

CHAPTER 3

301 UTILITIES

301.1 Utilities

Utility companies/distribution systems - The use of county right-of-way for distribution of electricity, gas, water, telephone, cable television, electronic communications, steam, or any other service or commodity furnished on a wholesale or retail basis shall be limited to those who meet the definition in the Oregon Revised Statutes (ORS) 30.180 of a utility and shall be registered with the Public Utilities Commission. Typically this would include industries such as telephone, gas, power, and municipalities such as Grants Pass or Cave Junction, or service districts such as the Grants Pass Irrigation District.

Non-utility companies/single private party - The use of county right-of-way for transmission of electricity, gas, water, telephone, cable television, electronic communications, steam, or any other service or commodity between properties owned by the same individual will be allowed provided all of the following criteria are met:

- A. Documentation that no other practical routes exists.
- B. The project shall be designed and inspected by a professional engineer to meet or exceed standards set for similar public systems (irrigation under pressure shall use the City of Grants Pass Water Standards). Steel sleeves shall be directionally bored and located a minimum of three (3) feet below the bottom of the ditches or four (4) feet below the top of pavement, whichever is greater, and the design must take into account that any failure of the pipe/conduit would not cause imminent danger to the public. If the project is limited to a single crossing not exceeding two (2) inches in diameter and sixty (60) feet in length (in the right-of-way), a design by an engineer may not be required.
- C. An agreement to maintain the system and hold the County harmless for any problems caused by the private system shall be recorded with each tax lot affected. The agreement shall indicate that the owner shall reimburse the County for any cost associated with emergency calls regarding this system. It shall be the owner's (both seller and buyer) responsibility to notify the County Engineer in writing within thirty (30) days of any change to the ownership of the property.

301.2 Utilities and Public Structures

Utility lines in the proximity of bridges typically cause conflicts with bridge ends (guard rails). All utilities shall either run under the bridge structure at a minimum of thirty-six (36) inches, or shall run through knock-outs in the bridge and shall hang under the deck.

Utility lines in the proximity of culverts shall be located a minimum of twenty-four (24) inches below any existing culvert with an invert elevation less than six (6) feet below top of road surface. If the invert elevation is greater than six (6) feet below top of road surface, the utility may go over the culvert provided there is three (3) feet of clearance to the culvert and three (3) feet of clearance to the road surface.

301.3 Sanitary Sewer Systems

Sanitary sewer systems shall be designed to meet the requirements of the City of Grants Pass and the American Public Works Association. Manhole locations shall not be located in a wheel path.

301.4 Storm Drain

Storm systems shall be designed to meet the American Public Works Association and ODOT standards. Manhole locations shall not be located in a wheel path.

Storm pipe material shall be on the ODOT approved materials list for the applicable application.

301.5 Water Systems

Water systems shall be designed to meet the requirements of the City of Grants Pass and the American Water Works Association.

302 ROAD RESTORATION

302.1 Restoration Requirements

Restoration is the process of bringing a roadway as near as possible to the life and structural section a road had prior to construction. It is also part of maintaining a safe surface for driving (i.e. consistent road surface types for braking and turning maneuvers).

Typically the County has three (3) major types of restoration standards (see drawing series 107 and 110):

- Tee cut
- Grind and inlay
- Overlay

The restoration requirements on the permit/plans approved by the County should be considered as best case. They will be the standards used if the construction does not cause any extra damage, the trench walls do not cave in, no modifications to the alignment, and no conflicts are discovered.

The restoration requirements are based on several items including:

- Current condition of the road based on a pavement condition index (pci) as determined on a regular bases (usually every 2 years) by the County
- Functional classification of the road
- Next regularly scheduled maintenance
- Site conditions (curves, road hazards, signage, and speed zone)
- Professional engineering judgement

When a street cut is proposed on a road which is scheduled to be surfaced within the next six (6) months, a tee cut shall be required.

When a street cut is proposed on a road which has a pci greater than eighty (80), and it is not scheduled to be surfaced within the next six (6) months, a grind and inlay will be required.

When a street cut is proposed on a road which has site conditions such as sharp curves, road hazards, or in a school zone, an overlay may be required.

When a street cut is proposed on a road which has been surfaced within the last five (5) years, open cuts may not be allowed. At the County's discretion, tap and bores may be allowed with a grind and inlay for any bore pit.

302.2 Chip Seal

Chip seals and slurry seals are forms of maintaining a road surface and are not by themselves a part of the road structural section.

The Standard Specifications which are referenced in this document are as published in the OREGON-2002 edition of the "Standard Specifications for Highway Construction".

All number references to section or subsection shall be understood to refer to the section or subsection of the Standard Specifications bearing like numbers. Reference to any section and article in the Standard Specifications shall include the substitution of "County of Josephine" for "State of Oregon"; "Board of County Commissioners" for "State Highway Commission"; "Josephine County Public Works Department" for "State Highway Department"; "County Engineer" for "State Highway Engineer" and any other substitution of terms similar in reference where applicable.

302.3 Description

- A. Scope:
This work consists of applying polymer modified emulsified asphalt and graded aggregates.

The type of chip seal (coarse, medium) to be applied will be as designated on the plans or the special provisions.

The polymer modified emulsified asphalt chip seal shall be constructed in accordance with these specifications and in reasonably close conformity to the lines, grades, thicknesses, and cross sections shown on the plans or established by the engineer of record.

- B. Variation of Quantities and Operations:
The rate of spreads and quantities of materials are subject to variation as directed by the engineer of record and approved by the County to adjust for variable conditions encountered or experienced during the construction. This department recognizes the nature of the work calls for equipment in varying number and versatility, and modification of procedures to some extent. Generally, the ratio of asphalt to aggregate shall be held closely constant to that specified.

302.4 Materials

- A. Aggregates:
The size of aggregate for the chip seal shall conform to the following:

<u>Chip Aggregate Type</u>	<u>Size of Screening</u>
Coarse	1/2" - #10
Medium	3/8" - #10

Aggregates shall consist of broken stone, crushed gravel, or a combination of both. At least ninety (90) percent by mass of the total aggregate retained on the #10 and larger sieves shall be fractured on two (2) faces, as determined visually by the engineer of record and approved by the County.

Aggregates shall conform to the quality requirements of 710 of the Standard Specifications.

The percentage composition by mass of aggregates shall conform to one of the following gradings:

<u>Sieve Sizes</u>	Percent Passing	
	<u>Coarse 1/2" - #10</u>	<u>Medium 3/8" - #10</u>
3/4"	100	-
1/2"	95-100	100
3/8"	35-65	90-100
1/4"	10-20	0-16
#10	0-3	0-10
#200	0-0.5	0-0.5

- B. Taking Aggregates from Department Stockpiles:
When it is specified that aggregates are to be taken from department-controlled stockpiles, remove the material in an orderly manner and to the full depth of the pile as far as needed. Care shall be exercised to not contaminate the materials, yet salvage all material possible from the area from which the materials are taken. Unused portions of a stockpile shall be shaped to neat lines. The contractor will be charged for materials wasted through negligence or used without authority of the specifications of the engineer of record.
- C. Stockpiling Contractor Furnished Aggregates on Department Property:
Aggregates can be temporarily stockpiled at approved sites on department property provided the areas used are as small as practicable, are cleaned up and made sightly after the materials thereon are removed. Any contamination during storage or from reloading operations will be cause for rejection.
- D. Bituminous Materials:
The bituminous materials to be used in the polymer modified emulsified asphalt chip seal shall be CRS-2P emulsified asphalt unless otherwise approved by the engineer of record. The polymer modified emulsified asphalt shall conform to the requirements of Section 710.11 of the Standard Specifications.

The materials may be conditionally accepted based on certification at the source or point of loading for transport to the project. Excessive delay in the use of the polymer modified emulsified asphalt or excessive pumping of the polymer modified emulsified asphalt may significantly reduce the viscosity and may make the material unsuitable for chip seal use. For this reason, pumping which occurs between the bulk storage tank, hauling transportation, field storage tanks, and distributor shall be kept to an absolute minimum. Final acceptance of polymer modified emulsified asphalt will be at the point of application.

When directed, samples will be taken at the time of application and will be tested using AASHTO T59, AASHTO T49, and CTM 332 within fourteen (14) calendar days from the day the sample was taken. These tests will be performed by a testing laboratory selected by the engineer of record, and approved by the County.

302.5 Equipment

The equipment to be used shall include pressure distributor, hauling vehicles, chip spreader, compactors, power brooms, and such other necessary equipment to insure efficient operation and construction to meet specified results. Equipment shall be provided in such number and capacities to provide coordinated and uniform progress of the work.

Provide two-way radio communication between the asphalt distributor and chip spreader.

Asphalt Distributor - The asphalt distributor shall be so designed, equipped, maintained, and operated that polymer modified emulsified asphalt material at even heat may be applied uniformly on variable widths of surface up to 15.75 feet at readily determinable and controlled rates from .05 gallons to 1.5 gallons per square yard with uniform pressure and with an allowable variation from any specified rate not to exceed 0.02 gallons per square yard. Distributor equipment shall include a tachometer, pressure gauges, accurate volume measuring devices or a calibrated tank, and a thermometer for measuring temperature of tank contents. Distributors shall have a power unit for the pump and full circulation spray bars adjustable laterally and vertically. Bar height shall be set for triple lap coverage.

Chip Spreaders - The chip spreaders shall be self-propelled and shall be equipped with a mechanical device that will spread the aggregate at a uniform rate across the full width of the chip spreaders. Spreaders shall be equipped with an aggregate segregator assembly. Chip spreaders shall be of adequate width to provide full coverage without gaps or overlaps of adjacent panels and without placing joints in the wheel paths.

Compactors - Rollers shall be self-propelled pneumatic-tired, tandem or multiple axle, multiple wheel type with smooth tread pneumatic tires of equal size staggered on the axles at such spacings and overlaps as will provide uniform compacting pressure for the full compacting width of the roller. Steel drum rollers shall not be used. The minimum load per tire will be two thousand eight hundred (2800) pounds, with tire inflation pressures of 45 psi to 60 psi. The rollers shall be in good condition and capable of operating at speeds compatible with the chip seal operation.

Power Brooms - Power brooms shall be pickup or non-pickup type and shall have a positive means to control vertical pressure.

302.6 Construction

- A. Season and Weather Limitations:
Polymer modified emulsified asphalt shall not be applied when the pavement temperature is below seventy (70) degrees Fahrenheit nor if the humidity is higher than seventy-five (75) percent. The application of the polymer modified emulsified asphalt and the aggregate chips shall be completed three (3) hours before sunset. Chip seals damaged by rain during the first twenty-four (24) hours after application shall be removed by milling, or other methods selected the engineer of record, and approved by County and replaced at the contractor's expense. The placing of polymer modified emulsified asphalt chip seals will not be allowed before July 1st or after August 31st unless otherwise approved by the engineer of record and the County.

- B. Rate of Progress and Scheduling:
The amount of chip seal applied in any one day shall not exceed the amount that can be broomed the following morning unless approved by the engineer of record. Provide a traffic control plan for approval by the engineer of record and the County.

- C. **Preparation of Underlying Surfaces:**
Immediately before applying the polymer modified emulsified asphalt, the surface to be chip sealed shall be clean and dry. Cleaning shall be performed by sweeping, flushing, or other means necessary to remove all loose particles of paving, dirt, and other extraneous material. When the underlying surface is open-graded, a choke seal consisting of a mixture of fifty (50) percent CSS-1H and fifty (50) percent water shall be applied before the application of the chip seal. The application rate of the CSS-1H/water mixture is estimated to be 0.12 gallons per square yard. The need for the choke seal and the exact rate of application will be determined by the engineer of record and the County.
- D. **Applying Polymer Modified Emulsified Asphalt:**
The application rate of polymer modified emulsified asphalt for the chip seal is estimated to be .45 gallons to .65 gallons per square yard. The exact rate of application will be determined by the engineer of record and the County.

Apply the polymer modified emulsified asphalt working toward the aggregate stockpile at all times.

A minimum of two hundred (200) gallons of polymer modified emulsified asphalt shall remain in the distributor tank at all times except for the last shot on the project.

The polymer modified emulsified asphalt shall not be applied to more than one-half the width of the travel way at one time and the remaining width shall remain open to traffic. The open lane shall not be closed until traffic controlled by pilot car is operating on the new chip seal. The chip seal shall, weather permitting, be applied to both sides of the travel way so that by three (3) hours before sunset the end of the work is squared up.

Polymer modified emulsified asphalt shall not be applied a greater distance than can be immediately covered by aggregates before the emulsion breaks.

Building paper shall be placed over the treated surface at the beginning of each spread to insure that the nozzles are operating properly before the uncovered surface is reached. Building paper shall be removed and disposed of in a manner satisfactory to the engineer of record and the County.

If requested by the engineer of record, demonstrate that distribution of the emulsified asphalt does not vary between the individual nozzles by more than fifteen (15) percent transversely from the average and no more than ten (10) percent longitudinally from the specified rate of application.

The application temperature of the polymer modified emulsified asphalt shall be between one hundred forty (140) degrees Fahrenheit and one hundred eighty (180) degrees Fahrenheit, or as recommended by the manufacturer and approved by the

engineer of record and the County.

E. Hauling and Spreading Aggregates:

The spread rate of aggregate for the chip seal normally will be between twenty-three (23) pounds and thirty (30) pounds per square yard. The exact rate will be determined by the engineer of record and the County.

Hauling and spreading equipment shall not be operated on uncovered polymer modified emulsified asphalt. During the first hour after application of the polymer modified emulsified asphalt and aggregate, speeds shall be no more than ten (10) miles per hour and after the first hour, speeds shall not be in excess of fifteen (15) miles per hour until otherwise permitted by the engineer of record. At all times, hauling equipment shall be operated in a prudent manner and at moderate speeds that will not damage the new chip seal or create a hazard to the traveling public.

The chip spreaders shall be accurately calibrated for the various sizes of aggregate to be used in regard to gate opening, gear selection, and engine revolutions per minute. Following calibration, the rate of application shall be verified by truck measure and area covered or other approved methods.

Immediately following the application of the polymer modified emulsified asphalt, the surface shall be covered with aggregate, unless otherwise authorized by the engineer of record. The rate of spread of this aggregate shall be maintained within ten (10) percent of specified rate. Polymer modified emulsified asphalt that has set or broke before being covered with aggregate shall be removed or repaired by methods approved by the engineer of record and the County, and shall be at the contractor's expense.

Operating the chip spreader at speeds which cause the chips to roll over after striking the emulsion covered surface will not be permitted.

Provide coverage without gaps or overlapping adjacent coverages. Do not construct longitudinal joints within the wheel paths.

The transverse cut off of aggregates shall be neat and any excess aggregates shall be removed from the surface prior to resuming operations.

Aggregates shall be surface damp at the time of application. Excess free water (water not adhering to the aggregate surface) on the aggregate will not be permitted.

F. Shaping and Compacting:

After the aggregates have been spread upon the polymer modified emulsified asphalt, any piles, ridges, or uneven distribution shall be spread and/or removed by hand tools or mechanical means, as elected, to ensure against rough spots in the final surface.

In the event aggregates are picked up by traffic or by the rolling operation, that area shall be immediately covered with additional quantities of fine aggregate and rolled.

Rolling shall be performed with a pneumatic-tired roller that remains immediately behind the spreader unless otherwise directed by the engineer of record and the County.

Rolling speeds shall be kept to a minimum, not to exceed five (5) miles per hour, so that the rollers do not pick up aggregates from the emulsified asphalt surface.

G. Power Brooming:

Following the application of the chip seal, the entire surface shall be carefully broomed to remove loose aggregate that could damage vehicles. This brooming shall be done as soon as possible without damaging the chip seal but no more than eighteen (18) hours following the application of the chip seal.

Subsequent brooming the following two (2) days may be directed by the engineer of record to ensure the surface is free of loose aggregate which could cause vehicle damage.

In curbed areas, on bridges, and on sidewalks, all extraneous aggregates shall be completely removed. In all other areas off the roadway, extraneous aggregates shall be removed to the satisfaction of the engineer of record and the County.

H. Fog Seal:

A fog seal consisting of a mixture of fifty (50) percent CSS-1H and fifty (50) percent water shall be applied to the chip seal surface after all extraneous aggregates have been removed to the satisfaction of the engineer of record. The application rate of the CSS-1H/water mixture is estimated to be 0.12 gallons per square yard. The exact rate of application will be determined by the engineer of record and the County.

I. Provisions for Traffic:

In addition to other required traffic provisions, control traffic according to the applicable provisions of 00220.40 of the Standard Specifications.