



ADDENDUM NO. 3

TO: All Plan holders and Prospective Bidders
FROM: City of Capitola Public Works
DATE: June 14, 2022
RE: **ADDENDUM NO. 3**
CLARES STREET TRAFFIC CALMING IMPROVEMENTS

ADDENDUM NO. 3

City of Capitola, California

This Addendum shall be considered as a part of the bid documents for the subject project as though it had been issued at the same time and shall be incorporated integrally therewith. Where provisions of the following supplementary data differ from those of the original documents, this Addendum shall govern and take precedence.

Contractors are hereby notified that they shall make any necessary adjustments in their proposals on account of this Addendum. It will be construed that each proposal is submitted with full knowledge of all modifications and supplemental data specified herein.

Receipt of this Addendum must be acknowledged on the Addendum Acknowledgement form. Signature on said Bid Form indicates acknowledgement of receipt of Addendum No. 3, and that said Addendum No. 3 was properly evaluated in bidder's proposal. Any proposal not in compliance with this requirement may be rejected.

Steven E. Jesberg, Public Works Director

The following is hereby added and/or amended:

- 1. Updated Plans, Bid Schedule, & Spec Sections 11.11, 11.12, and 11.13: To address the questions in the table below an updated set of plans, an updated bid schedule and updates to specification sections 11.11, 11.12, and 11.13 have been prepared and are available for download. A summary of the updates are noted below:**

Summary of Changes:

1. Bid opening date set to Wednesday June 29, 2022 at 11AM per Addendum 2.
2. Revised Plan Set “ADDENDUM_3_Clares_TC_Updated_CIR_Plans_6-14-22”
3. The attached Revised Bid Schedule shall replace the original Bid Schedule, pages 8 & 9 contained in the original specifications.
 - a. Item 11 - Cold Plane Asphalt Concrete Pavement (SQYD). New quantity added based on conform areas at the intersection corners along Clares.
 - b. Item 12 - Cold In-Place Recycling (SQYD). Quantity reduced by about 12%
 - c. Item 13 - Wedge Grinding (LF). Quantity reduced by about 10%
 - d. Item 14 - Conform Grinding (SQYD). New quantity added and separated out from Wedge Grinding item.
 - e. Item 15 - Hot Mix Asphalt (TON). Quantity increased by about 2% since Cold Plane/Conform areas are 3" HMA instead of 2" HMA for CIR section
4. **11.11 Cold Plane Asphalt Concrete Pavement.** Spec revised with measurement/payment info
5. **11.12 Cold In-Place Recycling (CIR)** Spec revised for using Foamed Asphalt consistent with plans
6. **11.13 Wedge and Conform Grinding.** Spec revised with measurement/payment info

Question & Answer Table

#	Question	Answer
1.	Bid Bond - The bid date was pre-filled on the bid bond form. Will a new bid bond form be provided?	The existing Bid Bond with an amended date is acceptable.
2.	Bid Item 12 – Can the wedge and conform grinding be split into 2 bid items?	See updated Bid Sheet. Original Bid Item 12 has been separated out into Bid Items 13 and 14.
3.	Due to the size and maneuverability of the Cold In-Place Recycling equipment / train, some of the areas shown on the plans that are scheduled to receive CIR treatment would present constructability issues. Could you please advise if it is	See updated Plan Set “ADDENDUM_3_Clares_TC_Updated_CIR_Plans_6-14-22” Intersection radius have been removed from the CIR treatment and will now be addressed as cold plane and HMA fill. Please note the adjustment to the bid quantities.

	acceptable to remove these areas from the CIR scope of work and treat them with conventional methods?	
4.	Will the City provide a depth for the wedge and confirm grinding.	See updated Specs, section 11.13. There will be a 2" wedge grind prior to the CIR treatment to accommodate the final 2" overlay.
5.	Can the city provide an anticipated start date or a date to complete by?	See P4 of the original contract document under Bidder's Proposal. "It is the City's intention to issue the "Notice to Proceed" such that the first working day will be approximately August 1, 2022. An exact start date for the project will be determined by the Engineer in coordination with the Contractor after the project has been awarded."
6.	Per the provided plans, the legend on sheet 3 indicates that the CIR section is to be Foamed asphalt while section 11.12 of the project specifications clearly define the CIR method as using an emulsified asphalt. Can you please advise on which method of CIR, Foamed or Emulsified Asphalt, that the city is intending to use on this project.	See updated Specs, section 11.12. The CIR method shall be foamed asphalt.
7.	Specification Section 11.13 states "In locations where the grinding penetrates the entire underlying surface, the Contractor shall grind an additional one and one-half (1.5) inch depth after approval by the Engineer. This additional grinding will be paid for under the contract bid item "Cold Planing (Milling) Asphalt Concrete (2" Depth)" does this section apply to this project since there is no Cold Planing AC (2" Depth)?	See updated Specs, section 11.13.

ADDENDUM NO. 3
REVISED BID SCHEDULE

ITEM NO.	BID ITEM	UNIT	QTY	UNIT PRICE	UNIT TOTAL
1	Mobilization	LS	1		
2	Construction Area Signs	LS	1		
3	Traffic Control System	LS	1		
4	Survey and Construction Staking	LS	1		
5	Temporary Water Pollution Control and Erosion Control	LS	1		
6	Adjust Water Valve Box to Grade	EA	26		
7	Adjust Sanitary Sewer Manhole to Grade	EA	15		
8	Adjust Storm Drain Manhole to Grade	EA	4		
9	Adjust Gas Valve Box to Grade	EA	4		
10	Adjust Utility Frame and Cover to Grade	EA	5		
11	Cold Plane Asphalt Concrete Pavement	SQYD	1,130		
12	Cold In-Place Recycling (CIR)	SQYD	10,784		
13	Wedge Grinding	LF	4,568		
14	Conform Grinding	SQYD	86		
15	Aggregate Base (Class 2)	CY	73		
16	Hot Mix Asphalt (Type A)	TON	1,483		
17	Minor Concrete (Curb and Gutter)	LF	185		
18	Minor Concrete (Valley and Cross Gutter)	SQFT	492		
19	Minor Concrete (Sidewalk)	SQFT	1,154		
20	Minor Concrete (Depressed Driveway)	SQFT	266		
21	Minor Concrete (Curb Ramp Remove and Replace)	EA	10		
22	Thermoplastic Traffic Stripe	LF	11,218		
23	Thermoplastic Pavement Marking	SQFT	4,169		
24	Thermoplastic Pavement Marking (Green)	SQFT	3,079		

ITEM NO.	BID ITEM	UNIT	QTY	UNIT PRICE	UNIT TOTAL
25	Decorative Crosswalk	LS	1		
26	Blue Fire Hydrant Pavement Marker	EA	4		
27	Roadside Sign	EA	37		
28	Rectangular Rapid Flashing Beacon (RRFB) Assembly	LS	3		
Total Bid Amount					\$

Bid Amount in words: _____

The contingency is reserved for unforeseen project tasks. No payment will be made to the Contractor for any portion of the contingency unless a contract change order is approved by the City.

11.11 COLD PLANE ASPHALT CONCRETE PAVEMENT

The work performed in connection with “Cold Plane Asphalt Concrete Pavement” shall conform to the provisions in Section 39-3.04 “Cold Planning Asphalt Concrete Pavement” of the Standard Specifications and in conformance with designs and details shown on the plans and these special provisions.

Existing asphalt concrete pavement shall be cold planed at the locations and to the dimensions shown on the plans and as directed by the Engineer.

The cold planing machine shall be equipped with a cutter head not less than 72 inches in width and shall be operated so as not to produce fumes or smoke. The cold planing machine shall be capable of planing the pavement without requiring the use of a heating device to soften the pavement during or prior to the planing operation.

The depth, width and shape of the cut shall be as indicated on the typical cross sections or as directed by the Engineer. The depth of the cut shall be measured from the existing grade at the project edge of pavement. The final cut shall result in a uniform surface conforming to the typical existing cross sections. The outside lines of the planed area shall be neat and uniform. Planing asphalt concrete pavement operations shall be performed without damage to the adjacent surfacing to remain in place.

The Contractor shall furnish and operate a self-loading motor sweeper with spray nozzles for final clean-up work and shall keep the milled area cleaned and maintained at all times until the street has been resurfaced. Crack sealing operations shall not begin on any street until all grinding operations on that street have been completed.

Temporary HMA tapers shall be provided where transverse joints are planed in the pavement at conform lines. No drop-off shall remain between the existing pavement and the planed area when the pavement is opened to public traffic. HMA for temporary tapers shall be placed to the level of the existing pavement and tapered on a maximum slope of 1V to 30H to the level of the planed area.

HMA for temporary tapers shall be of commercial quality and may be spread and compacted by any method that will produce a smooth riding surface. Temporary HMA tapers shall be completely removed, including the removal of all loose material from the underlying surface, before placing the permanent surfacing. The removed material shall be disposed in accordance with local and state laws and regulations. Operations shall be scheduled so that not more than 10 days shall elapse between the time when transverse joints are planed in the pavement at the conform lines and the permanent surfacing is placed at the conform lines.

Measurement and Payment-

The contract unit price paid per square yard (SQYD) for “Cold Plane Asphalt Concrete Pavement” shall include full compensation for providing all labor, materials, equipment, tools, and incidentals and for doing all work involved complete in place as shown on the plans and as specified in the Standard Specifications and these special provisions and no additional allowance will be made therefore.

11.12 COLD IN-PLACE RECYCLING (CIR)

The work performed in connection with “Cold In-Place Recycling (CIR)” shall conform to the provisions in Section 30-6, “Cold In-Place Recycling Using Foamed Asphalt” of the Standard Specifications and in conformance with designs and details shown on the plans and these special

provisions.

Replace *Reserved* in section 30-6 with:
30-6 COLD IN-PLACE RECYCLING USING FOAMED ASPHALT

30-6.01 GENERAL

30-6.01A Summary

Section 30-6 includes specifications for constructing the pavement using cold in-place recycling (CIR) using foamed asphalt.

CIR consists of:

1. Cold planing the existing asphalt concrete pavement to the depth shown.
2. Mixing the cold-planed material with foamed asphalt, cement and water.
3. Spreading and compacting the mixture.
4. Applying asphaltic emulsion and sand cover.

30-6.01B Definitions

action limit: Test results at which corrective actions must be made while production continues.

lot: 2,640 feet or fraction thereof of CIR pavement constructed in the same day.

sub-lot: 528 feet

suspension limit: Test results at which production must be suspended while corrections are made.

30-6.01C Submittals

30-6.01C(1) General

For tests where the requirement shown is “report only”, the Contractor shall submit the test result information to the Engineer.

At least 20 days before starting CIR work, the Contractor shall submit the following:

1. QC Plan
2. Mix Design
3. Contingency Plan

30-6.01C(2) Quality Control Plan

The Engineer reviews the QC plan within 5 business days from the submittal. The Contractor shall not begin CIR production until the Engineer authorizes the QC plan.

If QC procedures, personnel, tester qualifications, or lab accreditation status change, the Contractor shall submit a QC plan supplement at least 3 business days before implementing proposed changes.

If a change is needed in the QC plan, the Contractor shall not implement the change without authorization.

30-6.01C(3) Mix Design

The Contractor shall prepare a CIR mix design based on RAP material qualities. For the CIR mix design, the Contractor shall submit:

1. Mix design documentation on the Contractor CIR Mix Design form, including all raw test data and calculations. The mix design submittal must be signed and sealed by an Engineer who is registered as a Civil Engineer in the State of California.
2. Job Mix Formula (JMF) on the Contractor CIR Job Mix Formula form.
3. SDS for:
 - 3.1. Asphalt
 - 3.2. Cement
4. Process for incorporating cement to be used into the CIR mixture.

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30-6.01C(4) Contingency Plan

Contingency plan must include actions the Contractor will take to ensure the roadway will be open to traffic at the end of each work shift. The contingency plan must include provisions for constructing a temporary structural section and reopening the roadway to traffic.

30-6.01C(5) Quality Control Reporting

For each lot, the Contractor shall submit a report daily that includes the following items:

1. General Information:
 - 1.1. Lot number
 - 1.2. Location description
 - 1.3. Beginning and ending station
 - 1.4. Lane number and offset from centerline
 - 1.5. Temperature:
 - 1.5.1. Ambient air temperature before beginning daily CIR activities including time of temperature reading
 - 1.5.2. Road surface temperatures before beginning daily CIR activities including time of temperature reading
2. For asphalt:
 - 2.1. Weight in tons
 - 2.2. Percentage by weight of dry RAP
3. For cement:
 - 3.1. Application rate by lb/sqyd, if the Contractor spreads cement directly on the existing pavement. The Contractor shall take surface area measurements to calculate applied spread rate and submit with the quantity of cement used, area covered, and certified weight tickets.
 - 3.2. Total weight in tons
 - 3.3. Percentage by weight of dry RAP
4. Water application rate by theoretical percent dry weight of CIR:
 - 4.1. Used for foaming asphalt
 - 4.2. Added during mixing for compaction
5. For CIR processing:
 - 5.1. Length, width, depth of cut at each end of the cold planing drum at least every 300 feet along the cut length
 - 5.2. Average forward speed
 - 5.3. Calculated weight in tons of material processed
 - 5.4. Maximum wet density using CT 216
6. Straightedge measurement locations and the following:
 - 6.1. Variance measured from the lower edge of a 12-foot straightedge placed parallel with the centerline
 - 6.2. Variance measured from the lower edge of a 12-foot straightedge placed transverse
7. CIR quality control test results for:
 - 7.1. Wet field gradation for material passing the 1.25-inch, 1-inch, 3/4-inch, and No. 4 sieves
 - 7.2. Moisture content under CT 226
 - 7.3. In-place wet density under CT 231
 - 7.4. Relative compaction under CT 216
 - 7.5. Indirect tensile strength of three dry briquettes, three soaked briquettes, and the tensile strength ratio under modified CT 371 section J. Specimens shall be fabricated according to AASHTO T 245.

- 7.6. Air voids under CT 308
- 7.7. Maximum theoretical specific gravity under CT 309
- 7.7. Relative compaction under CT 375
8. For asphaltic emulsion used on finished CIR surface:
 - 8.1. Emulsion type
 - 8.2. Emulsion application rate in gal/sqyd
 - 8.3. Emulsion dilution as the weight ratio of added water to asphaltic emulsion
9. Rate of sand cover application
10. Note on the daily report postmile or station limits of any:
 - 10.1. Changes to foamed asphalt application rate, including application rate change and reasons for change
 - 10.2. Changes to water application rate, including application rate change and reasons for change for:
 - 10.2.1. Water for foaming
 - 10.2.2. Water added for compaction
 - 10.3. Unsuitable materials locations and when the Engineer was notified

The Contractor shall update each day's submitted report within 24 hours of obtaining test results. All of the lots completed in a day shall be consolidated into one report with each lot reported separately. During CIR activities, the Contractor shall submit the following items daily

1. Square yards recycled.
2. Tons of asphalt used.
3. Tons of asphalt to be carried over to next production day.
4. Tons cement utilized and spread rate.
5. Tons cement to be carried over to next production day.

30-6.01C(6) Certificates

The Contractor shall submit certificates of compliance for the cement, asphalt, and asphaltic emulsion with each delivery. The Contractor shall submit a certified copy of each delivery's weight for cement, asphalt, asphaltic emulsion, and sand.

30-6.01C(7) Asphalt Binder

The Contractor shall submit samples of asphalt in quart cans to the Engineer. Within 3 days after taking asphalt quality control samples, the Contractor shall submit the authorized laboratory's test results for asphalt quality characteristics.

30-6.01C(8) Asphaltic Emulsion

The Contractor shall submit samples of asphaltic emulsion in 1/2-gallon plastic containers to the Engineer.

Within 3 days after taking asphaltic emulsion quality control samples, the Contractor shall submit the authorized laboratory's test results for asphaltic emulsion.

Each time the asphaltic emulsion is diluted, the Contractor shall submit:

1. Weight ratio of water to residual asphalt in the original asphaltic emulsion
2. Weight of asphaltic emulsion before diluting
3. Weight of added water
4. Final dilution weight ratio of water to asphaltic emulsion

30-6.01C(9) Cold In-Place Recycling

The Contractor shall submit quality control test results for the quality characteristics within the reporting times allowance after sampling shown in the following tables:

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CIR Quality Control Test Result Reporting

Quality Characteristic	Maximum reporting time allowance
Water sulfates (ppm, max)	Before work starts
Water chlorides (ppm, max)	
Asphalt expansion (volume, min)	24 hours
Asphalt half-life (seconds, min)	
Moisture Content (%)	24 hours
Wet gradation (% passing) Sieve Size 1.25 inch	24 hours
Wet field gradation (% passing) Sieve size 1.25- inch 1-inch 3/4-inch No. 4	5 business days
Dry gradation (% passing) Sieve size 1.25-inch 1-inch 3/4-inch No. 4 No. 30 No. 200	5 business days
In-place wet density (lb/cu ft)	24 hours
Relative compaction CT 231 (% , min)	24 hours
Air voids (%)	5 business days
Theoretical maximum density	5 business days
Relative compaction CT 275 (% , min)	5 business days
Thickness (inch) Each Core Average thickness of cores	24 hours

30-6.01C(10) Cold In-Place Recycling Surface Smoothness

The Contractor shall submit the CIR surface data information shown in Section 36-3.01C for both the initial CIR surface and corrected CIR surface.

30-6.01D Quality Assurance

30-6.01D(1) General

Not used

30-6.01D(2) Quality Control

30-6.01D(2)(a) General

The laboratory used for preparing the mix design and JMF must be accredited under the AASHTO resource program and the Department's Independent Assurance Program.

Quality control laboratories and personnel performing sampling and testing must be in compliance with the Department Independent Assurance Program. For asphalt binder, the quality control

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laboratory must be accredited under the AASHTO resource program. For asphaltic emulsion, the quality control laboratory must participate in the AASHTO resource proficiency samples program. If the Contractor adjusts the application rate of CIR components, record the adjustments and document the reasons for the adjustments in the daily report submittal to the Engineer.

30-6.01D(2)(b) Quality Control Plan

The QC plan must describe the organization, responsible parties, and procedures the Contractor will use to perform the following:

1. Control the production process
2. Determine whether a change to the production process is needed
3. Obtain samples, including determining sampling locations
4. Control quality, including sampling, testing and reporting
5. Determine action limits when corrective actions are needed
6. Implement corrective actions
7. Ensure CIR cold planing, mixing, spreading, compacting, and finishing activities are coordinated

The QC plan must include action and suspension limits and the details of the corrective action to be taken if any process is outside of those limits. The suspension limits must not exceed the specified acceptance criteria.

The QC plan must address the elements affecting CIR quality including:

1. RAP
2. Asphalt
3. Cement
4. Production
5. Paving
6. Compaction
7. Smoothness

The QC plan must contain copies of the forms that will be used to provide the required inspection records and sampling and testing results.

The QC plan must include the name of the Contractor's authorized laboratory.

30-6.01D(2)(c) Pre-Paving Conference

At least 10 days before starting CIR activities, the Consultant shall meet with the Engineer at a pre-paving conference at a mutually agreed time and place to discuss the QC plan and the methods of performing production and placement.

The following personnel must attend the pre-paving conference:

1. Project manager
2. Project superintendent
3. QC manager
4. Workers and subcontractor's workers, including:
 - 4.1. Foremen
 - 4.2. Ground supervisors
 - 4.3. Representative from quality control testing lab

30-6.01D(2)(d) Quality Control

30-6.01D(2)(d)(i) General

The Contractor shall take samples under CT 125.

During CIR activities, the Contractor shall take two 1-quart samples of asphalt from each load delivered to the job site in the presence of the Engineer. One sample shall be used for QC testing and

one sample shall be submitted to the Engineer.

30-6.01D(2)(d)(ii) Test Strip

On the first day of CIR activities and within the pavement area to receive CIR, the Contractor shall construct a test strip. The test strip must be a single lane width and at least 1,056 feet (2 sub-lots) in length. The test strip must show:

1. How the equipment, materials, and processes proposed can produce and place the CIR mixture.
2. How varying the forward speed and drum rotation rate of the cold planing machine affect the consistency of the mixture.
3. Application rates for asphalt, cement, and optimum water content.
4. Rolling pattern needed to reach 98 percent relative compaction.
5. Application rates of asphaltic emulsion and sand cover.

The Engineer evaluates the test strip under section 30-6.01D(3). For smoothness, only the straightedge requirements apply for test strip authorization. The Contractor shall rework and recompact or remove and replace test strip if it does not comply with the specifications. The Contractor shall not proceed with CIR activities until the Engineer notifies the Contractor that the test strip is authorized.

30-6.01D(2)(d)(iii) Quality Control Testing

30-6.01D(2)(d)(iii)(a) General

For any lot including the test strip, the Contractor shall stop CIR activities and immediately notify the Engineer whenever any test result does not comply with the quality characteristic requirements or the quality control plan suspension limits. If CIR activities are stopped for noncompliance, before resuming activities the Contractor shall:

1. Notify the Engineer of the adjustments the Contractor will make
2. Reprocess, remedy, or replace the noncompliant lot

30-6.01D(2)(d)(iii)(b) Asphalt Binder

The Contractor shall perform sampling and testing of asphalt binder for compliance with the quality characteristics requirements in Section 92 table "PG Asphalt Binder" for the performance grade of asphalt used.

The first three asphalt samples and then every third sample taken shall be tested.

30-6.01D(2)(d)(iii)(c) Asphaltic Emulsion

The Contractor shall circulate asphaltic emulsion in the distributor truck before sampling. The Contractor shall take samples from the distributor truck at mid load or from a sampling tap or thief. Before taking samples, the Contractor shall draw and dispose of 1 gallon. In the presence of the Engineer, the Contractor shall take two 1/2-gallon samples. Sample must be submitted in an insulated shipping container.

For asphaltic emulsion, the Authorized Laboratory must perform quality control sampling and testing at the specified frequency and location for the following quality characteristics:

Asphaltic Emulsion Quality Testing Frequencies

Quality Characteristic	Test Method	Min. Sampling and Testing Frequency	Location of Sampling
Saybolt Furol Viscosity, @ 25 °C (SFS) ^a			
Saybolt Furol Viscosity, @ 50 °C (SFS) ^a			
Settlement, 5 days (max, %) ^b			
Storage stability test, 1 day (max, %)			

Demulsibility, 35 ml, 0.02 N CaCl ₂ (min, %)			
Particle charge test			
Sieve test (max, %)			
Residue by distillation (min, %)	AASHTO T 59	1 per truck tank minimum 1 per day	Distributor truck
Tests on residue from distillation test:			
Penetration, 25 °C			
Ductility, 25 °C, 50 mm/minute (min, mm)			
Solubility in trichloroethylene (min, %)			

^aSFS means Saybolt Furol Seconds.

^bSettlement tests not required when the asphaltic emulsion is used in less than 5 days.

30-6.01D(2)(c)(iii)(d) Cold In-Place Recycling

Perform sampling and testing at the specified frequency and location for the following quality characteristics:

CIR Quality Testing Frequencies

Quality Characteristic	Test Method	Min. Sampling and Testing Frequency	Location of Sampling
Water sulfates ^a (ppm, max)	CT 417	1 per source	Source
Water chlorides ^a (ppm, max)	CT 422	1 per source	Source
Asphalt expansion (volume, min)	CT 213	Each Tanker Truck	Recycling Equipment
Asphalt half-life (seconds, min)	CT 213	Each Tanker Truck	Recycling Equipment
Moisture Content (%)	CT 226	Test strip and 1 per lot	Recycled mat
Wet gradation (% passing) Sieve Size 1.25-inch	CT 202	Test strip and 1 per lot	
Wet gradation ^{b,c} (% passing) Sieve size 1.25-inch 1-inch 3/4-inch No. 4	CT 202	Test strip and every 3 rd lot	
Dry gradation ^c (% passing) Sieve size 1.25-inch 1-inch 3/4-inch No. 4 No. 30 No. 200	CT 202	Test strip and 1 per day	

Indirect dry tensile strength ^d (psi)	CT 371 Section J	1 per lot	
Indirect wet tensile strength ^d (psi, min)	CT 371 Section J	1 per lot	Recycled mat
Tensile strength ratio (%)	CT 371	1 per lot	

^aOnly required for non-potable water sources.

^bTest results are report only.

^cSplit with the moisture content sample and weigh immediately. Use the moisture content to calculate the dry mass for testing under CT 202.

^dFabricate 6 indirect tensile strength specimens under AASHTO T 245. Fabrication of indirect tensile

strength specimens must be completed within 2 hours after materials have been mixed. Cure the specimens at 100 °F for 72 hours and allow the specimens to cool to room temperature. Test 3 specimens for dry tensile strength under CT 371. Test 3 specimens for wet tensile strength under CT 371 after moisture conditioning.

30-6.01D(2)(c)(iii)(e) Density

For density, the Contractor shall perform sampling and testing at the specified frequency and location for the following quality characteristics:

Density Quality Testing Frequencies

Quality Characteristic	Test Method	Min. Sampling and Testing Frequency	Location of Sampling
In-place wet density (lb/cu ft)	CT 216	Test strip and 1 per lot	Recycled mat
Relative compaction ^a (% , min)	CT 231	Test strip and 1 per lot	Compacted mix
Air voids ^b (%)	CT 308	Test strip and 2 per day	Recycled mat
Theoretical maximum density ^b	CT 309	Test strip and 2 per day	Recycled mat
Relative compaction ^b (%)	CT 375	Test strip and 2 per day	Compacted mix

^aAverage of lot test locations 98 percent with no individual test less than 95 percent.

^bTake and split a sample of the loose CIR mixture daily at a location determined by the Engineer. Split the CIR samples into 2 parts and label the containers with location and station. Submit 1 split part and use 1 part for testing. Determine maximum theoretical density of the CIR sample under CT 309. Use the maximum theoretical density and calculate air voids under CT 308 for each compaction test site and the average of the lot. Report air voids ratio on daily quality control inspection records. The Department does not use CT 309 test results and air voids to determine specification compliance.

30-6.01D(2)(c)(iii)(f) Smoothness

The Contractor shall straightedge and record surface smoothness at least once every 1000 feet along the cut length. Stop cold planing activities and immediately inform the Engineer whenever:

1. Variance of more than 0.03 foot measured from the lower edge of a 12-foot straightedge placed parallel with the centerline
2. Transverse slope variance of more than 0.02 foot measured from the lower edge of

- a 12-foot straightedge
- 3. Visual inspection shows evidence of
 - 3.1. Raveling
 - 3.2. Loose material
 - 3.3. Non-uniform surface texture

After completing CIR activities, prior to HMA overlay, determine CIR surface smoothness under section 36-3.

The Contractor shall correct CIR surface with MRI greater than 90 in/mi for each 0.1-mile section and areas of localized roughness greater than 240 in/mi. For areas corrected by grinding, the Contractor shall reapply asphalt emulsion and sand.

30-6.01D(3) Department Acceptance

The Engineer samples materials for testing under CT 125.

Asphalt acceptance is based on the Department’s sampling and testing for compliance with the requirements for the quality characteristic requirements in Section 92 table “PG Asphalt Binder” for the performance grade of asphalt used.

Asphaltic emulsion acceptance is based on the Department’s sampling and testing for compliance with the requirements for the quality characteristic requirements in Section 94 table “Slow-Setting Anionic Asphaltic Emulsion Requirements” or “Slow-Setting Cationic Asphaltic Emulsion Requirements” for grade of asphaltic emulsion used.

CIR acceptance is based on:

- 1. Visual inspection for the following:
 - 1.1. Segregation, raveling, rutting, humps, depressions, roller marks, and loose material.
 - 1.2. Uniform surface texture throughout the work limits.
- 2. Compliance with smoothness requirements on the CIR surface of MRI of 90 in/mi or less for each 0.1- mile section and no areas of localized roughness greater than 240 in/mi.
- 3. Compliance with quality characteristic requirements in the following table:

CIR Quality

Quality Characteristic	Test Method	Requirement
Wet gradation (% passing) Sieve Size 1.25-inch	CT 202	100
Wet gradation (% passing) Sieve size 1.25-inch 1-inch 3/4-inch No. 4	CT 202	Report only

Dry gradation (% passing) Sieve size 1.25-inch 1-inch 3/4-inch No. 4 No. 30 No. 200	CT 202	Report only
Indirect tensile strength wet ^{a,b} (psi, min)	CT 371 Section J	35
Relative compaction (% , min) ^c	CT 231	98
Thickness (inch) ^d Each Core Average thickness of cores	Core measurements	±0.75 inch of the thickness shown ≥ thickness shown

^aFabricate 3 indirect tensile strength specimens under AASHTO T 245. Fabrication of indirect tensile strength specimens must be completed within 2 hours after materials have been mixed.

^bCure the specimens at 100 °F for 72 hours and allow the specimens to cool to room temperature. Test 3 specimens for wet tensile strength under CT 371 after moisture conditioning.

^cAverage density per lot with no individual test below 95 percent.

^dTake 4- or 6-inch core from three random locations per lot as determined by the Engineer. Coring at

more than 3 locations per lot is change order work. Perform coring and measure core depth in the presence of the Engineer.

If the Engineer orders the Contractor to stop CIR activities for noncompliance, before resuming activities the Contractor shall:

1. Notify the Engineer of the adjustments the Contractor will make.
2. Reprocess, remedy, or replace the noncompliant lot.
3. Obtain the Engineer's authorization.

30-6.01D(4) Dispute Resolution

The Contractor and the Engineer must work together to avoid potential conflicts and to resolve disputes regarding test result and visual inspection discrepancies. The Contractor shall notify the Engineer within 5 business days of receiving a test result if the Contractor disputes the test result. If the Contractor or the Engineer dispute each other's test results, the Contractor shall submit quality control test results and copies of paperwork including worksheets used to determine the disputed test results. An independent third party (ITP) performs referee testing. Before the ITP participates in a dispute resolution, the ITP must be accredited under the AASHTO resource program, and the Department's Independent Assurance Program. The ITP must be independent of the project. By mutual agreement, the ITP for referee testing is chosen from:

1. A Department laboratory.
2. A Department laboratory in a district or region not in the district or region the project is located.
3. The Transportation Laboratory.
4. A laboratory not currently employed by the Contractor or its CIR producer.

If split QC or acceptance samples are not available, the ITP uses any available material representing

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the disputed CIR for evaluation.

If the Contractor or the Engineer dispute each other's visual inspection findings, the Contractor shall submit copies of visual inspection findings. An independent third party (ITP) consisting of a Department expert and a CIR industry or Academia expert will perform a joint visual inspection. The ITP must be independent of the project. The ITP is chosen by mutual agreement.

30-6.02 MATERIALS

30-6.02A General

A summary of existing material investigations is available in the *Geotechnical Report* as supplemental project information.

30-6.02B Water

If a water source other than potable water is used, the Contractor shall test water for sulfates and chlorides.

Water Requirements

Quality Characteristic	Test Method	Requirement
Water sulfates ^a (ppm, max)	CT 417	1,300
Water chlorides ^a (ppm, max)	CT 422	650

^aOnly required for non-potable water sources.

30-6.02C Cement

Cement must comply with section 90-1.02B(2).

30-6.02D Reclaimed Asphalt Pavement

The Contractor shall cold plane existing asphalt pavement and process to produce RAP. RAP must be processed by mechanical means to pass the 1.25-inch sieve.

Reclaimed asphalt pavement must meet the following requirements:

CIR Requirements

Quality Characteristic	Test Method	Requirement
Indirect dry tensile strength ^a (psi)	CT 371 Section J	Report only
Indirect wet tensile strength ^a (psi).	CT 371 Section J	35
Tensile strength ratio (%)	CT 371	Report only

^aFabricate 6 indirect tensile strength specimens under AASHTO T 245. Fabrication of indirect tensile strength specimens must be completed within 2 hours after materials have been mixed. Cure the specimens at 100 °F for 72 hours and allow the specimens to cool to room temperature. Test 3 specimens for dry tensile strength under CT 371. Test 3 specimens for wet tensile strength under CT 371 after moisture conditioning.

30-6.02E Asphalt

Use PG 64-10 or PG 64-16 for foamed asphalt.

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30-6.02F CIR Mix Design

The mix design must include RAP from the job site, asphalt, cement, and water. The mix design must comply with Lab Procedure LP-8-FA and the requirements shown in the following table:

Mix Design Requirements

Quality Characteristic	Test Method	Requirement
RAP asphalt content (%)	ASTM D2172, Method B	Report only
Bulk specific gravity of compacted samples ^{a, b}	AASHTO T 275	Report only
Maximum theoretical specific gravity ^b	AASHTO T 209	Report only
Air voids of compacted and cured specimens ^b , %	AASHTO T 269	Report only
Marshall Stability, cured specimen ^b at 104 °F (lbs, min)	AASHTO T 245	Report Only
Marshall retained stability ^{b, c} at 104 °F based on moisture conditioning on cured specimen (% , min)	AASHTO T 245	Report Only
Indirect dry tensile strength ^d (psi)	CT 371 Section J	Report only
Indirect wet tensile strength ^d (psi)	CT 371 Section J	35
Tensile strength ratio (%)	CT 371	Report only
Maximum density (lb/cu ft)	CT 216	Report only

^a4-inch diameter mold compaction based on gyratory compactor at 30 gyrations.
^bTest specimens after 104 °F curing to constant weight between 16 hours and 48 hours.
^cVacuum saturation from 55 percent to 75 percent. Water bath at 77 °F for 23 hours, with the last 30 minutes to 40 minutes in 104 °F water bath.
^dFabricate 6 indirect tensile strength specimens under AASHTO T 245. Fabrication of indirect tensile strength specimens must be completed within 30 minutes after materials have been mixed. Cure the specimens at 100 °F for 72 hours and allow the specimens to cool to room temperature. Test 3 specimens for dry tensile strength under CT 371. Test 3 specimens for wet tensile strength under CT 371 after moisture conditioning.
 Cement must be at least 0.25 but not more than 1.0 percent of the dry weight of RAP. If additional mix designs are required, this work is change order work.

30-6.02G Temporary Structural Section

Use minor HMA or commercial quality bituminous material to construct a temporary structural section. The minor HMA for the temporary structural section must include:

1. 1/2-inch HMA Type A aggregate gradation
2. Asphalt binder grade PG 64-10, PG 64-16, or the binder grade specified for the HMA layer on the CIR surface

The commercial quality bituminous material for the temporary structural section must contain aggregate that complies with 1/2-inch HMA Type A aggregate gradation.

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30-6.02H Asphaltic Emulsion

Asphaltic emulsion must be Grade SS-1H or Grade CSS-1H.

The Contractor shall notify the Engineer if the asphaltic emulsion is diluted with water. The ratio by weight of added water to asphaltic emulsion must not exceed 1 to 1.

The Contractor shall measure added water weight.

30-6.02I Sand Cover

Sand used for sand cover must comply with the material specifications for fine aggregate in section 90- 1.02C. Sand must not contain more than 2 percent moisture by dry weight of sand.

30-6.03 CONSTRUCTION

30-6.03A General

The Contractor shall not disturb or damage the underlying materials during pavement cold planing activities. The Contractor shall not use a heating device to soften the pavement.

Before starting CIR activities, the Contractor shall provide 100 tons of commercial quality bituminous surfacing material onsite for maintenance and protection of the completed CIR surface.

The Contractor shall use the same equipment, materials, rolling pattern and construction methods that were used for the authorized test strip for the remainder of the CIR work. Any adjustments must be authorized.

If the equipment or process fail to meet the specifications, the Contractor shall stop CIR activities and notify the Engineer.

30-6.03B Surface Preparation

Before starting CIR activities, the Contractor shall prepare the existing roadway by:

1. Removing loose material from the roadway width including:
 - 1.1. Dirt
 - 1.2. Vegetation
 - 1.3. Standing water
 - 1.4. Combustible materials
 - 1.5. Oils
- 1.6. Pavement markers and underlying adhesive
 2. Accurately referencing the existing pavement's profile and cross slope.
 3. Accurately marking the proposed longitudinal cut lines on the existing roadway surface.

30-6.03C Cold In-Place Recycling Equipment

30-6.03C(1) General

The equipment for CIR must consist of:

1. Cold planing
2. Mixing and proportioning
3. Water storage and supply
4. Cement storage and supply
5. Cement mixing and spreading
6. CIR mixture spreading
7. Compacting
8. Applying asphaltic emulsion to the surface
9. Spreading sand cover

The Contractor shall use equipment that:

1. Cold planes, pulverizes, crushes, and sizes the existing asphalt pavement.

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2. Mixes the RAP with the foamed asphalt and cement into a homogeneous mixture.
3. Places the CIR mixture to the lines, grades, and specifications.

30-6.03C(2) Cold-Planing Equipment

The cold-planing machine must:

1. Be self-propelled.
2. Have a 12-foot minimum wide cutter that can remove the existing pavement to the specified depths.
3. Be equipped with automatic depth and cross slope controls capable of maintaining the cutting depth to within 0.25 inch of the shown depth.

A cold-planing machine with a cutter narrower than 12 feet wide may be used for shoulders and miscellaneous areas.

30-6.03C(3) Mixing Chamber or Pugmill

The Contractor shall provide a continuous mixing chamber or pugmill mixing machine as part of the recycle train with either a belt scale or an integrated microprocessor control system to control:

1. RAP delivered to the mixing chamber or pugmill.
2. Amount of foamed asphalt being delivered.

The mixing chamber or pugmill must be arranged to mix the RAP, foamed asphalt, and cement to produce the specified CIR mixture. The mixing chamber may be equipped with paddles or other suitable mixing devices. If paddles or other suitable mixing devices are used, the RAP must be fed from the pulverizing, crushing, or sizing equipment to the mixer at a uniform and controlled rate. The CIR machine must rear load directly into the paver's receiving hopper or the paver's loading equipment must pick up the CIR mixture and deposit it in the paving machine without waste. If the paving screed is directly attached to the CIR equipment, the CIR mixture must be fed directly to the paving screed.

30-6.03C(4) Mixing and Proportioning Equipment

30-6.03C(4)(a) General

The Contractor shall use a mass flow, Coriolis effect type meter with a visible readout display and printing capabilities.

The weighing and measuring devices for the asphalt and cement must comply with the requirements of the MPQP. The Contractor may use equipment that has successfully passed the calibration requirements of MPQP within the past 6 months.

30-6.03C(4)(b) Cement Continuous Mixing Equipment

For continuous mixing of cement slurry, the proportioning device must be capable of determining the exact ratio of water to dry cement at each production rate.

Rate-of-flow indicators and totalizers for similar materials must be accurate within 0.5 percent of each other.

The cement continuous mixing equipment must include:

1. Belt scale for weighing cement. The belt scale must operate between 30 to 100 percent of production capacity. The average difference between the indicated and actual material weight must not exceed 0.5 percent of the actual material weight for 3 individual runs. For each run, the indicated weight must not vary from the actual material weight by more than 1 percent of the actual weight. Test for belt scale accuracy must be for at least 0.5 tons of cement. Actual material weight must be verified on a certified scale.
2. Water meter for measuring water used in cement slurry. The meter must operate

between 50 to 100 percent of production capacity. The average difference between the indicated and actual water weight must not exceed 1 percent of the actual weight for 3 individual runs. Test for water meter accuracy must be for at least 300 gallons of water.

Meters and scales must be equipped with:

1. Rate-of-flow indicators that show the delivery rates of cement and water.
2. Resettable totalizers that indicate the total amount of cement and water introduced into the slurry storage tank.

Feeds for water and cement must be equipped with no-flow devices that stop slurry production when the individual ingredients are not being delivered to the cement slurry storage tank.

30-6.03C(4)(c) Cement Batch Mixing Equipment

For batch-type mixing of cement slurry, the proportioning equipment must include:

1. Certified weight scale.
2. Water meter equipped with a resettable totalizer. Test for water meter accuracy must be for at least 300 gallons of water.

If an automatic controller is used to batch the cement, the controller must also control the water proportioning.

If an automatic controller is used to proportion the water, the indicated draft of the water must be within 1 percent of its total draft weight.

The meter must operate between 50 to 100 percent of production capacity. The average difference between the indicated and actual water weight must not exceed 1 percent of the actual weight for 3 individual runs.

30-6.03C(5) Water Storage and Supply Equipment

As part of the recycle train, the Contractor shall provide an independent supplemental water source separate from the water added to the mill to cool the teeth. The Contractor shall interlock the supplemental water with the RAP weighing device or microprocessor to properly disperse the foamed asphalt.

30-6.03C(6) Cement Storage and Supply Equipment

The Contractor shall provide cement slurry storage and supply equipment with agitators or similar equipment to keep the cement slurry in suspension while held in the slurry feed tank.

If cement is spread dry to the existing pavement, the Contractor shall use a spreader capable of spreading the cement at the required weight per unit area. The spreader must have working scales and distance measuring devices to control the spread rate.

30-6.03C(7) Spreading Equipment

Spreading equipment must comply with section 39-2.01C(2).

Spreading equipment must be equipped with ski devices for longitudinal profile. The ski devices may be a conventional contact ski or noncontact laser or sonar device.

30-6.03C(8) Compacting Equipment

Compacting equipment must comply with sections 39-2.01C(2). Provide a minimum of 1 pneumatic-tired roller weighing at least 25 tons and 1 double drum vibratory steel-wheeled roller weighing at least 10 tons. Rollers must be at least 5.5 foot wide. Each roller must have a working water spray system.

30-6.03D Cold In-Place Recycling

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30-6.03D(1) General

The Contractor shall not perform CIR activities under the following conditions:

1. Pavement surface is wet due to rain.
2. Rain is forecasted within 24 hours of the scheduled work.

The Contractor shall use the existing pavement profile and cross slope to establish the CIR finished profile and cross slope. The Contractor may adjust the recycling depth by ± 0.75 inch from the depth shown to achieve uniform pavement profile, cross slope, and surface smoothness. The average recycled depth determined by cores must be equal to or greater than the depth shown.

30-6.03D(2) Cold Planing

The Contractor shall not leave gaps of unrecycled material between successive cuts along the same longitudinal cut line. The Contractor shall not leave untreated wedges created by the entry of the milling drum into the existing pavement.

Longitudinal joints between successive cuts must overlap by 4 inches minimum.

30-6.03D(3) Unsuitable Conditions

If the Contractor encounters unsuitable subgrade material, the Contractor shall:

1. Notify and meet with the Engineer immediately.
2. Clearly define the unsuitable material areas and depth.
3. Excavate and dispose of any unsuitable subgrade material encountered.
4. Unless otherwise ordered, backfill the excavated area with Class 2 AB as specified in section 26.
5. Submit within 24 hours of defining unsuitable material the following:
 - 5.1. Unsuitable areas including station or postmile, length, width, depth and centerline offset.
 - 5.2. Remediation taken, including quantities of materials used.

The Contractor shall top the Class 2 AB with HMA Type A or a premixed bituminous material equivalent in thickness to the existing asphalt concrete layer adjacent to the excavation. If premixed bituminous material is used, the Contractor shall remove and replace it with HMA Type A prior to placing final surfacing. The Contractor shall place HMA in layers and compact until the level of the CIR surface is reached.

Excavating and disposing of unsuitable material and replacing with AB and surfacing material is change order work.

30-6.03D(4) Asphalt Binder

The Contractor shall test asphalt foaming half-life and expansion ratio for each tanker load of asphalt. The Contractor shall verify the half-life and expansion ratio, if the supplied asphalt changes more than 10 °F from the temperature at which the tests were conducted.

30-6.03D(5) Cement

The Contractor shall add the cement into the recycling process by one of the following methods:

1. Add at the mill head as a slurry.
2. Add directly in the pugmill or mixing chamber as a slurry.
3. Spread on the existing pavement surface ahead of the recycling train in a dry form.

If the Contractor spreads the cement directly to the existing pavement, the Contractor shall not spread more than 100 feet ahead of the recycling train. The Contractor shall not spread under windy conditions and employ dust control measures to minimize fugitive dust.

The Contractor shall not allow spread cement to remain exposed at the end of the work shift. The

Contractor shall not allow traffic other than the recycling equipment to pass over the spread cement.

30-6.03D(5) Water

The Contractor shall determine percentage of water for foaming based on expansion and half-life testing for each truck load of asphalt. For additional water added for compaction, water should be added by the recycling unit so that material being placed is within ± 2 percent of the optimum moisture content determined under CT 216.

30-6.03D(6) Proportioning

Using the mass flow, Coriolis effect type meter, the Contractor shall measure the cement slurry and foamed asphalt before adding them into the RAP. The amount of cement slurry and foamed asphalt must match the amount reported in the JMF or the amount as adjusted and authorized.

The Contractor shall keep cement slurry in suspension during transport using agitator equipment. The Contractor shall keep dry cement in dry cement spreader trucks, pneumatic trailers, or silos.

30-6.03D(7) Spreading and Compacting

When placing the initial mat of CIR, the end of the screed nearest the centerline must be controlled by a sensor activated by a ski device not less than 20 feet long. The end of the screed farthest from centerline must be controlled by:

1. A sensor activated by a similar ski device if adjacent to a lane or paved shoulder.
2. An automatic transverse slope device set to reproduce the existing pavement cross slope if adjacent to an unpaved shoulder or no shoulder.

When paving contiguously with previously placed CIR, the end of the screed adjacent to the previously placed CIR must be controlled by a sensor that responds to the grade of the previously placed CIR surface and will reproduce the grade in the new CIR within a 0.01-foot tolerance. The end of the screed farthest from centerline must be controlled by:

1. A sensor activated by a ski device if adjacent to a lane or paved shoulder.
2. An automatic transverse slope device set to reproduce the existing pavement cross slope if adjacent to an unpaved shoulder or no shoulder.

The Contractor may vary the depth of the CIR to achieve uniform CIR pavement profile, cross slope, and surface smoothness.

The Contractor shall not allow segregation, tearing, or scarring of the compacted surface.

The Contractor shall compact the CIR mixture by implementing the same compaction rolling pattern established in the authorized test strip. For a lot, the Contractor shall compact the CIR mixture to achieve a minimum average of 98 percent relative compaction of the density determined under CT 216.

The Contractor shall establish a new rolling pattern if any of the following occur:

1. Relative compaction of any of the 10 individual locations is less than 95 percent of the density determined under CT 216.
2. Average relative compaction of the lot is less than 98 percent of the density determined under CT 216.
3. Changes in RAP or proportions.
4. Changes in equipment or procedures.
5. Change in temperature or weather conditions affecting mixing and compaction temperatures of the placed mixture.
6. Visible displacement or cracking occurs.

The Contractor shall perform final rolling with a double-drum vibratory steel-wheel roller operating in static or vibratory mode.

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The compacted CIR surface must be free from raveling, segregation, rutting, humps, depressions, roller marks, or irregularities. Rework, recompact, or remove and replace CIR that shows raveling, segregation, rutting, humps, depressions, roller marks, or irregularities.

For CIR smoothness, the completed CIR surface must have an MRI of 90 in/mi or less for a 0.1-mile section and no areas of localized roughness greater than 240 in/mi.

For areas that require CIR surface smoothness determined using a 12-foot straightedge, the CIR surface must not vary from the lower edge of the straightedge by more than:

1. 0.02 foot when the straightedge is laid parallel with the centerline.
2. 0.03 foot when the straightedge is laid perpendicular to the centerline and extends from edge to edge of a traffic lane.

30-6.03E Asphaltic Emulsion and Sand Cover

After initial compaction and before opening the CIR surface to traffic, the Contractor shall apply a coat of asphaltic emulsion followed by sand cover to the CIR surface. The Contractor shall apply asphaltic emulsion and sand cover under section 37-4.03.

The Contractor shall remove excess sand from the pavement surface by sweeping before opening to traffic.

30-6.03F Temporary Structural Section

The Contractor shall place a temporary structural section to the level of the CIR surface if:

1. The Contractor is unable to complete the CIR before opening to roadway to traffic.
2. CIR fails during the maintaining period by raveling or rutting.

For minor HMA or commercial quality bituminous material, the Contractor shall place in layers and compact until the level of the CIR surface is reached. The Contractor shall compact the minor HMA or commercial quality bituminous material using method compaction process as specified in section 39-2.01C(15)(b).

If commercial quality bituminous material or minor HMA is used, the Contractor shall remove and replace it with HMA Type A under an authorized JMF meeting all of the requirements for HMA Type A before placing overlay.

30-6.03G Maintain, Cure and Protect Surface

The Contractor shall not place the HMA layer over the CIR surface until either of the following conditions is met:

1. 3 days and moisture measured at mid-depth of the CIR pavement is 2.0 percent or less.
2. 10 days without rainfall.

The HMA layer must be placed within 15 days of completion of the CIR layer. The Contractor shall immediately repair any damage or defects by:

1. Reworking and re-compacting the CIR surface.
2. Replacing any damaged area with the same depth of cold bituminous surfacing material or HMA.

Measurement and Payment

"COLD-IN-PLACE RECYCLING (CIR)" shall be paid for by the square yard (SQYD). The price shall be full compensation for all labor, incidentals, tools, equipment, and materials including cement, asphalt, asphaltic emulsion, and sand cover; for doing all the work involved in cold in-place recycling, complete in-place; for crushing, mixing, placing, and compacting the recycled pavement mixture; for protection and maintenance of the recycled layer; for performing all QC testing including mix design; for temporary

structural section and sweeping if necessary; for obtaining measurements and recording results of all tests as shown on the plans and as directed by the Engineer.

11.13 WEDGE AND CONFORM GRINDING

The work performed in connection with “Wedge Grinding” and “Conform Grinding” shall conform to the provisions in conformance with designs and details shown on the plans and these special provisions.

Wedge grinds shall be ground into the existing asphalt concrete pavement along all existing gutters and where indicated on the plans. The Contractor shall exercise care when performing wedge grinding around existing manholes, valve boxes and other facilities located at the lip of gutters or within the wedge grind areas.

All grinding areas shall be paved with HMA within five (5) calendar days after grinding, weather permitting. The Engineer shall have the authority to stop grinding operations if it is determined that the grinder is too far ahead of paving operations. No additional compensation shall be made to the contractor for any work stoppage.

Wedge grinding shall be performed by the cold planing method. Planing of the asphalt concrete pavement shall not be done by the heater planing method.

The cold planing machine shall be equipped with a cutter head not less than 72 inches in width and shall be operated so as to not produce fumes or smoke. The cold planing machine shall be capable of planing the pavement without requiring the use of a heating device to soften the pavement during or prior to the planing operation.

Wedge grinds shall be parallel to the direction of traffic. These shall be ground below the gutter or along the edge of pavement as indicated on the plans and shall daylight six (6) feet from the lip of the gutter or edge of pavement. Any sections of asphalt that becomes loose after wedge grinding shall be removed and disposed of by the Contractor at the Contractor’s expense.

The depth, width and shape of the cut shall be as indicated on the typical cross sections or as directed by the Engineer. The final cut shall result in a uniform surface conforming to the typical cross sections. The outside lines of the planed areas shall be neat and uniform. Grinding of asphalt concrete pavement shall be performed without damaging the underlying pavement surface to remain in place.

If the wedge grinding operation begins to pulverize the asphalt concrete surface that is to remain intact, or penetrates the entire underlying pavement section, the Contractor shall notify the Engineer immediately. The Contractor shall use a smaller grinder to prevent further damage to the underlying pavement in areas where the underlying pavement is being pulverized. In locations where the grinding penetrates the entire underlying surface, the Contractor shall grind an additional one and one-half (1.5) inch depth after approval by the Engineer. After the additional wedge grinding is performed, a layer of asphalt concrete leveling course shall be placed at the direction of the Engineer. All wedge and conform grind areas shall receive a tack coat before placing HMA according to Section 39-1.09C, “Tack Coat,” of the Caltrans Standard Specifications.

The Contractor shall be responsible for all damage to cold planing machines caused by hitting any hidden objects during grinding operations. In addition, the Contractor shall be responsible for the cost of repairing any facility that is damaged by the cold planing machine.

Measurement and Payment-

The contract unit price paid per linear foot (LF) for “Wedge Grinding” shall include full compensation for furnishing all labor, materials, tools, equipment, and incidentals, and for doing all of the work involved in grinding asphalt concrete surfacing and disposing of ground materials, including furnishing temporary HMA for and constructing, maintaining, removing, and disposing of temporary asphalt concrete tapers, as specified in these Special Provisions and as directed by the Engineer.

The contract unit price paid per square yard (SQYD) for “Conform Grinding” shall include full compensation for furnishing all labor, materials, tools, equipment, and incidentals, and for doing all of the work involved in grinding asphalt concrete surfacing and disposing of ground materials, including furnishing temporary HMA for and constructing, maintaining, removing, and disposing of temporary asphalt concrete tapers, as specified in these Special Provisions and as directed by the Engineer.

The quantities to be paid for will be the actual lengths cold planed for the depths and widths designated on the Plans, irrespective of the number of passes required to obtain the depths and widths shown on the Plans.