THE STANDARD SPECIFICATIONS FOR STREET OPENINGS

I. Procedures and Specifications

A. City Procedures and Engineering Standards

This section covers the removal and reconstruction of City property including, but not limited to, subgrade and pavement, curb and gutter, driveways, sidewalks, signs, streetlights, conduits and pipes, manholes, hydrants, gate valves, trees and shrubs, that are damaged by the Utility during the construction or demolition or their facility.

The decision to remove and reconstruct a damaged City structure is to be made solely by the City Engineer, and the total cost will be the liability of the Utility.

Unless otherwise stated, the method of restoration used shall conform to the current "City of Oakdale Construction Specifications", a publication of the City's Engineering Department. All restoration of the City's facilities shall conform to the Specifications for that system.

Any questions regarding the interpretation or application of these Engineering Standards shall be directed to the City Engineer.

1a.1 Utility's Responsibility

The contractor shall be responsible to inform the City Engineer of any damage to City property. Also to inform any other Utility of possible damage to their facility.

The City Engineer will determine the extent of the damage to the facility and course of corrective action. The Contractor shall be responsible for the damaged items and payment for the complete reconstruction in accordance with these Engineering Standards. The City Engineer shall decide whether the City or the Utility's Contractor will make repairs.

The repairs shall be made in accordance with a time schedule determined by the City Engineer.

1a.2 **Quality Control**

As determined by the City Engineer, the Utility will employ an independent testing lab at their expense, to perform all tests and submit reports to the City.

The testing labs shall be responsible for conducting and interpreting the tests and shall state in their report the test results, and whether or not the test results conform to these Engineering Standards.

B. **Horizontal and Vertical Placement**

Maintaining access to existing Public Utilities and providing for the room for future maintenance and construction of utilities shall be accomplished through:

1. The placement of the Equipment shall be outside of the following areas (See Figure 1):

   a. Water main depth plus four (4) feet either side of the outside diameter of the pipe.

   b. Sanitary sewer depth plus six (6) feet either side of the outside diameter of the pipe.

   c. Storm sewer depth plus four (4) feet either side of the outside diameter of the pipe.

   d. Traffic conduit depth plus one (1) foot either side of the outside diameter of the pipe.

   These are nominal trench widths, as the pipe goes deeper, the clear zone shall increase.

2. The placement of the Equipment shall parallel the Street alignment with less than a foot variation from the Street centerline. (See Figure 1)

3. Changes in alignment or direction shall be at 90 degrees. (See Figure 1)

4. The Utility doing the Work should cross all existing utilities at 90 degrees. (See Figure 1)

5. Placement of access structures (i.e. Manholes) and chambers shall be outside the areas, as stated in Section 1 above and shall be to Mn/DOT and City Engineers Association of Minnesota standard Specifications.

6. The Utility doing the Work shall stay a minimum of five (5) feet away from any existing access structures or chambers. (See Figure 1)

7. The top of a Utility shall be placed a minimum of 24 inches below the bottom of the Pavement Section's base course. (See Figure 1)

8. The depth of a Utility will be determined by the location of existing Equipment.

9. The depth of the Utility should remain within a +/- 6 inch vertical alignment, except for gravity systems following reasonable grades.

10. Placement of Equipment shall be within one (1) foot horizontally and six (6) inches vertically from the stated alignment and depth in the approved Plan.

C. **Removal of City Improvements**

1c.1 Removal of Pavement

The current Mn/DOT "Standard Specifications for Construction" with supplements and interim publication, shall govern with the following additions:

The sections to be removed shall be determined during the Plan approval process.

1. Where required, Asphaltic-Concrete Pavement shall be saw cut to the depth as shown in Figure 1, so as to form a clean, straight and vertical joint between the section removed and that remaining in place. After the saw cut has been made, a jackhammer may be used to facilitate removal, but care must be taken not to damage the Pavement to remain in place. It is emphasized that jackhammering on the surface of the Pavement along the removal line is strictly prohibited until after the saw cut has been made.

2. For asphalt Pavement, the width of the Pavement cut shall provide for the compaction of the base and subbase Materials. The minimum Pavement removal width shall be as reflected on Plates No.'s 1 through 13.

3. The City Engineer may accept a reduction to a uniform minimum width of 24 inches, depending on the present Pavement condition, the age of the Street, depth of the cut, and the year that the Street is scheduled for replacement.

4. No more than 300 feet of trench shall be open at any one time.

1.c.2 **Removal of Concrete Curb and Gutter**

1. The existing curb shall be removed in completed whole sections. No cutting, sawing or breaking of the existing curb shall be made.

2. The period between removing and replacing curbing shall not exceed seventy-two (72) hours when the utility trench is perpendicular to the curb line.

1.c.3 **Removal of Sidewalks and Bikeway/Pedways**

1. The existing sidewalk/bikeway/pedways shall be removed in complete sections. No cutting or breaking of concrete sidewalks will be allowed. Bituminous trails shall be removed for their entire width for the length of the excavation plus 2 feet on both ends, but not less than 10 feet in total length.

2. The permiode between removal and replacement shall not exceed seventy-two (72) hours when the utility trench is perpendicular to the sidewalk or trail alignment.

D. **Restoration of City Improvements**

1d.1 **Utility Cut Restoration Procedure**

The repair of all Pavement cuts within the public Rights-of-Way will be coordinated in a manner that will minimize the need for future repairs and result in the lowest replacement costs possible.

1. During the winter season, the Utility will place a temporary patch on the cut. A permanent repair of the Pavement Structure will be made during the following construction season by the Utility, unless the Utility elects to authorize the City to complete the repairs and reimburse the City for the costs incurred.

2. During the construction season, the Utility and the City Engineer will coordinate this Work so that most temporary repairs can be eliminated and the permanent replacement after the installation of the Equipment.

3. The Contractor shall give two (2) weeks notice to the Engineer to schedule the restoration Work and will inform the Engineer no later than 48 hours if the date will not be met.

4. In all cases the Contractor will backfill with suitable Materials and compact the top three (3) feet of subgrade to 100 percent of maximum

density and all subgrade below three (3) feet to 95 percent (95%) of maximum density as defined by a standard proctor. Compaction shall be done in lifts not to exceed 6 inches in depth. If compaction equipment is not on the job site, the Contractor will be required to re-excavate the trenches and fill replaced with a concrete slurry mix.

5. The Contractor shall be responsible for back filling and compacting the subgrade. The following repair sequence be followed, unless otherwise directed by the City Engineer: The Contractor shall backfill and compact subgrade and crushed rock base to approximate thickness of existing Pavement Structure or to within three (3) inches of existing asphalt surface if less than two (2) inches thick. When the subgrade is properly compacted and tested, the Contractor shall install a plant mixed bituminous base course lift equal to 1/2 the thickness of the abutting pavement section.

1d.2 **Final Pavement Surface**

In all cases, the Utility shall complete the repair by placing a wearing course of the same mixture as what originally existed over the street section and to the extent as reflected in Plates 1 through 13.

In some cases, temporary patches may be required to provide a safe situation and the Contractor is responsible for their placement and maintenance.

During the part of the year when Pavement cannot be placed, the Utility will be required to place a temporary concrete patch with a bond breaker. The final surface shall be placed the next construction season.

Upon completion of the Work, the Contractor is to barricade and protect the area and notify the Engineer.

5d.3 **Reconstruction Materials Specifications**

1. In general, the Pavement shall be replaced with a Pavement of similar design to the original Pavement. Deviations from this must be approved by the City Engineer. No other mixes, other than those stated, will be accepted and if Work does not meet these designs, it shall be removed at Utilities expense.

2. Bituminous Pavement Base: Plant mixed bituminous pavement base shall conform to MnDOT Standard Specifications 2331 Type 31.

3. Bituminous Pavement Surface: If the Project Engineer cannot determine the existing pavement surface mixture, the replacement surfacing shall conform to MnDOT 2340 Type 41 for local Streets, Type 47 for Collector Streets, or Type 61, as directed by the City Engineer.

4. Concrete curb and gutter and sidewalk mix shall conform to MnDOT 3A42. No traffic shall be permitted for seventy two (72) hours after the concrete is placed.

5. Bituminous trails shall be resurfaced with MnDOT Standard Specifications Mixture 2331 Type 41.

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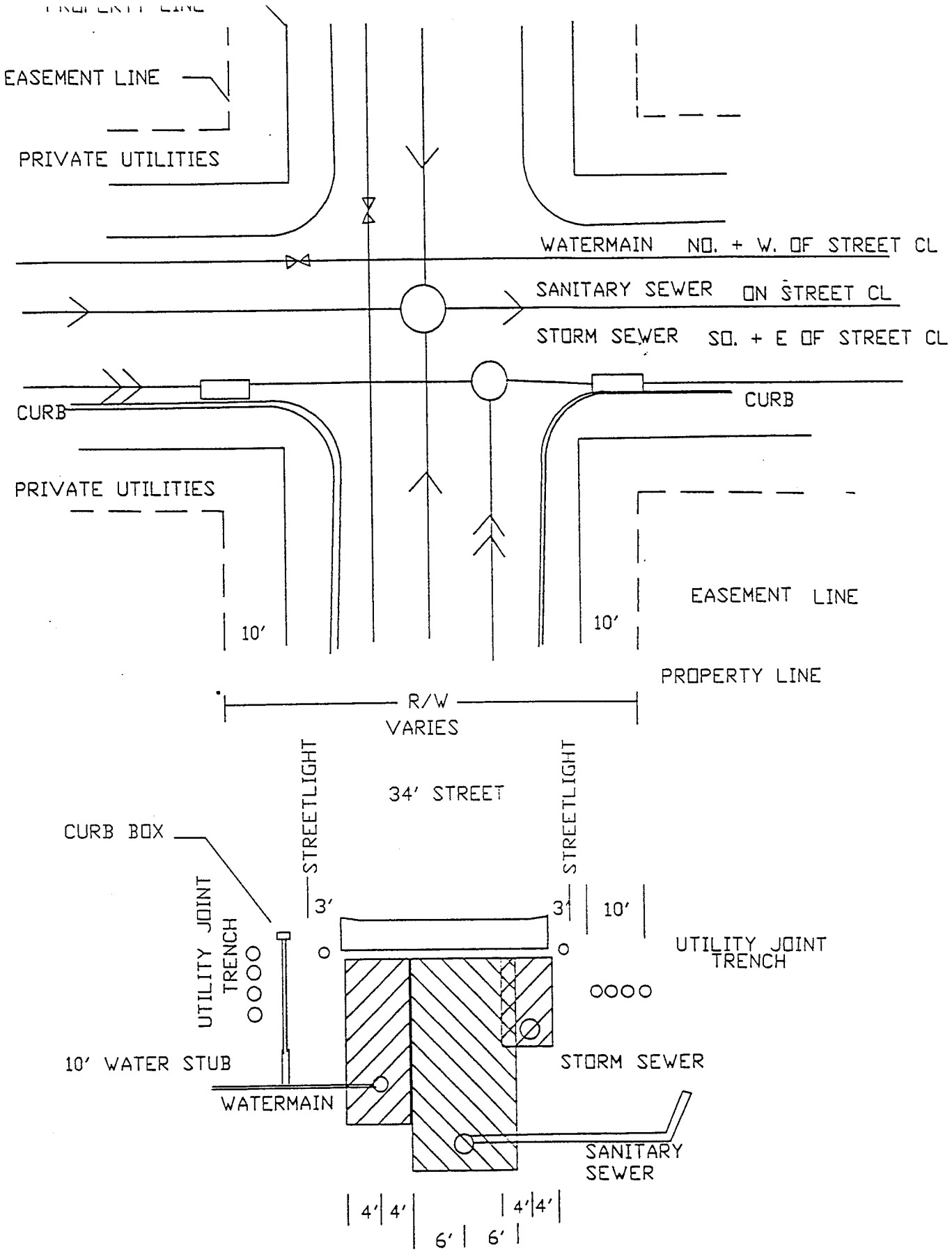


CITY OF OAKDALE

LOCATION OF UTILTIES

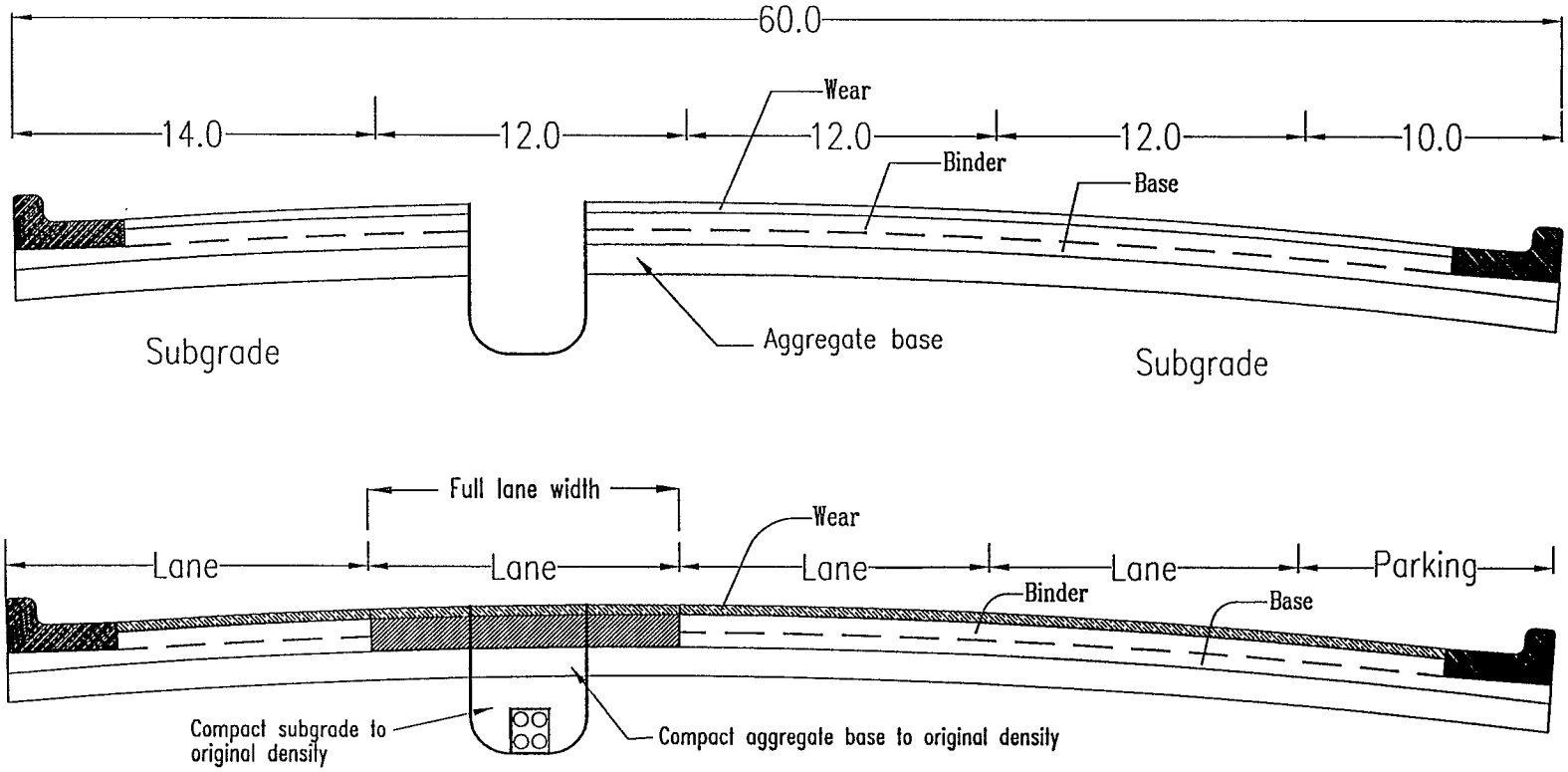
DRAWN BJS
3-20-98

CITY PLATE
STRT-4

UTILITY TRENCH RESTORATION
TYPICAL PAVEMENT 0 TO 5 YEARS OLD

Date: 7-6-98

PLATE 1
No Scale



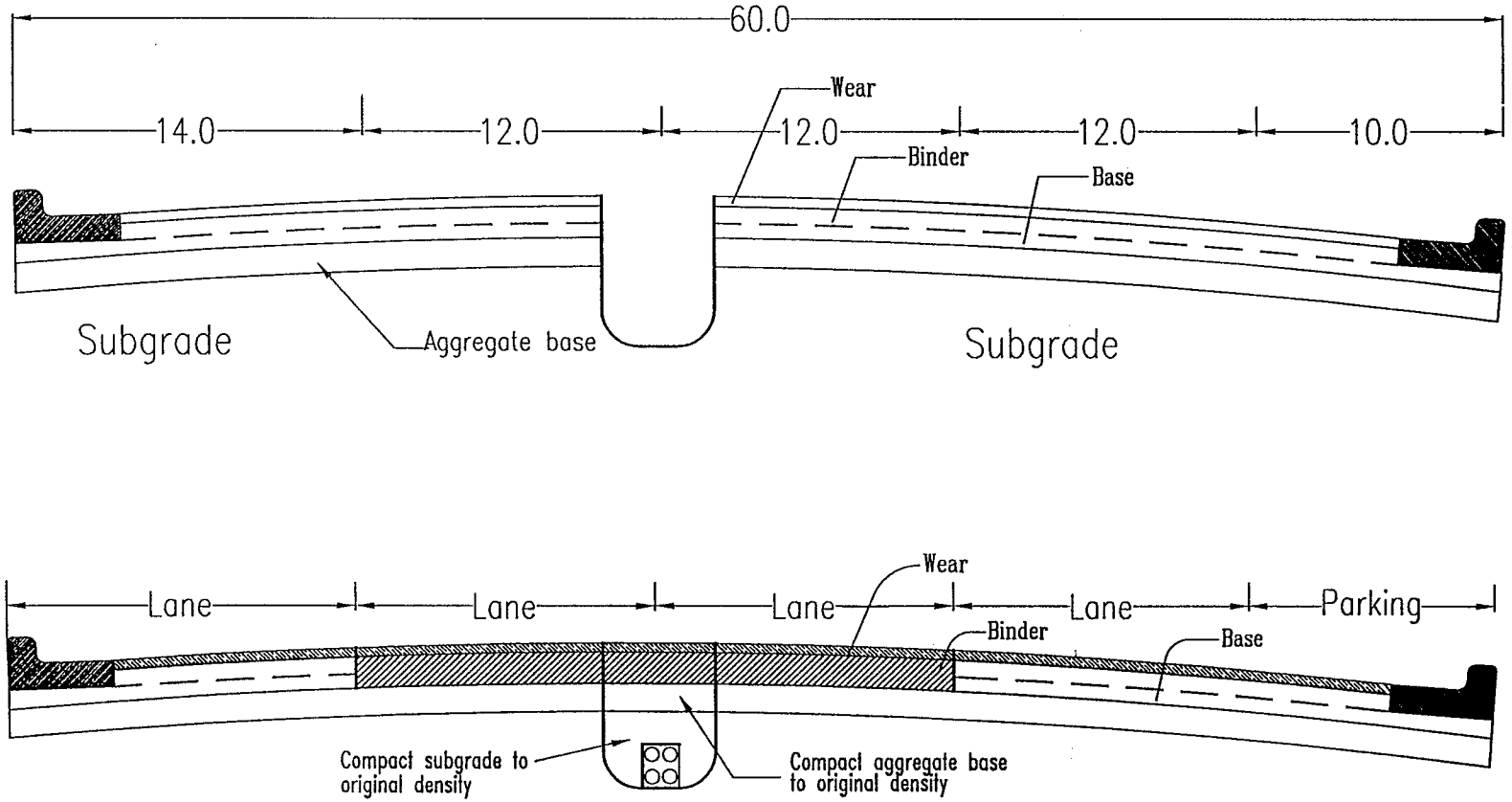
Note 1: Bituminous Pavement
- Full lane replacement of base and binder to the nearest constuction joint or transverse crack
- Full street width mill & overlay of wearing course

Note 2: Concrete Pavement
- Full panel replacement for concrete pavement

Note 3: All Other Types of Surfaces and Pavements
- Replacement with in-kind materials

UTILITY TRENCH RESTORATION

TYPICAL PAVEMENT 0 to 5 YEARS OLD



Note 1: Bituminous Pavement

- Two lane replacement of base and binder to the nearest construction joint or transverse crack
- Full street width mill & overlay of wearing course

Note 2: Concrete Pavement

- Full panel replacement for concrete pavement

Note 3: All Other Types of Surfaces and Pavements

- Replacement with in-kind materials

Date: 7-6-98

PLATE 2

No Scale

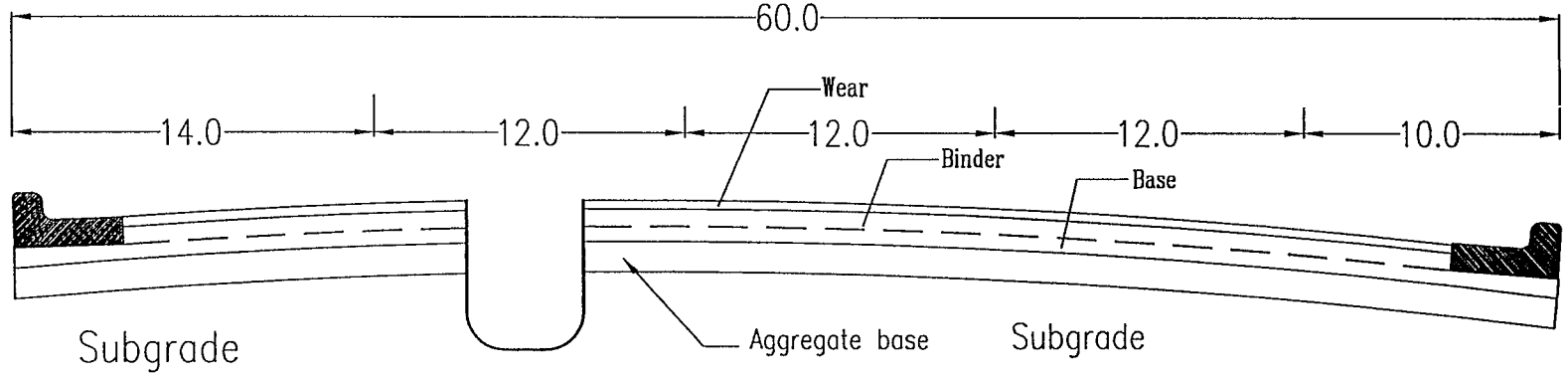
UTILITY TRENCH RESTORATION

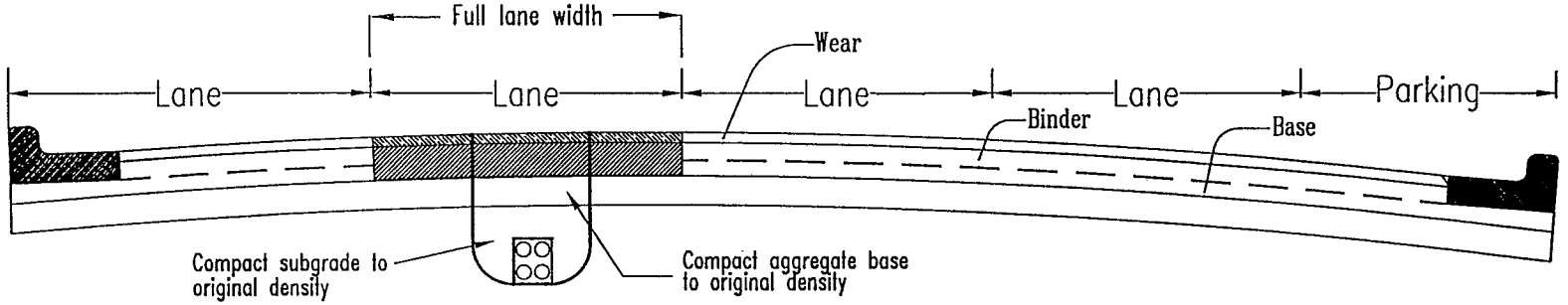
TYPICAL PAVEMENT 5 YEARS OLD TO 5 YEAR PROJECT PLAN

Date: 7-6-98

PLATE 3

No Scale





Note 1: Bituminous Pavement

- Full lane replacement of base, binder, and wearing course to the nearest construction joint or transverse crack

Note 2: Concrete Pavement

- Full panel replacement for concrete pavement

Note 3: All Other Types of Surfaces and Pavements

- Replacement with in-kind materials

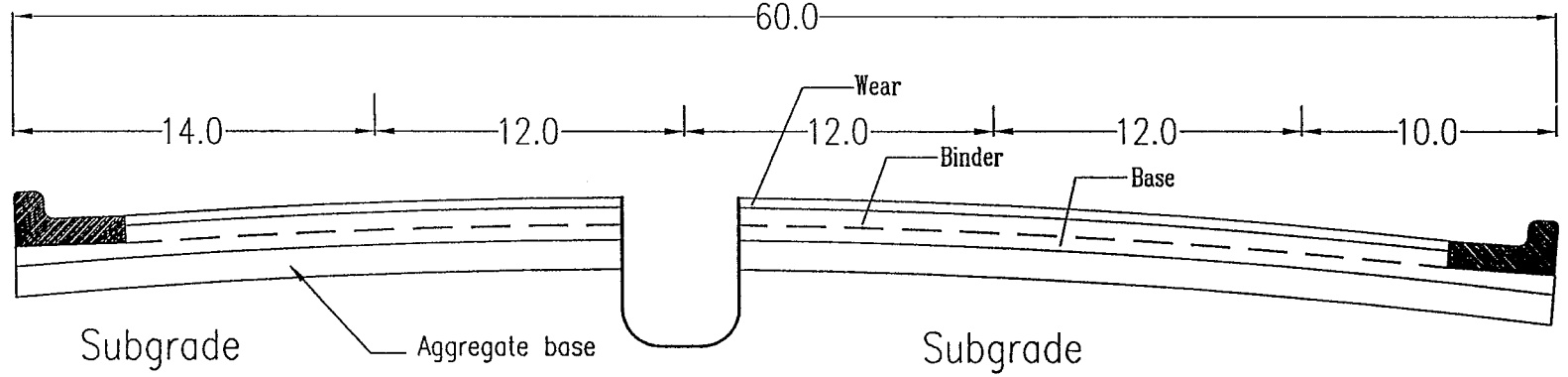
UTILITY TRENCH RESTORATION

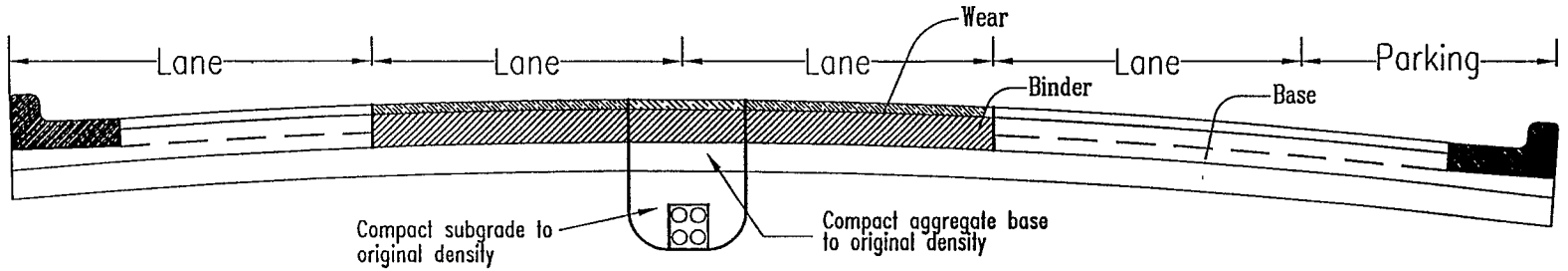
TYPICAL PAVEMENT 5 YEARS OLD TO 5 YEAR PROJECT PLAN

Date: 7-6-98

PLATE 4

No Scale





Note 1: Bituminous Pavement

- Two lane replacement of base, binder and wearing course to the nearest construction joint or transverse crack

Note 2: Concrete Pavement

- Full panel replacement for concrete panel

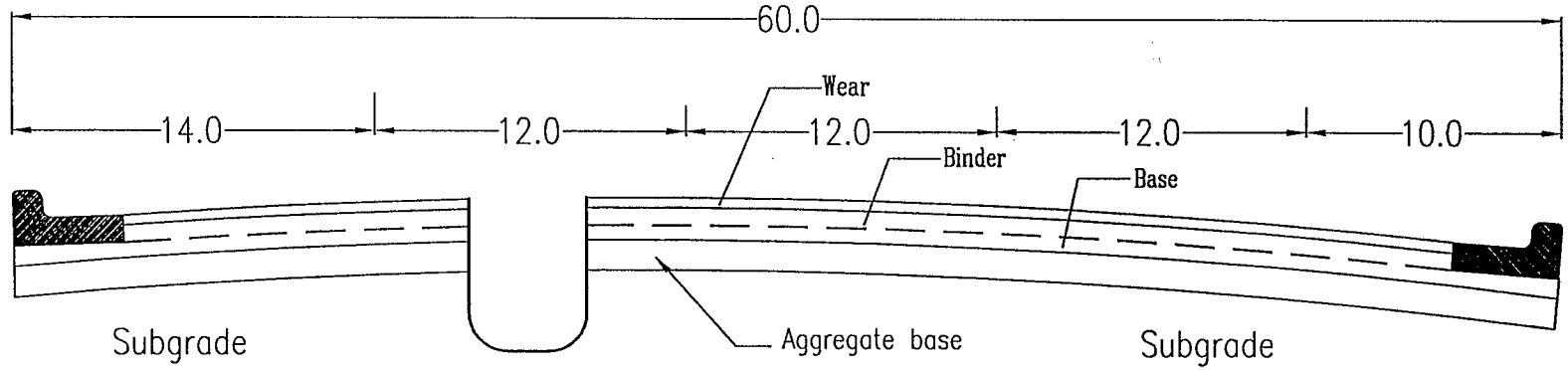
Note 3: All Other Types of Surfaces and Pavements

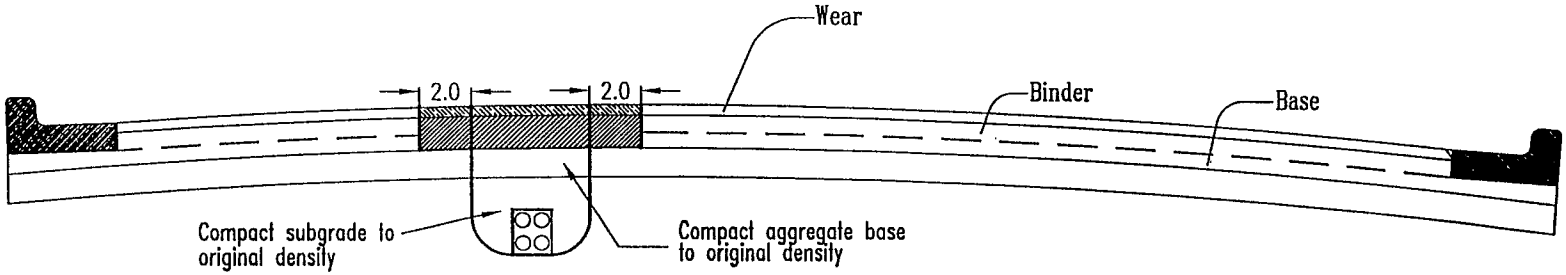
- Replacement with in-kind materials

UTILITY TRENCH RESTORATION IN 5 YEAR PROJECT PLAN
OR UTILITY TRENCH PATCH

Date: 7-6-98

PLATE 5
No Scale





Note 1: Bituminous Pavement
- Replace base, binder and wearing course for trench width plus 2 ft. on either side of cut

Note 2: Concrete Pavement
- Replace trench width plus 2 ft. on either side of cut

Note 3: All Other Types of Surfaces and Pavements
- Replace trench width plus 2 ft. on either side of cut

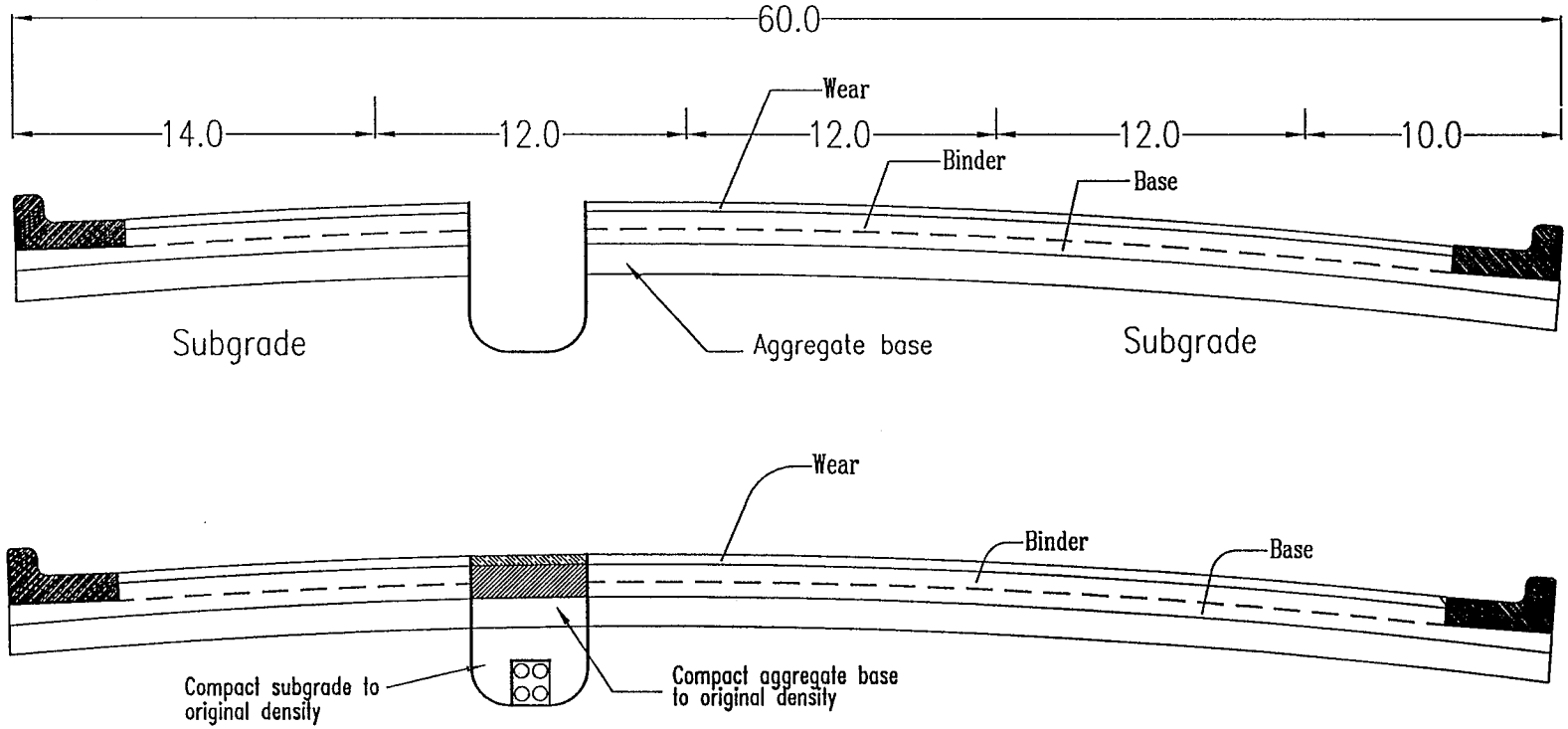
TYPICAL PAVEMENT IN 2 YEAR PROJECT PLAN OR TEMPORARY SURFACE

UTILITY TRENCH RESTORATION

Date: 7-6-98

PLATE 6

No Scale

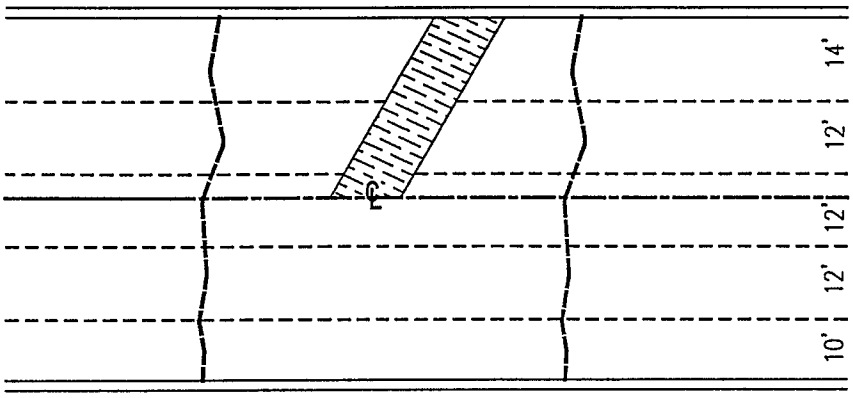


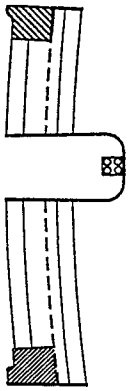
Note 1: Bituminous Pavement
- Replace base, binder and wearing course for trench width only

Note 2: Concrete Pavement
- Replace for trench width only

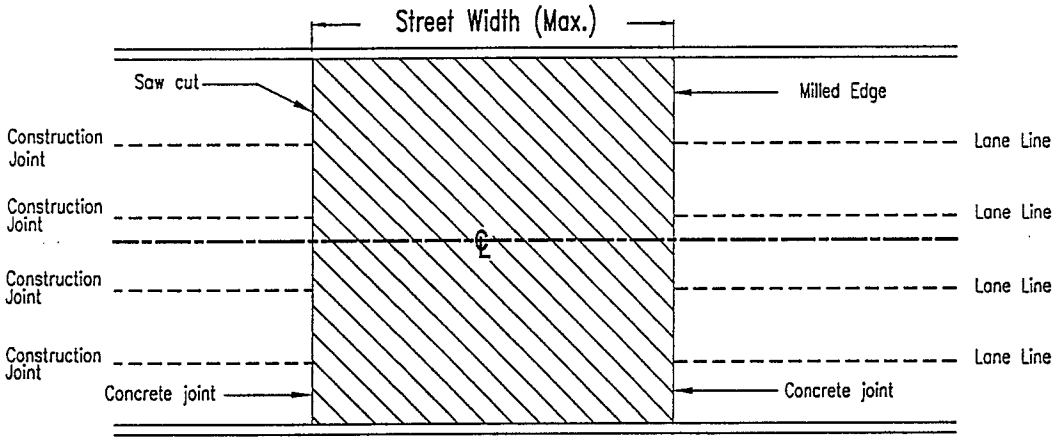
Note 3: All Other Types Of Surfaces And Pavements
- Replacement with in-kind materials for trench width only

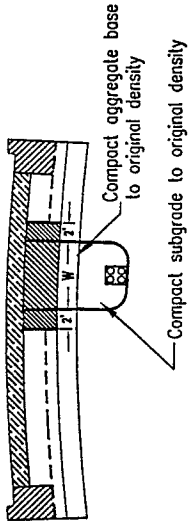
TYPICAL HOLE EXCAVATION





TYPICAL RESTORATION





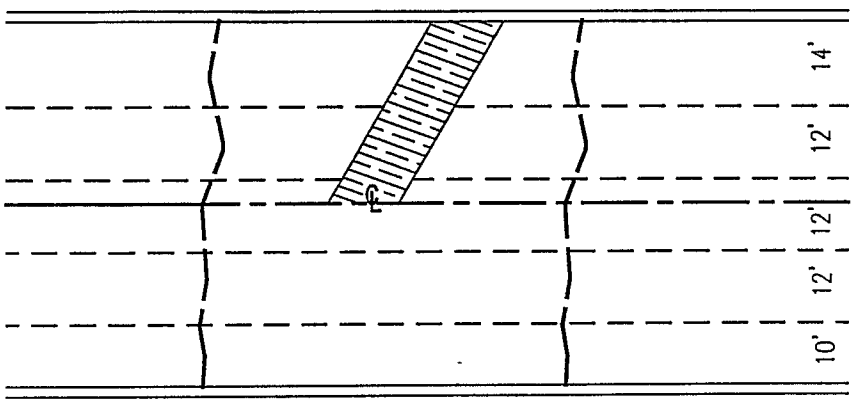
Note 1: Bituminous Pavement
- Full lane replacement of base and binder to the nearest construction joint or transverse crack
- Full street width mill & overlay of wearing course

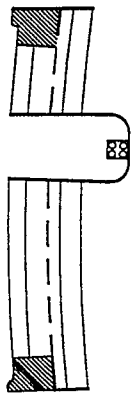
Note 2: Concrete Pavement
- Full panel replacement for concrete pavement

Note 3: All Other Types of Surfaces and Pavements
- Replacement with in-kind materials

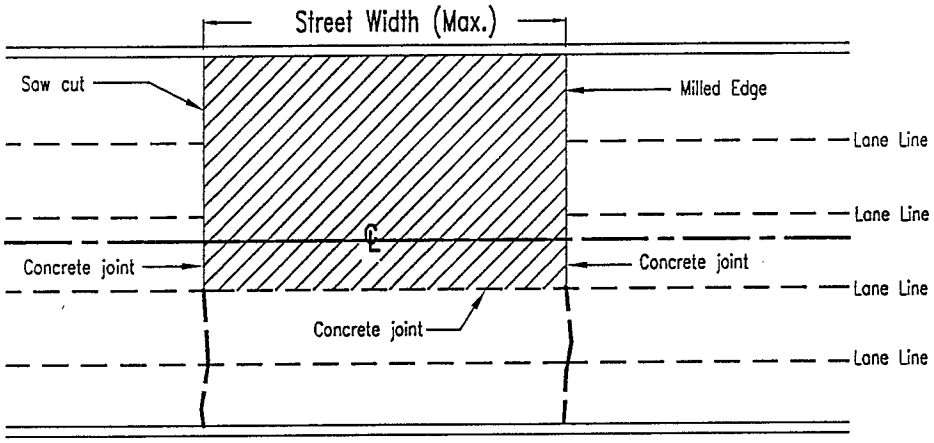
UTILITY HOLE RESTORATION TYPICAL PAVEMENT 0 TO 5 YEARS OLD	Date: 7-6-98	PLATE 7 No Scale

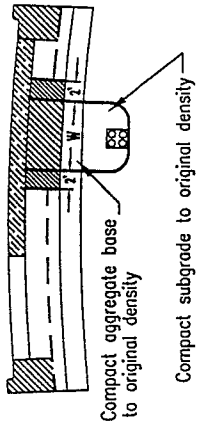
TYPICAL HOLE EXCAVATION





TYPICAL RESTORATION





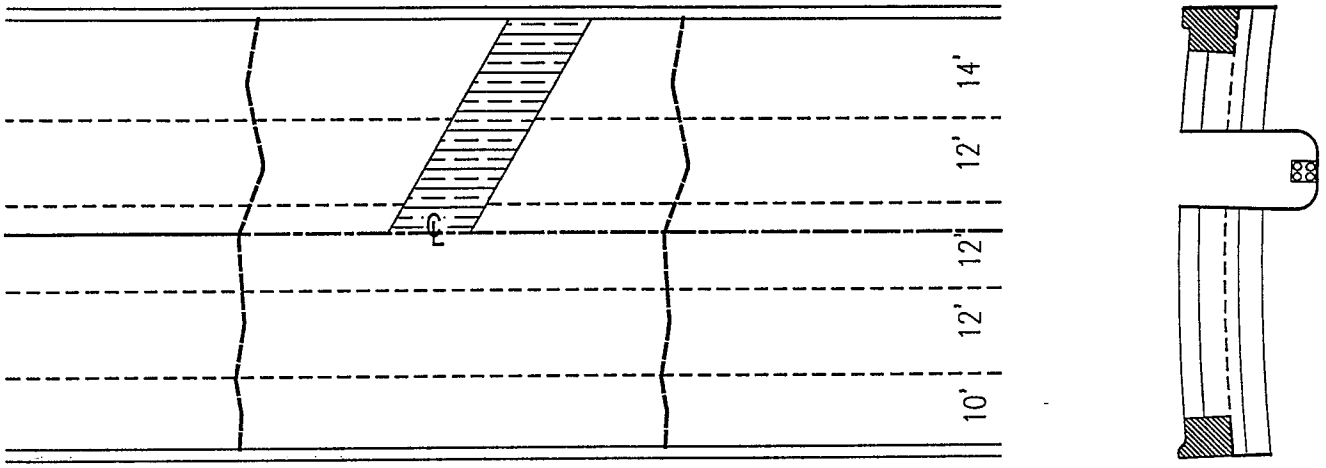
Note 1: Bituminous Pavement
- Full lane replacement of base, binder, and wearing course to the nearest construction joint or transverse crack

Note 2: Concrete Pavement
- Full panel replacement for concrete pavement

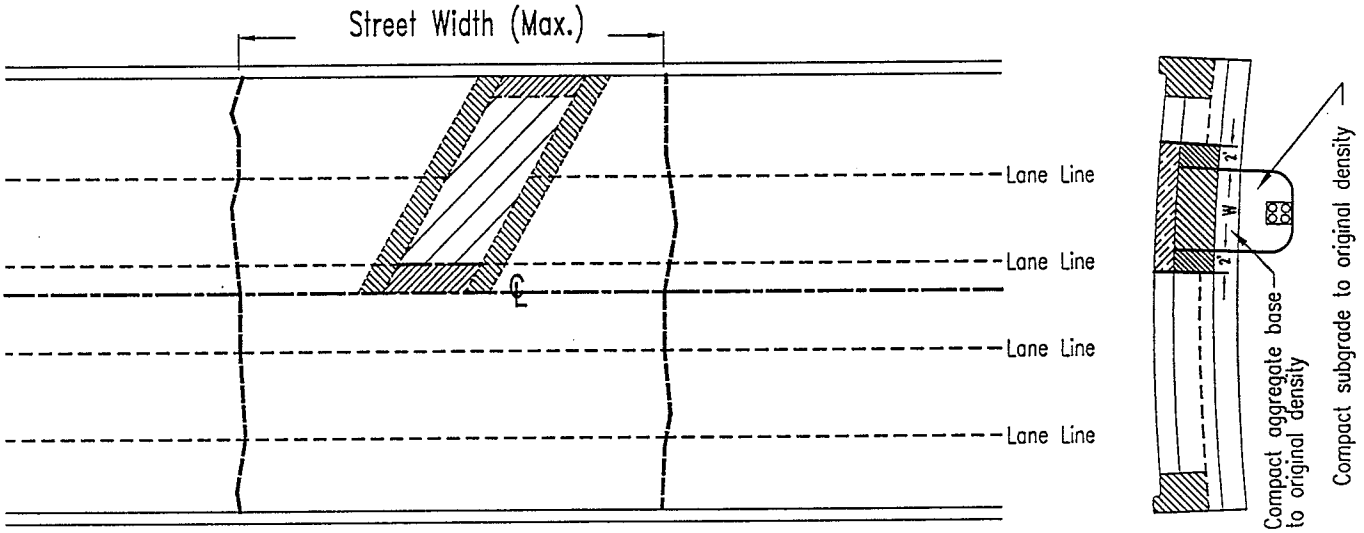
Note 3: All Other Types of Surfaces and Pavements
- Replacement with in-kind materials

UTILITY HOLE RESTORATION TYPICAL PAVEMENT 5 YEARS OLD TO 5 YEAR PROJECT PLAN	Date: 7-6-98	PLATE 8 No Scale

TYPICAL HOLE EXCAVATION



TYPICAL RESTORATION



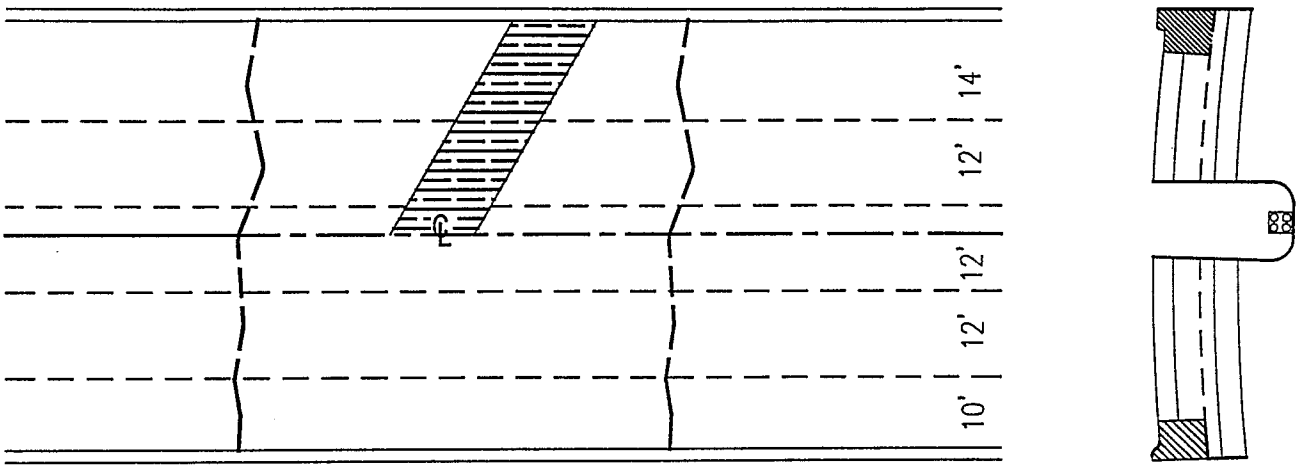
Note 1: Bituminous Pavement
- Replace base, binder and wearing course for trench width plus 2 ft. on either side of cut

Note 2: Concrete Pavement
- Replace trench width plus 2 ft. on either side of cut

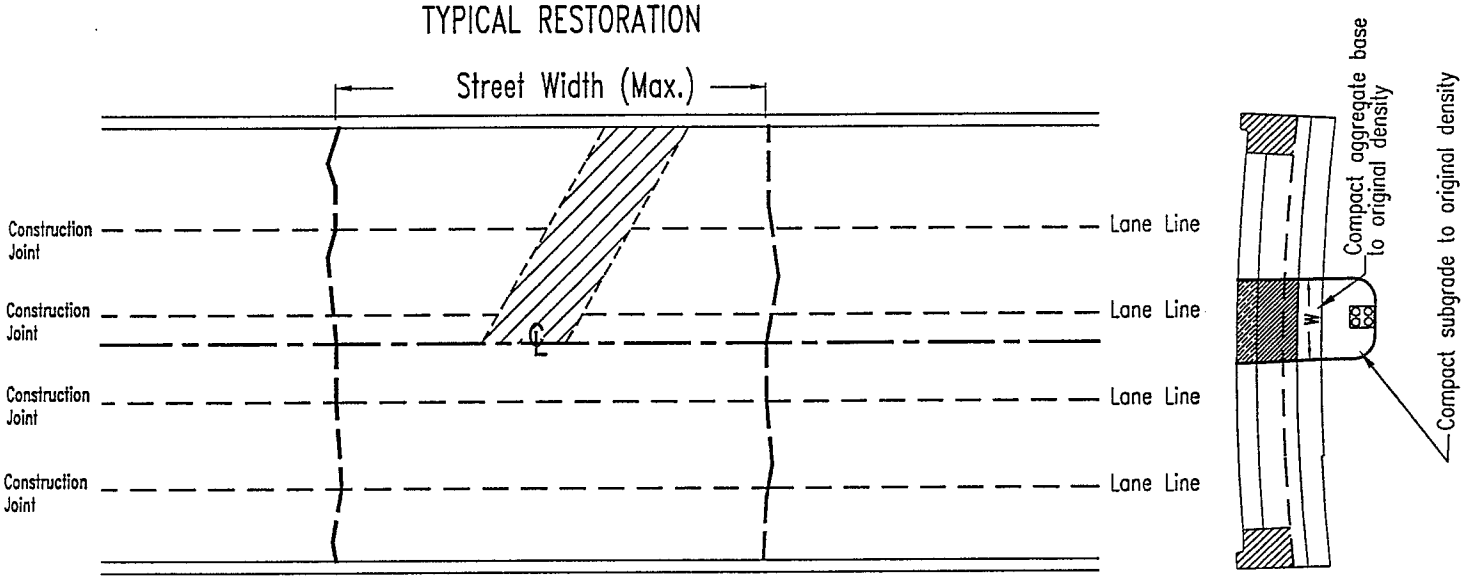
Note 3: All Other Types of Surfaces and Pavements
- Replace trench width plus 2 ft. on either side of cut

UTILITY HOLE RESTORATION IN 5 YEAR PROJECT PLAN OR UTILITY HOLE PATCH	Date: 7-6-98	PLATE 9 No Scale

TYPICAL HOLE EXCAVATION



TYPICAL RESTORATION

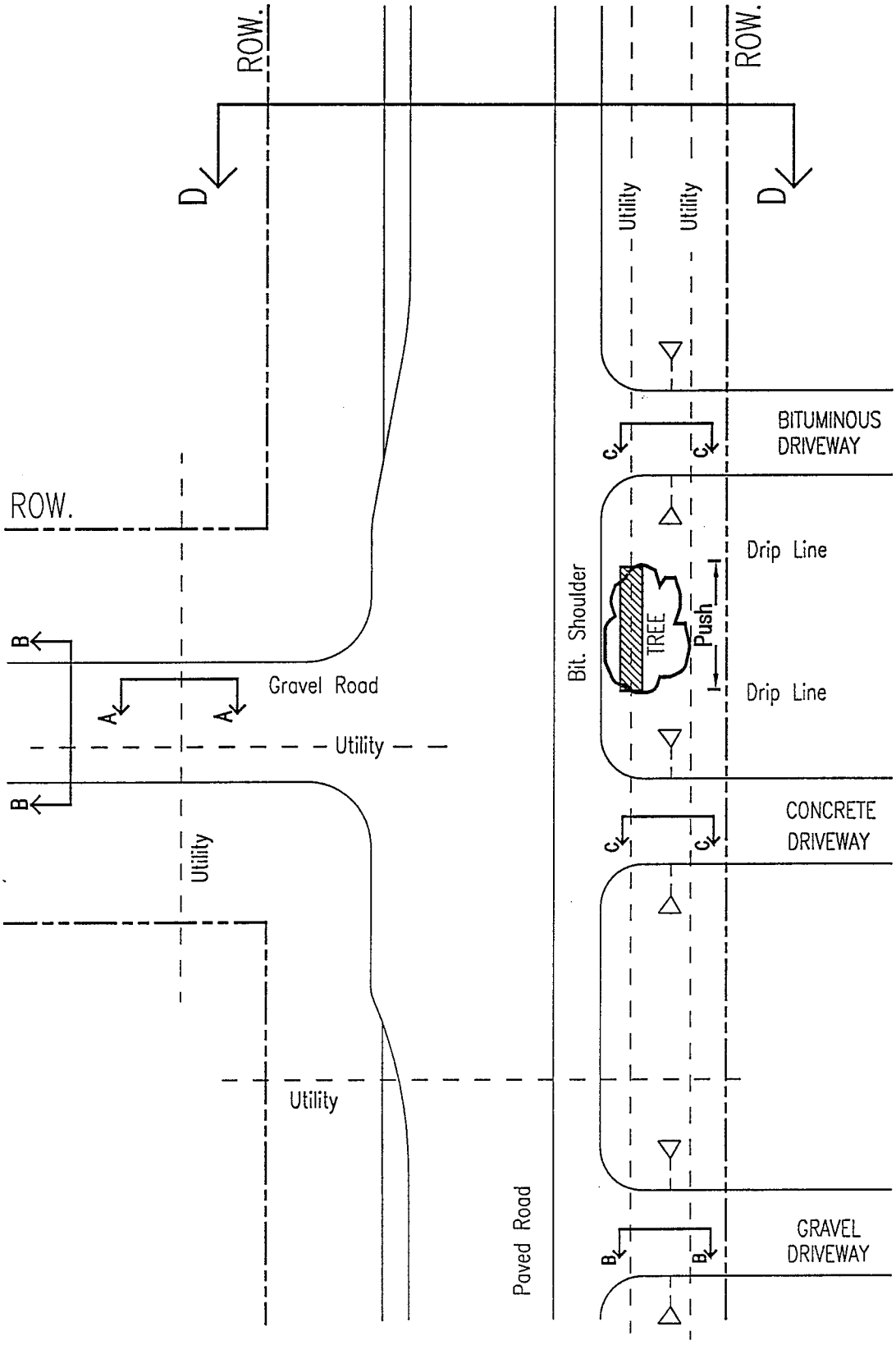


Note 1: Bituminous Pavement
- Replace base, binder and wearing course for trench width only

Note 2: Concrete Pavement
- Replace trench width only

Note 3: All Other Types of Surfaces and Pavements
- Replacement with in-kind materials for trench width only

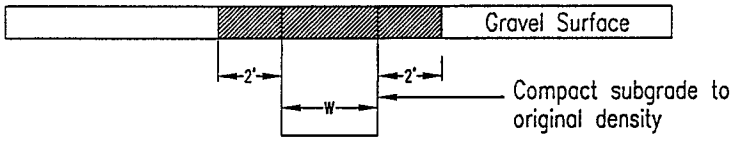
UTILITY HOLE RESTORATION TYPICAL PAVEMENT IN 2 YEAR PROJECT PLAN OR TEMPORARY SURFACE	Date: 7-6-98	PLATE 10 No Scale



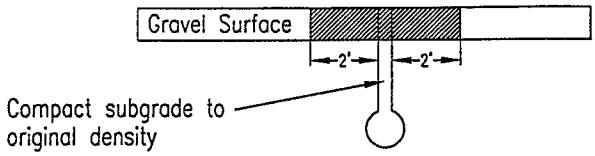
Note: All utility lines must be pushed under roads, shoulders and driveways unless other construction methods are approved by the Local Governmental Unit

TYPICAL ROAD PLAN	Date: 7-6-98	PLATE 11 No Scale

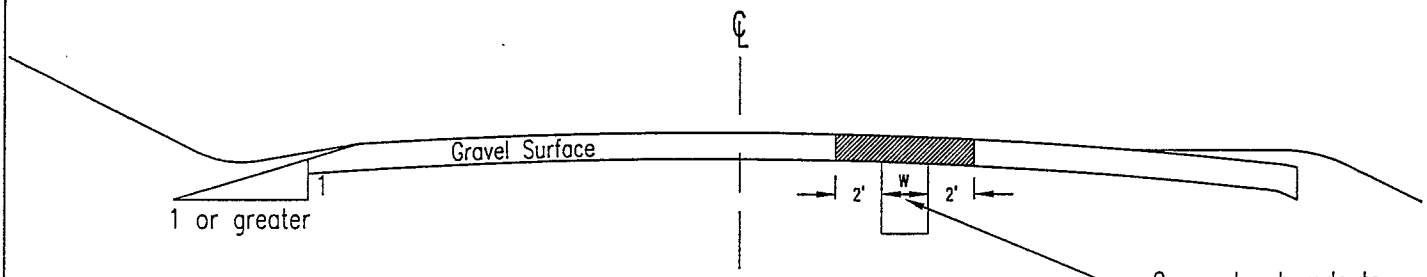
Section A-A
Restore Gravel Surface
Trench



Section A-A
Restore Gravel Surface
Plow



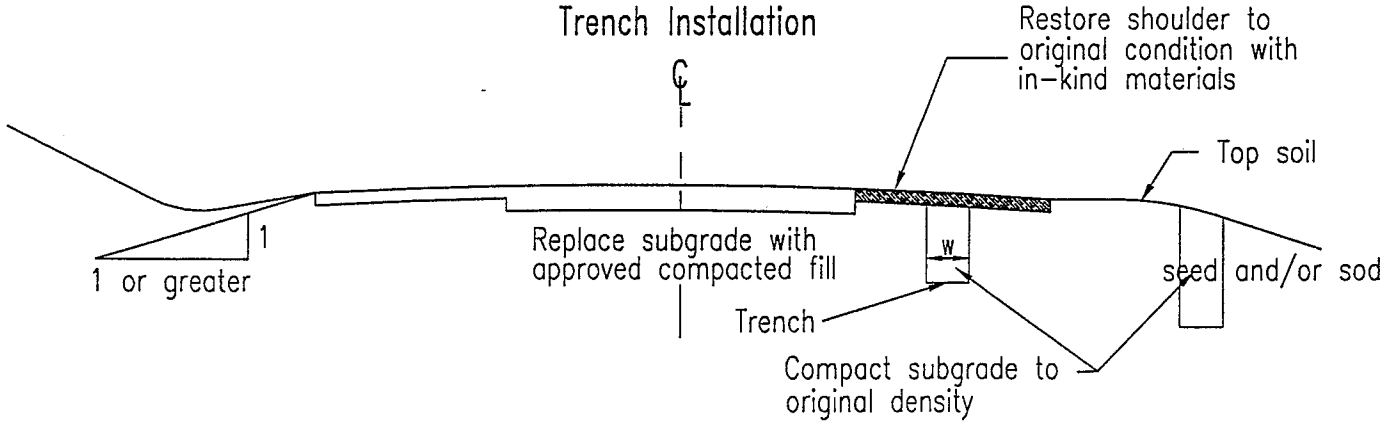
Section B-B
Restore Gravel Surface
(Plow or Trench)

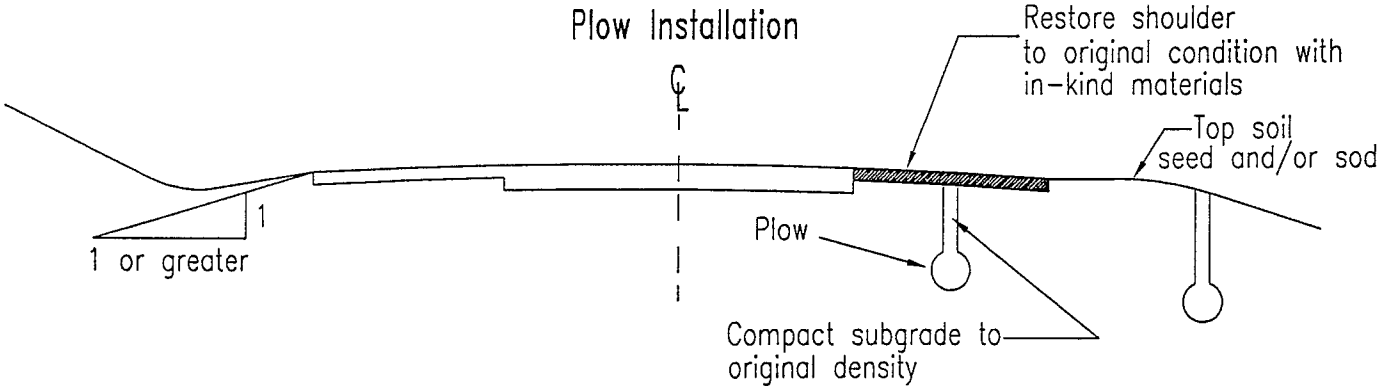


Section C-C
Full Panel Restoration: Concrete or Bituminous Driveway Sidewalk or Path

Note 1: Restore all surfaces to original condition with in-kind materials

TYPICAL ROAD, DRIVEWAY, OR PATH RESTORATION	Date: 7-6-98	PLATE 12 No Scale





TYPICAL ROAD SHOULDER RESTORATION Section D-D	Date: 7-6-98	PLATE 13 No Scale