

CHIP SEAL PROCESS, PROCEDURES AND QUALITY CONTROL



BL BLUE LINE
ROAD PRODUCTS

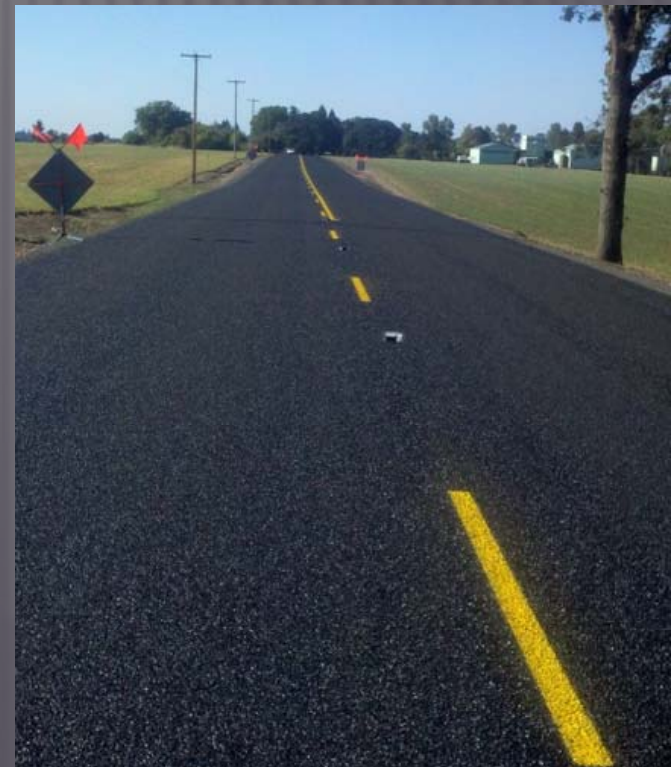
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INTRODUCTION

✘ This course is designed to present the fundamental process, procedures and quality control of Chip Seal Construction while increasing efficiency and SAFETY.

- + Communication
- + Surface Preparation
- + Flagging – Signage – Pilot Car
- + Distributor – Chip Spreader
- + Dump Trucks
- + Rollers
- + Sweepers
- + Quality Control
- + Safety



COMMUNICATION

- ✘ Communication starts at the planning phase and continues throughout the project until project completion. Proper Planning Prevents Piss Poor Performance.
 - + What are the expectations for the project? Does everyone know?
 - + Promote input of information to identify potential problems.
 - + Design the flow of work plan and ensure all are informed.
 - + Communicate fully with the team any changes required in a timely manner.
 - + Develop and implement a work zone communication plan.
 - + Conduct daily exchange of information meetings.

COMMUNICATION - CONTINUED





COMMUNICATION - CONTINUED



COMMUNICATION - CONTINUED



COMMUNICATION - CONTINUED



SURFACE PREPARATION

- + Evaluation of the pavement conditions must be conducted prior to the chip seal application. Repair any imperfections that will be required to achieve the expected goals.
- + Crack Sealing
- + Blade Patching
- + Pothole Patching
- + Fracture Repair
- + Marking Removal
- + Surface Cleaning
- + Surface Treatment

SURFACE PREPARATION - CONTINUED



SURFACE PREPARATION - CONTINUED



SURFACE PREPARATION - CONTINUED



SURFACE PREPARATION - CONTINUED



SURFACE PREPARATION - CONTINUED



SURFACE PREPARATION - CONTINUED



SURFACE PREPARATION - CONTINUED



SIGNAGE - FLAGGING - PILOT CAR

+ The safe work zone starts with Signage, Flagging and Pilot Cars. Without the proper communication and controls in place, SAFETY WILL BE COMPROMISED.

- × Signage
- × Flagging
- × Pilot Cars

SIGNAGE - FLAGGING - PILOT CAR - CONTINUED



SIGNAGE - FLAGGING - PILOT CAR - CONTINUED



SIGNAGE - FLAGGING - PILOT CAR - CONTINUED



DISTRIBUTOR – CHIP SPREADER

- + The distributor and chip spreader work in concert with each other to produce the desired asphalt to rock interface while maintaining efficiency and safety.
- + Communicate with each other.
- + Provide information and direction to the team.

DISTRIBUTOR – CHIP SPREADER - CONTINUED



DISTRIBUTOR – CHIP SPREADER - CONTINUED



DISTRIBUTOR – CHIP SPREADER - CONTINUED



DUMP TRUCKS

✘ What more can I say?????

DUMP TRUCKS - CONTINUED



DUMP TRUCKS - CONTINUED



ROLLERS

- ✘ Rollers provide the mechanical force required to embed the aggregate into the asphalt.
- ✘ Rubber tire rollers work the aggregate into the irregular surfaces of the road.
- ✘ Steel drum rollers force the aggregate into the surface and turn down any sharp points .

ROLLERS - CONTINUED



ROLLERS - CONTINUED



ROLLERS - CONTINUED



ROLLERS - CONTINUED



ROLLERS - CONTINUED



SWEEPERS

- ✘ Sweepers provide the mechanical force required to remove debris from the road surface prior to application and also remove excess rock after placement is completed.



SWEEPERS - CONTINUED



SWEEPERS - CONTINUED



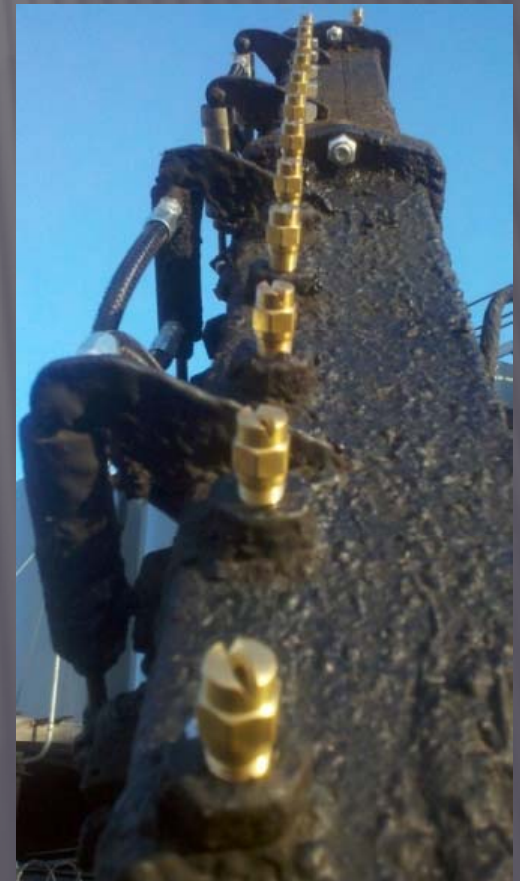
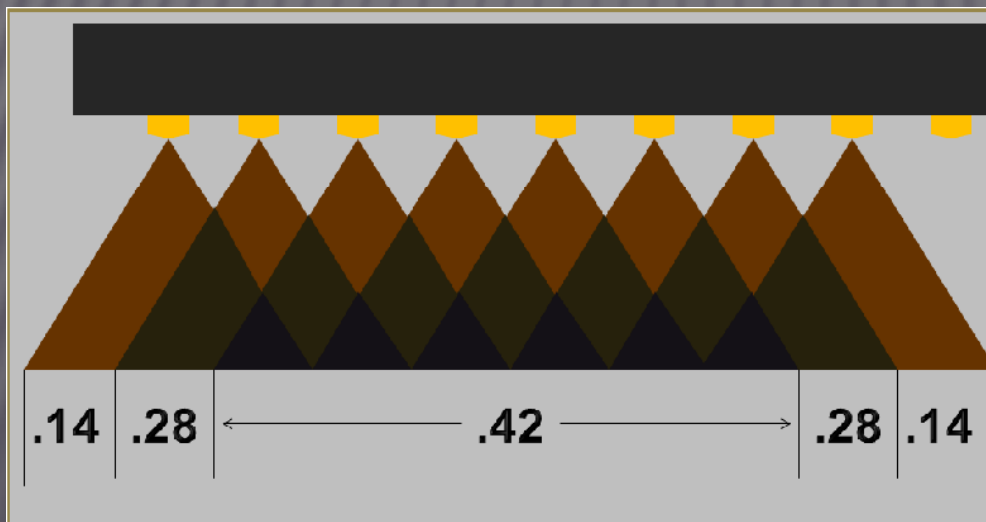
Quality Control

QUALITY CONTROL

- ✘ Quality Control is the process of recording and evaluating the chip seal operation to attain the desired finished product.
 - + Nozzle Considerations
 - + Joint Line
 - + Meet Line
 - + Ridging
 - + Intersection Radius
 - + Record Keeping
 - + Surface Condition Upon Application
 - + Workmanship Repairs

NOZZLE CONSIDERATIONS

- ✘ Nozzle Considerations are vital to provide the spray pattern at the spray bar for even application.
 - + Consistent Size
 - + Consistent Orientation
 - + Clear of Obstructions



JOINT LINE

- ✘ A Joint Line is the lateral point at which liquid asphalt application is stopped and started.
 - + Straight
 - + Even application
 - + Three inches or less overlap
 - + Minimize distance required
 - + Paper



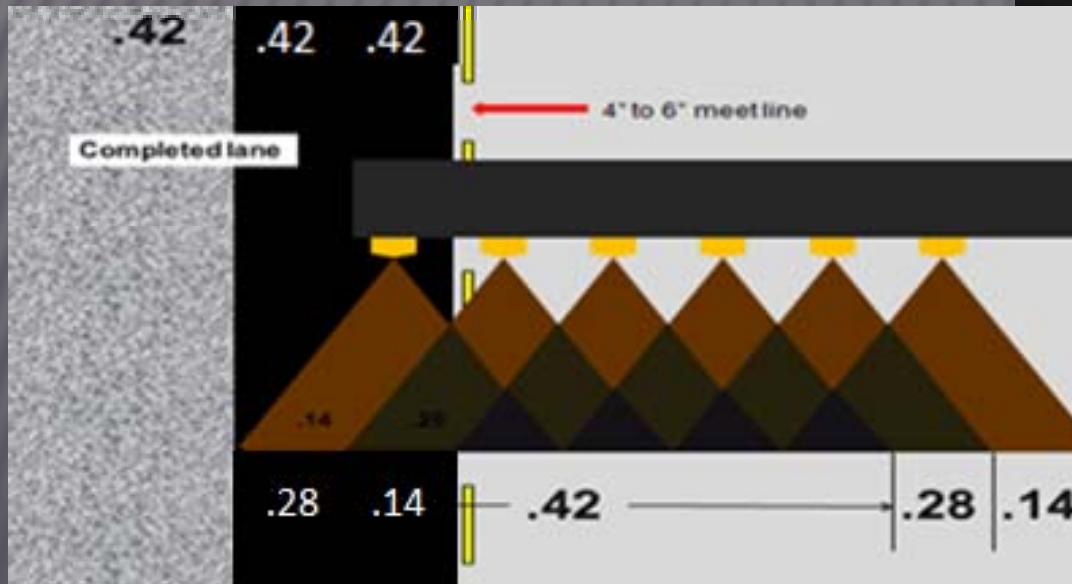
JOINT LINE - CONTINUED



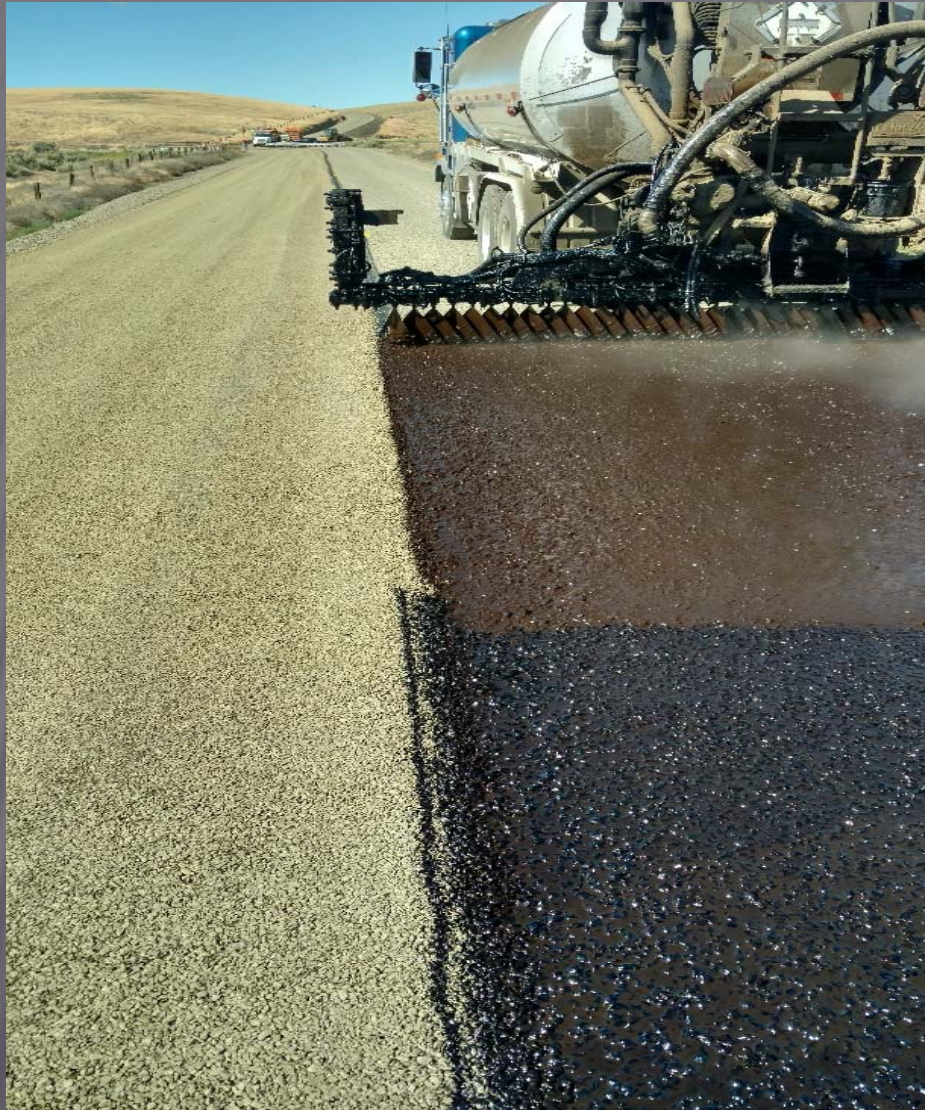
MEET LINE

✘ A Meet Line is the longitudinal point at which liquid asphalt application combines with adjoining lanes.

- + Straight
- + Even application
- + Oil Type – Emulsion vs. Hot Applied



MEET LINE - CONTINUED



RIDGING

✘ Ridging is when the liquid asphalt is NOT evenly applied across the road surface.

- + High Viscosity
- + Bar Height
- + High Pressure
- + Cold Liquid Asphalt
- + Existing Surface



INTERSECTION RADIUS

- ✘ An Intersection Radius is the road surface outside of the longitudinal lane at intersections that requires the application of liquid asphalt.
 - + VERY DIFFICULT !!!!!!!!!!!!!!!!!!!!!!!
 - + SAFETY – SAFETY –SAFETY !!!!!!!!!!!!!!!!!!!!!!!
 - + ASPHALT DISTRIBUTOR HAS RIGHT-OF-WAY!!!!!!!!!!!!!!!!!!!!!!
 - + Operator Skill Determines
 - ✘ The portion of the Radius to be covered
 - ✘ Even Application
 - ✘ On / Off Side

INTERSECTION RADIUS - CONTINUED



INTERSECTION RADIUS - CONTINUED



INTERSECTION RADIUS - CONTINUED



INTERSECTION RADIUS - CONTINUED









RECORD KEEPING

- ✘ Record keeping ensures that the necessary documentation is recorded to evaluate the future performance of the road surface.

- + Application Rates
- + Road Conditions
- + Climate Conditions
- + Daily Recap

CUSTOMER	ODOT		DATE	6-29-11		DESTINATION	Fossil, OR	
PRESSURE	SNVEY	4	PRODUCT	CES-2P		JOB DISC.	Chip Seal	
YDS SHOT	GAL SHOT		AVG SHOT			TONSHR		

FLOAT	GALLONS USED	GALS	WIDTH	LENGTH	SO. YDS.	ACT SHOT	DES SHOT	STREET OR ROAD
4800	3850	11	5866	7170	.44	.41	Hwy 218	2.750
50	4250	11	8053	9843	.43	.42		
4800	3500	11	6792	8301	.42	.42		
4300	4200	12*	7127	9903	.42	.42		
100	3000	12*	5297	7063	.42	.42		
4800	3350	12*	5957	7943	.42	.42		
715/11	Fog seal		CSS1-HD					
4800	2800	11.05*	2588	3106	.09			
4100	2700	11.7	2405	3175	.09			
4100	2316	11.5*	1947	2480	.11			
2950	2000	12.5	13,328	18511	.11			
12,773								3274
								2872
								11.92 Tons
								5100
								1700
								3400
								1600

23' x 41,788' long

Truck	Number/BL	Gallons	Tons	Driver	Arrive/Depart/Total Time
Truck	135-427		27.83	ME	
Truck	135-744		20.02	Mike N	11:00/11:30/1:00
Truck					
Truck					
Truck					
Total			47.85		

Carry Over Gal _____

Job Type: Road Parking Lot _____ Other _____

Road Type: Gravel _____ Sand _____ Dirt _____ Slag _____
Other Chip Seal

Road Conditions: Wet _____ Dry Packed _____ Loose _____ Crowned _____ Flat _____

Weather Conditions: Temp 70° Sunny Overcast _____ Wind Conditions _____
Other _____

Traffic Density: Light Medium Heavy _____ Traffic Type _____

Comments: Many Surface Cracks, no crack seal. Good meet this chip spreader over ran his rock ^{5 times} about 20 feet about 200 ft on upper section, not enough rock, had had covered with more rock when we came back. The whole section by the camp was light rock. Traffic tracked oil away off the chip seal & pulled pebbles asphalt off. They covered it with more rock when I went to pump oil.
3. The chip spreader didn't move off the mat to allow for rolling while waiting for back, we chipped over some blown out asphalt. Ran out of back, 20 ft open oil for 20 min.

APPLICATION RATES

- ✘ Checking and recording the application rates ensures the CRC accurately applied the specified material.
 - + Start gallons
 - + Length in feet
 - + Width in feet – Average if applicable
 - + Stop gallons
 - + Length in feet
 - + Width in feet
 - + Pounds placed

ROAD CONDITIONS

- ✘ Recording the Road Conditions prior to the application of the liquid asphalt provides information to evaluate the specified shot rate after completion of the work.

- + Texture
- + Patching
- + Crack Seal
- + Road Debris



CLIMATE CONDITIONS

✘ Recording the Climate Conditions during the application of the liquid asphalt provides information to evaluate the performance of the specified shot rate after completion of the work.

- + Road Temperature
- + Air Temperature
- + Atmospheric Conditions
- + Precipitation
- + Wind



DAILY RECAP

- ✘ The Daily Recap records the information necessary to document the days work.
 - + Total Gallons
 - + Total Pounds
 - + Total Square Yards
 - + Average Application Rate
 - + Compare Gallons Delivered to Gallons Applied
 - + Traffic Density
 - + Traffic Type

CRACK SEAL AND PATCHES

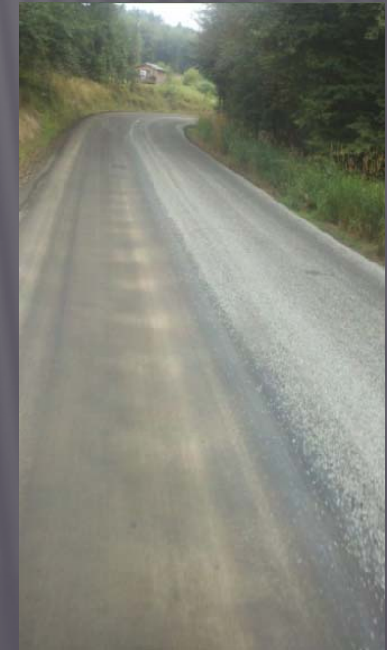
- ✘ The application of liquid asphalt over Crack Seal and Patches requires adjustment to the application process.
 - + Temperature Effects?
 - + Bleeding?
 - + Shot Rate Increase / Decrease?
 - + Engineered?



SURFACE CONDITION UPON APPLICATION

- ✘ The Surface Condition upon application must be clean, dry and free of obstructions.

- + Dirt
- + Road Debris
- + Water
- + Road Kill



WORKMANSHIP REPAIRS

✘ Workmanship Repairs need to be conducted when Operator, Equipment or Environmental conditions cause failures.

- + Human Error
- + Equipment Error
- + Visibility
- + Wind



WORKMANSHIP REPAIRS - CONTINUED



Safety

SAFETY

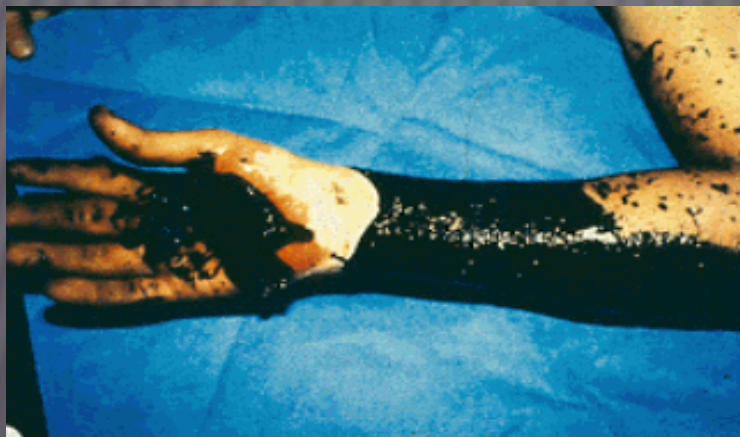
✘ Safety IS the most important aspect of conducting Chip Seal Application!!!

- + COMMUNICATION!!!!!!!!!!!!!!
- + Proper planning prevents piss poor performance!!!!!!!!!!
- + Personnel Awareness!!!!!!!!!!!!!!



PERSONNEL AWARENESS

- ✘ ALL work site personnel need to be aware of the hazards of the Asphalt Distributor.
 - + Un-expected Backing
 - + Spray Bar Movement
 - + Elevated Temperatures
 - + Component Malfunction



Questions?

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