

Tendon encapsulation, when specified in the Plans to provide additional corrosion protection, shall be fabricated from one of the following:

1. High density corrugated polyethylene (PE) tubing conforming to the requirements of ASTM D 3350 Class PE334410C, Class PE335520C or Class PE335400C, ASTM D 1248, and AASHTO M 252 and having a nominal wall thickness of 40 mils or greater.
2. Corrugated, polyvinyl chloride (PVC) tubing conforming to ASTM D 1784, Class 13464-B, and having a nominal wall thickness of 40 mils or greater.

Trumpet providing the transition from the bearing plate to the unbonded length corrosion protection shall be fabricated from a steel pipe or tube conforming to the requirements of ASTM A 53 for pipe or ASTM A 500 for tubing. The trumpet shall have a minimum wall thickness of 0.20 inches, and shall be seal welded to the bearing plate. The seal weld shall be visually inspected only, in accordance with Section 6-03.3(25)A.

6-17.2.OPT2.GB6

(September 8, 2020)

Rock Bolt and Rock Dowel Materials

Rock bolts shall be continuously threaded steel reinforcement bars conforming to either; AASHTO M 31 Grade 60 or 75 deformed bar, ASTM 615 Grade 60 or 75 deformed bar, ASTM A 706 Grade 60 or 80 deformed bar, ASTM A 722 Grade 150 Type II, or AASHTO M 275 Grade 150 Type II and shall be capable of being post-tensioned to the design loads, performance test loads, and proof loads specified. The bending requirements of AASHTO M 31, ASTM 615, and ASTM 706 shall be waived.

Rock dowels shall be continuously threaded steel reinforcement bars conforming to either; AASHTO M 31 Grade 60 or 75 deformed bar, ASTM A 615 Grade 60 or 75 deformed bar, or ASTM A 706 Grade 60 or 80 deformed bar with a minimum size of a No. 7 bar for Type 1 rock dowels, and a minimum size of a No.11 bar for Type 2 rock dowels. The bending requirements of AASHTO M 31, ASTM 615, and ASTM 706 shall be waived.

Anchor bar steel for rock bolts and dowels shall be provided with epoxy coating in accordance with either AASHTO M 284, ASTM A 775, or ASTM A 934. The patching material, compatible with coating material and inert in grout selected for use, shall be supplied with each shipment.

Bearing plated shall be galvanized in accordance with either AASHTO M 111, AASHTO M 232, ASTM A 123, or ASTM A 153, and shall conform to ASTM A 36 Grade 36 or ASTM A 572 Grade 50. Bearing plate size will be reviewed and approved by the Engineer in accordance with Section 6.10 of Post Tensioning Institute "Recommendations for Prestressed Rock and Soil Anchors". Bearing plate thickness shall be not less than $\frac{3}{4}$ inch and its dimensions not less than 2 inches greater than the drill hole diameter.

Nuts and couplers shall be galvanized in accordance with either AASHTO M 232 or ASTM A 153 and exceed 100 percent of the MUTS (Minimum Ultimate Tensile Strength) of the bar. For Grades 60, 75, and 80 bar the nuts and coupler shall conform to either AASHTO M 169 or ASTM A 108. For Grade 150 bar the nuts shall conform to either ASTM A 29 or ASTM A 536, couplers shall conform to ASTM A 29.

Washers shall be galvanized in accordance with AASHTO M 232 or ASTM A 153 and conform to ASTM F 436. Spherical and beveled washers shall be galvanized in accordance with AASHTO M 232 or ASTM A 153 and conform to ASTM A 536 or ASTM A 47.

Centralizers shall be fabricated from plastic or material which is non-detrimental to the pre-stressing steel. Wood shall not be used.

Grout shall conform to Section 9-20.3(2).

Sleeved bondbreakers for rock bolts shall be fabricated from plastic tube or pipe having the following properties:

1. Resistant to chemical attack from aggressive environment, grout or corrosion inhibiting compound.
2. Resistant to aging by ultra-violet light.
3. Non-detrimental to bolt. Resistant to damage caused by abrasion, impact, crushing and bending during handling and installation.
4. Enable the bolt to elongate during testing.
5. Resistant to distortion caused by heat generated by the curing of the grout.

The wall thickness of sleeved bondbreaker shall meet the following:

Type	Nominal	Minimum
HDPE/PP	0.060 in. (1.5 mm)	0.050 in. (1.25 mm)
PVC	0.040 in. (1.0 mm)	0.035 in. (0.9 mm)

Corrosion inhibiting compounds shall be provided by the manufacturer or shall be either a grease, wax, or gel and conforms to the following:

Properties	Test Method	Criteria		
		Grease	Wax ¹	Gel ¹
Dropping Point, °F min.	ASTM D 566	300°	N/A	N/A
Melting Point, °F min.	ASTM D 127 ⁽²⁾	N/A	145°	500°
Oil Separation @160°F, max.	FTMS 791B Method 321.2	0.5	N/A (product is liquid)	0.5
Water, % max.	ASTM D 95	0.1	0.4	0.4
Flash Point °F, min.	ASTM D 92	300°	300°	
Accelerated Corrosion Test: Salt Fog @ 100°F @ 5 mils, hrs. min.	ASTM B 117	1000	1000	1000
Water Soluble Ions, ppm max.				
a. Chloride	ASTM D 512	10	10	10
b. Sulfides	APHA 4500S ² -E	10	10	10
c. Nitrates	ASTM D 3867	10	10	10
Soak Test: Salt Fog 50/50 Immersion, hrs.	ASTM B 117 Modified	720+	720+	720+
Sheathing Compatibility @150°F				
a. Hardness % max change	ASTM D 4289	15% change	15% change	15% change
b. Volume % max change	ASTM D 4289	10% change	10% change	10% change

c. Tensile Strength % max change	ASTM D 638	30% change	30% change	30% change
Note 1: A combination of wax and gel is possible when approved by the Engineer. Note 2: ASTM D 566 may be used when the wax product consistency warrant it.				

Anchorage covers for rock bolts shall be galvanized in accordance with either AASHTO M 111 or ASTM F 2329 as applicable, and have a minimum thickness of 0.20 inches; and shall conform to either ASTM A 53 for pipe, or ASTM A 500 for tubing, or ASTM A 36, ASTM A 529, ASTM A 572, ASTM A 588, or AASHTO M 270 for fabricated steel.

6-17.3.GR6

Construction Requirements

6-17.3.INST1.GR6

Section 6-17.3 is supplemented with the following:

6-17.3.OPT1.GB6

(September 8, 2020)

Rock Bolt and Rock Dowel Construction Requirements

Rock Bolt and Rock Dowel Installation Experience Requirements

The Contractor's foreman supervising the rock bolt and rock dowel work shall have installed a minimum of 3,000 linear feet of post-tensioned rock bolts or rock dowels on a minimum of five projects within the past five years.

The Contractor's rock bolt and rock dowel drill operators shall have installed a minimum of 1,000 linear feet of post-tensioned rock bolts or rock dowels on a minimum of three projects within the past five years.

The Contractor shall submit a Type 2 Working Drawing consisting of a list documenting the rock bolt and rock dowel work experience of the foreman and drill operators working on the project. This list shall include a brief description of each project and a reference shall be included for each project listed. As a minimum, the reference shall include an individual's name and current phone number.

Rock Bolt and Rock Dowel Submittals

The Contractor shall submit Type 2 Working Drawings consisting of a rock bolt and rock dowel plan. The rock bolt and rock dowel plan shall include the following:

1. The proposed construction sequence and schedule.
2. The proposed drilling method and equipment.
3. The proposed drill hole diameter.
4. The minimum bond zone length for the rock bolts.
5. The proposed anchor steel bars, couplers, nut, bearing plate, flat washer, and beveled washer specifications, including manufacturer's data sheets and mill certificates. Manufacturer's verification for the bearing plate thickness for the specified rock bolt and rock dowel capacities.

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- 6. The proposed grout mix design, including manufacturer's certificate of compliance and the procedures for placing the grout. For rock bolts, if two-stage grouting is used, the means for determining the level of the primary grout for the bond zone. If single-stage grouting is used, the fabrication details for the bondbreaker in the free-stressing length, including corrosion inhibiting compounds.
- 7. The proposed corrosion protection for the rock bolt and rock dowel systems.
- 8. The proposed stressing procedures and stressing equipment.
- 9. The proposed construction method for upwardly inclined anchors.
- 10. The proposed equipment for measuring and recording the volume of grout injected for production rock bolts and rock dowels.
- 11. The calibration data for each load cell, test jack, pressure gauge and master pressure gauge to be used in the proof testing, in accordance with the calibration requirements specified in Section 6-17.3(3).

Rock Bolt and Rock Dowel Preconstruction Conference

A rock bolt and rock dowel preconstruction conference may be held at the discretion of the Engineer in accordance with Section 6-17.3(4).

Rock Bolt and Rock Dowel Storage and Handling

Rock bolt and rock dowel storage and handling shall conform to the Section 6-17.3(6) requirements for permanent ground anchor tendons.

Field handling procedures for epoxy-coated rock bolts and rock dowels shall conform to Sections 6-02.3(24)H, including providing padding between contact points during storage and lifting, and covering epoxy-coated rock bolts and rock dowels to minimize ultraviolet exposure.

Rock Bolt and Rock Dowel Grout

Grout shall meet the requirements of Section 9-20.3(2).

The use of epoxy or polyester resin as bonding agents will not be allowed.

Rock Bolt and Rock Dowel Installation

General Requirements

The Contractor shall install rock bolts and rock dowels at the location and orientation in accordance with the rock bolt and rock dowel plan accepted by the Engineer. For rock bolts, the Engineer will designate the required free-stressing length. For rock dowels, the Engineer will designate the minimum length.

The rock bolts and rock dowels shall be installed within five degrees of the orientation angle specified by the Engineer. Unless otherwise specified by the Engineer, the angle of installation shall be perpendicular to the rock face and inclined slightly downward at the rock bolt and rock dowel location.

1 In all cases, at least three-quarters of the bearing plate shall be in contact with
2 the rock face. The orientation of the bearing plate against the rock surface
3 should be within twenty degrees of normal to the bar. Beveled washers shall be
4 used to accommodate all non-perpendicular installations, but should not exceed
5 twenty degrees. If the axis of the anchor is not within five degrees of
6 perpendicular to the rock surface, or within the angle provided by the beveled
7 washer up to a maximum of twenty degrees, or if the rock beneath the bearing
8 plate is not sound or is highly irregular as determined by the Engineer, a bearing
9 pad accepted by the Engineer shall be constructed so that the bar is not bent
10 when the nut is torqued during lock-off of the anchor. The Engineer may also
11 require the use of over-sized bearing plates, when the rock surface is weak or
12 highly weathered.

13
14 The use of hand drills for advancing the hole will not be allowed without the
15 written permission of the Engineer and demonstrated effectiveness by the
16 Contractor. The drill hole shall be sized to provide a minimum of 1/2 inches of
17 grout cover around the rock bolt or rock dowel. The Contractor shall flush the
18 drill hole of all drill cuttings and debris prior to installing the rock bolt or rock
19 dowel. Holes determined by the Engineer to be unacceptable for rock bolt and
20 rock dowel installation shall be re-drilled by the Contractor at no additional
21 expense to the Contracting Agency.

22
23 Rock bolts and rock dowels shall not be precut at the factory to lengths shown
24 in the Plans, but rather shall be delivered to the job site in bulk lengths and field
25 cut to the appropriate lengths. Each rock bolt and rock dowel shall be fitted with
26 a bearing plate, nut, and washers. Prior to placing rock bolts and rock dowels
27 in the drilled holes, all mill scale, flaking rust and grease shall be removed from
28 the rock bolt and rock dowel.

29
30 Centralizers shall be placed along the rock bolt or rock dowel at ten foot centers
31 prior to grouting, with a minimum of one centralizer per rock bolt or rock dowel.
32 The lowermost centralizer shall be located within 12 inches of the end of the
33 rock bolt or rock dowel. Centralizers shall be of sufficient strength to support the
34 weight of the anchor bar in the drilled hole and provide a minimum of 0.5 inches
35 of grout cover.

36
37 The grout equipment shall produce a grout free of lumps and undispersed
38 cement. The pump shall be equipped with a pressure gauge near the discharge
39 end to monitor grout pressures. The grouting equipment shall be sized to enable
40 the grout to be pumped in one continuous operation. The grout shall be injected
41 from the lowest point of the drill hole. Sufficient grout shall be placed in the drill
42 hole to ensure full encapsulation of the rock bolt or rock dowel. The volume of
43 grout injected, and the corresponding grout injection pressure, for each
44 production rock bolt and rock dowel shall be measured using the methods and
45 equipment specified in the rock bolt and rock dowel plan.

46
47 The entire length of the rock bolt and rock dowel shall be corrosion-protected
48 with grout. Bare steel from field cutting of the anchor bar and any damaged
49 galvanizing on the bearing plates, nuts and washers shall be painted in
50 accordance with Section 6-07.3(10)P with one coat of galvanizing repair paint
51 conforming to Section 9-08.1(2)B.

52

1 **Specific Rock Dowel Requirements**

2 The Contractor shall install Type 1 rock dowels to achieve the design load
3 specified in the Plans; if the design load is not specified in the Plans a 25 kip
4 design load should be used. When the grout has reached final set, the
5 Contractor shall install the bearing plate, washers and nut. The nut shall be
6 torqued to a nominal 100 foot-pounds to ensure proper seating against the rock
7 face. The end of the completed rock dowel shall be trimmed to within six inches
8 of the rock face.

9
10 **Specific Rock Bolt Requirements**

11 The Contractor shall select the type of rock bolt and construction method to be
12 used. The Contractor shall embed and install rock bolts to achieve the design
13 load specified in the Plans. The rock bolt shall be sized so that the design load
14 does not exceed 60 percent of the minimum ultimate tensile strength (MUTS) of
15 the rock bolt. In addition, the rock bolt shall be sized so that the maximum test
16 load does not exceed 80 percent of the MUTS for Grade 150 bar or 90 percent
17 of the minimum yield strength for Grade 75 bar. The end of the completed rock
18 bolt shall be trimmed to within six inches of the rock face, and fitted with a
19 galvanized steel anchorage cover filled with a corrosion-inhibiting compound.

20
21 6-17.3(8).GR6

22 ***Testing And Stressing***

23
24 6-17.3(8).INST1.GR6

25 Section 6-17.3(8) is supplemented with the following:

26
27 6-17.3(8).OPT1.GB6

28 **(January 7, 2013)**

29 **Rock Dowel Proof Testing**

30 At the discretion of the Engineer, up to five percent, but not less than three installed
31 production rock dowels as selected by the Engineer shall be proof tested. The
32 Contractor shall conduct the proof test, and the Engineer will interpret the results.

33
34 The rock dowel shall be tensioned to 25 kips for Type 1 rock dowels, with a calibrated
35 hollow-ram hydraulic jack using a bar extension and coupler attached to the rock
36 dowel. The test load specified for the particular type of rock dowel shall be held for
37 ten minutes. If no loss of load occurs over the ten minute hold period, the rock dowel
38 is acceptable.

39
40 The Engineer may require additional proof testing above the specified five percent
41 maximum if rock dowels fail the proof testing. All failed rock dowels shall be replaced
42 with an additional rock dowel installed in a separate hole at no additional expense to
43 the Contracting Agency.

44
45 Upon acceptance by the Engineer, the Contractor shall permanently stamp or etch
46 the bearing plate of or otherwise label each rock dowel with a unique number
47 assigned by the Engineer, the installation date and the total anchor length.

48 **Rock Bolt Testing**

49 The Contractor shall conduct rock bolt testing in accordance with the requirements
50 specified in this Section for permanent ground anchors, including testing equipment,
51 and test load monitoring, recording and documentation.
52

Rock Bolt Performance Testing

At the Engineer's discretion, the Contractor shall conduct up to three performance tests to demonstrate the effectiveness of the construction method for each rock bolt design, and when a significant change is proposed in the construction method.

Rock bolts shall be tensioned to 120 percent of the design load of the rock bolt for a holding time period of not more than 60 minutes. The Contractor shall monitor the test load and shall document the results in accordance with the requirements specified in this Section.

The Engineer will analyze the rock bolt performance test results and determine whether the rock bolt is acceptable. A rock bolt is acceptable if both the following conditions are satisfied:

1. The total elastic movement obtained at the maximum test load exceeds 80 percent of the theoretical elastic elongation of the stressing length.
2. The rock bolt carries the maximum test load with a creep rate that does not exceed 0.04 inches between one and ten minutes, or 0.08 inches per log cycle of time between the six and 60 minute readings.

If the Contractor fails to successfully achieve these testing criteria, the Engineer may require additional rock bolt performance tests to be completed at no additional expense to the Contracting Agency.

Production rock bolting shall not begin until the Contractor has completed performance testing of the design rock bolts and the test results have been accepted by the Engineer.

Rock Bolt Proof Testing

Each production rock bolt shall be proof tested. Proof testing shall consist of tensioning the rock bolt to 120 percent of the design load and holding that load for ten minutes. If no loss of load occurs in this time period, the rock bolt is accepted. If a rock bolt fails this proof test, the rock bolt shall be replaced with an additional rock bolt installed in a separate hole.

After tensioning and achieving a successful rock bolt proof test, the load shall be locked off at 100 percent of the design load and the remaining portion of the rock bolt grouted, if appropriate. The end of the completed rock bolt shall be trimmed to within six inches of the rock face.

Upon acceptance by the Engineer, the Contractor shall permanently stamp or etch the bearing plate of or otherwise label each rock bolt with a unique number assigned by the Engineer, the installation date, the stressing load, and the total anchor length.

6-17.3(8)A.GR6

Verification Testing

1	6-17.3(8)A.INST1.GR6																				
2	Section 6-17.3(8)A is supplemented with the following:																				
3																					
4	6-17.3(8)A.OPT1.GB6																				
5	(August 3, 2015)																				
6	Verification tests shall be performed to verify the design of the anchor system.																				
7	These ground anchor test results shall verify the Contractor's design and be																				
8	accepted by the Engineer prior to ordering anchor material for the tieback																				
9	retaining walls. The tests shall be performed on sacrificial test anchors. A																				
10	minimum of two successful verification tests shall be conducted. The locations																				
11	shall be close to the anchor location of the production anchors. The test																				
12	locations shall be selected by the Contractor and accepted by the Engineer,																				
13	except where specific permanent ground anchor rows between specific station																				
14	limits are shown in the Plans.																				
15																					
16	Verification test anchors shall be constructed using the same procedures and																				
17	anchor geometry (drill hole diameter, bond length, unbonded length) as the																				
18	production anchors.																				
19																					
20	The anchor tested shall be loaded to 150 percent of the factored design load																				
21	(FDL). The prestressing tendon shall be proportioned such that the maximum																				
22	stress does not exceed 80 percent of the ultimate strength of the steel. The jack																				
23	shall be positioned at the beginning of the test such that unloading and																				
24	repositioning of the jack during the test will not be required.																				
25																					
26	The verification tests shall be made by incrementally loading the anchors in																				
27	accordance with the following schedule.																				
28																					
29	AL - Anchor Alignment Load																				
30	FDL - Factored Design Load																				
31																					
32	<table><tr><td><u>Load</u></td><td><u>Hold Time</u></td></tr><tr><td>AL</td><td>1 Min.</td></tr><tr><td>0.25FDL</td><td>10 Min.</td></tr><tr><td>0.50FDL</td><td>10 Min.</td></tr><tr><td>0.75FDL</td><td>10 Min.</td></tr><tr><td>1.00FDL</td><td>10 Min.</td></tr><tr><td>1.15FDL</td><td>60 Min.</td></tr><tr><td>1.25FDL</td><td>10 Min.</td></tr><tr><td>1.50FDL</td><td>10 Min.</td></tr><tr><td>AL</td><td>1 Min.</td></tr></table>	<u>Load</u>	<u>Hold Time</u>	AL	1 Min.	0.25FDL	10 Min.	0.50FDL	10 Min.	0.75FDL	10 Min.	1.00FDL	10 Min.	1.15FDL	60 Min.	1.25FDL	10 Min.	1.50FDL	10 Min.	AL	1 Min.
<u>Load</u>	<u>Hold Time</u>																				
AL	1 Min.																				
0.25FDL	10 Min.																				
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1.00FDL	10 Min.																				
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1.25FDL	10 Min.																				
1.50FDL	10 Min.																				
AL	1 Min.																				
33																					
34																					
35																					
36																					
37																					
38																					
39																					
40																					
41																					
42																					
43	The test load shall be applied in increments of 25 percent of the factored design																				
44	load. Each load increment shall be held for at least 10 minutes. Measurement																				
45	of anchor movement shall be obtained at each load increment. The load-hold																				
46	period shall start as soon as the test load is applied and the anchor movement,																				
47	with respect to a fixed reference, shall be measured and recorded at 1 minute,																				
48	2, 3, 4, 5, 6, 10, 20, 30, 40, 50, and 60 minutes.																				
49																					
50	The verification test will be considered successful if the anchor meets the criteria																				
51	for a performance tested ground anchor in Section 6-17.3(9), and in addition, a																				
52	pull-out failure does not occur at the 1.50FDL maximum load.																				

1
2 The Engineer will give the Contractor a written order concerning ground anchor
3 construction within seven working days after completion of the verification tests.
4 This written order will either confirm the bond lengths as shown in the
5 Contractor's plans for ground anchors or reject the anchors based upon the
6 result of the verification tests.
7
8
9 6-17.3(8)B.GR6
10 **Performance Testing**
11
12 6-17.3(8)B.INST1.GR6
13 The performance test schedule following the second paragraph of Section 6-
14 17.3(8)B is revised to read:
15
16 6-17.3(8)B.OPT1.GB6
17 (January 3, 2011)
18 Performance Test Schedule
19
20 Load
21 AL
22 0.25FDL
23 AL
24 0.25FDL
25 0.50FDL
26 AL
27 0.25FDL
28 0.50FDL
29 0.75FDL
30 AL
31 0.25FDL
32 0.50FDL
33 0.75FDL
34 1.00FDL
35 AL
36 0.25FDL
37 0.50FDL
38 0.75FDL
39 1.00FDL
40 1.15FDL
41 AL
42 Jack to lock-off load
43
44 Where: AL - is the alignment load
45 FDL - is the factored design load.
46
47
48 6-17.3(8)C.GR6
49 **Proof Testing**
50

1 6-17.3(8)C.INST1.GR6
2 The proof test schedule following the first paragraph of Section 6-17.3(8)C is revised
3 to read:
4
5 6-17.3(8)C.OPT1.GB6
6 (January 3, 2011)
7 Proof Test Schedule
8
9 Load
10
11 AL
12 0.25FDL
13 0.50FDL
14 0.75FDL
15 1.00FDL
16 1.15FDL
17 Jack to lock-off load
18
19 Where: AL - is the alignment load
20 FDL - is the factored design load
21
22 6-17.4.GR6
23 **Measurement**
24
25 6-17.4.INST1.GR6
26 Section 6-17.4 is supplemented with the following:
27
28 6-17.4.OPT1.GB6
29 (January 4, 2010)
30 Rock bolts will be measured by the linear foot of rock bolt (unbonded plus bonded length)
31 installed, successfully proof tested, and accepted.
32
33 Rock dowels will be measured by the linear foot of rock dowel installed and accepted.
34
35 6-17.5.GR6
36 **Payment**
37
38 6-17.5.INST1.GR6
39 Section 6-17.5 is supplemented with the following:
40
41 6-17.5.OPT1.GB6
42 (January 4, 2010)
43 "Rock Bolt", per linear foot.
44 The unit contract price per linear foot for "Rock Bolt" shall be full pay for performing the
45 work as specified, including all performance and proof testing, and all grout injection up
46 to 200 percent of that calculated at each production rock bolt location.
47
48 "Rock Dowel Type _", per linear foot.
49 The unit contract price per linear foot for "Rock Dowel Type _" shall be full pay for
50 performing the work as specified, including all proof testing, and all grout injection up to
51 200 percent of that calculated at each production rock dowel location.
52

1 "Force Account Rock Bolt & Rock Dowel Grout Exceedance", force account.
2 Payment for "Force Account Rock Bolt & Rock Dowel Grout Exceedance", for all grout
3 injection over 200 percent of that calculated at each production rock bolt and rock dowel
4 location, will be by force account as provided in Section 1-09.6. Wasted grout will not be
5 measured for payment.
6

7 For the purposes of providing a common proposal for all bidders, the Contracting Agency
8 has entered an amount for the item "Force Account Rock Bolt & Rock Dowel Grout
9 Exceedance" in the bid proposal to become a part of the total bid by the Contractor.
10

11 6-18.GR6

12 **Shotcrete Facing**

13
14 6-18.2.GR6

15 **Materials**

16
17 6-18.2.INST1.GR6

18 Section 6-18.2 is supplemented with the following:
19

20 6-18.2.OPT2.GB6

21 **(August 3, 2015)**

22 ***Coloration for Shotcrete Facing Finishing Alternative C***

23 If shotcrete facing finishing Alternative C is specified, the Contractor shall provide
24 shotcrete coloration for finishing the sculptured shotcrete to match the color of the natural
25 surroundings. Acceptance of the final appearance of the coloration will be based on the
26 pre-production test panel. Acceptance of the long-term properties of the coloration
27 material will be based on a manufacturer's certification, submitted as a Type 1 Working
28 Drawing which verifies the following to be true about the product:
29

- 30 1. Resistance to alkalis in accordance with ASTM D 543.
- 31
- 32 2. Demonstrates no change in coloration after 1,000 hours of testing in accordance
33 with ASTM D 822.
- 34
- 35 3. Does not oxidize when tested in accordance with ASTM D 822.
- 36
- 37 4. Demonstrates resistance to gasoline and mineral spirits when tested in
38 accordance with ASTM D 543.
- 39

40 Additionally, the certification shall provide the product name, proposed mix design and
41 application method, and evidence of at least one project where the product, using the
42 proposed mix and application method, was applied and which has provided at least five
43 years or more of acceptable durability and color permanency.
44

45 6-18.2.OPT3.GB6

46 **(August 3, 2015)**

47 ***Fiber Reinforcement for Shotcrete Facing***

48 Fiber reinforcement for shotcrete facing shall be either steel fibers or macro synthetic
49 fibers.
50

51 Steel fibers shall be cold drawn, deformed steel Type 1 or Type 4 fibers conforming to
52 ASTM A 820 with a minimum tensile strength of 120 ksi. Steel fibers shall have a length

1 between 1.0 and 1.50 inches and shall have a length to diameter ratio of less than 80.
2 The steel fibers used shall be manufactured specifically for shotcrete applications.
3
4 Macro synthetic fibers shall be deformed polyolefin Type 3 fibers conforming to ASTM C
5 1116. Macro synthetic fibers shall have a length between 1.0 and 2.0 inches and shall be
6 between 0.02 and 0.04 inches in diameter. The macro synthetic fibers used shall be
7 manufactured specifically for shotcrete applications.
8
9 Fiber reinforcement will be accepted based on the Manufacturer's Certificate of
10 Compliance.
11
12 6-19.GR6
13 **Shafts**
14
15 6-19.2.GR6
16 **Materials**
17
18 6-19.2(9-36.2(2)).GR6
19 **Shaft Slurry**
20 **Synthetic Slurry**
21 Section 9-36.2(2) is supplemented with the following:
22
23 6-19.2(9-36.2(2)).OPT1.GB6
24 (January 2, 2012)
25 Salt water shall not be used with synthetic slurry for shafts. Fresh water only
26 shall be used.
27
28 6-19.2(9-36.4).GR6
29 **Access Tubes and Caps**
30 The first paragraph of Section 9-36.4 is revised to read:
31
32 6-19.2(9-36.4).OPT1.GR6
33 (October 3, 2022)
34 Access tubes for CSL or TIP testing shall be steel pipe of 0.145 inches minimum wall
35 thickness and at least 1½ inch inside diameter, or shall be Sonitec V2 CSL Tubes
36 manufactured in America by Dextra. Dextra CSL tubes shall use Dextra caps and
37 connectors.
38
39 6-19.3.GR6
40 **Construction Requirements**
41
42 6-19.3(3).GR6
43 **Shaft Excavation**
44
45 6-19.3(3).INST1.GR6
46 Section 6-19.3(3) is supplemented with the following:
47
48 6-19.3(3).OPT1.GB6
49 (January 2, 2012)
50 Variations in the bearing layer elevation from that shown in the Plans are anticipated.
51 The Contractor shall have equipment on-site capable of excavating an additional 20
52 percent of depth below that shown in the Plans.

1
2 6-19.3(3)B.GR6
3 **Temporary and Permanent Shaft Casing**
4
5 6-19.3(3)B.INST1.GR6
6 Section 6-19.3(3)B is supplemented with the following:
7
8 6-19.3(3)B.OPT2.GB6
9 (January 2, 2012)
10 Shaft casing shall be equipped with cutting teeth or a cutting shoe, and installed
11 by either rotating or oscillating the casing. Installing the casing by vibratory
12 means will not be allowed.
13
14 6-19.3(3)B4.GR6
15 **Temporary Telescoping Shaft Casing**
16
17 6-19.3(3)B4.INST1.GR6
18 The second paragraph of Section 6-19.3(3)B4 is revised to read as follows:
19
20 6-19.3(3)B4.OPT1.GB6
21 (January 2, 2012)
22 Temporary telescoping casing will not be allowed for bridge end pier shafts.
23
24 6-19.3(3)I.GR6
25 **Required Use of Slurry in Shaft Excavation**
26
27 6-19.3(3)I.INST1.GR6
28 Section 6-19.3(3)I is supplemented with the following:
29
30 6-19.3(3)I.OPT1.GB6
31 (August 3, 2015)
32 If the Contractor is utilizing casing that is adequately sealed into competent soils
33 such that the water cannot enter the excavation, the Contractor may, with the
34 Engineer's permission, continue excavation in wet soils without slurry provided
35 the water level within the casing does not rise or exhibit flow.
36
37 6-19.3(4).GR6
38 **Slurry Installation Requirements**
39
40 6-19.3(4)A.GR6
41 **Slurry Technical Assistance**
42
43 6-19.3(4)A.INST1.GR6
44 Section 6-19.3(4)A is supplemented with the following:
45
46 6-19.3(4)A.OPT1.FB6
47 (January 2, 2012)
48 The slurry manufacturer's representative shall be present during construction
49 and completion of the first shaft excavated at the following specific shaft sites:
50
51 *** \$\$1\$\$ ***
52

1 6-19.3(5).GR6
2 ***Assembly and Placement of Reinforcing Steel***
3
4 6-19.3(5).INST1.GR6
5 Section 6-19.3(5) is supplemented with the following:
6
7 6-19.3(5).OPT1.GB6
8 (August 1, 2016)
9 For those shafts with a specified minimum penetration into the bearing layer and no
10 specified tip elevation, the Contractor shall furnish each shaft steel reinforcing bar
11 cage, including access tubes for non-destructive QA testing in accordance with
12 Section 6-19.3(6), 20 percent longer than specified in the Plans. The Contractor shall
13 add the increased length to the bottom of the cage. The Contractor shall trim the
14 shaft steel reinforcing bar cage to the proper length prior to placing it into the
15 excavation. If trimming the cage is required and access tubes are attached to the
16 cage, the Contractor shall either shift the access tubes up the cage, or cut the access
17 tubes provided that the cut tube ends are adapted to receive the watertight cap as
18 specified.
19
20 6-19.3(6).GR6
21 ***Contractor Furnished Accessories for Nondestructive QA Testing***
22
23 6-19.3(6)E.GR6
24 **Thermal Wire and Thermal Access Points (TAPs)**
25
26 6-19.3(6)E.INST1.GR6
27 Section 6-19.3(6)E is supplemented with the following:
28
29 6-19.3(6)E.OPT1.GB6
30 (January 2, 2018)
31 The thermal wire and associated couplers shall be obtained from the following
32 source:
33
34 Pile Dynamics, Inc.
35 30724 Aurora Road
36 Cleveland, OH 44139
37 (216) 831-6131
38 FAX: (216) 831-0916
39 www.pile.com
40
41 6-19.3(7).GR6
42 ***Placing Concrete***
43
44 6-19.3(7)D.GR6
45 **Requirements for Placing Concrete Underwater**
46
47 6-19.3(7)D.INST1.GR6
48 Section 6-19.3(7)D is supplemented with the following:
49
50 6-19.3(7)D.OPT1.GB6
51 (January 2, 2012)

1 The Contractor may use a tremie instead of a concrete pump, subject to the
2 following conditions:
3
4 1. The tremie shall have a hopper at the top that empties into a
5 watertight tube at least eight inches in diameter.
6
7 2. The discharge end of the tube on the tremie shall include a device to
8 seal out water while the tube is first filled with concrete.
9
10 6-19.4.GR6
11 **Measurement**
12
13 6-19.4.INST2.GR6
14 Section 6-19.4 is supplemented with the following:
15
16 6-19.4.OPT3.GB6
17 (September 2, 2025)
18 Fresh water for shaft slurry will be measured in accordance with Section 3-06.4.
19
20 6-19.5.GR6
21 **Payment**
22
23 6-19.5.INST1.GR6
24 Section 6-19.5 is supplemented with the following:
25
26 6-19.5.OPT2.GB6
27 (January 2, 2012)
28 “Fresh Water for Shaft Slurry”, per M gal.
29
30 6-20.GR6
31 **Buried Structures**
32
33 6-20.1.GR6
34 **Description**
35
36 6-20.1(1).GR6
37 **Definitions**
38
39 6-20.1(1).INST1.GR6
40 The list of types of buried structures in Section 6-20.1(1) is supplemented with the
41 following:
42
43 6-20.1(1).OPT1.GB6
44 (March 20, 2025)
45 **Composite Arch System (CAS):** A buried Structure consisting of a two-component
46 Superstructure placed on reinforced concrete foundations. The Superstructure
47 consists of fiber-reinforced polymer (FRP) composite hollow tube external
48 reinforcement/stay-in-place forms filled with expansive self-consolidating concrete
49 (ESCC), supporting custom pultruded corrugated FRP deck panels retaining the
50 structural backfill.
51
52 The Superstructure of the CAS shall be as designed and supplied by:

1
2
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50

AIT Composites - Maine
33 Steamboat Ave.
Winterport, ME 04496
1-888-491-1516
<https://www.aitcomposites.com/>

Fabrication shall be by the supplier or a licensed designee as designated by a Type 1 Working Drawing.

6-20.2.GR6

Materials

6-20.2.INST1.GR6

Section 6-20.2 is supplemented with the following:

6-20.2.OPT1.GB6

(January 10, 2022)

Composite Arch System

FRP Composite Hollow Tubes

Glass fibers shall be type E-glass manufactured in accordance with ASTM D578 Section 4.2.2 and tested in accordance with ASTM D2343.

Carbon fibers shall be standard modulus fibers. Tensile strength, tensile modulus, and strain of the fibers shall be documented in accordance with the manufacturer's test specifications.

Resin shall be epoxy vinyl ester resin with viscosity suitable for infusion. Clear casting tensile strength and tensile modulus shall be tested in accordance with ASTM D638. Clear casting flexural strength and modulus shall be tested in accordance with ASTM D790. Heat distortion temperature shall be documented in accordance with ASTM D648.

FRP components will be accepted based on a Manufacturer's Certificate of Compliance. The certificate shall include test results for physical, material, and durability properties specified in Section 3 of the *AASHTO LRFD Guide Specification for Design of Concrete Filled FRP Tubes for Flexural and Axial Members*.

FRP Deck Panels and Associated Fasteners and Adhesive Sealant

The resin shall be premium grade, chemically resistant, UV stabilized polyurethane of the type specified in the fabrication shop drawings.

The glass reinforcement shall be E-Glass that is straight and continuous, with fibers oriented in three directions (0, 45, 90-degrees with respect to the length of the panel). The glass content shall be a minimum of 70-percent by weight.

The FRP deck panels shall have a class B flame spread rating of 75 or less when tested in accordance with ASTM E84, with the thickness, width, and corrugation height specified in the fabrication shop drawings.

1 The fasteners attaching the FRP deck panels to the FRP composite hollow tubes
2 shall be drill point type AISI 410 stainless steel screws as specified in the fabrication
3 shop drawings.

4
5 The adhesive sealing the longitudinal joint of the FRP deck panels shall be a two-
6 part urethane sealant as specified in the fabrication shop drawings.

7
8 **Expansive Self Consolidating Concrete (ESCC)**

9 Total Cementitious Materials (CM) shall include cement, fly ash, and an expansive
10 cement component specified by the composite arch bridge system supplier.

11
12 Cement shall be Type I/II or Type IL portland cement conforming to AASHTO M 85.

13
14 An expansive cement product conforming to ASTM C845 Type K shall be added at
15 the rate as specified in Item 8 of the mix design parameters specified below.

16
17 Class F fly ash conforming to Section 9-23.9 or ground granulated blast furnace slag
18 conforming to Section 9-23.10 may be added at the allowable rates specified in Item
19 9 of the mix design parameters specified below.

20
21 **ESCC Mix Design**

22 The ESCC mix shall be designed in accordance with Section 6-02.3(2)A2 and
23 the following requirements:

- 24
25 1. Minimum 28-day compressive strength = 6000 psi.
26
27 2. Maximum size of coarse aggregate = 3/8-inch.
28
29 3. Fine aggregate proportions shall be 50 ± 5 -percent of the total
30 aggregate by volume, to be determined by trial batching as required
31 to attain specified strength, Visual Stability Index (VSI) and flow
32 characteristics.
33
34 4. Type F high range water reducer conforming to Section 9-23.6(7) is
35 required and shall be used at the concrete supplier's recommended
36 dosage.
37
38 5. Viscosity modifying admixture conforming to Section 9-23.6(9) may
39 be added at the concrete supplier's recommended dosage to improve
40 mix stability.
41
42 6. Hydration stabilizer (retarder) is required to ensure sufficient water
43 and time to begin ettringite formation of the Type K expansive
44 cement.
45
46 7. Minimum Cementitious Material (CM) = 850 LB./C.Y.
47
48 8. The mix shall contain Type K expansive cement at a rate of 15-
49 percent by weight of total cementitious material. This quantity may be
50 revised by a CTS Component materials technician that has reviewed
51 mix design and has provided a recommended Type K proportion for a
52 specific mix supplier.

9. The mix may include Section 9-23.9 Class F fly ash at a rate less than 25-percent by weight of cementitious material, or Section 9-23.10 Grade 100 or Grade 120 ground granulated blast furnace slag at a rate less than 50-percent, by weight of cementitious material.
10. The water/cementitious material ratio (W/CM) shall be between 0.40 and 0.45.
11. Air content shall be 0-percent to 5.0-percent.

ESCC shall meet the following requirements in accordance with ASTM C1611 or AASHTO T 347 and AASHTO T 351 for slump flow and visual stability index:

1. Slump flow shall be between 24 and 30-inches
2. Visual stability index shall be between 0 and 1.0.

Additional concrete mix design requirements of the supplier shall be shown in the FRP tube fabrication shop drawings.

Trial batches shall be performed prior to use to verify compressive strength, slump flow, and visual stability index. Test results shall be submitted as a Type 1 Working Drawing. The trial batch requirement may be waived at the discretion of the Engineer if the concrete supplier is experienced in producing ESCC.

Each batch of ESCC delivered to the jobsite shall be tested for slump flow and visual stability index. If the ESCC fails to meet the requirements re-dosing with additives is permitted. The Engineer may reject ESCC that does not meet specified requirements.

6-20.3.GR6

Construction Requirements

6-20.3.INST1.GR6

Section 6-20.3 is supplemented with the following:

6-20.3.OPT1.GB6

(September 2, 2025)

Composite Arch System

Design

The CAS design, Superstructure and foundation, shall conform to Section 6-20.3(1), and the following:

The CAS shall be designed in accordance with the AASHTO LRFD Bridge Design Specifications, the AASHTO LRFD Guide Specifications for Design of Concrete-Filled FRP Tubes for Flexural and Axial Members, the ASCE Pre-Standard for LRFD of Pultruded FRP Structures, and other applicable specifications.

1 The CAS shall be designed by the supplier on a project-specific basis by a
2 licensed professional engineer, with design and load rating calculations and
3 fabrication shop drawing Working Drawings provided to the Contractor.
4

5 **Submittals**
6 Submittals for CAS Superstructure and foundation shall conform to Section 6-
7 20.3(2).
8

9 **Foundation**
10 The CAS foundation shall be constructed in accordance with Sections 6-20.3(5) and
11 6-20.3(6).
12

13 **Fabrication**
14 The CAS structural components shall be fabricated, either by the supplier or an
15 independent fabricator licensed by the supplier, in accordance with Section 6-20.3(7)
16 and the following:
17

18 **Fabrication Quality Control/Quality Assurance**
19 FRP composite hollow tubes shall be fabricated in accordance with the
20 supplier's QC/QA plan and standard operating procedures. The portions of the
21 QC/QA plan and procedures which do not contain trade secret material will be
22 submitted to the Contracting Agency for review upon Engineer's request prior to
23 beginning fabrication.
24

25 The FRP laminate comprising the tube shell shall be tested for tensile strength.
26 Test result documentation of the mechanical properties and the required design
27 values shall be submitted as a Type 1 Working Drawing.
28

29 A minimum of five test specimens shall be obtained from each FRP composite
30 hollow tube. A minimum of two specimens per tube shall be tested. If the mean
31 of the two tests from any one tube fails to meet or exceed the required design
32 value, then at least three more specimens from the corresponding tube shall be
33 tested. If the mean of the three additional specimens does not meet or exceed
34 the design value, the tube will be rejected and replaced. All test results shall be
35 submitted as a Type 1 Working Drawing prior to placing and assembling the
36 tubes.
37

38 **FRP Composite Hollow Tube Fabrication**
39 The FRP composite hollow tubes may be fabricated as specified below using a
40 closed mold vacuum assisted resin transfer method (VARTM) of composite
41 manufacturing:
42

43 **Reinforcement Storage and Preparation**
44 Fabrics shall be stored in a clean, dry environment in the original packaging.
45 They shall be protected from water, dirt, grease, grinding dust, and other
46 foreign matter. The fabrics shall be cut on a clean cutting surface, free of
47 any deleterious material that may adhere to the fabrics prior to layup.
48 Longitudinal fabric shall not be spliced. Hoop reinforcement may be spliced.
49

Chemicals

Vinyl ester resins and other chemicals necessary for catalyzing the infusion matrix shall be stored in accordance with the manufacturer's recommendations.

Vacuum Assisted Resin Transfer

Prior to vacuum infusion of the vinyl ester matrix, the fabricator shall thoroughly seal the tooling and demonstrate that the sealed tooling can obtain a minimum workable vacuum pressure and a drop test. Chemical additives and catalysts to be combined with the vinyl ester resin shall be measured by weight, or the corresponding volume, based on the batch weight of the vinyl ester resin. The fabricator shall maintain documentation of the promotion rates and the actual amount of catalyst used for each infusion.

The infusion tank shall be charged with a sufficient amount of resin at all times to prevent air bubbles from entering the infusion ports in the tooling. Once resin is introduced into the tooling, the infusion process shall continue uninterrupted until it has been demonstrated that all evacuation ports have a surplus of resin flowing past the finished surface of the tooling and that no less than the predicted volume of resin has been introduced into the tool.

Post Processing

Once the laminate has been allowed to harden, the FRP composite hollow tubes shall be removed from the form with care so as not to induce stresses into the curing laminate. The laminate shall reach a minimum Barcol hardness value of 35 prior to removing the tubes from the form.

Tolerances

The finished FRP composite hollow tubes shall conform to the dimensions set forth in the accepted Type 2 Working Drawing fabrication shop drawings of Section 6-20.3(2). The diameter shall not vary in any one section by more than one-percent of the dimension given in the fabrication shop drawings. The tubes shall be checked for shape variations. No tube may vary from the shape specified in the fabrication shop drawings, except for diameter, by more than 2-inches or one-percent of the dimension, whichever is smaller.

Composite Arch System Placement and Assembly

The CAS structural components shall be erected in accordance with Section 6-20.3(8) and the following:

Assignment of Responsibility

The supplier shall furnish the Contractor the FRP composite hollow tubes, FRP deck panels, stainless steel fasteners, and the structural adhesive at the project site on the date requested by the Contractor.

The Contractor is responsible for the complete installation of the FRP composite hollow tubes including but not limited to unloading and storing the tubes at the project site, erecting and setting the tubes into the reinforced concrete foundation, filling the tubes with ESCC, inspecting the filled tubes for voids, and filling such voids if any are found.

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After receiving the accepted fabrication shop drawings, the Contractor shall notify the fabricator to fabricate and deliver the FRP composite hollow tubes, FRP deck panels, stainless steel fasteners, and the structural adhesive to the project site.

Handling and Storage at the Project Site

Care shall be taken when handling the FRP composite hollow tubes such that no damage is caused to the unfilled tubes. When moved or placed by hand, tubes shall be stabilized to prevent tipping over. When moved by hoist, straps shall provide at least 2 inches of padded contact area.

The Contractor is responsible for receiving, unloading, and storing the FRP deck panels. All FRP deck panels shall be handled with care and protected from cuts, scratches, and abrasions. FRP deck panels shall be stored on blocking off the ground and kept clean and dry. Damaged panels shall be replaced at no additional expense to the Contracting Agency.

FRP Tube and FRP Panel Placement and Assembly

The Contractor is advised that the FRP composite hollow tubes have some flexibility prior to filling with ESCC, and tubes out of tolerance without any outside loading may be brought into tolerance with a small force applied at each end. All tubes shall be clearly marked by the fabricator in accordance with the designation in the fabrication shop drawings.

The FRP composite hollow tubes shall be erected in a vertical position and FRP deck panels installed prior to filling the tubes with ESCC. The maximum allowable variation of installed tubes shall be $\pm 1/2$ -inch in-plane and out-of-plane. The FRP deck panels shall be installed over the tubes after the tubes are erected and aligned. The tubes shall be set into the reinforced concrete foundation as shown in the Plans. Care shall be taken when placing the foundation and vibrating around the base of the tubes as to not damage or displace the tubes.

FRP deck panels shall be installed as shown in the Plans using fasteners provided. The first row of FRP deck panels shall be installed on each side prior to casting the foundation stem wall. The remaining FRP deck panels shall be installed after the foundation stem wall has been cast and prior to filling the FRP composite hollow tubes with ESCC.

Adhesive provided shall be used in accordance with the manufacturer's recommendations to seal the longitudinal joint between the panels. FRP deck panels shall be installed starting at the bottom at both ends of the FRP composite hollow tubes and proceeding to the apex. The Contractor shall assure that the starter panels are placed as shown in the Plans to a level line. A closure plate is provided at the apex to be field-trimmed to fit and attached after the tubes are filled with ESCC.

Once the foundation has achieved 2000 psi minimum concrete compressive strength, the erected FRP composite hollow tubes shall be filled with ESCC.

1 **Placing ESCC Tube Fill**

2 ESCC will be accepted as a self-consolidating concrete in accordance with
3 Section 6-02.3(5).
4

5 ESCC shall be placed in accordance with Section 6-02.3(6) and the following:
6

7 All FRP composite hollow tubes shall be filled with ESCC under the
8 observation of the Engineer. The tubes shall be filled in one continuous
9 operation. Vibration may be necessary for shallow rise tubes and such use
10 of vibration will be determined by the Engineer. The tubes shall be filled
11 through the fill holes that are field drilled by the Contractor to the size and
12 locations shown in the fabrication shop drawings.
13

14 ESCC placement shall be accomplished using a method capable of
15 directing the ESCC into the 3-inch fill hole and regulating placement speed
16 to prevent voids. Acceptable methods include the use of a boom type pump
17 truck, a trailer pump, or a standard concrete bucket. The Contractor shall
18 have an alternative method available in the event of an equipment
19 malfunction.
20

21 All FRP composite hollow tubes shall undergo auditory tap testing after
22 ESCC placement to ensure complete filling of tubes. In the event that voids
23 are discovered, they shall be injected with grout conforming to Section 9-
24 20.3(2) for large voids or epoxy bonding agent conforming to Section 9-26.1
25 for small voids. The maximum permitted hole size for grout injection is 3/4-
26 inch. The supplier shall be provided 72-hour minimum notice and offered
27 the opportunity to be present for the filling of the tubes and tap testing.
28

29 **Backfilling the Assembled Composite Arch System**

30 The CAS shall be backfilled in accordance with Section 6-20.3(9) and the following:
31

32 ESCC fill in the FRP composite hollow tubes shall reach a minimum
33 compressive strength of 3000 psi prior to any backfilling or compaction activities
34 on the Structure other than headwall connection work.
35

36 Select gravel backfill shall extend to the lines and grades shown in the Plans
37 and shall be placed in accordance with Section 3-07.3(1)E and as follows:
38

39 Backfill shall be placed in maximum 6-inch lifts with each layer compacted
40 to 95-percent of the maximum density determined by the Compaction
41 Control Test in accordance with Section 3-03.3(14)D. Compaction within 4-
42 feet of the Structure shall be accomplished with hand compactors only.
43 Vibratory rollers may be used outside of this zone and above the Structure
44 provided there is at least 24-inches of compacted cover above the
45 Structure.
46

47 All backfill shall be carefully placed to avoid damage to the Structure.
48

49 Lightweight equipment of an operating weight less than 12-tons may be
50 operated over the Structure provided there is at least 12-inches of cover.
51 Construction equipment of an operating weight 12-tons or greater may be
52 used after 24-inches of compacted backfill has been placed over the

1 Structure. In no case may the loading exceed the AASHTO design loading
2 HL-93 without the Engineer's written permission.
3
4 Backfill shall be placed in lifts such that at no time will the elevation
5 difference exceed 24-inches between opposite sides of the Structure.
6
7 6-20.5.GR6
8 **Payment**
9
10 6-20.5.INST1.GR6
11 Section 6-20.5 is supplemented with the following:
12
13 6-20.5.OPT1.GB6
14 (January 10, 2022)
15 Payment for the Composite Arch System will be made with the lump sum item, "Contractor
16 Designed Buried Structure No. ____" shall be full payment for the Work as specified.
17
18 6-SA1.FR6
19 **6-23 POLYESTER CONCRETE OVERLAY**
20 **(September 3, 2024)**
21
22 **6-23.1 Description**
23 This Work consists of installing polyester concrete bridge deck overlays, preparing the surface
24 of the concrete bridge deck, removing and replacing unsound concrete (deck repair),
25 surveying, and other Work.
26
27 **6-23.1(1) Definitions**
28 **Existing Bridge Deck Surface** - The surface of the existing concrete bridge deck. It
29 follows wheel ruts and other anomalies.
30
31 **Polyester Concrete Overlay System** - All component materials used to complete the
32 system, including the polyester concrete (which is composed of polyester concrete binder
33 and aggregate), primer, initiators, promoters, catalysts, accelerators, inhibitors, sand for
34 abrasive finish, and crack sealing resin. All component materials of the polyester concrete
35 system shall be provided through a single System Provider.
36
37 **System Provider** – The single corporate entity that provides the Polyester Concrete
38 Overlay System that will be installed on this Contract. There shall be only one System
39 Provider.
40
41 **System Provider Technical Representative** - A duly authorized agent of the System
42 Provider, who has the requisite skills and experience.
43
44 **6-23.1(2) Qualifications**
45 The following shall have the minimum experience as described.
46
47 **6-23.1(2)A System Provider**
48 The proposed System Provider shall have had direct control and responsibility for
49 the proposed polyester concrete overlay system for the qualifying projects for the
50 overlay system. Qualifying Projects - The Polyester Concrete Overlay System shall
51 have been successfully placed on three overlay projects of similar size and scope to
the proposed installation within the past ten years. Previously installed overlay must

be in service for a minimum of two years showing no signs of installation deficiency, major distress, excessive wear, non-reflective in-service cracks, insufficient skid resistance, or delamination.

6-23.1(2)B System Provider Technical Representative

The System Provider Technical Representative shall have a minimum of two years of experience with the exact polyester concrete overlay system to be used on this Contract and be completely competent in all aspects of the Work. The Technical Representative shall have experience on a minimum of three successful projects of similar size and scope to the proposed installation. Thin polymer (broadcast) overlay experience will not be accepted.

6-23.1(2)C Polyester Concrete Placement Contractor and Workers

The Contractor that performs the work of placing the polyester concrete system shall have experience on three projects within the past two years placing polyester concrete overlays using equipment as specified herein. Thin polymer (broadcast) overlay experience will not be accepted.

The following employees shall also meet these qualifications:

1. One on-site supervisor.
2. One volumetric mixer operator.
3. One finishing machine operator.

6-23.2 Materials

Materials shall meet the requirements of the following sections:

Polyester Concrete Binder	6-23
Primer	6-23
Aggregate for Polyester Concrete	6-23
Sand for Abrasive Finish	6-23
Crack Sealing Materials	6-23
Portland Cement	9-01.2(1)
Blended Hydraulic Cement	9-01.2(1)B
Fine Aggregate	9-03.1
Coarse Aggregate	9-03.1
Admixtures	9-23.6
Water for Concrete	9-25.1

6-23.2(1) Polyester Concrete System

All components of the polyester concrete system shall be provided by the System Provider.

1. Manufacturer's Certificates of Compliance - The Contractor shall submit a separate Manufacturer's Certificate of Compliance meeting the requirements of Section 1-06.3 for each of the following components of the polyester concrete system: primer, polyester concrete binder, polyester concrete aggregates, polyester concrete, and sand for abrasive finish. Each Manufacturer's Certificate of Compliance shall identify the applicable lot(s) by lot number.

- 1 2. Certified Test Results - Each Manufacturer's Certificate of Compliance shall be
2 accompanied by certified test reports from independent labs for all the properties
3 described in Sections 6-23.2(1)A, B, C, D, and E of this Special Provision, which
4 are associated with each component. Each certified test report shall identify the
5 lot(s) represented by the test report by lot number.
6
7 3. Sampling - The Contracting Agency reserves the right to obtain and test samples
8 of components of the polyester concrete overlay system. This includes requiring
9 submittal of samples prior to the first installation or on-site sampling during
10 construction.
11

12 **6-23.2(1)A Primer**

13 Primer for the substrate concrete surface shall be a wax-free low odor, high molecular
14 weight methacrylate primer, and consist of a resin, initiator, and promoter. The primer
15 shall conform to the following requirements:
16

Resin		
Property	Requirement	Test Method
Viscosity	25 cps maximum (Brookfield RVT with UL adapter, 50 RPM at 77°F)	ASTM D2196
Volatile Content	30% maximum	ASTM D2369
Specific Gravity	0.90 minimum at 77°F	ASTM D1475
Vapor Pressure	1.0 mm Hg, maximum at 77°F	ASTM D 323

Resin with Initiator		
Property	Requirement	Test Method
Flash Point	180°F minimum	ASTM D 3278
Initiator for the methacrylate resin shall consist of a metal drier and peroxide. If supplied separately from the resin, the metal drier shall not be mixed with the peroxide directly; a VIOLENT EXOTHERMIC REACTION will occur.		

18 **6-23.2(1)B Polyester Concrete Binder**

19 Polyester concrete binder shall have the following properties:
20
21

- 22 1. Be an unsaturated isophthalic polyester-styrene co-polymer.
23
24 2. The binder content shall be 12% +/-1% of the weight of the dry aggregate.
25
26 3. Be used with a promoter that is compatible with suitable methyl ethyl ketone
27 peroxide and cumene hydroperoxide initiators.
28
29 4. Meet the requirements of the following tables.
30

Resin		
Requirement	Test Method	Requirement
Viscosity	75 – 200 cps (RVT No.1 Spindle, 20 RPM at 77°F)	ASTM D2196
Specific Gravity	1.05 to 1.10 at 77°F	ASTM D1475

Resin with Initiator		
Property	Property	Property
Contain gamma-methacryloxypropyltrimethoxysilane, an organosilane ester silane coupler	>1%	Nuclear Magnetic Resonance
Elongation	35 percent, minimum Type I specimen, thickness 0.25 ± 0.03" at Rate = 0.45 inch/minute.	ASTM D638
	Sample Conditioning: 18/25/50+5/70	ASTM D618
Tensile Strength	2,500 psi, minimum Type I specimen, thickness 0.25 ± 0.03" at Rate = 0.45 inch/minute.	ASTM D638
	2,500 psi, minimum Type I specimen, thickness 0.25 ± 0.03" at Rate = 0.45 inch/minute.	ASTM D618

6-23.2(1)C Polyester Concrete Aggregates

The polyester concrete aggregate (coarse and fine) shall be thoroughly washed and kiln dried.

Polyester concrete aggregates shall be manufactured from sand and gravel in accordance with the provisions of Section 3-01. Fine aggregate shall consist of natural sand only. Reclaimed concrete aggregate shall not be used.

Polyester concrete aggregate shall have the following properties:

Polyester Concrete Aggregate Gradation	
Sieve Size	Percent Passing
1/2"	100
3/8"	98 minimum
#4	62-85
#8	45-67
#16	29-50
#30	16-36
#50	5-20
#100	0-7
#200	0-3

Properties of Polyester Concrete Aggregate		
Property	Test Method	Requirement
Los Angeles Wear	AASHTO T96	35% max at 500 rev
Degradation Factor	WSDOT T113	30 minimum
Clay lumps and Friable Particles	AASHTO M6	3.0% by weight

Coal and lignite	AASHTO M6	0.25% by weight
Particles of specific gravity less than 2.0	AASHTO M6	1.0% by weight
Crushed particles	AASHTO T335	<45% Crushed Particles, retained on the No. 8 Sieve
Weighted-average aggregate absorption	AASHTO T84 and T85	<1%
Mohs Hardness	Mohs Hardness Test	≥7 (≥6.5 if system has demonstrated more than 10 years of success on large scale installations)
Aggregate shall comply with the following properties at the time of mixing the polyester concrete: The polyester concrete aggregate shall have a weighted-average moisture content when tested under AASHTO Test Method T255 of not more than one half of the weighted-average aggregate absorption.		

6-23.2(1)D Polyester Concrete

The properties of the polyester concrete, when the polyester resin and polyester concrete aggregates are combined in the proportions of the approved mix design, shall be as follows:

Property	Test Method	Requirement
Portland Cement Concrete Saturated Surface Dry Bond Strength	California Test 551	500 psi minimum at 24 hrs. and 70° ± 1° F (without primer, at 12% resin content by weight of the dry aggregate, on Saturated Surface Dry Specimen)
PCC Saturated Surface-Dry Bond Strength (Adhesive)	California Test 551	700 psi, minimum at 24 hours and 70° ± 1°F (at 12% resin content by weight of the dry aggregate), HMWM primed surface
Abrasion Resistance	California Test 550	<2g weight loss (at 12% resin content by weight of the dry aggregate)
Modulus of Elasticity	ASTM C 469	1,000,000 psi to 2,000,000psi (at 12% resin content by weight of the dry aggregate)
Portland Cement Concrete Dry Surface Bond Strength (Adhesive) – Primer installation window verification	California Test 551	700 psi, minimum at 24 hours and 70° ± 1°F (at 12% resin content by weight of the dry aggregate), HMWM primed surface. Polyester concrete placed against primed surface two hours after Primer application.

1 **6-23.2(1)E Sand for Abrasive Finish**

2 Sand for abrasive finish shall have the following properties:

- 3
- 4 1. Be commercial-quality blast sand.
- 5
- 6 2. Have a minimum of 85 percent passing the No. 8 sieve and a maximum of
- 7 10 percent passing the No. 20 sieve when tested under AASHTO Test
- 8 Method T27.
- 9
- 10 3. Be kiln dried and protected from moisture until time of placement. At the
- 11 time of application on the polyester concrete, the moisture content of the
- 12 sand for abrasive finish shall not exceed 0.5 percent.
- 13

14 **6-23.2(1)F Shipping, Storing and Handling Polyester Concrete Materials**

15 All components shall be shipped in strong, substantial containers bearing the

16 manufacturers label specifying batch/lot number, brand name, and quantity. If bulk

17 resin is to be used, the contractor shall notify the Engineer in writing 10 days prior to

18 the delivery of the bulk resin to the job site. Bulk resin is any resin that is stored in

19 containers in excess of 250 gallons.

20

21 All materials shall be delivered in their original containers bearing the manufacturer's

22 label, specifying date of manufacturing, batch number, trade name brand, quantity,

23 and mixing ratio. Each shipment of polyester concrete binder and primer shall be

24 accompanied by a Safety Data Sheet (SDS). Bulk resin containers shall be identified

25 by one of the following methods:

26

- 27 1. A label on each container as specified above, or
- 28
- 29 2. A marking on each container that uniquely identifies the container,
- 30 accompanied by documentation that unequivocally identifies the
- 31 Manufacturer's Certificate of Compliance that is associated with the
- 32 material in that container.
- 33

34 The material shall be stored to prevent damage by the elements and to ensure the

35 preservation of their quality and fitness for the Work. The storage space shall be kept

36 clean and dry and shall contain a high-low thermometer. The temperatures of the

37 storage space shall not fall below nor rise above that recommended by the

38 manufacturer. Every precaution shall be taken to avoid contact with flame.

39

40 Stored materials shall be inspected prior to their use and shall meet the requirements

41 of these Special Provisions at the time of use.

42

43 Material which is rejected because of failure to meet the required tests or that has

44 been damaged shall be immediately replaced at no additional expense to the

45 Contracting Agency.

46

47 Sufficient material to perform the entire polyester concrete overlay application shall

48 be in storage at the site prior to field preparations, so that there shall be no delay in

49 procuring the materials for each day's application.

50

51 Prior to Work, a copy of the Contractor's safety plan addressing worker protective

52 clothing, protective breathing devices, measures to address inadvertent contact with

chemicals and other appropriate safety measures shall be submitted to the Engineer in accordance with Section 1-07.1(2).

6-23.2(2) Concrete Class M

Concrete Class M shall be proportioned in accordance with the following mix design:

Portland Cement Type 1 or Type 2, or Blended Hydraulic Cement Type IL(X)	705 pounds
Fine Aggregate	1,280 pounds
Coarse Aggregate	1,650 pounds
Water/Cement Ratio	0.37 maximum
Air ($\pm 1\frac{1}{2}$ percent)	6 percent
Slump (± 1 inch)	5 inches

Fine aggregate shall be Class 1. Coarse aggregate shall be AASHTO grading No. 7 or No. 8.

The use of a water-reducing admixture conforming to AASHTO M 194 Type A will be required to produce Concrete Class M with the desired slump. Air entraining admixtures shall conform to AASHTO M 154. The use of accelerating admixtures or other types of admixtures is not allowed.

Concrete Class M shall be mixed in batch-plants and transported in ready-mix trucks conforming to Section 6-02.3(4)A.

The maximum allowable and actual water/cementitious ratios shall be calculated using all the available mix water, including water added at the plant, water added in transit and at the job site, water in all admixtures, and the free water in the aggregates but not the water absorbed by the aggregates. The following are considered cementitious materials: Portland Cement and blended hydraulic cement.

6-23.2(3) Crack Sealing Materials

6-23.2(3)A Crack Sealing Resin

Resin for sealing cracks in the polyester concrete overlay shall meet the requirements for polyester concrete binder.

6-23.2(3)B Crack Sealing Sand

Sand for topping the crack sealing resin shall meet the requirements for sand for abrasive finish.

6-23.3 Construction Requirements

6-23.3(1) Sequence of Operations

The sequence of the Work shall be as follows. This sequence is in addition to other sequence and timing requirements in this Special Provision:

1. Shotblasting existing Bridge Deck Surface
2. Surveying of Existing Bridge Deck Surface
3. Perform Type 1 and Type 2 Deck Repair
4. Sandblast, and clean the finished surface

5. Place and cure the primer, polyester concrete overlay, and sand for abrasive finish
6. Check for bond and repair as required
7. Crack Sealing
8. Grind for smoothness
9. Texturing Polyester Concrete

6-23.3(1)A Traffic Restrictions on Sequence of Operations

Traffic shall not be allowed on shotblasted bridge deck surfaces until step 9 of Section 6-23.3(1) of this Special Provision is completed.

6-23.3(2) Equipment

In addition to meeting the equipment requirements herein, equipment shall meet, and be operated in accordance with, the System Provider Technical Representative's recommendations.

6-23.3(2)A Shot Blaster

The shotblaster shall be a self-contained mobile unit using steel shot to texture the sound concrete to produce a concrete surface profile of CSP-6 or greater in accordance with International Concrete Repair institute (ICRI) 310.2R. The machine shall blast a minimum width of 2 feet per pass. The shotblasting machine shall shotblast, vacuum and store all material removed from the blasted concrete surface in a self-contained unit.

The shotblaster vacuum shall allow the shotblaster to be operated in air pollution sensitive areas and shall be equipped to not contaminate the deck during final preparation for concrete placement.

6-23.3(2)B Power Driven Hand Tools

Power driven hand tools are limited to the following:

1. Jack hammers no heavier than the nominal 30-pound class.
2. Chipping hammers no heavier than the nominal 15-pound class.
3. Other mechanical means acceptable to the Engineer.

Power driven hand tools shall not be operated at angles greater than 45 degrees as measured from the surface of the deck to the tool.

6-23.3(2)C Air Compressor

Air compressors shall be equipped with oil traps to eliminate oil from being blown onto the bridge deck.

6-23.3(2)D Vacuum Machine

Vacuum machines, separate from and in addition to the vacuum built in to the shotblaster, shall be capable of collecting all remaining dust, concrete chips, and other

debris encountered while vacuuming. The machines shall be equipped with collection systems that allow the machines to be operated in air pollution sensitive areas and shall be equipped to not contaminate the deck during final preparation for concrete placement.

6-23.3(2)E Polyester Concrete Mixers

A continuous automated mixer shall be used for all polyester concrete overlay applications. The continuous mixer must be capable of mixing the polyester binder resin components with dry aggregate, maintain proper ratios, and achieve set and cure times within the specified limits.

The Contractor shall submit current certification documents showing that mixing equipment has been calibrated (California Test 109 or similar accepted) with the exact polyester concrete overlay system to be installed. If required by the Engineer, the Contractor shall demonstrate that the proposed volumetric mixing equipment is accurately calibrated through on-site verification. The actual weights of the polyester concrete materials discharged from the volumetric mixer truck shall be accurately represented by the printout ticket measurement produced by the on-board computer tracking system. To demonstrate this the Contractor shall dispense individual aggregate and resin batches and weigh with certified scales. The Engineer will compare certified scale weights to print out ticket measurements. Results of each comparison will be considered within calibration tolerance when ticket measurements and certified scale weights are within 2% of each other. Mixing equipment calibration verification should be considered successfully completed after three consecutive successful results, witnessed by a representative of the Contracting Agency.

The Contractor shall submit a documented history of the use of the placement equipment to successfully install Polyester Polymer Concrete overlays on bridge projects for review and approval by the Engineer. Acceptable experience shall be from installations matching the scope of the proposed project, including thickness and grade establishment requirements.

The continuous mixer shall:

1. Employ an auger screw/chute device capable of sufficiently mixing catalyzed resin with dry aggregate.
2. Employ a plural component pumping system capable of handling polyester binder resin and additives while maintaining proper ratios to achieve set/cure times within the specified limits, evenly across the placement. Resin and all field additives, including catalyst and accelerator, shall flow through a static mix tube for sufficient duration to completely mix the liquid system prior to combination with aggregates.
3. Be equipped with an automatic metering device that measures and records aggregate and resin volumes. Record volumes at least every five minutes, including time and date. Submit recorded volumes at the end of the work shift.
4. Have a visible readout gage that displays running totals of aggregate and resin being recorded.

5. Produce a satisfactory mix consistently during the entire placement, and maintain appropriate resin content, catalyst, and accelerator levels to produce desired outcome.
6. Discharge mixed material directly into the finishing machine.

A portable mechanical mixer of appropriate size for proposed batches, as recommended by the System Provider Technical Representative and approved by the Engineer, may be used for patching applications and for smaller area overlay applications if recommended by the System Provider Technical Representative and approved by the Engineer.

6-23.3(2)F Polyester Concrete Paving Machine

Except under the conditions described in Section 6-23.3(2)F1 of this Special Provision, the polyester concrete overlay shall be placed with a self-propelled slip-form paving machine that places, consolidates, and finishes the polyester concrete overlay in one continuous operation. It shall be modified or specifically built to effectively place the polyester concrete overlay in a manner that meets Contract requirements. In addition, the paving machine shall:

1. Employ a vibrating pan to consolidate and finish the polyester concrete. Paver primary finishing pan size shall measure not less than 2 feet in the dimension parallel to the direction of paver travel. Secondary profile finishing attachments, bolt on sections, and trailing pan extensions shall not be included in this measurement.
2. Shall have the necessary adjustments to produce the required cross section, line, and grade, including the ability to recreate transverse grade breaks within 6 inches left or right of existing transverse grade breaks.
3. Be fitted with hydraulically controlled grade automation devices on both sides of the machine to establish the finished profile and cross-slope. These devices shall either (1) average 15 feet in front and behind the center of automation sensors, or (2) the sensor shall be constructed to work with string-line control. It is acceptable to match grade when placing lanes adjacent to polyester concrete overlay placed on this Contract. String line grade establishment may be required to establish proposed grades if required by plan note or elsewhere in the Contract, in which case grade averaging beams will not be acceptable.
4. Have sufficient engine power and weight to provide adequate vibration of the finishing pan while maintaining consistent forward placement speed.
5. Be capable of both forward and reverse motion under its own power.
6. Demonstrate successful performance with the trial overlay.

Wheel or rubber tire mounted paving machines will not be allowed.

6-23.3(2)F1 Vibratory Screed and Small Surfaces

Roller type screeds will not be accepted.

A vibratory screed riding on preset forms or rails set at a maximum width of 12 feet may be used on structures that have live load paving train restrictions.

Shoulder pours of 6 feet wide or less may be placed without the use of a paving machine.

Finishing of patch areas shall be completed using hand concrete finishing tools. Patches shall be placed flush with the top of the existing deck surface.

6-23.3(2)G Smoothness Grinding Equipment

Equipment for grinding polyester concrete overlay that does not meet the surface smoothness requirements shall use diamond embedded saw blades gang mounted on a self-propelled machine that is specifically designed to smooth and texture concrete pavement or polyester concrete overlays. The equipment shall not damage the underlying surface, cause fracture, or spalling of any joints. The final surface texture shall be uniform in appearance with longitudinal corduroy type texture. The grooves shall be between $\frac{3}{32}$ and $\frac{5}{32}$ inches wide, and no deeper than $\frac{1}{16}$ inch. The land area between the grooves shall be between $\frac{1}{16}$ and $\frac{1}{8}$ inches wide.

6-23.3(2)H Texturing Equipment

Equipment for texturing the polyester concrete overlay shall use diamond tipped saw blades mounted on a power driven, self-propelled machine that is designed to texture concrete surfaces. The grooving equipment shall provide grooves that are $\frac{1}{8}'' \pm \frac{1}{64}''$ wide, $\frac{3}{16}'' \pm \frac{1}{16}''$ deep, and spaced at $\frac{3}{4}'' \pm \frac{1}{8}''$.

In locations where saw cutting cannot be done the Contractor is allowed to use the spring tining method for texturing. The spring tining shall provide the same groove, spacing and depth of the saw cut texture.

The Contractor shall demonstrate that the method and equipment for texturing the bridge deck will not chip, spall or otherwise damage the overlay.

6-23.3(3) Submittals

The Contractor shall submit the following Working Drawings in accordance with Section 1-05.3:

1. A Type 2 Working Drawing of the shot-blasting equipment with associated background information and catalog cuts.
2. A Type 2 Working Drawing of the Debris Containment and Disposal Plan. This plan shall describe the methods and materials used to contain, collect, and dispose of all concrete debris generated by all operations, including but not limited to shotblasting, Type 1 Deck Repair, Type 2 Deck Repair, sandblasting, and cleaning. The Working Drawing shall also address provisions for protecting adjacent traffic from flying debris.
3. A Type 2 Working Drawing of the polyester concrete mix design meeting the requirements of Section 6-23.2(1) of this Special Provision. The mix design shall include a recommended initiator percentage for the expected application temperature.

- 1 4. A Type 1 Working Drawing of the mix design for concrete Class M. This submittal
2 shall be on WSDOT Form 350-040 and shall provide a unique identification for
3 each mix design. A unique identification for the mix design is composed of the
4 combination of the Mix Design Number and the Concrete Plant Number.
5
- 6 5. A Type 2 Working Drawing of samples, as specified below, shall be submitted to
7 the Engineer at least 15 working days prior to placing the polyester overlay:
8
 - 9 a. One gallon minimum of the polyester concrete binder.
 - 10 b. One pint minimum of the primer.
 - 11 c. 100 pounds minimum of polyester concrete aggregate.
- 12
- 13 6. A Type 2 Working Drawing of the paving equipment specifications and details of
14 how the paver will maintain the required longitudinal and transverse grades.
15
- 16 7. A Type 1 Working Drawing of the survey data collected as required in Section 6-
17 23.3(6) of this Special Provision.
18
- 19 8. A Type 1 Working Drawing of the measurements documenting the deck patching
20 areas as required by Section 6-23.3(7)B of this Special Provision.
21
- 22 9. A one-pint sample of each batch of promoted/initiated primer shall be retained
23 and submitted to the Engineer at the time of primer application to verify proper
24 catalyzation.
25
- 26 10. A Type 1 Working Drawing of the readings of the rebound hammer used shall
27 be correlated to the compressive strength of the polyester concrete product in
28 accordance with Section 5.4 of ASTM C805 and the Contractor.
29
- 30 11. A Type 2 Working Drawing of the qualifications of on-site supervisors, volumetric
31 mixer operators, and finishing machine operators, in accordance with Section 6-
32 23.1(2)C of this Special Provision.
33
- 34 12. A Type 2 Working Drawing of the method and materials used to contain primer
35 and polyester concrete within the deck area specified to receive the overlay.
36
- 37 13. A Type 2 Working Drawing of the Contractor's Safety plan addressing worker
38 protective clothing, protective breathing devices, measures to address
39 inadvertent contact with chemicals and other appropriate safety measures.
40
- 41 14. A Type 2 Working Drawing of the equipment to be used for texturing.
42
- 43 15. A Type 2 Working Drawing of the Certified test results as required in Section 6-
44 23.2(1) of this Special Provision.
45
- 46 16. A Type 1 Working Drawing of the Documentation of the System Provider
47 Technical Representative's experience, demonstrating compliance with the
48 experience requirements, including the following:
49
 - 50 a. Years of Experience with the proposed Polyester Concrete Overlay System
51
 - 52

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- b. Project location
- c. Project construction date
- d. Overlay quantities
- e. Reference name and contact information for owner representative

17. A Type 2 Working Drawing of the Documentation of the Polyester Concrete Overlay System and System Provider experience, demonstrating compliance with experience requirements. Submit written installation instructions, safety data sheets, and independent test results for approval. Projects of similar scope shall be evaluated considering placement temperature, traffic return, allowable cure time, placement thickness, average daily traffic, surface texture, environmental conditions, and any other factors unique to the application. System failure examples obtained from other Public Agencies may be considered for evaluation and rejection whether submitted by the Contractor or obtained otherwise. Submit documentation and references of the polyester concrete overlay system experience including the following:

- a. Project location
- b. Contracting Agency
- c. Project construction date
- d. Overlay quantities and component details
- e. Reference name and contact information for owner representative

18. A Type 2 Working Drawing of the Documentation of the experience of the Polyester Concrete Placement Contractor and Workers that will place the polyester concrete overlay system. The documentation of Contractor and employee qualifications shall include the following:

- a. Project location
- b. Contracting Agency
- c. Project construction date
- d. Overlay volume and area quantities
- e. Reference name and contact information for owner representative

19. A Type 2 Working Drawing of the certification and test reports of the polyester concrete mixer and documented history of the use of the placement equipment to successfully install Polyester Polymer Concrete overlays.

20. A Type 2 Working Drawing of the Overlay Placement Plan. The Contractor shall submit an Overlay Placement Plan that includes the following:

- a. Schedule of overlay work and testing for each bridge
- b. Staging plan describing overlay placement sequence including:
 - i. Construction joint locations
 - ii. Sequence of placement
 - iii. Paving widths
 - iv. Anticipated paving lengths
 - v. Paving directions
 - vi. Joint locations
 - vii. Location of proposed trial overlay(s)
- c. Description of equipment used for:
 - i. Surface preparation including grinding and shot blasting
 - ii. Applying primer
 - iii. Measuring, mixing, placing, and finishing the polyester concrete overlay
 - iv. Applying sand for abrasive finish
- d. Method of protecting and finishing inlets and bridge drains
- e. Method for isolating expansion joints
- f. Method for ensuring shotblasting achieves a concrete surface profile of ICRI 310.2R CSP-6 or greater
- g. Method for measuring and maintaining overlay thickness and profile
- h. Cure time for polyester concrete
- i. Storage and handling of primer and polyester concrete components
- j. Procedure for disposal of excess primer, polyester concrete, and containers
- k. Procedure for cleanup of mixing and placement equipment

6-23.3(4) Operations on the Bridge Deck

The following apply to all Contractor operations on the bridge deck, including but not limited to cleaning concrete surfaces, Type 1 and Type 2 Deck Repair, sandblasting, shot-blasting, placing, consolidating, finishing, curing, sawing, and crack sealing the overlay.

1. The Contractor shall not use water on the bridge deck nor allow water from their operations to come into contact with the concrete bridge deck at any time, except for the following:
 - a. Placing and curing Class M concrete. Using water for this application shall be carefully controlled to prevent the water from coming into contact with the bridge deck outside of the patch.
2. The Contractor shall protect adjacent traffic from flying debris in accordance with its Debris Containment and Disposal Plan submitted in accordance with Section 6-23.3(3) of this Special Provision.
3. The Contractor shall collect, contain, and dispose of all concrete debris in accordance with its Debris Containment and Disposal Plan submitted in accordance with Section 6-23.3(3) of this Special Provision.
4. Rainwater and stormwater runoff that comes in contact with the bridge deck shall be considered process wastewater and shall be managed in accordance with Section 8-01.

6-23.3(5) Initial Surface Preparation

Initial surface preparation is for the purpose of exposing the concrete substrate for chain dragging and deck repair.

6-23.3(5)A Prerequisites to Initial Surface Preparation

Initial surface preparation shall not begin until the Contractor has completed all the following:

1. Demonstrated that all Work, for a given bridge, needed to complete items 1, 2, 3, 4, 5, 6, 7, 8, and 9 of Section 6-23.3(1) of this Special Provision can and will be completed in one and only one construction season.
2. Submitted all submittals required in Section 6-23.3(3) of this Special Provision and addressed all the Engineer's comments to the satisfaction of the Engineer.

6-23.3(5)B Shotblasting

For newly constructed bridge decks, the deck concrete shall cure a minimum of 28 days and attain design concrete compressive strength prior to shotblasting.

The areas to receive polyester concrete overlay shall be shotblasted, or sandblasted if the shotblast equipment cannot access areas to be prepared, to produce a concrete surface profile of CSP-6 or greater in accordance with International Concrete Repair Institute (ICRI) 310.2R. All weak or loose surface mortar shall be removed, aggregates within the concrete exposed, and open pores in the concrete exposed, as well as a visible change in the concrete color.

Dust and debris generated during shotblasting shall be picked up and stored in the vacuum unit built into the shotblaster and minimal dust shall be created during the blasting operation.

1 **6-23.3(6) Surveying of Existing Bridge Deck**

2 After shotblasting the concrete surface as specified in these Provisions, the Contractor
3 shall complete a survey of the Existing Bridge Deck Surface(s) specified to receive
4 Polyester concrete overlay for use in establishing the existing cross section and profile
5 grade elevations.
6

7 The Engineer will provide the Contractor with primary survey control information
8 consisting of descriptions of two primary control points used for the horizontal and vertical
9 control. Primary control points will be described by reference to the bridge or project-
10 specific stationing and elevation datum. The Engineer will also provide horizontal
11 coordinates for the beginning and ending points and for each Point of Intersection (PI) on
12 each centerline alignment included in the project. The Contractor shall provide the
13 Engineer 21 calendar days' notice in advance of scheduled concrete surface shotblasting
14 work to allow the Engineer time to provide the primary survey control information.
15

16 The Contractor shall verify the primary survey control information furnished by the
17 Engineer and shall expand the survey control information to include secondary horizontal
18 and vertical control points as needed for the project. The Contractor's survey records shall
19 include descriptions of all survey control points, including coordinates and elevations of
20 all secondary control points.
21

22 The Contractor shall maintain detailed survey records, including a description of the work
23 performed on each shift, the methods utilized to conduct the survey, and the control points
24 used. The record shall be of sufficient detail to allow the survey to be reproduced. A Type
25 1 Working Drawing of each day's survey record shall be provided to the Engineer within
26 3 working days after the end of the shift. The Contractor shall compile the survey
27 information in an electronic file format acceptable to the Engineer (file formats submitted
28 shall be compatible with InRoads and MicroStation).
29

30 Survey information collected shall include station, offset, and elevation for each lane line
31 and curb line. Survey information shall be collected at even 20-foot station intervals and
32 at the centerline of each bridge expansion joint. The Contractor shall ensure a surveying
33 accuracy to within ± 0.01 feet for vertical control and ± 0.2 feet for horizontal control. The
34 survey shall extend 100 feet beyond the bridge back of pavement seat.
35

36 Except for the primary survey control information and final grade profile and cross-
37 section furnished by the Engineer, the Contractor shall be responsible for all calculations,
38 surveying, and measuring required for setting, maintaining, and resetting equipment and
39 materials necessary for the construction of the overlay to the final grade profile and cross-
40 section. The Engineer may post-check the Contractor's surveying, but these post-checks
41 shall not relieve the Contractor of responsibility for internal survey quality control.
42

43 The Engineer will establish the final grade profile and cross-section based on the
44 Contractor's survey and will provide the final grade profile and cross-section to the
45 Contractor within five working days after receiving the Contractor's survey information.
46

47 The Contractor shall not begin shotblasting concrete surface work as specified in these
48 Provisions until receiving the final grade profile from the Engineer.
49

50 **6-23.3(7) Deck Repair**

51 Deck repair Work shall not commence until shotblasting operations are complete.
52

1 **6-23.3(7)A Classification**

2 Deck repair will be classified as Type 1 Deck Repair or Type 2 Deck Repair. The
3 determination of whether an area will be classified as Type 1 or Type 2 will be made
4 after completion of deck repair excavation, repair of steel reinforcing bars, and
5 removal of concrete debris.
6

7 **6-23.3(7)B Chain Drag**

8 After the entire lane or strip to be overlaid has been shotblasted and cleaned as
9 required in Section 6-23.3(5) of this Special Provision, the entire surface shall be
10 inspected by the Contractor, in the presence of the Engineer, in accordance with
11 ASTM D4580, Method B. Based on that inspection, the Contractor shall mark those
12 areas, meeting any of the following criteria, for removal:
13

- 14 1. Unsound concrete in accordance with ASTM D4580, Method B.
- 15 2. Lack of bond between existing concrete and reinforcing steel.
- 16 3. All existing nonconcrete patches.
- 17
- 18
- 19

20 After all deck repair excavation is complete, the Contractor shall measure and submit
21 to the Engineer as a Type 1 Working Drawing the location and size of each area
22 identified above by station, offset, length, width, average depth, and deck repair type,
23 using the form provided by the Engineer.
24

25 **6-23.3(7)C Deck Repair Excavation**

26 The areas marked for removal in Section 6-23.3(7)B of this Special Provision shall
27 be excavated with equipment as described in Section 6-23.3(2)B of this Special
28 Provision. Excavation shall be to the depth necessary to remove all loose and
29 unsound material, without damaging reinforcing steel or sound concrete.
30

31 Care shall be taken in removing the deteriorated material to not damage the existing
32 sound concrete or steel reinforcing bars that are to remain in place. All removal shall
33 be accomplished by making vertical edges at the boundaries of the repair area. In no
34 case shall the depth of a sawn vertical cut exceed $\frac{3}{4}$ inch or to the top of the top steel
35 reinforcing bars, whichever is less.
36

37 Bridge deck areas outside the repair area damaged by the Contractor's operations
38 shall be repaired by the Contractor at no additional expense to the Contracting
39 Agency, and to the satisfaction of the Engineer.
40

41 **6-23.3(7)D Repair of Steel Reinforcing Bars**

42 Where existing steel reinforcing bars inside deck repair areas show natural
43 deterioration greater than 20-percent section loss, the Contractor shall furnish and
44 place steel reinforcing bars alongside the deteriorated bars in accordance with the
45 details shown in the Standard Plans. Payment for such extra Work will be by force
46 account as provided in Section 1-09.6.
47

48 All reinforcing steel damaged due to the Contractor's operations shall be repaired by
49 the Contractor. Damage to rebar shall be understood to include damage to epoxy
50 coating.
51

52 The repair shall be as follows or as directed by the Engineer:

1. Damage to epoxy coating, when present on existing steel reinforcing bars, shall be repaired in accordance with Section 6-02.3(24)H.
2. Damage to bars resulting in a section loss of 20 percent or more of the bar area shall be repaired by chipping out the adjacent concrete and splicing a new bar of the same size. Concrete shall be removed to provide a ¾-inch minimum clearance around the bars. The splice bars shall extend a minimum of 40 bar diameters beyond each end of the damage.
3. All bars partially or completely removed from the deck shall have the damaged portions removed and spliced with new bars as outlined in item 2 above.

For bridge decks not constructed under the same Contract as the polyester concrete overlay, responsibility for costs to repair damage shall be allocated as follows:

1. Repairing damage that occurs during shotblasting to coatings on existing reinforcing steel shall be paid for in accordance with Section 1-09.6.
2. Repairing damage to existing reinforcing steel that is caused by the Contractor's negligence shall be at no additional expense to the Contracting Agency.

6-23.3(7)E Type 1 Deck Repair

An area will be classified as a Type 1 Deck Repair when the completed concrete excavation either (a) exposes no more than one-half the periphery of a bottom bar of the top layer of steel reinforcement, or (b) the length of an exposed bar does not exceed 12-continuous inches along the length of the bar.

The scope of Work for Type 1 Deck Repair includes:

1. Excavating and disposing of the unsound concrete and unsound nonconcrete patches within the repair area.
2. Repair of steel reinforcing bars damaged by the Contractor.
3. Sandblast the surface and exposed rebar.
4. Providing a CSP-6 surface roughness on existing nonconcrete patches that are sound.

6-23.3(7)F Type 2 Deck Repair

An area will be classified as a Type 2 Deck Repair when the completed concrete excavation either exposes more than one-half the periphery of a bottom bar of the top layer of steel reinforcement or the length of an exposed bar exceeds 12-continuous inches along the length of the bar.

The scope of Work for Type 2 Deck Repair includes:

1. Excavating and disposing of the unsound concrete and unsound nonconcrete patches within the repair area, below the shotblasted depth.

2. Repairing steel reinforcing bars damaged by the Contractor.
3. Sandblasting the area and exposed rebar prior to placing deck patching concrete.
4. Saturating and removing freestanding water.
5. All work related to patching and curing the excavated area with Class M concrete in accordance with Section 6-23.2(2) of this Special Provision.

6-23.3(7)G Filling and Curing Deck Repair Areas

Type 1 Deck Repairs shall be filled with polyester concrete as part of placing the polyester concrete overlay. Payment for filling Type 1 deck repairs with Polyester Concrete shall be incidental to bid item "Polyester Concrete Overlay".

Type 2 Deck Repairs shall be patched with concrete class M. The top of these patches shall be finished with a wood float, flush with the top of the shotblasted surface. All Type 2 deck repair patching shall be performed well enough in advance of the polyester concrete overlay to allow all patches to cure as required below.

Before placing Class M concrete in the Type 2 deck repairs, the Contractor shall clean the surfaces to which the concrete will be applied (including rebar) by sandblasting and blowing clean with oil-free air. The Contractor shall make sure the existing concrete is well saturated at the time of placing concrete in the Type 2 deck repairs but shall remove all freestanding water prior to placing the concrete. The Contractor shall place concrete class M in the Type 2 deck repair areas while the existing concrete is wet. It shall be consolidated in accordance with Section 6-02.3(8). Concrete Class M shall be wet-cured a minimum of 42 hours, as follows:

1. The concrete shall be immediately covered with a single layer of clean, new or used, wet burlap. The burlap shall have a maximum width of 6 feet. The Engineer will determine the suitability of the burlap for reuse, based on the cleanliness and absorption ability of the burlap. Care shall be exercised to ensure that the burlap is well drained and laid flat with no wrinkles on the deck surface. Adjacent strips of burlap shall have a minimum overlap of 6 inches.
2. Once in place the burlap shall be lightly fog sprayed with water. A separate layer of white, reflective type polyethylene sheeting shall immediately be placed over the wet burlap.
3. As an alternative to the application of burlap and fog spraying described above, the Contractor may propose a curing system using proprietary curing blankets specifically manufactured for bridge deck curing. The Contractor shall submit a Type 2 Working Drawing consisting of details of the proprietary curing blanket system, including product literature and details of how the system is to be installed and maintained.
4. The burlap shall be kept wet continuously and the wet curing regimen as described shall remain in place for a minimum of 42-hours.

During the curing period of concrete placed in Type 2 deck repairs, all vehicular and foot traffic shall be prohibited in the repair area.

6-23.3(7)H Filling Existing Bridge Deck Wheel Ruts

Existing Bridge Deck Ruts shall be filled with polyester concrete as part of placing the polyester concrete overlay.

6-23.3(8) Polyester Concrete Trial Overlay

Prior to constructing the overlay, the Contractor shall place one or more trial overlays of primer and polyester concrete using the equipment, materials, and procedures proposed for production, as approved by the Engineer in accordance with Section 6-23.3(3). The Contractor shall notify the Engineer of the time and location of the trial overlay at least seven calendar days prior to the scheduled trial overlay.

The trial overlay shall be placed on a previously cast and cured concrete pad at a location selected by the Contractor. The plan area of the concrete pad shall be 12 feet minimum in width and 15 feet minimum in length.

The Contractor shall shotblast, clean the concrete pad surface, mix, place, finish, and cure the polyester concrete overlay. The Contractor need not perform further deck preparation, or place sand for abrasive finish provided that all other conditions of Sections 6-23.3(9), (10), and (12) of this Special Provision are satisfied.

The Contractor shall arrange for soundness testing and three pull-off tests as described in Section 6-23.3(13) to be performed by an independent testing laboratory. The independent testing laboratory shall record the pull-off test results and the amount of (if any) failure into the base concrete and shall provide written documentation of the test results to the Engineer and Contractor.

The Contractor shall not begin placing polyester concrete overlay at the bridge site(s) receiving the polyester concrete overlay until receiving the Engineer's approval of the completed trial overlay.

After receiving the Engineer's approval of the completed trial overlay, the concrete pad and trial overlay shall become the Contractor's property and shall be removed and disposed of in accordance with Section 2-02.3.

If significant successful experience is demonstrated by both the installer, System Provider, and System Provider Technical Representative together, the first shift of polyester concrete overlay installation may be considered as the Trial Application if approved by the Engineer. Rejection of all or part of the trial in this case will be required to be removed and disposed of at no additional cost to the Contracting Agency. If no further overlay is allowed due to full rejection after multiple trials, the site will be restored to initial in-service condition at no additional cost to the Contracting Agency.

The number of trial applications required shall be as many as necessary for the Contractor to demonstrate the ability to construct an acceptable trial overlay section and competency to perform the work. However, the installer, proposed equipment/techniques, or material may be rejected if not shown to be acceptable after two trials.

6-23.3(9) Polyester Concrete Overlay

6-23.3(9)A Pre-Overlay Conference

Five to ten working days prior to polyester concrete overlay placement, a pre-overlay conference shall be held to discuss final deck preparation, equipment, temperature and weather requirements, aggregate and deck dryness requirements, construction procedures, sequencing, and personnel. Inspection procedures shall also be reviewed to ensure coordination. Attendees shall include representatives from all parties involved in the work including inspectors, installer, and System Provider Technical Representative. If necessary, teleconferencing of attendees may be approved by the Engineer.

If the project includes more than one bridge deck, an additional conference shall be held just before placing the polyester concrete overlay for each subsequent bridge deck.

6-23.3(9)B Restrictions on Other Work

To ensure the best possible bond and integrity of the polyester concrete overlay, the Contractor shall ensure that dust, debris, moisture, or any other deleterious materials do not enter a work area from the start of final surface preparation in that work area until completion of curing time for the polyester concrete overlay in that work area. This work area during this timeframe shall be referred to as the protected work area. In addition to other measures, the Contractor shall comply with the following:

1. Perform no work within 100 feet of the protected work area which generates dust or debris (including hand tool chipping, shotblasting, sandblasting, vacuuming, and cleaning).
2. Dust or debris generating work may be allowed beyond this 100 feet boundary provided dust and debris will not drift onto the limits of the protected work area.

If the shotblasting impedes or interferes in any way with the final cleaning or overlay placement within the protected area as determined by the Engineer, the shotblasting Work shall be terminated immediately and the equipment shall be moved away from the protected area to eliminate the conflict.

Traffic other than required construction equipment will not be permitted within the protected work area unless allowed by the Engineer. To prevent contamination, all equipment allowed within the protected work area shall be equipped with drip guards.

6-23.3(9)C Final Surface Preparation

Following the completion of all Type 1 and Type 2 Deck Repairs (including placement and curing of patches in Type 2 Deck Repair areas), the entire lane or strip being overlaid shall undergo final cleaning. Final cleaning shall be accomplished in one shift and consists of the following, in the sequence shown:

1. Remove grease, slurry, oils, paint, dirt, striping, cure compound, rust, membrane, milling slurry, weak surface mortar or any other contaminants that could interfere with the proper adhesion of the overlay system. These materials shall be removed by abrasive blasting.

- 1 2. All steel surfaces that will be in contact with the overlay shall be cleaned in
2 accordance with SSPC-SP No. 10, Near-White Blast Cleaning, except that
3 wet blasting methods shall not be allowed.
4
- 5 3. Remove loose or trapped particles using magnets and vacuuming. Vacuum
6 shall be capable of collecting all remaining dust, concrete chips, and other
7 debris to the extent necessary to ensure the oil-free compressed air in the
8 next step complies with environmental requirements.
9
- 10 4. Oil-free compressed air shall be used as the final step to remove all
11 remaining dust and debris.
12
- 13 5. Cleaned surfaces shall not be exposed to Contractor or public vehicular
14 traffic. If the deck becomes contaminated before placing the overlay, the
15 Contractor shall shotblast or sandblast the contaminated areas to the
16 satisfaction of the Engineer at no additional cost to the Contracting Agency.
17
- 18 6. The Contractor shall provide suitable coverings (e.g. heavy duty drop
19 cloths) as needed to protect all exposed areas not to receive primer and
20 overlay, such as curbs, sidewalks, parapets, etc. All damage or defacement
21 resulting from this application shall be cleaned and/or repaired to the
22 Engineer's satisfaction at no additional cost.
23

24 **6-23.3(9)D Overlay Finishing Equipment Setup**

25 Construction joints between passes shall be within 1 foot of the stripe lines or
26 centered within a lane.
27

28 When grade will be established for a paving machine from a paving wire, or when a
29 vibrating screed is allowed, grade pins and screed rails shall be placed outside the
30 area to be overlaid. Hold-down devices shot into the concrete are not permitted.
31 Hold-down devices of other types leaving holes in the exposed area will be allowed
32 provided the holes are subsequently filled with polyester concrete. Hold-down
33 devices shall not penetrate the existing deck by more than $\frac{3}{4}$ inch.
34

35 **6-23.3(9)E Quality Assurance for Polyester Concrete Overlay**

36 All acceptance testing shall be performed by an independent testing laboratory
37 provided by the Contractor, in the presence of the Engineer's representative. The
38 Engineer reserves the right to self-perform any acceptance tests it deems in its best
39 interests. The Contractor's independent testing laboratory shall perform the following
40 tests:
41

- 42 1. Moisture content of polyester concrete aggregate and sand for abrasive
43 finish.
44
- 45 2. Temperature of deck surface and aggregates before mixing.
46
- 47 3. ASTM C805 Rebound Hammer (Schmidt hammer).
48
- 49 4. Smoothness quality testing.
50
- 51 5. Sounding using ASTM D4580, Method B.
52

1 6. Direct Tension Bond Testing, ASTM C1583.
2

3 The Contractor shall arrange to have the System Provider Technical Representative
4 furnish technical service relating to application of material and health and safety
5 training for personnel who are to handle the polyester concrete and the primer, at the
6 following times:
7

- 8 1. At the pre-paving conference.
9
10 2. During the trial overlay.
11
12 3. During paving machine setup.
13
14 4. During a minimum of the first two days of paving.
15

16 **6-23.3(9)F Moisture and Temperature Requirements**

17 It is critically important for the long-term performance of the polyester concrete
18 system that the concrete substrate and all other surfaces (primer and polyester
19 overlay) be (1) at the proper temperature and (2) moisture-free. Unless otherwise
20 noted below, the time period for these requirements begins with the start of applying
21 primer and ends two hours after placing the polyester overlay and sand for abrasive
22 finish. Therefore, the following requirements for temperature and moisture shall be
23 strictly enforced. Failure to follow these requirements may result in removal and
24 replacement of the polyester concrete system at no additional expense to the
25 Contracting Agency.
26

- 27 1. During the 24-hour period immediately preceding start of primer placement,
28 the area of bridge deck to receive primer shall not be exposed to moisture
29 or water in any form. Additionally, during this 24-hour period, the concrete
30 substrate shall be exposed to the atmosphere to freely allow moisture to
31 evaporate. Covering the concrete substrate during this period with material
32 that will hinder evaporation in any way, such as visqueen, shall not be
33 allowed.
34
35 2. Primer application shall not begin if rain is forecast any time between start
36 of primer application and 2 hours after the planned completion of polyester
37 concrete and sand for abrasive surface.
38
39 3. Primer application shall not begin until after morning dew has evaporated.
40
41 4. Before starting primer, the concrete substrate surface must be free of any
42 surface darkening that would indicate locations of previously standing
43 water. The entire concrete substrate surface must appear to be uniformly
44 light in color and show no further lightening when drying methods such as
45 blowing compressed air are applied. Cracks in the concrete substrate must
46 also be dry.
47
48 5. The concrete surface temperature shall be between 40°F (and rising) and
49 100°F. Night work may be required when temperatures cannot be met
50 during the day.
51

1 **6-23.3(9)G Primer Application**

2 The primer placement shall start not more than 24 hours after the start of
3 sandblasting operations in Final Surface Preparation.
4

5 In the interim between completion of final surface preparation described in Section
6 6-23.3(9)C of this Special Provision and applying the primer, any contaminants that
7 have accumulated which could interfere with the proper adhesion of the overlay
8 system shall be removed to the satisfaction of the Engineer. Immediately prior to
9 applying the primer, the surface receiving the primer shall be blown off with oil free
10 and moisture free compressed air to remove accumulated dust and any other loose
11 material.
12

13 After the exposed surfaces have been prepared and are dry, primer shall be applied
14 in accordance with the System Provider Technical Representative's
15 recommendations. Primer shall be placed within 5 minutes of mixing at approximately
16 90 sf/gal or the rate that provides substrate saturation acceptable to the Engineer.
17

18 Primer shall be applied by flooding and uniformly spread to completely cover
19 surfaces to receive overlay. Care shall be taken to avoid heavy application that
20 results in excess puddling. Excess material shall be removed or distributed to meet
21 the required saturation without excessive puddling. Primer shall be reapplied to any
22 areas that appear dry 15 minutes after primer placement, prior to overlay placement.
23

24 The prepared concrete surface shall receive one coat of promoted/initiated primer.
25 The promoted/initiated primer shall be worked into the concrete in a manner to effect
26 complete coverage of the area. A one-pint sample of each batch of promoted/initiated
27 primer shall be retained and submitted to the Engineer at the time of primer
28 application to verify proper catalyzation.
29

30 Under no circumstances shall resin be allowed to run into drains and expansion
31 joints, or otherwise escape the Contractor's collection and containment system.
32

33 If the primed surface becomes contaminated, the contaminated area shall be cleaned
34 by abrasive blasting and reprimed at no additional expense to the Contracting
35 Agency. The primer shall cure for a minimum of 30 minutes before placing the
36 polyester concrete overlay.
37

38 **6-23.3(9)H Mixing Polyester Concrete**

39 Polyester concrete shall be mixed in volumetric mixers conforming to Section 6-
40 23.3(2)E of this Special Provision and in accordance with the mix design accepted
41 by the Engineer.
42

43 At the time of mixing, the polyester concrete aggregate shall:
44

- 45 1. Have a temperature between 45°F and 100°F.
46
47 2. Have a weighted-average moisture content, when tested under AASHTO
48 Test Method T255, of not more than one half of the weighted-average
49 aggregate absorption.
50

51 The amount of peroxide initiator used shall result in a polyester concrete set time
52 between 30- and 120-minutes during placement as determined by California Test

1 551, Part 2, "Method of Test For Determination of Set Time of Concrete Overlay and
2 Patching Materials", by Gilmore Needles. Accelerators or inhibitors may be required
3 as recommended by the polyester concrete binder supplier.
4

5 The polyester concrete binder shall be initiated and thoroughly blended just prior to
6 mixing the polyester concrete aggregate and binder. The polyester concrete shall be
7 thoroughly mixed prior to placing.
8

9 **6-23.3(9)I Placing Polyester Concrete**

10 The polyester concrete overlay shall be placed, consolidated, and finished to the
11 profile grade and cross-section provided by the Engineer using a paving machine
12 meeting the requirements of Section 6-23.3(2)F of this Special Provision. The
13 Contractor shall perform a dry run with the paving machine before placing Polyester
14 Concrete. Based on the dry run, adjustments to the final grade may be allowed
15 provided minimum thickness requirements are met.
16

17 The minimum thickness of polyester concrete overlay system shall be $\frac{3}{4}$ inches,
18 measured from the top of the Polyester Overlay to the highest point of the shotblasted
19 concrete surface as shown in the Plans.
20

21 Placement of the polyester concrete shall not proceed until the Engineer verifies that
22 the primer was properly promoted and initiated, as evidenced by the primer batch
23 sample.
24

25 During overlay application, the Contractor shall provide suitable coverings (e.g.,
26 heavy duty drop cloths) as needed to protect all exposed areas not to receive overlay,
27 such as curbs, sidewalks, parapets, etc. All damage or defacement resulting from
28 this application shall be cleaned and/or repaired to the Engineer's satisfaction at no
29 additional cost.
30

31 The polyester concrete shall be placed on the primer after 15 minutes and within 2
32 hours after the primer has been applied. The polyester concrete shall be placed prior
33 to gelling or 15 minutes following addition of initiator, whichever occurs first.
34

35 Polyester concrete shall have an initial set time of at least 20 minutes and at most 90
36 minutes following resin catalyzation. The initial set time can be determined in the field
37 when the in-place polyester concrete cannot be deformed by pressing with a finger,
38 indicating that the resin binder is no longer in a liquid state. If the initial set is not
39 within 90 minutes of catalyzation, the material shall be removed and replaced at no
40 additional cost to the Contracting Agency.
41

42 If, for any reason, polyester concrete is not placed over the primer within the two-
43 hour time limit, the Contractor shall apply a fresh coat of primer. Prior to applying the
44 polyester concrete overlay, the surface shall be re-cleaned in accordance with
45 Section 6-23.3(9)G of this Special Provision.
46

47 Expansion joints shall be protected from all polyester concrete overlay operations to
48 the satisfaction the Engineer. Saw cutting at bridge expansion joints shall not be
49 allowed. The surface temperature of the area receiving the polyester concrete shall
50 be the same as specified for the primer.
51

1 **6-23.3(10) Finishing Polyester Concrete**

2 The finished surface of the polyester concrete overlay shall conform to the straight-edge
3 requirements of Section 6-23.3(15) of this Special Provision and the following:
4

- 5 1. The polyester concrete shall be struck off, finished, and consolidated in
6 accordance with the profile grade and cross-section provided by the Engineer
7 with adjustments allowed in Section 6-23.3(9)I of this Special Provision.
8
9 2. Binder content shall be as specified in Section 6-23.2(1)B of this Special
10 Provision and yield a polyester concrete consistency that requires surface
11 applied consolidation and finishing to consolidate the polyester concrete and
12 yield a slight sheen of bleed binder on top surface yet does not yield excess
13 bleed binder.
14
15 3. Although the paver should yield a finished surface, additional finishing may be
16 necessary. Hand finishing of seam area between passes shall produce a
17 consistent surface across the junction of the placements. Polyester concrete
18 shall be finished as necessary through traditional concrete finishing methods,
19 producing a smooth surface, with slight resin sheen indicating complete
20 consolidation of aggregates. Polyester concrete patches shall be finished by
21 traditional concrete hand finishing methods.
22

23 **6-23.3(11) Sand for Abrasive Finish**

24 The polyester concrete overlay shall receive an abrasive finish using sand as specified.
25 The abrasive finish shall be applied immediately after overlay strike-off and before gelling
26 occurs. Where spring tining is allowed, the tining shall be performed after sufficient sand
27 broadcast.
28

29 At the time of application on the polyester concrete, the moisture content of the sand for
30 abrasive finish shall not exceed 0.5 percent.
31

32 At least 2.2 lbs. per square yard shall be applied evenly to refusal by hand broadcasting
33 onto the glossy surface immediately after sufficient finishing and before resin gelling
34 occurs. To ensure adequate pavement friction, the completed polyester concrete overlay
35 surface (including the sand for abrasive finish) shall be free of any smooth or "glassy"
36 areas such as those resulting from insufficient quantities of surface aggregate. Any such
37 surface defects shall be repaired by the Contractor in the manner recommended by the
38 System Provider Technical Representative and approved by the Engineer at no additional
39 cost to the Contracting Agency.
40

41 **6-23.3(12) Curing Polyester Concrete**

42 The polyester concrete overlay shall be cured in accordance with the manufacturer's
43 recommendations. Protect the overlay from moisture, traffic, and equipment for at least 2
44 hours after final finishing. The Engineer may extend protection time if sufficient strength
45 or adhesion is not achieved. The in-place material must achieve test reading from a
46 calibrated Schmidt Hammer of at least 3,000 psi within four hours after final finishing, and
47 before traffic or equipment is allowed on the overlay. Proper cure rate necessary to
48 achieve sufficient initial and final strength depends on proper initiator/accelerator levels
49 to account for field conditions such as ambient and substrate temperatures.
50

51 The Contractor shall measure the compressive strength of the cured polyester concrete
52 overlay with a rebound hammer in accordance with ASTM C805. The readings of the

1 rebound hammer used shall be correlated to the compressive strength of the polyester
2 concrete product in accordance with ASTM C805 Section 5.4 and the Contractor shall
3 submit a Type 1 Working Drawing of this correlation.
4

5 Traffic and equipment shall not be permitted on the polyester concrete overlay for at least
6 four hours and until the polyester overlay has reached a minimum compressive strength
7 of 3,000 psi based on the rebound hammer readings and the correlation chart for the
8 rebound hammer used.
9

10 Areas in the polyester concrete that do not totally cure, or that fail to attain the minimum
11 compressive strength specified above, shall have the deficiencies addressed in
12 accordance with Section 1-05.7.
13

14 The Contractor shall prevent any cleaning chemicals from reaching the polyester mix
15 during the overlay applications.
16

17 **6-23.3(13) Checking Polyester Concrete for Bond**

18 **6-23.3(13)A Sounding**

19 After the requirements for curing have been met, the entire overlay surface shall be
20 inspected by the Contractor's independent testing entity, in the presence of the
21 Engineer, in accordance with ASTM D4580, Method B. Any areas of delamination
22 shall be removed and replaced at no additional expense to the Contracting Agency.
23 Extensive unbonded areas may be grounds for rejection of the entire installation if
24 ordered by the Engineer.
25

26 **6-23.3(13)B Direct Tension Bond Testing**

27 Vertical axis adhesion tests shall be performed not more than 24 hours after the
28 placement of the Polyester concrete overlay by an independent testing company,
29 arranged by the Contractor, in accordance with ASTM C1583, cost to be included in
30 polyester concrete Overlay Placement item. At a minimum, two adhesion tests, at
31 randomly selected locations, shall be performed on the first bridge and Trial Overlay.
32 For bridges with deck areas greater than 25,000 square feet, or multiple bridge
33 projects, additional tests shall be performed at a frequency of one test per 25,000
34 square feet of additional deck area, if required by the Engineer. If substrate and
35 surface preparation remain consistent and sufficient, a single test set may be
36 sufficient and subsequent tests may be waived if allowed by the Engineer. Additional
37 testing may be required as directed by the Engineer if any element of the substrate,
38 surface prep, polyester concrete overlay system, or placement changes after initial
39 testing.
40

41 Test cores shall be drilled a minimum of 0.25" but no greater than 0.50" below the
42 substrate to overlay bond line.
43

44 The minimum bond strength of the polyester concrete overlay system on normal
45 weight concrete shall be 250 psi. An acceptable test will demonstrate that the overlay
46 bond strength is sufficient by producing a concrete subsurface failure area greater
47 than 50% of the test surface area ("type a" per test method). Failure at the
48 epoxy/overlay interface ("type d" per test method) is also acceptable provided the
49 failure occurs at not less than 250 psi. The Contractor shall repair all bond test
50 locations with polyester concrete overlay in accordance with this Special Provision.
51

1 **6-23.3(14) Crack Sealing Polyester Concrete**

2 If cracks appear in the overlay after a significant cure period, they shall be filled with
3 properly catalyzed and mixed HMWM primer material. Care shall be taken to fill the cracks
4 only, and ensure minimal primer is left on the finished surface of the overlay.
5

6 If cracking is extensive, yet no other defects exist, the area shall be shot blast cleaned
7 and flood coated with properly catalyzed and mixed crack sealer followed by broadcasting
8 sand meeting the requirements for sand for abrasive finish.
9

10 **6-23.3(15) Surface Smoothness**

11 After crack sealing is complete, the Contractor shall test the entire deck/slab for flatness
12 (allowing for crown, camber, and vertical curvature). The testing shall be done with a 10-
13 foot straightedge held on the surface. The straightedge shall be advanced in successive
14 positions parallel to the centerline, moving not more than one half the length of the
15 straightedge each time it advances. This procedure shall be repeated with the
16 straightedge held perpendicular to the centerline. An acceptable surface shall be both (1)
17 free from deviations of more than $\frac{1}{8}$ -inch under the 10-foot straightedge, and (2) free from
18 cyclical/repetitive vertical deviations greater than $\frac{1}{16}$ ".
19

20 If smoothness testing identifies areas that deviate from the smoothness requirements, the
21 Contractor shall grind these down with a diamond grinder meeting the requirements of
22 Section 6-23.3(2)G of this Special Provision. Prior to diamond grinding, areas showing
23 low spots of more than $\frac{1}{4}$ inch in 10 feet shall be marked and prepared with shot blasting
24 or sandblasting, primed, and filled with either catalyzed resin and broadcast sand or mixed
25 polyester concrete slurry material if ordered by the Engineer. The use of resin or mixed
26 slurry material shall be as recommended by the System Provider Technical
27 Representative and approved by the Engineer. Grinding removal of the fill area boundary
28 may be required if directed by the Engineer. Retesting and refinishing shall continue until
29 a surface conforming to the requirements specified above is produced. The grinding depth
30 of high areas after initial finishing shall not exceed $\frac{1}{4}$ inch.
31

32 **6-23.3(16) Texturing Polyester Concrete**

33 After the Contractor has completed all work required to meet the requirements for surface
34 smoothness, the polyester concrete overlay surface shall receive a longitudinally sawn
35 texture using equipment as described in Section 6-23.3(2)H of this Special Provision. The
36 Contractor shall texture the bridge deck surface to within 3-inches minimum and 12-
37 inches maximum of the edge of concrete at expansion joints, within 1-foot minimum and
38 2-feet maximum of the curb line, and within 3-inches minimum and 9-inches maximum of
39 the perimeter of bridge drain assemblies.
40

41 The Contractor shall contain and collect all concrete dust and debris generated by the
42 bridge deck texturing process and shall dispose of the collected concrete dust and debris
43 in accordance with its Debris Containment and Disposal Plan.
44

45 After texturing polyester concrete surface, the Engineer shall test the surface texture of
46 polyester concrete for uniformity and it shall have a skid number (SN) of not less than 35
47 as determined by ASTM E 274.
48

49 **6-23.3(17) Replacement of Defective Overlay**

50 A defective overlay, or portion thereof, as evidenced by insufficient strength, lack of sound
51 bond to substrate, or failing overlay adhesion test results shall be removed and replaced
52 at the Contractor's expense. The Contractor shall submit a written corrective action plan

1 to the Engineer, which shall include the methods and procedures that will be used. The
2 Contractor shall not commence corrective work until the methods and procedures have
3 been approved in writing by the Engineer. The Engineer's approval shall not relieve the
4 Contractor of the responsibility of producing work in conformity with the Contract.
5

6 **6-23.3(18) Opening to Traffic**

7 Prior to opening the overlay area to vehicular traffic, the finished overlay shall be power
8 swept to remove excess loose aggregate and loose sand for abrasive finish. The
9 Contractor shall demonstrate to the satisfaction of the Engineer that the power broom
10 equipment will not damage the finished overlay. Damage to the finished overlay caused
11 by the power broom shall be repaired at no additional expense to the Contracting Agency.
12

13 **6-23.4 Measurement**

14 Shotblasting concrete surface will be measured by the square yard of surface shotblasted.
15

16 Type 1 Deck Repair and Type 2 Deck Repair will be measured by the square foot of surface
17 area of deck concrete removed in accordance with Section 6-23.3(7) of this Special Provision.
18 Determination of whether a deck repair is Type 1 or Type 2 shall be in accordance with Section
19 6-23.3(7) of this Special Provision.
20

21 Polyester concrete overlay will be measured by the square yard of overlay surface actually
22 placed.
23

24 **6-23.5 Payment**

25 Payment will be made for each of the following Bid Items that are included in the Bid Proposal:
26

27 "Surveying for Polyester Concrete Overlay", lump sum.

28 The lump sum contract price for "Surveying for Polyester Concrete Overlay" shall be full
29 pay to perform the Work as specified, including establishing secondary survey control
30 points, performing survey quality control, and recording, compiling, and submitting the
31 survey records to the Engineer, and all other surveying required to complete the polyester
32 concrete overlay.
33

34 "Type 1 Deck Repair", per square foot.

35 The unit contract price per square foot for Type 1 Deck Repair shall be full pay for
36 performing the Work as specified, including excavating and disposing concrete and
37 nonconcrete materials, and repair of concrete or rebar damaged by the Contractor's
38 operations.
39

40 "Type 2 Deck Repair", per square foot.

41 The unit contract price per square foot for Type 2 Deck Repair shall be full pay for
42 performing the Work as specified, including: excavating and disposing concrete;
43 sandblasting; placing, consolidating, finishing, and curing concrete patches in Type 2
44 deck repairs; repair of concrete or rebar damaged by the Contractor's operations.
45

46 "Polyester Concrete Trial Overlay", lump sum.

47 The lump sum contract price for "Polyester Concrete Trial Overlay" shall be full pay for
48 performing the Work as specified, including establishing a location for the trial overlay,
49 construction, removal, and disposal of the concrete pad and trial overlay.
50

51 "Polyester Concrete Overlay", per square yard.

1 The unit contract price per square yard for “Polyester Concrete Overlay” shall be full pay
2 for performing the Work as specified, including dry run, initial surface preparation, final
3 surface preparation, placing primer, placing, finishing, and curing the overlay, placing
4 sand for abrasive finish, sounding, direct tension bond testing, meeting surface
5 smoothness requirements, texturing, crack sealing, and replacement of defective overlay.
6 Polyester concrete overlay placed in excess of the thickness specified in the Plans due
7 to surface irregularities in the bridge deck such as rutting or excess concrete surface
8 shotblasting shall be considered incidental to the unit Contract price per square yard for
9 “Polyester Concrete Overlay”.

10
11 Payment for the following shall be considered incidental to and included in the unit contract
12 items included in the Contract:

- 13
- 14 1. All Work and related costs for implementing the debris containment and disposal
15 plan.
 - 16
 - 17 2. All Work and related costs for protecting adjacent traffic from flying debris.
 - 18
 - 19 3. All Work and related costs for managing and disposing of process wastewater.
 - 20
 - 21 4. Submittals.
 - 22

23 DIVISION7.GR7

24 **Division 7**
25 **Drainage Structures, Storm Sewers, Sanitary**
26 **Sewers, Water Mains, and Conduits**

27
28 7-01.GR7
29 **Drains**

30
31 7-01.SA1.GR7
32 **(September 2, 2025)**
33 **MEDIA FILTER DRAINS**

34 **Description**

35 This Work shall consist of constructing media filter drains as detailed in the Plans.

36

37 **Materials**

38 Materials shall meet the requirements of the following sections:

39

40	Aggregate for Bituminous Surface Treatment	9-03.4
41	Crushed Surfacing Base Course	9-03.9(3)
42	Gravel Backfill for Drains	9-03.12(4)
43	Underdrain Pipe	9-05.2
44	Seed	9-14.3
45	Fertilizer	9-14.4
46	Mulch and Amendments	9-14.5
47	Agricultural Grade Dolomite Lime	9-14.5(5)
48	Agricultural Grade Gypsum	9-14.5(6)
49	Compost	9-14.5(8)
50	Horticultural Grade Perlite	9-14.5(9)

Compost Socks 9-14.6(6)
 Geotextile for Underground Drainage (Moderate Survivability, 9-33
 Drainage Class C, non-woven)

Media Filter Drain Mix

Media filter drain mix shall be mixed in the following proportions: 3 cubic yards of aggregate, 1 cubic yard of horticultural grade perlite, 40 pounds of agricultural grade dolomite lime, and 12 pounds of agricultural grade gypsum. The perlite, dolomite lime, and gypsum shall not contain toxic material. Media filter drain mix shall be premixed prior to placement. The soil amendments and aggregate shall meet the following requirements prior to mixing.

Aggregate for Media Filter Drain Mix

Aggregate for media filter drain mix shall meet the requirements of Section 9-03.4(2), $\frac{3}{8}$ -inch to No.4., with the exception of:

- The use of recycled material is not permitted.
- The fracture requirement shall be at least two fractured faces and will apply to material retained on the No. 4 sieve in accordance with FOP for AASHTO T 335.

Acceptance of the aggregate shall be in accordance with Section 4-04.5, Table 2 for "Other" materials based on one sample every 1000 tons. Testing of aggregate shall occur prior to mixing with the soil amendments. Horticultural grade perlite, agricultural grade dolomite lime and gypsum will be accepted by catalog cut or bag label.

Construction Requirements

General Requirements

The Contractor shall construct the media filter drain in accordance with the details in the Plans. Media filter drain type work elements are shown in Table 1.

Media Filter Drain Table 1

Elements of Media Filter Drain Construction	Media Filter Drain Type						
	1	2	3	4	5	6	7
Media Filter Drain Mix	X	X	X	X	X	X	X
Scarification	X	X	X	X	X	X	X
Underdrain Pipe	X	X		X		X	
Gravel Backfill for Drains	X	X		X		X	
Geotextile for Underground Drainage	X	X		X		X	
Excavation	X	X	X	X	X	X	X
CSBC			X		X		X
Compost Blanket	X	X	X	X	X	X	X
Compost Sock						X	X
Flow Spreader				X	X	X	X
Gravel Backfill for Pipe Zone Bedding				X	X		
Non-Vegetation Zone	X	X	X	X	X		

The Contractor shall sequence construction of the media filter drain to ensure different sections of the media filter drain are not contaminated or displaced by other materials

1 during installation. Once constructed, the Contractor will not be allowed to drive
2 equipment over areas of the media filter drain.
3
4 Before excavating media filter drains, the Contractor shall clear and grub the area in
5 accordance with Section 3-01.
6
7 **Preparation**
8 Prior to placement of the compost blanket, the Contractor shall scarify the area for the
9 grass strip to a depth of 2 to 3 inches as shown in the Plans. The application and scarifying
10 methods shall be approved by the Engineer. The Contractor shall notify the Engineer a
11 minimum of five working days prior to the start of compost work.
12
13 **Excavation**
14 Media filter drain excavation shall conform to Section 3-07.3(4).
15
16 **Installation**
17 Medium compost shall be uniformly and evenly placed as shown in the Plans.
18
19 Underdrain shall be constructed in accordance with Section 7-01.3.
20
21 Compost blanket shall be constructed in accordance with Section 8-01.3(4).
22
23 Compost sock shall be constructed in accordance with Section 8-01.3(12).
24
25 The media filter drain area shall be seeded in accordance with 8-02.3(9) after the compost
26 blanket has been installed.
27
28 After excavation, the non-vegetation zone shall backfill as detailed in the plans. The use
29 of recycled material is not permitted.
30
31 **Measurement**
32 Media filter drain will be measured per square yard along the ground surface of the completed
33 installation.
34
35 **Payment**
36 "Media Filter Drain Type _____", per square yard.
37 The unit Contract price per square yard for "Media Filter Drain Type _____" shall be full pay to
38 furnish all labor, equipment, and materials to complete the Work as specified.
39
40 Clearing and grubbing shall be paid for in accordance with Section 3-01.5.
41
42 Seeding, Fertilizing, and Mulching will be paid for in accordance with Section 8-02.5.
43
44 DIVISION 8.GR8
45
46 **Division 8**
47 **Miscellaneous Construction**
48
49 8-01.GR8
50 **Erosion Control and Water Pollution Control**

1 8-01.3.GR8
2 **Construction Requirements**
3
4 8-01.3(1).GR8
5 **General**
6
7 8-01.3(1).INST1.GR8
8 The tenth paragraph of Section 8-01.3(1) is revised to read:
9
10 8-01.3(1).OPT1.GR8
11 **(January 25, 2010)**
12 **Erodible Soil Eastern Washington**
13 Erodible soil not being worked whether at final grade or not, shall be covered within
14 the following time period using an approved soil cover practice:
15
16 July 1 through September 30 30 days
17 October 1 through June 30 15 days
18
19 8-01.3(1).INST2.GR8
20 Section 8-01.3(1) is supplemented with the following:
21
22 8-01.3(1).OPT8.FR8
23 **(April 1, 2002)**
24 **Side Slope Treatment**
25 Slopes shall be compacted within *** \$\$1\$\$ *** days of exposure of a new section of
26 cut and construction of a new portion of an embankment.
27
28 8-01.3(1)B.GR8
29 **Erosion and Sediment Control (ESC) Lead**
30
31 8-01.3(1)B.INST1.GR8
32 Item number 3 and 4 in the second paragraph of Section 8-01.3(1)B are revised to
33 read:
34
35 8-01.3(1)B.OPT1.GR8
36 (October 3, 2022)
37 3. Submit to the Engineer no later than the end of the next working day
38 following the inspection a TESC Inspection Report that includes:
39
40 a. When, where, and how BMPs were installed, maintained, modified,
41 and removed.
42
43 b. Observations of BMP effectiveness and proper placement.
44
45 c. Recommendations for improving future BMP performance with
46 upgraded or replacement BMPs when inspections reveal TESC BMP
47 deficiencies.
48
49 d. Identify for each discharge point location whether there is compliance
50 with state water quality standards in WAC 173-201A for turbidity and
51 pH.
52

1	8-01.3(1)C.GR8		
2	Water Management		
3			
4	8-01.3(1)C4.GR8		
5	Management of Off-Site Water		
6			
7	8-01.3(1)C4.INST1.GR8		
8	Section 8-01.3(1)C4 is supplemented with the following:		
9			
10	8-01.3(1)C4.OPT1.FR8		
11	(August 6, 2012)		
12	Off-site Stormwater		
13	Stormwater is known to enter the project site at the following locations:		
14			
15	*** \$1\$ \$		
16			
17	8-01.3(2).GR8		
18	Temporary Seeding and Mulching		
19			
20	8-01.3(2)B.GR8		
21	Temporary Seeding		
22			
23	8-01.3(2)B.INST1.GR8		
24	Section 8-01.3(2)B is supplemented with the following:		
25			
26	8-01.3(2)B.OPT1.FR8		
27	(August 4, 2014)		
28	Seed of the following mix, rate, and analysis shall be applied at the rates shown		
29	below on all areas requiring ***\$1\$ \$ seeding within the project:		
30			
31	Seed by Common Name	Pounds Pure Live Seed	
32	and <u>(Botanical name)</u>	<u>(PLS) Per Acre</u>	
33			
34	*** \$2\$ \$	\$ \$	
35			
36	\$ \$	\$ \$	
37			
38	\$ \$	<u>\$ \$</u>	
39			
40	Total	\$ \$ ***	
41			
42	The seed shall be certified in accordance with WAC 16-302 and meet the		
43	following requirements:		
44			
45	Prohibited Weed	0% max.	
46	Noxious Weed	0% max.	
47	Other Weed	0.20% max.	
48	Other Crop	0.40% max.	
49			
50			
51	8-01.3(2)B.OPT2.FR8		
52	(August 4, 2014)		

1 Seed of the following mix, rate, and analysis shall be applied at the rates shown
2 below on all areas requiring ***\$\$1\$\$*** seeding within the project:

3	Seed by Common Name, 4 (Botanical Name), and 5 <u>"Source Identification"</u>	Pounds Pure Live Seed 6 (PLS) Per Acre
7		
8	*** \$\$2\$\$	\$\$
9		
10	\$\$	\$\$
11		
12	\$\$	<u>\$\$</u>
13		
14	Total	\$\$ ***

15
16 Source Identified seed shall be generation four or less. Non-Source Identified
17 seed shall meet or exceed Washington State Department of Agriculture Certified
18 Seed Standards and be from within the appropriate genetic zones of the ***
19 \$\$3\$\$ *** Ecoregion(s) as defined by the US Environmental Protection Agency
20 (EPA).
21

22 The seed certification class shall be Certified (blue tag) in accordance with WAC
23 16-302 and meet the following requirements:
24

25	Prohibited Weed	0% max.
26	Noxious Weed	0% max.
27	Other Weed	0.20% max.
28	Other Crop	0.40% max.
29		

30 The Contractor shall document all Source Identified seed by providing the
31 Association of Official Seed Certifying Agents (AOSCA) yellow seed label for
32 each species in the mix. Site Identification Logs can be supplied for collections
33 where the AOSCA yellow label is not available.
34

35 8-01.3(2)B.OPT3.GR8

36 (September 3, 2019)

37 Grass seed shall be a commercially prepared mix, made up of low growing
38 species which will grow without irrigation at the project location, and approved
39 by the Engineer. The application rate shall be two pounds per 1000 square feet.
40 Fertilizer shall be a commercially prepared mix of 10-20-20 and shall be applied
41 at the rate of 10 pounds per 1000 square feet.
42

43 8-01.3(2)B.OPT4.FR8

44 (January 3, 2006)

45 Sufficient quantities of fertilizer shall be applied to supply the following amounts
46 of nutrients:
47

48 Total Nitrogen as N - *** \$\$1\$\$ *** pounds per acre.

49 Available Phosphoric Acid as P₂O₅ - *** \$\$2\$\$ *** pounds per acre.

50 Soluble Potash as K₂O - *** \$\$3\$\$ *** pounds per acre.
51
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*** \$4\$ pounds of nitrogen applied per acre shall be derived from isobutylidene diurea (IBDU), cyclo-di-urea (CDU), or a time release, polyurethane coated source with a minimum release time of 6 months. The remainder may be derived from any source.

The fertilizer formulation and application rate shall be approved by the Engineer before use.

8-01.3(2)B.OPT8.FR8
(August 4, 2014)
Seed of the following mix, rate, and analysis shall be applied at the rates shown below on all areas requiring *** \$1\$ *** seeding within the project:

Seed by Common Name, (Botanical Name), and "Source Identification"	Pure Live Seed Pounds (PLS) Per Acre
*** \$2\$	\$
\$	\$
\$	\$
Total	\$ ***

Seed shall meet or exceed Washington State Department of Agriculture Certified Seed Standards and be from within the *** \$3\$ *** Ecoregion(s) as defined by the US Environmental Protection Agency (EPA).

The seed certification class shall be Certified (blue tag) in accordance with WAC 16-302 and meet the following requirements:

Prohibited Weed	0% max.
Noxious Weed	0% max.
Other Weed	0.20% max.
Other Crop	0.40% max.

8-01.3(2)D.GR8
Temporary Mulching

8-01.3(2)D.INST1.GR8
Section 8-01.3(2)D is supplemented with the following:

8-01.3(2)D.OPT1.FR8
(January 5, 2015)
*** \$1\$ *** shall be applied at a rate of *** \$2\$ *** pounds per acre with no more than *** \$3\$ *** pounds per acre applied in a single lift.

8-02.GR8
Roadside Restoration

1 8-02.1.GR8
2 **Description**
3
4 8-02.1.INST1.GR8
5 Section 8-02.1 is supplemented with the following:
6
7 8-02.1.OPT1.GR8
8 (August 4, 2014)
9 This work shall consist of removing and disposing of buried previously fabricated debris
10 that may be encountered during soil amendment incorporation or excavation for irrigation
11 systems.
12
13 8-02.1.OPT2.GR8
14 (April 1, 2019)
15 This Work consists of supplying and applying a Biotic Soil Amendment (BSA) in
16 accordance with these Specifications and as shown in the Plans or as designated by the
17 Engineer.
18
19 8-02.2.GR8
20 **Materials**
21
22 8-02.2.INST1.GR8
23 Section 8-02.2 is supplemented with the following:
24
25 8-02.2.OPT1.GR8
26 **(January 3, 2011)**
27 **Conservation Grade Plant Material**
28 Conservation grade plant material is defined as healthy plants that do not meet aesthetic
29 standards as defined in ASNS. The plants have healthy, well-developed roots and in all
30 other ways meet standards for healthy and vigorous growth. However, these plants may
31 have multiple leaders, damaged or missing leaders, Y crotches, bent branches, or other
32 unusual shapes or forms. These plants may be used where shown in the plans.
33
34 8-02.2.OPT2.GR8
35 (April 1, 2019)
36 Biotic Soil Amendments (BSAs), also known as biotic soil media and hydraulic growth
37 medium, shall be soil amendments engineered to improve the development of deficient
38 soils and to facilitate sustainable vegetation. BSAs shall consist of a blend of organic
39 material, nutrient sources, soil building and biostimulant components. BSAs shall
40 increase the water and nutrient holding capacity of the soil and promote the growth of
41 beneficial microorganisms. BSAs shall provide for enhanced seed germination and
42 vegetative establishment.
43
44 Biotic Soil Amendment shall be certified to be free of weed seeds and pathogens, free of
45 plastic, composed of non-toxic materials, and be a pre-mixed formulation unaltered by
46 synthetic materials.
47
48 The biotic soil amendment shall have a minimum of 90% organic matter (organic growth
49 medium) and contain other materials designed to improve seed germination, vegetation
50 establishment and overall soil health. In addition to organic growth medium BSA shall
51 include mycorrhizal fungi and a minimum of three of the following ingredients:
52

- Biochar
- Humus/Humic Acid
- Porous Ceramics or Water-holding Organic Polymers
- Seaweed Extract
- Beneficial Bacteria
- Micronutrients

The Contractor shall provide test results dated within 3 years prior to the date of application from an independent, accredited laboratory that has been recognized by an accrediting organization to test and evaluate products to product safety standards. The independent, accredited lab shall be free from commercial, financial, and other pressures that may influence the results of the testing and evaluation process. Test results shall show that the product meets the following table requirements:

Table 1: Biotic Soil Amendment Requirements		
BSA Properties	Test Methods	Requirements
Physical		
Organic Matter	ASTM D586	90% minimum
pH	ASTM D1293	5.0 - 8.5
C:N Ratio	ASTM E1508	10:1 minimum 50:1 maximum
Water-Holding Capacity ¹	ASTM D7367	400% minimum
Moisture Content	ASTM 2974	10% minimum, 50% maximum
Environmental		
Acute Toxicity	EPA Method 2021.0	Non-toxic
EPA Metal Limits	SW846-6020 04.06	Pass
Performance		
Growth Enhancement	ASTM D7322	500% minimum
¹ Water holding capacity of the pre-packaged material without the addition of ancillary amendments.		

Submittal Requirements

At the time of delivery, the Contractor shall submit the specific biotic soil amendment packing list to the Engineer for acceptance. The packing list shall include complete identification including, but not limited to, the following information:

- Manufacturer name and location,
- Manufacturer telephone number and fax number,
- Manufacturer's e-mail address and web address, and
- BSA name.
- Certification that the specific BSA meets the physical, environmental and performance criteria of this specification and test results.

Acceptance

Acceptance of the materials shall be based on:

1. Certificate of Compliance demonstrating adherence to the Specifications,
2. Visual inspection ensuring the material is free of plastic.

8-02.2(9-14).GR8

Erosion Control and Roadside Planting

1 8-02.2(9-14).INST1.GR8
2 Section 9-14 is supplemented with the following:
3
4 8-02.2(9-14).OPT1.FR8
5 **(January 3, 2011)**
6 **Weed Barrier Mats**
7 Weed Barrier Mats shall be 3 feet square. They shall be made of UV stabilized
8 geotextile colored with carbon black and shall provide a minimum of 3 years of weed
9 control. Weed Barrier Mats shall be 2.5 mils thick with a minimum of 400 micropores
10 per square inch. Staples shall be a minimum of 11 gauge wire and be *** \$\$1\$\$ ***
11 inches in length.
12
13 Acceptance will be based on a catalog cut.
14
15 8-02.2(9-14.2).GR8
16 **Topsoil**
17
18 8-02.2(9-14.2(1)).GR8
19 **Topsoil Type A**
20 Section 9-14.2(1) is supplemented with the following:
21
22 8-02.2(9-14.2(1)).OPT1.FR8
23 (February 25, 2021)
24 Topsoil Type A shall meet the following requirements:
25
26 1. Cation exchange capacity (CEC) of Topsoil Type A shall be a
27 minimum of 5 milliequivalents CEC/100 g dry soil (U.S. EPA
28 Method 9081).
29
30 2. Organic content greater than 8-percent but less than 15-percent
31 as measured on a dry weight basis using AASHTO T 267
32 Determination of Organic Content in Soils by Loss on Ignition.
33
34 Topsoil Type A shall be 60-percent to 70-percent *** \$\$1\$\$ *** Loam and
35 40-percent to 30-percent *** \$\$2\$\$ *** Compost by volume. *** \$\$3\$\$ ***
36 Loam shall be as defined by the US Department of Agriculture Soil
37 Classification System.
38
39 The Contractor shall submit a Particle Size Analysis as a Type 1 Working
40 Drawing from an independent accredited soils testing laboratory indicating
41 the Material source and compliance with all Topsoil Type A specifications.
42 The laboratory analysis shall be with a sample size of no less than 2 pounds.
43
44 The *** \$\$4\$\$ *** Compost shall conform to the requirements of Section 9-
45 14.5(8).
46
47 8-02.2(9-14.5).GR8
48 **Mulch and Amendments**
49
50 8-02.2(9-14.5(8)).GR8
51 **Compost**
52 Section 9-14.5(8) is supplemented with the following:

8-02.2(9-14.5(8)).OPT2.GR8

(September 3, 2019)

The compost product may contain biosolids as a feedstock. Biosolids compost production and quality shall comply with WAC 173-308.

The Compost Submittal Requirements shall include a copy of the Coverage Under the General Permit for Biosolids Management issued to the manufacturer by the Department of Ecology in accordance with WAC 173-308 (Biosolids Management).

8-02.3.INST1.GR8

Section 8-02.3 is supplemented with the following:

8-02.3.OPT1.GR8

(April 1, 2019)

Storage and Handling

Biotic soil amendments in accordance with the above requirements shall be furnished by the manufacturer in pre-packaged, standard unopened containers with weight, name of plant nutrients and manufacturer's guaranteed statement of analysis clearly marked in accordance with State and Federal laws. Field mixing of BSA components will not be permitted. Containers shall be kept safe in storage protected from weather, excessive temperatures, and construction operations. Products shall be handled in compliance with any instructions or recommendations stated by the manufacturer. Any spills shall be promptly cleaned.

Installation of Biotic Soil Amendment

The Contractor shall comply with the equipment manufacturer's installation instructions and recommendations. Biotic soil amendment shall be hydraulically applied at the rate of 4000 pounds per acre with no more than 2500 pounds applied in any single lift. Lifts shall be applied from opposing directions to soil surface for uniform coverage. If recommended by the BSA manufacturer, seed, tackifier and/or fertilizer shall be added to the slurry as recommended by manufacturer or BSA shall be applied within 48 hours of the seeding operation. A continuous and uniform cover shall be provided to the depth specified by the manufacturer. Thin areas or areas of bare soil will not be allowed, and supplemental biotic soil amendment applied by the Contractor shall be at no additional cost to the Contracting Agency.

8-02.3(3).GR8

Weed and Pest Control

8-02.3(3)A.GR8

Chemical Pesticides

8-02.3(3)A.INST1.GR8

Section 8-02.3(3)A is supplemented with the following:

8-02.3(3)A.OPT1.GR8

(September 2, 2025)

Within 200 feet of any stream, mechanical methods of weed control shall be used as primary tools for weed removal. If mechanical methods are not successful, herbicide may be applied with approval by the Engineer. In order to

- 1 prevent herbicides from entering aquatic areas, the following BMPs shall be
2 used:
3
- 4 • The herbicide shall be used in accordance with label requirements
5 and State/Federal laws. Special attention shall be paid to label
6 information pertaining to site conditions including topography and
7 hydrology.
8
 - 9 • The weed and pest control plan shall provide details regarding target
10 weeds, herbicide types, mixtures, and spray timing prior to work
11 based on State/Federal laws and proximity to aquatic resources.
12
 - 13 • Aquatic-approved herbicide is required for use in dry areas between
14 the OHWM and the water's edge of aquatic areas. No spray activity
15 shall occur at or below the water's edge as herbicides must not reach
16 the water. This includes the potential for overspray and wind drift. If
17 aquatic and non-aquatic approved herbicides are proposed for use
18 below and above the OHWM, respectively, of any aquatic area, the
19 OHWM shall be flagged prior to any application.
20
 - 21 • Over-water herbicide application shall be done according to the
22 WSDOT Aquatic Noxious Weed Control general permit. Aquatic-
23 approved herbicide application is allowed with touch glove, wicking,
24 and cut/daub methods for vegetated areas above the water surface
25 elevation. Application of herbicides is not allowed below the water
26 surface elevation at any time.
27
 - 28 • Use of herbicide products identified as toxic to fish and other aquatic
29 species such as Roundup®, and the surfactant LI-700, are not
30 allowed within the OHWM of any stream.
31
 - 32 • If spraying is required, low volume "spot sprays" shall be used, as
33 broad-spectrum spraying is only used selectively. Application shall be
34 focused toward the bank with the applicator standing in between the
35 aquatic area and the weeds to prevent direct contact with aquatic
36 areas.
37
 - 38 • Applicator shall use a physical barrier(s) and/or setback(s) of mixing
39 areas and application areas, in order to prevent drift, runoff, or
40 overspray, where possible.
41
 - 42 • Applicators shall use equipment with cone shields to isolate spray
43 and prevent drift.
44
 - 45 • Application below the OHWM of any aquatic area shall be done in the
46 growing season during dry periods prior to fall rainfall and before the
47 end of the HPA approved in-water work window. Herbicides shall not
48 be applied onto the water surface or fall below the water's edge.
49
 - 50 • No applications shall occur within 6 hours of expected rainfall, or if
51 the forecast predicts wind speeds above 10 mph (or as directed by
52 the herbicide label if maximum wind speed is more restrictive).

1
2 The Contractor shall submit a request in the Weed and Pest Control Plan to be
3 added as a Limited Agent to the WSDOT Aquatic Noxious Weed Control Permit
4 for herbicide application in areas below OHWM. The Contractor shall include the
5 license number of the applicator with an aquatic herbicide endorsement that will
6 be responsible for carrying out or directly overseeing weed control.
7
8 8-02.3(4).GR8
9 **Topsoil**
10
11 8-02.3(4)A.GR8
12 **Topsoil Type A**
13
14 8-02.3(4)A.INST1.GR8
15 Section 8-02.3(4)A is supplemented with the following:
16
17 8-02.3(4)A.OPT1.FR8
18 (August 3, 2015)
19 Topsoil Type A shall be placed to a non-compacted depth of *** \$1\$ \$ inches.
20 The topsoil shall be thoroughly blended prior to placement.
21
22 The Contractor shall submit a Type 1 Working Drawing consisting of
23 independent test results from an accredited laboratory demonstrating the Topsoil
24 Type A meets the requirements of Section 9-14.1(1). The Type 1 Working
25 Drawing shall also include the Request for Approval of Material in accordance
26 with Section 1-06.1(2).
27
28 8-02.3(5).GR8
29 **Roadside Seeding, Lawn and Planting Area Preparation**
30
31 8-02.3(5).INST1.GR8
32 Section 8-02.3(5) is supplemented with the following:
33
34 8-02.3(5).OPT1.FR8
35 (August 5, 2013)
36 After the initial planting area weed control, soil placement, grading, and the
37 installation of irrigation lines are completed, and prior to planting, all designated
38 planting areas shall be covered with compost.
39
40 Prior to placement of compost, the application methods shall be approved by the
41 Engineer.
42
43 Compost shall not be placed when a condition exists, such as frozen or water
44 saturated soil that may be detrimental to successful application or soil structure.
45
46 The Contractor shall notify the Engineer a minimum of five working days prior to the
47 start of compost work.
48
49 Compost shall be uniformly and evenly placed in all designated areas at a depth of
50 *** \$1\$ \$ inches.
51

1 8-02.3(5).OPT2.FR8
2 (August 5, 2013)
3 After the initial planting area weed control, soil placement, and grading are
4 completed, and prior to the installation of irrigation lines and planting, all designated
5 planting areas shall be covered with compost.
6
7 Prior to placement and incorporation of compost, the application and incorporation
8 methods shall be approved by the Engineer.
9
10 Compost shall not be placed when a condition exists, such as frozen soil or water
11 saturated soil that may be detrimental to successful application, incorporation, or soil
12 structure.
13
14 The Contractor shall notify the Engineer a minimum of five working days prior to the
15 start of compost work.
16
17 Compost shall be uniformly and evenly placed in all designated areas at a depth of
18 *** \$\$1\$\$ *** inches.
19
20 After placement of the compost, the Contractor shall incorporate the layer uniformly
21 into the existing soil to a depth of *** \$\$2\$\$ *** inches.
22
23 8-02.3(5).OPT3.FR8
24 (August 5, 2013)
25 After initial area weed control, grading, and soil placement are completed, all soil
26 shall be covered with compost.
27
28 Prior to the placement and incorporation of compost, the application and
29 incorporation methods shall be approved by the Engineer.
30
31 Compost shall not be placed when a condition exists, such as frozen or water
32 saturated soil that may be detrimental to successful application, incorporation, or soil
33 structure.
34
35 The Contractor shall notify the Engineer a minimum of five working days prior to the
36 start of compost work.
37
38 Compost shall be uniformly and evenly placed in all designated areas at a depth of
39 *** \$\$1\$\$ *** inches.
40
41 After placement of the compost, the Contractor shall incorporate the layer uniformly
42 into the existing soil to a depth of *** \$\$2\$\$ *** inches.
43
44 8-02.3(5).OPT4.GR8
45 **(August 4, 2014)**
46 **Removal of Buried Previously Fabricated Debris**
47 The Contractor shall remove buried previously fabricated debris as directed by the
48 Engineer to a maximum depth of two feet. The excavated debris shall be removed
49 from the project site to a disposal facility approved by the Engineer.
50

1 8-02.3(6).GR8
2 **Mulch and Amendments**
3
4 8-02.3(6)B.GR8
5 **Fertilizers**
6
7 8-02.3(6)B.INST1.GR8
8 Section 8-02.3(6)B is supplemented with the following:
9
10 8-02.3(6)B.OPT1.FR8
11 (September 3, 2019)
12 Sufficient quantities of fertilizer shall be applied to supply the following amounts
13 of nutrients:
14
15 Total Nitrogen as N - *** \$\$1\$\$ *** pounds per acre.
16
17 Available Phosphoric Acid as P₂O₅ - *** \$\$2\$\$ *** pounds per acre.
18
19 Soluble Potash as K₂O - *** \$\$3\$\$ *** pounds per acre.
20
21 *** \$\$4\$\$ *** pounds of nitrogen applied per acre shall be derived from
22 isobutylidene diurea (IBDU), cyclo-di-urea (CDU), or a time release,
23 polyurethane coated source with a minimum release time of 6 months. The
24 remainder may be derived from any source.
25
26 The fertilizer formulation and application rate shall be approved by the Engineer
27 before use.
28
29 8-02.3(6)B.OPT2.FR8
30 **(September 3, 2019)**
31 **First Application of Fertilizer**
32 Sufficient quantities of fertilizer shall be applied to supply the following amounts
33 of nutrients:
34
35 Total Nitrogen as N - *** \$\$1\$\$ *** pounds per acre.
36
37 Available Phosphoric Acid as P₂O₅ - *** \$\$2\$\$ *** pounds per acre.
38
39 Soluble Potash as K₂O - *** \$\$3\$\$ *** pounds per acre.
40
41 The fertilizer formulation and application rate shall be approved by the Engineer
42 before use.
43
44 **Second Application of Fertilizer**
45 A second application of fertilizer shall be applied during the period of March 1 to
46 April 15 or November 15 to December 15. In no instance shall the second
47 application of fertilizer occur less than 90 days after the first fertilizer application.
48
49 Sufficient quantities of fertilizer shall be applied to supply the following amounts
50 of nutrients:
51

1 Total Nitrogen as N - *** \$\$4\$\$ *** pounds per acre.
2
3 Available Phosphoric Acid as P₂O₅ - *** \$\$5\$\$ *** pounds per acre.
4
5 Soluble Potash as K₂O - *** \$\$6\$\$ *** pounds per acre.
6
7 *** \$\$7\$\$ *** pounds of nitrogen applied per acre shall be derived from
8 isobutylidene diurea (IBDU), cyclo-di-urea (CDU), or a time release,
9 polyurethane coated source with a minimum release time of 6 months. The
10 remainder may be derived from any source.
11
12 The fertilizer formulation and application rate shall be approved by the Engineer
13 before use.
14
15 8-02.3(6)B.OPT3.GR8
16 (September 3, 2019)
17 Fertilizer shall be a commercially prepared mix of 10-20-20 and shall be applied
18 at the rate of 10 pounds per 1000 square feet.
19
20 8-02.3(6)B.OPT4.FR8
21 (September 3, 2019)
22 Sufficient quantities of fertilizer shall be applied to supply the following amounts
23 of nutrients:
24
25 Total Nitrogen as N – *** \$\$1\$\$ *** pounds per acre.
26
27 Sulfur – *** \$\$2\$ \$ *** pounds per acre.
28
29 *** \$\$3\$\$ *** pounds of nitrogen applied per acre shall be derived from
30 isobutylidene diurea (IBDU), cyclo-di-urea (CDU), or a time release,
31 polyurethane coated source with a minimum release time of 6 months. The
32 remainder may be derived from any source.
33
34 The fertilizer formulation and application rate shall be approved by the Engineer
35 before use.
36
37 8-02.3(8).GR8
38 **Planting**
39
40 8-02.3(8).INST1.GR8
41 Section 8-02.3(8) is supplemented with the following:
42
43 8-02.3(8).OPT1.FR8
44 (February 25, 2013)
45 When work requiring disturbance within planting area(s) *** \$\$1\$\$ *** is complete,
46 the Contractor shall perform planting work within the next available planting window.
47
48 8-02.3(9).GR8
49 **Seeding, Fertilizing, and Mulching**
50

1	8-02.3(9)B.GR8		
2	Seeding and Fertilizing		
3			
4	8-02.3(9)B.INST1.GR8		
5	Section 8-02.3(9)B is supplemented with the following:		
6			
7	8-02.3(9)B.OPT1.FR8		
8	(September 3, 2019)		
9	Seed of the following mix, rate, and analysis shall be applied at the rates shown		
10	below on all areas requiring ***\$1\$*** seeding within the project:		
11			
12	Seed by Common Name,		Pounds Pure Live Seed
13	(Botanical Name), and		(PLS) Per Acre
14	<u>"Source Identification"</u>		<u>(PLS) Per Acre</u>
15			
16	*** \$2\$		\$
17			
18	\$		\$
19			
20	\$		\$
21			
22	Total		\$ ***
23			
24	Source Identified seed shall be generation four or less. Non-Source Identified		
25	seed shall meet or exceed Washington State Department of Agriculture Certified		
26	Seed Standards and be from within the appropriate genetic zones of the ***		
27	\$\$\$ *** Ecoregion(s) as defined by the US Environmental Protection Agency		
28	(EPA).		
29			
30	The seed certification class shall be Certified (blue tag) in accordance with WAC		
31	16-302 and meet the following requirements:		
32			
33	Prohibited Weed	0% max.	
34	Noxious Weed	0% max.	
35	Other Weed	0.20% max.	
36	Other Crop	0.40% max.	
37			
38	The Contractor shall document all Source Identified seed by providing the		
39	Association of Official Seed Certifying Agents (AOSCA) yellow seed label for		
40	each species in the mix. Site Identification Logs can be supplied for collections		
41	where the AOSCA yellow label is not available.		
42			
43	8-02.3(9)B.OPT2.GR8		
44	(September 3, 2019)		
45	Grass seed shall be a commercially prepared mix, made up of low growing		
46	species which will grow without irrigation at the project location, and accepted		
47	by the Engineer. The application rate shall be two pounds per 1000 square feet.		
48			
49	8-02.3(9)B.OPT3.FR8		
50	(September 3, 2019)		
51	Seed of the following mix, rate, and analysis shall be applied at the rates shown		
52	below on all areas requiring *** \$1\$ *** seeding within the project:		

1		
2	Seed by Common Name,	
3	(Botanical Name), and	
4	<u>"Source Identification"</u>	<u>Pure Live Seed</u>
5		<u>Pounds (PLS) Per Acre</u>
6	*** \$\$2\$\$	\$\$
7		
8	\$\$	\$\$
9		
10	\$\$	<u>\$\$</u>
11		
12	Total	\$\$ ***
13		
14	Seed shall meet or exceed Washington State Department of Agriculture Certified	
15	Seed Standards and be from within the *** \$\$3\$\$ *** Ecoregion(s) as defined by	
16	the US Environmental Protection Agency (EPA).	
17		
18	The seed certification class shall be Certified (blue tag) in accordance with WAC	
19	16-302 and meet the following requirements:	
20		
21	Prohibited Weed	0% max.
22	Noxious Weed	0% max.
23	Other Weed	0.20% max.
24	Other Crop	0.40% max.
25		
26	8-02.3(11).GR8	
27	Mulch	
28		
29	8-02.3(11).INST1.GR8	
30	Section 8-02.3(11) is supplemented with the following:	
31		
32	8-02.3(11).OPT1.FR8	
33	(April 2, 2012)	
34	Bark mulch or wood chip mulch shall be placed to a uniform non-compacted depth	
35	of *** \$\$1\$\$ *** over all planting areas.	
36		
37	Bark or wood chip mulch shall not be placed in areas of standing or flowing water.	
38		
39	8-02.3(11)A.GR8	
40	Mulch for Seeding Areas	
41		
42	8-02.3(11)A.INST1.GR8	
43	Section 8-02.3(11)A is supplemented with the following:	
44		
45	8-02.3(11)A.OPT1.FR8	
46	(September 3, 2019)	
47	*** \$\$1\$\$ *** shall be applied at a rate of *** \$\$2\$\$ *** pounds per acre with no	
48	more than *** \$\$3\$\$ *** pounds per acre applied in a single lift.	
49		
50	8-02.4.GR8	
51	Measurement	
52		

1 8-02.4.INST1.GR8
2 Section 8-02.4 is supplemented with the following:
3
4 8-02.4.OPT2.GR8
5 (April 1, 2019)
6 Biotic Soil Amendment will be measured by the acre along the grade and slope of the
7 area covered immediately after application.
8
9 8-02.5.GR8
10 **Payment**
11
12 8-02.5.INST1.GR8
13 Section 8-02.5 is supplemented with the following:
14
15 8-02.5.OPT2.GR8
16 (September 7, 2021)
17 "Removal of Buried Previously Fabricated Debris" will be paid for by force account as
18 specified in Section 1-09.6. The payment for removal of buried man-made debris shall
19 be full compensation for all costs for the specified Work to include removing, loading,
20 hauling, and all associated disposal costs.
21
22 For the purpose of providing a common proposal for all bidders, the Contracting Agency
23 has entered an amount in the proposal to become a part of the Contractor's total Bid.
24
25 8-02.5.OPT4.FR8
26 (April 1, 2019)
27 "Biotic Soil Amendment", per acre.
28
29 The unit Contract price per acre for "Biotic Soil Amendment" shall be full pay to perform
30 the Work as specified. When seed is mixed into, and applied with the biotic soil
31 amendment, payment for seed will be made under the Bid item *** \$1\$ \$ ***.
32
33 8-03.GR8
34 **Irrigation Systems**
35
36 8-03.3.GR8
37 **Construction Requirements**
38
39 8-03.3(6).GR8
40 **Excavation**
41
42 8-03.3(6)A.GR8
43 **Trenches**
44
45 8-03.3(6)A2.GR8
46 **Within Critical Root Zone**
47
48 8-03.3(6)A2.INST1.GR8
49 Section 8-03.3(6)A2 is supplemented with the following:
50
51 8-03.3(6)A2.OPT1.FR8
52 (October 3, 2022)

1	Mechanical trenching within the Critical Root Zone of existing trees is
2	allowed at the following locations:
3	
4	*** \$\$\$
5	
6	The Contractor shall exercise care when excavating pipe trenches near
7	existing trees to minimize damage to tree roots.
8	
9	Utilize International Society of Arboriculture (ISA) Best Practices for all
10	trenching activities to minimize soil compaction and damage to root
11	systems. All shattered root ends shall be clean-cut using appropriate sharp
12	pruning tools. Where roots are 1½ inches or greater in diameter are
13	encountered, the trench shall be hand excavated and tunneled under the
14	roots. Exposed roots 1½ or greater in diameter shall be wrapped with heavy,
15	moist material, such as burlap or canvas, for protection and to prevent
16	excessive drying. The wrapping material must be kept moist until the trench
17	is backfilled. All wrapping material and fastenings used to cover the roots
18	shall be removed before backfilling.
19	
20	8-10.GR8
21	Guide Posts
22	
23	8-10.1.GR8
24	Description
25	
26	8-10.1.INST1.GR8
27	Section 8-10.1 is supplemented with the following:
28	
29	8-10.1.OPT1.GR8
30	(November 20, 2023)
31	This Work shall consist of furnishing and installing linear delineation panels in accordance
32	with these Specifications, at the locations indicated in the Plans or where designated by
33	the Engineer.
34	
35	8-10.2.GR8
36	Materials
37	
38	8-10.2.INST1.GR8
39	Section 8-10.2 is supplemented with the following:
40	
41	8-10.2.OPT1.GR8
42	(November 20, 2023)
43	Linear delineation panels shall consist of one of the following products:
44	
45	1. 3M Linear Delineation System – Series 340 – 6” high for barrier.
46	
47	2. 3M Linear Delineation System – Series 340, 1-1/2” high for guardrail.
48	
49	3. Luciol Systems Bidirectional Linear Delineation M.S. for barrier or guardrail.
50	
51	Only one system shall be selected and installed for the project.
52	

1 Adhesives and mechanical fasteners for linear delineation shall meet the requirements of
2 the manufacturer.
3
4 Reflective sheeting shall be in accordance with Section 9-28.12.
5
6 8-10.3.GR8
7 **Construction Requirements**
8
9 8-10.3.INST1.GR8
10 Section 8-10.3 is supplemented with the following:
11
12 8-10.3.OPT1.GR8
13 *(November 20, 2023)*
14 **General**
15 Installation of linear delineation panels shall follow manufacturer recommendations but
16 shall not be installed on top of concrete barriers or guardrail.
17
18 Spacing of linear delineation panels shall be as specified in the plans. Delineator color
19 shall be white on the right of traffic and yellow on the left of traffic.
20
21 Attachment methods for linear delineation panels shall not rely solely on adhesives and
22 shall utilize the manufacturer recommended method for mechanical fasteners.
23
24 **Concrete Barrier**
25 Linear delineation panels shall be installed 6" from the top of concrete barrier unless
26 otherwise shown on the Plans.
27
28 **Guardrail**
29 Linear delineation panels installed on beam guardrail shall be installed in the rail trough.
30 For installation on thrie beam guardrail the top trough shall be used.
31
32 Linear delineation panels shall be installed at least 1 inch away from the outer edge of
33 post rail attachment slots of beam guardrail. Linear delineation panels shall not be
34 installed in, over, or through the rail slots located where the rail is attached to the guardrail
35 posts and blocks.
36
37 8-10.4.GR8
38 **Measurement**
39
40 8-10.4.INST1.GR8
41 Section 8-10.4 is supplemented with the following:
42
43 8-10.4.OPT1.GR8
44 *(November 20, 2023)*
45 Linear delineation panels will be measured by each panel furnished and installed.
46
47 8-10.5.GR8
48 **Payment**
49
50 8-10.5.INST1.GR8
51 Section 8-10.5 is supplemented with the following:
52

- 1 8-10.5.OPT1.GR8
2 (November 20, 2023)
3 "Linear Delineation Panel for Concrete Barrier", per each.
4 "Linear Delineation Panel for Guardrail", per each.
5
6 8-11.GR8
7 **Guardrail**
8
9 8-11.1.GR8
10 **Description**
11
12 8-11.1.INST1.GR8
13 Section 8-11.1 is supplemented with the following:
14
15 8-11.1.OPT1.GR8
16 **(February 3, 2020)**
17 **High-Tension Cable Barrier System (4 Cable)**
18 This work consists of supplying and constructing high-tension cable barrier systems
19 (cable, posts, compensating devices, fittings, and hardware), terminals, and transitions in
20 conformity with the lines and grades as staked.
21
22 8-11.1.OPT2.GR8
23 (April 1, 2019)
24 This Work shall consist of applying an aesthetic treatment, either a powder coating or
25 reactive coloring agent, to galvanized beam guardrail, galvanized guardrail posts,
26 terminal ends and associated hardware that provides a "non-reflective" and "earth" tone
27 colored finish (dark brown) that visually blends with the natural environment.
28
29 8-11.1.OPT3.GR8
30 **(November 4, 2024)**
31 **Short Radius Guardrail System (SRGS)**
32 This work consists of supplying and constructing the Short Radius Guardrail System
33 (SRGS) in accordance with the Plans, Specifications, and Standard Plans in conformity
34 with the lines and grades as staked.
35
36 8-11.1.OPT4.GR8
37 **(March 20, 2025)**
38 **Removing High-Tension Cable Barrier**
39 This work consists of removing all or part of existing cable barrier systems (cable, posts,
40 sockets, compensating devices, fittings, and hardware), terminals, and transitions to the
41 limits shown in the Plans.
42
43 8-11.1.OPT5.GR8
44 **(March 20, 2025)**
45 **Restoring High-Tension Cable Barrier**
46 This Work consists of restoring temporarily decommissioned cable barrier systems
47 (cable, posts, sockets, compensating devices, fittings, and hardware), terminals, and
48 transitions to a fully operational condition.
49

1 8-11.2.GR8
2 **Materials**
3
4 8-11.2.INST1.GR8
5 Section 8-11.2 is supplemented with the following:
6
7 8-11.2.OPT1.FR8
8 (March 20, 2025)
9 The new terminal(s) and any associated components necessary for restoring a
10 temporarily decommissioned cable barrier system shall be:
11
12 *** \$\$1\$\$ ***
13
14 8-11.2.OPT2.FR8
15 **(November 20, 2023)**
16 **High-Tension Cable Barrier System (4 Cable)**
17 The Contractor shall furnish a high-tension 4-cable barrier system, terminals, and
18 transitions that meet the requirements of the current version of AASHTO Manual for
19 Assessing Safety Hardware (MASH-16) Test Level 3 or 4. Cable barrier tension and
20 breaking strength of all cable barrier fittings and hardware shall be as specified by the
21 manufacturer.
22
23 The maximum allowable lateral deflection distance for the high-tension cable barrier
24 system(s) on the project is:
25
26 *** \$\$1\$\$ *** feet
27
28 The Contractor shall submit a Type 2 Working Drawing consisting of fabrication drawings
29 and installation procedures. The Working Drawings shall specify all components used in
30 the entire barrier system, document the barrier system deflection distances, and specify
31 the required post spacing necessary to meet the maximum allowable deflection distances.
32
33 The barrier system will be accepted based on a Manufacturer's Certificate of Compliance
34 provided by the Contractor. The Manufacturer's Certificate of Compliance shall consist of
35 a Contract specific letter from the manufacturer stating the system is MASH-16 Test Level
36 3 or 4 compliant, a copy of the original FHWA eligibility letter(s) for the barrier system,
37 documentation from the manufacturer describing any and all modifications that have been
38 made to the system since the letter(s) were issued, and a statement from the
39 manufacturer certifying that those modifications do not affect the performance of the
40 original system.
41
42 8-11.2.OPT4.GR8
43 **(April 1, 2019)**
44 **Powder Coating**
45 Powder coating materials for coating galvanized surfaces shall be in accordance with
46 Section 9-08.2. The color shall match SAE AMS Standard 595, color number 30045.
47
48 **Reactive Coloring Agent**
49 The reactive coloring agent shall consist of a stable, "non-reflective" "earth" tone (dark
50 brown) colored finish on the surface of the galvanized materials. The reactive coloring
51 agent shall only utilize oxidizers, metals, metal salts, and/or other trace elements applied
52 directly to the galvanized surfaces to obtain the desired color. The chemical components

1 of the reactive coloring agent shall have no adverse reactions or effects on soils, plants,
2 or animals and shall not contain corrosive by-products once the product has been applied.
3 Only nitrate fertilizer products are permitted to be present as soluble residues.
4

5 The reactive coloring agent shall be provided by either the following manufacturer or an
6 accepted equal:
7

8 NATINA manufactured by Natina Products, LLC
9 1577 First Street
10 Coachella, CA 92236
11 Telephone: (877) 762-8462
12 www.natinaproducts.com
13

14 8-11.2(9-16.3).GR8

15 **Beam Guardrail**

16
17 8-11.2(9-16.3(1)).GR8

18 **Rail Element**

19 Section 9-16.3(1) is supplemented with the following:
20

21 8-11.2(9-16.3(1)).OPT1.GR8

22 **(November 4, 2024)**

23 **SRGS Rail**

24 All rail elements of the SRGS shall be formed from 10-gauge steel.
25

26 **SRGS Guardrail Rail Cable**

27 The top and bottom guardrail rail cables shall be AASHTO M 30 Type 1, 0.75-
28 inch diameter, 3 by 7 steel wire rope with Class A galvanizing coating. The
29 guardrail rail cables shall have a minimum breaking strength of 25,000 pounds
30 in conformance with AASHTO M 30. Two certified copies of mill test reports of
31 the guardrail rail cable used shall be furnished to the Engineer.
32

33 The rail cable end fittings shall be forged steel conforming to the requirements
34 of AASHTO M 269. Cast steel components shall conform to the requirements of
35 AASHTO M 103 (ASTM A 27) Class 1. The cable end fittings shall be hot-dip
36 galvanized in accordance with AASHTO M 232.
37

38 Cable end fittings attached to the rail cables shall develop 100 percent of the
39 specified 25,000 pounds breaking strength of the rail cables. One cable end
40 fitting attached to 3 feet of cable shall be furnished to the Engineer for testing.
41

42 **Short Anchor Bracket Assembly**

43 The Short Anchor Bracket Assembly (anchor plate and end plate) shall be
44 fabricated of steel conforming to the Specifications of ASTM A36. The Short
45 Anchor Bracket Assembly shall be hot-dip galvanized in conformance with
46 AASHTO M 111 (ASTM A 123).
47

48 8-11.2(9-16.3(2)).GR8

49 **Posts and Blocks**

50
51 8-11.2(9-16.3(2)).INST1.GR8

52 Section 9-16.3(2) is supplemented with the following:

1
2 8-11.2(9-16.3(2)).OPT1.GB8
3 (April 6, 2015)
4 Shear plates and backing plates shall conform to ASTM A 36, and shall be
5 galvanized after fabrication in accordance with AASHTO M 111.
6
7 8-11.2(9-16.3(2)).OPT2.GB8
8 (April 6, 2015)
9 Grout for post bases shall conform to Section 9-20.3(2).
10
11 8-11.2(9-16.3(2)).OPT3.GB8
12 (April 6, 2015)
13 Steel angles connecting the timber blockout to the existing steel truss members
14 shall conform to either ASTM A 36 or ASTM A 992, and shall be galvanized in
15 accordance with AASHTO M 111.
16
17 8-11.2(9-16.3(2)).OPT4.GB8
18 (April 6, 2015)
19 HSS steel tubing shall conform to ASTM A 500 Grade B, and shall be galvanized
20 after fabrication in accordance with AASHTO M 111.
21
22 Steel bars, plates, and shapes shall conform to ASTM A 36, and shall be
23 galvanized after fabrication in accordance with AASHTO M 111, except that
24 structural shapes may conform to ASTM A 992.
25
26 Galvanized sheet metal shall conform to ASTM A 653, Coating Designation G
27 235.
28
29 Paving bulkheads, timber blocking, and custom cut shims shall be Douglas Fir-
30 Larch No. 2 or better, and shall be treated as specified in this Section.
31
32 Rubberized asphalt shall conform to ASTM D 6690 (Type 1 for bridge locations
33 in Western Washington, and Type 2 for bridge locations in Eastern Washington).
34
35 8-11.2(9-16.3(4)).GB8
36 **Hardware**
37 Section 9-16.3(4) is supplemented with the following:
38
39 8-11.2(9-16.3(4)).OPT1.GB8
40 (November 20, 2023)
41 Resin bonded anchors shall conform to Section 6-02.3(18)A and Section 9-06.4.
42
43 8-11.2(9-16.3(4)).OPT2.GB8
44 (April 6, 2015)
45 Lag screws shall conform to Section 9-06.22.
46
47 8-11.2(9-16.3(4)).OPT3.GR8
48 **(November 4, 2024)**
49 **SRGS Eyebolts**
50 Carbon steel eyebolts shall be Type 1, forged steel, with $\frac{5}{8}$ inch diameter by 8
51 inches long shank in conformance with ASTM A 489. The eyebolts shall be hot-
52 dip galvanized in conformance with ASTM F 2329/2329M.

8-11.3.GR8

Construction Requirements

8-11.3.INST1.GR8

Section 8-11.3 is supplemented with the following:

8-11.3.OPT1.FR8

(October 3, 2022)

Installing Steel Posts on Existing Box Culverts

Field Measurements

The Contractor shall obtain field measurements both vertically and horizontally at each location steel posts are to be installed on the existing box culvert. The Contractor shall calculate the steel post lengths for fabrication using the field measurement information obtained.

Submittals

The Contractor shall remove surfacing materials from the top of the box culvert and shall determine the length of the posts. Prior to post and rail fabrication the Contractor shall submit Type 2 Working Drawings in accordance with Section 1-05.3. The Working Drawings shall include plan and elevation views of each post location on the culvert. The plan view drawing shall show the station and offset of each post on the culvert. The elevation view drawing shall show the top of culvert elevation at each post location, the top of surfacing elevation at each post location, the top of rail elevation, the top of post elevation, and the length of post at each post location.

Excavation

The Contractor shall excavate an area extensive enough to allow the top of the culvert to be cleaned of all dirt, oil, and debris, installation of the baseplate, backfilled, and properly compacted around the posts.

Post Installation

See the Contract plans for the method of steel post attachment to the box culvert (embedded or bolt through). Steel posts shall be installed in accordance with Standard Plan C-20.41 or Standard Plan C-20.43.

The Contractor shall exercise care in locating and drilling the holes to avoid damage to existing steel reinforcing bars and concrete. To avoid damaging the existing steel reinforcing bars, the location of the holes may be shifted slightly with the acceptance of the Engineer. All damage caused by the Contractor's operations shall be repaired by the Contractor in accordance with Section 1-07.13.

Backfilling

After the posts are installed on the box culverts, the excavated areas shall be backfilled and compacted in 6-inch maximum lifts. Compaction shall be accomplished with three passes with a mechanical tamper. When culvert posts are installed through HMA, repair the roadway with materials matching the existing surfacing depths. Use Commercial HMA in accordance with Section 5-04.

Additional Box Culvert Guardrail Steel Post Assemblies

For each culvert with embedded or bolt through guardrail steel posts, furnish and deliver one complete set of Box Culvert Guardrail Steel Post Assemblies. Box Culvert

Guardrail Steel Post Assemblies shall be delivered to the Contracting Agency locations as listed below:

Location (SR & MP)	Location/Contact Phone Number
*** \$1\$ ***	*** \$2\$ ***
*** \$3\$ ***	*** \$4\$ ***

A complete set of assemblies will include the following:

When using Embedded Anchor Box Culvert Guardrail Steel Posts (Standard Plan C-20.41):

1. Steel Post and Base Plate Assembly – One replacement post and base plate for each post installed on culvert
2. Embedded Anchor Bolt Assemblies including four threaded rods, bolts, and resin adhesive for each post installed on culvert

When using Bolt-Thru Anchor Box Culvert Guardrail Steel Posts (Standard Plan C-20.43):

1. Steel Post and Base Plate Assembly – One replacement post and base plate for each post installed on culvert
2. Bottom Plate – One plate for each post installed on culvert
3. Hex Head Bolts, Nuts, & Washers – 4 bolts, 4 nuts, and 8 washers for each post installed on culvert

Provide 48-hours' notice to both the Engineer and the contact(s) listed above prior to delivery. Damaged items will not be accepted and shall be replaced at no cost to the Contracting Agency.

8-11.3.OPT2.FR8

(September 2, 2025)

High-Tension Cable Barrier System (4 Cable)

A manufacturer's representative, or an installer who has been certified by the system's manufacturer within the last 5 years for the specific system(s) being installed, shall supervise the assembly and installation of the system at all times. The Contractor shall provide a copy of the installer's certification to the Engineer prior to installation.

Assemble and install the high-tension cable barrier system according to the manufacturer's recommendations. This shall include connecting cable barrier to guardrail, guardrail transitions, and/or guardrail terminals when identified in the Plans. Submit any Contractor proposed modification in barrier location, type, terminal or transition to the Engineer for approval a minimum of 10-days prior to any work in the affected section.

High-tension cable barrier line posts shall be one of the following types:

- 1 1. A socket type assembly with the line post being inserted into a sleeve encased
2 in a cast-in-place or precast post foundation as specified by the manufacturer.
3
- 4 2. A socket type assembly with the line post being inserted into a direct driven
5 socket assembly as specified by the manufacturer.
6

7 On every 6th line post, install yellow retro-reflective markers in accordance with the
8 manufacturer's system and Section 9-28.12. The retro-reflective markers shall be applied
9 to a clean and dry line post.
10

11 Unless otherwise stated in the Plans, all high-tension cable barrier terminal anchor posts
12 shall be a socket type assembly with the cable barrier post being inserted into a sleeve
13 encased in a cast-in-place or precast reinforced concrete post foundation and installed
14 as specified by the manufacturer. Delineate the terminal anchor posts for approach traffic
15 with yellow Type IV lateral clearance markers (object markers) in accordance with Section
16 9-28.12. The object markers shall be applied to a clean and dry terminal post.
17

18 ***Terminal Placement***

19 Unless otherwise stated in the Plans, the foundations for the high-tension cable barrier
20 terminals shall be cast in place or precast concrete and shall be installed in accordance
21 with manufacturer's recommendations. If a precast concrete foundation is installed, the
22 bottom of the unit shall have a full and even bearing on the surface under it. If there is a
23 need for backfilling an excavation, use Controlled Density Fill (CDF) in accordance with
24 Section 3-07.3(1) E.
25

26 ***Additional High-Tension Cable Barrier Components***

27 Furnish and deliver one complete set of High-Tension Cable Barrier to each of the
28 Contracting Agency sites listed below:
29

30 *** \$\$1\$\$ ***
31

32 Include the following components with each complete set:
33

34 One-hundred line posts and all associated hardware including but not limited to
35 spacers, connectors, straps, caps and covers. If the system has a special post to
36 accommodate turnbuckles, then 5 of the line posts shall be these special posts.
37

38 Twenty sockets except when concrete sockets are used.
39

40 One 50-foot long section of cable used for the contract.
41

42 Four cable splices and 4 turnbuckle assemblies (1-assembly consists of a left- and
43 right-hand threaded end with a turnbuckle).
44

45 One tension measuring device as recommended by the manufacturer.
46

47 One anchor post designed for use with the foundations installed.
48

49 Ten line terminal posts and all associated hardware.
50

1 Provide 48-hour notice to both the Engineer and the maintenance contact listed above
2 prior to delivery. Damaged items will not be accepted and shall be replaced at no cost to
3 the Contracting Agency.
4

5 8-11.3.OPT3.FR8

6 **(November 4, 2024)**

7 **Short Radius Guardrail System (SRGS)**

8 The radius of the SRGS system(s) are:
9

10 *** \$\$1\$\$ ***
11

12 Install the SRGS as shown in the Plans.
13

14 Posts shall be installed in accordance with Section 8-11.3(1)A, except posts shall not be
15 omitted within the limits of the SRGS.
16

17 The radius rails shall be shop bent in accordance with Section 9-16.3(1) and installed in
18 accordance with Section 8-11.3(1).
19

20 8-11.3.OPT4.GR8

21 (April 1, 2019)

22 Aesthetic treatments to the galvanized W-beam guardrail, galvanized guardrail posts,
23 galvanized guardrail terminals, and associated galvanized hardware shall be performed
24 using either a powder coating or reactive coloring agent. The Contractor shall apply
25 powder coating or reactive coloring agent to all galvanized steel rail, posts, other
26 galvanized steel parts, and impact head components of the beam guardrail as specified
27 in the Plans. Confirm that the manufacturer of proprietary guardrail terminals allows the
28 use of powder coatings or reactive coloring agents prior to applying them.
29

30 Only the top 30 inches on any guardrail post length to be exposed above ground shall
31 receive aesthetic treatment.
32

33 The color of the finish coat shall be a dark brown. The Contractor shall furnish a one-foot
34 minimum length test section of galvanized W-beam guardrail treated with the proposed
35 aesthetic treatment product to the Engineer for acceptance. The test section shall be
36 prepared in accordance with the manufacturer's instructions.
37

38 The Engineer will provide acceptance in writing accepting the color of the test section
39 prior to acceptance of any permanently incorporated material into the project.
40

41 **Powder Coating**

42 Powder coating of galvanized surfaces shall be in accordance with Section 6-07.3(11)B.
43

44 **Reactive Coloring Agent**

45 Application of the reactive coloring agent to galvanized surfaces shall be in accordance
46 with the following:
47

48 The reactive coloring agent shall be applied using the same methods used for the
49 accepted test section. The treated material shall develop full coloration within two weeks
50 of application and achieve a color consistent with the color of the authorized test section.
51

The Contractor shall apply the reactive coloring agent prior to delivering the steel components to the project site. The reactive coloring agent manufacturer or the manufacturer's authorized application contractor shall apply the reactive coloring agent for both the test section and production applications. Application of the reactive coloring agent shall fully coat the galvanized steel in accordance with the manufacturer's written instructions and achieve the accepted surface color. Once the reactive coloring agent is applied, the Contractor shall protect the steel pieces from abrasion that would remove the brown color.

After the various guardrail components have been installed, the Contractor shall apply the reactive coloring agent to any steel products that did not receive adequate coloring, or where the color was removed during the shipment or the construction process. This remedial action shall coat the affected area. Any reactive coloring agent applied in the field shall be cured according to manufacturer's specifications, and shall be applied while protecting soil, plants, and surrounding natural surfaces.

8-11.3.OPT5.FR8

(October 3, 2022)

Installing Steel Posts on New Box Culverts

Post Installation

See the Contract plans or culvert Working Drawings for the method of steel post attachment to the box culvert (embedded or bolt through). Steel posts shall be installed in accordance with Standard Plan C-20.41 or Standard Plan C-20.43.

The Contractor shall exercise care in locating and drilling the holes to avoid damage to existing steel reinforcing bars and concrete. To avoid damaging the existing steel reinforcing bars, the location of the holes may be shifted slightly with the acceptance of the Engineer. All damage caused by the Contractor's operations shall be repaired by the Contractor in accordance with Section 1-07.13.

Additional Box Culvert Guardrail Steel Post Assemblies

For each culvert with embedded or bolt through guardrail steel posts, furnish and deliver one complete set of Box Culvert Guardrail Steel Post Assemblies. Box Culvert Guardrail Steel Post Assemblies shall be delivered to the Contracting Agency locations as listed below:

Box Culvert Designation & Location (SR & MP)	Contracting Agency Delivery Location/Contact Phone Number
*** \$\$1\$\$ ***	*** \$\$2\$\$ ***
*** \$\$3\$\$ ***	*** \$\$4\$\$ ***

A complete set of assemblies will include the following:

When using Embedded Anchor Box Culvert Guardrail Steel Posts (Standard Plan C-20.41):

1. Steel Post and Base Plate Assembly – One replacement post and base plate for each post installed on culvert
2. Embedded Anchor Bolt Assemblies including Four threaded rods, bolts, and resin adhesive for each post installed on culvert

When using Bolt-Thru Anchor Box Culvert Guardrail Steel Posts (Standard Plan C-20.43):

1. Steel Post and Base Plate Assembly – One replacement post and base plate for each post installed on culvert
2. Bottom Plate – One plate for each post installed on culvert
3. Hex Head Bolts, Nuts, & Washers – 4 bolts, 4 nuts, and 8 washers for each post installed on culvert

Provide 48-hours' notice to both the Engineer and the contact(s) listed above prior to delivery. Damaged items will not be accepted and shall be replaced at no cost to the Contracting Agency.

8-11.3.OPT6.GR8

(March 20, 2025)

Removing High-Tension Cable Barrier System

Existing cable barrier shall be removed to the limits shown in the Plans. If required, cable cutting shall be in accordance with manufacturer's recommendations. Existing buried sockets may remain if they are flush with the ground. All other components shall become property of the Contractor and shall be removed from the project. Voids resulting from removal of components in the ground and from leaving existing buried sockets in the ground shall be backfilled in layers no more than 6 inches thick and compacted to a density similar to that of the adjacent material.

When the removal of an entire existing high-tension cable barrier is associated with installation of a new high-tension cable barrier system, the existing high-tension cable barrier system shall remain in place and fully operational until the new replacement system is completely installed and fully operational, unless otherwise allowed by the Engineer. All requests to remove the existing high-tension cable barrier system from operation before the new high tension cable barrier system is installed and operational shall be submitted as an RFI in accordance with Section 1-05.1(2). The RFI shall include a schedule showing all high-tension cable barrier work activities including the order and durations of the work activities starting from when the existing high-tension cable barrier system is made nonoperational to the time when the new high-tension cable barrier system is installed and made fully operational. The Contractor shall structure and schedule their work activities to minimize the amount of time that there is no functioning cable barrier system in place.

When the temporary or permanent removal of a portion of an existing high-tension barrier system is required, the removal shall include installing a new terminal at the removal limit as shown in the Plans to restore the remaining portion of the system to a fully operational condition. The new terminal shall be connected to the remaining portion of the system and the system be made fully operational within the same work shift that the system was made inoperable. Reinstalling any existing cable barrier components from the existing cable barrier removal is not permitted. All work to install a new high-tension cable barrier terminal at the removal limits shall follow the construction requirements for ***High-Tension Cable Barrier (4 Cable)***, regardless of whether a 3- or 4-cable system terminal is being installed.

8-11.3.OPT7.GR8

(March 20, 2025)

Restoring High-Tension Cable Barrier

The contractor shall remove the temporary terminal(s) installed at the original removal limits of the existing high tension cable barrier system. The removed terminal(s) and associated components shall become property of the Contractor and shall be removed from the project. The Contractor shall install new high-tension cable barrier required to restore the existing system to its original state or to a new state as shown in the Plans. Reinstalling any existing cable barrier components from the removed terminal(s) is not permitted. All work to install new high-tension cable barrier in order to restore the existing cable barrier system to its original condition, or new condition, as shown in the Plans, shall follow the construction requirements for **High-Tension Cable Barrier (4 Cable)**, regardless of whether a 3- or 4-cable system is being restored. The restored high-tension cable barrier shall be made fully operational within the same work shift that the temporary high-tension cable barrier system first becomes inoperable.

When splicing new cable to the existing cable, the Contractor shall form splices in accordance with the manufacturer's recommendations with a manufacturer approved cable splice system. The ultimate tensile strength of the splice shall meet or exceed that of unspliced cable for the existing cable barrier system.

A minimum of 10 days before field splicing of any cables, the Contractor shall provide the Engineer with a Type 1 Working Drawing detailing the following:

- Test report confirming that the Contractor's proposed field splicing method has been tested and meets the specified tensile strength criteria,
- Step-by-step instructions for field splicing showing details of the materials used and procedures that are consistent with the test report,
- A manufacturer's certification that the material is identical to that used in testing the splice design, and,
- A written statement from the Contractor that the splicing system and materials will be used according to the manufacturer's instructions and all requirements of this section.

The Engineer will visually inspect field splicing activities. Cable splices that are inconsistent with the procedures or materials outlined in the Type 1 Working Drawing provided by the Contractor shall be removed and replaced at the Contractor's expense.

8-11.3(1).GR8

Beam Guardrail

8-11.3(1).INST1.GR8

Section 8-11.3(1) is supplemented with the following:

8-11.3(1).OPT1.GR8

(April 5, 2010)

This project may contain a mixture of steel and wood posts. The bidder is advised that post selection will be as detailed in the plans and these specifications.

1 8-11.3(1)A.GR8
2 **Erection of Posts**
3
4 8-11.3(1)A.INST1.GR8
5 Section 8-11.3(1)A is supplemented with the following:
6
7 8-11.3(1)A.OPT1.GB8
8 **(April 6, 2015)**
9 **Timber Blockouts for Beam Guardrail Type Thrie Beam**
10 The Contractor shall cut and trim the timber blocks as necessary to conform to
11 the shape of the existing concrete baluster rail, and to align the beam guardrail
12 element, as shown in the Plans.
13
14 When the specified timber blockout spacing places a block at an existing
15 concrete end post or intermediate post, the Contractor shall core drill holes into
16 the existing concrete as shown in the Plans and as follows. The Contractor shall
17 not shatter or damage the concrete adjacent to the holes. Location of blockout
18 assemblies may be shifted slightly within the tolerance specified in the Plans in
19 order to reduce the risk of damage to existing steel reinforcing bars. However,
20 once a blockout assembly position is established, damage to existing steel
21 reinforcing bars caused by subsequent core drilling operations at that assembly
22 location is acceptable.
23
24 8-11.3(1)A.OPT2.GB8
25 **(January 4, 2016)**
26 **Steel Posts for Beam Guardrail Type Thrie Beam**
27 The Contractor shall field measure the dimension of the existing curb above the
28 existing wearing surface at each curb line for each bridge receiving beam
29 guardrail Type Thrie Beam. The field measured dimensions, and all adjustments
30 to the field measurements required by planing and paving operations included
31 in this project, shall be included in the steel post assembly shop drawings
32 submitted in accordance with Section 8-11.3(1)G.
33
34 8-11.3(1)A.OPT3.GB8
35 **(September 2, 2025)**
36 **Beam Guardrail Type WP Thrie Beam**
37 The Contractor shall field measure the depth of the existing ballast and wearing
38 course at both wheel guard lines, and shall include the dimensions at both wheel
39 guard lines in the steel post mounting bracket shop drawings submitted in
40 accordance with Section 8-11.3(1)G.
41
42 The Contractor shall remove the existing ballast and wearing course to the top
43 of existing timber deck in the vicinity of the steel post anchorage locations, and
44 shall dispose of the removed surfacing materials in accordance with Section 3-
45 02.3.
46
47 As shown in the Plans, the Contractor shall place a timber block beneath the
48 timber deck at each steel post anchorage location and against the existing
49 exterior timber stringer.
50
51 The Contractor shall install the steel post anchorage assembly, including the
52 deck plate, distribution plate, bearing plate, base plate, backing plate, and HSS

1 steel tube post, as shown in the Plans. Timber deck shims shall be cut and
2 trimmed as necessary to align the top of the vertical webs of the steel post
3 anchorage 1/2 inch below the top of the surrounding wearing course surfacing,
4 in accordance with the existing timber deck transverse slope and existing ballast
5 and wearing course depth specified in the shop drawings.
6
7 The Contractor may field drill holes through the steel components in accordance
8 with Section 6-03.3(27) except as otherwise noted. The Contractor shall identify
9 all holes to be field drilled in the steel fabrication shop drawings. The Contractor
10 may field drill the holes using hand held drills provided that the Contractor
11 submits the method and equipment used to the Engineer for approval, and that
12 the Contractor receives the Engineer's acceptance of the submittal prior to
13 beginning hand drilling. The Contractor shall repair all galvanized steel surfaces
14 damaged by field drilling operations by painting the damaged areas with one
15 coat of paint conforming to Section 9-08.1(2)B.
16
17 The Contractor shall replace all existing ballast and wearing course removed in
18 the vicinity of the steel post anchorage locations to the top of the surrounding
19 surfacing. The Contractor shall fill the void with an HMA surfacing material
20 accepted by the Engineer.
21
22 8-11.3(1)A.OPT4.GR8
23 (November 3, 2025)
24 When installing guardrail posts within structural earth wall backfill, the contractor
25 shall follow the placement requirements of Section 6-13.3(8). At the Contractor's
26 discretion, guardrail posts may be installed inside vertically oriented corrugated
27 metal or thermoplastic pipes to safeguard the wall reinforcement from damage
28 during post installation. The pipe material shall meet the requirements of Section
29 7-04.2, and the pipe size shall be 24- or 30-inches in diameter.
30
31 The pipes shall be positioned so that any part of them is at least 3 feet away
32 from the traffic side of the wall facing units, and allows the guardrail posts to be
33 installed with a minimum clearance of 14.5 inches between the posts and the
34 back (wall side) inside edge of the pipes. The pipes shall have sufficient length
35 so that their top is at finish grade and their bottom is at the same elevation as
36 the bottom of the posts or extends below it. The inside of the pipes shall be
37 completely backfilled with AASHTO Grading No. 57 coarse aggregate meeting
38 the requirements of Section 9-03.1(4). Backfill inside the pipes shall be placed
39 in lifts not to exceed 6 inches in depth, and each lift shall be thoroughly rodded
40 to eliminate voids.
41
42 8-11.3(1)B.GR8
43 **Erection of Rail**
44
45 8-11.3(1)B.INST1.GR8
46 Section 8-11.3(1)B is supplemented with the following:
47
48 8-11.3(1)B.OPT6.GB8
49 **(April 6, 2015)**
50 **Field Measuring to Existing Type 3 Anchors**
51 The Contractor shall field measure the dimension from the centerline of the
52 existing Type 3 anchors specified for reuse to the end of the existing concrete

1 curb and railbase or concrete baluster railing end blocks of the adjacent bridge.
2 The Contractor shall submit these dimensions to the Engineer along with a Type
3 2 Working Drawing showing the arrangement of the thrie beam guardrail
4 elements and approach guardrail elements relative to the existing Type 3
5 anchors and concrete curb and railbase or concrete baluster railing end blocks
6 for each bridge as applicable.
7
8 8-11.3(1)B.OPT7.GB8
9 **(April 6, 2015)**
10 **Attaching Beam Guardrail Type Thrie Beam to Timber Blockouts**
11 The Contractor shall fasten the thrie beam element to the timber blackout
12 assemblies such that the steel shear plates fit snug against the surface forming
13 the opening through the concrete baluster rail.
14
15 The Contractor may field drill the holes through the thrie beam elements in
16 accordance with Section 6-03.3(27), except as otherwise noted. The Contractor
17 may field drill the holes using hand held drills.
18
19 The Contractor shall repair all galvanized steel surfaces damaged by field drilling
20 operations by painting the damaged areas with one coat of paint conforming to
21 Section 9-08.1(2)B.
22
23 8-11.3(1)B.OPT8.GB8
24 **(September 13, 2021)**
25 **Thrie Beam Expansion Joint Element**
26 Where beam guardrail Type Thrie Beam crosses bridge interior expansion joints,
27 the Contractor shall place a thrie beam expansion section element conforming
28 to Standard Plan C-25.22 or C-25.26.
29
30 8-11.3(1)B.OPT9.GB8
31 **(April 6, 2015)**
32 **Beam Guardrail Type WP Thrie Beam**
33 The Contractor may field drill the holes through the thrie beam elements in
34 accordance with Section 6-03.3(27), except as otherwise noted. The Contractor
35 may field drill the holes using hand held drills.
36
37 The Contractor shall repair all galvanized steel surfaces damaged by field drilling
38 operations by painting the damaged areas with one coat of paint conforming to
39 Section 9-08.1(2)B.
40
41 After completing the beam guardrail retrofit and replacing the surfacing at the
42 steel post anchorage locations on the bridge up to the level of the surrounding
43 surfacing, the Contractor shall install the sheet metal water barrier, when the
44 water barrier is shown in the Plans. A bonding layer of rubberized asphalt shall
45 be applied to the surfacing contact area immediately prior to installing the water
46 barrier assembly. The direction of overlap of adjacent water barrier segments
47 shall be as directed by the Engineer.
48
49 8-11.3(1)D.GR8
50 **Removing Guardrail and Guardrail Anchor**
51

1 8-11.3(1)D.INST1.GR8
2 Section 8-11.3(1)D is supplemented with the following:
3
4 8-11.3(1)D.OPT1.GB8
5 **(September 8, 2020)**
6 **Beam Guardrail Type WP Thrie Beam**
7 The Contractor shall remove the existing bridge guardrail posts and railing, the
8 existing timber wheel guards, all associated fasteners, and the existing ballast
9 and wearing course in the vicinity of the steel post anchorage assemblies of the
10 bridges being retrofitted with beam guardrail Type WP Thrie Beam as shown in
11 the Plans
12
13 The items specified above shall be removed as follows:
14
15 1. The Contractor shall remove the existing timber wheel guards before
16 beginning the beam guardrail retrofit work.
17
18 2. The Contractor shall not remove any section of the existing bridge
19 railing system on the bridge until completing the beam guardrail
20 retrofit within that section of the bridge, except as otherwise specified.
21 The Contractor may remove portions of the existing bridge railing
22 system on the bridge which conflict with the anchorages, posts, and
23 rail elements of the retrofit, provided:
24
25 a. The Contractor installs as much of the beam guardrail retrofit as
26 possible in the section that does not conflict with the existing
27 bridge railing system elements.
28
29 b. After removing the conflicting element of the existing bridge railing
30 system, the Contractor shall immediately complete the beam
31 guardrail retrofit in the section.
32
33 c. The Contractor receives the Engineer's acceptance for removing
34 the conflicting element of the existing bridge railing system before
35 proceeding.
36
37 8-11.3(1)H.GR8
38 **Guardrail Construction Exposed to Traffic**
39
40 8-11.3(1)H.INST1.GR8
41 Section 8-11.3(1)H is supplemented with the following:
42
43 8-11.3(1)H.OPT1.GB8
44 **(April 6, 2015)**
45 **Beam Guardrail Type WP Thrie Beam**
46 Whenever the Contractor is not actively working on the beam guardrail retrofit,
47 the Contractor shall ensure that all guardrail ends are securely fastened to the
48 rail posts and existing bridge railing system, including temporary terminal end
49 sections as required. The Contractor shall conduct retrofit operations such that
50 no gaps occur between the existing bridge railing system and the beam guardrail
51 retrofit at any time.
52

1 The Contractor shall submit Type 2 Working Drawings detailing the temporary
2 connections between the existing guardrail system and the thrie beam guardrail
3 system, and the temporary terminal end sections.
4
5 8-11.4.GR8
6 **Measurement**
7
8 8-11.4.INST1.GR8
9 Section 8-11.4 is supplemented with the following:
10
11 8-11.4.OPT1.GR8
12 (October 3, 2022)
13 Box culvert guardrail steel posts type 31 will be measured per each, for each post
14 installed.
15
16 8-11.4.OPT2.GR8
17 (February 3, 2020)
18 Measurement of high-tension cable barrier (4 Cable) will be by the linear foot along the
19 line of the completed barrier from end to end including transition sections, terminals, cable
20 barrier to guardrail terminals, foundations, sockets, concrete, compensating devices,
21 tensioning device, slip base post, sleeves, caps, and all hardware.
22
23 8-11.4.OPT3.GR8
24 (November 4, 2024)
25 Measurement of the Short Radius Guardrail System (SRGS) will be by the linear foot
26 measured along the line of completed guardrail system.
27
28 8-11.4.OPT4.GR8
29 (April 2, 2018)
30 Measurement of Aesthetic Treatment for beam guardrail will be by the linear foot
31 measured along the line of the completed guardrail, including expansion sections and the
32 end section for F connections.
33
34 Measurement for Aesthetic Treatment for beam guardrail transition section will be per
35 each for the type of transition section installed.
36
37 Measurement for Aesthetic Treatment for beam guardrail anchor type specified will be per
38 each for the completed anchor, including the attachment of the anchor to the guardrail.
39
40 Measurement of Aesthetic Treatment beam guardrail ____ terminal will be per each for
41 the completed terminal.
42
43 Measurement of Aesthetic Treatment beam guardrail Type 31 buried terminal Type 2 will
44 be per linear foot for the completed terminal.
45
46 8-11.4.OPT5.GR8
47 (March 20, 2025)
48 Removing high-tension cable barrier system will be measured by the linear foot measured
49 along the line of removed barrier including transition and terminal sections.
50
51 8-11.4.OPT6.GR8
52 (March 20, 2025)

1 Restoring high-tension cable barrier will be measured by the linear foot measured along
2 the line of barrier need to return the system to its original fully operational state, or new
3 state, as shown in the Plans.
4
5 8-11.5.GR8
6 **Payment**
7
8 8-11.5.INST2.GR8
9 Section 8-11.5 is supplemented with the following:
10
11 8-11.5.OPT1.GR8
12 (April 2, 2018)
13 "Aes. Tr. Beam Guardrail Type ____", per linear foot
14
15 "Aes Tr. Beam Guardrail Type 1- ____ Ft. Long Post" , per linear foot.
16
17 "Aes Tr. Beam Guardrail Type 31- ____ Ft. Long Post" , per linear foot.
18
19 The unit Contract price per linear foot for "Aes. Tr. Beam Guardrail Type____", "Aes Tr.
20 Beam Guardrail Type 1- ____ Ft. Long Post", and "Aes Tr. Beam Guardrail Type 31- ____
21 Ft. Long Post", shall be full payment for all costs to perform the Work as specified.
22
23 "Aes. Tr. Beam Guardrail Transition Section Type ____", per each
24 The unit Contract price per each for "Aes. Tr. Beam Guardrail Transition Section Type
25 ____" shall be full payment for all costs to perform the Work as described in Section 8-
26 11.3.
27
28 "Aes. Tr. Beam Guardrail Anchor Type ____", per each.
29
30 "Aes. Tr. Beam Guardrail ____ Terminal", per each.
31
32 The unit Contract price per each for "Aes. Tr. Beam Guardrail Anchor Type ____" and
33 "Aes. Tr. Beam Guardrail ____ Terminal" shall be full payment for all costs to perform the
34 Work as specified.
35
36 "Aes. Tr. Beam Guardrail Type 31 Buried Term. Type 2", per linear foot.
37
38 The unit Contract price per linear foot for "Aes. Tr. Beam Guardrail Type 31 Buried Term.
39 Type 2" shall be full payment for all costs to perform the Work as specified.
40
41 8-11.5.OPT2.GR8
42 (November 4, 2024)
43 "Short Radius Guardrail System (SRGS)", per linear foot.
44
45 The unit contract price per linear foot for "Short Radius Guardrail System (SRGS)" shall
46 be full payment to obtain and provide materials and to perform the work as specified.
47 Payment for the work includes connection of the top and bottom guardrail rail cables to
48 the Type 25 Transition, or Type 31 Guardrail.
49
50 8-11.5.OPT3.GR8
51 (March 20, 2025)
52 "Removing High Tension Cable Barrier System", per linear foot.

1 The unit contract price per linear foot for "Removing High Tension Cable Barrier System"
2 shall be full payment to complete the work as specified for either a 3 Cable or 4 Cable
3 system. When a portion of a cable barrier system is removed and the remaining portion
4 is required to be made fully operational, all costs for furnishing and installing terminal(s),
5 and any associated components required to return the remaining portion of the system to
6 a fully operational condition shall be incidental to this Bid item.
7
8 8-11.5.OPT4.GR8
9 (March 20, 2025)
10 "Restoring High Tension Cable Barrier System, per linear foot.
11 The unit contract price per linear foot for "Restoring High Tension Cable Barrier System"
12 shall be full payment to complete the work as specified for either a 3 Cable or 4 Cable
13 system. Removal and disposal of temporary terminals and associated components shall
14 be incidental to this Bid item.
15
16 8-11.5.OPT6.GR8
17 (October 3, 2022)
18 "Box Culvert Guardrail Steel Post Type 31", per each.
19
20 The unit contract price per each for "Box Culvert Guardrail Steel Post Type 31" shall be
21 full pay for completing the installation of the posts, including obtaining field
22 measurements, excavation, furnishing, placing and compacting the backfill material, and
23 when required, repairing surfacing materials. Beam guardrail will be paid for in
24 accordance with Section 8-11.5.
25
26 "Additional Box Culvert Guardrail Steel Post Assemblies", lump sum.
27
28 The lump sum contract price for "Additional Box Culvert Guardrail Steel Post Assemblies"
29 shall be full pay to complete the work as specified.
30
31 8-11.5.OPT7.GR8
32 (February 3, 2020)
33 "High-Tension Cable Barrier System (4 Cable)", per linear foot.
34 "Additional High-Tension Cable Barrier Components", lump sum.
35
36 The unit contract price per linear foot for "High-Tension Cable Barrier (4 Cable)" shall be
37 full pay to complete the work as specified.
38
39 8-11.5.OPT8.GR8
40 (February 3, 2020)
41 The lump sum contract price for "Additional High-Tension Cable Barrier Components"
42 shall be full pay to complete the work as specified for a 4 Cable system.
43
44 8-11.5.OPT9.GR8
45 (November 3, 2025)
46 When vertically oriented pipes and backfill are installed for guardrail posts within a
47 structural earth wall, the pipes and backfill will be incidental to the Gravel Borrow for
48 Structural Earth Wall.
49
50 8-12.GR8
51 **Chain Link Fence and Wire Fence**
52

1 8-12.2.GR8
2 **Materials**
3
4 8-12.2.INST1.GR8
5 Section 8-12.2 is supplemented with the following:
6
7 8-12.2.OPT1.FR8
8 **(September 8, 2020)**
9 **Coated Chain Link Fence**
10 Chain link fence fabric shall be hot-dip galvanized with a minimum of 0.8 ounce per square
11 foot of surface area.
12
13 Fencing materials shall be coated with an ultraviolet-insensitive plastic or other inert
14 material at least 2 mils in thickness. Any pretreatment or coating shall be applied in
15 accordance with the manufacturer's written instructions. The Contractor shall provide the
16 Engineer with the manufacturer's written specifications detailing the product and method
17 of fabrication. The color shall match SAE AMS Standard 595 color number *** \$1\$ \$ ***.
18
19 Samples of the coated fencing materials shall have received the Engineer's acceptance
20 prior to installation on the project.
21
22 The Contractor shall supply the Engineer with 10 aerosol spray cans containing a
23 minimum of 14 ounces each of paint of the color specified above. The touch-up paint
24 shall be compatible with the coating system used.
25
26 8-12.5.GR8
27 **Payment**
28
29 8-12.5.INST1.GR8
30 Section 8-12.5 is supplemented with the following:
31
32 8-12.5.OPT1.GR8
33 (September 2, 2025)
34 "Coated Chain Link Fence Type ____", per linear foot.
35 Payment for clearing of fence line for "Coated Chain Link Fence Type ____" shall be in
36 accordance with Section 3-01.5.
37 "Coated End, Gate, Corner, Pull Post for Chain Link Fence", per each.
38 "Double 14 Ft. Coated Chain Link Gate", per each.
39 "Double 20 Ft. Coated Chain Link Gate", per each.
40 "Single 6 Ft. Coated Chain Link Gate", per each.
41
42 8-13.GR8
43 **Monument Cases**
44
45 8-13.1.GR8
46 **Description**
47
48 8-13.1.INST1.GR8
49 Section 8-13.1 is deleted and replaced by the following:
50
51 8-13.1.OPT1.GR8
52 (March 13, 1995)

1 This work shall consist of furnishing and placing monument cases, covers, and pipes in
2 accordance with the Standard Plans and these Specifications, in conformity with the lines
3 and locations shown in the Plans or as staked by the Engineer.
4
5 8-13.2.GR8
6 **Materials**
7
8 8-13.2.INST1.GR8
9 Section 8-13.2 is supplemented with the following:
10
11 8-13.2.OPT1.GR8
12 (March 13, 1995)
13 The pipe shall be Schedule 40 galvanized pipe.
14
15 8-13.3.GR8
16 **Construction Requirements**
17
18 8-13.3(1).GR8
19 ***Monument Case and Cover***
20
21 8-13.3(1).INST1.GR8
22 The last paragraph of Section 8-13.3(1) is revised to read:
23
24 8-13.3(1).OPT1.GR8
25 (March 13, 1995)
26 The Engineer will be responsible for placing the concrete core and tack or wire inside
27 the pipe.
28
29 8-13.3(2).GR8
30 ***Adjust Monument Case and Cover***
31
32 8-13.3(2)B.GR8
33 **Reinstalling Monument Case and Cover**
34
35 8-13.3(2)B.INST1.GR8
36 The first sentence of Section 8-13.3(2)B is revised to read:
37
38 8-13.3(2)B.OPT1.GR8
39 (October 3, 2022)
40 The adjusted or reinstalled monument case and cover shall be reset to ¼-inch
41 below the finished pavement as indicated in the plans and in accordance with
42 the following additional requirements:
43
44 8-13.4.GR8
45 **Measurement**
46
47 8-13.4.INST1.GR8
48 Section 8-13.4 is deleted and replaced by the following:
49
50 8-13.4.OPT1.GR8
51 (March 13, 1995)

1 Measurement of monument case, cover, and pipe will be by the unit for each monument
2 case, cover, and pipe furnished and set.
3
4 8-13.5.GR8
5 **Payment**
6
7 8-13.5.INST1.GR8
8 Section 8-13.5 is supplemented with the following:
9
10 8-13.5.OPT1.GR8
11 (April 28, 1997)
12 "Monument Case, Cover, and Pipe", per each.
13
14 8-14.GR8
15 **Cement Concrete Sidewalks**
16
17 8-14.2.GR8
18 **Materials**
19
20 8-14.2(9-19.1).GR8
21 **Surface Applied Detectable Warning Surface**
22
23 8-14.2(9-19.1(1)).GR8
24 **General Requirements**
25 The first paragraph of Section 9-19.1(1) is revised to read:
26
27 8-14.2(9-19.1(1)).OPT1.FR8
28 (October 3, 2022)
29 The color of detectable warning surfaces shall be *** \$\$1\$\$ ***.
30
31 Units shall provide the required contrast (light-on-dark or dark-on-light) with
32 the adjacent curb ramp or other applicable walkway.
33
34 8-14.2(9-19.2).GR8
35 **Cast-in-Place Detectable Warning Surface**
36
37 8-14.2(9-19.2(1)).GR8
38 **General Requirements**
39 The first paragraph of Section 9-19.2(1) is revised to read:
40
41 8-14.2(9-19.2(1)).OPT1.FR8
42 (October 3, 2022)
43 The color of detectable warning surfaces shall be *** \$\$1\$\$ ***.
44
45 Units shall provide the required contrast (light-on-dark or dark-on-light) with
46 the adjacent curb ramp or other applicable walkway.
47
48 8-14.3.GR8
49 **Construction Requirements**
50
51 8-14.3.INST1.GR8
52 Section 8-14.3 is supplemented with the following:

1
2 8-14.3.OPT1.GR8

3 (October 3, 2022)

4 The Contractor shall request a pre-construction meeting with the Engineer to be held two
5 to five working days before any work can start on cement concrete sidewalks, curb ramps
6 or other pedestrian access routes to discuss construction requirements. Those attending
7 shall include:

- 8
9 1. The Contractor and subcontractor in charge of constructing forms, and placing,
10 and finishing the cement concrete.
11
12 2. Engineer (or representative) and Project Inspectors for the cement concrete
13 sidewalk, curb ramp or pedestrian access route Work.
14

15 Items to be discussed in this meeting shall include, at a minimum, the following:

- 16
17 1. Slopes shown on the Plans.
18
19 2. Inspection
20
21 3. Traffic control
22
23 4. Pedestrian control, access routes and delineation
24
25 5. Accommodating utilities
26
27 6. Form work
28
29 7. Installation of detectable warning surfaces
30
31 8. Contractor ADA survey and ADA Feature as-built requirements
32
33 9. Cold Weather Protection
34

35 8-14.3.OPT2.GR8

36 **(January 7, 2019)**

37 **Timing Restrictions**

38 Curb ramps shall be constructed on one leg of the intersection at a time. The curb ramps
39 shall be completed and open to traffic within five calendar days before construction can
40 begin on another leg of the intersection unless otherwise allowed by the Engineer.
41

42 Unless otherwise allowed by the Engineer, the five calendar day time restriction begins
43 when an existing curb ramp for the quadrant or traffic island/median is closed to
44 pedestrian use and ends when the quadrant or traffic island/median is fully functional and
45 open for pedestrian access.
46

47 8-14.3.OPT3.GR8

48 **(January 7, 2019)**

49 **Layout and Conformance to Grades**

50 Using the information provided in the Contract documents, the Contractor shall lay out,
51 grade, and form each new curb ramp, sidewalk, and curb and gutter.
52

1 8-15.GR8
2 **Riprap**
3
4 8-15.4.GR8
5 **Measurement**
6
7 8-15.4.INST1.GR8
8 Section 8-15.4 is supplemented with the following:
9
10 8-15.4.OPT3.GR8
11 (March 13, 1995)
12 Special excavation will be measured by the cubic yard. Quantities will be computed to
13 the neat lines from the top of the seals to the existing stream bed or ground line for the
14 area outside the limits of structure excavation.
15
16 8-15.4.OPT5.GR8
17 (February 5, 2001)
18 The last paragraph of Section 8-15.4 is deleted.
19
20 8-15.5.GR8
21 **Payment**
22
23 8-15.5.INST1.GR8
24 The first sentence of the second paragraph of Section 8-15.5 is revised to read:
25
26 8-15.5.OPT1.GR8
27 (March 13, 1995)
28 The unit contract price per ton or cubic yard for the class or kind of riprap specified shall
29 be full pay for furnishing all labor, tools, equipment, and materials required to construct
30 the riprap, including excavation.
31
32 8-15.5.INST2.GR8
33 Section 8-15.5 is supplemented with the following:
34
35 8-15.5.OPT8.GR8
36 (September 30, 1996)
37 "Special Excavation", per cubic yard.
38
39 8-16.GR8
40 **Concrete Slope Protection**
41
42 8-16.3.GR8
43 **Construction Requirements**
44
45 8-16.3(2).GR8
46 ***Placing Semi-Open Concrete Masonry Units***
47
48 8-16.3(2).INST1.GR8
49 Section 8-16.3(2) is supplemented with the following:
50
51 8-16.3(2).OPT1.GR8
52 (December 19, 2005)

1 The Contractor shall round and treat the areas between the bridge end slopes and
2 the edges of the shoulders to the satisfaction of the Engineer.
3
4 Upon completion of the installation of the units, the voids shall be filled full with top
5 soil. All excess fill shall be removed and the exposed concrete surfaces swept clean.
6 The slope protection shall be seeded to grass in accordance with Section 8-01.3(2)A.
7
8 8-16.5.GR8
9 **Payment**
10
11 8-16.5.INST1.GR8
12 Section 8-16.5 is supplemented with the following:
13
14 8-16.5.OPT1.GR8
15 (September 30, 1996)
16 "Semi-Open Conc. Masonry Slope Protection", per square yard.
17
18 8-20.GR8
19 **Illumination, Traffic Signal Systems, Intelligent Transportation Systems, and**
20 **Electrical**
21
22 8-20.2.GR8
23 **Materials**
24
25 8-20.2.INST1.GR8
26 Section 8-20.2 is supplemented with the following:
27
28 8-20.2.OPT1.GB8
29 **(April 6, 2015)**
30 **Traffic Signal Standard Foundation Shaft Casing**
31 All permanent casing shall be a smooth wall non corrugated structure of steel base metal.
32 All permanent casing shall be of ample strength to resist damage and deformation from
33 transportation and handling, installation stresses, and all pressures and forces acting on
34 the casing. The casing shall be clean prior to placement in the excavation. The
35 permanent casing may be telescoped, but the outside diameter of the casing shall not be
36 less than the specified diameter of the shaft.
37
38 8-20.2(9-29.2).GR8
39 **Junction Boxes, Cable Vaults, and Pull Boxes**
40 Section 9-29.2 is supplemented with the following:
41
42 8-20.2(9-29.2).OPT1.GR8
43 **(September 3, 2019)**
44 **Slip-Resistant Surfacing for Junction Boxes, Cable Vaults, and Pull Boxes**
45 Where slip-resistant junction boxes, cable vaults, or pull boxes are required, each
46 box or vault shall have slip-resistant surfacing material applied to the steel lid and
47 frame of the box or vault. Where the exposed portion of the frame is ½ inch wide or
48 less, slip-resistant surfacing material may be omitted from that portion of the frame.
49
50 Slip-resistant surfacing material shall be identified with a permanent marking on the
51 underside of each box or vault lid where it is applied. The permanent marking shall
52 be formed with a mild steel weld bead, with a line thickness of at least 1/8 inch. The

marking shall include a two character identification code for the type of material used and the year of manufacture or application. The following materials are approved for application as slip-resistant material, and shall use the associated identification codes:

1. Harsco Industrial IKG, Mebac #1 - Steel: **M1**
2. W. S. Molnar Co., SlipNOT Grade 3 – Coarse: **S3**
3. Thermion, SafTrax TH604 Grade #1 – Coarse: **T1**

8-20.2(9-29.6).GR8

Light And Signal Standards

Section 9-29.6 is supplemented with the following:

8-20.2(9-29.6).OPT1.GR8

(January 6, 2025)

Light Standards with Type 1 Luminaire Arms

Lighting standards shall be fabricated in conformance with the methods and materials specified on the pre-approved Plans listed below, provided the following requirements have been satisfied:

- (a) Light source to pole base distance (H1) shall be as noted in the Plans. Verification of H1 distances by the Engineer, prior to fabrication, is not required. Fabrication tolerance shall be ± 6 inches.
- (b) All other requirements of the Special Provisions have been satisfied.

Fabricator	Pre-Approved Drawing No.	Rev.	Mounting Height(s) (feet)
Valmont Ind., Inc.	DB01164, Sheets 1-5 of 5	B	30, 35, 40, and 50
Ameron Pole Products Division	WA15LT3721, Sheets 1 and 2 of 2	A	20, 25, 30, 35, 40, 45, and 50
Millerbernd Manufacturing Co.	74515-WA-LP1-BB, Sheets 1 and 2 of 2	H	30, 35, 40, and 50
Millerbernd Manufacturing Co.	74515-WA-LP1-ELBOW, Sheets 1-3 of 3	J	30, 35, 40, and 50
Millerbernd Manufacturing Co.	74515-WA-LP1-SB, Sheets 1-3 of 3	H	30, 35, 40, and 50

8-20.2(9-29.6).OPT2.GR8

(January 6, 2025)

Light Standards with Type 1 Luminaire Arms

Lighting standards shall be fabricated in conformance with the methods and materials specified on the pre-approved plans listed below, provided the following requirements have been satisfied:

- (a) Mounting heights shall be as specified in the Plans.
- (b) Light source to pole base distances (H1) shall be determined or verified by the Engineer prior to fabrication. Fabrication tolerance shall be ± 6 inches.
- (c) All other requirements of the Special Provisions have been satisfied.

Fabricator	Pre-Approved Drawing No.	Rev.	Mounting Height(s) (feet)
Valmont Ind., Inc.	DB01164, Sheets 1-5 of 5	B	30, 35, 40, and 50
Ameron Pole Products Division	WA15LT3721, Sheets 1 and 2 of 2	A	20, 25, 30, 35, 40, 45, and 50
Millerbernd Manufacturing Co.	74515-WA-LP1-BB, Sheets 1 and 2 of 2	H	30, 35, 40, and 50
Millerbernd Manufacturing Co.	74515-WA-LP1-ELBOW, Sheets 1-3 of 3	J	30, 35, 40, and 50
Millerbernd Manufacturing Co.	74515-WA-LP1-SB, Sheets 1-3 of 3	H	30, 35, 40, and 50

8-20.2(9-29.6).OPT5.GR8

(January 6, 2025)

Traffic Signal Standards

Traffic signal standards shall be furnished and installed in accordance with the methods and materials noted in the applicable Standard Plans, pre-approved plans, or special design plans.

All welds shall comply with the latest AASHTO Standard Specifications for Structural Supports for Highway Signs, Luminaires and Traffic Signals. Welding inspection shall comply with Section 6-03.3(25)A Welding Inspection.

Hardened washers shall be used with all signal arm connecting bolts instead of lockwashers. All signal arm ASTM F 3125 Grade A325 connecting bolts tightening shall comply with Section 6-03.3(33).

Traffic signal standard types, applicable characteristics, and foundation types are as follows:

Type PPB

Pedestrian push button posts and their foundations shall conform to Standard Plan J-20.15.

Type PS, Type I, Type RM, and Type FB

Type PS pedestrian signal standards, Type I vehicle signal standards, Type RM ramp meter signal standards, and Type FB flashing beacon standards shall conform to Standard Plan J-20.16, J-21.15, J-21.16, and J-22.15 respectively, or to one of the following pre-approved plans:

Fabricator	Pre-Approved Drawing No.
Valmont Ind., Inc.	DB01165 Rev. B (4 sheets)
Ameron Pole Products Division	WA15TR10-1 Rev. C (1 sheet) and WA15TR10-2 Rev. C (1 sheet)
Millerbernd Manufacturing, Co.	74514-WA-PED-FB Rev. J (2 sheets)
Millerbernd Manufacturing Co.	74514-WA-PED-SB Rev. K (2 sheets)

Foundations shall be as noted in Standard Plan J-21.10.

Type II

Type II signal standards are single mast arm signal standards with no luminaire arm or extension. Type II standards shall conform to one of the following pre-approved plans. Maximum arm length (in feet) and wind load (XYZ value, in cubic feet) is noted for each manufacturer.

Fabricator	Pre-Approved Drawing No.	Max. Arm Length (ft)	Max. Wind Load (XYZ) (ft³)
Valmont Ind., Inc.	DB01162 Rev. B (5 sheets)	65	3206
Ameron Pole Products Division	WA15TR3724-1 Rev. C (sheet 1 of 2), and WA15TR3724-2 Rev. D (sheet 2 of 2)	65	2935
Millerbernd Manufacturing, Co.	74516-WA-TS-II Rev. L (4 sheets)	65	3697

Foundations shall be as noted in the Plans and Standard Plan J-26.10. Type II signal standards with two mast arms installed 90 degrees apart may use these pre-approved drawings. Standards with two arms at any other angle are Type SD and require special design.

Type III

Type III signal standards are single mast arm signal standards with one Type 1 (radial davit type) luminaire arm. The luminaire arm has a maximum length of 16 feet and a mounting height of 30, 35, 40, or 50 feet, as noted in the Plans. Type III standards shall conform to one of the following pre-approved plans. Maximum arm length (in feet) and wind load (XYZ value, in cubic feet) is noted for each manufacturer. Wind load limit includes a luminaire arm up to 16 feet in length.

Fabricator	Pre-Approved Drawing No.	Max. Arm Length (ft)	Max. Wind Load (XYZ) (ft ³)
Valmont Ind., Inc.	DB00162 Rev. B (5 sheets), with Type "J" luminaire arm	65	3259
Ameron Pole Products Division	WA15TR3724-1 Rev. C (sheet 1 of 2), and WA15TR3724-2 Rev. D (sheet 2 of 2), with Series "J" luminaire arm	65	2988
Millerbernd Manufacturing, Co.	74516-WA-TS-III-J Rev. L (5 sheets)	65	3750

Foundations shall be as noted in the Plans and Standard Plan J-26.10. Type III signal standards with two mast arms installed 90 degrees apart may use these pre-approved drawings. Standards with two arms at any other angle are Type SD and require special design.

Type IV

Type IV strain pole standards shall be consistent with the Plans and Standard Plan J-27.15 or one of the following pre-approved plans:

Fabricator	Pre-Approved Drawing No.
Valmont Ind., Inc.	DB01167 Rev. B (2 sheets)
Ameron Pole Products Division	WA15TR15 Rev. A (2 sheets)
Millerbernd Manufacturing, Co.	74554-WA-SP-IV Rev. H (2 sheets)

Foundations shall be as noted in the Plans and Standard Plan J-27.10.

Type V

Type V strain poles are combination strain pole and light standards, with Type 1 (radial davit type) luminaire arms. Luminaire arms may be up to 16 feet in length, and a mounting height of 40 or 50 feet, as noted in the Plans. Type V strain poles shall be consistent with the Plans and Standard Plan J-27.15 or one of the following pre-approved plans:

1

Fabricator	Pre-Approved Drawing No.
Valmont Ind., Inc.	DB01167 Rev. B (2 sheets),
Ameron Pole Products Division	WA15TR15 Rev. A (2 sheets)
Millerbernd Manufacturing, Co.	74554-WA-SP-V Rev. J (3 sheets)

2

3

4

5

6

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8

Foundations shall be as noted in the Plans and Standard Plan J-27.10.

Type CCTV

Type CCTV camera pole standards shall conform to Standard Plan J-29.15 or to one of the following pre-approved plans:

Fabricator	Pre-Approved Drawing No.
Valmont Ind., Inc.	DB01166 Rev. C (4 sheets)
Ameron Pole Products Division	WA15CCTV01 Rev. B (2 sheets)
Millerbernd Manufacturing, Co.	74577-WA-LC1 Rev. H (2 sheets)
Millerbernd Manufacturing, Co.	74577-WA-LC2 Rev. H (2 sheets)
Millerbernd Manufacturing, Co.	74577-WA-LC3 Rev. H (3 sheets)

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28

Foundations shall be as noted in the Plans and Standard Plan J-29.10.

Type SD

Type SD signal standards are outside the basic requirements of any pre-defined signal standard and require special design. All special design shall be based on the latest AASHTO Standard Specifications for Structural Supports for Highway Signs, Luminaires and Traffic Signals and pre-approved plans and as follows:

1. A 115 mph wind loading shall be used.
2. The Mean Recurrence Interval shall be 1700 years.
3. Fatigue category shall be III.

Complete calculations for structural design, including anchor bolt details, shall be prepared by a Professional Engineer, licensed under Title 18 RCW, State of Washington, in the branch of Civil or Structural Engineering or by an individual holding valid registration in another state as a civil or structural Engineer.

1 All shop drawings and the cover page of all calculation submittals shall carry the
2 Professional Engineer's original signature, date of signature, original seal,
3 registration number, and date of expiration. The cover page shall include the
4 contract number, contract title, and sequential index to calculation page
5 numbers. Two copies of the associated design calculations shall be submitted
6 for approval along with shop drawings.

7
8 Details for handholes and luminaire arm connections are available from the
9 Bridges and Structures Office.

10
11 Foundations for Type SD standards shall be as noted in the Plans.

12
13 8-20.2(9-29.6(5)).GR8

14 **Foundation Hardware**

15 Section 9-29.6(5) is supplemented with the following:

16
17 8-20.2(9-29.6(5)).OPT1.GR8

18 (January 13, 2021)

19 Anchor bolt assemblies for light standards installed on top of barrier (median
20 barrier mount) shall consist of the following:

- 21
- 22 • (4) 1-inch diameter threaded rods (bolts), minimum 36 inches in
 - 23 length
 - 24 • (24) heavy hex nuts, six per anchor rod
 - 25 • (24) flat washers, six per anchor rod
 - 26 • Two anchor plates
- 27

28 Each anchor plate shall be constructed from 1/2" ASTM A36 plate and hot-dip
29 galvanized in accordance with AASHTO M111. Each anchor plate shall be ring
30 shaped, with an outside diameter of 16 inches and an inside diameter of 12
31 inches. Each anchor plate shall have four 1 1/8" diameter holes on a 13.89" bolt
32 circle, with the holes positioned to match the anchor rod layout shown in the
33 Standard Plans.

34
35 Anchor rods shall extend a minimum of five inches and a maximum of six inches
36 above the top of the traffic barrier. The lower anchor plate shall be embedded
37 29 inches below the top of the traffic barrier. Each anchor plate shall be clamped
38 with a heavy hex nut and washer above and below the anchor plate. The lower
39 heavy hex nut for the pole base plate shall be no more than one inch from the
40 top of the traffic barrier.

41
42 8-20.2(9-29.13).GR8

43 **Control Cabinet Assemblies**

44 Section 9-29.13 is supplemented with the following:

45
46 8-20.2(9-29.13).OPT1.GR8

47 (January 2, 2018)

48 **Uninterruptible Power Supply (UPS)**

49 Each UPS System shall provide battery backup power to the cabinet to which it is
50 connected in the event of loss or failure of normal utility power. Each UPS system
51 shall be constructed for full on line configuration (line interactive type), providing
52 automatic voltage regulation and power conditioning when operating on normal utility

1 power. The transfer between utility power and battery power shall not interfere with
2 the normal operation of the connected downstream cabinet.

3
4 Each UPS System shall be capable of supplying a minimum 1000W load at 120 VAC
5 for a minimum number of hours depending on the number of batteries specified:

- 6 • Four batteries: Minimum 4 hours run time.
- 7 • Eight batteries: Minimum 8 hours run time.

8
9 Each UPS System shall be composed of the following equipment:

10
11 **UPS Cabinet Construction**

12 Each UPS Cabinet shall be constructed as follows. The equipment shall be
13 installed within the cabinet as shown in the Plans.

- 14 1. The cabinet shall be designated Type 331, consisting of Housing 1B
15 and Mounting Cage 1 as described in the CalTrans TEES. The
16 housing shall use 0.125 inch minimum thickness 5052 H32 ASTM
17 B209 alloy aluminum, with bare mill finish. The exterior shall not be
18 anodized or painted.
- 19 2. Each cabinet door shall be provided with:
 - 20 a. A three point latch system. Locks shall be spring loaded
21 construction locks capable of accepting a Best 6 pin core. A 6 pin
22 construction core of the type (blue, green, or red) specified in the
23 contract shall be installed in each core lock. One core removal key
24 and two standard keys shall be included with each cabinet and
25 delivered to the Engineer.
 - 26 b. A one piece, closed cell, neoprene gasket.
 - 27 c. A two position doorstop assembly. The doorstops shall hold the
28 door open at both 90 degrees and 180 +/- 10 degrees.
- 29 3. Cabinet lighting shall be provided by two LED light strips. Each LED
30 light strip shall be approximately 12 inches long, have a minimum
31 output of 320 lumens, and have a color temperature of 4000K (cool
32 white) plus or minus 400K. Lighting shall not interfere with the proper
33 operation of any other ceiling or shelf mounted equipment. All lighting
34 fixtures shall energize whenever any door is opened. Each door
35 switch shall be labeled "Light". Both light strips shall be ceiling
36 mounted - rack mounted lights are not allowed. One light strip shall
37 be installed over the front face of the rack and the second shall be
38 installed over the rear face of the rack. Each light strip shall be
39 oriented parallel to the door face, and placed such that the associated
40 face of the rack and the rack mounted equipment is illuminated.
- 41 4. Cabinet ventilation shall be as described in the TEES for a Type 332L
42 cabinet. The door vent filter shall be a 12 inch by 16 inch by 1 inch
43 thick (nominal) disposable paper filter.

5. A UPS Service Panel, installed on the left side of the cabinet as viewed from the front. This service panel shall include the following, positioned as shown in the Plans:
 - a. Two three-position terminal blocks. Each terminal block shall be labeled "Power IN" or "Power OUT" as appropriate.
 - b. Two 120V 1P-15A circuit breakers, one each for the cabinet lighting and the cabinet ventilation (fan and thermostat).
 - c. A Tesco TES-10B (or equivalent) Surge Suppressor.
 - d. A HESCORLS LF60X (or equivalent) Line Filter.
 - e. A neutral (AC-) bus bar, with minimum 10 connections.
 - f. A ground bus bar, with minimum 10 connections.
6. Three battery shelves, each 0.5U (Rack Unit) in height. Each shelf shall be vented and capable of supporting three AlphaCell 240XTV batteries without visibly flexing. Each shelf shall span the full width and depth of the rack, and be secured to all of the rack verticals.
7. One drawer shelf, 1U in height.
8. A Generator Transfer Switch (GTS) and enclosure, meeting the requirements of Section 9-29.13(8). The GTS shall be installed in place of the Police Panel Switch enclosure as shown on a Type 332L cabinet. The lock shall have an aluminum rain shield cover riveted to the cabinet housing.

UPS System Components

The following UPS System Equipment shall be provided and installed within the cabinet as shown in the Plans. All equipment shall be from Alpha Technologies unless otherwise noted.

1. One UPS Controller, model FXM 2000 w/SNMP module operating at 120 VAC, Part Number (P/N) 017-232-31. The UPS Controller shall include the 19" EIA rack mount kit, P/N 740-697-21, and support shelf, P/N 3610030085.
2. One Universal Automatic Transfer Switch (UATS) Accessory Shelf Assembly (P/N 020-168-25), consisting of a Surge Arrestor Assembly (P/N 740-755-21), UATS (P/N 020-165-21), and 120V Single Duplex Plate (P/N 740-748-23).
3. Four or eight AlphaCell 240XTV Batteries, as required by the Contract. Where four batteries are required, they shall be installed with two each on the middle and lower battery shelves. Where eight batteries are required, the upper and middle battery shelves shall hold three batteries each, with the remaining two installed on the

lower battery shelf. Batteries shall be labeled with their string ID and number in the string. The first four batteries shall be labeled A1 through A4, and the second four batteries (when required) shall be labeled B1 through B4.

4. Remote Battery Monitoring System Plus. Use P/N 03760260-002 for cabinets requiring four batteries. Use P/N 03760260-003 for cabinets requiring eight batteries.
5. 48V Battery Cable Kit, 10ft in length with 1/4-20 termination(s), P/N 740-628-27. Where eight batteries are required, a second battery cable kit and a Y-Connector (P/N 870-601-21) shall also be included.
6. Battery Heater Mats, one per shelf with batteries installed, sized for the number of batteries present on that shelf. Each mat shall run on 120VAC and be plugged into the duplex receptacle on the Accessory Shelf Assembly.

Three sets of cabinet drawings and maintenance and operations manuals shall be provided. Two sets shall be hard copies in paper format and placed in the cabinet drawer shelf. The third shall be electronic in PDF format and provided on a portable USB flash drive (stick) and placed in the cabinet drawer shelf.

Contact information for Alpha Technologies:

Alpha Technologies, Inc.
3767 Alpha Way
Bellingham, WA 98226
Phone: (360) 647-2360
E-mail: alpha@alpha.com
Website: www.alpha.ca

8-20.2(9-29.13(10)).GR8

NEMA and Type 2070 Controllers and Cabinets

8-20.2(9-29.13(10)D).GR8

Cabinets for Type 2070 Controllers

8-20.2(9-29.13(10)D).INST2.GR8

Item 1 of Section 9-29.13(10)D is supplemented with the following:

8-20.2(9-29.13(10)D).OPT2.GR8

(February 6, 2023)

Removable Door Handles

Cabinet doors shall be provided with a 5/8-inch hex key socket in place of a handle. The hex socket and locking cam shall rotate on a 0.5-inch minimum diameter shaft. No portion of the socket assembly shall extend beyond the face of the door, such that the socket cannot be rotated by locking pliers or a similar gripping device. No door handles or hex keys shall be provided.

1 8-20.2(9-29.13(11)).GR8

2 **Traffic Data Accumulator and Ramp Meters**

3 Section 9-29.13(11) is supplemented with the following:

4
5 8-20.2(9-29.13(11)).OPT1.GR8

6 **(November 20, 2023)**

7 **Advanced Transportation Controller**

8 All new Traffic Data Accumulator (Data Station) and Ramp Meter cabinets shall
9 be provided with a Type ATC 2070 Controller as shown in the Plans. Each
10 controller shall comply with Advanced Transportation Controller (ATC) Standard
11 Version 06 (ATC 5201 v06.25), and shall support both C12S serial bus operation
12 and C1S (104 pin) parallel bus operation. Each controller shall be supplied with
13 the following options and equipment:

- 14
15 1. Board Support Package, in electronic format (see ATC 5201,
16 Paragraph 3.3.1)
17 2. 2070-1C Engine Board (CPU Module)
18 3. 2070-2E Field I/O Module
19 4. 2070-3B or 2070-3D Front Panel
20 5. 2070-4A Power Supply Module
21

22 A spare blank cover (4X wide), designed to cover the slot for the 270-2E module
23 when it is removed, shall also be provided.

24
25 ATC Controllers are required to be preapproved by WSDOT to ensure
26 compatibility with WSDOT ITS operating software. The following controllers
27 have been verified compatible with WSDOT ITS operating software and are
28 preapproved:

- 29
30 1. Model: **Intelight 2070-LDX**

31
32 Manufacturer:

33 **Q-Free America**

34 5962 La Place Ct SE, Ste. 150

35 Carlsbad, CA 92008

36 (833) MAXHELP (833-629-4357)

37 info@intelight-its.com

38 www.intelight-its.com
39

- 40 2. Model: **McCain ATC 2070LX**

41
42 Manufacturer:

43 **McCain, Inc.**

44 2365 Oak Ridge Way

45 Vista, CA 92801

46 (888) 262-2246

47 info@mccain-inc.com

48 www.mccain-inc.com
49

- 50 3. Model: **Yunex 2070LX ATC**

51 Manufacturer:
52

Yunex, LLC
(formerly Siemens Mobility, Inc.)
9225 Bee Caves Road
Building B, Suite 101
Austin, TX 78733
(512) 837-8300
mobility.siemens.com/us/en.html

4. **Model: Safetran ATC 2070LX**

Manufacturer:
Econolite
1250 N Tustin Ave
Anaheim, CA 92807
(714) 630-3700
www.econolite.com

8-20.2(9-29.13(11)).OPT2.GR8

(February 6, 2023)

Removable Door Handles

Cabinet doors shall be provided with a $\frac{5}{8}$ -inch hex key socket in place of a handle. The hex socket and locking cam shall rotate on a 0.5-inch minimum diameter shaft. No portion of the socket assembly shall extend beyond the face of the door, such that the socket cannot be rotated by locking pliers or a similar gripping device. No door handles or hex keys shall be provided.

8-20.2(9-29.13(12)).GR8

Type 331L ITS Cabinet

8-20.2(9-29.13(12)).INST2.GR8

Item 3 of Section 9-29.13(12) is supplemented with the following:

8-20.2(9-29.13(12)).OPT2.GR8

(February 6, 2023)

Removable Door Handles

Cabinet doors shall be provided with a $\frac{5}{8}$ -inch hex key socket in place of a handle. The hex socket and locking cam shall rotate on a 0.5-inch minimum diameter shaft. No portion of the socket assembly shall extend beyond the face of the door, such that the socket cannot be rotated by locking pliers or a similar gripping device. No door handles or hex keys shall be provided.

8-20.2(9-29.15).GR8

Flashing Beacon Control

Section 9-29.15 is supplemented with the following:

8-20.2(9-29.15).OPT1.GR8

(May 5, 2025)

Rapid Flashing Beacons

Rapid Flashing Beacon (RFB) indications shall comply with the dimensional, operational, and flash pattern requirements of Chapter 4L of the 2023 MUTCD.

- 1 RFB system pushbuttons shall be Accessible Information Device (AID) type meeting
2 the requirements of Section 9-29.19. The AID may not use percussive indications.
3
- 4 8-20.2(9-29.19).GR8
5 ***Pedestrian Push Buttons***
6 Section 9-29.19 is supplemented with the following:
7
- 8 8-20.2(9-29.19).OPT1.GR8
9 **(November 4, 2024)**
10 **Approved APS Equipment**
11 APS equipment shall be one of the following systems:
12
- 13 1. Model: **Campbell Guardian Independent 4-Wire APS**
14
15 Components:
16 APS Pushbutton Kit: KAC-32021-2BT
17 Pedestrian Display Interface Unit: 501-0300 SPI
18
19 Manufacturer:
20 **Campbell Company**
21 450 W McGregor Dr
22 Boise, ID 83705
23 (208) 345-7459
24 www.pedsafety.com
25
- 26 2. Model: **Pelco IntelliCross Intelligent Pedestrian System**
27
28 Components:
29 APS Pushbutton: SE-2901-#-P30 9x15
30 Pedestrian Display Interface Unit: SE-6190-PNC
31
32 Manufacturer:
33 **Pelco Products, Inc.**
34 320 W 18th St
35 Edmond, OK 73013
36 (405) 340-3435
37 intellicross@pelcoinc.com
38 www.pelcointellicross.com
39
- 40 3. Model: **Polara iNS iNavigator Push Button Station**
41
42 Components:
43 APS Pushbutton: iNS23TN1-G
44 Pedestrian Display Interface Unit: iPHCU3S
45 PC Interface Module: iN-DGL (one per intersection; place in cabinet
46 drawer).
47
48 Manufacturer:
49 **Polara Enterprises**
50 1497 CR 2178
51 Greenville, TX 75402
52 (903) 366-0300

Only one brand of equipment shall be used for the entire Contract.

8-20.2(9-29.24).GR8

Service Cabinets

Item 3 of Section 9-29.24 is supplemented with the following:

8-20.2(9-29.24).OPT1.GR8

(February 6, 2023)

Removable Door Handles

Service cabinet doors shall be provided with a $\frac{5}{8}$ -inch hex key socket in place of a handle for customer sections of the service cabinet. The hex socket and locking cam shall rotate on a $\frac{1}{2}$ -inch minimum diameter shaft. The socket assembly shall either be:

1. Flush with the face of the door, such that no portion of the socket assembly extends beyond the face of the door, and it cannot be rotated by locking pliers or a similar gripping device; or
2. Protected by a ring of 6061-T6 aluminum tubing. The tubing shall have a minimum wall thickness of 0.125 inches. The ring shall extend at least 0.15 inches beyond the end of the socket and shall provide no more than 0.07 inches of clearance from the socket such that the socket cannot be gripped by pliers or a similar gripping device. The ring shall be attached to the door using three $\frac{1}{2}$ -inch fillet welds, each $\frac{3}{4}$ -inch long, evenly spaced around the outer circumference of the tube.

One hex key door handle shall be provided with each cabinet.

8-20.2(9-29.25).GR8

Amplifier, Transformer, and Terminal Cabinets

Item 3 of Section 9-29.25 is supplemented with the following:

8-20.2(9-29.25).OPT1.GR8

(February 6, 2023)

Removable Door Handles

Transformer cabinet doors shall be provided with a $\frac{5}{8}$ -inch hex key socket in place of a handle for customer sections of the service cabinet. The hex socket and locking cam shall rotate on a $\frac{1}{2}$ -inch minimum diameter shaft. The socket assembly shall either be:

1. Flush with the face of the door, such that no portion of the socket assembly extends beyond the face of the door, and it cannot be rotated by locking pliers or a similar gripping device; or
2. Protected by a ring of 6061-T6 aluminum tubing. The tubing shall have a minimum wall thickness of 0.125 inches. The ring shall extend at least 0.15 inches beyond the end of the socket and shall provide no more than 0.07 inches of clearance from the socket such that the socket cannot be gripped by pliers or a similar gripping device. The ring shall be attached to the door

1 using three ½-inch fillet welds, each ¾-inch long, evenly spaced around the
2 outer circumference of the tube.
3
4 One hex key door handle shall be provided with each cabinet.
5
6 8-20.2(1).GR8
7 **Equipment List And Drawings**
8
9 8-20.2(1).INST1.GR8
10 Section 8-20.2(1) is supplemented with the following:
11
12 8-20.2(1).OPT1.GR8
13 (March 13, 1995)
14 Pole base to light source distances (H1) for lighting standards with pre-approved
15 plans shall be as noted in the Plans.
16
17 Pole base to light source distances (H1) for lighting standards without pre-approved
18 plans will be furnished by the Engineer as part of the final approved shop drawings,
19 prior to fabrication.
20
21 8-20.2(1).OPT2.GR8
22 (March 13, 1995)
23 Pole base to light source distances (H1) for lighting standards with pre-approved
24 plans will be determined or verified by the Engineer at the request of the Contractor
25 prior to fabrication.
26
27 Pole base to light source distances (H1) for lighting standards without pre-approved
28 plans and for combination traffic signal and lighting standards will be furnished by the
29 Engineer as part of the final approved shop drawings prior to fabrication.
30
31 8-20.2(1).OPT3.GR8
32 (March 13, 1995)
33 If traffic signal standards, strain pole standards, or combination traffic signal and
34 lighting standards are required, final verified dimensions including pole base to signal
35 mast arm connection point, pole base to light source distances (H1), mast arm length,
36 offset distances to mast arm mounted appurtenances, and orientations of pole
37 mounted appurtenances will be furnished by the Engineer as part of the final
38 approved shop drawings prior to fabrication.
39
40 8-20.3.GR8
41 **Construction Requirements**
42
43 8-20.3(4).GR8
44 **Foundations**
45
46 8-20.3(4).INST1.GR8
47 Section 8-20.3(4) is supplemented with the following:
48

1 8-20.3(4).OPT1.FB8
2 **(August 7, 2017)**
3 **Shafts For Signal Standard Foundations**
4 Shaft foundations for the traffic signal standards at the following location(s) shall be
5 constructed in accordance with the following requirements:
6
7 *** \$\$1\$\$ ***
8
9 Shaft foundations for traffic signal standards shall be constructed in accordance with
10 Section 6-19.3, except as follows:
11
12 **Quality Assurance**
13 The tolerance for placing the center at the top of shaft under Section 6-19.3(1)A
14 is revised for traffic signal standard foundation shafts to be within 4-inches of the
15 Plan location.
16
17 Non-destructive testing of shafts under Sections 6-19.3(1)B and 6-19.3(9) and
18 associated Work under Section 6-19.3(6) does not apply.
19
20 **Shaft Excavation**
21 Permanent casing advanced during excavation operations is required full depth
22 for all traffic signal standard shaft foundation locations specified at the beginning
23 of this Special Provision. Excavation in advance of the casing tip shall not
24 exceed three feet. In no case shall shaft excavation and casing placement
25 extend below the bottom of shaft excavation as shown in the Plans.
26
27 When efforts to advance past the obstruction to the design shaft tip elevation
28 result in the rate of advance of the shaft drilling equipment being significantly
29 reduced relative to the rate of advance for the portion of the shaft excavation in
30 the geological unit that contains the obstruction, then the Contractor shall
31 remove, break-up, or push aside, the obstruction under the provisions of Section
32 8-20.5 as supplemented in these Special Provisions.
33
34 **Placing Concrete**
35 Traffic signal standard foundation shaft concrete shall be Class 4000P.
36
37 **Casing Removal**
38 Tops of permanent casing for the shafts shall be removed to at least 6-inches
39 beneath the finish groundline, unless otherwise specified by the Engineer.
40
41
42 8-20.3(5).GR8
43 **Conduit**
44
45 8-20.3(5)E.GR8
46 **Method of Conduit Installation**
47
48 8-20.3(5)E.INST1.GR8
49 Section 8-20.3(5)E is supplemented with the following:
50

1	8-20.3(5)E.OPT1.GR8									
2	(February 6, 2023)									
3	CDF Encased ITS Conduit									
4	Where two 4-inch conduits with factory installed innerducts are used for ITS									
5	fiber-optic cable installation and open trenching is allowed the conduits shall be									
6	installed by open trenching with CDF encasement. Conduit shall be installed									
7	where shown in the Plans and backfilled in accordance with the Standard Plans.									
8										
9	8-20.3(8).GR8									
10	Wiring									
11										
12	8-20.3(8).INST1.GR8									
13	Section 8-20.3(8) is supplemented with the following:									
14										
15	8-20.3(8).OPT1.GR8									
16	(March 13, 1995)									
17	Field Wiring Chart									
18	501	AC+ Input								516-520 Railroad Pre-empt
19	502	AC- Input								5A1-5D5 Emergency Pre-empt
20	503-510	Control-Display								541-580 Coordination
21	511-515	Sign Lights								581-599 Spare
22										
23	Movement Number	1	2	3	4	5	6	7	8	9
24										
25	Vehicle Head									
26	Red	611	621	631	641	651	661	671	681	691
27	Yellow	612	622	632	642	652	662	672	682	692
28	Green	613	623	633	643	653	663	673	683	693
29	Spare	614	624	634	644	654	664	674	684	694
30	Spare	615	625	635	645	655	665	675	685	695
31	AC-	616	626	636	646	656	666	676	686	696
32	Red Auxiliary	617	627	637	647	657	667	677	687	697
33	Yellow Auxiliary	618	628	638	648	658	668	678	688	698
34	Green Auxiliary	619	629	639	649	659	669	679	689	699
35	Pedestrian Heads & Dets.									
36	Hand	711	721	731	741	751	761	771	781	791
37	Man	712	722	732	742	752	762	772	782	792
38	AC-	713	723	733	743	753	763	773	783	793
39	Detection	714	724	734	744	754	764	774	784	794
40	Common-Detection	715	725	735	745	755	765	775	785	795
41	Spare	716	726	736	746	756	766	776	786	796
42	Spare	717	727	737	747	757	767	777	787	797
43	Spare	718	728	738	748	758	768	778	788	798
44	Spare	719	729	739	749	759	769	779	789	799
45	Detection									
46	AC+	811	821	831	841	851	861	871	881	891
47	AC-	812	822	832	842	852	862	872	882	892
48	Common-Detection	813	823	833	843	853	863	873	883	893
49	Detection A	814	824	834	844	854	864	874	884	894
50	Detection B	815	825	835	845	855	865	875	885	895
51	Loop 1 Out	816	826	836	846	856	866	876	886	896
52	Loop 1 In	817	827	837	847	857	867	877	887	897

1	Loop 2 Out	818	828	838	848	858	868	878	888	898
2	Loop 2 In	819	829	839	849	859	869	879	889	899
3	Supplemental Detection									
4	Loop 3 Out	911	921	931	941	951	961	971	981	991
5	Loop 3 In	912	922	932	942	952	962	972	982	992
6	Loop 4 Out	913	923	933	943	953	963	973	983	993
7	Loop 4 In	914	924	934	944	954	964	974	984	994
8	Loop 5 Out	915	925	935	945	955	965	975	985	995
9	Loop 5 In	916	926	936	946	956	966	976	986	996
10	Loop 6 Out	917	927	937	947	957	967	977	987	997
11	Loop 6 In	918	928	938	948	958	968	978	988	998
12	Spare	919	929	939	949	959	969	979	989	999

13

14 8-20.3(14).GR8

15 **Signal Systems**

16

17 8-20.3(14)A.GR8

18 **Signal Controllers**

19

20 8-20.3(14)A.INST1.GR8

21 Section 8-20.3(14)A is supplemented with the following:

22

23 8-20.3(14)A.OPT1.GR8

24 **(August 2, 2010)**

25 **Testing**

26 All signal control equipment shall be tested at the Washington State Department
 27 of Transportation Materials Laboratory located in Tumwater, Washington, prior
 28 to final delivery. The tests shall check the operation of each individual
 29 component as well as the overall operation of the system.

30

31 The Contractor shall designate a qualified representative for these tests.
 32 Notification of this representative shall be submitted for approval, in writing, to
 33 the State Materials Laboratory, 14 calendar days prior to any equipment
 34 deliveries. The Engineer shall also receive a copy of this notification, which
 35 includes the representative's name, address, and telephone number. All
 36 communications and actions regarding testing of all equipment submitted to the
 37 State Materials Laboratory shall be made through this representative. These
 38 communications and actions shall include, but not be limited to, the following:

39

40 All notifications of failure or rejection, demonstration of the equipment, and
 41 the return of rejected equipment.

42

43 The State Materials Laboratory testing process will consist of the following four
 44 separate stages:

45

- 46 a. Delivery and Assembly
- 47 b. Demonstration and Documentation
- 48 c. Performance Test
- 49 d. Operational Test

50

51 Testing will follow in the correct order with no time gaps between stages unless
 52 mutually agreed upon by the Contractor and State Materials Laboratory.

Stage 1 Delivery Assembly

All components for the complete traffic control systems, including the necessary test equipment, shall be assembled and ready for demonstration within ten working days of delivery to the Materials Laboratory. The systems shall simulate the operations as installed in the field.

Equipment and prerequisites necessary to complete this stage shall include:

a. **Detection Simulator:**

The detection simulator shall provide at least one detector per phase and variable traffic volumes. One simulator shall be required for every two controllers tested.

b. **Communications Network:**

Locations, specified for coordinating communications equipment and cable, shall be completely wired to provide an operational communications system between all local and master controllers.

The Contractor shall provide labor, equipment, and materials necessary to assemble all control equipment complete and ready for demonstration. Materials and equipment used for this stage that are not required for field installation shall remain the property of the Contractor. Failure to complete this stage within ten working days will result in rejection of the entire system.

Stage 2 Demonstration and Documentation

This stage shall be completed within seven working days following the completion of Stage 1. Failure to do so shall result in rejection of the entire shipment.

All documentation shall be furnished with the control equipment prior to the start of testing. If corrections to any document are deemed necessary by the State, the Contractor shall submit this updated version prior to the final approval by the State Materials Laboratory. The documents to be supplied shall consist of or provide the following:

a. **A Complete accounting of all the control and test equipment required.**

b. **A complete set of documents which shall include:**

1. Serial numbers when applicable.

2. Written certification that equipment of the same make and model has been tested according to NEMA Environmental Standards and Test Procedures, and has met or exceeded these standards. The certificate shall include equipment model number and where, when, and by whom the tests were conducted. This certificate shall accompany each shipment of controllers.

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3. Reproducible mylar wiring diagrams and two blue-tone prints for each controller and cabinet supplied. The sheet size shall be 24 inches by 36 inches.
 4. Wiring diagrams for all auxiliary equipment furnished. One set per cabinet.
 5. Complete operations and maintenance manuals including complete and correct software listing and flow charts. One set of operations and maintenance manuals per cabinet; at least four but no more than ten. Five sets of software listings and flow charts.
 6. Complete operations and maintenance manuals for all auxiliary equipment. One set per cabinet.
- c. A description of the functions and the capabilities of individual components and of the overall control system.
 - d. A presentation on how to operate the system.
 - e. A complete and thorough demonstration to show that all components of the control system are in good condition and operating properly, and proof that the controller and cabinet are functioning correctly.
 - f. Detailed instructions for installing and operating the controller(s), including explanations on the use of all features of the controller(s).
 - g. The operational and maintenance manuals for each traffic signal controller supplied including as a minimum, but not to be limited to the following:
 1. Detailed instructions for maintaining all hardware components, controller, and auxiliary equipment.
 2. A complete parts list detailing all manufacturer's identification codes.
 3. Detailed wiring diagrams and schematics indicating voltage levels and pictorial description, part name, and location for all hardware components, controller, and auxiliary equipment.

The demonstration shall include the following:

- a. Phasing per plans and all phase timing.
- b. Detection including any special detector functions.
- c. Conflict Monitor and Load Switches.

d. Special Coordination including communication equipment.

This demonstration shall be performed by the Contractor in the presence of State Materials personnel. The Contractor shall supply any item not accounted for within five working days of the accounting. Controllers and cabinets that remain incomplete five working days after notification shall be rejected and returned freight collect to the Contractor.

Stage 3 Unit Performance Test

A minimum of ten working days shall be allowed for one or two cabinet assemblies and five working days for each additional assembly.

The unit performance test will be conducted by State Personnel to determine if each and every controller cabinet assembly complies with NEMA Environmental Standards as stated in NEMA publication No. TS 1-1976, Part 2.

Any unit submitted, whose failure has been corrected, shall be retested from the beginning of this stage.

Stage 4 Operational Test

All control and auxiliary equipment shall operate without failure for a minimum of ten consecutive days. If an isolated controller is specified, it shall operate as an isolated controller. If a coordinated system is specified, it shall operate as a total coordinated system with the master and all local controllers operating in all coordinated modes.

If any failure occurs during this stage, all equipment for this stage shall be restarted following completion of repairs.

Equipment Failure Or Rejection

Equipment failures shall be defined as set forth in NEMA Publication No. TS 1-1976. Failure of load switches, detector amplifiers, and conflict monitors shall not result in rejection of the controller or cabinet. However, the Contractor shall stock, as replacements, approximately 30 percent more than the total for these three items. All excess material shall remain the property of the Contractor following completion of all tests.

If a failure occurs during Stages 3 or 4, repairs shall be made and completed within ten working days following notification of the malfunction. The Contractor shall have the option of making onsite repairs or repair them at a site selected by the Contractor. Failure to complete repairs within the allotted time shall result in rejection of the controller or cabinet assembly under test.

A total of two failures will be allowed from the start of Stage 3 to the end of Stage 4. If three failures occur during this time period, the equipment will be rejected. New equipment of different serial numbers submitted as replacement shall be received by the Materials Laboratory for testing under Stage 3 within ten working days following notification of rejection. Failure to meet this requirement within the allotted time will result in rejection of the

entire system. Software errors will be considered as failures and, if not corrected within ten working days, the entire system will be subject to rejection. Following rejection of any equipment, the Contractor shall be responsible for all costs incurred. This shall include but not be limited to all shipping costs.

When the traffic control program is supplied by the State, the Contractor shall prove that any failures are, in fact, caused by that program and not the hardware.

All component or system failures, except load switches and detector amplifiers, shall be documented. This documentation shall be submitted prior to commencing the test or stage in which the failure was found and shall provide the following information:

- a. A detailed description of the failure.
- b. The steps undertaken to correct the failure.
- c. A list of parts that were replaced, if any.

Upon completion of the tests, the equipment will be visually inspected. If material changes are observed which adversely affect the life of the equipment, the cause and conditions shall be noted. The Contractor will immediately be given notice to correct these conditions. If not repaired within ten working days of notification, the equipment will be subject to rejection. A final accounting shall be made of all equipment prior to approval.

All failed or rejected equipment shall be removed from the Materials Laboratory within three working days following notification; otherwise, the failed or rejected equipment will be returned, freight collect, to the Contractor.

Following final approval by the State Materials Laboratory, all equipment shall be removed from the State Materials Laboratory and delivered to sites as designated elsewhere in this contract.

Guarantees

Guarantees and warranties shall be in accordance with Section 1-05.10.

8-20.5.GR8

Payment

8-20.5.INST1.GR8

Section 8-20.5 is supplemented with the following:

8-20.5.OPT1.GB8

(April 6, 2015)

"Removing Traffic Signal Shaft Obstructions", estimated.

Payment for removing obstructions, as defined in Section 8-20.3(4) as supplemented in these Special Provisions, will be made for the changes in shaft construction methods necessary to remove the obstruction. The Contractor and the Engineer shall evaluate the effort made and reach agreement on the equipment and employees utilized, and the

number of hours involved for each. Once these cost items and their duration have been agreed upon, the payment amount will be determined using the rate and markup methods specified in Section 1-09.6. For the purpose of providing a common proposal for all bidders, the Contracting Agency has entered an amount for the item "Removing Traffic Signal Shaft Obstructions" in the bid proposal to become a part of the total bid by the Contractor.

If the shaft construction equipment is idled as a result of the obstruction removal work and cannot be reasonably reassigned within the project, then standby payment for the idled equipment will be added to the payment calculations. If labor is idled as a result of the obstruction removal work and cannot be reasonably reassigned within the project, then all labor costs resulting from Contractor labor agreements and established Contractor policies will be added to the payment calculations.

The Contractor shall perform the amount of obstruction work estimated by the Contracting Agency within the original time of the contract. The Engineer will consider a time adjustment and additional compensation for costs related to the extended duration of the shaft construction operations, provided:

1. the dollar amount estimated by the Contracting Agency has been exceeded, and
2. the Contractor shows that the obstruction removal work represents a delay to the completion of the project based on the current progress schedule provided in accordance with Section 1-08.3.

8-21.GR8

Permanent Signing

8-21.2.GR8

Materials

8-21.2(9-06.16).GR8

Roadside Sign Structures

Section 9-06.16 is supplemented with the following:

8-21.2(9-06.16).OPT1.GR8

(January 3, 2011)

Perforated Steel Square Sign Post System

Where noted in the Plans, steel sign post systems shall be square, pre-punched galvanized steel tubing, that are NCHRP 350 Test Level 3 Certified and FHWA approved. The steel sign post system shall include all anchor sleeves, and other hardware required for a complete sign installation.

System Acceptance

Systems listed in the current QPL will be accepted per the QPL approval code. Systems not listed in the QPL will be accepted based on a Supplier's Certificate of Compliance. The Supplier's Certificate of Compliance will be a contract specific letter from the supplier stating the system is NCHRP 350 Test Level 3 compliant.

8-21.2(9-28.11).GR8

Hardware

Section 9-28.11 is supplemented with the following:

8-21.2(9-28.11).OPT1.GB8

(August 3, 2015)

Locknuts shown in the Plans specifying a locknut or locknut with nylon insert shall conform to one of the following:

1. ANCO Pin Locknut, with stainless steel locking pin, as manufactured by Lok-Mor, Inc.
2. Tri-lock Locknut, as manufactured by Lok-Mor, Inc.
3. Grade DH or 2H hex or heavy hex nuts conforming to one of the ASTM material specifications in the Locknut category of the Hardware table of this Section may be modified by installing a nylon insert washer. A minimum of 60-percent of the original number of threads shall meet the requirements of the applicable ASTM material specification after insertion of the nylon insert washer.
4. Hex or heavy hex nuts conforming to one of the ASTM material specifications in the Locknut category of the Hardware table of this Section may be modified by adding one of the following products to a minimum of one-half of the internal threads of the nut and the entire exterior top surface of the nut:
 - a. Nylok Blue Torq-Patch Locknut.
 - b. Nylok Precote 30.
 - c. ND Patch 360 Ring Patch.

The nuts with any of the three listed products are permitted for a single use only and shall have a maximum of two nut widths of thread extending beyond the nut after installation.

The alternatives to locknuts specified in Standard Plans G-90.20, G-90.30, and J-75.41 are deleted and replaced with the four options specified above.

8-21.2(9-28.14).GR8

Sign Support Structures

Section 9-28.14 is supplemented with the following:

8-21.2(9-28.14).OPT6.GR8

(September 8, 2020)

Manufacturers for Steel Roadside Sign Supports

The Standard Plans lists several steel sign support types. These supports are patented devices and many are sole-source. All of the sign support types listed below are acceptable when shown in the Plans.

<u>Steel Sign Support Type</u>	<u>Manufacturer</u>
Type TP-A & TP-B	Transpo Industries, Inc.
Type PL, PL-T & PL-U	Northwest Pipe Co.

1		
2	Type AS	Transpo Industries, Inc.
3		
4	Type AP	Transpo Industries, Inc.
5		
6	Type ST 1, ST 2, ST 3, & ST 4	Ultimate Highway Solutions, Inc., Allied Tube & Conduit Corp. (Mechanical Division), Trinity Highway Products, LLC.
7		
8		
9		
10		
11	Type SB-1, SB-2, & SB-3	Ultimate Highway Solutions, Inc., Xcessories Squared Development and Manufacturing Incorporated, Trinity Highway Products, LLC.
12		
13		
14		
15		
16	8-21.3.GR8	
17	Construction Requirements	
18		
19	8-21.3(9).GR8	
20	Sign Structures	
21		
22	8-21.3(9)E.GR8	
23	Bridge Mounted Sign Brackets	
24		
25	8-21.3(9)E.INST1.GR8	
26	Section 8-21.3(9)E is supplemented with the following:	
27		
28	8-21.3(9)E.OPT1.FB8	
29	(November 20, 2023)	
30	Bridge Mounted Sign Bracket No(s). *** \$\$1\$\$ *** include the following	
31	quantities of structural carbon steel:	
32		
33	*** \$\$2\$\$ ***	
34		
35	For bridge mounted sign brackets mounted with resin bonded anchors, the	
36	Contractor shall install resin bonded anchors in accordance with Section 6-	
37	02.3(18)A and Section 9-06.4. For this type of mounting, Bridge Mounted Sign	
38	Bracket No(s). *** \$\$3\$\$ *** include the following quantities of drilled holes:	
39		
40	*** \$\$4\$\$ ***	
41		
42	8-21.4.GR8	
43	Measurement	
44		
45	8-21.4.INST1.GR8	
46	Section 8-21.4 is supplemented with the following:	
47		
48	8-21.4.OPT1.FB8	
49	(September 8, 2020)	
50	*** \$\$1\$\$ *** contain(s) the following approximate quantities of material and work:	
51		
52	*** \$\$2\$\$ ***	

The quantities are listed only for the convenience of the Contractor in determining the volume of work involved and are not guaranteed to be accurate. The prospective bidders shall verify these quantities before submitting a bid. No adjustments other than for accepted changes will be made in the applicable sign structure lump sum Contract price even though the actual quantities required may deviate from those listed.

8-23.GR8

Temporary Pavement Markings

8-23.2.GR8

Materials

8-23.2(9-34).GR8

Pavement Marking Material

Section 9-34 is supplemented with the following:

8-23.2(9-34).OPT1.GR8

(October 3, 2022)

Temporary Adhesive Transverse Rumble Strips

Temporary Adhesive Transverse Rumble Strips shall consist of a self-adhesive orange rumble strips that is 4 inches wide and 0.250 inches thick.

Temporary Adhesive Transverse Rumble Strips shall be manufactured by Advanced Traffic Markings, Seton, Stop-Painting, or an approved equal.

8-23.3.GR8

Construction Requirements

8-23.3(4).GR8

Pavement Marking Application

8-23.3(4)A.GR8

Temporary Pavement Markings – Short Duration

8-23.3(4)A.INST1.GR8

Section 8-23.3(4)A is supplemented with the following:

8-23.3(4)A.OPT1.GR8

(October 3, 2022)

Temporary Adhesive Transverse Rumble Strips - A SOLID line used as an advance warning device. Each line shall be continuous and placed in the travel lane, perpendicular to the flow of traffic, as shown in the Plans. Each temporary transverse rumble strip shall be applied in accordance with the manufacturer's recommendation.

Temporary adhesive transverse rumble strips may be used on two-way, two-lane roadways in conditions requiring traffic to stop.

Do not place temporary adhesive transverse rumble strips on sharp horizontal or vertical curves, through pedestrian crossings or on bicycle routes. When

1 placed on roadways used by bicyclists a minimum clear path of 4 feet shall be
2 provided at each edge of the roadway or on each paved shoulder if feasible.
3
4 Temporary adhesive transverse rumble strips shall be repaired immediately
5 when it no longer provides the intended use. Temporary adhesive transverse
6 rumble strips will be removed when they are no longer required.
7
8 8-23.4.GR8
9 **Measurement**
10
11 8-23.4.INST1.GR8
12 Section 8-23.4 is supplemented with the following:
13
14 8-23.4.OPT1.GR8
15 (October 3, 2022)
16 Temporary Adhesive Transverse Rumble Strips will be measured by the linear foot of each
17 installed line for the initial installation only. Repair, for any reason, of temporary transverse
18 rumble strips will not be measured.
19
20 8-23.5.GR8
21 **Payment**
22
23 8-23.5.INST1.GR8
24 Section 8-23.5 is supplemented with the following:
25
26 8-23.5.OPT1.GR8
27 (October 3, 2022)
28 "Temporary Adhesive Transverse Rumble Strips", per linear foot.
29
30 The unit Contract price per linear foot for "Temporary Adhesive Transverse Rumble Strips"
31 shall be full pay for all Work as specified.
32
33 8-24.GR8
34 **Rock and Gravity Block Wall and Gabion Cribbing**
35
36 8-24.2.GR8
37 **Materials**
38
39 8-24.2.INST1.GR8
40 Section 8-24.2 is supplemented with the following:
41
42 8-24.2.OPT1.GR8
43 **(November 2, 2022)**
44 **Gravity Block Wall**
45 Gravity block wall blocks shall be rectangular prisms with dimensions 2'-5 1/2" by 2'-5 1/2"
46 by 4'-11", except for special blocks which shall be as dimensioned in the Plans. All
47 dimensions shall be $\pm \frac{1}{2}$ ".
48
49 Except as otherwise specified, gravity block wall blocks will be accepted by the Engineer
50 based on visual inspection only, with no minimum compressive strength and no air content
51 requirements for the concrete used in the block.
52

Gravity block wall blocks for permanent walls of heights greater than six feet and less than 15 feet shall be cast with Class 3000 concrete, conforming to the air content requirements of Section 6-02.3(2)A. Commercial concrete shall not be used. Gravity block wall blocks for permanent walls of these heights will be accepted based on visual inspection, and conformance to Section 6-02.3(9) and the specified concrete strength and air content requirements.

8-24.3.GR8

Construction Requirements

8-24.3(2).GR8

Gravity Block Wall

8-24.3(2).INST1.GR8

Section 8-24.3(2) is supplemented with the following:

8-24.3(2).OPT1.GR8

(September 2, 2025)

Definitions

Temporary Gravity Block Wall: A gravity block wall that is constructed and removed under the same contract. Temporary gravity block walls shall not exceed ten feet in height, measured from the bottom of the bottom row of blocks to the top of the highest block.

Permanent Gravity Block Wall: A gravity block wall that remains in place after the conclusion of the contract under which the gravity block wall was constructed. Permanent gravity block walls shall not exceed 15 feet in height, measured from the bottom of the bottom row of blocks to the top of the highest block.

Submittals

The Contractor shall submit working drawings of the gravity block wall to the Engineer for approval in accordance with Section 6-01.9. The working drawings shall include, but not be limited to, the following:

1. Plan, elevation, and section views of the wall, showing the layout, batter, and orientation of the blocks.
2. Dimensions and details of the blocks, including details and locations of block erection lifting loops and inserts, and the features designed to interlock blocks together if the blocks have such features.
3. Method and equipment used to erect the blocks.
4. Erection sequence.

The Contractor shall not begin fabricating gravity block wall blocks until receiving the Engineer's approval of the working drawing submittal.

Gravity Block Wall Erection

After excavating for the wall base, the Contractor shall grade the excavation for a width equal to or exceeding the width of the bottom row of blocks. The base shall be

1 graded to the base elevation shown in the Plans and working drawings as approved
2 by the Engineer, and shall accommodate the batter of the bottom row of blocks.
3
4 The Contractor shall erect the gravity block wall and place the backfill in accordance
5 with the erection sequence as approved by the Engineer. The top of the gravity block
6 wall shall be within two inches of the line and grade shown in the Plans. The backfill
7 shall be compacted in accordance with Section 3-03.3(14)C, Method C.
8
9 The Contractor shall repair all large blemishes, honeycombed areas, and chipped
10 surfaces, (25 square inches and larger) on the exposed face of the erected wall using
11 methods and materials as approved by the Engineer.
12
13 8-25.GR8
14 **Glare Screen**
15
16 8-25.1.GR8
17 **Description**
18
19 8-25.1.INST1.GR8
20 Section 8-25.1 is supplemented with the following:
21
22 8-25.1.OPT1.GR8
23 (April 1, 2002)
24 This work shall consist of furnishing and constructing permanent and temporary barrier
25 glare screen on concrete barrier in accordance with the Plans, these Specifications, and
26 as directed by the Engineer.
27
28 8-25.2.GR8
29 **Materials**
30
31 8-25.2.INST1.GR8
32 Section 8-25.2 is supplemented with the following:
33
34 8-25.2.OPT1.GR8
35 **(April 1, 2002)**
36 **Barrier Glare Screen**
37 Barrier glare screen shall consist of modular units with vertical blades mounted on a
38 horizontal base rail. Base rails and blades shall be made of non-warping, non-metallic
39 durable polymeric materials; shall be resistant to damage due to impacts, ultraviolet light,
40 ozone, hydrocarbons, and other effects of atmosphere weathering; shall resist stiffening
41 with age; and shall be designed for a minimum life equaling 60 months of outdoor service.
42
43 The color of blades shall be gray or green. Only one color shall be used throughout the
44 project. The height of the blade shall be 24 inches. The blade width and spacing shall
45 provide for a minimum 22 degree sight cutoff angle. The length of the unit shall be the
46 same as the length of the concrete barrier that the unit is mounted on. The unit can be
47 composed of smaller sub-units as long as the completed assembly is the same length as
48 the concrete barrier. The unit shall not exceed 4.5 pounds per linear foot.
49
50 Brackets and mounting hardware may be metallic or non-metallic. Metallic brackets and
51 anchor hardware shall be stainless steel or galvanized in accordance with ASTM A-153.
52 Anchors shall be a stud mechanical system and shall include the necessary washers. The

blade to rail base separation strength shall be a minimum of 1,500 pounds. Anchors shall have a minimum 3,000 pound pull-out and shear strength.

Barrier glare screen shall be selected from approved materials listed in the Qualified Products List.

Laboratory Tests

Three blades shall be cycled at 1000 hours in a weatherometer in accordance with ASTM G 53 (3 hr. 60C UV, 3 hr. 50C CON). The blades shall show no signs of delamination, distress, or discoloration. Physical properties of tensile strength and rigidity shall be maintained within 80 percent of the unconditioned values.

An impact test shall be performed on three partial sections of the modular unit consisting of the base rail and one blade. The temperature shall be 45°F. The modular unit shall be fastened in a similar fashion as to how the system would be used in the field. Each blade shall receive three impacts with a horizontal steel bar traveling at 50 MPH impacting at mid-height on the blade. After impact, the screening unit (blades and base) shall be inspected for the following criteria:

1. Any cracking, splitting, or delamination, other than surface cracking evident on only one face of the blade, is considered a failure.
2. If the blade leans more than 10 degrees from the vertical it is considered a failure.
3. Any separation of the blade from the base is considered a failure.
4. Any separation of the base from the attachment is considered a failure.

If an individual blade or base fails any of the above criteria, the product is unacceptable.

Pre-approval

In order for a particular model of temporary barrier glare screen to become pre-approved, the following conditions must be met:

1. The manufacturer must submit a written request for pre-approval along with samples for each model to be tested to: Materials Engineer, Department of Transportation Material Laboratory, P.O. Box 47365, Olympia, WA 98504-7365. Samples shall be complete with blades, base rail, and mounting hardware and shall be accompanied by the manufacturer's written installation procedures.
2. The barrier screen will be field impact tested by the State Materials Laboratory to verify compliance with these specifications.
3. In lieu of State Materials Laboratory testing, the Lab will accept the results of pre-approved testing performed by the manufacturer or other agencies under the following conditions:
 - a. The State Materials Laboratory is informed of the pre-approval testing sufficiently in advance in order to attend and observe. Attendance will be at the discretion of the Materials Laboratory.

1 8-25.5.OPT1.GR8
2 (April 1, 2002)
3 "Barrier Glare Screen", per linear foot.
4 "Temporary Barrier Glare Screen", per linear foot.
5
6 8-29.GR8
7 **Wire Mesh Slope Protection**
8
9 8-29.1.GR8
10 **Description**
11
12 8-29.1.INST1.GR8
13 Section 8-29.1 is supplemented with the following:
14
15 8-29.1.OPT1.GR8
16 (April 5, 2010)
17 This work also consists of furnishing and installing cable net slope protection.
18
19 8-29.2.GR8
20 **Materials**
21
22 8-29.2.INST1.GR8
23 Section 8-29.2 is supplemented with the following:
24
25 8-29.2.OPT1.GR8
26 **(January 2, 2018)**
27 **Cable Net Slope Protection Materials**
28 Except where the Plans specify only one type of wire mesh backing material, wire mesh
29 shall consist of either of the following:
30
31 1. 8x10 double-twisted, hexagonal wire mesh conforming to ASTM A 975
32
33 2. Chain link fabric conforming to Section 9-16.4(2) except that the chain link mesh
34 grid shall be two-inch square.
35
36 Unless otherwise specified, wire mesh shall be PVC coated. The color of the PVC coating
37 shall be SAE AMS Standard 595 color number 20045, unless otherwise specified in the
38 Plans.
39
40 Wire rope for cable net panels specified in the Plans to be 5/16-inch nominal diameter
41 shall be galvanized aircraft cable (GAC) construction, EIP steel, 7x7 or 7x19, having a
42 nominal breaking strength of at least 9,200 pounds. 5/16-inch wire rope shall be
43 fabricated and galvanized in accordance with Federal Specification RR-W-410E and
44 ASTM A 1023.
45
46 Wire rope for cable anchors, and for other wire ropes specified in the Plans to be 3/4-inch
47 nominal diameter or larger, shall be independent wire rope class (IWRC) construction,
48 EIP steel, 6x19, and shall be galvanized in accordance with ASTM A 603 Class A.
49
50 Hardware shall conform to Section 9-16.4(4), with appropriate adjustments for the actual
51 wire rope diameter used for the cable net slope protection. Jaw end swivels shall be
52 galvanized after fabrication in accordance with Federal Specification RR-C-271D Type

1 VII Class 3. Screw pin anchor shackles shall be galvanized after fabrication in
2 accordance with Federal Specification RR-C-271D Type IVA Grade A Class 2.

3
4 Lacing wire for seaming the double-twisted wire mesh shall conform to Section 9-16.4(5).

5
6 Pressed ring fasteners for seaming the double-twisted wire mesh and fastening the mesh
7 to the cable nets shall be made of high tensile steel.

8
9 Threaded bar ground anchors used for anchoring the top cable net support rope and steel
10 post anchor assemblies to the ground surface as shown in the Plans shall be deformed
11 continuously threaded steel reinforcement bars conforming to either Section 9-07.2 or
12 Section 9-07.11 (Grade 60 or better). Threaded bar ground anchors shall be either epoxy-
13 coated in accordance with Sections 6-02.3(24)H and 9-07.3 or galvanized after fabrication
14 in accordance with ASTM A 767 Class I.

15
16 Bearing plates shall conform to ASTM A 572 Grade 50 and shall be galvanized after
17 fabrication in accordance with AASHTO M 111. Nuts shall conform to either ASTM A 563
18 Grade B, hexagonal, or Section 9-07.11. Washers shall conform to AASHTO M 293,
19 except that plate washers shall conform to ASTM A 36. Nuts and washers shall be
20 galvanized after fabrication in accordance with AASHTO M 111 for plate washers and
21 AASHTO M 232 for all other hardware.

22
23 Steel posts shall conform to ASTM A 992 and shall be galvanized after fabrication in
24 accordance with AASHTO M 111. Bars and plates welded to steel posts shall conform to
25 ASTM A 572 Grade 50 and shall be galvanized after fabrication in accordance with
26 AASHTO M 111.

27
28 Grout for soil anchors and ground anchors shall conform to Section 9-16.4(6).

29
30 Concrete for soil gravity anchors shall be either commercial concrete conforming to
31 Section 6-02.3(2)B or Class 3000 conforming to Section 6-02.

32
33 Steel reinforcing bars for soil gravity anchors shall conform to Section 9-07.2 and shall be
34 epoxy-coated in accordance with Sections 6-02.3(24)H and 9-07.3.

35
36 8-29.3.GR8

37 **Construction Requirements**

38
39 8-29.3.INST1.GR8

40 Section 8-29.3 is supplemented with the following:

41
42 8-29.3.OPT1.GR8

43 **(January 3, 2011)**

44 ***Cable Net Slope Protection Construction Requirements***

45 **Submittals**

46 The Contractor shall submit a cable net slope protection plan to the Engineer for
47 approval in accordance with Section 6-01.9. The cable net slope protection plan
48 shall include the following:

- 49
50 1. Identification of the supplier of the cable nets. The cable net supplier shall
51 either be listed in the WSDOT Qualified Products List (QPL) or the WSDOT
52 New Products List, or if not listed in the WSDOT QPL or WSDOT New

Products List, the submittal shall include written documentation demonstrating satisfactory performance of cable nets furnished by this supplier in projects completed for other agencies in similar site conditions.

2. An inclusive list with catalogue cuts for the appurtenances to be used for the anchors, support system, seaming panels, wire mesh fasteners, anchor bars, grout, wire rope, clips, thimbles, ferrules, steel rings and other fastening hardware.
3. Mill certificates for the wire rope.
4. A 3'-0" square physical sample of the PVC coated wire mesh in the specified color.
5. The Contractor's plan for installing anchors for the cable net slope protection, and the equipment and process to be used to confirm the capacity of the constructed anchors. The calibration data for the stressing devices used to proof test the anchors, as completed by an independent testing laboratory within 60 calendar days of the submittal date of the cable net slope protection plan to the Engineer, shall be included.
6. Working drawings for the temporary yoke or load frame to be used for anchor proof testing.
7. The Contractor's plan for assembling the cable nets and wire mesh, and erecting the assembled nets on the slope.

The Contractor shall not begin cable net slope protection operations until receiving the Engineer's approval of the cable net slope protection plan.

Cable Net Slope Protection Assembly

The cable net panels shall conform to the following criteria:

Panel Size:	approximately 12 feet by 25 feet
Grid Size:	no larger than 12 inches by 12 inches
Interior and Perimeter Rope:	no smaller than 5/16 inch diameter

Cable nets shall be fabricated with a perimeter rope. Interior wire rope junctions shall be bound with either double knots of 1/8 inch diameter corrosion resistant wire, or high-strength, corrosion resistant clips with slotted bottoms made from 0.08 inch thick plate. All perimeter-interior wire rope junctions shall be bound with corrosion resistant ferrules.

Clips and ferrules shall be pressed on and tie wires knotted so as not to slip when manually stretched or during the placement of the nets. Clips and ferrules shall be secured in the manner intended by the manufacturer while not damaging the wire ropes. Cable net assemblies showing signs of slight damage as determined by the Engineer will be subject to rejection.

Cable Net Slope Protection Installation

Cable net slope protection shall be installed in accordance with the details shown in the Plans.

1
2 Anchors and the top horizontal support rope shall be located a minimum of 15 feet
3 beyond the slope crest, at locations receiving the Engineer's approval.
4

5 Anchors shall achieve the specified anchor capacity in vertical pullout. If double
6 anchors are used, they shall be installed to ensure equal load distribution to both
7 anchors, and each anchor shall achieve 60 percent of the specified anchor capacity
8 in vertical pullout. For vertical pullout proof testing, an anchor is acceptable if it
9 sustains the specified capacity for 10 minutes with no loss of load. Anchors that fail
10 this criterion shall be replaced and retested at no additional expense to the
11 Contracting Agency. For Type 1 cable net slope protection, up to 25 percent of the
12 support rope anchors shall be proof tested. For Type 2 cable net slope protection,
13 all support rope anchors shall be proof tested. Up to 25 percent of the side and back
14 anchors shall be proof tested at the discretion of the Engineer. If more than three
15 anchors fail, the Contractor shall proof test all anchors.
16

17 Proof testing of anchors shall be performed against a temporary yoke or load frame.
18 No part of the temporary yoke or load frame shall bear within three feet of the anchor
19 being tested.
20

21 Unless otherwise specified in the Plans, the wire mesh shall be placed on the outside
22 of the cable net panels, and lapped and fastened as detailed in the Plans. With the
23 exception of vertical seaming of the net panels, the wire mesh shall be connected to
24 the cable net panels as shown in the Plans prior to placement on the slope.
25

26 All galvanized steel with exposed steel or damaged galvanizing shall be repaired in
27 place after erection of the cable net slope protection in accordance with Section 6-
28 07.3(9)I with paint conforming to Section 9-08.1(2)B.
29

30 8-29.4.GR8

31 **Measurement**
32

33 8-29.4.INST1.GR8

34 Section 8-29.4 is supplemented with the following:
35

36 8-29.4.OPT1.GR8

37 (April 5, 2010)

38 Cable net slope protection will be measured by the square foot of cable net panels erected
39 on the slope.
40

41 8-29.5.GR8

42 **Payment**
43

44 8-29.5.INST1.GR8

45 Section 8-29.5 is supplemented with the following:
46

47 8-29.5.OPT1.GR8

48 (January 3, 2011)

49 "Cable Net Slope Protection Type ____", per square foot.

50 The unit contract price per square foot for "Cable Net Slope Protection Type ____" shall be
51 full pay for performing the work as specified, including fabrication and installation of all
52 steel posts and anchors and all anchor proof testing.

1
2 8-30.GR8
3 **Streams, Rivers, and Waterbodies**
4
5 8-30.3.GR8
6 **Construction Requirements**
7
8 8-30.3(2).GR8
9 ***Mixing of Streambed Aggregates***
10
11 8-30.3(2).INST1.GR8
12 Section 8-30.3(2) is supplemented with the following:
13
14 8-30.3(2).OPT1.FR8
15 **(February 13, 2024)**
16 **Blending Streambed Aggregates**
17 Streambed aggregates shall be mixed in the following proportions:
18
19 *** \$\$1\$\$ ***
20
21 8-31.GR8
22 **Temporary Stream Diversion**
23
24 8-31.3.GR8
25 **Construction Requirements**
26
27 8-31.3(1).GR8
28 ***General***
29
30 8-31.3(1)A.GR8
31 **General TSD Requirements**
32
33 8-31.3(1)A.INST1.GR8
34 Section 8-31.3(1)A is supplemented with the following:
35
36 8-31.3(1)A.OPT1.FR8
37 **(October 3, 2022)**
38 **Minimum Stream Flows**
39 At all times of operation, the Contractor's temporary stream diversion shall be
40 designed to convey the following minimum flow rate of water in cubic feet per
41 second:
42
43 *** \$\$1\$\$ ***
44
45 8-31.3(1)A.OPT2.FR8
46 **(October 3, 2022)**
47 **Minimum Stream Flows (Contingency System)**
48 A Contingency System is required for this Project. The Contractor's contingency
49 system shall be designed to convey the following minimum flow rate of water in
50 cubic feet per second:
51
52 *** \$\$1\$\$ ***

1
2 8-31.3(1)B.GR8
3 **TSD Plan Implementation Meeting**
4
5 8-31.3(3).GR8
6 ***Fish Block Net Installation and Fish and Aquatic Species Exclusion***
7
8 8-31.3(3)B.GR8
9 **Contracting Agency Provided Materials**
10
11 8-31.3(3)B.INST1.GR8
12 Section 8-31.3(3)B is supplemented with the following:
13
14 8-31.3(3)B.OPT1.FR8
15 (October 3, 2022)
16 The Contracting Agency will provide the following fish exclusion materials:
17
18 *** \$\$1\$\$ ***
19
20 8-SA1.GR8
21 **(August 7, 2017)**
22 **FIELD OFFICE BUILDING**

23 **Description**
24 This work shall consist of furnishing and setting-up a temporary office building for the sole use
25 of the Contracting Agency.
26
27 **Construction Requirements**
28 The building shall be set-up, at the location designated by the Engineer, within the first 10
29 working days, unless the Engineer has approved a different schedule.
30
31 The building shall be weather-tight, installed plumb and level, and provided with the following
32 as a minimum:
33
34 1. 240 square feet of floor space
35 2. Above ground floor
36 3. Heat
37 4. Electric lights
38 5. Telephone
39 6. Adequate windows
40 7. Six square feet of shelving
41 8. Plan table: 3 feet 6 inches deep by 6 feet wide by 3 feet 3 inches high
42 9. Drafting stool
43 10. Conference table: 4 foot by 8 foot
44 11. Four chairs
45 12. Cylinder door lock and six keys
46 13. Sanitary facilities (unless existing facilities are available)
47
48 The building shall remain the property of the Contractor and removed from the site upon
49 physical completion of the contract, or when designated by the Engineer.
50
51 **Payment**

1 Payment will be made for the following bid item when included in the proposal:
2
3 "Field Office Building", lump sum.
4
5 The lump sum contract price for "Field Office Building" shall be full pay for furnishing, installing,
6 maintaining, and removing the facility, including all costs associated with all required utility
7 hook-ups and disconnects, and monthly utility charges for all utilities except telephone.
8
9 The monthly telephone costs will be paid by the Contracting Agency.
10
11 8-SA2.GR8
12 **(October 3, 2022)**
13 **BOLLARDS**

14 **Description**
15 This work shall consist of furnishing and installing steel bollards in accordance with the Plans,
16 Standard Plans, and these Specifications, at the locations shown in the Plans or as staked by
17 the Engineer.
18

19 **Materials**

20 ***Posts and Hardware***
21 Type 1 and Type 2 bollard posts shall be in accordance with the Standard Plans and
22 ASTM A 53, NPS 3 (3" Nom.) schedule 80 steel pipe. Post sleeves shall be ASTM A 53,
23 NPS 4 (4"Nom.) schedule 40 steel pipe.
24
25 Type 3 bollard posts shall be steel structural tubing in accordance with the Plans and
26 ASTM A 500 Gr B.
27
28 Steel plate shall be in accordance with ASTM A 36.
29
30 All steel parts shall be hot-dip galvanized after fabrication in accordance with AASHTO M
31 111.
32

33 ***Reflective Tape***
34 Reflective tape shall be in accordance with Section 9-28.12.
35

36 ***Concrete***
37 Footings shall be constructed using concrete Class 3000.
38

39 **Construction Requirements**
40 Bollards shall be constructed in accordance with the Standard Plans.
41
42 Bollards shall not vary more than ½ inch in 30 inches from a vertical plane.
43
44 Bollard posts and the exposed parts of the base assembly shall be painted in accordance with
45 Section 6-07.3(11) for galvanized surfaces. The top coat shall match SAE AMS Standard 595,
46 Color No. 33538 Traffic Signal Yellow.
47

48 **Measurement**
49 Measurement for bollards will be by the unit for each type of bollard furnished and installed.
50

Payment

Payment will be made for the following bid items when included in the proposal:

"Bollard Type ____", per each.

8-SA3.GR8

(August 6, 2018)

Environmental Compliance

Description

It is the Contractor's responsibility to conduct and perform all Work in accordance with Environmental Regulations, Environmental Commitments, permits, and Plans that the Work is subject to. The Environmental Compliance Lead (ECL) shall be the Contractor's representative that is responsible for management of the Contractor's environmental compliance.

Construction Requirements

Environmental Compliance Lead (ECL)

The Contractor shall designate a primary ECL and an alternate ECL to perform the duties of the ECL. The Contractor shall provide the Engineer with a copy of the formal assignment in writing prior to the start of construction. The Contractor's superintendent and/or foreman cannot be designated as the primary or alternate ECL.

The ECL shall represent all Contractor work actions for the project, regardless of whether the work is performed by the Contractor or one of the subcontractors. The ECL shall have the authority to direct work to expeditiously correct any environmental compliance deficiency and coordinate these measures with the Engineer, and to order the Contractor's on-site personnel to stop work that is not being performed in compliance with the permits.

The ECL shall be on-site during all work activities unless otherwise approved by the Engineer. The Contractor shall maintain 24-hour telephone numbers at which the Contractor's designated ECL can be contacted and be available upon the Engineer's request during other than normal working hours. ECL and alternate(s) shall be listed on the Emergency Contact List required under Section 1-05.13(1).

The ECLs shall have, for the life of the Contract, a current Certificate of Training in Construction Site Erosion and Sediment Control (CESCL) from a course approved by the Washington State Department of Ecology.

The primary responsibilities of the ECL are to assist the Contractor's superintendent in planning and scheduling work activities to achieve environmental compliance; and be present on-site to observe work activities and resolve environmental compliance issues as they may develop.

The duties of the ECL shall also include the following requirements:

- Erosion and Sediment Control (ESC) Lead, Section 8-01.3(1)B,
- Updating the Spill Prevention, Control and Countermeasures Plan, Section 1-07.15(1),
- Attending the preconstruction conference (ECL and alternates),

- Evaluation of the Contractor's work operations and schedule in regard to environmental risks,
- Providing advanced notification to the Engineer of work activities that may create environmental compliance concerns.

Payment

Payment will be made for each of the following Bid items that are included in the Proposal:

"Environmental Compliance Lead", lump sum.

The lump sum Contract price for "Environmental Compliance Lead" shall be full payment for all costs for the Work. When the proposal includes an item for Environmental Compliance Lead all costs for ESC Lead in Section 8-01 shall be included in the lump sum price.

8-SA5.GR8

(January 6, 2025)

WOODY MATERIAL

Description

This Work shall consist of furnishing and installing woody material where shown in the Plans or where specified by the Engineer.

Definitions

Diameter at breast height (DBH) - The method of expressing the diameter of the trunk of a tree measured 4.5 feet above ground when standing.

Large Woody Material (LWM) - Trees and parts of trees including any variation of logs, rootwads, or stumps greater than 4 inches in diameter.

Small Woody Material (SWM) - Small trees and parts of trees where the trunk is 2 to 4 inches in diameter.

Slash - Small trees and parts of trees where the trunk is less than 2 inches in diameter.

Materials

Large Woody Material (LWM)

LWM shall be a log with or without rootwad as specified in the Plans. LWM shall be free of soil and rocks, rot and disease, and shall be free of fractures. It shall retain at least 50% of the original bark in its final placement. Cleaning shall not strip LWM of bark and roots.

Log without Rootwad

When a log without rootwad is specified in the Plans, it shall meet the following requirements:

1. The trunk shall be of a native coniferous tree excluding Western red cedar (*Thuja plicata*).
2. Diameter shall be as specified in the Plans with an acceptable tolerance of $\pm 10\%$. Diameter shall be measured at the midpoint of the cut log.

3. The length shall be as specified in the Plans with an acceptable tolerance of ± 6 inches. The length shall be measured from cut end to cut end.

Log with Rootwad

When a log with rootwad is specified in the Plans, it shall meet the following requirements:

1. The trunk shall be of a trunk of a native coniferous tree excluding Western red cedar (*Thuja plicata*).
2. Diameter is defined as the DBH as specified in the Plans with an acceptable tolerance of $\pm 10\%$.
3. The length shall be as specified in the Plans with an acceptable tolerance of ± 6 inches. The length shall be measured from the cut end of the log to the start of the rootwad mass.
4. The rootwad diameter, averaged from two orthogonal measurements, shall be a minimum of 2.5 times DBH and maximum as determined by the Engineer with roots intact. Rootwads shall not be cut, unless approved by the Engineer.

Boulder Anchoring

When anchoring of the LWM is specified in the Plans, the anchoring shall meet the following requirements:

1. Wire Rope - Wire Rope utilized for connecting LWM to the boulders shall be $\frac{1}{2}$ -inch stainless steel, multi-strand, flexible wire rope. Wire rope shall meet the requirements of ASTM A492.
2. Wire Rope Clips and Thimbles - Shall meet the requirements of Section 9-16.4(4).
3. Epoxy Adhesive - Epoxy adhesive used for boulder anchors shall be Type IV and meet the requirements of Section 9-26.
4. Rebar Pin - Rebar used to anchor the LWM shall be No. 4 ($\frac{1}{2}$ -inch) steel reinforcing bar conforming to Section 9-07.2.
5. Eye Bolt - Eye Bolt used for connecting the LWM to the streambed boulders shall be $\frac{3}{4}$ -inch diameter stainless steel (ASTM A193) threaded eye bolt with a minimum of a 4,000-pound working load limit and pull out strength. Eye Bolts shall have a minimum $1\frac{1}{2}$ inch opening for the "eye" and have sufficient length and threads to be embedded a minimum of 6 inches into the Boulder Anchor. Eye Bolt shall meet the requirements of ASTM A489.
6. No galvanized steel shall be used.
7. Boulders - Boulders used for anchoring shall meet the requirements for Streambed Boulders in accordance with Section 9-03.11(5).

1 **Small Woody Material (SWM)**

2 SWM shall consist of a random assortment of branches, trees, brush and treetops of the
3 following native species: Western red cedar (*Thuja plicata*), douglas fir (*Pseudotsuga*
4 *mensezeii*), western hemlock (*Tsuga heterophylla*) coniferous trees, or various hardwood
5 trees. No more than 50% of hardwood species shall be used. Branches, twigs, leaves
6 and needles shall be left intact to the extent possible given the mechanics of handling
7 SWM. The maximum diameter of any piece of SWM shall be 4 inches. The maximum
8 length of any piece of SWM shall be 6 feet. SWM shall not contain any material which
9 causes turbidity.

10
11 **Slash**

12 Slash shall consist of a random assortment of branches, trees, brush and treetops of the
13 following native species: Western red cedar (*Thuja plicata*), douglas fir (*Pseudotsuga*
14 *mensezeii*), western hemlock (*Tsuga heterophylla*), sitka spruce (*Picea sitchensis*)
15 coniferous trees, or various hardwood trees. No more than 50% of hardwood species
16 shall be used. Branches, twigs, leaves and needles shall be left intact to the extent
17 possible given the mechanics of handling Slash. The maximum diameter of any piece of
18 Slash shall be 2 inches. The maximum length of any piece of Slash shall be 6 feet. Slash
19 shall not contain any material which causes turbidity.

20
21 Woody material may be available from trees removed by excavation or clearing and
22 grubbing limits as shown in the Plans. Components of the removed trees which meet the
23 criteria for the specific woody material may be used to supplement the woody material
24 and will be accepted based on a visual inspection by the Engineer.

25
26 Acceptance of Woody Material will be based upon inspection by the Engineer prior to
27 placement.

28
29 **Construction Requirements**

30 **General**

31 The Contractor shall install woody material at the location shown in the Plans and as
32 directed by the Engineer.

33
34 The Contractor shall exercise care when installing and transporting the Woody Material
35 to avoid damage. Rootwads shall remain intact during delivery and installation.

36
37 The streambed and bank shall be temporarily excavated to allow placement of the woody
38 material as specified in the Plans. Backfill shall be native material or streambed material,
39 unless otherwise shown in the Plans. Backfill shall be placed in lifts no thicker than 12
40 inches and shall be compacted to be uniformly dense and unyielding as approved by the
41 Engineer.

42
43 The Contractor shall exercise care when placing the Woody Material to ensure that the
44 method of installation minimizes disturbance of waterways and prevents sediment or
45 pollutant discharge into water.

46
47 After the woody material has been placed, the area shall be graded as shown in the Plans.

48
49 **Boulder Anchoring**

50 When anchoring LWM is called out in the Plans, each anchor shall consist of two boulders
51 as detailed in the Plans. One $\frac{7}{8}$ inch hole shall be drilled a minimum of 6 inches deep into
52 each boulder. After the hole is drilled in the boulder anchors, the hole shall be cleaned

1 using compressed air to blow out the dust and rock particles. After being cleaned, the
2 hole in the boulder anchors shall be filled with epoxy adhesive in accordance with the
3 manufacturer's instructions, and eye bolt inserted as shown in the Plans. Note that the
4 minimum amount of epoxy adhesive to place in each hole is equal to the amount
5 necessary to fill the hole to the top with the eye bolt inserted.
6

7 After epoxy adhesive has cured, in accordance with the manufacturer's instructions, the
8 Contractor shall anchor the LWM to the boulders as shown in the Plans. All LWM to be
9 anchored shall be anchored such that there is no slack in the wire rope. The wire rope
10 shall be looped around a thimble, through the eye bolt, then doubled back on itself. The
11 end of the wire rope shall be secured using three wire rope clips, with the saddle of the
12 clip placed on the "live" end of the wire rope, as described in Section 6-02.3(17)F2. Three
13 stainless steel, malleable wire rope clips per connection shall be used to complete the
14 anchor assembly as specified in the Plans. Stainless steel thimbles shall be used
15 wherever the wire rope terminates in a loop.
16

17 **Measurement**

18 Large Woody Material – Log without Rootwad DIA____, Large Woody Material – Log with
19 Rootwad DIA____, Boulder Anchor will be measured per each.
20

21 SWM and Slash will be measured by the cubic yard, in the hauling conveyance.
22

23 **Payment**

24 Payment will be made in accordance with Section 1-04.1, for each of the following bid items.
25

26 "Large Woody Material - Log without Rootwad DIA____", per each.

27 "Large Woody Material - Log with Rootwad DIA____", per each.

28 The unit contract price for each "Large Woody Material - Log without Rootwad
29 DIA____" and "Large Woody Material -Log with Rootwad DIA____" shall be full
30 payment for all Work as specified, including acquiring, storing, hauling to the site,
31 unloading, assembling, pinning, bundling, installing, excavation, backfill, compaction and
32 grading.
33

34 "Boulder Anchor", per each.

35 "Boulder Anchor" shall be full payment for all Work as specified, including acquiring,
36 storing, hauling to the site, unloading, assembling, bundling, drilling, epoxy, installing,
37 anchoring, excavation, backfill, compaction and grading.
38

39 "Slash" and "Small Woody Material", per cubic yard.

40 The unit Contract price per cubic yard for "Slash" and "Small Woody Material" shall be full
41 payment for all Work as specified, including acquiring, storing, hauling to the site,
42 unloading, assembling, bundling, installing, excavation, backfill, compaction and grading.
43

44
45 DIVISION9.GR9

46 **Division 9** 47 **Materials** 48

1 APPENDIX1.FR9
2 **Appendices**
3 **(January 2, 2012)**

4 The following appendix is attached and made a part of this contract:

5
6 *** \$\$1\$\$ ***
7

8 [Fill-in is the name, title, and if necessary the page numbers of the appendix, formatted
9 as shown in the following sample:]

10
11 APPENDIX A:
12 Summary of Geotechnical Conditions, Page __ through Page __.
13

14 APPENDIX2.FR9
15 **Appendices**
16 **(January 2, 2012)**

17 The following appendices are attached and made a part of this contract:

18
19 *** \$\$1\$\$ ***
20

21 [Fill-in is the name, title, and if necessary the page numbers of the appendices, formatted
22 as shown in the following sample:]

23
24 APPENDIX A:
25 Summary of Geotechnical Conditions, Page __ through Page __.
26

27 APPENDIX B:
28 (Name of Report or Document), Page __ through Page __.
29

30 STDPLANS.GR9
31 **(September 16, 2025)**
32 **Standard Plans**

33 The Washington State Department of Transportation *Standard Plans* M21-01, published
34 September 2024, is made a part of this Contract with the following revisions:

35
36 A-10.30
37 RISER RING detail (Including SECTION view and RISER RING DIMENSIONS table):
38 The RISER RING detail is deleted from the plan.
39

40 INSTALLATION detail, SECTION A: The "1/4"" callout is revised to read "+/- 1/4" (SEE
41 CONTRACT ~ Note: The + 1/4" installation is shown in the Section A view)"
42

43 A-40.20
44 Sheet 1, NOTES 1, 2, 3, and 4 are replaced with the following:
45

- 46 1. Use the ½ inch joint details for bridges with expansion length less than 100 feet
47 and for bridges with L type abutments. Use the 1 inch joint details for other
48 applications.
49

- 1 2. Use detail 5, 6, 7 on steel trusses and timber bridges with concrete bridge deck
2 panels.
3
4 3. For details 1, 2, 3, and 4, the item "HMA Joint Seal at Bridge End" shall be used
5 for payment. For details 5 and 6, the item "HMA Joint Seal at Bridge Deck Panel
6 Joint" shall be used for payment. For detail 7, the item "Clean and Seal Bridge
7 Deck Panel Joint" shall be used for payment.
8
9 Sheet 2, Detail 8 reference to "6-09.3(6)" is revised to read "6-21.3(7)".
10
11 A-50.40
12 Sheet 1, Plan View: The callout "BEAM GUARDRAIL TYPE 31 TRANSITION SECTION
13 TYPE 21 OR TYPE 24 (SEE STANDARD PLAN C-25.20 OR C-25.30)" is revised to read
14 "BEAM GUARDRAIL TYPE 31 TRANSITION SECTION TYPE 21, 24, OR 25 (SEE
15 STANDARD PLAN C-25.20, C-25.30, OR C-25.32)"
16
17 A-60.40
18 Note 2 reference to "6-09.3(6)" is revised to read "6-21.3(7)".
19
20 B-55.20
21 General Note 3 reference to "2-09.4" is revised to read "3-07.4".
22
23 B-90.40
24 Valve Detail – DELETED
25
26 C-20.41
27 Note 4, First Sentence, "Box Culvert guardrail steel posts are not needed for fill depths
28 greater than 40 inches." is revised to read; "Box culvert guardrail steel posts are not
29 needed for fill depths greater than 46 inches. Provide 6-inches or greater of separation
30 between the bottom of the guardrail post and top of the culvert"
31 BOX CULVERT POST ASSEMBLY, ELEVATION VIEW, post assembly length dimension
32 "41" MIN. 72" MAX." is revised to read; "41" MIN. 78" MAX."
33 SECTION A, base material depth dimension - "9" MIN. 40" MAX. (SEE NOTE 4)" is
34 revised to read: "9" MIN. 46" MAX. (SEE NOTE 4)"
35
36 C20-43
37 Note 4, First Sentence: "Box culvert guardrail steel posts are not needed for fill depths
38 greater than 40 inches." is revised to read: "Box culvert guardrail steel posts are not
39 needed for fill depths greater than 46 inches. Provide 6-inches or greater separation
40 between the bottom of guardrail post and top of culvert."
41 BOX CULVERT POST & BASE PLATE ASSEMBLY, ELEVATION VIEW, post assembly
42 length dimension – "41" MIN. 72" MAX." is revised to read: "41" MIN. 78" MAX."
43 SECTION A, base material depth dimension - "9" MIN. 40" MAX. (SEE NOTE 4)" is
44 revised to read: "9" MIN. 46" MAX. (SEE NOTE 4)"
45
46 C-23.70
47 Sheet 2, ANCHOR BRACKET ASSEMBLY DETAIL, dimension, "R. 5/16" is revised to
48 read; R. 15/16"
49 ANCHOR PLATE DETAIL, weld callout (fillet), 1/4" is revised to read; 3/16"
50
51 C-60.20

Sheet 1, Plan view, callout – “1/2” (IN) DIAMETER X 6 1/2” (IN) LONG ANCHOR BOLT ~ PER STD. SPEC. SECT. 9-06.5(4) (TYPICAL) (SEE NOTE 7)” is revised to read: “5/8” DIAMETER x 6 1/2” (IN) LONG ANCHOR BOLT ~ PER STD. SPEC. SECT. 9-06.5(4) (TYPICAL) (SEE NOTE 7)”

C-70.15

BARRIER CONNECTION DETAIL, callout – “CENTER GRID IN CONNECTION BLOCKOUT AND FILL VOID WITH TYPE 3 GROUT (STD. SPECIFICATION SECTION 9-20.3(3) PLACED IN ACCORDANCE WITH STD. SPECIFICATION SECTION 6-20.3(20)” is revised to read “CENTER GRID IN CONNECTION BLOCKOUT AND FILL VOID WITH GROUT TYPE 3 (STD. SPECIFICATION SECTION 9-20.3(3) PLACED IN ACCORDANCE WITH STD. SPECIFICATION SECTION 6-02.3(20)”

C81.10

Sheet 1, TYPICAL SECTION – TRAFFIC BARRIER the R4 #6 bar on the traffic face may be placed 4” down from the top of the barrier to allow additional room to install BP railing or other attachments. The R4 bar shall be kept tight to the front R2 bar.

Sheet 4, the existing table “IMPACT SHEAR AND IMPACT MOMENT TABLE” is renamed to “IMPACT SHEAR AND MOMENT TABLE DECK OVERHANG AND CONNECTIONS” keynote 25 is still applicable.

Sheet 4, NOTES, the following Note is added: “3. Deck overhangs for this use constitute plain reinforced concrete typically around 8” in thickness, non-prestressed moment slabs or approach slabs, or plain reinforced and longitudinally prestressed box girders which employ a topping slab. Other Supporting Structure Systems inclusive of post-tensioned decks, walls, and or Structure segments tied together without a topping slab, with the ties in the barrier resistance load path, shall use the impact shear and moments for other supporting structures.”

Sheet 4, the following table is added with a keynote 25.

IMPACT SHEAR AND MOMENT TABLE OTHER SUPPORTING STRUCTURES										
	Interior Segment					End Segment				
Roadway and Fill Height at Curb Line (in)	0	6	12	18	24	0	6	12	18	24
End Segment Length (ft)	-	-	-	-	-	10.00	10.50	11.25	11.75	12.50
Impact Moment (kip*ft/ft)	19.86	24.12	28.55	33.16	37.97	20.80	25.17	29.65	34.27	39.04
Impact Shear (kip/ft)	7.89	8.04	8.23	8.44	8.68	8.27	8.39	8.54	8.72	8.92

C-81.15

Sheet 1, General Notes, Add Note 7, to read;”7. The concrete class for the moment slab shall be class 4000 typically and class 4000A when the top of the slab is used as the roadway, or sidewalk, surface. The concrete class for the barrier is defined in Standard Specification Section 6-10.3.”

C-85.11

On Section B, the callout “3” EXPANDED POLYSTYRENE AROUND COLUMN (TYP.)” is revised to read “3” EXPANDED POLYSTYRENE OR POLYETHYLENE FOAM AROUND COLUMN (TYP.)”

D-3.09

Sheet 1, GEOSYNTHETIC WALL WITH 2 FT TRAFFIC SURCHARGE detail, callout – “BARRIER ON WALL ~ SEE Standard Plan D-3.15 or D-3.16” is revised to read: “BARRIER ON WALL ~ SEE CONTRACT PLANS”

D-3.10

Sheet 1, Typical Section, callout – “FOR WALLS WITH SINGLE SLOPE TRAFFIC BARRIER. USE THE DETAILS ABOVE THE MATCH LINE ON STANDARD PLAN D-3.15” is revised to read; “FOR WALLS WITH SINGLE SLOPE TRAFFIC BARRIER, SEE CONTRACT PLANS”

Sheet 1, Typical Section, callout – “FOR WALLS WITH F-SHAPE TRAFFIC BARRIER. USE THE DETAILS ABOVE THE MATCH LINE ON STANDARD PLAN D-3.16” is revised to read; “FOR WALLS WITH F-SHAPE TRAFFIC BARRIER, SEE CONTRACT PLANS”

D-3.11

Sheet 1, Typical Section, callout – “B” BRIDGE APPROACH SLAB (SEE BRIDGE PLANS) OR PERMANENT GEOSYNTHETIC WALL BARRIER ~ SEE STANDARD PLANS D-3.15 OR D-3.16” is revised to read; “B” BRIDGE APPROACH SLAB OR MOMENT SLAB (SEE CONTRACT PLANS)

Sheet 1, Typical Section, callout – “TYPICAL BARRIER ON BRIDGE APPROACH SLAB (SEE BRIDGE PLANS) OR PERMANENT GEOSYNTHETIC WALL BARRIER ~ SEE STANDARD PLANS D-3.15 OR D-3.16” is revised to read; “TYPICAL BARRIER ON BRIDGE APPROACH SLAB OR MOMENT SLAB (SEE CONTRACT PLANS)

D-10.10

Note 7, “If Traffic Barriers are required, See Standard Plans D-15.10, D-15.20 and D-15.30” is revised to read “Traffic Barriers shall not be structurally connected to the Reinforced Concrete Retaining Wall Type 1 and 1SW”.

D-10.15

Note 7, “If Traffic Barriers are required, See Standard Plans D-15.10, D-15.20 and D-15.30” is revised to read “Traffic Barriers shall not be structurally connected to the Reinforced Concrete Retaining Wall Type 2 and 2SW”.

D-10.30

Wall Type 5 may be used in all cases.

D-10.35

Wall Type 6 may be used in all cases.

D-10.40

Note 5, “If Traffic Barriers are required, See Standard Plans D-15.10, D-15.20 and D-15.30” is revised to read “Traffic Barriers shall not be structurally connected to the Reinforced Concrete Retaining Wall Type 7”.

D-10.45

Note 5, “If Traffic Barriers are required, See Standard Plans D-15.10, D-15.20 and D-15.30” is revised to read “Traffic Barriers shall not be structurally connected to the Reinforced Concrete Retaining Wall Type 8”.

E-20.10

On Sheet 2, the reference to “2-09.4” is revised to read “3-07.4”.

F-10.18

Note 1; “Construct curb joints at cement concrete pavement transverse joint locations. If all adjacent pavement is HMA, see Standard Plan F-30.10 for Curb Expansion and Contraction Joint Spacing.” is revised to read – “See Standard Plan F-30.10 and Standard

1 Specification Section 8-04.3 for Curb Expansion and Contraction Joint details and
2 spacing.”
3 CURB 3 Detail, the diamond note 1 callout on the 6” dimension at the bottom left side of
4 the detail, is revised to be a diamond note 2 callout.
5
6 F-30.10
7 All five instances of the “2.0% MAX.” are replaced with “2.1% MAX.”
8
9 F-40.12
10 The one instance of “2.0% MAX.” is replaced with “2.1% MAX.”
11 Note 7 is replaced with the following:
12 7. The running slope of curb ramps shall not exceed 8.3% maximum except as noted
13 herein. If the 8.3% running slope creates a ramp that exceeds 15ft, see contract plans for
14 details. Use a single constant slope from bottom of ramp to top of ramp to match into the
15 landing. Do not include the abutting landing in the Curb Ramp length measurement. When
16 a ramp is constructed on a radius, the Curb Ramp length is measured on the inside radius
17 along the back of the walkway.
18 Section B is amended as follows:
19 Delete: “15’ – 0” MAX. (TYP.)”
20 Section C is amended as follows:
21 Delete: “15’ – 0” MAX. (TYP.)”
22
23 F-40.14
24 The one instance of “2.0% MAX.” is replaced with “2.1% MAX.”
25 Note 7 is replaced with the following:
26 7. The running slope of curb ramps shall not exceed 8.3% maximum except as noted
27 herein. If the 8.3% running slope creates a ramp that exceeds 15ft, see contract plans for
28 details. Use a single constant slope from bottom of ramp to top of ramp to match into the
29 landing. Do not include the abutting landing in the Curb Ramp length measurement. When
30 a ramp is constructed on a radius, the Curb Ramp length is measured on the inside radius
31 along the back of the walkway.
32 Section A is amended as follows:
33 Delete: “15’ – 0” MAX. (TYP.)”
34 Section C is amended as follows:
35 Delete: “15’ – 0” MAX. (TYP.)”
36
37 F-40.15
38 The one instance of “2.0% MAX.” is replaced with “2.1% MAX.”
39 Note 7 is replaced with the following:
40 7. The running slope of curb ramps shall not exceed 8.3% maximum except as noted
41 herein. If the 8.3% running slope creates a ramp that exceeds 15ft, see contract plans for
42 details. Use a single constant slope from bottom of ramp to top of ramp to match into the
43 landing. Do not include the abutting landing in the Curb Ramp length measurement.
44 Section A is amended as follows:
45 Delete: “15’ – 0” MAX. (TYP.)”
46
47 F-40.16
48 The one instance of “2.0% MAX.” is replaced with “2.1% MAX.”
49 Note 8 is replaced with the following:
50 7. The running slope of curb ramps shall not exceed 8.3% maximum except as noted
51 herein. If the 8.3% running slope creates a ramp that exceeds 15ft, see contract plans for

1 details. Use a single constant slope from bottom of ramp to top of ramp to match into the
2 landing. Do not include the abutting landing in the Curb Ramp length measurement.
3 Section A is amended as follows:
4 Delete: "15' – 0" MAX. (TYP.)"
5 Section B is amended as follows:
6 Delete: "15' – 0" MAX. (TYP.)"
7
8 F-80.10
9 The one instance of "2.0% MAX." is replaced with "2.1% MAX."
10 Note 6 is replaced with the following:
11 The running slope of the Pedestrian Ramp shall not exceed 8.3% maximum except as
12 noted herein. If the 8.3% running slope creates a ramp that exceeds 15ft, see contract
13 plans for details. Use a single constant slope from bottom of ramp to top of ramp to match
14 into the sidewalk.
15 Section A is amended as follows:
16 Delete: "15" Max."
17
18 J-5.50
19 General Note 4 reference to "2-09.3(1)E" is revised to read "3-07.3(1)E"
20 General Note 5 reference to "2-09.3(1)E" is revised to read "3-07.3(1)E"
21
22 J-10.10
23 Sheet 4 of 6, "Foundation Size Reference Table", PAD WIDTH column, Type 33xD=6' –
24 3" is revised to read: 7' – 3". Type 342LX / NEMA P44=5' – 10" is revised to read: 6' – 10"
25 Sheet 5 of 6, Plan View, "FOR EXAMPLE PAD SHOWN HERE:, "first bullet" item, "-
26 SPACE BETWEEN TYPE B MOD. CABINET AND 33x CABINET IS 6" (IN)" IS REVISED
27 TO READ: "SPACE BETWEEN TYPE B MOD. CABINET (BACK OF ALL CHANNEL
28 STEEL) AND 33x CABINET IS 6" (IN) (CHANNEL STEEL ADDS ABOUT 5" (IN)"
29
30 J-10.16
31 Key Note 1, Standard Plan J-10.30 revised to Standard Plan J-10.14
32
33 J-10.17
34 Key Note 1, Standard Plan J-10.30 revised to Standard Plan J-10.14
35
36 J-10.18
37 Key Note 1, Standard Plan J-10.30 revised to Standard Plan J-10.14
38
39 J-15.15
40 The reference to "2-09.3(1)E" is revised to read "3-07.3(1)E"
41
42 J-20.01
43 STANDARD DIMENSIONS AND REFERENCES table, TYPE FB, Standard Height
44 column – "15'-0" "is revised to read; "14'-0" "
45
46 J-20.10
47 DELETED
48
49 J-20.11
50 DELETED
51
52 J-20.26

1 Add Note 1, "1. One accessible pedestrian pushbutton station per pedestrian pushbutton
2 post."
3 Add General Note 2, to read: "Signs shown are for locations with pedestrian signal
4 displays (Accessible Pedestrian Signals/APS). Accessible information device (AID)
5 pushbuttons signs not shown."
6 Revise View Titles (Both Sheets) to read: "ACCESSIBLE PEDESTRIAN PUSHBUTTON
7 ASSEMBLY"
8
9 J-20.16
10 View A, callout, was – LOCK NIPPLE, is revised to read; CHASE NIPPLE
11
12 J-21.10
13 Sheet 1, Anchor Bolt Template, callout; "9" (IN) BOLT CIRCLE" is revised to read: "9" (IN)
14 DIA.BOLT CIRCLE"
15 Base Plate Detail, callout; "3/4" (IN) STEEL PLATE WITH HOLE = POLE BASE + 1/6"
16 (IN)" IS REVISED TO READ; "3/4" (IN) STEEL PLATE WITH HOLE = POLE BASE +
17 1/16" (IN)"
18 Flat Foundation Detail – Elevation, callout; "ANCHOR BOLTS ~ 3/4" (IN) x 30" (IN) FULL
19 THREAD ~ THREE REQ'D. PER ASSEMBLY" is revised to read; "ANCHOR BOLTS ~ 3/4"
20 (IN) x 30" (IN) FULL THREAD ~ FOUR REQ'D. PER ASSEMBLY"
21 Flat Foundation Detail – Elevation, dimension; 4' – 0" is revised to read; "4' – 0" ROUND
22 OR 3' – 0" SQUARE"
23
24 J-21.15
25 Partial View, callout, was – LOCK NIPPLE ~ 1 1/2" DIAM., is revised to read; CHASE
26 NIPPLE ~ 1 1/2" (IN) DIAM.
27
28 J-21.16
29 On both elevation views, the overall standard height dimension "15'-0" " is revised to read;
30 "14'-0" "
31
32 J-26.10
33 The reference to "2-09.3(1)E" is revised to read "3-07.3(1)E"
34
35 J-27.10
36 The reference to "2-09.3(1)E" is revised to read "3-07.3(1)E"
37
38 J-28.30
39 General Note 13 – "See Standard Plans C-8b and C-85.14 for steel light standards on
40 traffic barrier" is revised to read; "See Standard Plan C-85.15 for steel light standards on
41 traffic barrier."
42
43 J-29.10
44 The reference to "2-09.3(1)E" is revised to read "3-07.3(1)E"
45
46 J-40.10
47 Sheet 2 of 2, Detail F, callout, "12 – 13 x 1 1/2" S.S. PENTA HEAD BOLT AND 12" S. S.
48 FLAT WASHER" is revised to read; "12 – 13 x 1 1/2" S.S. PENTA HEAD BOLT AND 1/2"
49 (IN) S. S. FLAT WASHER"
50
51 J-40.36

1 Note 1, second sentence; "Finish shall be # 2B for backbox and # 4 for the cover." Is
2 revised to read; "Finish shall be # 2B for barrier box and HRAP (Hot Rolled Annealed and
3 Pickled) for the cover.
4
5 J-40.37
6 Note 1, second sentence; "Finish shall be # 2B for backbox and # 4 for the cover." Is
7 revised to read; "Finish shall be # 2B for barrier box and HRAP (Hot Rolled Annealed and
8 Pickled) for the cover.
9
10 J-50.15
11 Sheet 1, SECTION A, the call out "LOOP LEAD-IN WIRES, TWISTED PAIRS ~ MAX. 3
12 PAIRS" is revised to read "LOOP LEAD-IN WIRES, TWISTED PAIRS ~ MAX. 6 PAIRS"
13 General Note 1 reference to "2-09.3(1)E" is revised to read "3-07.3(1)E"
14
15 J-75.20
16 Key Notes, note 16, second bullet point, was: "1/2" (IN) x 0.45" (IN) Stainless Steel
17 Bands", add the following to the end of the note: "Alternate: Stainless steel cable with
18 stainless steel ends, nuts, bolts, and washers may be used in place of stainless steel
19 bands and associated hardware."
20
21 J-75.55
22 Notes, Note A1, Revise reference, was – G-90.29, should be – G-90.20.
23
24 L-5.10
25 Add new general Note 9 on sheet 1 – "9. The top of wall in Section A on Sheet 1 shall be
26 located as follows: 1) flush with the finished grade when placed within the deflection
27 distance of the long span guardrail system (Std. Plan C-20.40), 2) Two inches maximum
28 above finished grade when placed behind a box culvert guardrail steel post system (Std.
29 Plan C-20.41 or C-20.43), 3) Six inches minimum for all other applications. The bottom
30 rail shall be located at mid height between the top rail and the top of structure."
31
32 M-20.30
33 Wide Dotted Lane Line Detail, reference below title, (SEE NOTE 6) is revised to read:
34 (SEE NOTE 5)
35
36 M-40.10
37 Guide Post Type ~ Reflective Sheeting Applications Table, remove reference - "(SEE
38 NOTE 5)"
39
40 The following are the Standard Plan numbers applicable at the time this project was
41 advertised. The date shown with each plan number is the publication approval date
42 shown in the lower right-hand corner of that plan. Standard Plans showing different dates
43 shall not be used in this contract.
44
45

A-10.10-00..... 8/7/07	A-30.35-00..... 10/12/07	A-50.10-02 7/18/24
A-10.20-00..... 10/5/07	A-40.00-01..... 7/6/22	A-50.40-01 8/17/21
A-10.30-00..... 10/5/07	A-40.10-04..... 7/31/19	A-60.10-03 12/23/14
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	B-5.40-02.....1/26/17	B-30.60-00 9/9/20	B-75.50-02 3/15/22
	B-5.60-02.....1/26/17	B-30.40-03 2/27/18	B-70.60-01 1/26/17
	B-10.20-03.....8/23/23	B-30.70-04 2/27/18	B-75.60-00 6/8/06
	B-10.40-02.....8/17/21	B-30.80-01 2/27/18	B-80.20-00 6/8/06
	B-10.70-03.....8/23/23	B-30.90-02 1/26/17	B-80.40-00 6/1/06
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	B-15.40-01 2/7/12	B-35.40-01 8/23/23	B-85.20-00 6/1/06
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	B-20.40-04.....2/27/18	B-45.20-01 7/11/17	B-85.50-01 6/10/08
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	B-25.60-03.....8/23/23	B-55.20-03 8/17/21	B-90.30-00 6/8/06
	B-30.05-00 9/9/20	B-60.20-02 9/9/20	B-90.40-01 1/26/17
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