

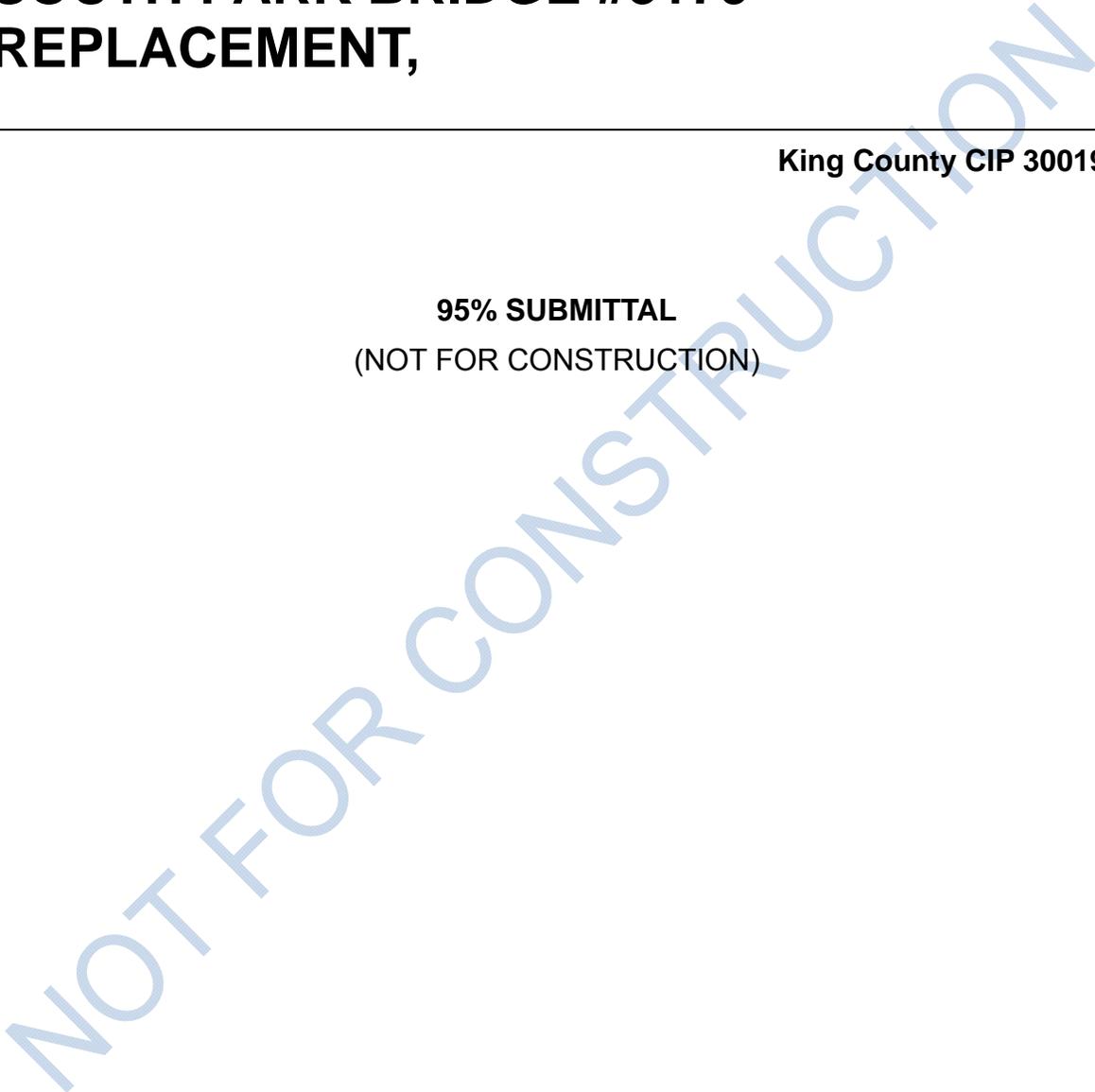
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WSDOT AMENDMENTS TO THE STANDARD SPECIFICATIONS

KING COUNTY, WA
SOUTH PARK BRIDGE #3179
REPLACEMENT,

King County CIP 300197

95% SUBMITTAL
(NOT FOR CONSTRUCTION)



KING COUNTY DEPARTMENT OF TRANSPORTATION
SEPTEMBER 4, 2009

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**SOUTH PARK BRIDGE #3179 REPLACEMENT
95% SUBMITTAL (NOT FOR CONSTRUCTION)**

KING COUNTY CIP 300197

WSDOT AMENDMENTS TO THE STANDARD SPECIFICATIONS

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13		

NOT FOR CONSTRUCTION

1 **INTRODUCTION**

2 The following Amendments and Special Provisions shall be used in conjunction with the
3 2008 Standard Specifications for Road, Bridge, and Municipal Construction.
4

5 **AMENDMENTS TO THE STANDARD SPECIFICATIONS**
6

7 The following Amendments to the Standard Specifications are made a part of this contract
8 and supersede any conflicting provisions of the Standard Specifications. For informational
9 purposes, the date following each Amendment title indicates the implementation date of the
10 Amendment or the latest date of revision.

11
12 Each Amendment contains all current revisions to the applicable section of the Standard
13 Specifications and may include references which do not apply to this particular project.
14

15 **SECTION 1-02, BID PROCEDURES AND CONDITIONS**
16 **October 12, 2009**

17 **1-02.7 Bid Deposit**

18 The following is inserted after the second sentence in the first paragraph:
19

20 The proposal bond may be in hard copy or electronic format via Surety2000.com or
21 Insurevision.com and BidX.com.
22

23 **1-02.9 Delivery of Proposal**

24 The first paragraph is revised to read:
25

26 Each Proposal shall be sealed and submitted in the envelope provided with it, or
27 electronically via Expedite software and BidX.com at the location and time identified in
28 Section 1-02.12. The Bidder shall fill in all blanks on this envelope to ensure proper
29 handling and delivery.
30

31 **SECTION 1-03, AWARD AND EXECUTION OF CONTRACT**
32 **April 7, 2008**

33 **1-03.1 Consideration of Bids**

34 This section is supplemented with the following new sub-section.
35

36 ***1-03.1(1) Tied Bids***

37 After opening Bids, if two or more lowest responsive Bid totals are exactly equal, then
38 the tie-breaker will be determined by drawing as described in this Section. Two or more
39 slips of paper will be marked as follows: one marked "Winner" and the other(s) marked
40 "unsuccessful". The slips will be folded to make the marking unseen. The slips will be
41 placed inside a box. One authorized representative of each Bidder shall draw a slip
42 from the box. Bidders shall draw in alphabetic order by the name of the firm as
43 registered with the Washington State Department of Licensing. The slips shall be
44 unfolded and the firm with the slip marked "Winner" will be determined to be the
45 successful Bidder and eligible for Award of the Contract. Only those Bidders that

1 submitted a Bid total that is exactly equal to the lowest responsive Bid are eligible to
2 draw.

3
4 **SECTION 1-04, SCOPE OF THE WORK**
5 **April 7, 2008**

6 **1-04.4(1) Minor Changes**

7 The first sentence in the first paragraph is revised to read:

8
9 Payments or credits for changes amounting to \$15,000 or less may be made under the
10 bid item "Minor Change."

11

12 **1-04.5 Procedure and Protest by the Contractor**

13 In the second paragraph, number 2, the reference to 7 calendar days is revised to 14
14 calendar days.

15

16 The second sentence in the fifth paragraph is revised to read:

17

18 The determination will be provided within 14-calendar days after receipt of the
19 Contractor's supplemental written statement (including any additional information
20 requested by the Project Engineer to support a continuing protest) described in item 2
21 above.

22

23 **SECTION 1-05, CONTROL OF WORK**

24 **April 7, 2008**

25 **1-05.1 Authority of the Engineer**

26 The fourth paragraph is revised to read:

27

28 At the Contractor's risk, the Project Engineer may suspend all or part of the Work
29 according to Section 1-08.6.

30

31 **1-05.12 Final Acceptance**

32 The second paragraph is revised to read:

33

34 The Contractor agrees that neither completion nor final acceptance shall relieve the
35 Contractor of the responsibility to indemnify, defend, and protect the Contracting Agency
36 against any claim or loss resulting from the failure of the Contractor (or the
37 subcontractors or lower tier subcontractors) to pay all laborers, mechanics,
38 subcontractors, materialpersons, or any other person who provides labor, supplies, or
39 provisions for carrying out the Work or for any payments required for unemployment
40 compensation under Title 50 RCW or for industrial insurance and medical aid required
41 under Title 51 RCW.

42

1 **SECTION 1-06, CONTROL OF MATERIALS**
 2 **August 3, 2009**

3 **1-06.2(2)A General**

4 Tables 1 and 2 are revised to read:

5
6

Table 1
 Estimated Percent of Work Within Specification Limits

Estimated Percent Within Specification Limits (P _U or P _L)	Upper Quality Index Q _U or Lower Quality Index Q _L									
	n=3	n=4	n=5	n=6	n=7	n=8	n=9	n=10 to n=11	n=12 to n=14	
100	1.16	1.49	1.72	1.88	1.99	2.07	2.13	2.20	2.28	
99	-	1.46	1.64	1.75	1.82	1.88	1.91	1.96	2.01	
98	-	1.43	1.58	1.66	1.72	1.75	1.78	1.81	1.84	
97	1.15	1.40	1.52	1.59	1.63	1.66	1.68	1.71	1.73	
96	-	1.37	1.47	1.52	1.56	1.58	1.60	1.62	1.64	
95	1.14	1.34	1.42	1.47	1.49	1.51	1.52	1.54	1.55	
94	-	1.31	1.38	1.41	1.43	1.45	1.46	1.47	1.48	
93	1.13	1.28	1.33	1.36	1.38	1.39	1.40	1.41	1.41	
92	1.12	1.25	1.29	1.31	1.33	1.33	1.34	1.35	1.35	
91	1.11	1.22	1.25	1.27	1.28	1.28	1.29	1.29	1.30	
90	1.10	1.19	1.21	1.23	1.23	1.24	1.24	1.24	1.25	
89	1.09	1.16	1.18	1.18	1.19	1.19	1.19	1.19	1.20	
88	1.07	1.13	1.14	1.14	1.15	1.15	1.15	1.15	1.15	
87	1.06	1.10	1.10	1.10	1.10	1.10	1.10	1.10	1.11	
86	1.04	1.07	1.07	1.07	1.07	1.06	1.06	1.06	1.06	
85	1.03	1.04	1.03	1.03	1.03	1.03	1.02	1.02	1.02	
84	1.01	1.01	1.00	0.99	0.99	0.99	0.99	0.98	0.98	
83	0.99	0.98	0.97	0.96	0.95	0.95	0.95	0.95	0.94	
82	0.97	0.95	0.93	0.92	0.92	0.92	0.91	0.91	0.91	
81	0.95	0.92	0.90	0.89	0.88	0.88	0.88	0.87	0.87	
80	0.93	0.89	0.87	0.86	0.85	0.85	0.84	0.84	0.84	
79	0.91	0.86	0.84	0.82	0.82	0.81	0.81	0.81	0.80	
78	0.88	0.83	0.81	0.79	0.79	0.78	0.78	0.77	0.77	
77	0.86	0.80	0.77	0.76	0.75	0.75	0.74	0.74	0.74	
76	0.83	0.77	0.74	0.73	0.72	0.72	0.71	0.71	0.70	
75	0.81	0.74	0.71	0.70	0.69	0.69	0.68	0.68	0.67	
74	0.78	0.71	0.68	0.67	0.67	0.65	0.65	0.65	0.64	
73	0.75	0.68	0.65	0.64	0.63	0.62	0.62	0.62	0.61	

72	0.73	0.65	0.62	0.61	0.60	0.59	0.59	0.59	0.58
71	0.70	0.62	0.59	0.58	0.57	0.57	0.56	0.56	0.55
70	0.67	0.59	0.56	0.55	0.54	0.54	0.53	0.53	0.52
69	0.64	0.56	0.53	0.52	0.51	0.51	0.50	0.50	0.50
68	0.61	0.53	0.50	0.49	0.48	0.48	0.48	0.47	0.47
67	0.58	0.50	0.47	0.46	0.45	0.45	0.45	0.44	0.44
66	0.55	0.47	0.45	0.43	0.43	0.42	0.42	0.42	0.41
65	0.51	0.44	0.42	0.40	0.40	0.39	0.39	0.39	0.38
64	0.48	0.41	0.39	0.38	0.37	0.37	0.36	0.36	0.36
63	0.45	0.38	0.36	0.35	0.34	0.34	0.34	0.33	0.33
62	0.41	0.35	0.33	0.32	0.32	0.31	0.31	0.31	0.30
61	0.38	0.30	0.30	0.30	0.29	0.28	0.28	0.28	0.28
60	0.34	0.28	0.28	0.25	0.25	0.25	0.25	0.25	0.25
59	0.31	0.27	0.25	0.23	0.23	0.23	0.23	0.23	0.23
58	0.30	0.25	0.23	0.20	0.20	0.20	0.20	0.20	0.20
57	0.25	0.20	0.18	0.18	0.18	0.18	0.18	0.18	0.18
56	0.20	0.18	0.16	0.15	0.15	0.15	0.15	0.15	0.15
55	0.18	0.15	0.13	0.13	0.13	0.13	0.13	0.13	0.13
54	0.15	0.13	0.10	0.10	0.10	0.10	0.10	0.10	0.10
53	0.10	0.10	0.08	0.08	0.08	0.08	0.08	0.08	0.08
52	0.08	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05
51	0.05	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03
50	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

(continued)

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Table 1 (continued)
Estimated Percent of Work Within Specification Limits

Estimated Percent Within Specification Limits (P _U or P _L)	Upper Quality Index Q _U or Lower Quality Index Q _L					
	n=15 to n=17	n=18 to n=22	n=23 to n=29	n=30 to n=42	n=43 to n=66	n=67 to ∞
100	2.34	2.39	2.44	2.48	2.51	2.56
99	2.04	2.07	2.09	2.12	2.14	2.16
98	1.87	1.89	1.91	1.93	1.94	1.95
97	1.75	1.76	1.78	1.79	1.80	1.81
96	1.65	1.66	1.67	1.68	1.69	1.70
95	1.56	1.57	1.58	1.59	1.59	1.60
94	1.49	1.50	1.50	1.51	1.51	1.52
93	1.42	1.43	1.43	1.44	1.44	1.44
92	1.36	1.36	1.37	1.37	1.37	1.38
91	1.30	1.30	1.31	1.31	1.31	1.31
90	1.25	1.25	1.25	1.25	1.26	1.26
89	1.20	1.20	1.20	1.20	1.20	1.20
88	1.15	1.15	1.15	1.15	1.15	1.15
87	1.11	1.11	1.11	1.11	1.11	1.11
86	1.06	1.06	1.06	1.06	1.06	1.06
85	1.02	1.02	1.02	1.02	1.02	1.02
84	0.98	0.98	0.98	0.98	0.98	0.98
83	0.94	0.94	0.94	0.94	0.94	0.94
82	0.91	0.90	0.90	0.90	0.90	0.90
81	0.87	0.87	0.87	0.87	0.87	0.87
80	0.83	0.83	0.83	0.83	0.83	0.83
79	0.80	0.80	0.80	0.80	0.80	0.79
78	0.77	0.76	0.76	0.76	0.76	0.76
77	0.73	0.73	0.73	0.73	0.73	0.73
76	0.70	0.70	0.70	0.70	0.70	0.70
75	0.67	0.67	0.67	0.67	0.67	0.66
74	0.64	0.64	0.64	0.64	0.64	0.63
73	0.61	0.61	0.61	0.61	0.61	0.60
72	0.58	0.58	0.58	0.58	0.58	0.57
71	0.55	0.55	0.55	0.55	0.55	0.54
70	0.52	0.52	0.52	0.52	0.52	0.52

69	0.49	0.49	0.49	0.49	0.49	0.49
68	0.47	0.46	0.46	0.46	0.46	0.46
67	0.44	0.44	0.43	0.43	0.43	0.43
66	0.41	0.41	0.41	0.41	0.41	0.40
65	0.38	0.38	0.38	0.38	0.38	0.38
64	0.36	0.35	0.35	0.35	0.35	0.35
63	0.33	0.33	0.33	0.33	0.33	0.32
62	0.30	0.30	0.30	0.30	0.30	0.30
61	0.28	0.28	0.28	0.28	0.28	0.28
60	0.25	0.25	0.25	0.25	0.25	0.25
59	0.23	0.23	0.23	0.23	0.23	0.23
58	0.20	0.20	0.20	0.20	0.20	0.20
57	0.18	0.18	0.18	0.18	0.18	0.18
56	0.15	0.15	0.15	0.15	0.15	0.15
55	0.13	0.13	0.13	0.13	0.13	0.13
54	0.10	0.10	0.10	0.10	0.10	0.10
53	0.08	0.08	0.08	0.08	0.08	0.08
52	0.05	0.05	0.05	0.05	0.05	0.05
51	0.03	0.03	0.03	0.03	0.03	0.03
50	0.00	0.00	0.00	0.00	0.00	0.00

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NOT FOR CONSTRUCTION

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Table 2 - Pay Factors

PAY FACTOR	Minimum Required Percent of Work Within Specification Limits for a Given Factor (P _U + P _L) - 100															
	Category	n=3	n=4	n=5	n=6	n=7	n=8	n=9	n=10 to n=11	n=12 to n=14	n=15 to n=17	n=18 to n=22	n=23 to n=29	n=30 to n=42	n=43 to n=66	n=67 to ∞
1.05						100	100	100	100	100	100	100	100	100	100	100
1.04					100	99	97	95	96	96	96	97	97	97	97	97
1.03				100	98	96	94	92	93	93	94	95	95	95	96	96
1.02				99	97	94	91	89	90	91	92	93	93	94	94	94
1.01	100	100	100	98	95	92	89	87	88	89	90	91	92	92	93	93
1.00	89	75	78	80	82	83	84	85	86	87	88	89	90	91	92	92
0.99	86	72	76	78	80	81	82	83	84	85	86	87	89	90	91	91
0.98	84	70	74	76	78	79	80	81	82	84	85	86	87	88	89	90
0.97	83	68	72	74	76	77	78	79	81	82	83	84	86	87	88	88
0.96	81	67	70	72	74	75	76	78	79	81	82	83	84	86	87	87
0.95	59	65	68	71	72	74	75	76	78	79	80	82	83	84	86	86
0.94	58	63	67	69	71	72	73	75	76	78	79	80	82	83	85	85
0.93	57	62	65	67	69	71	72	73	75	76	78	79	80	82	84	84
0.92	55	60	63	66	68	69	70	72	73	75	76	78	79	81	82	82
0.91	54	59	62	64	66	68	69	70	72	74	75	76	78	79	81	81
0.90	53	57	61	63	65	66	67	69	71	72	74	75	77	78	80	80
0.89	51	56	59	62	63	65	66	68	69	71	72	74	75	77	79	79
0.88	50	55	58	60	62	64	65	66	68	70	71	73	74	76	78	78
0.87	49	53	57	59	61	62	63	65	67	68	70	71	73	75	77	77
0.86	48	52	55	58	59	61	62	64	66	67	69	70	72	74	76	76

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Note: If the value of (P_U + P_L) - 100 does not correspond to a (P_U + P_L) - 100 value in this table, use the next smaller (P_U + P_L) - 100 value.
(continued)

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Table 2 - Pay Factors (continued)

PAY FACTOR	Minimum Required Percent of Work Within Specification Limits for a Given Pay Factor ($P_U + P_L$) - 100														
	Category	n=3	n=4	n=5	n=6	n=7	n=8	n=9	n=10 to n=11	n=12 to n=14	n=15 to n=17	n=18 to n=22	n=23 to n=29	n=30 to n=42	n=43 to n=66
0.85	46	51	54	56	58	60	61	62	64	66	67	69	71	72	75
0.84	45	49	53	55	57	58	60	61	63	65	66	68	70	71	73
0.83	44	48	51	54	56	57	58	60	62	64	65	67	69	70	72
0.82	43	47	50	53	54	56	57	59	61	62	64	66	67	69	71
0.81	41	46	49	51	53	55	56	58	59	61	63	64	66	68	70
0.80	40	44	48	50	52	54	55	56	58	60	62	63	65	67	69
0.79	39	43	46	49	51	52	54	55	57	59	61	62	64	66	68
0.78	38	42	45	48	50	51	52	54	56	58	59	61	63	65	67
0.77	36	41	44	46	48	50	51	53	55	57	58	60	62	64	66
0.76	35	39	43	45	47	49	50	52	54	56	57	59	61	63	65
0.75	33	38	42	44	46	48	49	51	53	54	56	58	60	62	64
REJECT	32	37	40	43	45	47	48	49	52	53	55	57	59	60	63
	30	36	39	42	44	45	47	48	50	52	54	56	57	59	62
	28	34	38	41	43	44	46	47	49	51	53	55	56	58	61
	27	33	37	39	42	43	45	46	48	50	52	53	55	57	60
	25	32	36	38	40	42	43	45	47	49	51	52	54	56	59
Values Less Than Those Shown Above															

Reject Quality Levels Less Than Those Specified for a 0.75 Pay Factor
 Note: If the value of $(P_U + P_L) - 100$ does not correspond to a $(P_U + P_L) - 100$ value in this table, use the next smaller $(P_U + P_L) - 100$ value.

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1 **1-06.2(2)D Quality Level Analysis**

2 The content of this section is revised and moved to the following sub-sections:

3
4 **1-06.2(2)D1 General**

5 The quality level calculations for HMA and other materials are completed using the
6 formulas in Section 1-06.2(2)D4. For HMA the definition of the “x” value used in the
7 calculations and the definition of the upper and lower specification limit are in Section 1-
8 06.2(2)D2. For other materials the definition of the “x” value used in the calculations
9 and the definition of the upper and lower specification limit are in Section 1-06.2(2)D3.
10 All other terms and variables are the same for all calculations.

11
12 **1-06.2(2)D2 Hot Mix Asphalt**

13 x = difference between an individual test value and the job mix formula (JMF)

14 USL = maximum allowable limit in Section 9-03.8(7)

15 LSL = minimum allowable limit in Section 9-03.8(7)

16
17 **1-06.2(2)D3 Other Materials**

18 x = individual test value

19 USL = upper specification limit

20 LSL = lower specification limit

21
22 **1-06.2(2)D4 Quality Level Calculation**

23 The procedures for determining the quality level and pay factors for a material are as
24 follows:

- 25
26 1. Determine the arithmetic mean X_m , for each specified material constituent:

27
28
29
$$X_m = \frac{\sum x}{n}$$

30
31
32 where: \sum = summation of x
33 n = total number test values

- 34
35 2. Compute the sample standard deviation, “S”, for each constituent:

36
37
$$S = \left[\frac{n\sum x^2 - (\sum x)^2}{n(n-1)} \right]^{1/2}$$

38
39
40
41 where: $\sum x^2$ = summation of the squares of individual test values
42 $(\sum x)^2$ = summation of the individual test values squared

- 43
44 3. Compute the upper quality index, (QU), for each constituent:

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$$Q_U = \frac{USL - X_m}{S}$$

4. Compute the lower quality index, (Q_L), for each constituent:

$$Q_L = \frac{X_m - LSL}{S}$$

5. For each constituent determine P_U (the percent within the upper Specification limit which corresponds to a given Q_U) from Table 1. If the USL is 100.00 percent or is not specified, P_U will be 100. For negative values of Q_U , P_U is equal to 100 minus the table P_U (e.g. $N = 15$ and $Q_U = -0.5$ will result in $P_U = 30$). If the value of Q_U does not correspond exactly to a figure in the table, use the next higher value.
6. For each constituent determine P_L (the percent within the lower Specification limit which corresponds to a given Q_L) from Table 1. If the LSL is zero or not specified, P_L will be 100. For negative values of Q_L , P_L is equal to 100 minus the table P_L . If the value of Q_L does not correspond exactly to a figure in the table, use the next higher value.
7. For each constituent determine the quality level (the total percent within Specification limits):

$$\text{Quality Level} = (P_U + P_L) - 100$$

8. Using the quality level from step 7, determine the pay factor (PF_i) from Table 2 for each constituent tested.
9. Determine the Composite Pay Factor (CPF) for each lot.

$$CPF = \frac{f_1(PF_1) + f_2(PF_2) + \dots + f_i(PF_i)}{\sum f_i}$$

$$i = 1 \text{ to } j$$

where: f_i = price adjustment factor listed in these Specifications for the applicable material

where: j = number of constituents being evaluated

1-06.6 Sieves for Testing

This section including title is revised to read:

1-06.6 Vacant

1 **SECTION 1-07, LEGAL RELATIONS AND RESPONSIBILITIES TO THE PUBLIC**
2 **August 3, 2009**

3 **1-07.2(2) State Sales Tax: Work on State-Owned or Private Land**

4 The following new paragraph is inserted in front of the first paragraph:

5
6 State Department of Revenue Rule 170 and its related rules apply for this section.
7

8 **1-07.5(1) General**

9 The following new paragraph is inserted after the first paragraph:

10
11 The Contractor shall be responsible to immediately report to the Engineer any deviation
12 from the contract provisions pertaining to environmental compliance, including but not
13 limited to spills, unauthorized fill in waters of the State including wetlands, water quality
14 standards, noise, air quality, etc.
15

16 **1-07.5(2) State Department of Fish and Wildlife**

17 The following new numbered item is inserted after number 8.:

18
19 9. Immediately notify the Engineer and stop all work causing impacts, if at any time,
20 as a result of project activities, fish are observed in distress, or a fish kill occurs.
21

22 **1-07.5(3) State Department of Ecology**

23 Number 4. is supplemented with the following:

24
25 These include, but are not limited to petroleum products, hydraulic fluid, fresh concrete,
26 sediments, sediment-laden water, chemicals, paint, solvents, or other toxic or
27 deleterious materials.
28

29
30 **1-07.8 High Visibility Apparel**

31 This section is revised to read:

32
33 The Contractor shall require all personnel under their control (including service
34 providers, Subcontractors and lower tier Subcontractors) that are on foot in the work
35 zone and are exposed to vehicle traffic or construction equipment to wear the high
36 visibility apparel described in this Section.
37

38 The Contractor shall ensure that a competent person as identified in the MUTCD selects
39 the appropriate high-visibility apparel suitable for the job-site conditions.
40

41 High visibility garments shall always be the outermost garments.
42

43 High visibility garments shall be in a condition compliant with the ANSI 107-2004 and
44 shall be used in accordance with manufacturer recommendations.
45

46 This section is supplemented with the following new sub-sections.
47

1 **1-07.8(1) Traffic Control Personnel**

2 All personnel performing the Work described in Section 1-10 (including traffic control
3 supervisors, flaggers, spotters, and others performing traffic control labor of any kind),
4 shall comply with the following:
5

- 6 1. During daylight hours with clear visibility, workers shall wear a high-visibility
7 ANSI/ISEA 107-2004 Class 2 or 3 vest or jacket, and hardhat meeting the high
8 visibility headwear requirements of WAC 296-155-305; and
9
- 10 2. During hours of darkness (1/2-hour before sunset to 1/2-hour after sunrise) or
11 other low visibility conditions (snow, fog, etc.), workers shall wear a high-
12 visibility ANSI/ISEA 107-2004 Class 2 or 3 vest or jacket, high visibility lower
13 garment meeting ANSI/ISEA 107-2004 Class E, and hardhats meeting the high
14 visibility headwear requirements of WAC 296-155-305.
15

16 **1-07.8(2) Non-Traffic Control Personnel**

17 All personnel, except those performing the Work described in Section 1-10, shall wear
18 high visibility apparel meeting the ANSI/ISEA 107-2004 Class 2 or 3 standard.
19

20 **1-07.9(1) General**

21 The following new paragraph is inserted to follow the sixth paragraph:
22

23 The Contractor shall ensure that any firm (Supplier, Manufacturer, or Fabricator) that
24 falls under the provisions of RCW 39.12 because of the definition "Contractor" in WAC
25 296-127-010, complies with all the requirements of RCW 39.12.
26

27 This section is supplemented with the following:
28

29 **Listing Recovery Act (and Other) New Hire Opportunities With the**
30 **Employment Security Department**

31 There are many talented people currently unemployed. As the signs on Contracting
32 Agency projects advertise the Recovery Act is about creating jobs and putting people
33 back to work. As a companion effort the Employment Security Department has been
34 charged with giving people the opportunity to compete for these jobs. Their tool for
35 doing so is WorkSource. WorkSource is a free service located across the State that
36 screens, shortlists and refers qualified candidates.
37

38 WorkSource employees are aware that the Contractor has other commitments as part of
39 general business practices and as part of the Contract. Contractors may be subject to
40 hiring commitments such as Equal Employment Opportunity or union commitments.
41 However, utilizing WorkSource can be an essential effort as part of their various good
42 faith efforts.
43

44 WorkSource is a resource that is available across the State. Contractors who have
45 been awarded WSDOT Contracts shall be prepared to discuss their recruitment plans
46 and how WorkSource will be incorporated into that effort at the preconstruction
47 conference. WorkSource has a simple process for requesting and reporting new hires.
48

1 The Contractor may contact the ARRA Business Unit at 877-453-5906 (toll free) or
2 ARRA@esd.wa.gov. There is additional information available on the website;
3 <https://fortress.wa.gov/esd/worksource/>.
4

5 **1-07.15 Temporary Water Pollution/Erosion Control**

6 This section is supplemented with the following:
7

8 Stormwater or dewatering water that has come in contact with concrete rubble, concrete
9 pours, or cement treated soils shall be maintained to pH 8.5 or less before it is allowed
10 to enter waters of the state. If pH exceeds 8.5, the Contractor shall immediately
11 discontinue work and initiate treatment according to the plan to lower the pH. Work may
12 resume, with treatment, once the pH of the stormwater is 8.5 or less or it can be
13 demonstrated that the runoff will not reach surface waters.
14

15 High pH process water shall not be discharged to waters of the state. Unless specific
16 measures are identified in the Special Provisions, high pH process water may be
17 infiltrated, dispersed in vegetation or compost, or pumped to a sanitary sewer system.
18 Water being infiltrated or dispersed shall have no chance of discharging directly to
19 waters of the state, including wetlands or conveyances that indirectly lead to waters of
20 the state. High pH process water shall be treated to within a range of 6.5 to 8.5 pH units
21 prior to infiltration to ensure the discharge does not cause a violation of groundwater
22 quality standards. If water is pumped to the sanitary sewer, the Contractor shall provide
23 a copy of permits and requirements for placing the material into a sanitary sewer system
24 prior to beginning the work. Process water may be collected and disposed of by the
25 Contractor off the project site. The Contractor shall provide a copy of the permit for an
26 approved waste site for the disposal of the process water prior to the start of work which
27 generates the process water.
28

29 **1-07.15(1) Spill Prevention, Control and Countermeasures Plan**

30 This section is revised to read:
31

32 The Contractor shall prepare a project-specific spill prevention, control, and
33 countermeasures plan (SPCC Plan) that will be used for the duration of the project. The
34 Contractor shall submit the plan to the Project Engineer no later than the date of the
35 preconstruction conference. No on-site construction activities may commence until
36 WSDOT accepts an SPCC Plan for the project.
37

38 The term "hazardous materials", as used in this Specification, is defined in Chapter 447
39 of the WSDOT Environmental Procedures Manual (M31-11). Occupational safety and
40 health requirements that may pertain to SPCC Plan implementation are contained in but
41 not limited to WAC 296-824 and WAC 296-843.
42

43 ***Implementation Requirements***

44 The SPCC Plan shall be updated by the Contractor throughout project construction so
45 that the written plan reflects actual site conditions and practices. The Contractor shall
46 update the SPCC Plan at least annually and maintain a copy of the updated SPCC Plan
47 on the project site. All project employees shall be trained in spill prevention and
48 containment, and shall know where the SPCC Plan and spill response kits are located
49 and have immediate access to them.

1
2 If hazardous materials are encountered or spilled during construction, the Contractor
3 shall do everything possible to control and contain the material until appropriate
4 measures can be taken. The Contractor shall supply and maintain spill response kits of
5 appropriate size within close proximity to hazardous materials and equipment.
6

7 The Contractor shall implement the spill prevention measures identified in the SPCC
8 Plan before performing any of the following:
9

- 10 1. Placing materials or equipment in staging or storage areas.
- 11 2. Refueling, washing, or maintaining equipment.
- 12 3. Stockpiling contaminated materials.

13
14 ***SPCC Plan Element Requirements***

15 The SPCC Plan shall set forth the following information in the following order:
16

- 17 1. Responsible Personnel
18 Identify the name(s), title(s), and contact information for the personnel
19 responsible for implementing and updating the plan, including all spill
20 responders.
21
- 22 2. Spill Reporting
23 List the names and telephone numbers of the federal, State, and local
24 agencies the Contractor shall notify in the event of a spill.
25
- 26 3. Project and Site Information
27 Describe the following items:
28
 - 29 A. The project Work.
 - 30
 - 31 B. The site location and boundaries.
 - 32
 - 33 C. The drainage pathways from the site.
 - 34
 - 35 D. Nearby waterways and sensitive areas and their distances from the
36 site.
 - 37
- 38 4. Potential Spill Sources
39 Describe each of the following for all potentially hazardous materials brought
40 or generated on-site (including materials used for equipment operation,
41 refueling, maintenance, or cleaning):
42
 - 43 A. Name of material and its intended use.
 - 44
 - 45 B. Estimated maximum amount on-site at any one time.
 - 46
 - 47 C. Location(s) (including any equipment used below the ordinary high
48 water line) where the material will be staged, used, and stored and
49 the distance(s) from nearby waterways and sensitive areas.

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D. Decontamination location and procedure for equipment that comes into contact with the material.

E. Disposal procedures.

5. Pre-Existing Contamination

Describe any pre-existing contamination and contaminant sources (such as buried pipes or tanks) in the project area that are described in the Contract documents. Identify equipment and work practices that will be used to prevent the release of contamination.

6. Spill Prevention and Response Training

Describe how and when all personnel (including refueling contractors and Subcontractors) will be trained in spill prevention, containment and response in accordance with the Plan. Describe how and when all spill responders will be trained in accordance with WAC 296-824.

7. Spill Prevention

Describe the following items:

A. Spill response kit contents and location(s).

B. Security measures for potential spill sources.

C. Secondary containment practices and structures for all containers to handle the maximum volume of potential spill of hazardous materials.

D. Methods used to prevent stormwater from contacting hazardous materials.

E. Site inspection procedures and frequency.

F. Equipment and structure maintenance practices.

G. Daily inspection and cleanup procedures that ensure all equipment used below the ordinary high water line is free of all external petroleum based products.

H. Refueling procedures for equipment that cannot be moved from below the ordinary high water line.

8. Spill Response

Outline the response procedures the Contractor will follow for each scenario listed below. Include a description of the actions the Contractor shall take and the specific, on-site, spill response equipment that shall be used to assess the spill, secure the area, contain and eliminate the spill source, and clean up and dispose of spilled and contaminated material.

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- A. A spill of each type of hazardous material at each location identified in 4, above.
- B. Stormwater that has come into contact with hazardous materials.
- C. A release or spill of any pre-existing contamination and contaminant source described in 5, above.
- D. A release or spill of any unknown pre-existing contamination and contaminant sources (such as buried pipes or tanks) encountered during project Work.
- E. A spill occurring during Work with equipment used below the ordinary high water line.

If the Contractor will use a Subcontractor for spill response, provide contact information for the Subcontractor under item 1 (above), identify when the Subcontractor will be used, and describe actions the Contractor shall take while waiting for the Subcontractor to respond.

9. Project Site Map

Provide a map showing the following items:

- A. Site location and boundaries.
- B. Site access roads.
- C. Drainage pathways from the site.
- D. Nearby waterways and sensitive areas.
- E. Hazardous materials, equipment, and decontamination areas identified in 4, above.
- F. Pre-existing contamination or contaminant sources described in 5, above.
- G. Spill prevention and response equipment described in 7 and 8, above.

10. Spill Report Forms

Provide a copy of the spill report form(s) that the Contractor will use in the event of a release or spill.

Payment

Payment will be made in accordance with Section 1-04.1 for the following Bid item when it is included in the Proposal:

“SPCC Plan”, lump sum.

1
2 When the written SPCC is accepted by WSDOT, the Contractor shall receive 50-percent
3 of the lump sum Contract price for the plan.
4

5 The remaining 50-percent of the lump sum price will be paid after the materials and
6 equipment called for in the plan is mobilized to the project.
7

8 The lump sum payment for "SPCC Plan" shall be full pay for:
9

- 10 1. All costs associated with creating the accepted SPCC Plan.
- 11 12 2. All costs associated with providing and maintaining the on-site spill prevention
13 equipment described in the accepted SPCC Plan.
- 14 15 3. All costs associated with providing and maintaining the on-site standby spill
16 response equipment and materials described in the accepted SPCC Plan.
- 17 18 4. All costs associated with implementing the spill prevention measures identified
19 in the accepted SPCC Plan.
- 20 21 5. All costs associated with updating the SPCC Plan as required by this
22 Specification.
23

24 As to other costs associated with releases or spills, the Contractor may request
25 payment as provided for in the Contract. No payment shall be made if the release or
26 spill was caused by or resulted from the Contractor's operations, negligence, or
27 omissions.
28

29 **1-07.16(2) Vegetation Protection and Restoration**

30 The last sentence in the first paragraph is revised to read:
31

32 The Engineer will designate the vegetation to be saved and protected by a site
33 preservation line, high visibility fencing, or individual flagging.
34

35 This section is supplemented with the following new sub-section:
36

37 **1-07.16(2)A Wetland and Sensitive Area Protection**

38 Existing wetland and other environmentally sensitive areas, where shown in the Plans
39 or designated by the Engineer, shall be saved and protected through the life of the
40 Contract. When applicable, a site preservation line has been established as a boundary
41 between work zones and sensitive environmental areas.
42

43 The Contractor shall install high visibility fence as shown in the Plans or designated by
44 the Engineer in accordance with 8-01.3(1). The areas to be protected include critical
45 environmental areas, buffer zones, and other areas of vegetation to be preserved. The
46 Contractor shall keep areas identified by the site preservation lines free of construction
47 equipment, construction materials, debris, and runoff. No access, to include but not
48 limited to excavation, clearing, staging, or stockpiling shall be performed inside the
49 protected area.

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1-07.16(4) Archaeological and Historical Objects

This section is supplemented with the following new sub-section:

1-07.16(4)A Inadvertent Discovery of Human Skeletal Remains

If human skeletal remains are encountered by the Contractor, they shall not be further disturbed. The Contractor shall immediately notify the Engineer of any such finds, and shall cease all work adjacent to the discovery, in an area adequate to provide for the total security and protection of the integrity of the skeletal remains. The Engineer may require the Contractor to suspend Work in the vicinity of the discovery until final determinations and removal of the skeletal remains is completed.

If the Engineer finds that the suspension of Work in the vicinity of the discovery increases or decreases the cost or time required for performance of any part of the Work under this Contract, the Engineer will make an adjustment in payment or the time required for the performance of the Work in accordance with [Sections 1-04.4](#) and [1-08.8](#).

1-07.17(2) Utility Construction, Removal or Relocation by Others

The first sentence in the second paragraph is revised to read:

If the Contract provides notice that utility work (including furnishing, adjusting, relocating, replacing, or constructing utilities) will be performed by others during the prosecution of the Work, the Special Provisions will establish the utility owners anticipated completion.

The first sentence in the third paragraph is revised to read:

When others delay the Work through late performance of utility work, the Contractor shall adhere to the requirements of Section 1-04.5.

1-07.23 Public Convenience and Safety

This section is revised to read:

The Contractor shall be responsible for providing adequate safeguards, safety devices, protective equipment, and any other needed actions to protect the life, health, and safety of the public, and to protect property in connection with the performance of the Work covered by the Contract. The Contractor shall perform any measures or actions the Engineer may deem necessary to protect the public and property. The responsibility and expense to provide this protection shall be the Contractor's except that which is to be furnished by the Contracting Agency as specified in other sections of these Specifications. Nothing contained in this Contract is intended to create any third-party beneficiary rights in favor of the public or any individual utilizing the Highway facilities being constructed or improved under this Contract.

1-07.23(1) Construction Under Traffic

The second sentence in the second paragraph is revised to read:

1 The Contractor shall maintain existing roads, streets, sidewalks, and paths within the
2 project limits, keeping them open, and in good, clean, safe condition at all times.

3
4 The fifth sentence in the second paragraph is revised to read:

5
6 The Contractor shall also maintain roads, streets, sidewalks, and paths adjacent to the
7 project limits when affected by the Contractor's operations.

8
9 The final paragraph in this section is deleted.

10
11 **1-07.23(2) Construction and Maintenance of Detours**

12 Number 1. under the first paragraph is revised to read:

13
14 Detours and detour bridges that will accommodate traffic diverted from the Roadway,
15 bridge, sidewalk or path during construction,

16
17 **SECTION 1-08, PROSECUTION AND PROGRESS**

18 **August 3, 2009**

19 **1-08.1 Subcontracting**

20 Item (2) in the first sentence of the seventh paragraph is revised to read:

21
22 (2) Delivery of these materials to the Work site in vehicles owned or operated by such
23 plants or by recognized independent or commercial hauling companies hired by
24 those commercial plants.

25
26 **1-08.3(2)A Type A Progress Schedule**

27 This section is revised to read:

28
29 The Contractor shall submit five copies of a Type A Progress Schedule no later than 10
30 days after the date the contract is executed, or some other mutually agreed upon
31 submittal time. The schedule may be a critical path method (CPM) schedule, bar chart,
32 or other standard schedule format. Regardless of which format used, the schedule shall
33 identify the critical path. The Engineer will evaluate the Type A Progress Schedule and
34 approve or return the schedule for corrections within 15 calendar days of receiving the
35 submittal.

36
37 **1-08.4 Prosecution of Work**

38 This section is supplemented with the following:

39
40 When shown in the Plans, the first order of work on this project shall be the installation
41 of high visibility fencing to delineate all areas for protection or restoration, as described
42 in the Contract. Installation of high visibility fencing adjacent to the roadway shall occur
43 after the placement of all necessary signs and traffic control devices are in place in
44 accordance with 1-10.1(2). Upon construction of the fencing, the Contractor shall
45 request the Engineer to inspect the fence. No other work shall be performed on the site
46 until the Contracting Agency has accepted the installation of high visibility fencing, as
47 described in the Contract.

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1-08.5 Time for Completion

The third sentence in the first paragraph is revised to read:

A nonworking day is defined as a Saturday, a Sunday, a whole or half day on which the Contract specifically prohibits Work on the critical path of the Contractor's approved progress schedule, or one of these holidays: January 1, the third Monday of January, the third Monday of February, Memorial Day, July 4, Labor Day, November 11, Thanksgiving Day, the day after Thanksgiving, and Christmas Day.

1-08.6 Suspension of Work

The first paragraph is revised to read:

The Engineer may order suspension of all or any part of the Work if:

1. Unsuitable weather that prevents satisfactory and timely performance of the Work; or
2. The Contractor does not comply with the Contract; or
3. It is in the public interest.

1-08.7 Maintenance During Suspension

The first sentence in the fourth paragraph is revised to read:

If the Engineer determines that the Contractor has pursued the Work diligently before the suspension, then the Contracting Agency will maintain the temporary Roadway (and bear its cost).

The fifth paragraph is revised to read:

The Contractor shall protect and maintain all other Work in areas not used by traffic. All costs associated with protecting and maintaining such Work shall be the responsibility of the Contractor, except those costs associated with implementing the TESC Plan according to Section 8-01.

The seventh paragraph is revised to read:

After any suspension, the Contractor shall resume all responsibilities the Contract assigns for the Work.

SECTION 1-09, MEASUREMENT AND PAYMENT

April 7, 2008

1-09.9 Payments

The first paragraph is supplemented with the following:

1 For items Bid as lump sum, the Contractor shall submit a breakdown of their lump sum
2 price in sufficient detail for the Project Engineer to determine the value of the Work
3 performed on a monthly basis. Lump sum breakdowns shall be provided to the Project
4 Engineer no later than the date of the preconstruction meeting.
5

6 The second sentence in the third paragraph is revised to read:
7

8 Unless otherwise provided in the payment clause of the applicable Specifications, partial
9 payment for lump sum Bid items will be a percentage of the price in the Proposal based
10 on the Project Engineer's determination of the amount of Work performed, with
11 consideration given to but not exclusively based on the Contractors lump sum
12 breakdown.
13

14 The third paragraph is supplemented with the following:
15

16 The determination of payments under the contract will be final in accordance with
17 Section 1-05.1.
18

19 **1-09.9(1) Retainage**

20 In the fourth paragraph, number 1, the reference to \$20,000 is revised to read \$35,000.
21

22 **SECTION 1-10, TEMPORARY TRAFFIC CONTROL** 23 **August 3, 2009**

24 **1-10.1(2) Description**

25 The following new paragraph is inserted after the second paragraph:
26

27 Unless otherwise permitted by the Contract or approved by the Project Engineer, the
28 Contractor shall keep all existing pedestrian routes and access points (including
29 sidewalks, paths and crosswalks) open and clear at all times.
30

31 The second and third sentences in the third paragraph are revised to read:
32

33 The Contractor shall erect and maintain all construction signs, warning signs, detour
34 signs, and other traffic control devices necessary to warn and protect the public at all
35 times from injury or damage as a result of the Contractor's operations which may occur
36 on or adjacent to Highways, roads, streets, sidewalks or paths. No Work shall be done
37 on or adjacent to any Traveled Way until all necessary signs and traffic control devices
38 are in place.
39

40 **1-10.2(1) General**

41 The second sentence in the third paragraph is revised to read:
42

43 Possession of a current TCS card and flagging card by the primary and alternate TCS is
44 mandatory.
45

1 **1-10.2(1)B Traffic Control Supervisor**
2 In number 1. under the third paragraph, the reference to the book Quality Guidelines for
3 Work Zone Traffic Control Devices is revised to Quality Guidelines for Temporary Traffic
4 Control Devices.

5
6 In number 2. under the third paragraph, the second sentence is revised to read:
7

8 Traffic control devices shall be inspected at least once per hour during working hours
9 except that Class A signs need to be checked only once a week and nighttime lighting
10 need to be checked only once a shift.

11
12 **1-10.2(2) Traffic Control Plans**

13 The first sentence in the first paragraph is revised to read:

14
15 The traffic control plan or plans appearing in the Contract documents show a method of
16 handling vehicle, bicycle and pedestrian traffic.

17
18 In the third sentence of the second paragraph, the reference to "MUTCD, Part VI" is revised
19 to "MUTCD, Part 6".

20
21 **1-10.2(3) Conformance to Established Standards**

22 The second paragraph is revised to read:

23
24 In addition to the standards of the MUTCD described above, the Contracting Agency
25 has crashworthiness requirements for most workzone devices. The National
26 Cooperative Highway Research Project (NCHRP) Report 350 has established
27 requirements for crash testing. Workzone devices are divided into four categories. Each
28 of those categories is described below:

29
30 In the paragraph that begins with "Category 2", the second sentence is revised to read:

31
32 Examples of this class are barricades, portable sign supports and signs.

33
34 **1-10.3(1) Traffic Control Labor**

35 The second paragraph is revised to read:

36
37 Vests and other high visibility apparel shall be in conformance with Section 1-07.8.

38
39 **1-10.3(1)A Flaggers and Spotters**

40 The following is inserted after the fifth sentence of the second paragraph:

41
42 Flagger station illumination shall meet the requirements of the MUTCD and these
43 specifications.

44
45 The Contractor shall provide portable lighting equipment capable of sufficiently
46 illuminating a flagger and their station without creating glare for oncoming motorists, yet
47 will meet the mobility requirements of the operation. The lighting stations shall be
48 located on the same side of the roadway as the flagger and aimed either parallel or
49 perpendicular to the traveled lanes to minimize glare. The lighting devices shall be

1 located 5 to 10 feet from the edge of the travel lane with a mounting height of 15 to 25 ft
2 above the ground. The flagger should be visible and discernable as a flagger from a
3 distance of 1000 feet.
4

5 The fourth sentence of the fourth paragraph is revised to read:
6

7 The duties of a spotter shall not include flagging and the use of a flagging paddle while
8 performing spotting duties is not allowed.
9

10 **1-10.3(2)B Rolling Slowdown**

11 The first two paragraphs are deleted and replaced with the following:
12

13 Rolling slowdown traffic control operations are not to be used for routine work that can
14 be addressed by standard lane or shoulder closure traffic control. When a short-term
15 roadway closure is needed for an infrequent, non-repetitive work operation such as a
16 sign bridge removal, or utility wire crossing, the Contractor may implement a rolling
17 slowdown on a multi-lane roadway, as part of an approved traffic control plan.
18

19 The Contractor shall submit for approval a traffic control plan detailing the expected
20 delay time, interchange ramp control and rolling slowdown distance. A portable
21 changeable message sign shall be placed ahead of the starting point of the traffic
22 control to warn traffic of the slowdown. The sign shall be placed far enough ahead of the
23 Work to avoid any expected backup of vehicles.
24

25 A rolling slowdown shall use traffic control vehicles with flashing amber lights. At least
26 one traffic control vehicle will be used for every two lanes to be slowed, plus a control
27 vehicle will serve as a following (chase) vehicle for traffic ahead of the blockade. The
28 traffic control vehicles shall enter the roadway and form a moving blockade to reduce
29 traffic speeds and create a clear area ahead of the blockade in which to accomplish the
30 work without a total stoppage of traffic.
31

32 **1-10.3(2)C Lane Closure Setup/Takedown**

33 The following is inserted in front of item 1. of the first paragraph:
34

35 A portable changeable message sign shall be established in advance of the operation,
36 far enough back to provide warning of both the operation and of any queue of traffic that
37 has formed during the operation.
38

39 The second paragraph is revised to read:
40

41 Once the lane is closed, the TMA/arrow board combination shall be replaced with an
42 arrow board without attenuator.
43

44 The second sentence of the third paragraph is revised to read:
45

46 A truck-mounted attenuator with arrow board is required during the process of closing
47 each additional lane and is to be replaced with an arrow board without attenuator after
48 the lane is closed.
49

1 **1-10.3(2)D Mobile Operations**

2 The first sentence of the first paragraph is revised to read:

3
4 Where construction operations are such that movement along the length of a Roadway
5 is continuous or near-continuous to the extent that a stationary traffic control layout will
6 not be effective, the Contractor may implement a moving, or mobile, traffic control
7 scheme.
8

9 **1-10.3(3)A Construction Signs**

10 The third paragraph is revised to read:

11
12 All existing signs, new permanent signs installed under this Contract, and construction
13 signs installed under this Contract that are inappropriate for the traffic configuration at a
14 given time shall be removed or completely covered in accordance with Section 8-
15 21.3(3).
16

17 The seventh sentence of the fourth paragraph is revised to read:

18
19 Class B construction signs are those signs that are placed and removed daily, or are
20 used for short durations which may extend for one to three days.
21

22 The fourth paragraph is supplemented with the following:

23
24 Tripod mounted signs in place more than three days in any one location, unless
25 approved by the Engineer, shall be required to be post mounted and shall be classified
26 as Class A construction signs.
27

28 The fifth paragraph is revised to read:

29
30 Where it is necessary to add weight to signs for stability, sand bags or other similar
31 ballast may be used but the height shall not be more than 4-inches above the Roadway
32 surface, and shall not interfere with the breakaway features of the device. The
33 Contractor shall follow the manufacturer's recommendations for sign ballasting.
34

35 **1-10.3(3)B Sequential Arrow Signs**

36 The second and third sentences of the first paragraph are deleted.

37
38 **1-10.3(3)C Portable Changeable Message Sign**

39 The second sentence of the first paragraph is deleted.
40

41 **1-10.3(3)D Barricades**

42 The second paragraph is revised to read:

43
44 Where it is necessary to add weight to barricades for stability, sand bags or other similar
45 ballast may be used but the height shall not be more than 4-inches above the Roadway
46 surface and shall not interfere with the breakaway features of the device. The
47 Contractor shall follow the manufacturer's recommendation for sign ballasting.
48

1 **1-10.3(3)E Traffic Safety Drums**
2 The second paragraph is revised to read:
3
4 Used drums may be utilized, provided all drums used on the project are of essentially
5 the same configuration and the devices conform to Section 1-10.2(3).
6

7 **1-10.3(3)G Traffic Cones**
8 This section including title is revised to read:
9

10 **1-10.3(3)G Traffic Cones and Tall Channelizing Devices**
11 Where shown on an approved traffic control plan or where ordered by the Engineer, the
12 Contractor shall provide, install and maintain traffic cones or tall channelizing devices.
13 Cones and tall channelizing devices shall be kept in good repair and shall be removed
14 immediately when directed by the Engineer. Where wind or moving traffic frequently
15 displaces cones, an effective method of stabilizing them, such as stacking two together
16 at each location, shall be employed or heavier weighted bases may be necessary.
17

18 **1-10.3(3)J Truck-Mounted Attenuator**
19 This section is supplemented with the following:
20

21 A TMA may be used in lieu of a temporary impact attenuator when approved by the
22 Engineer as part of a stage traffic control shift to protect an object such as blunt barrier
23 end, or bridge pier column that is located within the work zone clear zone. This use of a
24 TMA is restricted to a maximum of 3 days or approved extension by the Engineer.
25

26 **1-10.3(3)K Portable Temporary Traffic Control Signal**
27 The first paragraph is revised to read:
28

29 Where shown on an approved traffic control plan, the Contractor shall provide, operate,
30 maintain and remove a portable temporary traffic control signal system to provide
31 alternating one-lane traffic operations on a two-way facility. A portable temporary traffic
32 control signal system shall be defined as two traffic control units that operate together.
33 The system shall be trailer mounted, fully self-contained and designed so that it can be
34 easily transported and deployed at different locations.
35

36 The third sentence in the second paragraph is deleted.
37

38 The following is inserted in front of the sixth paragraph:
39

40 The Traffic Control Supervisor shall monitor and insure that the Portable Temporary
41 Traffic Control Signal is fully operational and maintained as specified by the
42 manufacturer. This Work may include cleaning and replacing lamps and other routine
43 maintenance as needed.
44

45 **1-10.4(2) Item Bids with Lump Sum for Incidentals**
46 The unit of measurement statement for “Portable Changeable Message Sign” is revised to
47 read:
48

1 "Portable Changeable Message Sign" will be measured by the hour for the time that
2 each sign is operating as shown on an approved Traffic Control Plan.

3
4 The unit of measurement statement for "Operation of Portable Changeable Message Sign" is
5 deleted.

6
7 The unit of measurement statement for "Portable Temporary Traffic Control Signal" is revised
8 to read:

9
10 No specific unit of measurement will apply to the lump sum item of "Portable Temporary
11 Traffic Control Signal".

12
13 **1-10.5(1) Lump Sum Bid for Project (No Unit Items)**

14 This section is revised to read:

15
16 "Project Temporary Traffic Control", lump sum.

17
18 The lump sum Contract payment shall be full compensation for all costs incurred by the
19 Contractor in performing the Contract Work defined in Section 1-10, except for costs
20 compensated by Bid Proposal items inserted through Contract Provisions as described
21 in Section 1-10.4(3).

22
23 **1-10.5(2) Item Bids with Lump Sum for Incidentals**

24 The unit of measure for "Portable Changeable Message Sign" is revised to "per hour".

25
26 The bid item "Operation of Portable Changeable Message Sign" and the associated
27 paragraph are deleted.

28
29 The unit of measure for the bid item "Portable Temporary Traffic Control Signal," is revised to
30 lump sum.

31
32 The paragraph following "Portable Temporary Traffic Control Signal," is revised to read:

33
34 The lump sum Contract price shall be full compensation for all costs of labor, materials
35 and equipment incurred by the Contractor in performing the Contract Work as described
36 in Section 1-10.3(3)K, including all costs for traffic control during manual control,
37 adjustment, malfunction, or failure of the portable traffic control signals and during
38 replacement of failed or malfunctioning signals.

39
40 **SECTION 2-01, CLEARING, GRUBBING, AND ROADSIDE CLEANUP**

41 **April 7, 2008**

42 **2-01.3(1) Clearing**

43 Item 3 .is deleted.

44
45 The first sentence in Item 4. is revised to read:

46
47 Follow these requirements for all stumps that will be buried deeper than 5-feet from the
48 top, side, or end surface of the embankment or any structure:

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2-01.3(2) Grubbing

Item 2. e, is revised to read:

Upon which embankments will be placed except stumps may be close-cut or trimmed as allowed in Section 2-01.3(1) item 4.

SECTION 2-02, REMOVAL OF STRUCTURES AND OBSTRUCTIONS
April 7, 2008

2-02.3(3) Removal of Pavement, Sidewalks, Curbs, and Gutters

The first sentence in 3. is supplemented with the following:

For removal of bituminous pavement, asphalt planing equipment may be used in lieu of sawcutting provided that a clean vertical edge remains.

SECTION 2-03, ROADWAY EXCAVATION AND EMBANKMENT
January 7, 2008

2-03.1 Description

The first sentence in the first paragraph is revised to read:

The Work described in this section, regardless of the nature or type of the materials encountered, includes excavating and grading the Roadway, excavating in borrow pits, excavating below grade, excavating channels and ditches, removing slide material, and disposing of all excavated material.

2-03.3(3) Excavation Below Grade

The section title is revised to read:

2-03.3(3) Excavation Below Subgrade

The first sentence in the fifth paragraph is revised to read:

Compaction. If the density of the natural earth under any area of the Roadway is less than that required in Section 2-03.3(14)C, Method B, the Engineer may order the Contractor to perform any or all of the following:

2-03.3(14)M Excavation of Channels

This section including title is revised to read:

2-03.3(14)M Excavation of Channels and Ditches

Channel Excavation: Open excavations 8-feet or more wide at the bottom, but excludes channels that are part of the Roadway.

Ditch Excavation: Open excavations less than 8-feet wide at the bottom, but excludes ditches that are part of the Roadway.

1 Before excavating channels or ditches, the Contractor shall clear and grub the area in
2 accordance with Section 2-01.

3
4 **2-03.4 Measurement**

5 The first sentence in the first paragraph is revised to read:

6
7 Roadway excavation, channel excavation, ditch excavation, unsuitable foundation
8 excavation, and common borrow items will be measured by the cubic yard.

9
10 The fourth sentence in the first paragraph is revised to read:

11
12 For Roadway excavation, channel excavation and ditch excavation items, the original
13 ground will be compared with the planned finished section shown in the Plans.
14

15 **2-03.5 Payment**

16 The first paragraph is supplemented with the following:

- 17
18 "Channel Excavation", per cubic yard.
19 "Channel Excavation Incl. Haul", per cubic yard.
20 "Ditch Excavation", per cubic yard.
21 "Ditch Excavation Incl. Haul", per cubic yard.
22

23 The first sentence in the second paragraph is revised to read:

24
25 The unit Contract price per cubic yard for "Roadway Excavation", "Roadway Excavation
26 Incl. Haul", "Roadway Excavation – Area ___", "Roadway Excavation Incl. Haul – Area
27 ___", "Channel Excavation", "Channel Excavation Incl. Haul", "Ditch Excavation" and
28 "Ditch Excavation Incl. Haul" shall be full compensation for all costs incurred for
29 excavating, loading, placing, or otherwise disposing of the material.
30

31 The second paragraph is supplemented with the following:

32
33 When a bid item is not included in the proposal for channel excavation or ditch
34 excavation all costs shall be included in roadway excavation.
35

36 The third paragraph is revised to read:

37
38 When the Engineer orders Work according to Section 2-03.3(3), unit Contract prices
39 shall apply, unless the Work differs materially from the excavation above Subgrade,
40 then payment will be in accordance with Section 1-04.4.
41

42 **SECTION 2-10, DITCH EXCAVATION**
43 **January 7, 2008**

44 This section is deleted in its entirety. The section title is revised to read:

45
46 **2-10 VACANT**
47

1 **SECTION 5-01, CEMENT CONCRETE PAVEMENT REHABILITATION**
2 **August 3, 2009**

3 All references in this division to "Engineer" are revised to "Project Engineer".
4

5 **5-01.2 Materials**

6 The first sentence is revised to read:

7
8 Materials shall meet the following requirements of the following sections:
9

10 Reinforcing Steel is deleted from the materials list in the first paragraph.
11

12 The section for **Subsealing** is deleted.
13

14 **5-01.3(1)A Concrete Mix Design for Concrete Patching Materials**

15 This section including title is revised to read:
16

17 **5-01.3(1)A Concrete Mix Designs**

18 The Contractor shall use either concrete patching materials or Portland cement concrete
19 for the rehabilitation of cement concrete pavement. Concrete patching materials shall
20 be used for spall repair and dowel bar retrofitting and may be used for concrete panel
21 replacement; Portland cement concrete is only allowed for concrete panel replacement.
22

23 This section is supplemented with the following sub-sections:
24

25 **5-01.3(1)A1 Concrete Patching Materials**

- 26 1. Materials. The prepackaged concrete patching material shall conform to Section 9-
27 20. The aggregate extender shall conform to Section 9-03.1(4), AASHTO Grading
28 No. 8.
29
- 30 2. Submittals and Mix approval. The Contractor shall use the Manufacturer's
31 recommended proportions for the mix design to be submitted to the Project
32 Engineer for the concrete patching material. The Contractor's submittal shall
33 include the mix proportions of the prepackaged concrete patching material, water,
34 aggregate extender, and the proposed sources for all aggregates. If not approved
35 for use on the QPL, submit test data indicating compliance with Section 9-20.
36

37 **5-01.3(1)A2 Portland Cement Concrete**

38 Portland cement concrete shall meet the requirements of Sections 5-05.3(1) and 5-
39 05.3(2) and be air entrained with a design air content of 5.5%.
40

41 **5-01.3(1)B Equipment**

42 The third paragraph (Air Compressors) is deleted.
43

44 The fifth paragraph (All equipment) is deleted.
45

46 The section for Subsealing is deleted.
47

1 **5-01.3(2)A Concrete Patching Material**

2 This section is revised to read:

3
4 Acceptance shall be based on field verification of the prepackaged patching material,
5 and that the amount of added water and aggregate extender complies with the mix
6 design.
7

8 **5-01.3(2)B Portland Cement Concrete**

9 The third sentence in the third paragraph is deleted.

10
11 The third paragraph is supplemented with the following:

12
13 The lower Specification limit for Air Content shall be 3.0-percent, and the upper
14 Specification limit for Air Content shall be 7.0-percent. The lower Specification limit for
15 compressive strength shall be 1200-psi less than that established in the mix design as
16 the arithmetic mean of the 5 sets of 28-day compressive strength cylinders, or 3000-psi,
17 whichever is higher. These compressive strength cylinders are to be cast at the same
18 time as the flexural beams that were used to prequalify the mix design under Section 5-
19 05.3(1). There is no upper Specification limit for 28-day compressive strength.
20

21 The portion of this section dealing with Rejection of Concrete is moved to the following sub-
22 section:

23
24 **5-01.3(2)B1 Rejection of Concrete**

25 Rejection by the Contractor: The Contractor may, prior to sampling, elect to remove any
26 defective material and replace it with new material at no expense to the Contracting
27 Agency. The replacement material will be sampled, tested and evaluated for
28 acceptance.
29

30 Rejection without Testing: The Project Engineer may reject any load that appears
31 defective prior to placement. Material rejected before placement shall not be
32 incorporated into the pavement. No payment will be made for the rejected materials
33 unless the Contractor requests that the rejected material be tested. If the Contractor
34 elects to have the rejected materials tested, a sample will be taken and both the air
35 content and strength shall be tested by WSDOT.
36

37 Payment for rejected material will be based on the results of the one sample, which was
38 taken and tested. If the rejected material fails either test, no payment will be made for
39 the rejected material and in addition, the cost of sampling and testing, at the rate of
40 \$250.00 per sample shall be borne by the Contractor. If the rejected material passes
41 both tests the mix will be compensated for at actual invoice cost and the cost of the
42 sampling and testing will borne by the Contracting Agency.
43

44 **5-01.3(3) Subsealing**

45 This section including title is revised to read:
46

1 **5-01.3(3) Vacant**

2
3 **5-01.3(4) Replace Portland Cement Concrete Panel**

4 The first paragraph is revised to read:

5
6 Curing, cold weather Work, concrete pavement construction in adjacent lanes, and
7 protection of pavement shall meet the requirements of Section 5-05.3(13) through
8 Section 5-05.3(15).

9
10 The reference to “epoxy coated” in the third paragraph is deleted.

11
12 Under Placement tolerances for tie bars the second number 4 is revised to read:

- 13
14 4. Backfilling and compacting crushed surfacing base course.

15
16 The last paragraph on page 5-5 of the Standard Specifications is revised to read:

17
18 The Contractor shall place a bond breaking material such as polyethylene film, roofing
19 paper or other material as approved by the Engineer along all existing concrete surfaces
20 and between the bottom of the slab and treated bases prior to placing concrete.

21
22 The second to the last paragraph of this section is deleted.

23
24 **5-01.3(5) Partial Depth Spall Repair**

25 The second paragraph is revised to read:

26
27 A vertical saw cut shall be made to a minimum depth of 2.0-inches around the area to
28 be patched as marked by the Engineer. The Contractor shall remove material within the
29 perimeter of the saw cut to a depth of 2.0-inches, or to sound concrete as determined
30 by the Engineer.

31
32 The surface patch area shall be sand blasted and all loose material removed. All
33 sandblasting residue shall be removed using dry oil-free air.

34
35 The fourth paragraph is revised to read:

36
37 Spall repair shall not be done in areas where dowel bars are encountered.

38
39 The fifth paragraph is revised to read:

40
41 When a partial depth repair is placed directly against an adjacent longitudinal joint a
42 bond breaking material such as polyethylene film, roofing paper or other material as
43 approved by the Engineer shall be placed between the existing concrete and the area to
44 be patched.

45
46 **5-01.3(6) Dowel Bar Retrofit**

47 The reference to “epoxy-coated” in the second to the last paragraph of this section is
48 deleted.

49

1 **5-01.3(10) Pavement Smoothness**

2 The second paragraph is supplemented with the following:

3

4 The smoothness perpendicular to the centerline will be measured with a 10 foot straight
5 edge within the lanes. There shall be no vertical elevation differences of more than a ¼
6 inch between lanes.

7

8 **5-01.4 Measurement**

9 This section is revised to read:

10

11 Replacement cement concrete panels will be measured by the square yard, based on
12 the actual width and length of the surface area placed.

13

14 Retrofit dowel bars will be measured per each for the actual number of bars used in the
15 completed Work.

16

17 No specific unit of measure will apply to the force account item of Partial Dept Spall
18 Repair.

19

20 Sealing Existing Concrete Random Cracks will be measured by the linear foot,
21 measured along the crack sealed.

22

23 Sealing Transverse and Longitudinal Joints will be measured by the linear foot,
24 measured along the line of the completed joint.

25

26 Cement concrete pavement grinding will be measured by the square yard, based on the
27 actual width and length of area ground. Extra passes to meet the Specifications or
28 overlaps will not be measured.

29

30 No specific unit of measure will apply to the force account item "Replace
31 Uncompactable Material".

32

33 **5-01.5 Payment**

34 The bid item "Testing Cement Concrete Pavement Slabs For Subsealing" and the associated
35 paragraph are deleted.

36

37 The bid item "Drill Hole For Subsealing" is deleted.

38

39 The bid item "Pavement Subseal" is deleted.

40

41 **SECTION 5-02, BITUMINOUS SURFACE TREATMENT**

42 **August 3, 2009**

43 In regards to sieve sizes, all references in this division to "U.S" and "Square" are deleted.

44

45 **5-02.3(3) Application of Asphalt Emulsion and Aggregate**

46 The chart following the first paragraph is revised to read:

47

Application Rate			
	Undiluted Asphalt Emulsion (gal.per sq. yd.) Applied	Aggregate Size	Aggregates (lbs. per sq. yd.) Applied
New Construction			
Prime Coat	0.35-0.65	½- No. 4 or ¾-½	25-45
Seal Coat	0.35-0.60	½- No. 4	25-40
Choke Stone	N/A	No. 4-0	4-6
Seal Coats			
⅝-inch No. 4 Choke Stone	0.40-0.65	⅝- No. 4 No. 4-0	25-45 4-6
½-inch No. 4 Choke Stone	0.35-0.55 No. 4-0	½- No. 4	20-35 4-6
⅜-inch – No. 4	0.35-.55	⅜- No. 4	20-30
⅜-inch – No. 10	0.20-0.40	⅜- No. 10	18-30
Choke Stone	N/A	No. 4-0	4-6

1
2

Pavement Sealing		
Grade	Diluted/Undiluted	Application Rate (gal/sy)
CSS-1 or CSS-1h	Diluted One Part Water, One Part Emulsion	0.10-0.18
CSS-1 or CSS1h	Undiluted	0.05-0.09

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4
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9

The second sentence in the second paragraph is revised to read:

The second application of asphalt emulsion (seal coat) shall be applied the next day, or as approved by the Project Engineer.

10 The eleventh paragraph and the chart following the eleventh paragraph are revised to read:

11
12
13
14

Before application to the Roadway, asphalt emulsion shall be heated to the following temperatures or that recommended by the manufacturer.

Type and Grade of Asphalt Emulsion	Distributor Temperature	
	Min. °F	Max. °F

New Construction and Seal Coats:		
CRS-1, CRS-2, CRS-2P	125	195
CMS-2, CMS-2S, CMS-2h	125	185
Fog Seal:		
CSS-1, CSS-1h	70	140

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The twelfth paragraph is revised to read:

Before application of the fog seal all surfaces shall be thoroughly cleaned of dust, soil, pavement grindings, and other foreign matter. The fog seal shall be CSS-1 or CSS-1h emulsified asphalt uniformly applied to the pavement. The finished application shall be free of streaks and bare spots. The emulsified asphalt may be diluted at a rate of one part water to one part emulsified asphalt unless otherwise directed by the Project Engineer.

5-02.3(4) Change in Grades of Asphalt Emulsion

This section including title is revised to read:

5-02.3(4) Vacant

5-02.3(10) Unfavorable Weather

Item 2. under the second paragraph is revised to read:

- 2. The surface temperature shall be not more than 130°F or as otherwise determined by the Project Engineer.

Item 4. under the second paragraph is revised to read:

- 4. Construction of bituminous surface treatments shall not be carried out before May 1 or after August 31 of any year except upon written order of the Project Engineer.

SECTION 5-04, HOT MIX ASPHALT

August 3, 2009

5-04.1 Description

The first paragraph is supplemented with the following:

The manufacture of HMA may include warm mix asphalt (WMA) processes in accordance with these Specifications. WMA processes include organic additives, chemical additives and foaming.

5-04.2 Materials

The first paragraph is supplemented with the following:

1	Warm Mix Asphalt Additive	9-02.5
2	Recycled Asphalt Pavement	9-03.8(3)B

3
4 The second sentence in the third paragraph is revised to read:

5
6 If utilized, the amount of RAP shall not exceed 20-percent of the total weight of the
7 HMA.

8
9 The following is inserted after the fourth sentence in the fourth paragraph:

10
11 The substituted asphalt binder shall not exceed a one grade change for either of the
12 design temperatures with a minimum pavement design temperature no lower than
13 minus 28° C.

14
15 The following paragraph is inserted after the fourth paragraph:

16
17 The Contractor may use Warm Mix Asphalt (WMA) processes in the production of HMA.
18 The Contractor shall submit to the Engineer for approval the process that is proposed
19 and how it will be used in the manufacture of HMA.

20
21 The reference to "pavement" in the fifth paragraph is revised to "HMA".

22 23 **5-04.3(1) HMA Mixing Plant**

24 The following item is inserted to follow item 2:

25
26 3. **Heating of Asphalt Binder.** The temperature of the asphalt binder shall not
27 exceed the maximum recommended by the asphalt binder manufacturer. The
28 asphalt binder shall be heated in a manner that will avoid local variations in heating.
29 The heating method shall provide a continuous supply of asphalt binder to the
30 mixer at a uniform average temperature with no individual variations exceeding
31 25°F. Also, when a WMA additive is included in the asphalt binder the temperature
32 of the asphalt binder shall not exceed the maximum recommended by the
33 manufacturer of the WMA additive.

34
35 Existing items 3. and 4. are renumbered to items 4. and 5. respectively.

36 37 **5-04.3(3) Hot Mix Asphalt Pavers**

38 The following is inserted at the beginning of the second paragraph:

39
40 Prior to the use of any HMA paver the Contractor shall certify the paver is equipped with
41 the most current equipment available from the manufacturer for the prevention of the
42 segregation of the coarse aggregate particles. The certification shall list the make,
43 model and year of the paver and any equipment that has been retrofitted to the paver.

44
45 The third paragraph is deleted.

46
47 All references to "Engineer" in the seventh paragraph are revised to "Project Engineer".

48
49 This section is supplemented with the following sub-section:

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5-04.3(3)A Material Transfer Device/Vehicle

Direct transfer of HMA from the hauling equipment to the paving machine will not be allowed in the top 0.30 feet of the pavement section of hot mix asphalt (HMA) used in traffic lanes with a depth of 0.08 feet or greater. A material transfer device or vehicle (MTD/V) shall be used to deliver the HMA from the hauling equipment to the paving machine. HMA placed in irregularly shaped and minor areas such as road approaches, tapers and turn lanes are excluded from this requirement.

The MTD/V shall mix the HMA after delivery by the hauling equipment and prior to laydown by the paving machine. Mixing of the HMA shall be sufficient to obtain a uniform temperature throughout the mixture. If a windrow elevator is used, the length of the windrow may be limited in urban areas or through intersections, at the discretion of the Project Engineer.

5-04.3(4) Rollers

All references to “Engineer” in this section are revised to “Project Engineer”.

5-04.3(5)A Preparation of Existing Surfaces

The reference to “will” in the third sentence of the second paragraph is revised to “shall”.

5-04.3(5)C Crack Sealing

The reference to “U.S. No. 4-0” in the first sentence of the second paragraph is revised to “No. 4-0”.

5-04.3(5)E Pavement Repair

This section is revised to read:

The Contractor shall excavate pavement repair areas and shall backfill these with HMA in accordance with the details shown in the Plans and as staked. The Contractor shall conduct the excavation operations in a manner that will protect the pavement that is to remain. Pavement not designated to be removed that is damaged as a result of the Contractor’s operations shall be repaired by the Contractor to the satisfaction of the Project Engineer at no cost to the Contracting Agency. The Contractor shall excavate only within one lane at a time unless approved otherwise by the Project Engineer. The Contractor shall not excavate more area than can be completely finished during the same shift.

The Project Engineer will determine the excavation depth, which may vary up to 1-foot. The determination will depend on the location of material suitable for support of the pavement. The minimum width of any pavement repair area shall be 3-feet unless shown otherwise in the Plans. Before any excavation, the existing pavement shall be sawcut or shall be removed by a pavement grinder. Excavated materials will become the property of the Contractor and shall be disposed in a Contractor-provided site off the Right of Way or used in accordance with Sections 2-02.3(3) or 9-03.21. Asphalt for tack coat shall be required as specified in Section 5-04.3(5)A. A heavy application of tack coat shall be applied to all surfaces of existing pavement in the pavement repair area. Placement of the HMA backfill shall be accomplished in lifts not to exceed 0.35-foot

1 compacted depth. Each lift shall be thoroughly compacted by a mechanical tamper or a
2 roller.

3
4 **5-04.3(6) Heating of Asphalt Binder**

5 This section including title is revised to read:

6
7 **5-04.3(6) Vacant**

8
9 **5-04.3(7)A Mix Design**

10 The content of this section is revised and moved to the following sub-sections:

11
12 **5-04.3(7)A1 General**

13 The Contractor shall develop a mix design prior to the initial production of HMA and
14 prior to the production of HMA each calendar year thereafter. The mix design aggregate
15 structure and asphalt binder content shall be determined in accordance with WSDOT
16 Standard Operating Procedure 732 and meet the requirements of Sections 9-03.8(2)
17 and 9-03.8(6). Mix designs that were developed during the calendar year prior to
18 current year's production of HMA that have been issued a WSDOT mix design report
19 will be accepted provided the Contractor submits a certification letter stating that the
20 aggregate and asphalt binder have not changed. Changes to aggregate that may
21 require a new mix design include the source of material or a change in the percentage
22 of material from a stockpile greater than 5-percent. Changes to asphalt binder that may
23 require a new mix design include the source of the crude petroleum supplied to the
24 refinery, the refining process and additives or modifiers in the asphalt binder.

25
26 **5-04.3(7)A2 Statistical or Nonstatistical Evaluation**

27 Mix designs for HMA accepted by statistical and nonstatistical evaluation shall be
28 submitted to the Project Engineer on DOT form 350-042. For a mix design that was
29 originally developed for another WSDOT contract the Contractor shall also submit DOT
30 form 350-041 and include all changes to the job mix formula that have been approved
31 on other contracts.

32
33 The Contractor shall submit representative samples of the mineral materials that are to
34 be used in the HMA production. The Contracting Agency will use these samples to
35 conduct verification testing of the mix design in accordance with WSDOT Standard
36 Operating Procedure 732 and to determine anti-strip requirements, if any, in accordance
37 with WSDOT test method T 718. Verification testing of HMA mix designs proposed by
38 the Contractor that include RAP will be completed without the inclusion of the RAP.
39 Submittal of RAP samples is not required. A mix design report will be provided within
40 25-calendar days after a mix design submittal has been received in the State Materials
41 Laboratory in Tumwater. No paving shall begin prior to issuance of the mix design
42 report or reference mix design report for that year.

43
44 **5-04.3(7)A3 Commercial Evaluation**

45 Mix designs for HMA accepted by commercial evaluation shall be submitted to the
46 Project Engineer on DOT form 350-042; only the first page is required.

47

1 Verification of the mix design by the Contracting Agency is not required. The Project
2 Engineer will determine anti-strip requirements for the HMA. Paving shall not begin
3 before the anti-strip requirements have been provided to the Contractor. For
4 commercial HMA, the Contractor shall select a class of HMA and design level of
5 Equivalent Single Axle Loads (ESAL's) appropriate for the required use.
6

7 **5-04.3(8) Mixing**

8 The second paragraph is revised to read:
9

10 When discharged, the temperature of the HMA shall not exceed the optimum mixing
11 temperature by more than 25°F as shown on the mix design or reference mix design
12 report or as approved by the Engineer. Also, when a WMA additive is included in the
13 manufacture of HMA the discharge temperature of the HMA shall not exceed the
14 maximum recommended by the manufacturer of the WMA additive. A maximum water
15 content of 2-percent in the mix, at discharge, will be allowed providing the water causes
16 no problems with handling, stripping, or flushing. If the water in the HMA causes any of
17 these problems, the moisture content shall be reduced as directed by the Project
18 Engineer.
19

20 This section is supplemented with the following:
21

22 Recycled asphalt pavement (RAP) utilized in the production of HMA shall be sized prior
23 to entering the mixer so that a uniform and thoroughly mixed HMA is produced. If there
24 is evidence of the recycled asphalt pavement not breaking down during the heating and
25 mixing of the HMA, the Contractor shall immediately suspend the use of the RAP until
26 changes have been approved by the Project Engineer.
27

28 **5-04.3(8)A Acceptance Sampling and Testing - HMA Mixture**

29 The content of this section is revised and moved to the following sub-sections:
30

31 **5-04.3(8)A1 General**

32 Acceptance of HMA shall be as provided under statistical, nonstatistical or commercial
33 evaluation.
34

35 Acceptance of HMA by statistical evaluation is administered under the provisions of
36 **Section 5-04.5(1) Quality Assurance Price Adjustments**. Statistical evaluation will be
37 used for a class of HMA when the Proposal quantities for that class of HMA exceed
38 4,000-tons.
39

40 Nonstatistical evaluation will be used for the acceptance of HMA when the Proposal
41 quantities for a class of HMA are 4,000-tons or less.
42

43 Commercial evaluation will be used for Commercial HMA and for other classes of HMA
44 in the following applications: sidewalks, road approaches, ditches, slopes, paths, trails,
45 gores, prelevel, and pavement repair. Other nonstructural applications of HMA
46 accepted by commercial evaluation shall be as approved by the Project Engineer.
47 Sampling and testing of HMA accepted by commercial evaluation will be at the option of
48 the Project Engineer. The Proposal quantity of HMA that is accepted by commercial

1 evaluation will be excluded from the quantities used in the determination of statistical
2 and nonstatistical evaluation.
3

4 The mix design will be the initial JMF for the class of HMA. The Contractor may request
5 a change in the JMF. Any adjustments to the JMF will require the approval of the
6 Project Engineer and may be made in accordance with Section 9-03.8(7).
7

8 **5-04.3(8)A2 Aggregates**

9 For HMA accepted by statistical evaluation the gradation of aggregates will be included
10 in the statistical calculations. The acceptance criteria for aggregate properties of sand
11 equivalent, uncompacted void content and fracture will be their conformance to the
12 requirements of Section 9-03.8(2). These properties will not be included in the
13 statistical evaluation. Sampling and testing of aggregates accepted by commercial
14 evaluation will be at the option of the Project Engineer.
15

16 **5-04.3(8)A3 Sampling**

17 The random sampling of HMA will be by WSDOT Test Method T 716. Samples for
18 acceptance testing shall be obtained by the Contractor when ordered by the Engineer.
19 The Contractor shall sample the HMA mixture in the presence of the Engineer and in
20 accordance with WSDOT FOP for WAQTC/AASHTO T 168.
21

22 **5-04.3(8)A4 Definition of Sampling Lot and Sublot**

23 A lot is represented by randomly selected samples that will be tested for acceptance
24 with a maximum of 15-sublots per lot; the final lot may be increased to 25-sublots. All of
25 the test results obtained from the acceptance samples from a given lot shall be
26 evaluated collectively. If the Contractor requests a change to the JMF that is approved,
27 the material produced after the change will be evaluated on the basis of the new JMF
28 for the remaining sublots in the current lot and for acceptance of subsequent lots. For a
29 lot in progress with a CPF less than 0.75 a new lot will begin at the Contractor's request
30 after the Project Engineer is satisfied that material conforming to the Specifications can
31 be produced.
32

33 Sampling and testing for statistical and nonstatistical evaluation shall be performed on
34 the frequency of one sample per sublot. The sublots shall be approximately uniform in
35 size with a maximum sublot size of 800-tons. The quantity of material represented by
36 the final sublot for either statistical or nonstatistical evaluation may be increased to a
37 maximum of 2-times the sublot quantity calculated. Should a lot accepted by statistical
38 evaluation contain fewer than three sublots, the HMA will be accepted in accordance
39 with nonstatistical evaluation.
40

41 **5-04.3(8)A5 Test Results**

42 The results of all acceptance testing performed in the field and the Composite Pay
43 Factor (CPF) of the lot after three sublots have been tested will be available to the
44 Contractor through WSDOT's website.
45

46 The Contractor may request a sublot be retested. To request a retest, the Contractor
47 shall submit a written request within 7-calendar days after the specific test results have
48 been posted to the website. A split of the original acceptance sample will be sent for
49 testing to either the Region Materials Laboratory or the State Materials Laboratory as

1 determined by the Project Engineer. The split of the sample will not be tested with the
2 same equipment or by the same tester that ran the original acceptance test. The sample
3 will be tested for a complete gradation analysis, asphalt binder content and Va and the
4 results of the retest will be used for the acceptance of the HMA in place of the original
5 subplot sample test results. The cost of testing will be deducted from any monies due or
6 that may come due the Contractor under the Contract at the rate of \$250 per sample.
7

8 **5-04.3(8)A6 Test Methods**

9 Testing of HMA for compliance of Va will be by WSDOT Standard Operating Procedure
10 SOP 731. Testing for compliance of asphalt binder content will be by WSDOT FOP for
11 AASHTO T 308. Testing for compliance of gradation will be by WAQTC FOP for
12 AASHTO T 27/T 11.
13

14 **5-04.3(8)A7 Test Section - HMA Mixture**

15 For each class of HMA accepted by statistical evaluation the Contractor may request a
16 test section to determine if the mixture meets the requirements of Sections 9-03.8(2)
17 and 9-03.8(6). The test section shall be constructed at the beginning of paving and will
18 be at least 600-tons and a maximum of 1000-tons or as approved by the Project
19 Engineer. No further wearing or leveling HMA will be paved the day of or the day
20 following the construction of the test section. The mixture in the test section will be
21 evaluated as a lot with a minimum of 3 sublots required.
22

23 **5-04.3(9) Spreading and Finishing**

24 The nominal compacted depth for HMA Class $\frac{3}{4}$ " and HMA Class $\frac{1}{2}$ " listed under the first
25 paragraph is revised to read:
26

27	HMA Class $\frac{3}{4}$ " and HMA Class $\frac{1}{2}$ "	
28	wearing course	0.30-feet
29	other courses	0.35-feet
30		

31 **5-04.3(10)A General**

32 The second sentence in the third paragraph is revised to read:
33

34 An exception shall be that pneumatic tired rollers shall be used for compaction of the
35 wearing course beginning October 1st of any year through March 31st of the following
36 year.
37

38 The sixth sentence in the third paragraph is revised to read:
39

40 Rollers shall only be operated in static mode on bridge decks.
41

42 **5-04.3(10)B Control**

43 The content of this section is revised and moved to the following sub-sections:
44

45 **5-04.3(10)B1 General**

46 HMA mixture accepted by statistical or nonstatistical evaluation that is used in traffic
47 lanes, including lanes for ramps, truck climbing, weaving, and speed change, and
48 having a specified compacted course thickness greater than 0.10-foot, shall be

1 compacted to a specified level of relative density. The specified level of relative density
2 shall be a Composite Pay Factor (CPF) of not less than 0.75 when evaluated in
3 accordance with Section 1-06.2, using a minimum of 91.0-percent of the reference
4 maximum density as determined by WSDOT FOP for AASHTO T 209. The specified
5 level of density attained will be determined by the statistical evaluation of tests taken in
6 accordance with FOP for WAQTC TM 8 and WSDOT SOP T 729 on the day the mix is
7 placed (after completion of the finish rolling).
8

9 Each compaction lot will be divided into sublots with a maximum of 15-sublots per lot;
10 the final lot may be increased to 25-sublots. Sublots will be uniform in size with a
11 maximum of approximately 80-tons per subplot; the final subplot of the day may be
12 increased to 120 tons. The subplot locations within each density lot will be determined by
13 the stratified random sampling procedure conforming to WSDOT Test Method T 716.
14 For a lot in progress with a CPF less than 0.75 a new lot will begin at the Contractor's
15 request after the Project Engineer is satisfied that material conforming to the
16 Specifications can be produced.
17

18 HMA mixture accepted by commercial evaluation and HMA constructed under
19 conditions other than those listed above shall be compacted on the basis of a test point
20 evaluation of the compaction train. The test point evaluation shall be performed in
21 accordance with instructions from the Project Engineer. The number of passes with an
22 approved compaction train, required to attain the maximum test point density, shall be
23 used on all subsequent paving.
24

25 HMA for preleveling shall be thoroughly compacted. HMA that is used for preleveling
26 wheel rutting shall be compacted with a pneumatic tire roller unless otherwise approved
27 by the Engineer.
28

29 **5-04.3(10)B2 Cyclic Density**

30 The Project Engineer may also evaluate the HMA for low cyclic density of the pavement
31 in accordance with WSDOT SOP 733. Low cyclic density areas are defined as spots or
32 streaks in the pavement that are less than 90.0-percent of the reference maximum
33 density. Any area tested for density under Section 5-04.3(10)B1 will be included in this
34 evaluation. A \$500 price adjustment will be assessed for any 500-foot section with two
35 or more density readings below 90.0-percent of the reference maximum density.
36

37 **5-04.3(10)B3 Longitudinal Joint Density.**

38 The Project Engineer will evaluate the HMA wearing surface for low density at the
39 longitudinal joint in accordance with WSDOT SOP 735. Low density is defined as less
40 than 90.0-percent of the reference maximum density. If 1 density reading, at either
41 longitudinal joint, is below 90.0-percent of the reference maximum density, a \$200 price
42 adjustment will be assessed for that subplot.
43

44 **5-04.3(10)B4 Test Results**

45 The nuclear moisture-density gauge results of all compaction acceptance testing and
46 the CPF of the lot after three sublots have been tested will be available to the Contractor
47 through WSDOT's website. Determination of the relative density of the HMA with a
48 nuclear moisture-density gauge requires a correlation factor and may require resolution

1 after the correlation factor is known. Acceptance of HMA compaction will be based on
2 the statistical evaluation and CPF so determined.

3
4 For a subplot that did not meet the minimum of 91.0-percent of the reference maximum
5 density in a compaction lot with a CPF below 1.00 and thus subject to a price reduction
6 or rejection, the Contractor may request that a core be used for determination of the
7 relative density of the subplot. The relative density of the core will replace the relative
8 density determined by the nuclear moisture-density gauge for the subplot and will be
9 used for calculation of the CPF and acceptance of HMA compaction lot. When cores
10 are taken by the Contracting Agency at the request of the Contractor, they shall be
11 requested by noon of the next workday after the test results for the subplot have been
12 provided or made available to the Contractor. The core will be taken at approximately
13 the same location as the nuclear moisture-density gauge test in the compaction subplot
14 being challenged. Traffic control shall be provided by the Contractor as requested by
15 the Project Engineer. Failure by the Contractor to provide the requested traffic control
16 will result in forfeiture of the request for cores. When the CPF for the lot based on the
17 results of the HMA cores is less than 1.00, the cost for the coring will be deducted from
18 any monies due or that may become due the Contractor under the Contract at the rate
19 of \$200 per core and the Contractor shall pay for the cost of the traffic control.
20

21 **5-04.3(11) Reject HMA**

22 The section heading is revised to read:

23 24 **5-04.3(11) Reject Work**

25
26 The content of this section is revised and moved to the following sub-sections:

27 28 **5-04.3(11)A General**

29 Work that is defective or does not conform to Contract requirements shall be rejected.
30

31 **5-04.3(11)B Rejection by Contractor**

32 The Contractor may, prior to sampling, elect to remove any defective material and
33 replace it with new material. Any such new material will be sampled, tested, and
34 evaluated for acceptance.
35

36 **5-04.3(11)C Rejection Without Testing**

37 The Project Engineer may, without sampling, reject any batch, load, or section of
38 Roadway that appears defective. Material rejected before placement shall not be
39 incorporated into the pavement. Any rejected section of Roadway shall be removed.
40

41 No payment will be made for the rejected materials or the removal of the materials
42 unless the Contractor requests that the rejected material be tested. If the Contractor
43 elects to have the rejected material tested, a minimum of 3 representative samples will
44 be obtained and tested. Acceptance of rejected material will be based on conformance
45 with the statistical acceptance Specification. If the CPF for the rejected material is less
46 than 0.75, no payment will be made for the rejected material, and in addition, the cost of
47 sampling and testing shall be borne by the Contractor. If the CPF is greater than or
48 equal to 0.75 the cost of sampling and testing will be borne by the Contracting Agency.

1 If the material is rejected before placement and the CPF is greater than or equal to 0.75,
2 compensation for the rejected material will be at a CPF of 0.75. If rejection occurs after
3 placement and the CPF is greater than or equal to 0.75, compensation for the rejected
4 material will be at the calculated CPF with an addition of 25-percent of the unit Contract
5 price added for the cost of removal and disposal.
6

7 **5-04.3(11)D Lots and Sublots**

8 **5-04.3(11)D1 A Partial Sublot**

9 In addition to the random acceptance sampling and testing, the Project Engineer may
10 also isolate from a normal subplot any material that is suspected of being defective in
11 relative density, gradation or asphalt binder content. Such isolated material will not
12 include an original sample location. A minimum of 3 random samples of the suspect
13 material will be obtained and tested. The material will then be statistically evaluated as
14 an independent lot in accordance with Section 1-06.2(2).
15

16 **5-04.3(11)D2 An Entire Sublot**

17 An entire subplot that is suspected of being defective may be rejected. When a subplot is
18 rejected a minimum of 2 additional random samples from this subplot will be obtained.
19 These additional samples and the original subplot will be evaluated as an independent lot
20 in accordance with Section 1-06.2(2).
21

22 **5-04.3(11)D3 A Lot in Progress**

23 The Contractor shall shut down operations and shall not resume HMA placement until
24 such time as the Project Engineer is satisfied that material conforming to the
25 Specifications can be produced:
26

- 27 a. When the Composite Pay Factor (CPF) of a lot in progress drops below 1.00
28 and the Contractor is taking no corrective action, or
- 29 b. When the Pay Factor (PF) for any constituent of a lot in progress drops below
30 0.95 and the Contractor is taking no corrective action, or
- 31 c. When either the PFi for any constituent or the CPF of a lot in progress is less
32 than 0.75.
33

34 **5-04.3(11)D4 An Entire Lot**

35 An entire lot with a CPF of less than 0.75 will be rejected. The designated percentage
36 reduction as defined in Section 1-06.2(2)B under Financial Incentive Paragraph 1, Item
37 3, shall be 25-percent.
38

39 **5-04.3(12)A Transverse Joints**

40 The first and second sentences of the second paragraph are revised to read:
41

42 A temporary wedge of HMA constructed on a 50H:1V shall be constructed where a
43 transverse joint as a result of paving or planing is open to traffic. The HMA in the
44 temporary wedge shall be separated from the permanent HMA by strips of heavy
45 wrapping paper or other methods approved by the Engineer.
46
47

1 **5-04.3(12)B Longitudinal Joints**

2 The first two paragraphs are revised to read:

3
4 The longitudinal joint in any 1 course shall be offset from the course immediately below
5 by not more than 6-inches nor less than 2-inches. All longitudinal joints constructed in
6 the wearing course shall be located at a lane line or an edge line of the Traveled Way.

7
8 On one-lane ramps a longitudinal joint may be constructed at the center of the traffic
9 lane, subject to approval by the Project Engineer, if:

- 10 1. The ramp must remain open to traffic, or
- 11 2. The ramp is closed to traffic and a hot-lap joint is constructed.
 - 12
 - 13
 - 14
 - 15 a. If a hot-lap joint is allowed at the center of the traffic lane, 2 paving
 - 16 machines shall be used; a minimum compacted density in accordance
 - 17 with Section 5-04.3(10)B shall be achieved throughout the traffic lane; and
 - 18 construction equipment other than rollers shall not operate on any
 - 19 uncompacted mix.
 - 20

21 The reference to Standard Plan A-1 in the third paragraph is revised to read "Standard Plan
22 A40.10-00."

23
24 **5-04.3(16) Weather Limitations**

25 The first sentence of the first paragraph is revised to read:

26
27 HMA for wearing course shall not be placed on any Traveled Way beginning October 1st
28 of any year through March 31st of the following year without written approval from the
29 Project Engineer.

30
31 The chart for **Surface Temperature Limitation** is revised to read:

Surface Temperature Limitation		
Compacted Thickness (Feet)	Wearing Course	Other Courses
Less than 0.10	55°F	45°F
0.10 to 0.20	45°F	35°F
More than 0.20	35°F	35°F

32
33
34 **5-04.3(19) Sealing of Pavement Surfaces**

35 This section is revised to read:

36
37 Where shown in the Plans, the Contractor shall apply a fog seal. The fog seal shall be
38 constructed in accordance with Section 5-02.3. Unless otherwise approved by the
39 Project Engineer, the fog seal shall be applied prior to opening to traffic.

1 **5-04.3(21) Asphalt Binder Revision**
2 This section including title is revised to read:

3
4 **5-04.3(21) Vacant**

5
6 **5-04.4 Measurement**

7 The measurement statement for Asphalt For Fog Seal is revised to read:

8
9 Asphalt For Fog Seal will be measured by the ton as provided in Section 5-02.4.

10
11 **5-04.5 Payment**

12 The payment statement for Asphalt for Fog Seal is revised to read:

13
14 Payment for "Asphalt for Fog Seal" is described in Section 5-02.5.

15
16 The reference to "item 1B" in the payment statement for "Longitudinal Joint Density Price
17 Adjustment" is deleted.

18
19 **5-04.5(1)A Price Adjustments for Quality of HMA Mixture**

20 The table of Price Adjustment Factors is revised to read:

21

Table of Price Adjustment Factors	
Constituent	Factor "f"
All aggregate passing: 1½", 1", ¾", ½", ⅜" and No.4 sieves	2
All aggregate passing No. 8 sieve	15
All aggregate passing No. 200 sieve	20
Asphalt binder	40
Air Voids, Va	20

22

23

24 The first sentence in the second paragraph is revised to read:

25

26 A pay factor will be calculated for each sieve listed that is equal to or smaller than the
27 maximum allowable aggregate size (100-percent passing sieve), asphalt binder and
28 percent air voids (Va).

29

30 **5-04.5(1)B Price Adjustments for Quality of HMA Compaction**

31 This section is revised to read:

32

33 For each compaction control lot with one or two sublots having all sublots attain a
34 relative density that is 91.0-percent of the reference maximum density the HMA shall be
35 accepted at the unit Contract price with no further evaluation. When a subplot does not
36 attain a relative density that is 91.0-percent of the reference maximum density the lot
37 shall be evaluated in accordance with Section 1-06.2 to determine the appropriate CPF.

1 Additional testing by either a nuclear moisture-density gauge or cores will be completed
2 as required to provide a minimum of three tests for evaluation.
3

4 For each compaction control lot with three or more sublots, a Compaction Incentive
5 Price Adjustment Factor (CIPAF) will be determined. The CIPAF equals the algebraic
6 difference of the CPF minus 1.00 multiplied by 40-percent. The Compaction Price
7 Adjustment will be calculated as the product of CIPAF, the quantity of HMA in the
8 compaction control lot in tons, and the unit Contract price per ton of mix.
9

10 **SECTION 5-05, CEMENT CONCRETE PAVEMENT**
11 **August 3, 2009**

12 **5-05.2 Materials**

13 Dowel bars and the referenced section are revised to read:

14
15 Corrosion Resistant Dowel Bars 9-07.5(2)
16

17 This section is supplemented with the following:

18
19 Concrete Patching Material 9-20
20

21 **5-05.3(1) Concrete Mix Design for Paving**

22 Number 1. **Materials** is revised to read:

- 23
24 1. **Materials.** Materials shall conform to Section 5-05.2. Fine aggregate shall
25 conform to Section 9-03.1(2), Class 1. Coarse aggregate shall conform to Section
26 9-03.1(4) AASHTO grading No. 467. An alternate combined gradation conforming
27 to Section 9-03.1(5) may be proposed, that has a nominal maximum aggregate size
28 equal to or greater than a 1-½ -inch square sieve.
29

30 The first sentence in number 2. **Submittals**, is revised to read:

31
32 The Contractor's submittal shall include the mix proportions per cubic yard, test results
33 from beams and cylinders and the proposed sources for all ingredients including the fly
34 ash.
35

36 The fourth sentence in number 2. **Submittals**, is revised to read:

37
38 In addition the Contractor shall fabricate, cure, and test 5 sets of cylinders, for
39 evaluation of 28-day strengths, according to WSDOT FOP's for AASHTO T 22 and
40 AASHTO T 23 using the same mix design as used in fabrication of the beams.
41

42 The fifth sentence in number 2. **Submittals**, is deleted.
43

44 The sixth sentence in number 2. **Submittals**, is revised to read:

45
46 Mix designs submitted by the Contractor shall provide a unique identification for each
47 proposal and shall include test data confirming that concrete made in accordance with

1 the proposed design will meet the requirements of these Specifications and the 28 day
2 compressive strength results.

3

4 Number 3. **Mix Design Modifications** is revised to read:

5

6 3. **Conformance to Mix Design.** Cement, coarse and fine aggregate weights shall
7 be within the following tolerances of the mix design:

8

Portland Cement Concrete Batch Volumes		
Cement	+5%	-1%
Coarse Aggregate	+ 200 Pounds	- 200 Pounds
Fine Aggregate	+ 200 Pounds	- 200 Pounds

9

10

11

If the total cementitious material weight is made up of different components, these
12 component weights shall be within the following tolerances:

13

14

- 15 1. Portland cement weight plus 5-percent or minus 1-percent of that specified
16 in the mix design.
- 17 2. Fly ash and ground granulated blast furnace slag weight plus or minus 5-
18 percent of that specified in the mix design.
- 19 3. Microsilica weight plus or minus 10-percent of that specified in the mix
20 design.

21

22

23 Water shall not exceed the maximum water specified in the mix design.

24

25

The Contractor may initiate minor adjustments to the approved mix proportions
26 within the tolerances noted above without resubmitting the mix design.

27

28

Utilizing admixtures to accelerate the set or to increase workability will be permitted
29 only when approved by the Engineer. Only non-chloride accelerating admixtures
30 that meet the requirements of Section 9-23.6 Admixture for Concrete, shall be
31 used.

32

33

The Contractor shall notify the Engineer in writing of any proposed modification. A
34 new mix design will designate a new lot.

35

36

5-05.3(3) Equipment

37

This section is revised to read:

38

39

Equipment necessary for handling materials and performing all parts of the Work shall
40 conform to the following requirements:

41

42

5-05.3(3)C Finishing Equipment

43

The second sentence in the first paragraph is revised to read:

1
2 On other roads and on WSDOT projects requiring less than 1000-square yards of
3 cement concrete pavement or requiring individual placement areas of less than 1000-
4 square yards, irregular areas, intersections and at locations inaccessible to slip-form
5 paving equipment, cement concrete pavement may be placed with approved placement
6 and finishing equipment utilizing stationary side forms.
7

8 **5-05.3(4)A Acceptance of Portland Cement Concrete Pavement**

9 The fifth paragraph is revised to read:

10
11 The point of acceptance will be per WAQTC FOP for TM 2 or at the point of discharge
12 when a pump is used.
13

14 The seventh paragraph is revised to read:

15
16 For the purpose of acceptance sampling and testing, a lot is defined as having a
17 maximum of 15 sublots that was produced for the same class of mix. The final lot may
18 be increased to 25 sublots. All of the test results obtained from the same lot shall be
19 evaluated collectively. The quantity represented by each sample will constitute a subplot.
20 Sampling and testing shall be performed on a random basis at the frequency of one
21 sample per subplot. Sublot size shall be determined to the nearest 10-cubic yards to
22 provide not less than three uniform sized sublots with a maximum subplot size of 500-
23 cubic yards.
24

25 The eighth paragraph is deleted.

26
27 The third sentence in the ninth paragraph is deleted.
28

29 The following is inserted after the tenth paragraph:

30 31 **Rejection of Concrete**

- 32 1. **Rejection by the Contractor.** The Contractor may, prior to sampling, elect to
33 remove any defective material and replace it with new material at no expense to the
34 Contracting Agency. Any such new material will be sampled, tested and evaluated
35 for acceptance.
36
37 2. **Rejection Without Testing.** The Engineer may reject any load that appears
38 defective prior to placement. Material rejected before placement shall not be
39 incorporated into the pavement. No payment will be made for the rejected
40 materials unless the Contractor requests that the rejected material be tested. If the
41 Contractor elects to have the rejected materials tested, a sample will be taken and
42 both the air content and strength shall be tested by WSDOT.
43

44 Payment for rejected material will be based on the results of the 1 sample, which was
45 taken and tested. If the rejected material fails either test, no payment will be made for
46 the rejected material and in addition, the cost of sampling and testing, at the rate of
47 \$250.00 per sample shall be borne by the Contractor. If the rejected material passes
48 both tests the mix will be compensated at a CPF of 1.00 and the cost of the sampling
49 and testing will borne by the Contracting Agency.

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Statistical Acceptance

The results of all acceptance testing performed in the field and the Composite Pay Factor (CPF) of the lot after three sublots have been tested will be available to the contractor through WSDOT's website

The 14th paragraph **Rejection of Concrete** and the remainder of this section is deleted and replaced with the following:

Non-Statistical Acceptance

Concrete will be accepted based on conformance to the requirement for air content, and the compressive strength at 28-days for sublots as tested and determined by the Contracting Agency. The lower Specification limit for Air Content shall be 3.0-percent, and the upper Specification limit for Air Content shall be 7.0-percent. The lower Specification limit for compressive strength shall be 1200-psi less than that established in the mix design as the arithmetic mean of the 5 sets of 28-day compressive strength cylinders, or 3000-psi, whichever is higher. These compressive strength cylinders are to be cast at the same time as the flexural beams that were used to prequalify the mix design under Section 5-05.3(1).

Each subplot will be deemed to have met the specified compressive strength requirement when both of the following conditions are met:

1. Individual strength tests do not fall below the lower specification limit for strength by more than 12½-percent or 500-psi, whichever is least.
2. An individual strength test averaged with the 2 preceding individual strength tests meets or exceeds the lower specification limit for strength.

When compressive strengths fail to satisfy one or both of the above requirements, the Contractor may request acceptance of in-place concrete strength based on core results. This method will not be used if the Engineer determines coring would be harmful to the integrity of the Structure. Cores, if allowed, will be obtained by the Contractor in accordance with AASHTO T 24 and delivered to the Contracting Agency for testing in accordance with AASHTO T 22. If the concrete in the Structure will be dry under service conditions, the core will be air dried at a temperature of between 60°F and 80°F and at a relative humidity of less than 60-percent for 7-days before testing, and will be tested air dry.

Acceptance for each subplot by the core method requires that the average compressive strength of 3 cores be at least 85-percent of the specified strength with no 1 core less than 75-percent of the specified strength. When the Contractor requests strength analysis by coring, the results obtained will be accepted by both parties as conclusive and supersede all other strength data for the concrete subplot.

If the Contractor elects to core, cores shall be obtained no later than 50-days after initial concrete placement. The Engineer will concur in the locations to be cored. Repair of cored areas shall be the responsibility of the Contractor. The cost incurred in coring and testing these cores, including repair of core locations, shall be borne by the Contractor.

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5-05.3(8) Joints

The first paragraph is revised to read:

Joints in cement concrete pavement will be designated as longitudinal and transverse contraction joints, longitudinal and transverse construction joints, or isolation joints and shall be constructed as shown in the Plans and in accordance with the following provisions:

5-05.3(8)A Contraction Joints

The fifth paragraph is revised to read:

When cement concrete pavement is placed adjacent to existing cement concrete pavement, the vertical face of all existing working joints shall be covered with a bond breaking material such as polyethylene film, roofing paper or other material as approved by the Engineer.

5-05.3(8)B Sealing Sawed Contraction Joints

The fifth sentence is revised to read:

The hot-poured compound and the cold-poured compound shall be applied under sufficient pressure to fill the groove from bottom to top and the cured joint sealant shall be between 1/4 inch and 5/8 inch below the top surface of the concrete.

This section is supplemented with the following new sub-section:

5-05.3(8)D Isolation Joints

Premolded joint filler in accordance with Section 9-04.1(2) shall be placed as detailed in the Plans through the full depth of concrete pavement when drainage features are placed within the concrete pavement.

5-05.3(10) Tie Bars and Dowel Bars

This section including title is revised to read:

5-05.3(10) Tie Bars and Corrosion Resistant Dowel Bars

Tie bars shall be placed at all longitudinal contraction and construction joints, in accordance with the requirements shown in the Standard Plan. In addition, tie bars shall be installed when concrete Shoulders are placed as a separate operation or when widening existing pavement.

Tie bars shall be placed at longitudinal construction joints between lanes in a manner that the individual bars are located at the required elevation and spaced as shown in the Standard Plan and in a manner that the vertical edge of the concrete is not deformed or otherwise damaged during placement of the bars.

Placement tolerances for tie bars shall be within 1-inch of the middle of the concrete slab, within 1-inch of being centered over the joint and placed parallel or perpendicular to centerline within 1-inch of the vertical and horizontal plane.

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Corrosion resistant dowel bars will be required for the construction joint at the end of paving operations each day and they shall be placed in accordance with the Standard Plan. Corrosion resistant dowel bars shall be placed at all transverse contraction joints as shown in the Contract or in accordance with the Standard Plans. All dowel bars shall have a parting compound, such as curing compound, grease or other Engineer approved equal applied to them prior to placement. Any dowel bar delivered to the project that displays rust/oxidation, pinholes, questionable blemishes, or deviate from the round shall be rejected.

The Contractor shall furnish a Manufacturer's Certificate of Compliance in accordance with Section 1-0.6.3, including mill test report, verifying conformance to the requirements of Section 9-07.5(2) as well as written certification identifying the patching material, when applicable, used at cut dowel bar ends.

Only one type of corrosion resistant dowel bars will be allowed per contract; intermixing of different corrosion resistant dowel bars types will not be allowed.

Placement tolerances for dowel bars shall be within 1-inch of the middle of the concrete slab, within 1-inch of being centered over the transverse joint and parallel to centerline within 1/2-inch of the vertical and the horizontal plane. Cutting of stiffeners within the dowel bar cage is not allowed.

When fresh concrete pavement is to be placed against pre-project existing cement concrete pavement, tie bars shall be drilled and set into the existing pavement with an epoxy bonding agent in accordance with the Standard Plan and specified tolerances for placement of tie bars. The epoxy-bonding agent shall be either Type I or IV epoxy resin as specified in Section 9-26. The Contractor may use any method for drilling the holes, provided the method selected does not damage the existing concrete. Any damage caused by the Contractor's operations shall be repaired by the Contractor in accordance with Section 1-07.13.

The tie bar holes shall be blown clean with compressed air before grouting. The bar shall be centered in the hole for the full length of embedment before grouting. The grout shall then be pumped into the hole around the bar in a manner that the back of the hole will be filled first. Blocking or shimming shall not impede the flow of the grout into the hole. Dams, if needed, shall be placed at the front of the holes to confine the grout. The dams shall permit the escape of air without leaking grout and shall not be removed until grout has cured in the hole.

5-05.3(11) Finishing

The first sentence in the second paragraph is revised to read:

Any edge slump of the pavement, exclusive of specified edging, in excess of 1/4-inch shall be corrected before the concrete has hardened.

5-05.3(12) Surface Smoothness

In the fourth sentence of the seventh paragraph, the reference to "age" is revised to "strength".

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The eighth paragraph is revised to read:

Smoothness perpendicular to the centerline will be measured with a 10-foot straight edge across all lanes with the same cross slope, including shoulders when composed of Cement Concrete Pavement. The overlapping 10-foot straight edge measurement shall be discontinued at a point six inches from the most extreme outside edge of the finished Cement Concrete Pavement.. The transverse slope of the finished pavement shall be uniform to a degree such that no variations greater than ¼-inch are present when tested with a 10-foot long straightedge laid in a direction perpendicular to the centerline. Any areas that are in excess of this specified tolerance shall be corrected by abrasive means.

5-05.3(22) Repair of Defective Pavement Slabs

The third paragraph is revised to read:

Spalls and edge slumping shall be repaired by making vertical saw cuts at least 3-inches outside the affected area and to a minimum depth of 2-inches. Spall repairs that encounter dowel bars or are within 6 inches of a dowel bar will not be permitted. These spall areas shall be repaired by replacing a half or full panel as permitted by the Engineer. Removal of the existing pavement shall not damage any pavement to be left in place. 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 3.0-inches. Repair areas shall be kept square or rectangular. Repair areas that are within 12.0-inches of another repair area shall be combined.

The Contractor shall remove material within the perimeter of the saw cut to a depth of 2.0-inches, or to sound concrete as determined by the Engineer. The surface patch area shall be sand blasted and all loose material removed. All sandblasting residue shall be removed using dry oil-free air.

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 approved by the Engineer shall be placed between the existing concrete and the area to be patched.

Patches that abut working transverse joints or cracks 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 1.0-inch below the depth of repair. The compressible insert shall extend at least 3.0-inches beyond each end of the patch boundaries.

Patches that abut the lane/Shoulder joint require placement of a formed edge, along the slab edge, even with the surface.

1 The patching material shall be mixed, placed, consolidated, finished and cured
2 according to manufacturer's recommendations. Slab/patch interfaces that will not
3 receive pavement grinding shall be sealed (painted) with a 1:1 cement-water grout
4 along the patch perimeter.

5
6 The Contractor shall reseal all joints in accordance with Section 5-05.3(8)B.

7
8 Opening to traffic shall meet the requirements of Section 5-05.3(17).

9
10 Low areas which grinding cannot feasibly remedy, shall be sandblasted, filled with
11 epoxy bonded mortar, and textured by grinding. The epoxy bonding agent shall meet
12 the requirements of Section 9-26.1(1)B for Type II epoxy.

13
14 **5-05.4 Measurement**

15 Number 2. under Cement concrete pavement is revised to read:

16
17 2. The length will be measured along the center of each Roadway or ramp.

18
19 Epoxy coated dowel bar and the measurement statement is revised to read:

20
21 Corrosion resistant dowel bar will be measured per each for the actual number of bars
22 used in the completed Work.

23
24 Epoxy coated tie bar and the measurement statement is revised to read:

25
26 Tie bar with drill hole will be measured per each for the actual number of bars used in
27 the completed Work.

28
29 **5-05.5 Payment**

30 The payment statement for Cement Conc. Pavement is revised to read:

31
32 The unit Contract price per cubic yard for "Cement Conc. Pavement" shall be full
33 compensation for all costs incurred to carry out the requirements of Section 5-05 except
34 for those costs included in other items which are included in this sub-section and which
35 are included in the Proposal. .

36
37 The bid item "Epoxy Coated Dowel Bar" and the payment statement is revised to read:

38
39 "Corrosion Resistant Dowel Bar", per each,
40 The unit Contract price per each for " Corrosion Resistant Dowel Bar" shall be full
41 payment for furnishing, and installing corrosion resistant dowel bars and any costs for
42 drilling holes, placing dowel bars with baskets, furnishing and installing parting
43 compound and all other costs associated with completing the installation of corrosion
44 resistant dowel bars.

45
46 The bid item "Epoxy Coated Tie Bar" and the payment statement is revised to read:

47
48 "Tie Bar with Drill Hole", per each.

1 The unit Contract price per each, "Tie Bar with Drill Hole" shall be full payment for
2 furnishing, and installing tie bars and any costs for drilling holes, and all other costs
3 associated with installation of tie bars.
4

5 The bid item "Cement Conc. Pavement - Including Dowels" and the associated payment
6 statement are deleted.
7

8 **SECTION 6-01, GENERAL REQUIREMENTS FOR STRUCTURES**
9 **August 3, 2009**

10 **6-01.10 Utilities Supported by or Attached to Bridges**

11 The second sentence in the third paragraph is revised to read:
12

13 The purple tint of the transparent film shall match Federal Standard 595 Color No.
14 37100.
15

16 **SECTION 6-02, CONCRETE STRUCTURES**
17 **August 3, 2009**

18 **6-02.2 Materials**

19 This section is supplemented with the following:
20

21 Pigmented Sealer Materials for Coating of Concrete Surfaces 9-08.2(1)
22

23 **6-02.3(2)A Contractor Mix Design**

24 The third sentence in the fourth paragraph is revised to read:
25

26 The nominal maximum size aggregate for Class 4000P shall be 3/8-inch.
27

28 The fourth sentence in the fourth paragraph is revised to read:
29

30 The nominal maximum size aggregate for Class 4000D shall be 1-inch.
31

32 **6-02.3(2)B Commercial Concrete**

33 The second paragraph is revised to read:
34

35 Where concrete Class 3000 is specified for items such as, culvert headwalls, plugging
36 culverts, concrete pipe collars, pipe anchors, monument cases, light standard
37 foundations, pedestals, cabinet bases, guardrail anchors, sign post foundations, fence
38 post footings, sidewalks, curbs, and gutters, the Contractor may use commercial
39 concrete. If commercial concrete is used for sidewalks, curbs, and gutters, it shall have
40 a minimum cementitious material content of 564-pounds per cubic yard of concrete,
41 shall be air entrained, and the tolerances of Section 6-02.3(5)C shall apply. Commercial
42 concrete shall not be used for items such as, bridges, retaining walls, box culverts, or
43 foundations for high mast luminaires, mast arm traffic signals, cantilever signs, and sign
44 bridges. The Engineer may approve the use of commercial concrete for other
45 applications not listed above.
46

1 **6-02.3(6)D Protection Against Vibration**

2 The second sentence in the second paragraph is revised to read:

3
4 These requirements for the protection of freshly placed concrete against vibration shall
5 not apply for plant cast concrete, nor shall they apply to the vibrations caused by the
6 traveling public.

7
8 The third sentence in the second paragraph is deleted.

9
10 Item (2) under the third paragraph is revised to read:

11
12 (2) Equipment Class L (Low Vibration) shall include tracked dozers under 85,000-
13 pounds, track vehicles, trucks (unless excluded above), hand operated jack
14 hammers, cranes, auger drill rig, caisson drilling, vibratory roller compactors under
15 30,000-pounds, and grab-hammers.

16
17 Item (3) under the third paragraph is revised to read:

18
19 (3) Equipment Class H (High Vibration) shall include pile drivers, vibratory hammers,
20 machine operated impact tools, pavement breakers, and other large pieces of
21 equipment.

22
23 **6-02.3(10) Roadway Slabs and Bridge Approach Slabs**

24 This section's content is deleted. This section's title is revised to read:

25
26 **6-02.3(10) Bridge Decks and Bridge Approach Slabs**

27
28 This section is supplemented with the following new sub-sections:

29
30 **6-02.3(10)A Preconstruction Meeting**

31 A pre-concreting conference shall be held 5 to 10-working days before placing concrete
32 to discuss construction procedures, personnel, and equipment to be used. Those
33 attending shall include:

- 34
35 1. (representing the Contractor) The superintendent and all foremen in charge of
36 placing the concrete, finishing it; and
37
38 2. (representing the State) The Project Engineer, key inspection assistants, and
39 the State Construction Office.

40
41 If the project includes more than 1 deck or slab, and if the Contractor's key personnel
42 change between concreting operations, or at request of the Engineer, an additional
43 conference shall be held just before each deck or slab is placed.

44
45 The Contractor shall not place bridge decks until the Engineer agrees that:

- 46
47 1. Concrete producing and placement rates will be high enough to meet placing
48 and finishing deadlines;

1 off the full placement width without intermediate supports. Strike-boards, screed rails,
2 and any specially made auxiliary equipment shall receive the Engineer's approval
3 before use. All finishing requirements in these Specifications apply to hand-operated
4 finishing equipment.
5

6 **6-02.3(10)D Concrete Placement, Finishing, and Texturing**

7 Before any concrete is placed, the finishing machine shall be operated over the entire
8 length of the deck/slab to check screed deflection. Concrete placement may begin only
9 if the Engineer approves after this test.

10
11 Immediately before placing concrete, the Contractor shall check (and adjust if
12 necessary) all falsework and wedges to minimize settlement and deflection from the
13 added mass of the concrete deck/slab. The Contractor shall also install devices, such as
14 telltales, by which the Engineer can readily measure settlement and deflection.
15

16 The Contractor shall schedule the concrete placement so that it can be completely
17 finished during daylight. After dark finishing is permitted if the Engineer approves and if
18 the Contractor provides adequate lighting.
19

20 The placement operation shall cover the full width of the Roadway or the full width
21 between construction joints. The Contractor shall locate any construction joint over a
22 beam or web that can support the deck/slab on either side of the joint. The joint shall not
23 occur over a pier unless the Plans permit. Each joint shall be formed vertically and in
24 true alignment. The Contractor shall not release falsework or wedges supporting pours
25 on either side of a joint until each side has aged as these Specifications require.
26

27 Placement of concrete for bridge decks and bridge approach slabs shall comply with
28 Section 6-02.3(6). The Engineer shall approve the placement method. In placing the
29 concrete, the Contractor shall:
30

- 31 1. Place it (without segregation) against concrete placed earlier, as near as
32 possible to its final position, approximately to grade, and in shallow, closely
33 spaced piles;
34
- 35 2. Consolidate it around reinforcing steel by using vibrators before strike-off by
36 the finishing machine;
37
- 38 3. Not use vibrators to move concrete;
39
- 40 4. Not revibrate any concrete surface areas where workers have stopped prior to
41 screeding;
42
- 43 5. Remove any concrete splashed onto reinforcing steel in adjacent segments
44 before concreting them;
45
- 46 6. Tamp and strike off the concrete with a template or strike board moving slowly
47 forward at an even speed;
48

- 1 7. Maintain a slight excess of concrete in front of the cutting edge across the
2 entire width of the placement operation;
- 3
- 4 8. Make enough passes with the strike-board (without overfinishing and bringing
5 excessive amounts of mortar to the surface) to create a surface that is true and
6 ready for final finish; and
- 7
- 8 9. Leave a thin, even film of mortar on the concrete surface after the last pass of
9 the strike-board.

10
11 Workers shall complete all post screeding operations without walking on the concrete.
12 This may require work bridges spanning the full width of the slab.

13
14 After removing the screed supports, the Contractor shall fill the voids with concrete (not
15 mortar).

16
17 If necessary, as determined by the Engineer, the Contractor shall float the surface left by
18 the finishing machine to remove roughness, minor irregularities, and seal the surface of
19 the concrete. Floating shall leave a smooth and even surface. Float finishing shall be
20 kept to a minimum number of passes so air bubbles in the concrete are not released.
21 The floats shall be at least 4-feet long. Each transverse pass of the float shall overlap
22 the previous pass by at least half the length of the float. The first floating shall be at right
23 angles to the strike-off. The second floating shall be at right angles to the centerline of
24 the span. A smooth riding surface shall be maintained across construction joints.

25
26 Expansion joints shall be finished with a $1/2$ -inch radius edger.

27
28 After floating, but while the concrete remains plastic, the Contractor shall test the entire
29 deck/slab for flatness (allowing for crown, camber, and vertical curvature). The testing
30 shall be done with a 10-foot straightedge held on the surface. The straightedge shall be
31 advanced in successive positions parallel to the centerline, moving not more than $1/2$
32 the length of the straightedge each time it advances. This procedure shall be repeated
33 with the straightedge held perpendicular to the centerline. An acceptable surface shall
34 be one free from deviations of more than $1/8$ -inch under the 10-foot straightedge.

35
36 If the test reveals depressions, the Contractor shall fill them with freshly mixed concrete,
37 strike off, consolidate, and refinish them. High areas shall be cut down and refinished.
38 Retesting and refinishing shall continue until an acceptable, deviation free surface is
39 produced. The hardened concrete shall meet all smoothness requirements of these
40 Specifications even though the tests require corrective Work.

41
42 The Contractor shall texture the bridge deck and bridge approach slab by combing the
43 final surface perpendicular to the centerline. Made of a single row of metal tines, the
44 comb shall leave striations in the fresh concrete approximately $3/16$ -inch deep by $1/8$ -
45 inch wide and spaced approximately $1/2$ -inch apart. The Engineer will decide actual
46 depths at the site. (If the comb has not been approved, the Contractor shall obtain the
47 Engineer's approval by demonstrating it on a test section.)

48

1 The Contractor may operate the combs manually or mechanically, either singly or with
2 several placed end to end. The timing and method used shall produce the required
3 texture without displacing larger particles of aggregate. Texturing shall end 2-feet from
4 curb lines. This 2-foot untextured strip shall be hand finished with a steel trowel.
5

6 If the Plans call for an overlay (to be constructed under the same Contract), such as hot
7 mix asphalt, latex modified concrete, epoxy concrete, or similar, the Contractor shall
8 produce the final finish by dragging a strip of damp, seamless burlap lengthwise over
9 the full width of the deck/slab or by brooming it lightly. A burlap drag shall equal the
10 deck/slab in width. Approximately 3-feet of the drag shall contact the surface, with the
11 least possible bow in its leading edge. It shall be kept wet and free of hardened lumps of
12 concrete. When it fails to produce the required finish, the Contractor shall replace it.
13 When not in use, it shall be lifted clear of the slab.
14

15 After the deck/slab has cured, the surface shall not vary more than $\frac{1}{8}$ -inch under a 10-
16 foot straightedge placed parallel and perpendicular to the centerline.
17

18 The Contractor shall cut high spots down with a diamond faced, saw-type cutting
19 machine. This machine shall cut through mortar and aggregate without breaking or
20 dislodging the aggregate or causing spalls.
21

22 Low spots shall be built up utilizing a grout or concrete with a strength equal to or
23 greater than the required 28-day strength of the deck/slab. The method of build-up shall
24 be submitted to the Engineer for approval.
25

26 The surface texture on any area cut down or built up shall match closely that of the
27 surrounding bridge deck or bridge approach slab area. The entire bridge deck and
28 bridge approach slab shall provide a smooth riding surface.
29

30 **6-02.3(10)E Sidewalk**

31 Concrete for sidewalk shall be well compacted, struck off with a strike-board, and
32 floated with a wooden float to achieve a surface that does not vary more than $\frac{1}{8}$ -inch
33 under a 10-foot straightedge. An edging tool shall be used to finish all sidewalk edges
34 and expansion joints. The final surface shall have a granular texture that will not turn
35 slick when wet.
36

37 **6-02.3(10)F Bridge Approach Slab Orientation and Anchors**

38 Bridge approach slabs shall be constructed full bridge deck width from outside usable
39 Shoulder to outside usable Shoulder at an elevation to match the Structure. The bridge
40 approach slabs shall be modified as shown in the Plans to accommodate the grate
41 inlets at the bridge ends if the grate inlets are required.
42

43 Bridge approach slab anchors shall be installed as detailed in the Plans and the anchor
44 rods, couplers, and nuts shall conform to Section 9-06.5(1). The steel plates shall
45 conform to ASTM A 36. All metal parts shall receive 1 coat of paint conforming to
46 Section 9-08.1(2)F. The pipe shall be any non-perforated PE or PVC pipe of the
47 diameter specified in the Plans. Polystyrene shall conform to Section 9-04.6. The
48 anchors shall be installed parallel both to profile grade and center line of Roadway. The
49 Contractor shall secure the anchors to ensure that they will not be misaligned during

1 concrete placement. For Method B anchors installations, the epoxy bonding agent used
2 to install the anchors shall be Type IV conforming to Section 9-26.1. The compression
3 seal shall be as noted in the Contract documents. Dowel bars shall be installed in the
4 bridge approach slabs in accordance with the requirements of the Standard Plans and
5 Section 5-05.3(10).
6

7 After curing bridge approach slabs in accordance with Section 6-02.3(11), the bridge
8 approach slabs may be opened to traffic when a minimum compressive strength of
9 2,500 psi is achieved.
10

11 **6-02.3(12) Construction Joints**

12 The content of this section is deleted.

13
14 This section is supplemented with the following sub-sections:
15

16 **6-02.3(12)A Construction Joints in New Construction**

17 If the Engineer approves, the Contractor may add, delete, or relocate construction joints
18 shown in the Plans. Any request for such changes shall be in writing, accompanied by a
19 drawing that depicts them. The Contractor will bear any added costs that result from
20 such changes.
21

22 All construction joints shall be formed neatly with grade strips or other approved
23 methods. The Contracting Agency will not accept irregular or wavy pour lines. All joints
24 shall be horizontal, vertical, or perpendicular to the main reinforcement. The Contractor
25 shall not use an edger on any construction joint, and shall remove any lip or edging
26 before making the adjacent pour.
27

28 If the Plans require a roughened surface on the joint, the Contractor shall strike it off to
29 leave grooves at right angles to the length of the member. The grooves shall be 1/2-inch
30 to 1-inch wide, 1/4-inch to 1/2-inch deep, and spaced equally at twice the width of the
31 groove. If the first strike-off does not produce the required roughness, the Contractor
32 shall repeat the process before the concrete reaches initial set. The final surface shall
33 be clean and without laitance or loose material.
34

35 If the Plans do not require a roughened surface, the Contractor shall include shear keys
36 at all construction joints. These keys shall provide a positive, mechanical bond. Shear
37 keys shall be formed depressions and the forms shall not be removed until the concrete
38 has been in place at least 12 hours. Forms shall be slightly beveled to ensure ready
39 removal. Raised shear keys are not allowed.
40

41 Shear keys for the tops of beams, at tops and bottoms of boxed girder webs, in
42 diaphragms, and in crossbeams shall:
43

- 44 1. Be formed with 2- by 8-inch wood blocks;
- 45 2. Measure 8-inches lengthwise along the beam or girder stem;
- 46 3. Measure 4-inches less than the width of the stem, beam, crossbeam, etc.
47 (measured transverse of the stem); and
- 48 4. Be spaced at 16-inches center to center.
49

1 Unless the Plans show otherwise, in other locations (not named above), shear keys
2 shall equal approximately one third of the joint area and shall be approximately 1-1/2-
3 inches deep.
4

5 Before placing fresh concrete against cured concrete, the Contractor shall thoroughly
6 clean and saturate the cured surface. All loose particles, dust, dirt, laitance, oil, or film
7 of any sort shall be removed by method(s) as approved by the Engineer. The cleaned
8 surface shall be saturated with water for a minimum of four hours before the fresh
9 concrete is placed.
10

11 Before placing the reinforcing mat for footings on seals, the Contractor shall: (1) remove
12 all scum, laitance, and loose gravel and sediment; (2) clean the construction joint at the
13 top of the seals; and (3) chip off any high spots on the seals that would prevent the
14 footing steel from being placed in the position required by the Plans.
15

16 **6-02.3(12)B Construction Joints between Existing and New Construction**

17 If the Plans or Special Provisions require a roughened surface on the joint, the
18 Contractor shall thoroughly roughen the existing surface to a uniformly distributed 1/4-
19 inch minimum amplitude surface profile, with peaks spaced at a maximum of 1-inch, by
20 method(s) as approved by the Engineer.
21

22 If the Plans or Special Provisions do not require a roughened surface on the joint, the
23 Contractor shall remove all loose particles, dust, dirt, laitance, oil, or film of any sort by
24 method(s) as approved by the Engineer.
25

26 Before placing fresh concrete against existing concrete, the Contractor shall thoroughly
27 clean and saturate the existing surface. All loose particles, dust, dirt, laitance, oil or film
28 of any sort shall be removed by method(s) as approved by the Engineer. The cleaned
29 surface shall be saturated with water for a minimum of four hours before the fresh
30 concrete is placed.
31

32 **6-02.3(14) Finishing Concrete Surfaces**

33 The following new sub-section is inserted after Section 6-02.3(14)B:
34

35 **6-02.3(14)C Pigmented Sealer for Concrete Surfaces**

36 All surfaces specified in the Plans to receive pigmented sealer shall receive a Class 2
37 surface finish, (except that concrete barrier surfaces shall be finished in accordance
38 with Section 6-02.3(11)A) and shall receive a light brush sandblasting in order that
39 complete neutralization of the surface and subsequent penetration of the pigmented
40 sealer is achieved. All curing agents and form release agents shall be removed. The
41 surface shall be dry, clean and prepared in accordance with the manufacturer's written
42 instructions. The Contractor shall submit four copies of the manufacturer's written
43 instructions.
44

45 The Contractor shall not apply pigmented sealer from a batch greater than twelve
46 months past the initial date of color sample approval of that batch by the Engineer.
47 The pigmented sealer color or colors for specific concrete surfaces shall be as specified
48 in the Special Provisions.
49

1 The pigmented sealer shall be spray applied in accordance with the manufacturer's
2 written instructions for application, air temperature required for sealer application and
3 curing, qualification of applicator, rate of application, and number of coats to apply.
4 Pigmented sealer shall not be applied until the concrete has cured for at least 28 days.
5 Pigmented sealer shall not be applied upon damp surfaces, nor shall it be applied when
6 the air is misty, or otherwise unsatisfactory for the work, in the opinion of the
7 manufacturer or the Engineer. The final appearance shall have an even and uniform
8 color acceptable to the Engineer.
9

10 For concrete surfaces such as columns, retaining walls, pier walls, abutments, concrete
11 fascia panels, and noise barrier wall panels, the pigmented sealer shall extend to one
12 foot below the finish ground line, unless otherwise shown in the Plans.
13

14 **6-02.3(17)N Removal of Falsework and Forms**

15 The fifth paragraph, beginning with "The Contractor may remove side forms, traffic barrier
16 form, and pedestrian barrier forms" etc, is deleted.
17

18 **6-02.3(17)O Early Concrete Test Cylinder Breaks**

19 The third paragraph is revised to read:
20

21 The cylinders shall be cured in accordance with WSDOT FOP for AASHTO T 23.
22

23 **6-02.3(20) Grout for Anchor Bolts and Bridge Bearings**

24 This section's title is revised to read:
25

26 **6-02.3(20) Grout for Anchor Bolts and Bridge Bearings**

27 **6-02.3(24)B Protection of Materials**

28 Under the fourth paragraph, item 1. is revised to read:
29

- 30
- 31 1. By cleaning and applying a coat of paint conforming to Section 9-08.1(2)B over all
32 exposed surfaces of steel, or
33

34 Under the fourth paragraph, item 2. is revised to read:
35

- 36 2. By cleaning and painting paint conforming to Section 9-08.1(2)B on the first 6-
37 inches of the steel bars protruding from the concrete and covering the bars with
38 polyethylene sleeves.
39

40 **6-02.3(24)E Welding Reinforcing Steel**

41 The reference to "ASTM A 615" in the first sentence of the seventh paragraph is deleted.
42

43 **6-02.3(25) Prestressed Concrete Girders**

44 In the fourth paragraph, the second sentence in Prestressed Concrete Wide Flange I Girder
45 is revised to read:
46

47 WSDOT standard girders in this category include Series WF42G, WF50G, WF58G,
48 WF66G, WF74G, WF83G, WF95G and WF100G.

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In the fourth paragraph, the seventh sentence in Spliced Prestressed Concrete Girder is revised to read:

WSDOT standard girders in this category include Series WF66PTG, WF74PTG, WF83PTG, WF95PTG and WF100PTG.

6-02.3(25)B Casting

The reference to Section 9-23.7 in the second sentence of the third paragraph is deleted.

6-02.3(25)C Prestressing

The fifth paragraph is revised to read:

From manufacture to encasement in concrete, prestressing strand shall be protected against dirt, oil, grease, damage, and all corrosives. Strand shall be stored in a dry covered area and shall be kept in the manufacturer's original packaging until placement in the forms. If prestressing strand has been damaged or pitted, it will be rejected. Prestressing strand with rust shall be spot cleaned with a non-metallic pad to inspect for any sign of pitting or section loss.

6-02.3(25)G Protection of Exposed Reinforcement

The first sentence in the first paragraph is revised to read:

When a girder is removed from its casting bed, all bars and strands projecting from the girder shall be cleaned and painted with a minimum dry film thickness of 1-mil of paint conforming to Section 9-08.1(2)B.

6-02.3(25)J Horizontal Alignment

The first paragraph is revised to read:

The Contractor shall check and record the horizontal alignment of the top and bottom flanges of each girder at the following times:

1. Initial - upon removal of the girder from the casting bed;
2. Final - within 2-weeks, but not less than 3-days prior to shipment; and
3. Storage - between 115 to 125-days after casting, if the girder remains in storage for a period exceeding 120-days.

Each check shall be made by measuring the distance between each flange and a chord that extends the full length of the girder. The Contractor shall perform and record each check at a time when the alignment of the girder is not influenced by temporary differences in surface temperature. Records for the Initial check shall be included in the Contractor's Prestressed Concrete Certificate of Compliance. Records for the Final and Storage checks shall be provided to the Engineer for approval.

The first sentence in the fifth paragraph is deleted.

1 **6-02.3(25)K Girder Deflection**

2 The first paragraph is revised to read:

3
4 The Contractor shall check and record the vertical deflection (camber) of each girder at
5 the following times:

- 6
7 1. Initial - upon removal of the girder from the casting bed; and
8
9 2. Storage - within 2-weeks, but not less than 3-days prior to shipment, if the
10 girder remains in storage for a period exceeding 120-days.

11
12 The Contractor shall perform and record each check at a time when the alignment of the
13 girder is not influenced by temporary differences in surface temperature. These records
14 shall be available for the Engineer's inspection, and in the case of girders older than
15 120-days, shall be transmitted to the Engineer as soon as practical for evaluation of the
16 effect of long-term storage on the "D" dimension. Records for the Initial check shall be
17 included in the Contractor's Prestressed Concrete Certificate of Compliance. Records
18 for the Storage check shall be provided to the Engineer for approval.

19
20 **6-02.3(25)L Handling and Storage**

21 The fifth sentence in the third paragraph is deleted.

22
23 **6-02.3(25)N Prestressed Concrete Girder Erection**

24 The fourth paragraph is revised to read:

25
26 When prestressed girders arrive on the project, the Project Engineer will confirm that
27 they are stamped "Approved for Shipment", that the final horizontal alignment and
28 deflection (camber) check records have been approved, and that they have not been
29 damaged in shipment, before accepting them.

30
31 **6-02.3(26)E Ducts**

32 The first six paragraphs under the heading **Ducts for Internal Embedded Installation** are
33 revised to read:

34
35 Ducts, including their splices, shall be semi-rigid, air and mortar tight, corrugated plastic
36 ducts of virgin polyethylene or polypropylene materials, free of water soluble chlorides
37 or other chemicals reactive with concrete or post-tensioning reinforcement. Ducts,
38 including their splices, shall either have a white coating on the outside or shall be of a
39 white material with ultraviolet stabilizers added. Ducts, including their splices, shall be
40 capable of withstanding concrete pressures without deforming or permitting the intrusion
41 of cement paste during placement of concrete. All fasteners shall be appropriate for use
42 with plastic ducts, and all clamps shall be of an approved plastic material.

43
44 Polyethylene ducts shall conform to ASTM D 3350 with a cell classification of 345464A.
45 Polypropylene ducts shall conform to ASTM D 4101 with a cell classification of either
46 PP0340B14541 or PP0340B67884. Resins used for duct fabrication shall have a
47 minimum oxidation induction time of 20 minutes, in accordance with ASTM D 3895,
48 based on tests performed by the duct fabricator on samples taken from the lot of

1 finished product. The duct thickness shall be as specified in Section 10.8.3 of the
2 AASHTO LRFD Bridge Construction Specifications, latest edition and current interims.

3
4 Each duct shall maintain the required profile within a placement tolerance of plus or
5 minus $\frac{1}{4}$ -inch for longitudinal tendons and plus or minus $\frac{1}{8}$ -inch for transverse slab
6 tendons during all phases of the work. The minimum acceptable radius of curvature
7 shall be as recommended by the duct manufacturer and as supported by documented
8 industry standard testing. The ducts shall be completely sealed to keep out all mortar.

9
10 Each duct shall be located to place the tendon at the center of gravity alignment shown
11 in the Plans. To keep friction losses to a minimum, the Contractor shall install ducts to
12 the exact lines and grades shown in the Plans. Once in place, the ducts shall be tied
13 firmly in position before they are covered with concrete. During concrete placement, the
14 Contractor shall not displace or damage the ducts.

15
16 The ends of the ducts shall:

- 17
18 1. Permit free movement of anchorage devices, and
19 2. Remain covered after installation in the forms to keep out all water or debris.

20
21 Immediately after any concrete placement, the Contractor shall force blasts of oil-free,
22 compressed air through the ducts to break up and remove any mortar inside before it
23 hardens. Before deck concrete is placed, the Contractor shall satisfy the Engineer that
24 ducts are unobstructed and contain nothing that could interfere with tendon installation,
25 tensioning, or grouting. If the tendons are in place, the Contractor shall show that they
26 are free in the duct.

27
28 Ducts shall be capped and sealed at all times until the completion of grouting to prevent
29 the intrusion of water.

30
31 The last paragraph under the heading **Ducts for Internal Embedded Installation** is revised
32 to read:

33
34 When the duct must be curved in a tight radius, more flexible duct may be used, subject
35 to the Engineer's approval.

36
37 The first paragraph under the heading **Ducts for External Exposed Installation** is revised
38 to read:

39
40 Duct shall be high-density polyethylene (HDPE) conforming to ASTM D 3350. The cell
41 classification for each property listed in Table 1 shall be as follows:

42
43 This section is supplemented with the following:

44
45 **Vents, Grout Injection Ports, Drains and Caps**

46 The Contractor shall install vents at high points and drains at low points of the tendon
47 profile (and at other places if the Plans require). Vents at high points shall consist of a
48 set of three vents - one to be installed at the high point of the duct, and flanking vents to
49 be installed on either side of the high point vent at locations where the duct profile is 8 to

1 12 inches below the elevation of the high point vent. Vents shall include grout injection
2 ports.
3

4 Vents and drains shall have a minimum inside diameter of 3/4 inches, and shall be of
5 either stainless steel, nylon, or polyolefin materials, free of water soluble chlorides or
6 other chemicals reactive with concrete or post-tensioning reinforcement. Stainless steel
7 vents and drains shall conform to ASTM A 240 Type 316. Nylon vents and drains shall
8 conform to cell classification S-PA0141 (weather resistant). Polyolefin vents and drains
9 shall contain an antioxidant with a minimum oxidation induction time of 20 minutes in
10 accordance with ASTM D 3895. Polyolefin vents and drains shall also have a stress
11 crack resistance of three hours minimum when tested at an applied stress of 350 psi in
12 accordance with ASTM F 2136.
13

14 All fasteners shall be appropriate for use with plastic ducts, and all clamps shall be of an
15 approved plastic material. Taping of connections is not allowed. Valves shall be positive
16 mechanical shut-off valves. Valves, and associated caps, shall have a minimum
17 pressure rating of 100 psi.
18

19 Vents shall point upward and remain closed until grouting begins. Drains shall point
20 downward and remain open until grouting begins. Ends of stainless steel vents and
21 drains shall be removed 1-inch inside the concrete surface after grouting has been
22 completed. Ends of nylon or polyolefin vents and drains may be left flush to the surface
23 unless otherwise specified by the Engineer. Vents, except for grout injection, are not
24 required for transverse post-tensioning ducts in the roadway slab unless specified in the
25 Plans.
26

27 Caps shall be made of either stainless steel or fiber reinforced polymer (FRP). Stainless
28 steel caps shall conform to ASTM A 240 Type 316L. The resin for FRP caps shall be
29 either nylon, polyester, or acrylonitrile butadiene styrene (ABS). Nylon shall conform to
30 cell classification S-PA0141 (weather resistant). Caps shall be sealed with "O" ring seals
31 or precision fitted flat gaskets placed against the bearing plate. Caps shall be fastened
32 to the anchorage with stainless steel bolts conforming to ASTM A 240 Type 316L.
33

34 **Leak Tightness Testing**

35 The Contractor shall test each completed duct assembly for leak tightness, prior to
36 casting concrete and placing post-tensioning reinforcement. The Contractor shall submit
37 the equipment used to conduct the leak tightness testing and to monitor and record the
38 pressure maintained in and lost from the closed assembly, and the process to be
39 followed in conducting the leak tightness testing, to the Engineer for approval along with
40 the post-tensioning system shop drawings in accordance with Section 6-02.3(26)A.
41

42 Prior to testing, all vents, grout injection ports, and drains shall either be capped or have
43 their shut-off valves closed. The Contractor shall pressurize the completed duct
44 assembly to an initial air pressure of 50 psi. This pressure shall be held for five minutes
45 to allow for internal adjustments within the assembly. After five minutes, the air supply
46 valve shall be closed. The Contractor shall monitor and measure the pressure
47 maintained within the closed assembly, and any subsequent loss of pressure, over a
48 period of one minute following the closure of the air supply valve. Locations of leakage
49 shall be identified, repaired or reconstructed, and the repaired reassembled duct system

1 retested. The cycle of testing, repair and retesting of each completed duct assembly
2 shall continue until the completed duct assembly completes a test with pressure loss
3 within the specified amount. The maximum pressure loss for duct assemblies equal to
4 or less than 150 feet in length shall be 25 psig. The maximum pressure loss for duct
5 assemblies greater than 150 feet in length shall be 15 psig.
6

7 **6-02.3(26)F Prestressing Reinforcement**

8 The fourth paragraph is revised to read:
9

10 From manufacture to encasement in concrete or grout, prestressing strand shall be
11 protected against dirt, oil, grease, damage, and all corrosives. Strand shall be stored in
12 a dry covered area and shall be kept in the manufacturer's original packaging. If
13 prestressing strand has been damaged or pitted, it will be rejected. Prestressing strand
14 with rust shall be spot cleaned with a non-metallic pad to inspect for any sign of pitting
15 or section loss. If the prestressing reinforcement will not be stressed and grouted for
16 more that seven calendar days after it is placed in the ducts, the Contractor shall place
17 an approved corrosion inhibitor conforming to Federal Specification MIL-P-3420F-87 in
18 the ducts.
19

20 **6-02.3(26)H Grouting**

21 The following is inserted in front of the first paragraph of this section:
22

23 Grout for post-tensioning reinforcement shall be a Class C pre-packaged, pumpable,
24 non-segregating, non-shrink, high-strength grout conforming to the requirements
25 specified in Section 10.9.3 of the AASHTO LRFD Bridge Construction Specifications,
26 latest edition and current interims. Pre-packaged components of the grout mix shall be
27 used within six months or less from date of manufacture to date of usage. Grout for
28 post-tensioning reinforcement will be accepted based on manufacturer's certificate of
29 compliance in accordance with Section 1-06.3, except that the water-cementitious
30 material ratio of 0.45 maximum shall be field verified.
31

32 All grout produced for any single structure shall be furnished by one supplier.
33

34 All grouting operations shall be conducted by ASBI certified grout technicians.
35

36 The Contractor shall submit a grouting operation plan to the Engineer for approval in
37 accordance with Section 6-01.9. The grouting operation plan shall include, but not be
38 limited to, the following:
39

- 40 1. Names of the grout technicians, accompanied by documentation of their ASBI
41 certification.
- 42 2. Type, quantity and brand of materials used in the grouting operations,
43 including all manufacturer's certificates of compliance.
- 44 3. Type of equipment to be used, including meters and measuring devices used
45 to positively measure the quantity of materials used to mix the post-tensioning
46 grout, the equipment capacity in relation to demand and working conditions,
47 and all back-up equipment and spare parts.
48
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4. General grouting procedure.
5. Duct leak tightness testing and repair procedures as specified in Section 6-02.3(26)E.
6. Methods used to control the rate of grout flow within the ducts.
7. Theoretical grout volume calculations, and target flow rates recommended by the grout manufacturer as a function of the mixer equipment and the expected range of ambient temperatures.
8. Grout mixing and pumping procedures.
9. Direction of grouting.
10. Sequence of use of the grout injection ports, vents and drains.
11. Procedures for handling blockages.
12. Procedures for post-grouting repairs.

The Contractor shall not begin grouting operations until receiving the Engineer's approval of the grouting operation plan.

Post-tensioning grout shall be mixed in accordance with the pre-packaged grout manufacturer's recommendations using high-shear colloidal mixers. Mechanical paddle mixers will not be allowed. The grout produced for filling post-tensioning ducts shall be free of lumps and undispersed cement. All equipment used to mix each batch of post-tensioning grout shall be equipped with appropriate meters and measuring devices to positively measure all quantities of all materials used to produce the mixed grout. The field test for water-cementitious materials ratio shall be performed prior to beginning the grout injection process. Grouting shall not begin until the material properties of each batch of grout have been confirmed as acceptable.

The fourth paragraph is deleted.

The fifth paragraph is deleted.

The sixth paragraph is deleted

6-02.5 Payment

The paragraph following bid item "Commercial Concrete" is supplemented with the following:

All costs in connection with furnishing and applying pigmented sealer to concrete surfaces as specified shall be included in the unit contract price per cubic yard for "Conc. Class ____". If the concrete is to be paid for other than by class of concrete then the costs shall be included in the applicable adjacent item of work.

1 **SECTION 6-03, STEEL STRUCTURES**
2 **April 6, 2009**

3 **6-03.3(33) Bolted Connections**

4 The second paragraph is revised to read:

5
6 All bolted connections are slip critical. Painted structures require either Type 1 or Type
7 3 bolts. Unpainted structures require Type 3 bolts. AASHTO M 253 bolts shall not be
8 galvanized or be used in contact with galvanized metal.

9
10 **6-03.3(33)A Pre-Erection Testing**

11 The first sentence in the first paragraph is revised to read:

12
13 High strength bolt assemblies (bolt, nut, and washer), black and galvanized, shall be
14 subjected to a field rotational capacity test, as outlined below, prior to any erection
15 activity.

16
17 **6-03.3(38) Placing Superstructure**

18 This section is revised to read:

19
20 The concrete in piers and crossbeams shall reach at least 80-percent of design strength
21 before girders are placed on them.

22
23 **6-03.4 Measurement**

24 The second paragraph is revised to read:

25
26 Cast or forged metal (kind) shown in the Plans will be measured by the pound or will be
27 paid for on a lump sum basis, whichever is shown on the Proposal.

28
29 **SECTION 6-05, PILING**
30 **December 1, 2008**

31 **6-05.3(11)A Tolerances**

32 The first sentence is revised to read:

33
34 For elevated pier caps, the tops of piles at cut-off elevation shall be within 2-inches of
35 the horizontal locations indicated in the Contract.

36
37 **SECTION 6-07, PAINTING**
38 **August 3, 2009**

39 Section 6-07 is deleted in its entirety and replaced with the following:

40
41 **6-07.1 Description**

42 This work consists of containment, surface preparation, shielding adjacent areas from
43 unwanted surface preparation, testing and disposing of surface preparation debris,
44 furnishing and applying paint, shielding adjacent areas from unwanted paint, and
45 cleaning up after painting is completed. The work shall comply with all requirements of

1 the Plans, these Specifications, and the Engineer. Terminology used herein is in
2 accordance with the definitions used in Volume 2, Systems and Specifications of the
3 SSPC Steel Structures Painting Manual.

5 **6-07.2 Materials**

6 Materials shall meet the requirements of the following sections:

8	Paint	9-08.1
9	Powder Coating Materials for Coating Galvanized Surfaces	9-08.2
10	Abrasive Blast Media	9-08.4(1)
11	Lead Abatement Additive	9-08.4(2)
12	Bird Guano Treatment	9-08.5(1)
13	Fungicide Treatment	9-08.5(2)
14	Water	9-08.5(3)
15	Filter Fabric	9-08.6
16	Single Component Urethane Sealant	9-08.7
17	Foam Backer Rod	9-08.8

19 **6-07.3 Construction Requirements**

21 **6-07.3(1) Work Force Qualifications**

23 **6-07.3(1)A Work Force Qualifications for Shop Application of Paint**

24 Facilities for shop application of paint shall either be selected from one of the facilities
25 listed in the WSDOT Qualified Products List as an approved coating facility for new steel
26 structures, or shall be approved through the WSDOT Request for Approval of Material
27 process.

29 **6-07.3(1)B Work Force Qualifications for Field Application of Paint**

30 The Contractor preparing the surface and applying the paint shall be certified under
31 SSPC-QP 1.

33 The Contractor removing and otherwise disturbing existing paint containing lead and
34 other hazardous materials shall be certified under SSPC-QP 2 Category A.

36 In lieu of the above SSPC certifications, the Contractor performing the specified work
37 may complete one of the following actions:

- 39 1. The Contractor may substitute documentation of successful completion of two
40 bridge painting projects in the past ten years involving complete paint removal,
41 including paint containing lead and other hazardous materials, with
42 reapplication of a three component moisture-cured polyurethane paint system.
43 The documentation shall include the name and size of the project, the dates of
44 the work, the owner, and name and contact information for an owner's contact
45 person.
- 46 2. The Contractor's quality control inspector(s) for the project shall be NACE
47 certified CIP Level 3.
48

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6-07.3(2) Submittals

The Contractor shall submit a painting plan to the Engineer for approval in accordance with Section 1-05.3.

For shop application of paint, the painting plan shall include the documents listed in Section 6-07.3(2)B and Section 6-07.3(2)E item 2, the product data sheet for the primer coat with coefficient of friction certification, and paint samples in accordance with Section 6-07.3(7).

For field application of paint, the painting plan shall include the documents listed in Section 6-07.3(2)A through Section 6-07.3(2)F.

6-07.3(2)A Work Force Qualifications Submittal Component

The work force qualifications submittal component of the painting plan shall include the following:

1. Documentation of the Contractor's workforce qualifications as specified in Section 6-07.3(1).
2. Resume of qualifications and contact information for the Contractor's on-site supervisors. An on-site supervisor shall be present for each work shift at the bridge site, and each on-site supervisor shall have three years minimum of industrial painting field experience with one year minimum of field supervisory or management experience in paint removal projects.

6-07.3(2)B Contractor's Quality Control Program Submittal Component

The Contractor's quality control program submittal component of the painting plan shall include the following:

1. Description of the inspection procedures and techniques, and the acceptance criteria for all phases of work.
2. Procedure for implementation of corrective action.
3. The paint system manufacturer's recommended methods of preventing defects.
4. The Contractor's frequency of quality control inspection.
5. Description of the equipment used for inspection of prepared surfaces and inspection of paint.
6. Example completed form(s) of the daily quality control report used to document the inspection work and tests performed by the Contractor's quality control personnel.

1 **6-07.3(2)C Paint System Manufacturer and Paint System Information**
2 **Submittal Component**

3 The paint system manufacturer and paint system information submittal component of
4 the painting plan shall include the following:
5

- 6 1. Product data sheets and information on the paint materials, paint preparation,
7 and paint application, as specified by the paint manufacturer, including:
8
9 a. Samples and documents specified in Section 6-07.3(7) for each paint and
10 thinner.
11
12 b. All application instructions including the mixing and thinning directions.
13
14 c. Recommended spray nozzles and pressures.
15
16 d. Minimum and maximum drying time between coats.
17
18 e. Restrictions on temperature and humidity.
19
20 f. Repair procedures as specified in Section 6-07.3(10)P.
21
22 g. Maximum dry film thickness for each coat.
23
24 2. Identification of, and contact information for, the paint system manufacturer's
25 technical representative.
26
27 3. For painting of new steel, the friction coefficient of the faying surface, including
28 test results and the paint manufacturer's Certificate of Compliance in support
29 of the friction coefficient.
30

31 **6-07.3(2)D Hazardous Waste Containment, Collection, Testing and**
32 **Disposal Submittal Component**

33 The hazardous waste containment, collection, testing and disposal submittal component
34 of the painting plan shall include the following:
35

- 36 1. Filter fabric attachment and support in accordance with Section 6-07.3(10)A.
37
38 2. Abrasive blasting containment system attachment and support in accordance
39 with Section 6-07.3(10)A.
40
41 3. Details of job site material storage facilities and containment waste storage
42 facilities, including location, security, and environmental control.
43
44 4. Methods and materials used to contain, collect, and dispose of all containment
45 waste and all construction related waste including transportation of waste.
46
47 5. Details of the containment waste sampling plan conforming to Chapter 173-
48 303 WAC for waste designated as dangerous waste or extremely hazardous
49 waste.

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- 6. The name of, and contact information for, the accredited analytical laboratory performing the testing of the containment waste samples in accordance with Section 6-07.3(10)F.
- 7. Process for tracking the disposal of hazardous waste, including a sample form of the tracking documentation.

6-07.3(2)E Cleaning and Surface Preparation Equipment Submittal Component

The cleaning and surface preparation equipment submittal component of the painting plan shall include the following:

- 1. Details of the water jetting operation, including:
 - a. Water source.
 - b. A list and description of the water jetting equipment, including maximum water discharge rates and pressure.
 - c. Methods and materials used to protect vehicular and pedestrian traffic from wash water when conducting overhead water jetting operations.
- 2. Details of the abrasive blast cleaning operation, including:
 - a. Description of the abrasive blast cleaning procedure.
 - b. Type, manufacturer, and brand, of abrasive blast material and all associated additives, including Materials Safety Data Sheets (MSDS).
 - c. Description of the abrasive blast cleaning equipment to be used.

6-07.3(2)F Paint Application Equipment and Operations Submittal Component

The paint application equipment and operations submittal component of the painting plan shall include the following:

- 1. Description of the equipment used for paint application operations.
- 2. Details of job site material storage facilities, including location, security, and environmental control.
- 3. Description of the supports and platforms used to support equipment, materials, and workers, including scaffolds, platforms, accordion lifts, and barges, and the methods used to attach, moor and anchor these supports and platforms.
- 4. Drip tarps in accordance with Section 6-07.3(10)O.

- 1 5. Methods and materials used to protect surrounding structures, equipment, and
2 property from exposure to, and damage from, painting operations.
3
- 4 6. Details of paint application operations for areas of limited and restricted
5 access.
6
- 7 7. Description of the method for the removal of any accidental spills or drips on
8 traffic that occur during the normal painting operations, and provisions for
9 providing a vehicle cleaning station.
10

11 **6-07.3(2)G Painting Plan Meeting**

12 At the option of the Contracting Agency, a painting plan meeting may be scheduled
13 following review of the Contractor's initial submittal of the plan. The Contractor shall be
14 represented by the superintendent, on-site supervisors and quantity control inspectors.
15

16 **6-07.3(3) Quality Control and Quality Assurance**

17 **6-07.3(3)A Quality Control and Quality Assurance for Shop Application of** 18 **Paint**

19 For shop application of paint, quality control procedures shall be as approved by the
20 Engineer.
21

22 **6-07.3(3)B Quality Control and Quality Assurance for Field Application of** 23 **Paint**

24 For field application of paint, the Contractor shall conduct quality control inspections as
25 required by SSPC-PA 1, using the personnel and the processes outlined in the painting
26 plan as approved by the Engineer. The Contractor shall maintain current copies of
27 SSPC Painting Manual Volumes 1 and 2 at the project site at all times. The
28 Contractor's quality control operations shall include monitoring and documenting the
29 following:
30

- 31 1. Equipment, personnel, and materials used.
- 32 2. Environmental conditions (ambient air temperature and humidity, steel surface
33 temperature, dew point, wind direction and velocity).
34
- 35 3. Steel surface condition, profile, and preparation.
36
- 37 4. Paint application and film thickness.
38

39 A copy of the Contractor's daily quality control report, signed and dated by the
40 Contractor's quality control inspector, accompanied by copies of the test results of
41 quality control tests performed on the work covered by the daily quality control report,
42 shall be submitted to the Engineer before the end of the next day's work shift.
43
44

45 The Contractor shall provide the Engineer time and access to perform quality assurance
46 testing. Each painting operation phase shall be considered a hold point, from which the
47

1 Contractor shall not proceed with continuing work until receiving the Engineer's
2 approval.

3
4 The Engineer may perform quality assurance testing at each of the following phases of
5 painting operations:

- 6
7 1. After SSPC-SP 1 cleaning.
- 8
9 2. After water jetting.
- 10
11 3. After abrasive blast cleaning, hand and power tool surface cleaning, and
12 compressed air surface cleaning.
- 13
14 4. After applying each coat when dry.
- 15
16 5. During final inspection of all work at the end of the project.

17
18 Quality assurance testing may include the following tests:

- 19
20 1. Environmental conditions for painting in accordance with ASTM D 337.
- 21
22 2. Cleanness of abrasive blasting media and ionic contamination of abrasive
23 blasting media in accordance with ASTM D 4940.
- 24
25 3. Cleanness of compressed air in accordance with ASTM D 4285.
- 26
27 4. Pictorial of surface preparation standards in accordance with SSPC-VIS 1, 3, 4
28 and 5.
- 29
30 5. Surface profile by Keanne-Tator comparator in accordance with ASTM D 4417.
- 31
32 6. Surface profile by replica tape in accordance with ASTM D 4417.
- 33
34 7. Wet film thickness in accordance with ASTM D 4414.
- 35
36 8. Dry film thickness by magnetic gauge in accordance with SSPC-PA 2 modified.
- 37
38 9. Dry film thickness by Tooke gauge in accordance with ASTM D 4138.

39
40 The Contractor shall repair all damage to paint resulting from Contracting Agency quality
41 assurance inspections at no additional cost or time to the Contracting Agency.

42
43 **6-07.3(4) Paint System Manufacturer's Technical Representative**

44 The paint system manufacturer's technical representative shall be present at the job site
45 for the pre-painting conference and for the first day of paint application, and shall be
46 available for consultation for the full project duration.

1 **6-07.3(5) Pre-Painting Conference**

2 A pre-painting conference shall be held five to ten working days before beginning
3 painting operations to discuss the painting plan, construction operations, personnel, and
4 equipment to be used. Those attending shall include:

- 5
- 6 1. (representing the Contractor) The superintendent, on-site supervisors, and all
7 crew members in charge of cleaning and preparing the surfaces, containing,
8 collecting and disposing of all removed materials, applying the paint, and
9 performing all quality control inspections, measurements and tests; and the
10 paint system manufacturer's technical representative, and
11
 - 12 2. (representing the Contracting Agency) The Project Engineer, key inspection
13 assistants, and representatives of the WSDOT HQ Construction Office.
14

15 If the Contractor's key personnel change between any work operations, an additional
16 conference may be held.
17

18 For projects including painting of multiple structures, a separate conference may be held
19 for each structure, at the discretion of the Engineer.
20

21 **6-07.3(6) Paint Containers, Storage and Handling**

22 **6-07.3(6)A Paint Containers**

23 Paint container labels shall include the following information:
24

- 25 1. Manufacturer's name and product name, with batch number, and date of
26 manufacture.
27
- 28 2. Color name and Federal Standard 595 color number, where applicable.
29
- 30 3. Shelf life of the product, from date of batch manufacture.
31
- 32 4. Storage requirements and temperature limits.
33
34

35 Paint containers shall conform to U.S. DOT hazardous material shipping regulations.
36 Paint shall be delivered to the job site in the manufacturer's original unopened
37 containers with the original manufacturer's label legible and intact. Paint will be rejected
38 if the container has a puncture, or if the lid shows signs of paint leakage. Each
39 container shall be filled with paint and sealed airtight. Each container shall be filled with
40 the amount of paint required to yield the specified quantity when measured at 70F. All
41 paint shall be shipped in new suitable containers having a capacity not greater than five
42 gallons.
43

44 **6-07.3(6)B Paint Storage**

45 Paint materials shall not be used or stored on site after the shelf life expiration date.
46

47 Paint material shipping, handling and storage shall conform to Sections 1-06.4 and 9-
48 08.1(4) and the following requirements:
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1. Paint materials shall be stored in the manufacturer's original containers in a weather-tight space where the temperature is maintained within the storage temperature range recommended by the paint manufacturer, but in no case where the temperature is lower than 40F or greater than 100F.
 2. The Contractor shall monitor the paint material storage facility with a high-low recording thermometer device.
 3. The paint material storage facility shall be separate from the storage facilities used for storing painting equipment and used for storing containment waste and construction generated waste.

13 **6-07.3(7) Paint Sampling and Testing**

14 The Contractor shall provide the Engineer one quart of each paint and each thinner
15 representing each lot. Samples shall be accompanied with a Material Safety Data Sheet
16 and a paint drawdown sample.
17

18 If the quantity of paint required for each component of the paint system for the entire
19 project is 20 gallons or less, then the paint system components will be accepted as
20 specified in Section 9-08.1(7) with a paint draw down sample.
21

22 Sampling and testing performed by the Contracting Agency shall not be construed as
23 determining or predicting the performance or compatibility of the individual paint, or the
24 completed paint system.
25

26 **6-07.3(8) Equipment**

27
28 **6-07.3(8)A Paint Film Thickness Measurement Gages**

29 Paint dry film thickness measurements shall be performed with either a Type 1 pull off
30 gage or a Type 2 electronic gage as specified in SSPC Paint Application Specification
31 No. 2 Measurement of Dry Paint Thickness with Magnetic Gages.
32

33 Paint wet film thickness measurement gages shall be stainless steel with notches
34 graduated in 1 mil increments.
35

36 **6-07.3(9) Painting New Steel Structures**

37 All materials classified as non-galvanized structural steel shall be painted with a three-
38 coat paint system as specified in Section 6-07.3(9)A. The primer coat shall be shop
39 applied. The intermediate and top coats shall be field applied after erection and
40 following any primer coating repair operations.
41

42 Steel surfaces embedded in concrete, and faying (contact) surfaces of bolted
43 connections (including all surfaces internal to the connection and all filler plates) shall
44 receive the primer coat only. Stainless steel surfaces are not required to be painted.
45 Welded shear connectors are not required to be painted except for the weld area.
46

47 Temporary attachments or supports for scaffolding or forms shall not damage the paint
48 system.
49

1 **6-07.3(9)A Paint System**

2 The paint system applied to new steel surfaces shall consist of the following:

3

4 Primer Coat:	Section 9-08.1(2)C
5 Intermediate Coat:	Section 9-08.1(2)G
6 Top Coat	Section 9-08.1(2)H

7

8 The Contractor shall select a primer coat, intermediate coat, and top coat from the
9 approved products listed in the current Qualified Products List, with all products selected
10 for a system produced by the same manufacturer. The paint system selected shall be
11 used throughout the entire structure.

12
13 Paint formulations to be used on faying surfaces shall be Class B coatings with a mean
14 slip coefficient not less than 0.50. The slip coefficient shall be determined by testing in
15 accordance with "Test Method to Determine the Slip Coefficient for Coatings Used in
16 Bolted Joints" as adopted by the Research Council on Structural Connections.

17
18 **6-07.3(9)B Paint Color**

19 Each successive coat shall be a contrasting color to the previously applied coat. The
20 color of the top coat shall be as specified in the Plans or Special Provisions, and shall
21 conform to Section 9-08.1(8).

22
23 **6-07.3(9)C Mixing and Thinning Paint**

24 Paint shall be mixed in accordance with the manufacturer's written recommendations to
25 a smooth, lump-free consistency. Mixing shall be done, to the extent possible, in the
26 original containers and shall be continued until all of the metallic powder or pigment is in
27 suspension. The mixed paint shall be kept under continuous agitation up to and during
28 the time of application.

29
30 **6-07.3(9)D Coating Thickness**

31 Dry film thickness shall be measured in accordance with SSPC Paint Application
32 Specification No. 2 Measurement of Dry Paint Thickness with Magnetic Gages.

33
34 The dry film thickness for the primer coat shall not be less than 2.5 mils nor greater than
35 the paint manufacturer's maximum recommended thickness.

36
37 The minimum dry film thickness for the intermediate coat shall be 3.5 mils.

38 The minimum dry film thickness for the top coat shall be 1.0 mil.

39
40 If the specified number of coats does not produce a combined dry film thickness of at
41 least the sum of the thicknesses required per coat, the Contractor shall apply another
42 full coat of the top coat of paint. The dry film thickness shall not be thicker than the
43 paint manufacturer's recommended maximum thickness.

44
45 **6-07.3(9)E Surface Temperature Requirements Prior to Application of Paint**

46 For application of the paint system, the temperature of the steel surface shall be greater
47 than 40F and less than 115F.

1 **6-07.3(9)F Shop Surface Cleaning and Preparation**

2 A roughened surface profile shall be provided by an abrasive blasting procedure as
3 approved by the Engineer. The profile shall be one mil minimum or in accordance with
4 the paint manufacturer's recommendations, whichever is greater. The entire steel
5 surface to be painted shall be cleaned to a near white condition in accordance with
6 SSPC-SP 10 and shall be in this condition immediately prior to paint application.
7

8 **6-07.3(9)G Application of Shop Primer Coat**

9 After receiving the Engineer's approval of the prepared surface, the primer shall be
10 applied so as to produce a uniform, even coating that has fully bonded with the metal.
11 Primer shall be applied with the spray nozzles and pressures recommended by the
12 manufacturer of the paint system, so as to attain the film thicknesses specified.
13

14 Top flange surfaces to be embedded in concrete shall receive a mist coat of the
15 specified primer. Welded shear connectors, if installed in the shop, shall not receive
16 paint except for incidental overspray. If the welded shear connectors are to be placed in
17 the field, the area to be welded shall be prepared to SSPC-SP 11 power tool cleaning
18 just prior to welding. After welding, the ground area and the weld shall be cleaned to
19 SSPC-SP 11 and primed.
20

21 The Contractor shall provide access to the steel to permit inspection as approved by the
22 Engineer. The access shall not mar or damage any freshly painted surfaces.
23

24 High strength field bolts shall not be painted before erection.
25

26 **6-07.3(9)H Containment for Field Coating**

27 The Contractor shall use a containment system in accordance with Section 6-07.3(10)A.
28

29 **6-07.3(9)I Application of Field Coatings**

30 All uncoated areas shall receive a field primer coat of an organic zinc paint selected
31 from the same approved paint system and paint manufacturer as the other paint for the
32 structure. The intermediate and top coats shall be applied in accordance with the
33 manufacturer's written recommendations.
34

35 The minimum drying time between coats shall be as shown in the approved product
36 data sheets, but not less than 12 hours. The Contractor shall determine if the paint has
37 cured sufficiently for proper application of succeeding coats.
38

39 The maximum time between intermediate and top coats shall be in accordance with the
40 manufacturer's written recommendations. If the maximum time between coats is
41 exceeded, all newly coated surfaces shall be prepared to SSPC-SP 7 brush-off blast
42 cleaning and shall be re-painted with the same paint that was cleaned at no additional
43 cost to the Contracting Agency.
44

45 Dry film thickness measurements will be made in accordance with Section 6-07.3(9)D.
46

47 All paint damage that occurs shall be repaired in accordance with the manufacturer's
48 written recommendations and as approved by the Engineer. On bare areas or areas of
49 insufficient primer thickness, the repair shall include the application of the field applied

1 organic zinc primer system, and the final two coats of the paint system. On areas where
2 the primer is at least equal to the minimum required dry film thickness, the repair shall
3 include the application of the final two coats of the paint system. All paint repair
4 operations shall be performed by the Contractor at no additional cost or time to the
5 Contracting Agency.
6

7 **6-07.3(10) Painting Existing Steel Structures**

8 Painting existing steel structures includes providing containment, cleaning, preparing
9 the surface, painting metal surfaces and disposal of generated waste. Painting of
10 existing steel structures shall be done in the following sequence:

- 11 1. Containment.
- 12 2. Bird guano, fungus and vegetation removal.
- 13 3. Dry cleaning.
- 14 4. Surface preparation.
- 15 5. Treatment of pack rust and gaps.
- 16 6. Paint system application.

17 **6-07.3(10)A Containment**

18 The containment system shall be in accordance with SSPC Technology Guide No. 6
19 Guide for Containing Surface Preparation Debris Generated During Paint Removal
20 Operations Class 2. The Contractor shall protect the surrounding environment from all
21 debris or damage resulting from the Contractor's operations.
22

23 The containment length shall not exceed the length of a span (defined as pier to pier).
24 The containment system shall not cause any damage to the existing structure. All
25 clamps and other attachment devices shall be padded or designed such that they shall
26 not mark or otherwise damage the steel member to which they are attached. All clamps
27 and other attachment devices shall be fully described in the Contractor's painting plan
28 submittal as approved by the Engineer. Field welding of attachments to the existing
29 structure will not be allowed. The Contractor shall not drill holes into the existing
30 structure or through existing structural members except as shown in the Contractor's
31 painting plan submittal as approved by the Engineer. All provisions for dust collection,
32 ventilation and auxiliary lighting within the containment system shall be fully described
33 the Contractor's painting plan submittal as approved by the Engineer.
34

35 The containment system shall be capable of being removed rapidly in case of high
36 winds. The Engineer will make the final determination on whether operations shall
37 cease.
38

39 Emissions shall be limited to the Level 2 Emissions standard in SSPC Technology
40 Guide No. 6 Section 5.5 and assessed by Method A Visible Emissions. If failure to the
41 containment system occurs or if signs of failure to the containment system are present,
42

1 the Contractor shall stop work immediately. Work shall not resume until the failure has
2 been corrected to the satisfaction of the Engineer.

3
4 The containment system shall not be removed until all cleaned and painted surfaces
5 have been inspected and approved by the Engineer.

6
7 Prior to beginning work each day, all containment systems shall be inspected by the
8 Contractor to verify they are in place and functioning properly. Any necessary
9 maintenance to restore full function shall be completed prior to beginning work.

10
11 **6-07.3(10)B Bird Guano, Fungus and Vegetation Removal.**

12 Bird guano and bird nesting materials shall be removed in the dry. Following dry
13 removal, the Contractor shall apply a treatment solution in accordance with Section 9-
14 08.5(1), followed by hand scrubbing, and rinsing with water in accordance with Section
15 9-08.5(3). The bird guano, bird nesting materials and the treatment solution shall be
16 contained and collected.

17
18 The Contractor shall treat all areas of fungus growth and vegetative growth. The
19 Contractor shall apply a treatment solution in accordance with Section 9-08.5(2) to the
20 fungus areas for a period recommended by the solution manufacturer or as specified by
21 the Engineer, but in no case less than five minutes. The fungus, vegetative growth and
22 the treatment solution shall be contained and collected.

23
24 Bird guano, bird nesting materials, fungus and vegetative growth shall be disposed of at
25 a land disposal site approved by the Engineer. The Contractor shall provide the
26 Engineer with one copy of the disposal receipt, which shall include a description of the
27 disposed material.

28
29 **6-07.3(10)C Dry Cleaning**

30 Dry cleaning shall include removal of accumulated dirt and debris on the surfaces to be
31 painted. Collected dirt and debris shall be disposed of at a land disposal site approved
32 by the Engineer. The Contractor shall provide the Engineer with one copy of the
33 disposal receipt, which shall include a description of the disposed material.

34
35 **6-07.3(10)D Surface Preparation prior to Overcoat Painting**

36 The Contractor shall remove any visible oil, grease, and road tar in accordance with
37 SSPC SP1.

38
39 Following any preparation by SSPC-SP1, all steel surfaces to be painted shall be
40 prepared in accordance with either SSPC-SP 12 WJ-4/LP WC water jetting surface
41 cleaning, or SSPC-SP 7 brush-off blast cleaning. Surfaces inaccessible to water jetting
42 or brush-off blast shall be prepared in accordance with SSPC-SP 15 commercial grade
43 power tool cleaning, as allowed by the Engineer.

44
45 Following water jetting or brush-off blast cleaning, the Contractor shall perform spot
46 abrasive blast cleaning in accordance with SSPC-SP 6 commercial blast cleaning. Spot
47 abrasive blast cleaning shall be performed in such a manner that the adjacent areas of
48 work are protected from damage. Areas exhibiting coating failure down to the steel
49 substrate, and which exhibit visible corrosion, shall be prepared down to clean bare

1 steel in accordance with SSPC-SP 6. Exposed steel areas that have average exposed
2 diameter less than 1-1/2 inches and no other similar area closer than 4 inches, do not
3 require spot abrasive blast cleaning or edge feathering, unless required by the
4 Engineer. The Contractor shall provide a sharp angular surface profile by an abrasive
5 blasting procedure as approved by the Engineer. The profile shall be one mil minimum,
6 or in accordance with the paint manufacturer's recommendations, whichever is greater.
7 For small areas as allowed by the Engineer, the Contractor may substitute cleaning in
8 accordance with SSPC-SP 11 power tool cleaning. The prepared area shall extend at
9 least 2 inches into adjacent tightly adhering, intact coating.

10
11 Following spot abrasive blast cleaning of exposed steel surfaces, edges of tightly
12 adherent coating remaining shall be feathered so that the recoated surface has a
13 smooth appearance. Water jetting shall be performed with water conforming to Section
14 9-08.5(3). Immediately prior to painting, the Contractor shall clean all steel surfaces and
15 staging areas with dry, oil-free compressed air conforming to ASTM D 4285.

16 17 **6-07.3(10)E Surface Preparation - Full Paint Removal**

18 For structures where full removal of existing paint is specified, all steel surfaces to be
19 painted shall be prepared in accordance with SSPC-SP 10 near-white metal blast
20 cleaning. Surfaces inaccessible to near-white metal blast cleaning shall be prepared in
21 accordance with SSPC-SP 11 power tool cleaning to bare metal, as allowed by the
22 Engineer.

23 24 **6-07.3(10)F Collecting, Testing and Disposal of Containment Waste**

25 The sealed waste containers shall be labeled as required by State and Federal laws. All
26 confined materials shall be collected and secured in sealed containers at the end of
27 each shift or daily at a minimum to prevent the weight of the confined materials from
28 causing failure to the containment system. The sealed waste containers shall be stored
29 in accordance with Section 1-06.4, the painting plan as approved by the Engineer, and
30 the following requirements:

- 31
32 1. The containers shall be stored on an impermeable surface that accommodates
33 sweeping or vacuuming.
- 34
35 2. Landside storage of the containers shall be at an elevation above the ordinary
36 high water level (OHWL) elevation. The container storage area shall not be in
37 a storm water runoff course and shall not be in an area of standing water.
- 38
39 3. The container storage area shall be fenced, secured site, separate from the
40 storage facilities for paint materials and paint equipment.
- 41
42 4. The containers shall not be stored at the on-site landside storage site for
43 longer than 90 calendar days.

44
45 All material collected by and removed from the containment system shall be taken to a
46 landside staging area, provided by the Contractor and approved by the Engineer, for
47 further processing and storage prior to transporting for disposal. Handling and storage
48 of material collected by and removed from the containment system shall conform to

1 Section 1-06.4. Storage of containment waste materials shall be in a facility separate
2 from the storage facilities used for paint materials and paint equipment.
3

4 Containment waste is defined as all paint chips and debris removed from the steel
5 surface, and all abrasive blast media, as contained by the containment system. After all
6 waste from the containment system has been collected, the Contractor shall have a
7 minimum of three samples of the wastes tested by an accredited analytical laboratory.
8 Each sample shall be taken from a different storage container unless directed otherwise
9 by the Engineer.
10

11 The debris shall be tested for metals using the Toxicity Characteristics Leaching
12 Procedure (TCLP), EPA Methods 1311 and 6010. At a minimum, the materials to be
13 analyzed shall include Arsenic, Barium, Cadmium, Chromium Coppers, Lead, Mercury,
14 Nickel, Selenium, Silver and Zinc.
15

16 If the average of the tested samples is at or above all threshold limits as stated in the
17 Dangerous Waste Regulation, Chapter 173-303 WAC, the containment waste will be
18 designated as "Dangerous Waste" and shall be disposed of at a permitted hazardous
19 waste repository. If the average of the tested samples is below the threshold limits, the
20 containment waste will be designated as "Solid Waste" and shall be disposed at a
21 permitted sanitary landfill that will accept the waste. Disposal shall be in accordance
22 with Chapter 173-303 WAC for waste designated "Dangerous Waste" or "Extremely
23 Hazardous Waste" and in accordance with Chapter 173-304 WAC for waste designated
24 as "Solid Waste".
25

26 The Contractor shall supply two copies of the transmittal documents or bill of lading
27 listing the waste material shipped from the construction site to the waste disposal site.
28 One copy of the shipment list shall show the signature of the Engineer and shall have
29 the waste site operator's confirmation for receipt of the waste.
30

31 In the event that the containment wastes are designated as "Dangerous Wastes" or
32 "Extremely Hazardous Waste" under Chapter 173-303 WAC, the Contracting Agency
33 will provide to the Contractor the appropriate EPA identification number.
34

35 Unless noted otherwise a waste site will not be provided by the Contracting Agency for
36 the disposal of excess materials and debris.
37

38 The Contractor shall submit one copy of all TCLP results to the Engineer.
39

40 The Contractor shall submit waste disposal documentation to the Engineer within 15
41 working days of each disposal. This documentation shall include the quantity and type
42 of waste disposed of with each disposal shipment.
43

44 **6-07.3(10)G Treatment of Pack Rust and Gaps**

45 Pack rust is defined as the condition where two or more pieces of steel fastened
46 together by rivets or bolts have been pressed apart by crevice corrosion caused by the
47 build up of corrosion products at the interface of the steel pieces.
48

1 Pack rust forming a gap between steel surfaces of 1/16 inch or greater shall be cleaned
2 to a depth of one half of the gap width, up to a maximum of 1/4 inch. The cleaned gap
3 shall be treated with rust penetrating sealer, and caulked to form a watertight seal along
4 the top edge and the two sides of the steel pieces involved, using the rust penetrating
5 sealer and caulk as approved by the Engineer. The bottom edge or lowest edge of the
6 steel pieces involved shall not be caulked.
7

8 The type of rust penetrating sealer and caulk used shall be compatible with the paint
9 system used and shall be applied in accordance with the rust penetrating sealer and
10 caulk manufacturer's instructions.
11

12 When caulking joints where only one steel piece edge is exposed, a fillet of caulk shall
13 be formed which is not less than 1/8 inch or the width of the pack rust gap. The fillet is
14 not required where there is no separation of the steel pieces due to pack rust.
15

16 At locations where gaps between steel surfaces exceed 1/4 inch, the Contractor shall fill
17 the gap with foam backer rod material and sealant as approved by the Engineer. The
18 foam backer rod material shall be of sufficient diameter to fill the crevice or gap. The
19 Contractor shall apply sealant over the foam backer rod material to form a watertight
20 seal.
21

22 **6-07.3(10)H Paint System**

23 The paint system applied to new steel surfaces shall consist of the following five coat
24 system:
25

26	Primer Stripe Coat:	Section 9-08.1(2)F
27	Primer Coat:	Section 9-08.1(2)F
28	Intermediate Stripe Coat:	Section 9-08.1(2)G
29	Intermediate Coat:	Section 9-08.1(2)G
30	Top Coat	Section 9-08.1(2)H
31		

32 The Contractor shall select a primer coat, intermediate coat, and top coat from the
33 approved products listed in the current Qualified Products List. Once a paint system
34 has been selected, all paints in that system shall be from the same manufacturer. Only
35 one paint system from a singular manufacturer shall be used throughout the project,
36 unless otherwise approved in writing by the Engineer. The Contractor shall not change
37 to a different paint system once the initial paint system has been applied to any portion
38 of the bridge, unless otherwise approved in writing by the Engineer.
39

40 **6-07.3(10)I Paint Color**

41 Each successive full coat shall be a contrasting color to the previously applied full coat.
42 Stripe coat colors may match the full coats. The color of the top coat shall be as
43 specified in the Plans or Special Provisions, and shall conform to Section 9-08.1(8).
44 Tinting shall occur at the factory at the time of manufacture and placement in
45 containers, prior to initial shipment. Application site tinting will not be allowed except as
46 otherwise approved by the Engineer.
47

1 **6-07.3(10)J Mixing and Thinning Paint**

2 The Contractor shall thoroughly mix paint by mechanical means to ensure a uniform
3 composition. Paint shall not be mixed by means of air stream bubbling or boxing. Paint
4 shall be mixed in the original containers and mixing shall continue until all pigment or
5 metallic powder is in suspension. Care shall be taken to ensure that the solid material
6 that has settled to the bottom of the container is thoroughly dispersed. After mixing, the
7 Contractor shall inspect the paint for uniformity and to ensure that no unmixed pigment
8 or lumps are present.
9

10 Catalysts, curing agents, hardeners, initiators, or dry metallic powders which are
11 packaged separately may be added to the base paint in accordance with paint
12 manufacturer's written recommendations and only after the paint is thoroughly mixed to
13 achieve a uniform mixture with all particles wetted. The Contractor shall then add the
14 proper volume of curing agent to the correct volume of base and mix thoroughly. The
15 mixture shall be used within the pot life specified by the manufacturer. Unused portions
16 shall be discarded at the end of each work day.
17

18 The Contractor shall not add additional thinner at the application site except as
19 approved by the Engineer. The amount and type of thinner, if allowed, shall conform to
20 the manufacturer's specifications.
21

22 When recommended by the manufacturer, the Contractor shall constantly agitate paint
23 during application by use of paint pots equipped with mechanical agitators.
24

25 The Contractor shall strain all paint after mixing to remove undesirable matter, but
26 without removing the pigment or metallic powder.
27

28 Paint shall be stored and mixed in a secure, contained location to eliminate the potential
29 for spills into State waters, and onto the ground and highway surfaces.
30

31 **6-07.3(10)K Coating Thickness**

32 The minimum wet film thickness of each coat (primer, intermediate, top, and all stripe
33 coats) shall be sufficient to achieve a dry film thickness of at least 3.0 mils.
34

35 If the specified number of coats does not produce a combined dry film thickness of at
36 least the sum of the thicknesses required per coat, the Contractor shall apply another
37 full coat of the top coat of paint. The dry film thickness shall not be thicker than the
38 paint manufacturer's recommended maximum thickness.
39

40 Film thickness, wet and dry, will be measured by gages conforming to Section 6-
41 07.3(8)A. Wet measurements will be taken immediately after the paint is applied. Dry
42 measurements will be taken after the coating is dry and hard.
43

44 Each painter shall be equipped with a wet film thickness gauge, and shall be
45 responsible for performing frequent checks of the paint film thickness throughout
46 application.
47

48 Coating thickness measurements may be made by the Engineer after the application of
49 each coat and before the application of the succeeding coat. In addition, the Engineer

1 may inspect for uniform and complete coverage and appearance. One hundred percent
2 of all thickness measurements shall be the minimum wet film thickness specified in this
3 Section. Wet film thickness measurements will be made in accordance with ASTM D
4 4414. In areas where wet film thickness measurements are impractical, dry film
5 thickness measurements will be made as specified in Section 6-07.3(8)A.
6

7 If thickness measurements or visual inspection of coverage do not meet the specified
8 minimum, the Contractor shall make additional applications, as necessary, to achieve
9 thickness and coverage requirements. If a question arises about an individual coat
10 thickness or coverage, it will be verified by the use of a Tooke gauge in accordance with
11 ASTM D 4138. If the Tooke gage shows a coat thickness to be less than a minimum dry
12 film thickness of 3.0 mils or indicates a missing intermediate coat, the total paint system
13 will be rejected, even if the thickness of the total system equals or exceeds the total
14 thickness specified.
15

16 **6-07.3(10)L Environmental Condition Requirements Prior to Application of** 17 **Paint**

18 Paint shall be applied only during periods when:

- 19 1. Air temperature and paint temperature are between 35F and 115F.
- 20 2. Steel surface temperature is between 35F and 115F.
- 21 3. Steel surface does not show wet drops and is not wet.
- 22 4. Relative humidity is within the manufacturer's recommended range.
- 23 5. The anticipated ambient temperature will remain above 35F during the paint
24 drying period.
25
26
27
28
29
30

31 Application will not be allowed if conditions are not favorable for proper application and
32 performance of the paint.
33

34 Paint shall not be applied when weather conditions are unfavorable to proper curing. If
35 a paint system manufacturer's recommendations allow for application of a paint under
36 environmental conditions other than those specified, the Contractor shall submit a letter
37 from the paint manufacturer specifying the environmental conditions under which the
38 paint can be applied. Application of paint under environmental conditions other than
39 those specified in this Section will not be allowed without the Engineer's approval.
40

41 **6-07.3(10)M Steel Surface Condition Requirements Prior to Application of** 42 **Paint**

43 The steel surface to be painted shall be free of moisture, dirt, dust, grease, oil, loose,
44 peeling or chalky paint, abrupt paint edges, salts, rust, mill scale, and other foreign
45 matter and substances that would prevent the bond of the succeeding application. The
46 Contractor shall protect freshly painted surfaces from contamination by abrasives, dust,
47 or foreign materials from any other source. The Contractor shall prepare contaminated
48 surfaces to the satisfaction of the Engineer before applying additional paint.
49

1 Prepared surfaces shall be kept clean at all times, before painting and between coats.

2
3 Edges of existing paint shall be feathered in accordance with SSPC-PA 1, Note 16.9.

4
5 **6-07.3(10)N Field Coating Application Methods**

6 The Contractor shall apply paint materials by air or airless spray, brush, roller, any
7 combination of these methods, or as recommended by the paint manufacturer, unless
8 otherwise specified. Spray application of the paint shall be accomplished with spray
9 nozzles and at pressures as recommended by the paint manufacturer to ensure
10 application of paint at the specified film thickness. Regardless of the primary paint
11 application method, the Contractor shall use brushes to apply the stripe coat, to ensure
12 complete coverage around structural geometric irregularities, and to push the paint into
13 gaps between existing steel surfaces and around rivets and bolts. All application
14 techniques shall conform to Section 7, SSPC-PA 1. Painters using brushes shall work
15 from pails containing a maximum of two gallons of paint. This is intended to minimize
16 the impact of any spill.

17
18 **6-07.3(10)O Applying Field Coatings**

19 The first coat shall be a primer stripe coat applied to steel surfaces cleaned to bare
20 metal and defined to receive a stripe coat. The second coat shall be a primer coat
21 applied to all steel surfaces cleaned to bare metal. The third coat shall be an
22 intermediate stripe coat applied to steel surfaces defined to receive a stripe coat. The
23 fourth coat shall be an intermediate coat. The fifth coat shall be the top coat. The
24 intermediate (fourth) and top (fifth) coats shall encapsulate the entire surface area of the
25 structure members specified to be painted.

26
27 Prior to the application of paint the Contractor shall clean the bridge deck surface for the
28 purpose of dust control.

29
30 During painting operations the Contractor shall furnish, install, and maintain drip tarps
31 below the areas to be painted to contain all spilled paint, buckets, brushes, and other
32 deleterious material, and prevent such materials from reaching the environment below
33 or adjacent to the structure being painted. Drip tarps shall be absorbent material and
34 hung to minimize puddling.

35
36 In addition to the requirements of the Specifications, paint application shall conform to:

- 37
38 1. The best practices of the trade.
39 2. The written recommendations of the paint manufacturer.
40 3. All applicable portions of the SSPC-PA1.

41
42 No primer paint shall be applied to any surface until the surface has been inspected and
43 approved by the Engineer. Any area to which primer paint has been applied without the
44 Engineer's inspection and approval will be considered improperly cleaned. The
45 unauthorized application shall be completely removed and the entire area recleaned to
46 the satisfaction of the Engineer. After the area has been recleaned, inspected, and
47 approved, the Contractor may again initiate the painting sequence. No additional
48 compensation or extension of time in accordance with Section 1-08.8 will be allowed for

1 the removal of any unauthorized paint application and recleaning of the underlying
2 surface.
3
4 All steel surfaces cleaned to bare metal by abrasive blast cleaning shall receive the
5 primer coat within the same working day as the completion of the abrasive blast
6 cleaning, and before any rust begins to form. Each successive coat shall be applied as
7 soon as possible over the previous coat, accounting for drying time of the preceding
8 coat, weather, atmospheric temperature and other environmental conditions, and the
9 paint manufacturer's recommendations. Each coat shall be dry before recoating, and
10 shall be sufficiently cured so that succeeding or additional coats may be applied without
11 causing damage to the previous coat. Recoat times shall be as shown in the paint
12 manufacturer's recommendations, but not less than 12 hours. Revision of recoat times
13 to other than recommended by the paint manufacturer requires the approval of the
14 Engineer. If the maximum time between coats is exceeded, all affected areas shall be
15 prepared to SSPC-SP 7 brush-off blast cleaning and recoated with the Contract
16 specified system at no additional expense or time to the Contracting Agency.
17
18 Each coat shall be applied in a uniform layer, completely covering the preceding coat.
19 Individual coats shall be tinted a sufficiently different shade so that each coat can be
20 easily detected. The Contractor shall correct runs, sags, skips, or other deficiencies
21 before application of succeeding coats. Such corrective work may require recleaning,
22 application of additional paint, or other means as determined by the Engineer at no
23 additional cost to the Contracting Agency.
24
25 If fresh paint is damaged by the elements, the Contractor shall replace or repair the
26 paint to the satisfaction of the Engineer at no additional cost to the Contracting Agency.
27
28 Prior to applying the primer or intermediate coats, the Contractor shall apply a primer or
29 intermediate stripe coat, respectively, on all edges, corners, seams, crevices, interior
30 angles, junction of joint members, rivet or bolt heads, nuts and threads, weld lines, and
31 any similar surface irregularities. The full primer coat may be applied prior to the primer
32 stripe coat to prevent flash rusting of the cleaned surfaces, if approved by the Engineer.
33 The coverage of each stripe coat shall extend at least one inch beyond the irregular
34 surface. The stripe coat shall be of sufficient thickness to completely hide the surface
35 being covered and shall be followed as soon as practical by the application of the primer
36 or intermediate coat to its specified thickness.
37
38 If the primer coat leaves unsealed cracks or crevices, these shall be sealed with single
39 component urethane sealant conforming to Section 9-08.7 (applied in accordance with
40 the manufacturer's recommendations) before the intermediate coat is applied.
41
42 The Contractor shall correct paint deficiencies before application of succeeding coats.
43 Such corrective work may require recleaning, application of additional paint, or other
44 corrective measures in accordance with the paint manufacturer's recommendations and
45 as specified by the Engineer. Such corrective work shall be completed at no additional
46 expense or time to the Contracting Agency.
47
48 Each application of primer stripe, primer, intermediate stripe, intermediate, and top coat
49 shall be considered as separately applied coats, including for the purposes of film

1 thickness and coverage requirements. The Contractor shall not use a preceding or
2 subsequent coat to remedy a deficiency in another coat. The Contractor shall apply the
3 top coat to at least the minimum specified top coat thickness, to provide a uniform
4 appearance and consistent finish coverage, even if the total thickness of the prime and
5 intermediate coats is found to exceed the specified total thickness for the primer and
6 intermediate coats.
7

8 If roadway or sidewalk planks lie so close to the metal that they prevent proper cleaning
9 and painting, the Contractor shall remove or cut the planks to provide at least a 1-inch
10 clearance. Any plank removal or cutting shall be done as approved by the Engineer.
11 The Contractor shall replace all planks after painting. If removal breaks or damages the
12 planks and makes them unfit for reuse, the Contractor shall replace them at no expense
13 to the Contracting Agency.
14

15 **6-07.3(10)P Field Coating Repair**

16 Paint repair shall conform to SSPC-PA 1. Repair areas shall be cleaned of all damaged
17 paint and the system re-applied using all coats typical to the paint system. Each coat
18 shall be thoroughly dry before applying subsequent coats. Paint repair shall be in
19 accordance with the paint manufacturer's recommendations, and as approved by the
20 Engineer. All paint repair operations shall be performed by the Contractor at no
21 additional cost or time to the Contracting Agency.
22

23 **6-07.3(10)Q Cleanup**

24 Cleaning of equipment shall not be done in State waters nor shall resultant cleaning
25 runoff be allowed to enter State waters. No paint cans, lids, brushes, or other debris
26 shall be allowed to enter State waters. Solvents, paints, paint sludge, cans, buckets,
27 rags, brushes, and other waste associated with this project shall be collected and
28 disposed of off site. Paint products, petroleum products or other deleterious material
29 shall not be wasted into, or otherwise enter, State waters as a result of project activities.
30 Cleanup of the project site shall conform to Section 1-04.11 and 6-01.12
31

32 **6-07.3(11) Painting or Powder Coating of Galvanized Surfaces**

33 Galvanized surfaces specified to be coated after galvanizing shall receive either paint in
34 accordance with Section 6-07.3(11)A or powder coating in accordance with Section 6-
35 07.3(11)B. The color of the finish coat shall be as specified in the Special Provisions.
36

37 **6-07.3(11)A Painting of Galvanized Surfaces**

38 All galvanized surfaces receiving paint shall be prepared for painting in accordance with
39 the ASTM D 6386. The method of preparation shall be as agreed upon by the paint
40 manufacturer and the galvanizer. The Contractor shall not begin painting until receiving
41 the Engineer's approval of the prepared galvanized surface.
42

43 **Environmental Conditions**

44 Steel surfaces shall be:

- 45 • Greater than 35°F and
 - 46 • Less than 115°F
- 47
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or in accordance with the manufacturer's recommendations, whichever is more stringent.

The Contractor shall paint the dry surface as follows:

	Paint Type	Name
First Coat	Section 9-08.1(2)E	Epoxy polyamide
Second Coat	Section 9-08.1(2)H	Moisture Cured Aliphatic Polyurethane

Each coat shall be dry before the next coat is applied. All coats applied in the shop shall be dried hard before shipment.

6-07.3(11)B Powder Coating of Galvanized Surfaces

Powder coating of galvanized surfaces shall conform to the following requirements:

Submittals

The Contractor shall submit the following information to the Engineer for approval:

1. The name, location, and contact information (mail address, phone, and e-mail) for the firm performing the powder coating operation.
2. Quality control (QC) programs established and followed by the firm performing the powder coating operation. Forms to document inspection and testing of coatings as part of the QC program shall be included in the submittal.
3. Project specific powder coating plan, including identification of the powder coating materials used (and manufacturer), and specific cleaning, surface preparation, pre-heating, powder coating application, curing, shop and field coating repair, handling, and storage processes to be taken for the assemblies being coated for this project.
4. Product data and MSDS sheets for all powder coating and coating repair materials.

Galvanizing

Prior to the galvanizing operation, the Contractor shall identify to the galvanizer the specific assemblies and surfaces receiving the powder coating after galvanizing, to ensure that the galvanizing method used on these assemblies is compatible with subsequent application of a powder coating system. Specifically, such assemblies shall neither be water-quenched, nor receive a chromate conversion coating, as part of the galvanizing operation.

Galvanized Surface Cleaning and Preparation

1 Galvanized surfaces receiving the powder coating shall be cleaned and prepared
2 for coating in accordance with ASTM D 6386, and the project specific powder
3 coating plan as approved by the Engineer.
4

5 Assemblies conforming to the ASTM D 6386 definition for newly galvanized steel
6 shall receive surface smoothing and surface cleaning in accordance with ASTM D
7 6386 Section 5, and surface preparation in accordance with ASTM D 6386 Section
8 5.4.1.
9

10 Assemblies conforming to the ASTM D 6386 definition for partially weathered
11 galvanized steel shall be checked and prepared in accordance with ASTM D 6386
12 Section 6, before then receiving surface smoothing and surface cleaning in
13 accordance with ASTM D 6386 Section 5, and surface preparation in accordance
14 with ASTM D 6386 Section 5.4.1.
15

16 Assemblies conforming to the ASTM D 6386 definition for weathered galvanized
17 steel shall be prepared in accordance with ASTM D 6386 Section 7, before then
18 receiving surface smoothing and surface cleaning in accordance with ASTM D
19 6386 Section 5 and surface preparation in accordance with ASTM D 6386 Section
20 5.4.1.
21

22 The Contractor shall notify the Engineer of all surface cleaning and preparation
23 activities, and shall provide the Engineer opportunity to perform quality assurance
24 inspection, in accordance with Section 1-05.6, at the completion of surface cleaning
25 and preparation activities prior to beginning powder coating application.
26

27 **Powder Coating Application and Curing**

28 After surface preparation, the two component powder coating shall be applied in
29 accordance with the powder coating manufacturer's recommendations, the project
30 specific powder coating plan as approved by the Engineer, and as follows:
31

- 32 1. Pre-heat. The pre-heat shall be sufficient to prevent pin holes from
33 forming in the finished coating system.
34
- 35 2. Apply the epoxy primer coat, followed by a partial cure.
36
- 37 3. Apply the polyester finish coat, followed by the finish cure.
38

39 **Testing**

40 The firm performing the powder coating operation shall conduct, or make
41 arrangements for, QC testing on all assemblies receiving powder coating for this
42 project, in accordance with the powder coating firm's QC program as documented
43 in item 2 of the Submittal subsection above. Testing may be performed on coated
44 surfaces of production fabricated items, or on a representative test panel coated
45 alongside the production fabricated items being coated. There shall be a minimum
46 of one set of tests representing each cycle of production fabricated items coated
47 and cured. Additional tests shall be performed at the request of the Engineer.
48 Repair of damaged coatings on production fabricated items shall be the
49 responsibility of the firm applying the powder coating, and shall be in accordance

1 with the project specific powder coating plan as approved by the Engineer. At a
2 minimum, the QC testing shall test for the following requirements:

- 3
- 4 1. Visual inspection for the presence of coating holidays, and other
5 unacceptable surface imperfections.
 - 6
 - 7 2. Coating thickness measurement in accordance with Section 6-07.3(5).
8 The minimum thickness of the epoxy primer coating and polyester finish
9 coating shall be 3 mils each.
 - 10
 - 11 3. Hardness testing in accordance with ASTM D 3363, with the finish coat
12 providing a minimum hardness value of H.
 - 13
 - 14 4. Adhesion testing in accordance with ASTM D 4541 for 400 psi minimum
15 adhesion for the complete two component coating system.
 - 16
 - 17 5. Powder Coating Institute (PCI) #8 recommended procedure for solvent
18 cure test.
 - 19

20 The results of the QC testing shall be documented in a QC report, and submitted to
21 the Engineer for approval.

22

23 The Engineer shall be provided notice and access to all assemblies at the powder
24 coating facility for the purposes of Contracting Agency acceptance inspection,
25 including notice and access to witness all hardness and adhesion testing performed
26 by the firm conducting the QC testing, in accordance with Section 1-05.6.

27

28 Assemblies not meeting the above requirements will be subject for rejection by the
29 Engineer. Rejected assemblies shall be repaired or re-coated by the Contractor, at
30 no additional expense to the Contracting Agency, in accordance with the project
31 specific powder coating plan as approved by the Engineer until the assemblies
32 satisfy the acceptance testing requirements.

33

34 Assemblies shall not be shipped from the powder coating firm's facility to the
35 project site until the Contractor receives the Engineer's approval of the QC Report
36 and assembly inspection performed by the Engineer.

37

38 **Coating Protection For Shipping, Storage, and Field Erection**

39 After curing and acceptance, the Contractor shall protect the coated assemblies
40 with multiple layers of bubble wrap, or other protective wrapping materials specified
41 in the project specific powder coating plan as approved by the Engineer.

42

43 During storage and shipping, each assembly shall be separated from other
44 assemblies by expanded polystyrene spacers and other spacing materials specified
45 in the project specific powder coating plan as approved by the Engineer.

46

47 After erection, all coating damage due to the Contractor's shipping, storage,
48 handling, and erection operations shall be repaired by the Contractor, at no
49 additional expense to the Contracting Agency, in accordance with the project

1 specific powder coating plan as approved by the Engineer. The Contractor shall
2 provide the Engineer access to all locations of all powder coated members for
3 verification of coating conditions prior to and following all coating repairs.
4

5 **6-07.3(12) Painting Ferry Terminal Structures**

6 Ferry terminal structures shall be painted as specified in the Special Provisions.
7

8 **6-07.3(13) Painting Timber Structures**

9 Timber structures shall be painted as specified in the Special Provisions.
10

11 **6-07.4 Measurement**

12 Cleaning, sealing and caulking pack rust will be measured by the linear foot along the
13 edge of the steel connection interface cleaned, sealed and caulked.
14

15 Spot abrasive blast cleaning of steel surfaces in accordance with Section 6-07.3(10)D
16 will be measured by the square foot of surface area to be cleaned to bare metal as
17 specified by the Engineer.
18

19 **6-07.5 Payment**

20 Payment will be made in accordance with Section 1-04.1, for each of the following bid
21 items that are included in the proposal:
22

23 "Cleaning and Painting - _____", lump sum.
24

25 The lump sum contract price for "Cleaning and Painting - _____" shall be full pay
26 for performing the work as specified, including developing all submittals, arranging
27 for and accommodating contact and on-site attendance by the paint manufacturer's
28 technical representative, furnishing and placing all necessary staging and rigging,
29 furnishing, operating and mooring barges, furnishing and operating fixed and
30 movable work platforms, accommodating Contracting Agency inspection access,
31 conducting the Contractor's quality control inspection program, providing material,
32 labor, tools, and equipment, collecting and storing containment waste, collecting,
33 storing, testing, and disposing of all containment waste not conforming to the
34 definition in Section 6-07.3(10)F, performing all cleaning and preparation of
35 surfaces to be painted, applying all coats of paint and sealant, correcting coating
36 deficiencies, completing coating repairs, and completing project site cleanup.
37

38 Progress payments for "Cleaning and Painting - _____" will be made on a monthly
39 basis and will be based on the percentage of the total estimated area satisfactorily
40 cleaned and coated as determined by the Engineer. Payment will not be made for
41 areas which do not have the specified number of coats for the paint system used,
42 nor for areas which are complete but have repairs outstanding.
43

44 "Cleaning, Sealing and Caulking Pack Rust", per linear foot.
45

46 The unit contract price per linear foot for "Cleaning, Sealing and Caulking Pack
47 Rust" shall be full pay for performing the work as specified, including cleaning out
48 the pack rust, preparing the gap for the rust penetrating sealer and caulk, and
49 applying the rust penetrating sealer and caulk.

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"Spot Abrasive Blast Cleaning", per square foot.

The unit contract price per square foot for "Spot Abrasive Blast Cleaning" shall be full pay for performing the spot abrasive blast cleaning work in accordance with Section 6-07.3(10)D.

"Containment of Abrasives", lump sum.

The lump sum contract price for "Containment of Abrasives" shall be full payment for all costs incurred by the Contractor in complying with the requirements as specified in Section 6-07.3(10)A to design, construct, maintain, and remove containment systems for abrasive blasting operations.

"Testing and Disposal of Containment Waste", by force account as provided in Section 1-09.6.

All costs in connection with testing containment waste, transporting containment waste for disposal, and disposing of containment waste in accordance with Section 6-07.3(10)F will be paid by force account in accordance with 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 "Testing and Disposal of Containment Waste" in the bid proposal to become part of the total bid by the Contractor.

Payment for painting new steel structures and painting or powder coating of galvanized surfaces will be in accordance with Sections 6-03.5. Painting of timber structures will be in accordance with Section 6-04.5.

SECTION 6-09, MODIFIED CONCRETE OVERLAYS
August 3, 2009

6-09.3(1)B Rotary Milling Machines

This section is revised to read:

Rotary milling machines shall have a maximum operating weight of 50,000 pounds, and conform to the requirements in Section 1-07.7.

6-09.3(1)C Hydro-Demolition Machines

This section is revised to read:

Hydro-demolition machines shall consist of filtering and pumping units operating in conjunction with a remote-controlled robotic device, using high velocity water jets to remove 1/2-inch of sound concrete with the simultaneous removal of all deteriorated concrete. Hydro-demolition machines shall also clean any exposed reinforcing steel of all rust and corrosion products.

6-09.3(1)D Shot Blasting Machines

This section is revised to read:

1 Shot blasting machines shall consist of a self contained mobile unit, using steel abrasive
2 to remove 1/2-inch of sound concrete. The shot blasting machine shall vacuum and
3 store all material removed from the scarified concrete surface into a self contained unit.
4

5 **6-09.3(5)A General**

6 This section is supplemented with the following:
7

8 Dense, sound areas of existing bridge deck repair material shall be sufficiently scarified
9 to provide one inch minimum clearance to the top of the fresh modified concrete overlay.
10

11 **6-09.3(5)E Rotomilling**

12 The second sentence is revised as follows:
13

14 The operating parameters of the rotary milling machine shall be monitored in order to
15 prevent the unnecessary removal of concrete below the 1/2-inch maximum removal
16 depth.
17

18 **6-09.3(6) Further Deck Preparation**

19 The first paragraph is revised to read:
20

21 Once the lane or strip being overlaid has been cleaned of debris from scarifying, the
22 Contractor, with the Engineer, shall perform an inspection of the completed work, in
23 accordance with ASTM D 4580 Method B except as otherwise noted for concrete
24 surfaces scarified by hydro-demolition, and the Contractor shall mark those areas of the
25 existing bridge deck that are authorized by the Engineer for further deck preparation by
26 the Contractor. When hydro-demolition is used as the method of scarification, the
27 inspection for further deck preparation shall be a visual inspection and shall take place
28 after one pass of the hydro-demolition machine.
29

30 **6-09.3(6)B Deck Repair Preparation**

31 The second sentence in the first paragraph is revised to read:
32

33 If unsound concrete exists around the top mat of steel reinforcing bars, or if the bond
34 between concrete and top mat of steel is broken, concrete shall be removed to provide
35 a 3/4-inch minimum clearance around the top mat of steel reinforcing bars.
36

37 **6-09.3(6)C Placing Deck Repair Concrete**

38 The first paragraph is revised to read:
39

40 Deck repair concrete for modified concrete overlays shall be either modified concrete or
41 concrete Class M as specified below.
42

43 The third paragraph is deleted.
44

45 The fourth paragraph is revised to read:
46

47 Type 1 deck repairs, defined as deck repair areas with a maximum depth of one-half the
48 periphery of the bottom bar of the top layer of steel reinforcement and not to exceed 12

1 continuous inches along the length of the bar, may be filled during the placement of the
2 concrete overlay.

3
4 This section is supplemented with the following:

5
6 Type 2 deck repairs, defined as deck repair areas not conforming to the definition of
7 Type 1 deck repairs, shall be repaired with concrete Class M and wet cured for 42-hours
8 in accordance with Section 6-09.3(13), prior to placing the concrete overlay. During the
9 curing period, all vehicular and foot traffic shall be prohibited on the repair area.

10

11 **6-09.3(8)A Quality Assurance for Microsilica Modified and Fly Ash Modified**
12 **Concrete Overlays**

13 The first sentence in the first paragraph is revised to read:

14

15 The Engineer will perform slump, temperature, and entrained air tests for acceptance in
16 accordance with Section 6-02.3(5)D and as specified in this Section after the Contractor
17 indicates that the concrete is ready for placement.

18

19 The third paragraph is deleted.

20

21 **6-09.3(8)B Quality Assurance for Latex Modified Concrete Overlays**

22 The following new sentence is inserted as the leading sentence in the second paragraph:

23

24 The Engineer will perform slump, temperature, and entrained air tests for acceptance in
25 accordance with Section 6-02.3(5)D and as specified in this Section.

26

27 The third paragraph is deleted.

28

29 **6-09.3(10) Overlay Profile and Screed Rails**

30 This sections content is deleted.

31

32 This section is supplemented with the following new sub-sections:

33

34 **6-09.3(10)A Survey of Existing Bridge Deck Prior To Scarification**

35 Prior to beginning the scarifying concrete surface finish work specified under Section 6-
36 09.3(5), the Contractor shall complete a survey of the existing bridge deck(s) specified
37 to receive modified concrete overlay for use in establishing the existing cross section
38 and grade profile elevations.

39

40 The Contracting Agency will provide the Contractor with primary survey control
41 information consisting of descriptions of two primary control points used for the
42 horizontal and vertical control. Primary control points will be described by reference to
43 the bridge or project specific stationing and elevation datum. The Contracting Agency
44 will also provide horizontal coordinates for the beginning and ending points and for each
45 Point of Intersection (PI) on each centerline alignment included in the project. The
46 Contractor shall provide the Engineer 21-calendar days notice in advance of scheduled
47 concrete surface scarification work to allow the Contracting Agency time to provide the
48 primary survey control information.

49

1 The Contractor shall verify the primary survey control information furnished by the
2 Contracting Agency, and shall expand the survey control information to include
3 secondary horizontal and vertical control points as needed for the project. The
4 Contractor's survey records shall include descriptions of all survey control points,
5 including coordinates and elevations of all secondary control points.
6

7 The Contractor shall maintain detailed survey records, including a description of the
8 work performed on each shift, the methods utilized to conduct the survey, and the
9 control points used. The record shall be of sufficient detail to allow the survey to be
10 reproduced. A copy of each day's survey record shall be provided to the Engineer
11 within 3-working days after the end of the shift. The Contractor shall compile the survey
12 information in an electronic file format acceptable to the Contracting Agency (Excel
13 spreadsheet format is preferred).
14

15 Survey information collected shall include station, offset, and elevation for each lane line
16 and curblin. Survey information shall be collected at even 20-foot station intervals, and
17 also at the centerline of each bridge expansion joint. The Contractor shall ensure a
18 surveying accuracy to within ± 0.01 -feet for vertical control and ± 0.2 -feet for horizontal
19 control. The survey shall extend 100'-0" beyond the bridge back of pavement seat.
20

21 Except for the primary survey control information furnished by the Contracting Agency,
22 the Contractor shall be responsible for all calculations, surveying, and measuring
23 required for setting, maintaining and resetting equipment and materials necessary for
24 the construction of the overlay to the final grade profile. The Contracting Agency may
25 post-check the Contractor's surveying, but these post-checks shall not relieve the
26 Contractor of responsibility for internal survey quality control.
27

28 The Contracting Agency will establish the final grade profile based on the Contractor's
29 survey, and will provide the final grade profile to the Contractor within three working
30 days after receiving the Contractor's survey information.
31

32 The Contractor shall not begin scarifying concrete surface work specified under Section
33 6-09.3(5) until receiving the final grade profile from the Engineer.
34

35 **6-09.3(10)B Establishing Finish Overlay Profile**

36 The finish grade profile shall be + 1/4 inch/- 1/8 inch from the Engineer's final grade
37 profile. The final grade profile shall be verified prior to the placement of modified
38 concrete overlay with the screed rails in place. The finishing machine shall be passed
39 over the entire surface to be overlaid and the final screed rail adjustments shall be
40 made. If the resultant overlay thickness is not compatible with the finish grade profile
41 generated by the Contractor's screed rail setup, the Contractor shall make profile
42 adjustments as approved by the Engineer. After the finish overlay profile has been
43 verified, changes in the finishing machine elevation controls will not be allowed. The
44 Contractor shall be responsible for setting screed control to obtain the specified finish
45 grade overlay profile as well as the finished surface smoothness requirements specified
46 in Section 6-02.3(10).
47

48 Screed rails upon which the finishing machine travels shall be placed outside of the area
49 to be overlaid, in accordance with Item 7 of Section 6-09.3(2) and as approved by the

1 Engineer. Interlocking rail sections or other approved methods of providing rail
2 continuity are required.

3
4 Hold-down devices shot into the concrete are not permitted unless the concrete is to be
5 subsequently overlaid. Hold-down devices of other types leaving holes in the exposed
6 area will be allowed provided the holes are subsequently filled with a sand/cement grout
7 (sand and portland cement in equal proportions by volume). Hold-down devices shall
8 not penetrate the existing deck by more than 3/4-inch.

9
10 Screed rails may be removed at any time after the concrete has taken an initial set.
11 Adequate precautions shall be taken during the removal of the finishing machine and
12 rails to protect the edges of the new surfaces.

13 14 **6-09.3(11) Placing Concrete Overlay**

15 The first paragraph is revised to read:

16
17 Five to 10-working days prior to modified concrete overlay placement, a pre-overlay
18 conference shall be held to discuss equipment, construction procedures, personnel, and
19 previous results. Inspection procedures shall also be reviewed to ensure coordination.
20 Those attending shall include:

- 21
22 1. (representing the Contractor) The superintendent and all foremen in charge of
23 placing and finishing the modified concrete overlay; and
- 24
25 2. (representing the Contracting Agency) The Project Engineer, and key
26 inspection assistants.

27
28 If the project includes more than one bridge deck, an additional conference shall be held
29 just before placing modified concrete overlay for each subsequent bridge deck.

30
31 The Contractor shall not place modified concrete overlay until the Engineer agrees that:

- 32
33 1. Modified concrete overlay producing and placement rates will be high enough
34 to meet placing and finishing deadlines,
- 35
36 2. Finishers with enough experience have been employed, and
- 37
38 3. Adequate finishing tools and equipment are at the site.

39 40 **6-09.3(12) Finishing Concrete Overlay**

41 The fourth paragraph is revised to read:

42
43 Construction dams shall be separated from the newly placed concrete by passing a
44 pointing trowel along the inside surfaces of the dams. Care shall be exercised to ensure
45 that this trowel cut is made for the entire depth and length of dams after the concrete
46 has stiffened sufficiently that it does not flow back.

47 48 **6-09.5 Payment**

49 The paragraph following "Modified Conc. Overlay", per cubic foot, is revised to read:

1
2 The unit contract price per cubic foot for "Modified Conc. Overlay" shall be full pay for
3 furnishing the modified concrete overlay, including the overlay material placed into Type
4 1 deck repairs in accordance with Section 6-09.3(6)C.

5
6 This section is supplemented with the following:

7
8 "Structure Surveying", lump sum.
9 The lump sum contract price for "Structure Surveying" shall be full pay to perform the
10 work as specified, including establishing secondary survey control points, performing
11 survey quality control, and recording, compiling, and submitting the survey records to
12 the Engineer.

13
14 **SECTION 6-11, REINFORCED CONCRETE WALLS**
15 **August 4, 2008**

16 **6-11.3(3) Precast Concrete Wall Stem Panels**

17 The first sentence in the first paragraph is revised to read:

18
19 The Contractor may fabricate precast concrete wall stem panels for construction of
20 Standard Plan Retaining Walls.

21
22 The first sentence in the second paragraph is revised to read:

23
24 The precast concrete wall stem panels shall be designed in accordance with the
25 following codes:
26

27 The first sentence in number 1. in the second paragraph is revised to read:

28
29 1. For all loads except as otherwise noted - AASHTO LRFD Bridge Design
30 Specifications, latest edition and current interims.

31
32 **6-11.3(5) Backfill, Weepholes and Gutters**

33 The first sentence in the first paragraph is revised to read:

34
35 Unless the Plans specify otherwise, backfill and weepholes shall be placed in
36 accordance with the Standard Plans and Section 6-02.3(22).
37

38 **SECTION 6-13, STRUCTURAL EARTH WALLS**
39 **August 3, 2009**

40 **6-13.3(2) Submittals**

41 The fourth paragraph is revised to read:

42
43 The Contractor, through the license/patent holder for the structural earth wall system,
44 shall submit detailed design calculations and working drawings to the Engineer for
45 approval in accordance with Section 6-01.9.
46

1 **6-13.3(9) SEW Traffic Barrier and SEW Pedestrian Barrier**

2 This section is supplemented with the following:

3

4 The moment slab supporting the SEW traffic or pedestrian barrier shall be continuously
5 wet cured for 3 days in accordance with Section 6-02.3(11).

6

7 **SECTION 6-14, GEOSYNTHETIC RETAINING WALLS**

8 **August 3, 2009**

9 **6-14.3(7) Geosynthetic Retaining Wall Traffic Barrier and**
10 **Geosynthetic Retaining Wall Pedestrian Barrier**

11 This section is supplemented with the following:

12

13 The moment slab supporting the geosynthetic wall traffic barrier and geosynthetic wall
14 pedestrian barrier shall be continuously wet cured for 3 days in accordance with Section
15 6-02.3(11).

16

17 **SECTION 6-15, SOIL NAIL WALLS**

18 **August 3, 2009**

19 **6-15.3(8) Soil Nail Testing and Acceptance**

20 The first paragraph is supplemented with the following:

21

22 Soil nails used for verification tests and proof tests shall not be production soil nails, but
23 instead shall be separate sacrificial soil nails not otherwise incorporated into the Work.

24

25 The fourth sentence of the fifth paragraph is revised to read:

26

27 The Contractor shall provide the load cell, the readout device, and a calibration curve
28 from the most recent calibration as specified in Section 6-15.3(3) item 4b.

29

30 The third sentence of the sixth paragraph is deleted.

31

32 The fourth sentence of the sixth paragraph is deleted and replaced with the following:

33

34 Test nails shall be left in the ground after testing, with the exposed portion of the test nail
35 cut and removed to two feet behind the excavated face or inside face of shotcrete. The
36 drill holes for test nails shall be completely backfilled with grout or non-structural filler
37 after testing on that test nail has been completed.

38

39 The seventh paragraph is revised to read:

40

41 Load testing shall be performed against a temporary reaction frame with bearing pads
42 that bear directly against the existing soil or the shotcrete facing. Bearing pads shall be
43 kept a minimum of 12-inches from the edges of the drilled hole and the load shall be
44 distributed to prevent failure of the soil face or fracture of the shotcrete. The Contractor
45 shall submit reaction frame working drawings to the Engineer for approval in
46 accordance with Section 6-01.9.

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6-15.3(8)A Verification Testing

The third paragraph is supplemented with the following:

Prior to beginning verification testing, the Contractor shall measure and record the length of the non-bonded zone for each verification test soil nail.

The last sentence in the sixth paragraph is revised to read:

The load-hold period shall start as soon as the load is applied and the nail movement with respect to a fixed reference shall be measured and recorded at 1 minute, 2, 3, 4, 5, 6, 10, 20, 30, 40, 50, and 60 minutes.

The last paragraph of this section is deleted.

6-15.3(8)B Proof Testing

The first paragraph is revised to read:

Proof tests shall be performed on proof test soil nails installed within the pattern of the production soil nails at the locations shown in the Plans. Proof test soil nails shall be installed using the same equipment, methods, nail inclination, nail length, and hole diameter as for adjacent production nails. The Contractor shall maintain the side-wall stability of the drill hole for the non-grouted portion during the test. The bond length shall be determined from the Nail Schedule and Test Nail Detail shown in the Plans. Prior to beginning proof testing, the Contractor shall measure and record the length of the non-bonded zone for each proof test soil nail.

The fifth sentence in the third paragraph is revised to read:

If the load hold is extended, the nail movement shall be recorded at 20, 30, 40, 50, and 60 minutes.

The fifth paragraph is deleted.

6-15.4 Measurement

The measurement statement for soil nail verification testing program is revised to read:

Soil nail verification test and soil nail proof test will be measured per each for each successfully completed soil nail verification test and soil nail proof test at the locations specified in the Special Provisions and shown in the Plans.

6-15.5 Payment

Proof testing is deleted from the payment statement for "Soil nail – Encapsulated".

The bid item "Soil Nail Verification Test" is revised and a payment statement added as follows:

"Soil Nail Verification Test and Soil Nail Proof Test", per each.

1 All costs in connection with successfully completing soil nail verification tests and soil
2 nail proof tests as specified shall be included in the unit contract price per each for "Soil
3 Nail Verification Test and Soil Nail Proof Test", including removal of the exposed portion
4 of the test nail and backfilling the drilled hole with grout or non-structural filler.
5

6 **SECTION 6-16, SOLDIER PILE AND SOLDIER PILE TIEBACK WALLS**
7 **April 6, 2009**

8 **6-16.3(2) Submittals**

9 The first paragraph is revised to read:

10

11 The Contractor shall submit shop plans as specified in Section 6-03.3(7) for all
12 structural steel, including the steel soldier piles, and shall submit shop plans and
13 working drawings as specified in Section 6-17.3(3) for permanent ground anchors, to
14 the Engineer for approval.
15

16 **6-16.3(4) Installing Soldier Piles**

17 The second sentence in the second paragraph is revised to read:

18

19 Concrete cover over the soldier pile shall be 3-inches minimum, except that the cover
20 over the soldier pile flange plate reinforcing at permanent ground anchor locations shall
21 be 1-1/2 inches minimum.
22

23 **6-16.3(6) Installing Timber Lagging and Permanent Ground Anchors**

24 This section including title is revised to read:

25

26 **6-16.3(6) Designing and Installing Lagging, and Installing Permanent**
27 **Ground Anchors**

28 Lagging for soldier pile walls shall conform to one of the following two categories:
29

30

31 Temporary lagging is defined as lagging that is in service as a structural member
32 for a maximum of 36 months before a permanent load carrying fascia is in place,
33 except for the following exception. Lagging for soldier pile walls in site soils
34 conforming to an excluded soil type as defined under Section 6-16.3(6)A will be
35 classified as permanent lagging conforming to Section 6-16.3(6)C, in which case
36 this requirement will be specified in the Plans along with design details for such
37 lagging.

38

39 Permanent lagging is defined as all lagging not conforming to the definition of
40 temporary lagging as specified above.

41

42 This section is supplemented with the following new sub-sections:

43

44 **6-16.3(6)A Soil Classification**

45 For the purposes of designing lagging for soldier pile walls, soils shall be categorized in
46 the following classifications:

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Soil Type 1

The following shall be considered Type 1 soils:

1. Cohesive fine grained soils either CL or CH of medium consistency with $\gamma H/S_u < 5$.
2. Cohesive fine grained soils either CL or CH that are stiff to very stiff and non-fissured.
3. Fine grained soils either ML or SM-ML that are above the water table.
4. Coarse grained soils either GW, GP, GM, GC, SW, SP or SM that are medium dense to dense.

Soil Type 2

The following shall be considered Type 2 soils:

1. Cohesive fine grained soils either CL or CH that are heavily over consolidated and fissured.
2. Fine grained ML soils or coarse grained SM-ML soils that are below the water table.
3. Coarse grained SC soil that is medium dense to dense and is below the water table.
4. Coarse grained soils either SW, SP or SM that are loose.

Soil Type 3

The following shall be considered Type 3 soils:

1. Cohesive fine grained soils either CL or CH that are soft with $\gamma H/S_u > 5$.
2. Fine grained slightly plastic ML soil that is below the water table.
3. Coarse grained SC soil that is loose and below the water table.

Exclusions

Regardless of whether site soils conform to one of the soil types defined above, site soils under the following conditions are excluded from the Type 1, Type 2, and Type 3 soil classifications:

1. Disturbed soils such as those in landslides or known unstable areas.
2. Layered soils dipping into the excavation steeper than 4H:1V.

Lagging for soldier pile walls located in site soils excluded from the Type 1, Type 2, and Type 3 soil classifications shall be designed in accordance with the latest AASHTO LRFD Bridge Design Specifications with current interim specifications.

1 Use of the table in Section 6-16.3(6)B for timber lagging in these situations will not
2 be allowed.

3

4 **6-16.3(6)B Temporary Lagging**

5 The Contractor shall design temporary lagging for all soldier pile walls. The temporary
6 lagging design shall be based on the following:

7

8 1. The AASHTO LRFD Bridge Design Specifications, latest edition with current
9 interim specifications, except that timber members used for temporary lagging
10 may be selected based on the table below.

11

12 2. The soil type as specified in the Plans or as determined from the geotechnical
13 report prepared for the project.

14

15 3. The soil pressure diagram, either as shown in the Plans or as included in the
16 geotechnical report prepared for the project, including the surcharge for
17 temporary construction load when shown in the Plans.

18

19 The Contractor shall submit the soldier pile wall lagging design working drawings and
20 supporting design calculations to the Engineer for approval in accordance with Section
21 6-01.9. The submittal shall include, but not be limited to, the following:

22

23 1. Description of the material used for the lagging, including identification of
24 applicable material specifications.

25

26 2. Installation method and sequence.

27

28 3. If the lagging material is to be removed during or after installation of the
29 permanent fascia, a description of how the lagging is removed without
30 disturbing or damaging the fascia, soldier piles, and retained soil, and a
31 description of how, and with what material, the void left by the removal of
32 lagging is to be filled.

33

34 4. For all cases, except with timber for temporary lagging, a description with
35 appropriate details of how subsurface drainage is to be accommodated, either
36 in accordance with Section 6-16.3(7) for timber lagging, Section 6-15.3(7) for
37 shotcrete facing, or other means appropriate for the geotechnical site
38 conditions and approved by the Engineer for other lagging materials. Lagging
39 materials and lagging installation methods that cause the build-up of, and
40 prevent the relief of, pore water pressure will not be allowed. Free draining
41 materials are defined as those materials that exhibit a greater permeability
42 than the material being retained.

43

44 Temporary lagging may be untreated timber conforming to the Section 9-09.2
45 requirements specified under Structures for timber lagging, or another material selected
46 by the Contractor.

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Timber for temporary lagging shall conform to the minimum actual thickness specified in the table below for the soil type, exposed wall height, and lagging clear span as shown in the Plans.

Minimum Actual Thickness of Timber Used As Temporary Lagging							
Soil Type ⁽¹⁾	1	1	2	2	3	3	3
Exposed Wall Height (feet)	25 and under	Over 25 to 60	25 and under	Over 25 to 60	15 and under	Over 15 to 25	Over 25
Clear Span Of Lagging (feet)	Minimum Actual Thickness of Rough Cut Timber Lagging (inches) ⁽³⁾						
5	2	3	3	3	3	3	4
6	3	3	3	3	3	4	5
7	3	3	3	4	4	5	6
8	3	4	4	4	5	6	⁽²⁾
9	4	4	4	5	⁽²⁾	⁽²⁾	⁽²⁾
10	4	5	5	5	⁽²⁾	⁽²⁾	⁽²⁾

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⁽¹⁾ Soil Type as defined in Section 6-16.3(6)A

⁽²⁾ For exposed wall heights exceeding the limits in the table above, or where minimum rough cut lagging thickness is not provided, the Contractor shall design the lagging in accordance with the latest AASHTO LRFD Bridge Design Specifications with current interim specifications.

⁽³⁾ Table modified from FHWA document "Lateral Support Systems and Underpinning" (Report No. FHWA-RD-75-130)

Notwithstanding the requirements of Section 1-06.1, steel materials used by the Contractor as temporary lagging may be used (second hand) provided that the use of such used (second hand) steel materials shall be subject to visual inspection and approval by the Engineer. For used (second hand) steel materials where the grade of steel cannot be positively identified, the design stresses for the steel shall conform to the Section 6-02.3(17)B requirements for salvaged steel, regardless of whether rivets are present or not.

6-16.3(6)C Permanent Lagging

Permanent lagging, including timber, shall be as shown in the Plans. The use of the table in Section 6-16.3(6)B for the design of timber lagging for permanent lagging will not be allowed.

6-16.3(6)D Installing Lagging and Permanent Ground Anchors

The excavation and removal of CDF and pumpable lean concrete for the lagging installation shall proceed in advance of the lagging, and shall not begin until the CDF and pumpable lean concrete are of sufficient strength that the material remains in place during excavation and lagging installation. If the CDF or pumpable lean concrete separates from the soldier pile, or caves or spalls from around the soldier pile, the Contractor shall discontinue excavation and lagging installation operations until the CDF

1 and pumpable lean concrete is completely set. The bottom of the excavation in front of
2 the wall shall be level. Excavation shall conform to Section 2-03.

3
4 For walls without permanent ground anchors, the bottom of excavation shall not be
5 more than three feet below the bottom level of the lagging already installed, but in no
6 case shall the depth of excavation beneath the bottom level of installed lagging be such
7 to cause instability of the excavated face. For walls with permanent ground anchors,
8 the bottom of excavation shall be not more than three feet below the permanent ground
9 anchor level until all permanent ground anchors at that level are installed and stressed,
10 but in no case shall the depth of excavation beneath the permanent ground anchor level
11 be such to cause instability of the excavated face. Any caving that occurs during
12 excavation shall be backfilled with free draining material as approved by the Engineer.

13
14 Installing, stressing, and testing the permanent ground anchors shall be in accordance
15 with Section 6-17 and the construction sequence specified in the Plans.

16
17 The lagging shall be installed from the top of the soldier pile proceeding downward. The
18 lagging shall make direct contact with the soil. When and where lagging is not in full
19 contact with the soil being retained, either the lagging shall be wedged back to create
20 contact or the void shall be filled with a free draining material as approved by the
21 Engineer.

22
23 When utilizing lagging in fill situations, the backfill layers shall be placed in accordance
24 with Section 2-03.3(14) except that all layers shall be compacted to 90 percent of
25 maximum density.

26 27 **6-16.3(7) Prefabricated Drainage Mat**

28 The first paragraph is revised to read:

29
30 For walls with concrete fascia panels, a four foot wide strip of prefabricated drainage
31 mat shall be installed full height of the concrete fascia panel, centered between soldier
32 pile flanges, unless otherwise shown in the Plans.

33 34 **6-16.4 Measurement**

35 The third paragraph is revised to read:

36
37 Lagging will be measured by the square foot area of lagging installed. The quantity will
38 be computed based on the vertical dimension from the highest lagging elevation to the
39 lowest lagging elevation between each pair of adjacent soldier piles as the height
40 dimension, and the center-to-center spacing of the soldier piles as the length dimension.

41 42 **6-16.5 Payment**

43 The third bid item and the following paragraph is revised to read:

44
45 "Lagging", per square foot.

46
47 All costs in connection with furnishing and installing lagging shall be included in the unit
48 contract price per square foot for "Lagging", including design of temporary lagging, and

1 filling voids behind the lagging with a free draining material as approved by the
2 Engineer.

3
4 **SECTION 6-17, PERMANENT GROUND ANCHORS**
5 **January 7, 2008**

6 **6-17.3(8)B Performance Testing**

7 The fourth sentence in the fourth paragraph is revised to read:

8
9 If the load hold is extended, the anchor movement shall be recorded at 20 minutes, 30,
10 40, 50, and 60 minutes.

11
12 **6-17.3(8)C Proof Testing**

13 The fourth sentence in the second paragraph is revised to read:

14
15 If the load hold is extended, the anchor movements shall be recorded at 20 minutes, 30,
16 40, 50, and 60 minutes.

17
18 **SECTION 7-02, CULVERTS**
19 **December 1, 2008**

20 **7-02.2 Materials**

21 The third paragraph is revised to read:

22
23 Thermoplastic culvert pipe includes solid wall PVC culvert pipe, profile wall PVC culvert
24 pipe, and corrugated polyethylene culvert pipe. Solid wall PVC culvert pipe, profile wall
25 PVC culvert pipe, and corrugated polyethylene culvert pipe are acceptable alternates for
26 Schedule A or B culvert pipe.

27
28 In the chart for **Culvert Pipe Schedules**, for Schedule B, 15' – 25', the references in the
29 column for **Thermoplastic PE or PVC** for "PVC" are revised to "PE or PVC".

30
31 **SECTION 7-04, STORM SEWERS**
32 **December 1, 2008**

33 **7-04.2 Materials**

34 In the chart for **Storm Sewer Pipe Schedules**, for Schedule B, 15' – 25', in the column for
35 **PE**, insert "Allowed".

36
37 **SECTION 7-05, MANHOLES, INLETS, CATCHBASINS, AND DRYWELLS**
38 **August 3, 2009**

39 **7-05.2 Materials**

40 The referenced section for Precast Concrete Manhole is revised to 9-05.50(2).

41
42 The referenced section for Precast Concrete Catch Basins is revised to 9-05.50(3).

43
44 The referenced section for Precast Concrete Drywells is revised to 9-05.50(5).

1
2 This section is supplemented with the following:

3
4 Precast Concrete Inlets 9-05.50(4)

5
6 **SECTION 7-07, CLEANING EXISTING DRAINAGE STRUCTURES**
7 **August 3, 2009**

8 **7-07.3 Construction Requirements**

9 The last sentence of the first paragraph is revised to read:

10
11 Existing drainage facilities shall be kept clean throughout the life of the project and be
12 clean upon final acceptance of the Work.

13
14 This section is supplemented with the following:

15 Material to be removed shall be disposed of in the following manner:

- 16
17
- 18 1. Structures specifically noted in the Contract that are suspected to contain
19 contaminated sediment shall be disposed of at a licensed disposal facility.
 - 20
21 2. While performing the Work, if drainage water and/or soil appear oily, exhibits
22 an unusual color or odor, or if staining or corrosion is observed, the Contractor
23 shall stop work and immediately notify the Engineer. Additional work
24 necessary in handling materials shall be in accordance with **Section 1-04.4**.
 - 25
26 3. If sediment and water from structures does not meet the conditions described
27 in 1 or 2 above, material may be placed in an upland area with no possibility of
28 surface runoff to waters of the state, including wetlands.

29
30 While performing the Work, the Contractor shall implement all necessary best
31 management practices and measures to meet the conditions of **Section 1-07.5**.

32
33 **SECTION 8-01, EROSION CONTROL AND WATER POLLUTION CONTROL**
34 **August 3, 2009**

35 **8-01.1 Description**

36 This section is revised to read:

37
38 This Work consists of furnishing, installing, maintaining, removing and disposing of high
39 visibility fence, and water pollution and erosion control items in accordance with these
40 Specifications and as shown in the Plans or as designated by the Engineer.

41
42 **8-01.2 Materials**

43 The following is inserted below the item "Erosion Control Devices 9.14.5":

44
45 High Visibility Fence 9-14.5

46

1 **8-01.3(1) General**

2 The following is inserted at the beginning of this section:

3
4 The Contractor shall install a high visibility fence along the site preservation lines shown
5 in the Plans or as instructed by the Engineer. Post spacing and attachment of the fence
6 fabric to the posts shall be as shown in the Plans. The fence shall not be fastened to
7 trees.

8
9 Throughout the life of the project, the Contractor shall preserve and protect the
10 delineated area, acting immediately to repair or restore any fencing damaged or
11 removed.

12
13 The following is inserted at the beginning of the paragraph above the table:

14
15 All sediment control devices including, but not limited to sediment ponds, perimeter silt
16 fencing, or other sediment trapping BMP's shall be installed prior to any ground
17 disturbing activity.

18
19 The first sentence in the eighth paragraph is revised to read:

20
21 Erodible earth not being worked, whether at final grade or not, shall be covered within
22 the following time period, using an approved soil covering practice:

23
24 The ninth paragraph is revised to read:

25
26 If the Engineer, under Section 1-08.6, orders the Work suspended, the Contractor shall
27 continue to control erosion, pollution, and runoff during the shutdown.

28
29 **8-01.3(1)A Submittals**

30 The following is inserted after the first sentence:

31
32 If modified, the Contractor's TESC Plan shall meet all requirements of Chapter 6-2 of
33 the current edition of the WSDOT Highway Runoff Manual.

34
35 **8-01.3(1)C Water Management**

36 The following is inserted at the beginning of this section:

37
38 Unless site water is to be managed in accordance with the conditions of a waste
39 discharge permit from a local permitting authority, site water shall be managed as
40 follows:

41
42 Item 2. "Process Water" is supplemented with the following new first paragraph:

43
44 High pH process water or wastewater (non-stormwater) that is generated on-site,
45 including water generated during concrete grinding, rubblizing, washout, and
46 hydrodemolition activities, shall not be discharged to waters of the state including
47 wetlands. Water may be infiltrated upon the approval of the Engineer. Off-site disposal
48 of concrete process water shall be in accordance with Standard Specification 5-01.3(11).
49

1 **8-01.3(1)D Dispersion/Infiltration**

2 This section is revised to read:

3

4 Water shall be conveyed only to dispersion or infiltration areas designated in the TESC
5 Plan or to sites approved by the Engineer. Water shall be conveyed to designated
6 dispersion areas at a rate that if runoff leaves the area and enters waters of the State,
7 turbidity standards are achieved. Water shall be conveyed to designated infiltration
8 areas at a rate that does not produce surface runoff.

9

10 **8-01.3(2)D Mulching**

11 The second paragraph is supplemented with the following:

12

13 Wood strand mulch shall be applied by hand or by straw blower.

14

15 **8-01.3(2)E Tacking Agent and Soil Binders**

16 The second sentence in the fourth paragraph is revised to read:

17

18 Pam may be reapplied on actively worked areas within a 48-hour period.

19

20 **8-01.3(6)D Wattle Check Dam**

21 The reference to Section 8-01.3(10) is revised to Section 9-14.5(5).

22

23 **8-01.3(12) Compost Sock**

24 The last paragraph is deleted.

25

26 **8-01.3(13) Temporary Curb**

27 The first paragraph is revised to read:

28

29 Temporary curbs may consist of asphalt, concrete, sand bags, compost socks, wattles,
30 or geotextile/plastic encased berms of sand or gravel, or as approved by the Engineer.

31

32 **8-01.4 Measurement**

33 This section is supplemented with the following:

34

35 High visibility fence will be measured by the linear foot along the ground line of the
36 completed fence.

37

38 **8-01.5 Payment**

39 This section is supplemented with the following:

40

41 "High Visibility Fence", per linear foot.

42 The unit contract price per linear foot for "High Visibility Fence" shall be full pay for all
43 costs to obtain, install, maintain, and remove the fence as specified. Once removed, the
44 fencing shall remain the property of the Contractor.

45

1 **SECTION 8-02, ROADSIDE RESTORATION**
2 **April 7, 2008**

3 **8-02.3(3) Planting Area Weed Control**

4 The second paragraph is deleted.

5
6 This section is supplemented with the following:

7
8 Weed barrier mats shall be installed as shown in the Plans. Mats shall be 3-foot square
9 and shall be secured by a minimum of 5 staples per mat. Mats and staples shall be
10 installed according to the manufacturer's recommendations.

11
12 **SECTION 8-04, CURBS, GUTTERS, AND SPILLWAYS**
13 **January 7, 2008**

14 **8-04.5 Payment**

15 The bid items "Roundabout Truck Apron Inner Cement Conc. Curb" and "Roundabout Truck
16 Apron Outer Cem. Conc. Curb and Gutter" are revised to read:

17
18 "Roundabout Central Island Cement Concrete Curb", per linear foot.
19 "Roundabout Truck Apron Cem. Conc. Curb and Gutter", per linear foot.

20
21 This section is supplemented with the following new bid item:

22
23 "Roundabout Truck Apron Cement Concrete Curb", per linear foot.

24
25 **SECTION 8-07, PRECAST TRAFFIC CURB AND BLOCK TRAFFIC CURB**
26 **August 3, 2009**

27 **8-07.2 Materials**

28 Paint Formulas General and the referenced section are revised to read:

29
30 Paint 9-08.1

31
32 **SECTION 8-08, RUMBLE STRIPS**
33 **August 3, 2009**

34 **8-08.3 Construction Requirements**

35 The third paragraph is revised to read:

36
37 The traveled lanes shall be kept free of cuttings and other construction debris at all
38 times. All cuttings, grinding debris, dust, and other loose materials shall become the
39 property of the Contractor and upon completion of rumble strip grinding shall be
40 immediately removed and disposed of outside the project limits. Cuttings and other
41 debris shall not be allowed to enter any waterways.

42
43 The fourth paragraph is revised to read:

44

1 When shown in the Plans, the rumble strips shall be fog sealed in accordance with the
2 requirements of Section 5-02.3 following the completion of the rumble strip. All
3 pavement markings, junction boxes, drainage structures, and similar objects shall not be
4 fog sealed.
5

6 **8-08.4 Measurement**

7 The reference to Section 5-04.4 in the second paragraph is revised to Section 5-02.4.
8

9 **8-08.5 Payment**

10 The reference to Section 5-04.5 in the payment statement for Fog Sealing is revised to
11 Section 5-02.5.
12

13 **SECTION 8-11, GUARDRAIL**

14 **August 3, 2009**

15 **8-11.3(1)C Erection of Rail**

16 The fourth sentence in the first paragraph is revised to read:
17

18 Except in Weathering Steel Beam Guardrail, all holes shall be painted with 2 coats of
19 paint conforming to Section 9-08.1(2)B.
20

21 **8-11.3(4) Removing Guardrail and Guardrail Anchor**

22 The following is inserted after the third sentence in the first paragraph:
23

24 The embedded anchors attaching guardrail posts and guardrail terminal sections
25 specified for removal to existing concrete Structures shall be removed a minimum of
26 one inch beneath the existing concrete surface. The void left by removal of the
27 embedded anchors shall be coated with epoxy bonding agent and filled with grout. The
28 epoxy bonding agent shall be Type II conforming to Section 9-26.1 with the grade and
29 class as recommended by the epoxy bonding agent manufacturer and as approved by
30 the Engineer. The grout shall consist of cement and fine aggregate mixed in the
31 proportions to match the color of the existing concrete surface as near as practicable.
32

33 **8-11.3(5) Raising Guardrail**

34 The fourth sentence in the second paragraph is revised to read:
35

36 When existing guardrail posts are galvanized steel, the new drill holes shall be painted
37 with 2 coats of paint conforming to Section 9-08.1(2)B.
38

39 **SECTION 8-12, CHAIN LINK FENCES AND WIRE FENCE**

40 **August 3, 2009**

41 **8-12.3(1)A Posts**

42 All references to "Type 3 fence" in the second and third paragraphs are revised to read "Type
43 3 and Type 4 fences".
44

45 The first sentence in the eighth paragraph is revised to read:
46

1 Gate and pull posts shall be braced to the adjacent brace, end, or corner post(s) in the
2 manner shown in the Standard Plans.
3

4 The tenth paragraph is revised to read:
5

6 All posts for chain link fence Types 1 and 6 shall be fitted with an approved top cap
7 designed to fit securely over the post to support the top rail. All round posts for chain
8 link fence Types 3 and 4 shall have approved top caps fastened securely to the posts.
9 The base of the top cap fitting for round posts shall feature an apron around the outside
10 of the posts.
11

12 **8-12.3(1)C Tension Wire**

13 This section including title is revised to read:
14

15 **8-12.3(1)C Tension Wire and Tension Cable**

16 Tension Wires shall be attached to the posts as detailed in the Standard Plans or as
17 approved by the Engineer.
18

19 Tension Cables shall be installed in accordance with Section 8-25.3(5).
20

21 **8-12.3(1)D Chain Link Fabric**

22 The following new paragraph is inserted in front of the first paragraph:
23

24 Attach the chain link fabric after the cables and wires have been properly tensioned
25 and/or the top rail has been installed.
26

27 The third and fourth sentences in the third paragraph are revised to read:
28

29 Fastening to posts shall be with tie wire, metal bands, or other approved method
30 attached at 14-inch intervals. The top and bottom edge of the fabric shall be fastened
31 with tie wires to the top rail, and with hog rings to the tension cable or top and bottom
32 tension wires as may be applicable, spaced at 24-inch intervals.
33

34 **8-12.3(1)E Chain Link Gates**

35 The second sentence in the second paragraph is revised to read:
36

37 The clean areas shall then be painted with 2 coats of paint conforming to Section 9-
38 08.1(2)B.
39

40 **SECTION 8-14, CEMENT CONCRETE SIDEWALKS**

41 **August 3, 2009**

42 **8-14.3(3) Placing and Finishing Concrete**

43 The reference to "Federal Standard 595a" in the first sentence of the sixth paragraph is
44 revised to read "Federal Standard 595".
45

1 **SECTION 8-15, RIPRAP**
2 **April 7, 2008**

3 **8-15.3(1) Excavation for Riprap**

4 The second sentence of the first paragraph is revised to read:

5
6 Excavation below the level of the intersection of the slope to be protected and the
7 adjacent original ground or the channel floor or slope shall be classified, measured, and
8 paid for as channel excavation or ditch excavation in accordance with Section 2-03.

9
10 **8-15.4 Measurement**

11 The following new paragraph is inserted to follow the fifth paragraph.

12
13 Channel excavation will be measured by the cubic yard as specified in Section 2-03.

14
15 The sixth paragraph is revised to read:

16
17 Ditch excavation will be measured by the cubic yard as specified in Section 2-03.

18
19 The reference to Section 2-10 in the seventh paragraph is revised to Section 2-03.

20
21 **8-15.5 Payment**

22 The bid item "Filter Blanket" is supplemented with the following:

23
24 The unit price for "Filter Blanket" shall be full payment for all costs incurred to perform
25 the work in Section 8-15.3(7).

26
27 This section is supplemented with the following:

28
29 "Channel Excavation", per cubic yard.

30 "Channel Excavation Incl. Haul", per cubic yard.

31 "Ditch Excavation Incl. Haul", per cubic yard.

32 Payment for "Channel Excavation", "Channel Excavation Incl. Haul", "Ditch Excavation"
33 and "Ditch Excavation Incl. Haul" is described in Section 2-03.5.

34
35 **SECTION 8-20, ILLUMINATION, TRAFFIC SIGNAL SYSTEMS, AND**
36 **ELECTRICAL**
37 **August 3, 2009**

38 **8-20.1 Description**

39 The first paragraph is revised to read:

40
41 This Work consists of furnishing, installing and field testing all materials and equipment
42 necessary to complete in place, fully functional system(s) of any or all of the following
43 types including modifications to an existing system all in accordance with approved
44 methods, the Plans, the Special Provisions and these Specifications:

- 45
46 1. Traffic Signal System

- 1 2. Illumination System
- 2 3. Intelligent Transportation System
- 3

4 **8-20.3(1) General**

5 The following new paragraph is inserted after the fifth paragraph:

6

7 The embedded anchors attaching existing electrical, illumination, and traffic signal
8 systems specified for removal to existing concrete Structures shall be removed a
9 minimum of one inch beneath the existing concrete surface. The void left by removal of
10 the embedded anchors shall be coated with epoxy bonding agent and filled with grout.
11 The epoxy bonding agent shall be Type II conforming to Section 9-26.1 with the grade
12 and class as recommended by the epoxy bonding agent manufacturer and as approved
13 by the Engineer. The grout shall consist of cement and fine aggregate mixed in the
14 proportions to match the color of the existing concrete surface as near as practicable.

15

16 **8-20.3(4) Foundations**

17 The fifth paragraph is revised to read:

18

19 Where soil conditions are poor, the Engineer may order the Contractor to extend the
20 foundations shown in the Plans to provide additional depth. Such additional Work will
21 be paid for according to Section 1-04.4.

22

23 **8-20.3(5) Conduit**

24 This section is revised to read:

25

26 Installation of conduit shall conform to appropriate articles of the Code and these
27 Specifications.

28

29 The size of conduit used shall be as shown in the Plans. Conduits smaller than 1-inch
30 electrical trade size shall not be used unless otherwise specified, except that grounding
31 conductors at service points may be enclosed in ½-inch diameter conduit.

32

33 Conduit between light standards, PPB, PS or type 1 poles and the nearest junction box
34 shall be the diameter specified in the Plans. Larger size conduit is not allowed at these
35 locations. At other locations it shall be the option of the Contractor, at no expense to the
36 Contracting Agency, to use larger size conduit if desired, and where larger size conduit
37 is used, it shall be for the entire length of the run from outlet to outlet. Reducing
38 couplings will not be permitted.

39

40 The ends of all conduits, metallic and non-metallic shall be reamed to remove burrs and
41 rough edges. Field cuts shall be made square and true. Slip joints or running threads
42 will not be permitted for coupling metallic conduit; however, running threads will be
43 permitted in traffic signal head spiders and RGS outerduct. When installing rigid
44 galvanized steel conduit and standard coupling cannot be used, an approved 3-piece
45 coupling shall be used. Conduit fittings and couplings for steel conduit shall be cleaned
46 first and then painted with one coat of paint conforming to Section 9-08.1(2)B. The paint
47 shall have a minimum wet film thickness of 3 mils. The painted coating shall cover the
48 entire coupling or fitting. The threads on all metallic conduit shall be rust-free, clean and
49 painted with colloidal copper suspended in a petroleum vehicle before couplings are

1 made. All metallic couplings shall be tightened so that a good electrical connection will
2 be made throughout the entire length of the conduit run. If the conduit has been moved
3 after assembly, it shall be given a final tightening from the ends prior to backfilling. Non-
4 metallic conduit shall be assembled using the solvent cement specified in Section 9-
5 29.1. Where the coating on galvanized conduit has been damaged in handling or
6 installing, such damaged areas shall be thoroughly painted with paint conforming to
7 Section 9-08.1(2)B. Conduit ends shall be capped (do not glue non metallic caps).
8 Metallic conduit ends shall be threaded and capped with standard threaded conduit
9 caps until wiring is started. When conduit caps are removed, the threaded ends shall be
10 provided with approved conduit bushings or end bells (do not glue in place) for
11 nonmetallic conduit.

12
13 Conduit stubs from controller cabinet foundations shall extend to the nearest junction
14 box in that system.

15
16 Metallic conduit bends, shall have a radius consistent with the requirements of Article
17 344.24 and other articles of the Code. Where factory bends are not used, conduit shall
18 be bent, using an approved conduit bending tool employing correctly sized dies, without
19 crimping or flattening, using the longest radius practicable.

20
21 Nonmetallic conduit bends, where allowed, shall conform to Article 352.24 of the Code.
22 Eighteen-inch radius elbows shall be used for PVC conduit of 2-inch nominal diameter
23 or less. Standard sweep elbows shall be used for PVC conduit with greater than 2-inch
24 nominal diameter unless otherwise specified in the Plans. In nonmetallic conduit less
25 than 2-inch nominal diameter, pull ropes or flat tapes for wire installation shall be not
26 less than ¼ inch diameter or width. In nonmetallic conduit of 2-inch nominal diameter or
27 larger, pull ropes or flat tapes for wire installation shall be not less than ½ inch diameter
28 or width.

29
30 Conduit shall be laid so that the top of the conduit is a minimum depth of:

- 31
32 1. 24-inches below the bottom of curb in the sidewalk area.
33
34 2. 24-inches below the top of the roadway base.
35
36 3. 48-inches below the bottom of ties under railroad tracks unless otherwise
37 specified by the railroad company.
38
39 4. 24-inches below the finish grade in all other areas.

40
41 Rigid galvanized steel conduit shall be installed at the following locations:

- 42
43 1. Within railroad right of way;
44
45 2. All pole risers, except when as otherwise required by owning utilities;
46
47 3. All surface mounted conduit, with the exception of electrical service utility
48 poles.
49

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4. All runs within slip form structures.

Couplings in cabinet foundations shall be PVC schedule 40. The stub-outs above the couplings shall be PVC end bell bushings. The schedule 40 section of PVC between the coupling and end bell bushing shall be installed without glue.

Conduit runs, without innerduct, installed using the directional boring method, which enter the traveled way or shoulders, shall be schedule 80 high density polyethylene (HDPE), schedule 80 PVC with mechanical couplings or rigid galvanized steel.

Conduit runs, without innerduct, installed using the directional boring method, which do not enter the traveled way and shoulders, shall be schedule 40 high density polyethylene (HDPE), schedule 40 PVC with mechanical couplings or rigid galvanized steel.

Multi-cell conduit runs, installed outside the Traveled Way and Shoulders, when using the directional boring method shall have 4-inch PVC Schedule 40 outerduct with mechanical couplings or 4-inch rigid galvanized steel outerduct. The conduit shall be installed with four 1-inch smooth wall innerducts.

When HDPE conduit is used for directional boring, it shall be continuous, with no joints, for the full length of the bore. The conduit run shall be extended to the associated outlets with the same schedule HDPE or PVC conduit. Entry into associated junction box outlets shall be with the same schedule PVC conduit and elbows. The same requirements apply for extension of an existing HDPE conduit crossing.

PVC conduit and elbows shall be connected to HDPE conduit with an approved mechanical coupling. The connection shall have a minimum pull out strength of 700 pounds. Prior to installation of a mechanical coupling, the HDPE conduit shall first be prepared with a clean, straight edge. A water based pulling lubricant may be applied to the threaded end of the mechanical coupling before installation. Solvent cement or epoxy shall not be used on the threaded joint when connecting the HDPE conduit to the mechanical coupling. The mechanical coupling shall be rotated until the HDPE conduit seats approximately $\frac{3}{4}$ of the distance into the threaded coupling depth.

For PVC installation through a directional bore, the PVC shall be in rigid sections assembled to form a water tight bell and spigot type mechanical joint with a solid retaining ring around the entire circumference of the conduit installed per the manufacturer's recommendations. The conduit run shall be extended beyond the length of the bore, to the associated outlets with the same mechanical coupled PVC or with standard PVC conduit of the same schedule. The same requirements apply for extension of an existing PVC conduit Roadway crossing.

Liquid tight flexible metal conduit is allowed only at locations called for in the Plans.

At all other locations, conduit shall be PVC or rigid galvanized steel and the same type of conduit shall be used for the entire length of the run, from outlet to outlet. Standard PVC conduit shall be connected with medium grade gray solvent applied per the manufacturer's recommendations.

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Where nonmetallic conduit is installed, care shall be used in excavating, installing, and backfilling, so that no rocks, wood, or other foreign material will be left in a position to cause possible damage.

When PVC conduit is installed by a method other than directional boring, conduit shall be schedule 40 with the exception that PVC conduit within the traveled way or shoulders and service lateral runs shall be schedule 80.

Metallic and nonmetallic conduit installation shall include equipment grounding conductor and shall conform to requirements noted in the Standard Plans.

Conduit shall be placed under existing pavement by approved directional boring, jacking or drilling methods, at locations approved by the Engineer. The pavement shall not be disturbed unless allowed in the Plans, or with the approval of the Engineer in the event obstructions or impenetrable soils are encountered.

Where boring with casing is called for the casing shall be placed using an auger inside of the casing to remove the soil as the casing is jacked forward. The auger head shall proceed no more than 4-inches ahead of the pipe being jacked. Boring operations shall be conducted to prevent caving ahead of the pipe. Installed casing pipe shall be free from grease, dirt, rust, moisture and any other deleterious contaminants.

The space between the conduit and casing shall be plugged with sand bags and a grout seal 12-inches thick at each end of the casing. Casing abandoned due to an encountered obstruction shall be grout sealed in the same manner. Grout shall obtain a minimum of 4000-PSI compressive strength at 7-days.

In lieu of sand bags and grout, unopened of prepackaged concrete may be used to seal the casing.

Material shall not be removed from the boring pit by washing or sluicing.

All joints shall be welded by a Washington State certified welder. Welding shall conform to AWS D 1.1-80 Structural Welding Code, Section 3, Workmanship.

Directional boring for electrical installations shall be supervised by a licensed electrical contractor in accordance with Section 8-20.1(1). Where directional boring is called for, conduit shall be installed using a surface launched, steerable drilling tool. Drilling shall be accomplished using a high-pressure fluid jet toolhead. The drilling fluid shall be used to maintain the stability of the tunnel, reduce drag on the conduit and provide backfill between the conduit and tunnel. A guidance system that measures the depth, lateral position and roll shall be used to guide the toolhead when creating the pilot hole. Once the pilot hole is established a reamer and swivel shall be used to install the conduit. Reaming diameter shall not exceed 1.5 times the diameter of the conduit being installed. Conduit that is being pulled into the tunnel shall be installed in such a manner so the conduit is not damaged during installation. The pullback force on the conduit shall be controlled to prevent damage to the conduit. A vacuum spoils extraction system shall be used to remove any excess spoils generated during the installation. Excess drilling fluid and spoils shall be disposed of. The method and location used for disposal of excess drilling fluid and spoils shall be subject to the Engineers approval. Drilling fluid

1 returns (caused by fracturing of formations) at locations other than the entry and exit
2 points shall be minimized. Any drilling fluid that surfaces through fracturing shall be
3 cleaned up immediately. Mobile spoils removal equipment capable of quickly removing
4 spoils from entry or exit pits and areas with returns caused by fracturing shall be used
5 as necessary during drilling operations.
6

7 Bore pits shall be backfilled and compacted in accordance with Section 2-09.3(1)E.
8 Directional boring, and jacking or drilling pits shall be kept 2-feet from the edge of any
9 type of pavement wherever possible. Excessive use of water that might undermine the
10 pavement or soften the Subgrade will not be permitted.
11

12 When approved by the Engineer, small test holes may be cut in the pavement to locate
13 obstructions. When the Contractor encounters obstructions or is unable to install
14 conduit because of soil conditions, as determined by the Engineer, additional Work to
15 place the conduit will be paid in accordance with Section 1-04.4.
16

17 When open trenching is allowed, trench construction shall conform to the following:
18

- 19 1. The pavement shall be sawcut a minimum of 3-inches deep. The cuts shall be
20 parallel to each other and extend 2-feet beyond the edge of the trench.
21
- 22 2. Pavement shall be removed in an approved manner.
23
- 24 3. Trench depth shall provide 2-feet minimum cover over conduits.
25
- 26 4. Trench width shall be 4-inches or the conduit diameter plus 2-inches,
27 whichever is larger.
28
- 29 5. Trenches located within paved Roadway areas shall be backfilled with
30 Controlled density fill (CDF) meeting the requirements of Section 2-09.3(1)E.
31 The controlled density fill shall be placed level to, and at the bottom of the
32 existing pavement. The pavement shall be replaced with paving material that
33 matches the existing pavement.
34

35 On new construction, conduit shall be placed prior to placement of base course
36 pavement.
37

38 Conduit terminating in foundations shall extend a maximum of 2-inches above the
39 foundation vertically including grounded end bushing or end bell. Conduit stub-outs
40 within cabinet foundations shall be placed so that they do not interfere with cabinet
41 installation. Modification of the cabinet to accommodate the stub-out placement is not
42 allowed.
43

44 Conduit entering through the bottom of a junction box shall be located near the end
45 walls to leave the major portion of the box clear. At all outlets, conduit shall enter from
46 the direction of the run, terminating 6 to 8-inches below the junction box lid and within 3-
47 inches of the box wall nearest its entry location.
48

1 Galvanized rigid steel conduit entering cable vaults shall extend 2-inches for the
2 installation of grounded end bushing and bonding. PVC or HDPE conduit entering cable
3 vaults and pull boxes shall terminate flush with the inside walls of the Structure. All
4 conduit ends shall be terminated with termination kits.
5
6 Steel conduit entering concrete shall be wrapped in 2-inch wide pipe wrap tape with a
7 minimum 1-inch overlap for 12 inches on each side of the concrete face. Pipe wrap
8 tape shall be installed per the manufacturer's recommendations.
9
10 Innerduct conduit ends shall be terminated with termination kits. Galvanized rigid steel
11 conduit ends shall be terminated with grounded end bushings. PVC conduit ends shall
12 be terminated with end bell bushings.
13
14 Fittings shall be installed in accordance with the current electrical codes.
15 All covered underground conduit shall be cleaned with an approved sized mandrel and
16 blown out with compressed air prior to pulling wire.
17
18 Conduits installed for future use shall be prepared according to this Section. After final
19 assembly in place, the conduit shall be blown clean with compressed air. Then, in the
20 presence of the Engineer, a cleaning mandrel correctly sized for each size of conduit
21 shall be pulled through to ensure that the conduit has not been deformed. As soon as
22 the mandrel has been pulled through, both ends of the conduit shall be sealed with
23 conduit caps. All conduits scheduled for future use shall originate in a foundation or
24 junction box as detailed in the Plans and terminate in a junction box. All equipment
25 grounding conductors, and the bonding conductor for metallic conduits shall be bonded
26 in all junction boxes in accordance with Section 8-20.3(9).
27
28 Where surface mounting of conduit is required, supports shall consist of channel with
29 clamps sized for the conduit. Support spacing shall comply with the Code, with the
30 exception that spacing of channel supports for conduit shall not exceed 5-feet.
31
32 The minimum distance between adjacent clamps and between the clamp and the end of
33 the channel supports shall be 1-inch. Channel supports shall be installed with stops, to
34 prevent clamps from sliding out of the ends. Existing conduit in place scheduled to
35 receive new conductors shall have any existing conductors removed and a cleaning
36 mandrel sized for the conduit shall be pulled through.
37
38 All conduits attached to or routed within bridges, retaining walls, and other concrete
39 structures, shall be equipped with approved expansion, deflection, and or combination
40 expansion/deflection fittings at all expansion joints and at all other joints where structure
41 movement is anticipated, including locations where the Contractor, due to construction
42 method, installs expansion and/or construction joints with movement. All conduit fittings
43 shall have movement capacity appropriate for the anticipated movement of the structure
44 at the joint. Approved deflection fittings shall also be installed at the joint between the
45 bridge end and the retaining wall end, and the transition from bridge, wall or other
46 concrete structure to the underground section of conduit pipe.
47
48 Conduit runs shown in the Plans are for Bidding purposes only and may be changed,
49 with approval of the Engineer, to avoid obstructions.

1
2 Where conduit with innerduct is installed a maximum of 1000-feet of continuous open
3 trench will be allowed, unless otherwise approved by the Engineer. All conduit with
4 innerduct exposed above grade level, or on any elevated Structures, or as noted in the
5 Plans shall be galvanized rigid steel conduit.
6

7 Detectable underground warning tape shall be placed 12-inches above all conduit that
8 contains fiber optic cable and all conduits identified to contain future fiber optic cable
9 unless otherwise detailed in the Plans. Detectable underground warning tape shall
10 extend 2-feet into boxes. Splicing shall be per the tape manufacturer's recommended
11 materials and procedures. The warning tape shall be polyethylene with a metallic
12 backing. The polyethylene shall have a minimum 4-mils thicknesses and be 3-inches
13 wide. The polyethylene shall be orange in color and printed in black with the words
14 conveying message of Fiber Optic Cable Buried Below.
15

16 Location 14 AWG stranded orange USE insulated wire shall be placed in continuous
17 lengths directly above all non metallic conduit that contains fiber optic cable and all
18 conduits identified to contain future fiber optic cable unless otherwise detailed in the
19 plans. Location wire shall extend 8 feet into boxes. Coil and secure location wire at
20 the entrance and exit points of all boxes. Splices shall be crimped using a non-insulated
21 butt splice, soldered and covered with moisture blocking heat shrink.
22

23 After final assembly in place, all innerducts shall be blown clean with compressed air.
24 Then, in the presence of the Engineer, a cleaning mandrel, correctly sized for the
25 innerduct, shall be pulled through to ensure that the conduit has not been deformed. As
26 soon as the mandrel has been pulled through, a 200-lb. minimum tensile strength pull
27 string shall be installed in each innerduct and attached to duct plugs at both ends of the
28 innerduct.
29

30 At all innerduct conduit terminus points, including those in cable vaults and pull boxes,
31 removable and reusable mechanical plugs shall be employed as follows:
32

- 33 1. Outerduct conduits shall be plugged using a quadplex expansion plug inside
34 the conduit around the innerduct.
35
- 36 2. Duct plugs shall be installed in all unused innerducts (those that are specified
37 as empty) at the time of conduit installation.
38
- 39 3. Duct plugs shall be installed in all used innerducts (as specified in the Plans) at
40 the time of conduit installation, unless cable pulling for those innerducts will
41 commence within 48-hours.
42

43 Innerduct containing 1-cable shall be plugged using an expandable split plug.
44 Innerducts with multiple cables shall be sealed with self-expanding waterproof foam.
45 The waterproof foam shall not be placed more than 2-inches into the innerduct.
46

47 **8-20.3(6) Junction Boxes, Cable Vaults, and Pull boxes**

48 The third paragraph is revised to read:
49

1 Adjustments involving raising or lowering the junction boxes shall require conduit
2 modification if the resultant clearance between the top of the conduit and the junction
3 box lid becomes less than 6-inches or more than 10-inches in accordance with the
4 Plans.
5

6 **8-20.3(8) Wiring**

7 The following new paragraph is inserted after the third paragraph:
8

9 All termination for traffic signal control systems shall follow the conductor sequence
10 color code as shown in the following table.
11

Conductor Number	Color Code	Color Trace	Use
1	R	Red	Red or Don't Walk
2	O	Orange	Yellow or Spare
3	G	Green	Green or Walk
4	W	White	Neutral
5	B	Black	Ped Call or Spare
6	Wb	White/Black	Neutral or Spare
7	Bl	Blue	Ped Call or Spare
8	Rb	Red/Black	Red or Don't Walk
9	Ob	Orange/Black	Yellow or Spare
10	Gb	Green/Black	Green or Walk

12

13

14 The first sentence in the fifth paragraph is deleted and replaced with the following:
15

16 Quick disconnect connectors shall be installed in the base of all poles supporting a
17 luminaire. Every conductor above ground potential shall be served by a fused quick
18 disconnect kit. Every conductor at ground potential shall be served by an unfused quick
19 disconnect kit.
20

21 The sixth paragraph is revised to read:
22

23 Pole and bracket cable meeting the requirements of Section 9-29.3(2)D shall be
24 installed between the quick disconnects and the luminaire and between the sign light
25 hand hole and the isolation switch. In addition the conductors from the isolation switch
26 and the sign light shall be minimum AWG 14 meeting the requirements of Section 9-

1 29.3(2)A or 9-29.3(2)B. Pole and bracket cable jacket shall be removed from the quick
2 disconnect to within 2-inches below the support bracket clamp.
3

4 **8-20.3(9) Bonding, Grounding**

5 The second sentence in the second paragraph is revised to read:
6

7 Bonding jumpers and equipment grounding conductors meeting the requirements of
8 Section 9-29.3(2)A.3 shall be minimum AWG 8 installed in accordance with the NEC.
9

10 **8-20.3(13)A Light Standards**

11 Under the fourth paragraph, the third sentence of item 1. is revised to read:
12

13 Paint conforming to Section 9-08.1(2)B shall be applied to the cut conduit that has been
14 threaded.
15

16 **8-20.3(13)D Sign Lighting**

17 This section is revised to read:
18

19 Sign illumination equipment shall include fixtures, brackets, conduit, electrical wire, and
20 other material required to make the sign lighting system operable. Sign illumination
21 fixtures shall be fused according to the table in Section 9-29.7.
22

23 **8-20.3(13)E Sign Lighting Luminaires**

24 The first paragraph is deleted.
25

26 **8-20.4 Measurement**

27 The first paragraph is revised to read:
28

29 When shown as lump sum in the Plans or in the Proposal as illumination, intelligent
30 transportation, or traffic signal system no specific unit of measurement will apply, but
31 measurement will be for the sum total of all items for a complete system to be furnished
32 and installed.
33

34 **8-20.5 Payment**

35 The bid item "Traffic Data Accumulation and Ramp Metering System ____" is deleted and
36 replaced with the following:
37

38 "Intelligent Transportation System ____", lump sum.
39

40 The first sentence of the paragraph following the bid item "Traffic Signal System____" lump
41 sum, is revised to read:
42

43 The lump sum Contract price for "Illumination System, ____", "Traffic Signal System
44 ____", "Intelligent Transportation System ____", shall be full pay for the construction of
45 the complete electrical system, modifying existing systems, or both, including sign
46 lighting systems, as described above as shown in the Plans and herein specified
47 including excavation, backfilling, concrete foundations, conduit, wiring, restoring

1 facilities destroyed or damaged during construction, salvaging existing materials, and
2 for making all required tests.
3

4 **SECTION 8-21, PERMANENT SIGNING**
5 **August 3, 2009**

6 **8-21.3(4) Sign Removal**

7 The following two new paragraphs are inserted after the first sentence in the first paragraph:
8

9 Sign Structures shall include sign bridges, cantilever sign Structures, bridge mounted
10 sign brackets, and any other sign mounting structure shown in the Plans to be removed
11 by the Contractor.
12

13 The embedded anchors attaching signs and sign Structures specified for removal to
14 existing concrete Structures shall be removed a minimum of one inch beneath the
15 existing concrete surface. The void left by removal of the embedded anchors shall be
16 coated with epoxy bonding agent and filled with grout. The epoxy bonding agent shall
17 be Type II conforming to Section 9-26.1 with the grade and class as recommended by
18 the epoxy bonding agent manufacturer and as approved by the Engineer. The grout
19 shall consist of cement and fine aggregate mixed in the proportions to match the color
20 of the existing concrete surface as near as practicable.
21

22 **8-21.3(9)F Bases**

23 This section including title is revised to read:
24

25 **8-21.3(9)F Foundations**

26 The excavation and backfill shall be in conformance with the requirements of Section 2-
27 09.3(1)E. Where obstructions prevent construction of planned foundations, the
28 Contractor shall construct an effective foundation satisfactory to the Engineer.
29

30 The bottom of concrete foundations shall rest on firm ground. If the portion of the
31 foundation beneath the existing ground line is formed or cased instead of being cast
32 against the existing soil forming the sides of the excavation, then all gaps between the
33 existing soil and the completed foundation shall be backfilled and compacted in
34 accordance with Section 2-09.3(1)E.
35

36 Foundations shall be cast in one operation where practicable. The exposed portions
37 shall be formed to present a neat appearance. Class 2 surface finish shall be applied to
38 exposed surfaces of concrete in accordance with the requirements of Section 6-
39 02.3(14)B.
40

41 Where soil conditions are poor, the Engineer may order the Contractor to extend the
42 foundations shown in the Plans to provide additional depth. Such additional work will be
43 paid for according to Section 1-04.4.
44

45 Forms shall be true to line and grade. Tops of foundations for roadside sign structures
46 shall be finished to ground line, unless otherwise shown in the Plans or directed by the
47 Engineer. Tops of foundations for sign bridges and cantilever sign structures shall be
48 finished to the elevation shown in the Plans.

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Both forms and ground which will be in contact with the concrete shall be thoroughly moistened before placing concrete; however, excess water in the foundation excavation will not be permitted. Forms shall not be removed until the concrete has set at least three days. All forms shall be removed, except when the Plans or Special Provisions specifically allow or require the forms or casing to remain.

Foundation concrete shall conform to the requirements for the specified class, be cast-in-place concrete and be constructed in accordance with Section 6-02.2 and 6-02.3.

Sign structures shall not be erected on concrete foundations until foundations have attained a compressive strength of 2,400 psi.

In addition to the basic requirements, sign bridges and cantilever sign structures shall be installed in accordance with the following:

1. Tops of foundations for sign bridges and cantilever sign structures shall be finished to the elevation shown in the Plans.
2. Steel reinforcing bars shall conform to Section 9-07.
3. Concrete shall be Class 4000, except as otherwise specified. Where water is present in the shaft excavations for Type 1 foundations for sign bridges and cantilever sign structures, the shaft concrete shall be Class 4000P placed in accordance with Section 6-02.3(6)B.
4. All bolts and anchor bolts shall be installed so that two class full threads extend beyond the top of the top heavy-hex nut. Anchor bolts shall be installed plumb, plus or minus 1 degree.
5. Plumbing of sign bridges and cantilever sign structures shall be accomplished by adjusting leveling nuts. Shims or other similar devices for plumbing or raking will not be permitted.
6. The top heavy-hex nuts of sign bridges and cantilever sign structures shall be tightened in accordance with Section 6-03.3(33), and by the Turn-Of-Nut Method to a minimum rotation of 1/4 turn and a maximum of 1/3 turn past snug tight. Permanent marks shall be set on the base plate and nuts to indicate nut rotation past snug tight.

In addition to the basic requirements, roadside sign structures shall be installed in accordance with the following:

1. Tops of foundations shall be finished to final ground line, unless otherwise shown in the Plans or staked by the Engineer.
2. Spiral reinforcing shall conform to AASHTO M32. All other steel reinforcement shall conform to the requirements of Section 9-07.

- 1 3. Concrete shall be Class 3000.
2
3 4. The assembly and installation of all Type TP – A or B bases for roadside sign
4 structures shall be supervised at all times by either a manufacturer’s
5 representative or an installer who has been trained and certified by the
6 manufacturer of the system. If the supervision is provided by a trained
7 installer, a copy of the installer certification shall be provided to the Engineer
8 prior to installation.
9
10 5. For all Type – A or B bases the Contractor shall attach four female anchors to a
11 flat rigid template following the manufacturer’s recommendations. The
12 Contractor shall lower the anchor assembly into fresh concrete foundation and
13 vibrate into position such that the tops of the anchor washers are flush with the
14 finished top surface of the foundation. The Contractor shall support the
15 template such that all anchors are level and in their proper position.
16

17 Slip base and hinge connection nuts of roadside sign structures shall be tightened using
18 a torque wrench to the torque, and following the procedure, specified in the Standard
19 Plans.
20

21 **8-21.3(9)G Identification Plates**

22 The first and second sentences of this section are deleted.
23

24 **8-21.3(10) Vacant**

25 This section is revised to read:
26

27 **8-21.3(10) Sign Attachment**

28 Sign panels consisting of sheet aluminum or fiberglass reinforced plastic shall be
29 attached or mounted to sign posts or sign structures as shown in the Standard Plans.
30

31 Signs not conforming to the above, including all variable message sign (VMS)
32 assemblies and other message board type assemblies, shall be attached or mounted to
33 sign posts or sign structures by means of positive connections - defined as through-
34 bolted connections. The use of clips or clamps to accomplish the attachment or
35 mounting of such signs and assemblies is prohibited.
36

37 **8-21.3(12) Steel Sign Posts**

38 This section is revised to read:
39

40 For roadside sign structures on Type – A or B bases, the Contractor shall use the
41 following procedures and manufacturer’s recommendations:
42

- 43 1. The couplings, special bolts, bracket bolts, and hinge connection nuts on all
44 Type – A or B bases shall be tightened using the Turn-Of-Nut Tightening
45 Method to a maximum rotation of 1/2 turn past snug tight.
46
47 2. The Contractor shall shim as necessary to plumb the steel sign posts.
48

1 For roadside sign structures on all Type PL and SB slip bases, the Contractor shall use
2 the following procedures:

- 3
- 4 1. The Contractor shall assemble the steel sign post to stub post with bolts and
5 flat washers as shown in the Standard Plans.
6
- 7 2. Each bolt be tightened using a torque wrench to the torque, and following the
8 procedures specified in the Standard Plans.
9

10 **SECTION 8-22, PAVEMENT MARKING**

11 **April 6, 2009**

12 **8-22.3(2) Preparation of Roadway Surfaces**

13 This section is revised to read:

14

15 All surfaces shall be dry, free of any loose debris and within the proper temperature
16 range prior to striping. When required by the pavement marking manufacturer's
17 installation instructions, remove pavement markings from pavement surfaces that will
18 adversely affect the bond of new pavement marking material to the roadway surface
19 according to Section 8-22.3(6).
20

21 Remove all other contaminants from pavement surfaces that may adversely affect the
22 installation of new pavement markings by sandblasting, shot-blasting, or sweeping. Air
23 blast the pavement with a high-pressure system to remove extraneous or loose
24 material.
25

26 Apply materials to new HMA that is sufficiently cured according to the manufacturer's
27 recommendations. Typically, Type D material applied to new HMA pavement requires a
28 pavement cure period of 21 days. This cure period may be reduced if the manufacturer
29 performs a successful bond test and approves the reduction of the pavement cure
30 period.
31

32 For new Portland Cement Concrete surfaces remove curing compounds and laitance by
33 an approved mechanical means. Air blast the pavement with a high-pressure system to
34 remove extraneous or loose material. Apply materials to concrete that has reached a
35 minimum compressive strength of 2,500 psi and that is sufficiently cured according to
36 the manufacturer's recommendations. Typically, Type D material applied to Portland
37 cement concrete pavement requires a pavement cure period of 28 days. This cure
38 period may be reduced if the manufacturer performs a successful bond test and
39 approves the reduction of the pavement cure period.
40

41 After the pavement surface is clean and dry, apply primer as recommended by the
42 manufacturer to the area receiving the pavement markings. Apply the primer in a
43 continuous, solid film according to the recommendations of the primer manufacturer and
44 the pavement markings manufacturer.
45

46 **8-22.3(3) Marking Application**

47 The content of this section is deleted. This section is supplemented with the following new
48 sub-sections:

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8-22.3(3)A Marking Colors

Lane line and right edge line shall be white in color. Center line and left edge line shall be yellow in color. Transverse markings shall be white, except as otherwise noted in the Standard Plans.

8-22.3(3)B Line Patterns

Solid line – a continuous line without gaps.

Broken line – a line consisting of solid line segments separated by gaps.

Dotted line – a broken line with noticeably shorter line segments separated by noticeably shorter gaps.

8-22.3(3)C Line Surfaces

Flat Lines – Pavement marking lines with a flat surface.

Profiled Marking – A profiled pavement marking is a marking that consists of a base line thickness and a profiled thickness which is a portion of the pavement marking line that is applied at a greater thickness than the base line thickness. Profiles shall be applied using the extruded method in the same application as the base line. The profiles may be slightly rounded provided the minimum profile thickness is provided for the length of the profile. See the Standard Plans for the construction details.

Embossed Plastic Line – Embossed plastic lines consist of a flat line with transverse grooves. An embossed plastic line may also have profiles. See the Standard Plans for the construction details.

8-22.3(3)D Line Applications

Surface line – a line constructed by applying pavement marking material directly to the pavement surface or existing pavement marking.

Grooved line – A line constructed by grinding or saw cutting a groove into the pavement surface and spraying, extruding or gluing pavement marking material into the groove. Groove depth is measured vertically from the bottom of a 2-foot or longer straight edge placed on the roadway surface to the ground surface. The groove depth is dependent upon the material used, the pavement surface and location. See these Standard Specifications, the project Plans and Special Provisions.

8-22.3(3)E Installation

Apply pavement marking materials to clean dry pavement surfaces and according to the following:

1. Place material according to the manufacture's recommendations;
2. Place parallel double lines in one pass;
3. The top of pavement marking shall be smooth and uniform;
4. Line ends shall be square and clean;
5. Place pavement marking lines parallel and true to line; and,
6. Place markings in proper alignment with existing markings.

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When applying paint, Type A or Type C material, ensure that both the pavement surface and the air temperature at the time of application are not less than 50°F and rising. When applying Type B or Type D material, ensure that both the pavement surface and the air temperature at the time of application are not less than 40°F and rising.

Ensure that the Type A thermoplastic material meets the manufacturers temperature specifications when it contacts the pavement surface.

Two applications of paint will be required to complete all paint markings. The second application of paint shall be squarely on top of the first pass. The time period between paint applications will vary depending on the type of pavement and paint (low VOC waterborne, high VOC solvent, or low VOC solvent) as follows:

Pavement Type	Paint Type	Time Period
Bituminous Surface Treatment	Low VOC Waterborne	4-hours min., 48-hours max.
Hot Mix Asphalt Pavement	Low VOC Waterborne	4-hours min., 30-days max.
Cement Concrete Pavement	Low VOC Waterborne	4-hours min., 30-days max.
Bituminous Surface Treatment	High and Low VOC Solvent	40 min. min., 48 hrs. max.
Hot Mix Asphalt Pavement	High and Low VOC Solvent	40 min. min., 30-days max.
Cement Concrete Pavement	High and Low VOC Solvent	40 min. min., 30-days max.

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Centerlines on 2-lane Highways with broken line patterns, paint or plastic, shall be applied in the increasing mile post direction so they are in cycle with existing broken line patterns at the beginning of the project. Broken line patterns applied to multi-lane or divided Roadways shall be applied in cycle in the direction of travel.

Where paint is applied on centerline on two-way roads with bituminous surface treatment or centerline rumble strips, the second paint application shall be applied in the opposite (decreasing mile post) direction as the first application (increasing mile post) direction. This will require minor broken line pattern corrections for curves on the second application.

8-22.3(3)F Application Thickness

Pavement markings shall be applied at the following base line thickness measured above the pavement surface or above the groove bottom for grooved markings in thousandths of an inch (mils):

Marking Material Application	HMA	PCC	BST	Groove
------------------------------	-----	-----	-----	--------

					Depth
Paint-first coat	spray	10	10	10	
Paint- second coat	spray	15	15	15	
Type A - flat/transverse & symbols	extruded	125	125	125	
Type A - flat/long line & symbols	spray	90	90	120	
Type A - with profiles	extruded	90	90	120	
Type A - embossed	extruded	160	160	160	
Type A - embossed with profiles	extruded	160	160	160	
Type A – grooved/flat/long line	extruded	230	230	230	250
Type B - flat/transverse & symbols	heat fused	125	125	125	
Type C-2 - flat/transverse & symbols	adhesive	90	90	NA	
Type C-1 & 2 - flat/long line	adhesive	60	60	NA	
Type C-1 - grooved/flat/long line	adhesive	60	60	NA	100
Type D - flat/transverse & symbols	spray	120	120	120	
Type D - flat/transverse & symbols	extruded	120	120	120	
Type D - flat/long line	spray	90	90	120	
Type D - flat/long line	extruded	90	90	120	
Type D - profiled/long line	extruded	90	90	120	
Type D – grooved/flat/long line	extruded	230	230	230	250

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Liquid pavement marking material yield per gallon depending on thickness shall not exceed the following:

Mils thickness	Feet of 4" line/gallon	Square feet/gallon
10	483	161
15	322	108
18	268	89
20	242	80
22	220	73
24	202	67
30	161	54
40	122	41
45	107	36
60	81	27
90	54	18
90 with profiles	30	10

120	40	13
120 with profiles	26	9
230	21	7

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Solid pavement marking material (Type A) yield per 50-pound bag shall not exceed the following:

Mils thickness	Feet of 4" line/50# bag	Square feet/50# bag
30 - flat	358	120
45 - flat	240	80
60 - flat	179	60
90 - flat	120	40
90 - flat with profiles	67	23
120 - flat	90	30
120 - flat with profiles	58	20
125 - embossed	86	29
125 - embossed with profiles	58	20
230- flat grooved	47	15

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All grooved lines shall be applied into a groove cut or ground into the pavement. For Type A or Type D material the groove shall be cut or ground with equipment to produce a smooth square groove 4-inches wide. For Type C-1 material the groove shall be cut with equipment to produce a smooth bottom square groove with a width in accordance with the material manufacturer's recommendation. After grinding, clean the groove by shot blasting or a method approved by Engineer. Immediately before placing the marking material clean the groove with high pressure air.

8-22.3(3)A Glass beads

This section is renumbered as follows:

8-22.3(3)G Glass Beads

The second sentence in the second paragraph is revised to read:

For plastic pavement markings, glass bead type and application rate shall be as recommended by the marking material manufacturer.

8-22.3(4) Tolerances for Lines

This section is revised to read:

- 1 Allowable tolerances for lines are as follows:
2
3 Length of Line – The longitudinal accumulative error within a 40-foot length of broken
4 line shall not exceed plus or minus 1-inch. The broken line segment shall not be less
5 than 10 feet.
6
7 Width of Line – The width of the line shall not be less than the specified line width or
8 greater than the specified line width plus ¼-inch
9
10 Lane Width – the lane width, which is defined as the lateral width from the edge of
11 pavement to the center of the lane line or between the centers of successive lane lines,
12 shall not vary from the widths shown in the Contract by more than plus or minus 4-
13 inches.
14
15 Thickness – a thickness tolerance not exceeding plus 10-percent will be allowed for
16 thickness or yield in paint and plastic material application.
17
18 Parallel Lines – the gap tolerance between parallel lines is plus or minus ½-inch.

19
20 **8-22.3(5) Plastic Installation Instructions**

21 This section's title is revised to read:

22
23 **8-22.3(5) Installation Instructions**

24
25 The following new sentences are inserted to follow the first sentence:

26
27 The instructions shall include equipment requirements, approved work methods and
28 procedures, material application temperature range, air and pavement surface
29 temperature requirements, weather limitations, precautions, and all other requirements
30 for successful application and material performance. Do not use materials with
31 incomplete or missing instructions.
32

33 **SECTION 8-23, TEMPORARY PAVEMENT MARKINGS**

34 **April 6, 2009**

35
36 **8-23.3(2) Beading and Tolerances**

37 This section's content is deleted. This section's title is revised to read:

38
39 **8-23.3(2) Marking Application**

40
41 This section is supplemented with the following new sub-sections:

42
43 **8-23.3(2)A Temporary Pavement Marking Paint**

44 Paint used for temporary pavement markings shall be applied in one application at a
45 thickness of 15-mils or 108-square feet per gallon. Glass beads shall be in accordance
46 with Section 8-22.3(3)G.
47

1 **8-23.3(2)B Temporary Pavement Marking Tape**
2 Surface preparation and application of temporary pavement marking tape shall be in
3 conformance with the manufacturer's recommendations.
4

5 **8-23.3(2)C Temporary Raised Pavement Markers**
6 Surface preparation and application of temporary flexible raised pavement markers shall
7 be in conformance with the manufacturer's recommendations. When temporary flexible
8 raised pavement markers are used for bituminous surface treatment operations, the
9 markers shall be installed with the protective cover in place. The cover shall be
10 removed after spraying asphaltic material.
11

12 Application of temporary raised pavement markers (other than temporary flexible raised
13 pavement markers) shall conform to the requirements of Section 8-09.3.
14

15 **8-23.3(2)D Tolerance for Lines**
16 Tolerance for lines shall conform to Section 8-22.3(4)
17

18 **SECTION 8-25, GLARE SCREEN**
19 **January 7, 2008**

20 **8-25.3(1) Glare Screen Fabric**
21 The second sentence in the second paragraph is revised to read:
22

23 Fastening to end, corner, and pull posts shall be with stretcher bars and fabric bands
24 spaced at 1-foot intervals.
25

26 The fourth sentence in the second paragraph is revised to read:
27

28 Fabric shall be securely fastened to line and brace posts with tie wires, metal bands, or
29 other approved methods, attached at 14-inch intervals.
30

31 **8-25.3(5) Tension Cables**
32 The following new paragraph is inserted in front of the first paragraph:
33

34 Fasten the tension cables after the posts have been installed and those set in concrete
35 have sufficiently cured.
36

37 The second sentence in the second paragraph is revised to read:
38

39 The top of the pull posts shall be braced diagonally to the bottom of the end, corner, or
40 brace posts with a short length of cable as shown in the Standard Plans.
41

42 This section is supplemented with the following:
43

44 Attach U-bolt wire rope clips to the cable ends by placing the base (saddle) of the clip
45 against the live end of the cable, while the "U" of the bolt presses against the dead end.
46 Two clips shall be used per end, spaced a minimum of six cable diameters apart with a
47 wire rope thimble placed securely in the loop eye to prevent kinking.

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8-25.3(6) Fittings, Attachments and Hardware

The first paragraph is deleted.

The second paragraph is revised to read:

A galvanized iron strap 1/4-inch in thickness by 2-inches in width, formed as shown in the Standard Plans, shall be provided for the attachment of eye bolts and eye nuts to the base and top of the H column posts in order to take the strain of the cable tension off the web of the H column. The straps are required between any tension cable fitting and the H column, one per side, unless the screen post is mounted to a guardrail post, then a strap is only required on the outside (nut side) face. The straps are only required at tension cable attachment locations.

SECTION 9-00, DEFINITIONS AND TESTS

August 3, 2009

9-00 Definitions and Tests

In regards to sieve sizes, all references in this division to "U.S" and "Square" are deleted.

9-00.4 Sieve Analysis of Aggregate

This section including title is revised to read:

9-00 Sieves for Testing Purposes

Test sieves shall be made either: (1) of woven wire cloth conforming to AASHTO Designation M 92 or ASTM Designation E 11, or (2) of square-hole, perforated plates conforming to ASTM Designation E 323.

SECTION 9-02, BITUMINOUS MATERIALS

August 3, 2009

9-02.1 Asphalt Material, General

This section is supplemented with the following:

The Asphalt Supplier of Performance Graded Asphalt Binder (PGAB) and Cationic Emulsified Asphalt shall have a Quality Control Plan (QCP) in accordance with WSDOT QC 2 "Standard Practice for Asphalt Suppliers That Certify Performance Graded and Emulsified Asphalts." The Asphalt Supplier's QCP shall be submitted and approved by the WSDOT State Materials Laboratory. Any change to the QCP will require a new QCP to be submitted. The Asphalt Supplier of PGAB and Cationic Emulsified Asphalt shall certify through the Bill of Lading that the PGAB or Cationic Emulsified Asphalt meets the Specification requirements of the Contract.

9-02.1(4)A Quality Control Plan

This section including title is revised to read:

1 **9-02.1(4)A Vacant**

2

3 This section is supplemented with the following new subsection:

4

5 **9-02.5 Warm Mix Asphalt (WMA) Additive**

6 Additives for WMA shall be approved by the Engineer.

7

8 **SECTION 9-03, AGGREGATES**

9 **August 3, 2009**

10 **9-03 Aggregates**

11 In regards to sieve sizes, all references in this division to “U.S” and “Square” are deleted.

12

13 **9-03.1(1) General Requirements**

14 The reference to ASTM C-1260 in the third, fifth, and sixth paragraphs is deleted.

15

16 The following new paragraph is inserted after the sixth paragraph:

17

18 The use of fly ash that does not meet the requirements of Table 2 of AASHTO M295
19 may be approved for use. The Contractor shall submit test results according to ASTM C
20 1567 through the Project Engineer to the State Materials Laboratory that demonstrate
21 that the proposed fly ash when used with the proposed aggregates and portland cement
22 will control the potential expansion to 0.20 percent or less before the fly ash and
23 aggregate sources may be used in concrete. The Contracting Agency may test the
24 proposed ASR mitigation measure to verify its effectiveness. In the event of a dispute,
25 the Contracting Agency’s results will prevail.

26

27 **9-03.1(5)B Grading**

28 The table following the second paragraph is revised to read:

29

Nominal Maximum Aggregate Size	3	2-1/2	2	1-1/2	1	3/4	1/2	3/8	No. 4
3 1/2"	100								
3"	93-100*	100							
2 1/2"		92-100*	100						
2"	76-90		90-100*	100					
1 1/2"	66-79	71-88		87-100*	100				
1"	54-66	58-73	64-83		82-100*	100			
3/4"	47-58	51-64	55-73	62-88		87-100*	100		
1/2"	38-48	41-54	45-61		57-83		81-100*	100	
3/8"	33-43	35-47	39-54	43-64		60-88		86-100*	100
No. 4	22-31	24-34	26-39	29-47	34-54	41-64	48-73		68-100*

1 **9-03.8(2) HMA Test Requirements**

2 Under Mix Criteria, in the chart following number 4, "Modified Lottman Stripping Test" is
3 revised to "Stripping Evaluation WSDOT Test Method T 718".
4

5 **9-03.8(3)B Gradation - Recycled Asphalt Pavement and Mineral Aggregate**

6 This section is revised to read:
7

8 The gradation for the new aggregate used in the production of the HMA shall be the
9 responsibility of the Contractor, and when combined with recycled material, the
10 combined material shall meet the gradation Specification requirements for the specified
11 Class HMA as listed in Section 9-03.8(6) or as shown in the Special Provisions. The
12 new aggregate shall meet the general requirements listed in Section 9-03.8(1) and
13 Section 9-03.8(2). No contamination by deleterious materials will be allowed in the old
14 asphalt concrete used.
15

16 **9-03.8(7) HMA Tolerances and Adjustments**

17 Number 1. including the associated chart is revised to read:
18

- 19 1. Job Mix Formula Tolerances. The constituents of the mixture at the time of
20 acceptance shall conform to the following tolerances:
21

	Statistical Evaluation	Nonstatistical Evaluation	Commercial Evaluation
Aggregate, percent passing			
1", ¾", ½" and ⅜" sieves	± 6%	± 6%	± 8%
No. 4 sieve	± 5%	± 6%	± 8%
No. 8 sieve	± 4%	± 6%	± 8%
No. 200 sieve	± 2.0%	± 2.0%	± 3.0%
Asphalt binder	± 0.5%	± 0.5%	± 0.7%
Air Voids, Va	2.5% minimum and 5.5% maximum		

22
23
24 These tolerance limits constitute the allowable limits as described in Section 1-06.2.
25 The tolerance limit for aggregate shall not exceed the limits of the control points,
26 except the tolerance limits for sieves designated as 100% passing will be 99-100.
27

28 **9-03.17 Foundation Material Class A and Class B**

29 This section is revised to read:
30

31 Foundation material Class A and Class B shall conform to the following gradations:
32

	Percent Passing
--	------------------------

Sieve Size	Class A	Class B
2½"	98-100	95-100
2"	92-100	75-100
1½"	72-87	30-60
¾"	27-47	0-5
⅜"	3-14	---
No. 4	0-5	---

All percentages are by mass.

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9-03.20 Test Methods for Aggregates

This section is revised to read:

The properties enumerated in these Specifications shall be determined in accordance with the following methods of test:

Title	Test Method
FOP for AASHTO T 2 for Standard Practice for Sampling Aggregates	WSDOT FOP for AASHTO T 2
Organic Impurities in Fine Aggregates for Concrete	AASHTO T 21
Clay Lumps and Friable Particles in Aggregates	AASHTO T 112
Resistance to Degradation of Small Size Coarse Aggregate by Abrasion and Impact in the Los Angeles Machine	AASHTO T 96
Material Finer than 0.075 mm (No. 200) Sieve in Mineral Aggregates by Washing	AASHTO T 11
FOP for AASHTO for Determining the Percentage of Fracture in Coarse Aggregates	WSDOT FOP for AASHTO TP 61
FOP for WAQTC/AASHTO for Sieve Analysis of Fine and Coarse Aggregates	WAQTC FOP for AASHTO T 27/11
FOP for AASHTO T 176 for Plastic Fines in Graded Aggregates and Soils by Use of the Sand Equivalent Test f	WSDOT FOP for AASHTO T 176
Method of Test for Determination of	WSDOT T 113

Degradation Value	
Particle Size Analysis of Soils	AASHTO T 88
Method of Test for Determination of the Resistance (R Value) of Untreated Bases, Subbases, and Basement Soils by the Stabilometer	WSDOT T 611

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9-03.21(1) General Requirements

The first paragraph is supplemented with the following:

The Contractor shall provide a certification that the recycled materials are in conformance with the requirements of the Standard Specifications prior to delivery. The certification shall include the percent by weight of each recycled material.

This section is supplemented with the following sub-sections:

9-03.21(1)A Recycled Hot Mix Asphalt

For recycled materials incorporating hot mix asphalt the Contractor shall verify the maximum bitumen content for the blended mix. The Contractor shall use WSDOT FOP for AASHTO T 308 (a statewide average of 0.70 may be used as a calibration factor) and WSDOT FOP for AASHTO T 329 or other tests approved by the Engineer to determine the total bitumen content.

9-03.21(1)B Recycled Portland Cement Concrete Rubble

For recycled materials incorporating Portland cement concrete rubble the product supplier shall perform total lead content testing quarterly. Tests shall include a minimum of five samples. Sample collection shall be conducted according to ASTM D 75. Total lead content testing will be conducted according to EPA Method 3010/6010. A test shall not exceed 250 ppm using a total lead analysis EPA Test Method 6010. In addition, the Toxicity Characteristics Leaching Procedure, EPA Test Method 1311 shall be used and a test shall not exceed 5.0 ppm. The product supplier shall keep all test results on file.

9-03.21(1)C Recycled Glass Aggregates

The product supplier shall perform total lead content testing quarterly. Tests shall include a minimum of five samples. Sample collection shall be conducted according to ASTM D 75. Total lead content testing will be conducted according to EPA Method 3010/6010.

A test shall not exceed 250 ppm using a total lead analysis EPA Test Method 6010. In addition, the Toxicity Characteristics Leaching Procedure, EPA Test Method 1311 shall be used and a test shall not exceed 5.0 ppm. The product supplier shall keep all test results on file.

9-03.21(1)D Recycled Steel Furnace Slag

The Contractor shall provide to the Engineer the steel furnace slag blends that will be used in the final product prior to use.

Maximum Allowable Percent (by weight) of Recycled Material

		Hot Mix Asphalt	Concrete Rubble	Recycled Glass	Steel Furnace Slag
Fine Aggregate for Portland Cement Concrete	9-03.1(2)	0	0	0	0
Coarse Aggregates for Portland Cement Concrete	9-03.1(4)	0	0	0	0
Aggregate for Asphalt Treated Base (ATB)	9-03.6				
Aggregates for Hot Mix Asphalt	9-03.8	See 5-04.2	0	0	20
Ballast	9-03.9(1)	20	100	15	20
Shoulder Ballast	9-03.9(2)	20	100	15	20
Crushed Surfacing	9-03.9(3)	20	100	15	20
Aggregate for Gravel Base	9-03.10	20	100	15	20
Gravel Backfill for Foundations – Class A	9-03.12(1)A	20	100	15	20
Gravel Backfill for Foundations – Class B	9-03.12(1)B	20	100	15	20
Gravel Backfill for Walls	9-03.12(2)	0	100	15	20
Gravel Backfill for Pipe Zone Bedding	9-03.12(3)	0	100	15	20
Gravel Backfill for Drains	9-03.12(4)	0	100	100	0
Gravel Backfill for Drywells	9-03.12(5)	0	0	100	0
Backfill for Sand Drains	9-03.13	0	100	100	0
Sand Drainage Blanket	9-03.13(1)	0	100	100	0
Gravel Borrow	9-03.14(1)	20	100	100	20
Select Borrow	9-03.14(2)	20	100	100	20
Select Borrow (greater than 3-feet	9-03.14(2)	100	100	100	20

below Subgrade and side slopes)					
Common Borrow	9-03.14(3)	20	100	100	20
Common Borrow - (greater than 3-feet below Subgrade and side slopes)	9-03.14(3)	100	100	100	20
Foundation Material Class A and Class B	9-03.17	0	100	100	20
Foundation Material Class C	9-03.18	0	100	100	20
Bank Run Gravel for Trench Backfill	9-03.19	0	100	100	20

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9-03.21(2) Recycled Hot Mix Asphalt

This section including title is deleted in its entirety.

9-03.21(3) Recycled Portland Cement Concrete Rubble

This section including title is deleted in its entirety.

9-03.21(4) Recycled Glass Aggregates

This section including title is deleted in its entirety.

9-03.21(5) Steel Furnace Slag

This section including title is deleted in its entirety.

SECTION 9-04, JOINT AND CRACK SEALING MATERIALS

December 1, 2008

9-04.1(2) Premolded Joint Filler for Expansion Joints

This section is revised to read:

Premolded joint filler for use in expansion (through) joints shall conform to either AASHTO M 213 Specifications for “Preformed Expansion Joint Fillers for Concrete Paving and Structural Construction” except the requirement for water absorption is deleted, or ASTM D 7174 Specifications for “Preformed Closed-Cell Polyolefin Expansion Joint Fillers for Concrete Paving and Structural Construction.”

9-04.2(1) Hot Poured Joint Sealants

This section is revised to read:

Hot poured joint sealants shall meet the requirements of AASHTO M 324 Type IV except that the Cone Penetration at 25°C shall be 130 max. Hot poured joint sealants shall be sampled in accordance with ASTM D 5167 and tested in accordance with ASTM D

1 5329. The Hot poured joint sealant shall have a minimum Cleveland Open Cup Flash
2 Point of 205°C in accordance with AASHTO T 48
3

4 **SECTION 9-05, DRAINAGE STRUCTURES, CULVERTS, AND CONDUITS**
5 **August 3, 2009**

6 This section is supplemented with the following new sub-sections:
7

8 **9-05.50 Precast Concrete Drainage Structures**
9

10 **9-05.50(1) Fabrication Tolerances and requirements**

11 All precast concrete items shall meet the requirements of AASHTO M199, fabricated as
12 shown on the Plans, and shall meet the tolerances and revisions as listed below:
13

- 14 1. The following information shall be legibly marked on each precast product
15 (excluding rectangular and round adjustment sections). Marking shall be
16 indented into the concrete, painted thereon with waterproof paint, or contained
17 within a bar-coded sticker firmly attached to the product:
 - 18 a. Fabricator name or trademark.
 - 19 b. Date of manufacture.
 - 20 2. Catch Basins (to include Type 1, Type 1L, Type 1P), and Concrete Inlets
 - 21 a. Knock-out wall thickness, measured at thinnest point, 1½" to 2½"
 - 22 b. Knock-out diameter, 5% plus/minus allowance.
 - 23 c. Base thickness, measured at thinnest point, 4" with ½" minus tolerance.
 - 24 d. All other dimensions as shown on plans, 5% plus/minus allowance.
 - 25 3. Catch Basin Type 2, and Manhole Type 1, 2, 3
 - 26 a. Knock-out diameter, 5% plus/minus allowance.
 - 27 4. Flat Slab Tops
 - 28 a. Round or rectangular opening, 5% plus/minus allowance.
 - 29 5. Rectangular or Circular Adjustment Sections
 - 30 a. Opening size or diameter, 5% plus/minus allowance.
 - 31 6. Conical Sections
 - 32 a. Top opening diameter, 5% plus/minus allowance.
 - 33 7. Grate Inlets
 - 34 a. Knock-out wall thickness, measured at thinnest point, 1½" to 2½".
 - 35 b. Knock-out diameter, 5% plus/minus allowance.
 - 36 c. Opening size, 2½ % plus/minus allowance.
 - 37 8. Drop Inlets
 - 38 a. Knock-out diameter, 1" plus/minus allowance.
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9-05.50(2) Manholes

Precast concrete manholes shall meet the requirements of AASHTO M 199.

The joints may be the tongue and groove type or the shiplap type, sufficiently deep to prevent lateral displacement.

When secondary synthetic fiber reinforcement is used in 48-inch diameter by 3-foot high eccentric or concentric cone sections the synthetic fiber shall meet the requirements of Section 9-05.50(9). A minimum of two hoops of W2 wire shall be placed in the 48-inch end of each cone. No steel is required in the remainder of the cone.

Precast manhole sections 48-inch diameter, with no knock-outs, may be produced using no steel reinforcement. As an alternate to conventional steel reinforcement, producers shall use synthetic structural fibers meeting the requirements of Section 9-05.50(10).

9-05.50(3) Precast Concrete Catch Basins

Precast concrete catch basins shall conform to the requirements of Section 9-05.50(1), except that the dimensions shall be as set forth in the Plan.

When secondary synthetic fiber reinforcement is used to produce Type 1, Type 1L and Type 1P, Catch Basins, the synthetic fiber shall meet the requirements of Section 9-05.50(9). A minimum amount of steel reinforcement shall be used to reinforce the area around the knockouts. Steel reinforcing shall consist of a No. 3 horizontal hoop reinforcing bar located above the knockouts, and a No. 3 vertical reinforcing bar in each corner, extending a minimum of 18-inches below the top surface of the catch basin.

Catch Basin Type 1 may be produced using structural synthetic fibers meeting the requirements of Section 9-05.50(10). Catch Basin Type 1 shall contain one hoop of No. 3 reinforcing bar around the top perimeter.

Knockouts or cutouts may be placed on all four sides and may be round or D shaped.

9-05.50(4) Precast Concrete Inlets

Precast concrete inlets shall conform to the requirements of Section 9-05.50(1) except that the dimensions shall be as set forth in the Plans.

9-05.50(5) Precast Concrete Drywells

Precast concrete drywells shall meet the requirements of Section 9-05.50(1). Seepage port size and shape may vary per manufacturer. Each seepage port shall provide a minimum of 1 square inch and a maximum of 7 square inches for round openings and 15 square inches for rectangular openings. The ports shall be uniformly spaced with at least one port per 8-inches of drywell height and 15-inches of drywell circumference.

Precast Drywells may be produced using no steel reinforcement. As an alternate to conventional steel reinforcement, producers shall use synthetic structural fibers meeting the requirements of Section 9-05.50(10).

1 **9-05.50(6) vacant**

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3 **9-05.50(7) vacant**

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5 **9-05.50(8) vacant**

6

7 **9-05.50(9) Synthetic Fibers for Precast Units**

8 The synthetic fiber, either nylon multifilament fibers or polypropylene fibrillated fibers,
9 shall meet the requirements of ASTM C 1116 , Section 4.1.3 3 and ICC ES AC 32,
10 Sections 4.1.1 and 4.1.2. Synthetic fibers shall be added at a minimum dosage rate of
11 1.0 pound of Nylon Multifilament fibers per cubic yard of concrete or 1.5 pounds of
12 Polypropylene Fibrillated fibers per cubic yard of concrete and shall be thoroughly
13 mixed with the concrete before placement in the forms. The synthetic fibers shall be a
14 minimum of 0.75-inches and a maximum of 2-inches in length.

15

16 **9-05.50(10) Synthetic Structural Fibers for Precast Units**

17 Synthetic fibers shall be monofilament or monofilament/fibrillated blend made of
18 polyolefin, polypropylene or polypropylene/polyethylene blend, meeting the
19 requirements of ATSM C 1116, Section 4.1.3, and ICC ES Acceptance Criteria 32,
20 Sections 4.1.3 and 4.1.2. Additionally the vendor or manufacturer shall furnish an
21 Engineering Report which provides test data in accordance with ASTM C 1018 and/or
22 ASTM C 1399 from an ICC qualified commercial laboratory relating to the specification
23 requirements.

24

25 The vendor or manufacturer shall provide a letter of certification stating compliance with
26 specifications and/or standard codes.

27

28 The fibers shall be a minimum of 2 inches in length, and have an aspect ratio (length
29 divided by the equivalent diameter of the fiber) between 70 and 100 when the fibers are
30 in their final phase.

31

32 The fibers shall have a minimum tensile strength of 50 ksi, and a minimum modulus of
33 elasticity of 600 ksi, when tested in accordance with ASTM D 3822.

34

35 Precast drainage units shall have a minimum dosage rate of 3.75 lbs/cu yd. or more in
36 order to obtain an Average Residual Strength (ARS) of 175 PSI when tested in
37 accordance with ASTM C1018 and/or ASTM C1399. Fiber supplier shall submit
38 independent laboratory data to support ARS results.

39

40 **SECTION 9-06, STRUCTURAL STEEL AND RELATED MATERIALS**

41 **August 3, 2009**

42 **9-06.5(3) High Strength Bolts**

43 Paragraphs one through four are revised to read as follows:

44

45 High-strength bolts for structural steel joints shall conform to either AASHTO M 164
46 Type 1 or 3, or AASHTO M 253 Type 1 or 3, as specified in the Plans or Special
47 Provisions.

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Galvanized AASHTO M 164 Type 1 bolts with an ultimate tensile strength above 145 ksi shall be tested for embrittlement. Embrittlement testing shall be conducted after galvanization in accordance with ASTM F 606, Section 7. The Manufacturer's Certificate of Compliance for the lot provided shall show the ultimate tensile strength test results.

Bolts conforming to AASHTO M 253 shall not be galvanized. AASHTO M 253 Type 1 bolts shall be painted with two coats of paint, conforming to Section 9-08.1(2)B, with a minimum dry film thickness of 2 mils per coat, when specified in the Plans or Special Provisions.

Bolts for unpainted and nongalvanized structures shall conform to either AASHTO M 164 Type 3 or AASHTO M 253 Type 3, as specified in the Plans or Special Provisions.

Nuts for high strength bolts shall meet the following requirements:

AASHTO M 164 Bolts	
Black Type 1	AASHTO M 291 Grade C, C3, DH and DH3
	AASHTO M 292 Grade 2H
Black weathering Type 3	AASHTO M 291 Grade C3 and DH3
Galvanized Type 1	AASHTO M 291 Grade DH
	AASHTO M 292 Grade 2H
AASHTO M 253 Bolts	
Black Type 1	AASHTO M 291 Grade DH, DH3
	AASHTO M 292 Grade 2H
Black weathering Type 3	AASHTO M 291 Grade DH3

9-06.13 Copper Seals

This section including title is revised to read:

9-06.13 Vacant

9-06.16 Roadside Sign Structures

This section is revised to read:

All bolts, nuts, washers, cap screws, and coupling bolts shall conform to AASHTO M 164 and Section 9-06.5(3). All connecting hardware shall be galvanized after fabrication in accordance with AASHTO M 232.

Posts for single post sign structures shall meet the requirements of ASTM A 500 Grade B or ASTM A 53 Grade B, Type E or S.

Posts for perforated square steel posts shall meet the requirements of ASTM A 653 Grade 50. Perforated square steel posts shall be finished in accordance ASTM A 653 G90 Structural Quality Grade 50 or ASTM A 653 G140.

1 Slip bases (SB1, SB2, and SB3) for perforated square steel posts shall conform to the
2 following:

3		
4	Plates	ASTM A 572
5	Casting (SB3)	ASTM A 536 Grade 65-45-12 and ASTM A 153
6	Tubing	ASTM A 500 Grade B
7	Angle Iron (SB1)	ASTM A 36
8		

9 Except as noted otherwise, the slip bases (SB1, SB2, and SB3) for perforated square
10 steel posts shall be hot dipped galvanized.

11
12 The heavy duty anchor used for perforated square steel posts (ST-4) shall meet the
13 requirements of ASTM A 500 Grade B and shall be hot dipped galvanized.

14
15 Wide flange steel or solid square steel posts for multiple post sign structures shall
16 conform to either ASTM A 36 or ASTM A 992. Posts conforming to either ASTM A 588 or
17 ASTM A 572 Grade 50 may be used as an acceptable alternate to the ASTM A 36 and
18 ASTM A 992 posts. All steel not otherwise specified shall conform to either ASTM A 36
19 or ASTM A 992.

20
21 Except as noted otherwise all steel, including posts, base plates, and base stiffeners,
22 shall be galvanized after fabrication in accordance with AASHTO M111.

23
24 Base connectors for multiple directional steel breakaway posts shall conform to the
25 following:

26		
27	Brackets	Aluminum Alloy 6061 T-6
28	Bosses for Type TPB Brackets	ASTM A 582
29	Anchor Ferrules	Type 304 stainless steel for threaded portion. AISI 1045 steel rod and AISI 1008 coil for 30 cage portion.
31		
32		

33 Anchor couplings for multiple directional steel breakaway posts shall conform to AMS
34 6378D with a tensile breaking strength range as follows:

35		
36	Type TPA	17,000 to 21,000 lb.
37	Type TPB	47,000 to 57,000 lb.
38		

39 For multi-directional breakaway base connectors, shims shall conform to ASTM A 653,
40 SS Grade 33, Coating Designation G 165.

41
42 **SECTION 9-07, REINFORCING STEEL**
43 **August 3, 2009**

44 **9-07.1(2) Bending**

45 The first paragraph is supplemented with the following:

46
47 The dimensions shown in the Plans are out-to-out unless shown otherwise.
48

1 This section is supplemented with the following:
2

3 Hooked ends of steel reinforcing bars shall be standard hooks unless shown otherwise
4 in the Plans. Standard hooks shall consist of a 90, 135 or 180 degree bend as shown in
5 the Plans plus a minimum bar extension at the free end of the bar shown in the table
6 below. Seismic hooks shall consist of a 135 degree bend plus a minimum bar extension
7 at the free end of the bar shown in the table below.
8

Minimum Bar Extensions for Standard and Seismic Hooks

Bar Size	180°	135° Hook		90° Hook	
	Hook	Seismic Hook	All Other Bars	Stirrups and Ties	All Other Bars
No. 3	2 1/2"	3"	2 1/4"	2 1/4"	4 1/2"
No. 4	2 1/2"	3"	3"	3"	6"
No. 5	2 1/2"	3 3/4"	3 3/4"	3 3/4"	7 1/2"
No. 6	3"	4 1/2"	4 1/2"	9"	9"
No. 7	3 1/2"	5 1/4"	5 1/4"	10 1/2"	10 1/2"
No. 8	4"	6"	6"	12"	12"
No. 9	4 3/4"				13 3/4"
No. 10	5 1/4"				15 1/4"
No. 11	5 3/4"				17"
No. 14	7"				20 1/2"
No. 18	9 1/4"				27 1/4"

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10

11 **9-07.1(3) Lengths**

12 The content of this section is deleted and replaced with the following:
13

14 Net length is the length of bar along the bar centerline from end to end. Net lengths of
15 bent bars shown in the "LENGTH" column of the bar list in the plans are rounded to the
16 nearest inch.
17

18 **9-07.3 Epoxy Coated Steel Reinforcing Bars**

19 The reference to ASTM A 06 in number 1. of the first paragraph is revised to ASTM A
20 706.
21

22 **9-07.5 Dowel Bars (For Cement Concrete Pavement)**

23 The content of this section is deleted and replaced with the following subsections:
24

25 **9-07.5(1) Epoxy Coated Dowel Bars (For Cement Concrete Pavement)**

26 Epoxy Coated dowel bars shall be round plain steel bars of the dimensions shown in the
27 Standard Plans. They shall conform to AASHTO M 31, Grade 60 or AASHTO M 255,
28 Grade 60 and shall be coated in accordance with ASTM A 934. The thickness of the
29 epoxy coating shall be 10 mils plus or minus 2 mils. In addition, the requirements of
30 Section 9-07.3, Items 2, 3, 4, 5, 6, and 9 shall apply.
31

1 **9-07.5(2) Corrosion Resistant Dowel Bars (For Cement Concrete**
2 **Pavement)**

3 Corrosion resistant dowel bars shall be 1 ½ inch outside diameter plain round steel bars
4 18 inches in length and meet the requirements one of the following types:
5

- 6 A. Stainless Steel Clad dowel bars shall have a minimum 0.06 inches clad to a
7 plain steel inner bar meeting the chemical and physical properties of AASHTO
8 M 31, Grade 60, or AASHTO M 255, Grade 60. Stainless Steel clad shall meet
9 the chemical properties of ASTM A 276, Type 316L.
10
11 B. Stainless Steel Tube dowel bars shall have a minimum 0.06 in thick tube
12 press-fitted onto a plain steel inner bar meeting the chemical and physical
13 properties of AASHTO M 31, Grade 60, or AASHTO M 255, Grade 60. A
14 lubricant/adhesive shall be used between the tube and the plain steel bar to fill
15 any voids. Stainless Steel Tube material shall meet the chemical properties of
16 ASTM A 276, Type 316L.
17
18 C. Stainless Steel Solid dowel bars shall be ASTM A 276, Type 316L.
19
20 D. Corrosion-resistant low-carbon; chromium plain steel bars for concrete
21 reinforcement meeting all the requirements of ASTM A 1035.
22
23 E. Zinc Clad dowel bars shall be of the dimension shown in the standard plans
24 and shall have a minimum 0.04 inches A710 Zinc alloy clad to a plain steel
25 inner bar meeting the chemical and physical properties of AASHTO M 31,
26 Grade 60 or AASHTO M 255, Grade 60. A710 Zinc shall be composed of: ZN-
27 99.5 percent, by weight, minimum; CU – 0.1 – 0.25 percent, by weight; and Fe-
28 0.0020 percent, by weight, maximum.
29

30 The surface of the finished cut-to-length corrosion-resistant low-carbon; chromium plain
31 steel bars for concrete reinforcement meeting all the requirements of ASTM A 1035
32 dowels shall be provided with a hot-rolled, as-rolled finish including mill scale. The
33 surface of all other finished cut-to-length dowels shall be provided with a smooth
34 “ground” or “cold drawn” finish.
35

36 Stainless Steel Clad and Tube Dowel bar ends shall be sealed with a patching material
37 (primer and finish coat) used for patching epoxy-coated reinforcing steel as required in
38 Standard Specification 9-07.3 item 6.
39

40 **9-07.6 Tie Bars (For Cement Concrete Pavement)**

41 The first paragraph is revised to read:
42

43 Tie bars shall conform to the requirements of the Standard Specifications for Deformed
44 Billet Steel Bars for Concrete Reinforcement, AASHTO M 31, Grade 60 and shall be
45 coated in accordance with AASHTO M 284 or corrosion-resistant uncoated low-carbon;
46 chromium deformed steel bars for concrete reinforcement meeting all the requirements
47 of ASTM A 1035.
48

1 **9-07.10 Prestressing Reinforcement Strand**

2 The third sentence in the third paragraph is revised to read:

3
4 The mill certificate and test report shall include the yield and ultimate strengths,
5 elongation at rupture, modulus of elasticity, and the stress strain curve for the actual
6 prestress reinforcing intended for use.
7

8 The first sentence in the fourth paragraph is revised to read:

9
10 For every 5 reels furnished, one sample, not less than 5½-feet long, shall be sent to the
11 Engineer for testing.
12

13 **9-07.11 Prestressing Reinforcement Bar**

14 The fifth and sixth paragraphs are revised to read:

15
16 The Contractor shall supply a Manufacturer's Certificate of Compliance in accordance
17 with Section 1-06.3 for each bar. The Contractor shall supply a Manufacturer's
18 Certificate of Compliance in accordance with Section 1-06.3 for all nuts and couplers
19 confirming compliance with the specified strength requirement.
20

21 For each heat of steel for high-strength steel bar, the Contractor shall submit two
22 samples, each not less than 5½ -feet long, to the Engineer for testing.
23

24 **SECTION 9-08, PAINTS**

25 **August 3, 2009**

26 This section including title is deleted in its entirety and replaced with the following:

27
28 **9-08 PAINTS AND RELATED MATERIALS**

29
30 **9-08.1 Paint**

31
32 **9-08.1(1) Description**

33 Paints used for highway and bridge structure applications shall be made from materials
34 meeting the requirements of the applicable Federal and State Paint Specifications,
35 Department of Defense (DOD), American Society on Testing of Materials (ASTM), and
36 Steel Structures Painting Council (SSPC) specifications in effect at the time of
37 manufacture. The colors, where designated, shall conform to Section 9-08.1(8).
38

39 **9-08.1(2) Paint Types**

40
41 **9-08.1(2)A Vinyl Pretreatment**

42 Vinyl pretreatment shall be a two-component basic zinc chromate-vinyl butyral wash
43 primer conforming to DOD-P-15328 (Formula 117 for Metals) and SSPC Paint 27. Zinc
44 chromate shall be the insoluble type. The paint shall be supplied as two components
45 that are mixed together just prior to use.
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9-08.1(2)B Galvanizing Repair Paint, High Zinc Dust Content
Galvanizing repair paint shall conform to Federal Specification MIL-P-21035B.

9-08.1(2)C Inorganic Zinc Rich Primer
Inorganic zinc rich primer shall be a two component self-curing inorganic zinc-rich paint conforming to either AASHTO M 300 or SSPC Paint 20 Type I.

9-08.1(2)D Organic Zinc Rich Primer
Organic zinc rich epoxy primer shall be a high performance two-component epoxy conforming to SSPC Paint 20 Type II.

9-08.1(2)E Epoxy Polyamide
Epoxy polyamide primer shall be a two-component VOC compliant epoxy system, conforming to MIL-DTL-24441.

9-08.1(2)F Primer, Zinc Filled Single Component, Moisture-Cured Polyurethane

Zinc rich primer shall meet the following requirements:

- Vehicle Type: Moisture-cured polyurethane
- Pigment Content: 80% minimum zinc by weight in dry film
- Volume Solids: 60% plus or minus 3%.
- Minimum wt./gal.: 22.0 pounds.

9-08.1(2)G Intermediate and Stripe Coat, Single Component, Moisture-Cured Polyurethane

Vehicle Type: Moisture-cured polyurethane

Pigment: A minimum of 3.0 lbs. of micaceous iron oxide per gallon.

Intermediate and any stripe coat shall meet the following requirements:

Minimum volume solids 50%.

A minimum of 3.0 lbs./gal. of micaceous iron oxide.

The intermediate coating shall be certified by the manufacturer to be able to be recoated by the top coat in a minimum of 4 days.

9-08.1(2)H Top Coat Single Component, Moisture-Cured Polyurethane

Vehicle Type: Moisture-cured aliphatic polyurethane

Color: As specified in the Plans or Special Provisions

The Top Coat shall meet the following requirements:

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The resin must be an aliphatic urethane.

Minimum volume solids 50%.

The top coat shall be a semi-gloss.

9-08.1(2)I Rust Penetrating Sealer

Rust penetrating sealer shall be a two component chemically-cured 100 percent solids epoxy with maximum VOC 1.7 pounds/gallon.

9-08.1(2)J Black Enamel

The enamel shall conform to Federal Specification MIL PRF 2463D Type II Class II.

9-08.1(2)K Orange Equipment Enamel

The enamel shall be an alkyd gloss enamel conforming to Federal Specification TT-E-489, except that the Sag Index shall be seven minimum. The color, when dry, shall match that of Federal Standard 595, color number 12246.

For factory application to individual items of new equipment, samples and testing of the enamel will not be required; however, the equipment manufacturer shall match the color specified and shall certify the quality of enamel used.

9-08.1(2)L Exterior Acrylic Latex Paint-White

This paint shall conform to Federal Specification TT-P-96, Paint, Acrylic Emulsion, Exterior, except that the viscosity shall be 75-85 K.U.

This paint may be used self-primed in multiple coats over salts treated wood and on interior and exterior masonry surfaces.

9-08.1(3) Working Properties

The paint shall contain no caked material that cannot be broken up readily by stirring. When applied to a clean vertical surface, the paint shall dry without running, streaking, or sagging.

9-08.1(4) Storage Properties

Paints manufactured under these Specifications shall show no skin over the surface after 48 hours in a partially filled container, when tested as outlined in Federal Test Method Standard No. 141. A slight amount of skin or gel formation where the surface of the paint meets the side of the container may be disregarded. Variable percentages of anti-skinning agents are shown in those formulas set forth above that are susceptible to undesirable skin formation. The manufacturer will be allowed to vary the amount of anti-skinning agent given in the formulas provided the above results are accomplished and provided the paint does not dry to a nonuniform or nonelastic film.

9-08.1(5) Fineness of Grinding

The paint shall be ground so that all particles of pigment will be dispersed and be coated with vehicle, and the residue on a 325 sieve will not exceed 1 percent by weight

1 of the pigment. Paint shall be homogeneous, free of contaminant, and of a consistency
2 suitable for use under intended application. Finished paint shall be well ground, and the
3 pigment shall be properly dispersed in the vehicle conforming to the requirements of the
4 paint. Dispersion in vehicle shall be such that the pigment does not settle excessively,
5 does not cake or thicken in the container, and does not become granular or curdled.
6

7 **9-08.1(6) Test Methods**

8 Except as otherwise specified, all paints will be sampled and tested in the ready-mixed
9 form. The test methods will be as specified in the Washington State Department of
10 Transportation Materials Manual or the corresponding test method covered by Federal
11 Test Method Standard No. 141 or as specified under AASHTO R-31.
12

13 **9-08.1(7) Acceptance**

14 Except for batches of paint in total project quantities of 20 gallons or less which are
15 accepted upon the manufacturer's certificate, the manufacturer shall not ship any batch
16 of paint until the paint has been tested and released by the Washington State
17 Department of Transportation State Materials Laboratory. This release will not constitute
18 final acceptance of the paint. Final acceptance will be based on inspection or testing of
19 job site samples as determined by the Engineer.
20

21 Project quantities of 20 gallons or less of the above paint types will be accepted without
22 inspection upon the manufacturer's notarized certificate. This certificate shall contain a
23 statement by the manufacturer to the effect that the material meets the paint type
24 Specification, and shall include a list of materials and quantities used. One copy of the
25 certificate shall accompany the paint when shipped and one copy with a draw down
26 sample of the paint shall be sent to the Materials Laboratory. The paint may be used at
27 once without further release from the Materials Laboratory.
28

29 **9-08.1(8) Standard Colors**

30 When paint is required to match a Federal Standard 595 color, the paint manufacturer or
31 the Contractor may obtain a sample of the required color through the following internet
32 link - <http://www.colorservers.net>.
33

34 When paint is required to match a WSDOT color (Washington Gray, Mt St Helens Gray,
35 Mt Baker Gray or Cascade Green), the paint color shall conform to the Delta E deviation
36 and CIELAB spectrophotometer analysis requirements specified in Section 9-08.3 for
37 the corresponding color.
38

39 Unless otherwise specified, all top or finish coats shall be semi-gloss, with the paint
40 falling within the range of 35 to 70 on the 60 degree gloss meter.
41

42 **9-08.2 Powder Coating Materials for Coating Galvanized Surfaces**

43 The powder coating system shall consist of two components, an epoxy primer coat and
44 a polyester finish coat. The epoxy primer coat and the polyester finish coat materials
45 shall be from the same manufacturer.
46

47 The epoxy primer coat shall be an epoxy powder primer conforming to the following
48 requirements:
49

Property	Specification	Performance Requirement
Adhesion	ASTM D 3359 Method B	5B (no failure)
Flexibility	ASTM D 522 Method B	Pass 1/8" mandrel bend
Pencil Hardness	ASTM D 3363	H Plus
Specific Gravity	ASTM D 792	1.25 minimum

The polyester finish coat shall conform to American Architectural Manufacturers Association (AAMA) Specification 2604.

Degassing additives may be added as necessary to prevent pin holes in the finish coat. The degassing additives shall be added in accordance with manufacturer's recommendations.

The color of the powder coating system polyester finish coat shall be as specified in the Plans or Special Provisions.

Repair materials shall be selected from one of the approved products listed in the current Qualified Products List and specified in the Contractor's powder coating plan as approved by the Engineer.

9-08.3 Pigmented Sealer Materials for Coating of Concrete Surfaces

The pigmented sealer shall be a semi-opaque colored toner containing only methyl methacrylate-ethyl acrylate copolymer resins, toning pigments suspended in solution at all times by a chemical suspension agent, and solvent. Toning pigments shall be laminar silicates, titanium dioxide and inorganic oxides only. There shall be no settling or color variation. Tinting shall occur at the factory at the time of manufacturer and placement in containers, prior to initial shipment. Use of vegetable or marine oils, paraffin materials, stearates or organic pigments in any part of coating formulation will not be permitted. The Contractor shall submit a one-quart wet sample, a draw down color sample and spectrophotometer or colorimeter readings, taken in accordance with ASTM D 2244, for each batch. The calculated Delta E shall not exceed 1.0 deviation from the Commission Internationale de l'Eclairage (CIELAB) color measurement analysis method for each pigmented sealer color.

For the respective color pigmented sealer shall conform to the following CIELAB analysis:

Color	III/Obs	L*	a*	b*
Washington Gray	D65/10 degrees	62.59	0.98	5.23
	A/10 degrees	63.06	1.80	5.70
	CWF/10 degrees	63.02	0.73	6.08
Cascade Green	D65/10 degrees	36.62	-6.53	-0.89
	A/10 degrees	35.82	-7.15	-2.53
	CWF/10 degrees	36.34	-5.09	-1.18
Mt. Baker Gray	D65/10 degrees	45.94	1.38	4.46
	A/10 degrees	46.40	1.70	5.05
	CWF/10 degrees	46.46	1.07	5.48
Mt. St. Helens Gray	D65/10 degrees	56.07	2.15	6.68
	A/10 degrees	56.76	3.08	7.52

	CWF/10 degrees	56.67	1.64	7.85
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The one-quart wet sample shall be submitted in the manufacturer's labeled container with product number, batch number and size of batch. The companion draw down color sample shall be labeled with the product number, batch number and size of batch. The Contractor shall submit the specified samples and readings to the Engineer at least 14 calendar days prior to the scheduled application of the sealer. The Contractor shall not begin applying pigmented sealer until receiving the Engineer's written approval of the pigmented sealer color samples.

9-08.4 Abrasive Blast Materials

9-08.4(1) Abrasive Blast Media

Material used for field abrasive blasting shall conform to Military Specification MIL-A-22262B(SH) as listed on QPL-22262-28 as maintained by the Department of the Navy. The Contractor shall provide the Engineer with certified test results from the abrasive blast media manufacturer showing that the abrasive blast material meets the Military Specification. The Contractor shall select the type and size of abrasive blast media to produce a roughened, sharp, angular surface profile conforming to the surface requirements specified by the manufacturer of the selected paint system.

9-08.4(2) Lead Abatement Additive

Lead abatement additive shall be a granular chemical abrasive additive consisting of a complex calcium silicate designed to stabilize lead through multiple mechanisms, including, but not limited to, pH adjustment, chemical reactions and encapsulation. The additive shall be specifically designed and manufactured for lead paint abatement.

9-08.5 Surface Cleaning Materials

9-08.5(1) Bird Guano Treatment

Bird guano treatment shall consist of a 5.25 percent sodium hypochlorite solution.

9-08.5(2) Fungicide Treatment

Fungicide treatment shall consist of a 5.25 percent sodium hypochlorite solution

9-08.5(3) Water

Water used for water jetting steel surface cleaning operations shall be clean, fresh water only, without any detergents, bleach, or any other cleaning agents or additives. Recycling of rinse water for water jetting operations is not allowed.

9-08.6 Filter Fabric

Filter fabric for water jetting operations shall be a polypropylene, non-woven, needle-punched geosynthetic or equivalent material conforming to the following requirements:

Property	Specification	Performance Requirement
Grab Tensile Strength	ASTM D 4632	100 pounds minimum
Apparent opening size	ASTM D 4751	#70 U.S. sieve

1 Permittivity ASTM D 4491 1.0 sec-1 or better

2

3 **9-08.7 Single Component Urethane Sealant**

4 Single component urethane sealant shall conform to Federal Specification TT-S-00230C
5 Type II Class A.

6

7 **9-08.8 Foam Backer Rod**

8 Foam backer rod shall be closed cell expanded polyethylene or polyurethane foam.

9

10 **SECTION 9-09, TIMBER AND LUMBER**

11 **January 7, 2008**

12 **9-09.1 General Requirements**

13 This section is revised to read:

14

15 All timber and lumber shall be sized as indicated in the Plans.

16

17 All timber and lumber to be painted shall be surfaced on all sides. All timber and lumber
18 to be painted shall be thoroughly air or kiln dried to an equilibrium moisture content and
19 shall be stored in such a manner as to remain in a thoroughly dry condition until placed
20 into the work.

21

22 **9-09.2 Grade Requirements**

23 This section is revised to read:

24

25 Timber and lumber shall conform to the grades and usage listed below.

26

27 Timber and lumber shall be marked with a certified lumber grade stamp provided by one
28 of the following agencies:

29

30 West Coast Lumber Inspection Bureau (WCLIB)

31 Western Wood Products Association (WWPA)

32 Pacific Lumber Inspection Bureau (PLIB)

33 Any lumber grading bureau certified by the American Lumber Standards Committee

34

35 For structures, all material delivered to the project shall bear a grade stamp and have a
36 grading certificate. The grade stamp and grading certificate will not constitute final
37 acceptance of the material. The Engineer may reject any or all of the timber or lumber
38 that does not comply with the specifications or has been damaged during shipping or
39 upon delivery. The grading certificate shall be issued by either the grading bureau
40 whose stamp is shown on the material, or by the lumber mill, which shall be under the
41 supervision of one of the grading bureaus listed above. The certificate shall include the
42 following:

43

44 Name of the mill performing the grading

45 The grading rules being used

46 Name of the person doing the grading with current certification

47 Signature of a responsible mill official

48 Date the lumber was graded at the mill

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Grade, dimensions, and quantity of the timber or lumber

For Guardrail Posts and Blocks, Sign Posts, Mileposts, Sawed Fence Posts, and Mailbox Posts, the material delivered to the project shall either bear a grade stamp on each piece or have a grading certificate as defined above. The grade stamp or grading certificate shall not constitute final acceptance of the material. The Engineer may reject any or all of the timber or lumber that does not comply with the specifications or has been damaged during shipping or upon delivery.

9-09.2(1) Surfacing and Seasoning

This section including title is revised to read:

9-09.2(1) Structures

All timber and lumber for structures shall be Douglas Fir-Larch unless specified otherwise in the contract, and shall conform to the following:

Materials 2" to 4" nominal thick, 5" nominal and wider (Structural Joists and Planks)	No. 1 and better, grade (Section 123-b of WCLIB) or (Section 62.11 of WWPA)
Materials 5" nominal and thicker (Beams and Stringers)	No. 1 and better, grade (Section 130-b of WCLIB) or (Section 70.11 of WWPA)

Timber lagging for soldier pile walls shall be Douglas Fir-Larch, grade No. 2 or better or Hem-Fir No. 1.

When the material is delivered to the project, the Engineer will check the order for the appropriate grade stamp. The invoice and grading certificate accompanying the order must be accurate and complete with the information listed above. The grading certificate and grade markings shall not constitute final acceptance of the material. The Engineer may reject any or all of the timber or lumber that does not comply with the specifications or has been damaged during shipping or upon delivery.

9-09.2(2) Vacant

This section including title is revised to read:

9-09.2(2) Guardrail Posts and Blocks

Timber and lumber for guardrail posts and blocks (classified as Posts and Timbers) shall conform to the species and grades listed below.

Douglas Fir	No. 1 and better, grade (Section 131-b WCLIB) or (Section 80.11 WWPA)
Hem Fir	Select Structural, grade (Section 131-a WCLIB) or (Section 80.10 WWPA)
Southern Yellow Pine	No. 1 and better, grade (Southern Pine Inspection Bureau)

1 When the material is delivered to the project, the Engineer will check the order for the
2 appropriate grade stamp. The grade markings shall not constitute final acceptance of
3 the material. The Engineer may reject any or all of the timber or lumber that does not
4 comply with the specifications or has been damaged during shipping or upon delivery.
5

6 **9-09.2(3) Inspection**

7 This section including title is revised to read:
8

9 **9-09.2(3) Sign Posts, Mileposts, Sawed Fence Posts, and Mailbox Posts**

10 The allowable species of timber and lumber for signposts, and mileposts shall be
11 Douglas Fir-Larch or Hem Fir. Timber and lumber for sawed fence posts and mailbox
12 posts shall be Western Red Cedar, Douglas Fir-Larch, or Hem Fir.
13

14 Sign posts, mileposts, sawed fence posts, and mailbox posts shall conform to the
15 grades shown below.
16

4" x 4"	Construction grade (Light Framing, Section 122-b WCLIB) or (Section 40.11 WWPA)
4" x 6"	No. 1 and better, grade (Structural Joists and Planks, Section 123-b WCLIB) or (Section 62.11 WWPA)
6" x 6", 6" x 8", 8" x 10"	No. 1 and better, grade (Posts and Timbers, Section 131-b WCLIB) or (Section 80.11 WWPA)
6" x 10", 6" x 12"	No. 1 and better, grade (Beams and Stringers, Section 130-b WCLIB) or (Section 70.11 WWPA)

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18

19 **SECTION 9-12, MASONRY UNITS**

20 **August 3, 2009**

21 **9-12.4 Precast Concrete Manholes**

22 This section including title is revised to read:
23

24 **9-12.4 Vacant**
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26 **9-12.5 Precast Concrete Catch Basins**

27 This section including title is revised to read:
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29 **9-12.5 Vacant**
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31 **9-12.6 Precast Concrete Inlets**

32 This section including title is revised to read:
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34 **9-12.6 Vacant**
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36 **9-12.7 Precast Concrete Drywells**

37 This section including title is revised to read:

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9-12.7 Vacant

**SECTION 9-14, EROSION CONTROL AND ROADSIDE PLANTING
August 3, 2009**

9-14.4(4) Vacant

This section including title is revised to read:

9-14.4(4) Wood Strand Mulch

Wood strand mulch shall be a blend of loose, long, thin wood pieces derived from native conifer or deciduous trees with high length-to-width ratio. A minimum of 95% of the wood strand shall have lengths between 2 and 10-inches, with a width and thickness between 1/16 and 3/8-inches.

The mulch shall not contain resin, tannin, or other compounds in quantities that would be detrimental to plant life. Sawdust or wood shavings shall not be used as mulch.

9-14.4(8) Compost

This section is revised to read:

Compost products shall be the result of the biological degradation and transformation of plant-derived materials under controlled conditions designed to promote aerobic decomposition. Compost shall be stable with regard to oxygen consumption and carbon dioxide generation. Compost shall be mature with regard to its suitability for serving as a soil amendment or an erosion control BMP as defined below. The compost shall have a moisture content that has no visible free water or dust produced when handling the material.

Compost production and quality shall comply with Chapter 173-350 WAC.

Compost products shall meet the following physical criteria:

1. Compost material shall be tested in accordance with U.S. Composting Council Testing Methods for the Examination of Compost and Composting (TMECC) 02.02-B, "Sample Sieving for Aggregate Size Classification".

Fine Compost shall meet the following:

	Min.	Max.
Percent passing 2"	100%	
Percent passing 1"	95%	100%
Percent passing 5/8"	90%	100%
Percent passing 1/4"	75%	100%
Maximum particle length of 6 inches		

Coarse Compost shall meet the following:

Min.	Max.
------	------

1	Percent passing 3"	100%	
2	Percent passing 1"	90%	100%
3	Percent passing 3/4"	70%	100%
4	Percent passing 1/4"	40%	60%
5	Maximum particle length of 6 inches		
6			

- 7 2. The pH shall be between 6.0 and 8.5 when tested in accordance with U.S. Composting Council TMECC 04.11-A, "1:5 Slurry pH".
- 8
- 9
- 10 3. Manufactured inert material (plastic, concrete, ceramics, metal, etc.) shall be less than 1.0 percent by weight as determined by U.S. Composting Council TMECC 03.08-A "Classification of Inerts by Sieve Size".
- 11
- 12
- 13
- 14 4. Minimum organic matter shall be 40 percent by dry weight basis as determined by U.S. Composting Council TMECC 05.07A "Loss-On-Ignition Organic Matter Method (LOI)".
- 15
- 16
- 17
- 18 5. Soluble salt contents shall be less than 4.0 mmhos/cm when tested in accordance with U.S. Composting Council TMECC 04.10 "Electrical Conductivity".
- 19
- 20
- 21
- 22 6. Maturity shall be greater than 80% in accordance with U.S. Composting Council TMECC 05.05-A, "Germination and Root Elongation".
- 23
- 24
- 25 7. Stability shall be 7 mg CO₂-C/g OM/day or below in accordance with U.S. Composting Council TMECC 05.08-B "Carbon Dioxide Evolution Rate".
- 26
- 27
- 28 8. The compost product must originate a minimum of 65 percent by volume from recycled plant waste as defined in WAC 173-350 as "Type 1 Feedstocks." A maximum of 35 percent by volume of "Type 2 Feedstocks," source-separated food waste, and/or biosolids may be substituted for recycled plant waste. The manufacturer shall provide a list of feedstock sources by percentage in the final compost product.
- 29
- 30
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- 34
- 35 9. The Engineer may also evaluate compost for maturity using U.S. Composting Council TMECC 05.08-E "Solvita® Maturity Index". Fine Compost shall score a number 6 or above on the Solvita® Compost Maturity Test. Coarse Compost shall score a 5 or above on the Solvita® Compost Maturity Test.
- 36
- 37
- 38
- 39

40 This section is supplemented with the following new sub-sections:

41

42 **9-14.4(8)A Compost Approval**

43 The Contractor shall either select a compost manufacturer from the Qualified Products List, or submit the following information to the Engineer for approval:

- 44
- 45
- 46 1. A Request for Approval of Material Source.
- 47

- 1 2. A copy of the Solid Waste Handling Permit issued to the manufacturer by the
2 Jurisdictional Health Department as per WAC 173-350 (Minimum Functional
3 Standards for Solid Waste Handling).
4
5 3. The manufacturer shall verify in writing, and provide lab analyses that the
6 material complies with the processes, testing, and standards specified in WAC
7 173-350 and these specifications. An independent Seal of Testing Assurance
8 (STA) Program certified laboratory shall perform the analysis.
9
10 4. A copy of the manufacturer's Seal of Testing Assurance STA certification as
11 issued by the U.S. Composting Council.
12

13 **9-14.4(8)B Compost Acceptance**

14 Seven days prior to initial application of any compost the Contractor shall submit a
15 compost sample, a STA test report dated within 90 calendar days, and the list of
16 feedstocks by volume for each compost type to the Engineer for review.
17

18 The Contractor shall use only compost that has been tested within 90 calendar days of
19 application and meets the requirements in section 9-14.4(8). Compost not conforming
20 to the above requirements or taken from a source other than those tested and accepted
21 shall be immediately removed from the project and replaced at no cost to the
22 Contracting Agency.
23

24 **9-14.5 Erosion Control Devices**

25 This section is supplemented with the following new sub-section:
26

27 **9-14.5(8) High Visibility Fencing**

28 High visibility fence shall be UV stabilized, orange, high-density polyethylene or
29 polypropylene mesh, and shall be at least four feet in height.
30

31 Support posts shall be wood or steel in accordance with Standard Plan I-10.10-00. The
32 posts shall have sufficient strength and durability to support the fence through the life of
33 the project.
34

35 **9-14.5(1) Polyacrylamide (PAM)**

36 The second sentence is revised to read:
37

38 PAM shall be anionic and shall be linear, and not cross-linked.
39

40 **9-14.5(3) Clear Plastic Covering**

41 This section is revised to read:
42

43 Clear plastic covering shall conform to the requirements of ASTM D 4397, for
44 polyethylene sheeting having a minimum thickness of 6 mils.
45

46 **9-14.5(7) Coir Log**

47 The reference to Standard Plans in the second sentence of the first paragraph is revised to
48 read Plans.

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SECTION 9-16, FENCE AND GUARDRAIL
December 1, 2008

9-16.1(1)A Post Material for Chain Link Fence

The first paragraph is supplemented with the following:

- **Round Post Material**
Round post material shall be Grade 1 or 2.
- **Roll Form Material**
Roll-formed post material shall be Grade 1.
Roll-formed end, corner, and pull posts shall have integral fastening loops to connect to the fabric for the full length of each post. Top rails and brace rails shall be open rectangular sections with internal flanges as shown in ASTM F1043.

The **Round Post Material** and **Roll Form Material** information following the third paragraph is deleted.

9-16.1(1)B Chain Link Fence Fabric

The first paragraph is revised to read:

Chain link fabric shall consist of 11 gage wire for chain link fence Types 3, 4, and 6, and 9 gage wire for chain link fence Type 1. The fabric shall be zinc-coated steel wire conforming to AASHTO M 181, Class C. Zinc 5-percent Aluminum-Mischmetal alloy meeting the requirements of ASTM B 750 may be substituted for zinc coating (hot-dipped) at the application rate specified by ASSHTO M 181 for hot-dip zinc coating. Coating for chain link fence fabric shall meet the requirements of ASTM A 817 with minimum weight of coating of uncoated wire surface 1.0 oz/sq ft (305 g/m²).

9-16.1(1)C Tension Wire

This section including title is revised to read:

9-16.1(1)C Tension Wire and Tension Cable

Tension wire shall meet the requirements of AASHTO M 181. Tension wire galvanizing shall be Class 1.

Tension cable shall meet the requirements of Section 9-16.6(5).

9-16.1(1)D Fittings and Hardware

This section is supplemented with the following:

Fabric bands and stretcher bars shall meet the requirements of Section 9-16.6(9).

Thimbles, wire rope clips, anchor shackles, and seizing shall meet the requirements of Section 9-16.6(6).

1 **9-16.1(1)E Chain Link Gates**
2 The first sentence in the first paragraph is revised to read:
3
4 Gate frames shall be constructed of not less than 1 1/2-inch (I.D.) galvanized pipe
5 conforming to AASHTO M 181 Type I, Grade 1 or 2 as specified in Section 9-16.1(1)A.
6
7 The fourth sentence in the first paragraph is revised to read:
8
9 All welds shall be ground smooth and painted with an A-9-73 galvanizing repair paint or
10 A-11-99 primer meeting the requirements of Section 9-08.2.
11
12 **9-16.2(1)A Steel Post Material**
13 The paragraph under **Angle Post Material** is revised to read:
14
15 All angle post material shall be galvanized in accordance with the requirements
16 of AASHTO M 111 except the anchor plate on fence post material shall be grade
17 55. Angle post used for end, corner, gate and pull post and brace shall have a
18 minimum weight of 3.1 lb/ft.
19
20 The first sentence in the third paragraph is revised to read:
21
22 Posts shall not be less than 7-feet in length.
23
24 The last sentence in the third paragraph is revised to read:
25
26 The anchor plate shall be securely attached and have a surface area of 20 ± 2 in², and a
27 minimum weight of 0.67 pounds.
28
29 **9-16.3(2) Posts and Blocks**
30 The first sentence in the second paragraph is revised to read:
31
32 Timber posts and blocks shall conform to the grade specified in Section 9-09.2(2).
33
34 **9-16.3(3) Galvanizing**
35 The first sentence in the first paragraph is revised to read:
36
37 W-beam or three beam rail elements and terminal sections shall be galvanized in
38 accordance with AASHTO M-180, Class A, Type 2, except that the rail shall be
39 galvanized after fabrication, with fabrication to include forming, cutting, shearing,
40 punching, drilling, bending, welding, and riveting.
41
42 **9-16.3(4) Hardware**
43 This section is revised to read:
44
45 Unfinished Bolts (ordinary machine bolts), nuts, and washers for High Unfinished Bolts,
46 shall conform to 9-06.5(1). High Strength bolts, nuts, and washers for High Strength
47 Bolts shall conform to 9-06.5(3).
48

1 Unfinished bolts will be accepted by field verification and documentation that bolt heads
2 are stamped 307A. The Contractor shall submit a manufacturer's certificate of
3 compliance per 1-06.3 for high strength bolts, nuts, and washers prior to installing any of
4 the hardware.
5

6 **9-16.3(5) Anchors**

7 The reference to "hot dip galvanized" in the tenth paragraph is revised to "galvanized".
8

9 **9-16.4(2) Wire Mesh**

10 The reference to "hot dip galvanized" in the second sentence in the third paragraph is
11 revised to "galvanized".
12

13 **9-16.6(2) Glare Screen Fabric**

14 The reference to "A 491" in the second sentence in the first paragraph is revised to "ASTM A
15 491".
16

17 **9-16.6(3) Posts**

18 The first paragraph is revised to read:
19

20 Line posts for Type 1 glare screen shall be 1 1/2-inches by 1 7/8-inches galvanized steel
21 H column with a minimum weight of 2.8 pounds per linear foot. Line posts for Type 2
22 glare screen shall be 1 5/8-inches by 2 1/4-inches galvanized steel H column with a
23 minimum weight of 4.0 pounds per linear foot, or 2-inch inside diameter galvanized steel
24 pipe with a nominal weight of 3.65 pounds per linear foot provided only one type shall
25 be used on any one project.
26

27 The first paragraph is supplemented with the following:
28

29 End, corner, brace, and pull posts for Type 1 Design A shall be 1 1/2-inches by 1 7/8-
30 inches steel H column with a minimum weight of 2.8 pounds per linear foot.
31

32 The first sentence in the second paragraph is revised to read:
33

34 End, corner, brace, and pull posts for Type 1 Design B and Type 2 shall be 2-inch inside
35 diameter galvanized steel pipe with nominal weight of 3.65 pounds per linear foot.
36

37 The reference to "hot dip galvanized" in the third sentence in the second paragraph is
38 revised to "galvanized".
39

40 The first two sentences in the fifth paragraph are revised to read:
41

42 All posts shall be galvanized in accordance with AASHTO M 181, Section 32. The
43 minimum average zinc coating is per square foot of surface area.
44

45 **9-16.6(5) Cable**

46 The reference to "hot dip galvanized" is revised to "galvanized".
47

1 **9-16.6(6) Cable and Tension Wire Attachments**
2 The reference to “hot dip galvanized” in the first sentence in the first paragraph is revised to
3 “galvanized”.
4
5 The third sentence in the first paragraph is deleted.
6
7 **9-16.6(9) Fabric Bands and Stretcher Bars**
8 The reference to “hot dip galvanized” is revised to “galvanized”.
9
10 **9-16.6(10) Tie Wire**
11 This section including title is revised to read:
12
13 **9-16.6(10) Tie Wire and Hog Rings**
14 Tie wire shall be 9 gage aluminum wire complying with the ASTM B 211 for alloy 1100
15 H14 or 9 gage galvanized wire meeting the requirements of AASHTO M 279.
16 Galvanizing shall be Class 1.
17
18 Hog rings shall be 12 gage galvanized steel wire.
19
20 **9-16.8(1) Rail and Hardware**
21 The word “**Composition**” following the first paragraph is deleted.
22
23 **SECTION 9-19, PRESTRESSED CONCRETE GIRDERS**
24 **April 6, 2009**

25 **9-19.1 Aggregates and Proportioning**
26 The first paragraph is revised to read:
27
28 The concrete for prestressed girders shall have the minimum compressive strengths as
29 specified in the Plans. Aggregates used in the mix shall conform to the following:
30
31 Coarse aggregate shall be in accordance with Section 9-03.1(4).
32
33 Fine aggregate shall be in accordance with Section 9-03.1(2), Class 1 or Class
34 2.
35
36 The manufacturer may revise the grading of the coarse aggregate provided that the
37 concrete mix design is qualified with the modified gradation. An alternative combined
38 gradation conforming to Section 9-03.1(5) may also be used.
39
40 The reference to Section 9-23.7 in the sixth paragraph is revised to Section 9-23.6.
41
42 **SECTION 9-23, CONCRETE CURING MATERIALS AND ADMIXTURES**
43 **April 6, 2009**

44 **9-23.6 Admixture for Concrete**
45 This section including title is revised to read:
46

1 **9-23.6 Chemical Admixtures for Concrete**

2 Acceptance of chemical admixtures will be based on Manufacturer's Certificate of
3 Compliance. If required by the Engineer, admixtures shall be sampled and tested before
4 they are used. A one-pint (500 milliliter) sample of the admixture shall be submitted to
5 the WSDOT Headquarters Materials Laboratory for testing 10 days prior to use.
6 Chemical Admixtures shall contain less than one percent chloride ion (Cl-) by weight of
7 admixture.
8

9 This section is supplemented with the following new sub-sections.

10
11 **9-23.6(1) Air Entraining Admixtures**

12 Air Entraining Admixtures shall meet the requirements of AASHTO M 154 or ASTM C
13 260.
14

15 **9-23.6(2) Type A Water-Reducing Admixtures**

16 Type A Water-Reducing admixtures shall conform to the requirements of AASHTO M
17 194 Type A or ASTM C 494 Type A.
18

19 **9-23.6(3) Type B Retarding Admixtures**

20 Type B Retarding admixtures shall conform to the requirements of AASHTO M 194 Type
21 B or ASTM C 494 Type B.
22

23 **9-23.6(4) Type C Accelerating Admixtures**

24 Type C Accelerating admixtures shall conform to the requirements of AASHTO M 194
25 Type C or ASTM C 494 Type C and only non-chloride accelerating admixtures shall be
26 used.
27

28 **9-23.6(5) Type D Water-Reducing and Retarding Admixtures**

29 Type D Water-Reducing and Retarding admixtures shall conform to the requirements of
30 AASHTO M 194 Type D or ASTM C 494 Type D.
31

32 **9-23.6(6) Type E Water-Reducing and Accelerating Admixtures**

33 Type E Water-Reducing and Accelerating admixtures shall conform to the requirements
34 of AASHTO M 194 Type E or ASTM C 494 Type E and only non-chloride accelerating
35 admixtures shall be used.
36

37 **9-23.6(7) Type F Water-Reducing, High Range Admixtures**

38 Type F Water-Reducing, High Range admixtures shall conform to the requirements of
39 AASHTO M 194 Type F or ASTM C 494 Type F.
40

41 **9-23.6(8) Type G Water-Reducing, High Range and Retarding Admixtures**

42 Type G Water-Reducing, High Range and Retarding admixtures shall conform to the
43 requirements of AASHTO M 194 Type G or ASTM C 494 Type G.
44

45 **9-23.6(9) Type S Specific Performance Admixtures**

46 Type S Specific Performance Admixtures shall conform to the requirements of ASTM C
47 494 Type S. When a Type S admixture is used a report on the performance
48 characteristics of the Type S admixture shall be submitted along with the WSDOT

1 concrete mix design (WSDOT Form 350-040). The report shall describe the
2 performance characteristics and provide data substantiating the specific characteristics
3 of the Type S admixture in accordance with ASTM C 494.
4

5 **9-23.7 Air Entraining and Chemical Admixtures for Precast Prestressed**
6 **Concrete**

7 This section including title is revised to read:
8

9 **9-23.7 Vacant**

10
11 **9-23.9 Fly Ash**

12 This section is supplemented with the following:
13

14 Fly ash that exceeds the available alkalis limits set in AASHTO M 295 Table 2 may be
15 used if they meet the tests requirements of Section 9-03.1(1). The optional chemical
16 limits in AASHTO M 295 Table 2 do not apply to fly ash used in Controlled Density Fill.
17

18 **SECTION 9-25, WATER**

19 **April 6, 2009**

20 **9-25.1 Water for Concrete**

21 The first paragraph is revised to read:
22

23 Water for concrete, grout, and mortar shall be clear, apparently clean, and suitable for
24 human consumption (potable). If the water contains substances that cause
25 discoloration, unusual smell or taste, or other suspicious content, the Engineer may
26 require the Contractor to provide test results documenting that the water meets the
27 physical test requirements and chemical limits described in ASTM C1602 for non-
28 potable water.
29

30 **SECTION 9-27, CRIBBING**

31 **August 3, 2009**

32 In regards to sieve sizes, all references in this division to "U.S." and "Square" are deleted.
33

34 **SECTION 9-28, SIGNING MATERIALS AND FABRICATION**

35 **April 6, 2009**

36 **9-28.8 Sheet Aluminum Signs**

37 The second paragraph (excluding chart) is revised to read:
38

39 After the sheeting has been fabricated, the surface of each panel shall be protected
40 from corrosion. The corrosion protection shall meet the requirements of ASTM B-449
41 class II Specification for Chromates on Aluminum. Aluminum signs over 12-feet wide by
42 5-feet high shall be comprised of vertical panels in increments of 2, 3, or 4-feet wide. No
43 more than one 2-foot and/or 3-foot panel may be used per sign. The Contractor shall
44 use the widest panels possible. All parts necessary for assembly shall be constructed of

1 aluminum, galvanized, or stainless steel in accordance with the plans. Sheet thickness
2 shall be as follows:
3

4 **9-28.9(1) Mechanical Properties**

5 The chart in this section is revised to read:
6

7	Mechanical Property	Ave. Min. Requirement	ASTM Test
8	Tensile Strength	10.0 psi x 10 ³	D638
9	Tensile Modulus	1.2 psi x 10 ⁶	D638
10	Flexural Strength	20.0 psi x 10 ³	D790
11	Flexural Modulus	1.2 psi x 10 ⁶	D790
12	Compression Strength	32.0 psi x 10 ³	D695
13	Compression Modulus	1.4 psi x 10 ⁶	D695
14	Punch Shear	12.0 psi x 10 ³	D732

16 **9-28.14(2) Steel Structures and Posts**

17 The first sentence in the fifth paragraph is supplemented with the following:
18

19 Steel used for slip bases (SB-1, SB-2, SB-3) and heavy duty anchors shall have a
20 controlled silicon maximum of 0.40-percent.
21

22 **SECTION 9-29, ILLUMINATION, SIGNAL, ELECTRICAL** 23 **August 3, 2009**

24 **9-29.1 Conduit, Innerduct, and Outerduct**

25 This section's content is deleted. This section is supplemented with the following:
26

27 Conduit shall be free from defects, including out of round, and foreign inclusions.
28 Conduit shall be uniform in color, density, and physical properties. The inside shall be
29 smooth and free from burrs which could damage cable during installation. Conduit ends
30 shall be cut square to the inside diameter, and supplied with thread protectors. All
31 conduit, conduit fittings, and associated hardware/appurtenances shall be listed by a
32 Nationally Recognized Testing Laboratory.
33

34 **9-29.1(1) Rigid Metal Conduit, Galvanized Steel Outerduct, and Fittings**

35 Rigid metal conduit, shall be straight, and be rigid galvanized steel, or stainless steel, as
36 required and bear the mark of a Nationally Recognized Testing Laboratory. Exterior and
37 interior surfaces of the galvanized steel conduit, except threaded ends, shall be
38 uniformly and adequately zinc coated by a hot-dip galvanizing process. The average of
39 the zinc coating shall comply with Federal Specification WW-C-581d.
40

41 **9-29.1(2) Rigid Metal Conduit Fittings and Appurtenances**

42 Couplings for rigid metal type conduits may be either hot-dip or electroplated
43 galvanized.
44

45 Conduit bodies and fittings for rigid steel conduit systems shall be listed by Nationally
46 Recognized Testing Laboratory listed for wet locations, and shall be hot-dip galvanized

1 malleable iron, or bronze. Conduit bodies shall have tapered threads, and include a bolt
2 on cover with stainless steel screws and a neoprene gasket seal.

3
4 Grounding end bushings shall be bronze or galvanized malleable iron with copper,
5 tinned copper, stainless steel, or integral lug with stainless steel clamping screw,
6 mounting screw and set screw.

7
8 Conduit clamps and straps shall be type 304 or type 316 stainless steel or hot-dip
9 galvanized. Two-hole type straps shall span the entire width of the support channel and
10 attach to the supports on both sides of the conduit with bolts and associated hardware.
11 Two piece conduit clamps shall interlock with the support channel with a single bolt.

12
13 Conduit supports for surface mounted conduit shall be hot-dip galvanized or type 304 or
14 type 316 stainless steel channel using type 304 or type 316 stainless steel bolts and
15 spring nuts.

16
17 **9-29.1(2)A Expansion Fittings, Deflection Fittings, and Combination**
18 **Expansion/Deflection Fittings**

19 Expansion fittings for rigid galvanized steel conduit shall be weather tight, with hot-dip
20 galvanized malleable or ductile iron end couplings and body and shall allow for 4-inches
21 of movement minimum (2-inches in each direction). Expansion fittings for rigid
22 galvanized steel conduit shall have an external tinned copper bonding jumper or an
23 internal tinned copper bonding jumper. The internal tinned copper bonding jumper shall
24 not reduce the conduit conductor capacity.

25
26 Deflection fittings for rigid galvanized steel conduit shall be weather tight, with hot-dip
27 galvanized ductile iron or bronze end couplings, with molded neoprene sleeve, stainless
28 steel bands and internal tinned copper bonding jumper. Deflection fittings shall provide
29 for conduit movement of 3/4-inch in all directions and angular movement of 30 degree in
30 any direction.

31
32 A combination of a deflection and an expansion fitting for rigid galvanized steel conduit
33 shall be assembled from a deflection fitting and an expansion fitting as defined above.

34
35 The bonding jumper used for expansion fittings and combination expansion deflection
36 fittings shall be a tinned copper braid attached to the conduit with a galvanized "U" bolt
37 type connection designed for the application.

38
39 **9-29.1(3) Flexible Metal Conduit**

40 Liquidtight flexible metal conduit shall consist of a single strip of continuous flexible
41 interlocked steel galvanized inside and out, forming a smooth internal wiring channel
42 with a liquid tight covering of sunlight resistant flexible PVC conforming to NEC Article
43 350.

44
45 **9-29.1(3)A Flexible Metal Conduit Appurtenances**

46 Liquidtight connectors shall be the insulated throat type, conforming to NEC Article 350,
47 and listed for wet locations.

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9-29.1(4) Non-Metallic Conduit

9-29.1(4)A Rigid PVC Conduit

Rigid PVC conduit shall conform to NEMA TC 2 and ASTM F 2136, and UL 651. Fittings shall conform to NEMA TC-3, and be UL 514C and UL 651.

PVC solvent cement shall meet ASTM D 2564 including note 8 (label to show pipe sizes for which the cement is recommended).

9-29.1(4)B HDPE Conduit

HDPE conduit shall be listed by a Nationally Recognized Testing Laboratory. Couplings for HDPE shall be mechanical and listed for use with HDPE.

Aluminum mechanical couplings are prohibited.

9-29.1(5) Innerduct and Outerduct

The innerduct system shall be factory-installed and shall be designed so that expansion and contraction of the innerducts takes place in the coupling body to eliminate compatibility problems. The conduit coupling body shall have a factory-assembled gasket that is multi-stage and anti-reversing, sealing both the outerduct and innerducts. A secondary mid-body O-ring gasket shall be seated into the coupling body and shall hold the coupling body firmly in the outerduct.

All fittings, adapters, and bends (sweeps) shall be provided and shall be manufactured from the same materials and manufacturing process as the conduit, except as specified otherwise. The conduit system shall be a complete system with the following accessories:

- Manhole Terminator Kits
- Deflection Fittings
- Offset Fittings
- Expansion/Contraction Fittings
- Repair Kits
- Conduit and Innerduct Plugs
- Pull string
- Pull rope
- Conduit spacers
- Split Plugs

9-29.1(5)A Rigid Galvanized Steel Outerduct with PVC or PE Innerduct

Each section of steel outerduct shall be supplied with one reversing spin coupling that allows straight sections and fittings to be joined without spinning the conduit. The reversing coupling shall be galvanized and have three setscrews or a lock nut ring to lock the coupling in place. Setscrews or lock nut ring shall be galvanized or stainless steel and insure continuous electrical ground. The couplings shall be galvanized steel with the same material properties as the conduit.

1 The conduit system shall be designed so that assembly of components can be
2 accomplished in the following steps:

- 3
- 4 1. Loosen setscrews or lock nut ring on coupling and spin back to allow for
5 insertion.
- 6
- 7 2. Spin coupling mating sections forward to bottom.
- 8
- 9 3. Tighten setscrews on lock nut ring.
- 10

11 **9-29.1(5)B Rigid PVC Outerduct with PVC or PE Innerduct**

12 Protective outerduct for schedule 40 PVC and schedule 80 PVC conduit outerduct shall
13 be 4-inch with a minimum 5-inch extended integral "bell end" and shall be gray in color.
14 The outerduct minimum wall thickness shall be 0.23-inch for Schedule 40 PVC and
15 0.32-inch for Schedule 80 PVC.

16
17 Conduit and fittings for PVC outerduct shall be manufactured with an ultraviolet inhibitor.

18
19 The coupling body for PVC outerduct shall include a factory-assembled, multi-stage
20 gasket that is anti-reversing, sealing both the outer and innerducts. A secondary mid-
21 body gasket shall be seated at the shoulder of the bell to assure air and water integrity
22 of the system. The bell end and the coupling body assembly shall accept a minimum of
23 5-inches of the spigot end.

24
25 The conduit system shall be designed so that straight sections and fittings will assemble
26 without the need for lubricants or cement.

27
28 PVC outerduct shall have a longitudinal print-line that denotes "Install This Side Up" for
29 proper innerduct alignment. PVC outer-ducts shall have a circumferential ring on the
30 spigot end of the duct to provide a reference point for ensuring the proper insertion
31 depth when connecting conduit ends. The line shall be a minimum of 5-inches from the
32 end of the conduit.

33 34 **9-29.1(5)C Innerduct for Straight Sections of Galvanized Steel Outerduct or 35 PVC Outerduct**

36 The innerducts shall have a minimum outside diameter of 1.25-inch, and a minimum
37 inside diameter of 1.2-inch. Larger diameter innerducts may be provided if the wall
38 thickness and diameter tolerances are met. The tolerance for inside and outside
39 diameters shall be 0.005-inch. The innerducts shall have a minimum wall thickness of
40 0.060-inch. Innerduct shall be color coded and shall index a minimum of one innerduct
41 with a different color. Alternate color codes are permitted as long as the color codes are
42 contiguous between adjacent junction boxes. The innerducts shall be factory installed in
43 the outerduct.

44
45 Dynamic coefficient of friction of innerducts shall be tested in accordance with Telcordia
46 GR-356-CORE procedure. The coefficient of friction shall be less than 0.30 between
47 medium density polyethylene jacketed fiber optic cable and the prelubricated innerduct.
48 The coefficient of friction shall be less than 0.10 between the 1/4-inch diameter
49 polypropylene rope (suitable for fiber optic cable pulling) and the prelubricated

1 innerduct. Pull rope used for testing (meeting the 0.10 coefficient of friction requirement)
2 shall be the same type as the pull rope used for cable installation. The Contractor shall
3 provide as part of the conduit submittals a certificate of compliance with these
4 coefficient of friction requirements.

5
6 The innerduct shall have a smooth, non-ribbed interior surface, with a factory
7 prelubricated coating. The coating shall provide the required dynamic coefficient of
8 friction.

9
10 Innerduct shall be extruded polyvinyl chloride (PVC) or polyethylene (PE).

11
12 The coupling body for the innerduct shall be factory assembled in the bell end of the
13 outerduct and shall be manufactured from a high impact engineered thermoplastic. The
14 coupling body face shall be supplied with lead-ins to facilitate assembly.

15
16 All outerduct shall be marked with data traceable to plant location.

17
18 **9-29.1(5)D Conduit with Innerducts Fittings and Appurtenances**

19 Duct plugs shall be polypropylene and be equipped with a neoprene or polyurethane
20 gasket. Plugs shall be equipped with an attachment to secure the pull rope in the
21 innerduct. The plug shall withstand 5 psi.

22
23 **9-29.1(5)D1 Bends for 4-inch PVC Conduit with Innerducts or Galvanized**
24 **Steel Conduit with Innerducts**

25 All bend radii shall be 36-inches or greater. The conduit system shall provide a complete
26 line of fixed and flexible sweeps with system compatible bell and spigot or threaded
27 ends. The bends shall contain high-temperature burn-through-resistant innerducts
28 manufactured from PVC, PE, or Nylon-66. The innerducts shall meet all other
29 requirements for innerduct In Sections 9-29.1(1) and 9-29.1(5)A.

30
31 **9-29.1(5)D2 Prefabricated Fixed and Flexible Bends (for Innerducts)**

32 The prefabricated standard fixed PVC bends shall have a radius between 4-feet and 9-
33 feet and sweep angles of 11.25-degree, 22.5-degree, 45-degree, or 90-degree.

34
35 Flexible bends shall be prefabricated. These conduits may be field bent to a uniform
36 radius no less than 4-feet. The field bend shall be no greater than 90-degrees.
37 Grounding shall be continuous in flexible bends. Outerduct for flexible ends shall be
38 manufactured from reinforced PVC. Expansion and Deflection fittings for rigid galvanized
39 steel conduit with innerduct shall be provided in accordance with 9-29.1(2)A.

40
41 **9-29.1(6) Detectable Underground Warning Tape**

42 Detectable Underground Warning tape shall be Orange imprinted in black lettering with
43 the message; "FIBER OPTIC CABLE BURIED BELOW" or equal. The warning tape
44 shall be polyethylene with a metallic backing. The polyethylene shall be a minimum 4-
45 mils thick and 3-inches wide.

1 **9-29.1(7) Steel Casings**
2 Steel casing material shall conform to ASTM A 252 Grade 2 or 3 or casing as approved
3 by the Engineer. The Contractor shall furnish pipe of adequate thickness to withstand
4 the forces exerted by the boring operation as well as those forces exerted by the earth
5 during installation and shall be a minimum of 3/8-inch thick. All joints shall be welded by a
6 welder qualified in accordance with AWS D1.1 structural welding code, section 3.
7

8 **9-29.1(8) Drilling Fluid**
9 Drilling fluid used for directional boring shall be an inert mixture of water and bentonite
10 clay, conforming to the drilling equipment manufacturers recommendations.
11

12 **9-29.2(1) Standard Duty and Heavy Duty Junction Boxes**
13 The second paragraph is revised to read:

14
15 Standard Duty Junction Boxes are defined as Type 1, 2, and 8, and Heavy Duty
16 Junction Boxes are defined as Type 4, 5, and 6.
17

18 **9-29.2(1)A Standard Duty Junction Boxes**
19 The second sentence of the first paragraph is revised to read:

20
21 A complete Type, 8 Junction Box includes the spread footing shown in the Standard
22 Plans.
23

24 The materials list in the third paragraph under Concrete Junction Boxes is supplemented
25 with the following:

26
27 Bolts, Nuts, Washers ASTM F 593 or A 193, type 304 or 316
28

29 The third sentence in the second paragraph under Non-concrete Junction Boxes is revised
30 to read:

31
32 Non-concrete junction box lids shall include a pull slot, embedded 6" X 6" X 1/4" steel
33 plate and shall be secured with two 1/2 inch stainless steel hex-head bolts factory coated
34 with anti-seize compound and recessed into the cover.
35

36 **9-29.2(1)C Testing Requirements**

37 The paragraph under Testing for the Standard Duty non-concrete Junction Boxes is revised
38 to read:

39
40 Non-concrete Junction Boxes shall be tested as defined in the ANSI/SCTE 77-2007 Tier
41 22 test method with design load minimum of 22,500lbs . In addition the Contractor shall
42 provide a Manufacture Certificate of Compliance for each non-concrete junction box
43 installed.
44

45 **9-29.2(2) Standard Duty and Heavy Duty Cable Vaults and Pull Boxes**

46 The first sentence of the second paragraph is revised to read:
47

1 The Contractor shall provide shop drawings for all components including concrete box,
2 Cast Iron Ring, Ductal Iron Lid, Steel Rings, and Lid. In addition the shop drawings shall
3 show placement of reinforcing steel, knock outs, and any other appertenances
4

5 **9-29.3 Conductors, Cable**

6 This section's content is deleted. This section's title is revised to read:
7

8 **9-29.3 Fiber Optic Cable, Electrical Conductors, and Cable**

9-29.3(1)A **Singlemode Fiber Optic Cable**

10 This section is revised to read:
11

12
13 Singlemode fibers utilized in the cables specified herein shall be fabricated from 100
14 kpsi proof stress glass and primarily composed of silica which shall provide a matched
15 clad index of refraction (n) profile and the following physical and performance
16 characteristics:
17

- 18 1. Maximum Attenuation: 0.4/0.3 dB/km at 1310/1550 nanometers, respectively;
- 19 2. Typical Core Diameter: 8.3 microns;
- 20 3. Cladding Diameter: 125 micron;
- 21 4. Core-to-Cladding Offset (Defined as the distance between the core center and
22 the cladding center: < 0.8 microns;
- 23 5. Cladding Non-Circularity (Defined as $\{[1-(\text{minimum cladding diameter} -$
24 $\text{maximum cladding diameter})] \times 100.\}$: < 2.0%;
- 25 6. Coating Diameter of 250 microns \pm 15 microns with a minimum coating
26 thickness at any point of not less than 50 microns;
- 27 7. The coating shall be a dual-layered, UV-cured acrylate applied by the fiber
28 manufacturer; and,
29
- 30 8. The coating shall be mechanically or chemically strippable without damaging
31 the fiber.
32

33 **9-29.3(2) Twisted-Pair (TWP) Copper Cable**

34 This section's content is deleted. This section's title is revised to read:
35

36 **9-29.3(2) Electrical Conductors and Cable**

37 This section is supplemented with the following new sub-sections:
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9-29.3(2)A Single Conductor

9-29.3(2)A1 Single Conductor Current Carrying

All current carrying single conductors shall be stranded copper conforming to ASTM B3 and B8. Insulation shall be chemically XLP (cross-linked polyethylene) or EPR (Ethylene Propylene Rubber) Type USE rated for 600 volt.

9-29.3(2)A2 Grounding Electrode Conductor

Grounding electrode conductor shall be bare or insulated stranded copper. The insulation shall be green or green with a yellow tracer.

9-29.3(2)A3 Equipment Grounding and Bonding Conductors

Equipment grounding and bonding jumper conductors shall be bare or green insulated, stranded copper with cross-linked polyethylene insulation rated USE and 600 volts, with the exception that the equipment grounding and bonding jumper conductors installed between junction box, pull box, or cable vault frame and lids shall be tinned, braided copper.

9-29.3(2)A4 Location Wire

Location wire shall be a single stranded copper size AWG 14 insulated conductor. The insulation shall be type USE Orange in color.

9-29.3(2)B Multi-Conductor Cable

Two conductor through 10 conductor unshielded signal control cable shall conform to International Municipal Signal Association (IMSA) signal cable Specification 20-1.

9-29.3(2)C Aluminum Cable Steel Reinforced

Triplex or Quadraplex type ACSR neutral self-supporting aerial conductors of the appropriate size for aluminum conductors shall be used where required in the Contract. The neutral conductor shall be the same size as the insulated conductor. All conductors shall be stranded.

9-29.3(2)D Pole and Bracket

Pole and bracket cable shall be a two-conductor cable rated for 600 volts. The individual conductors shall be one red and one black 19-strand No. 10 AWG copper, assembled parallel. The conductor insulation shall be 45-mil polyvinyl chloride or a 600 volt rated cross-linked polyethylene. The Jacketing shall be polyethylene or polyvinyl chloride not less than 45-mils thick. If luminaires with remote ballasts are specified in the Contract, this same cable shall be used between luminaire and ballast for both timber and ornamental pole construction. If the luminaire requires fixture wire temperatures greater than 75°C, the outer jacket shall be stripped for that portion of the cable inside the luminaire. The single conductors shall then be sheathed with braided fiberglass sleeving of the temperature rating recommended by the luminaire manufacturer.

9-29.3(2)E Two-Conductor Shielded

Two conductor shielded (2CS) cable shall have 14 AWG (minimum) conductors and shall conform to IMSA Specification No. 50-2.

1 **9-29.3(2)F Detector Loop Wire**
2 Detector loop wire may be 12 or 14 AWG stranded copper wire, IMSA 51-3
3

4 **9-29.3(2)G Four-Conductor Shielded Cable**
5 Four conductor shielded cable (4CS) shall consist of a cable with four 18 AWG
6 conductors with polypropylene insulation, an aluminized polyester shield, water blocking
7 material in the cable interstices, and a 26-mil minimum outer jacket of polyethylene. The
8 four-conductor assembly shall be twisted 6 turns per foot. Each conductor shall have a
9 different insulation color. Overall cable diameter shall be 0.25-inch maximum.
10 Capacitance between adjacent pairs shall be 18 pf per foot and 15 pf per foot between
11 diagonal pairs. The capacitances shall not vary more than 10 percent after a 10-day
12 immersion test with ends exposed in a saturated brine solution.
13

14 **9-29.3(2)H Three-Conductor Shielded Cable**
15 Three-conductor shielded cable (3CS) for the detector circuit for optical fire preemption
16 receivers shall consist of three 20 AWG conductors with aluminized mylar shield and
17 one No. 20 drain wire, all enclosed with an outer jacket. All wires shall be 7 X 28
18 stranded tinned copper material. Conductor insulation shall be rated 75°C, 600 volt. The
19 drain wire shall be uninsulated. Conductor color coding shall be yellow, blue, and
20 orange. DC resistance of any conductor or drain wire shall not exceed 11 ohms per
21 1,000-feet. Capacitance from one conductor to the other two conductors and shield shall
22 not exceed 48 pf per foot. The jacket shall be rated 80 degree C, 600 volt, with a
23 minimum average wall thickness of 0.045-inch. The finished outside diameter of the
24 cable shall be 0.3-inch maximum.
25

26 **9-29.3(2)I Twisted Pair Communications Cable**
27 Twisted Pair Communications Cable shall meet RUS Specification 1755.390 and shall
28 be AWG22 conductor. The cable shall have a petroleum compound completely filling
29 the inside of the cable and rated for OSP (Outside Plant) applications.
30

31 **9-29.6 Light and Signal Standards**
32 This section is supplemented with the following:
33

34 Materials for steel light and signal standards, and associated anchorage and fastening
35 hardware, shall conform to Sections 9-29.6(1), 9-29.6(2) and 9-29.6(5) unless otherwise
36 specified in one of the following documents:
37

- 38 1. The steel light and signal standard fabricator's pre-approved plan as approved
39 by the Washington State Department of Transportation and as identified in the
40 Special Provisions.
41
- 42 2. The steel light and signal standard fabricator's shop drawing submittal,
43 including supporting design calculations, as submitted in accordance with
44 Sections 6-01.9 and 8-20.2(1) and the Special Provisions, and as approved by
45 the Engineer.
46

47 **9-29.10 Luminaires**
48 Item G. under the first paragraph is revised to read:

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G. Housings shall be fabricated from aluminum. Painted housings shall be painted flat gray, Federal Standard 595 color No. 26280. Housings that are painted shall withstand a 1,000-hour salt spray test as specified in ASTM B 117.

9-29.10(2) Decorative Luminaires

The reference to "Federal Standard 595B" in the third sentence of the sixth paragraph is revised to "Federal Standard 595".

9-29.10(3) High Mast Luminaires and Post Top Luminaires

The second sentence of the third paragraph is revised to read:

All housings shall be painted flat gray, Federal Standard 595 color No. 26280.

9-29.16(2)E Painting Signal Heads

The reference to "Federal Standard 595B" in the first sentence is revised to "Federal Standard 595".

9-29.20 Pedestrian Signals

Under the second paragraph in item B(3) the reference to "Federal Standard 595B" is revised to "Federal Standard 595".

SECTION 9-30, WATER DISTRIBUTION MATERIALS

December 1, 2008

9-30.3(1) Gate Valves (3-inches to 16-inches)

The second paragraph is revised to read:

The Contractor shall provide an affidavit of compliance stating that the valve furnished fully complies with AWWA C509 or AWWA C515.

SECTION 9-32, MAILBOX SUPPORTS

August 3, 2009

9-32.1 Steel Posts

The second paragraph is revised to read:

Any damage to galvanized paint surfaces shall be treated with two coats of paint conforming to Section 9-08.1(2)B.

SECTION 9-33, CONSTRUCTION GEOSYNTHETIC

August 3, 2009

In regards to sieve sizes, all references in this division to "U.S." and "Square" are deleted.

1 **SECTION 9-34, PAVEMENT MARKING MATERIAL**
2 **August 3, 2009**

3 **9-34.2(1) High VOC Solvent Based Paint**

4 The reference to "Federal Standard 595a" in the first paragraph under Color-Yellow is
5 revised to "Federal Standard 595".
6

7 **9-34.2(2) Low VOC Solvent Based Paint**

8 The reference to "Federal Standard 595a" in the first paragraph under Color-Yellow is
9 revised to :Federal Standard 595".
10

11 **9-34.2(3) Low VOC Waterborne Paint**

12 The reference to "Federal Standard 595a" in the first paragraph under Color-Yellow is
13 revised to "Federal Standard 595".
14

15 **9-34.2(4) Temporary Pavement Marking Paint**

16 This section is revised to read:
17

18 Paint used for temporary pavement marking shall conform to the requirements of
19 Section 9-34.2.
20

21 **9-34.5 Temporary Pavement Marking Tape**

22 The third sentence is deleted.
23

24 **9-34.6 Temporary Raised Pavement Markers**

25 The eighth and ninth sentences in the first paragraph are deleted.
26

27 **SECTION 9-35, TEMPORARY TRAFFIC CONTROL MATERIALS**
28 **August 3, 2009**

29 **9-35.2 Construction Signs**

30 The fourth paragraph is revised to read:
31

32 The use of plywood, fiberglass reinforced plastic, fabric rollup signs, and any other
33 previously approved sign materials except aluminum or aluminum composite is
34 prohibited.
35

36 The following is inserted after the first sentence of the fifth paragraph:
37

38 A fabrication decal as stated in Section 9-28.1(2) is not required for construction signs.
39

40 **9-35.14 Portable Temporary Traffic Control Signal**

41 The sixth sentence of the seventh paragraph is deleted.
42

43 The third sentence in the eighth paragraph is revised to read:
44

- 1 A highly retroreflective yellow strip, 3-in wide, shall be placed around the perimeter of
- 2 the face of all vehicle signal backplates to project a rectangular image at night towards
- 3 oncoming traffic.

NOT FOR CONSTRUCTION