CITY OF DETROIT

SPECIAL PROVISIONS
FOR
UTILITY CUTS
PAVEMENT REMOVAL AND REPLACEMENT

DET:NH, MS **09-05-06**

RESTRICTIONS AND GENERAL EXTENT OF REMOVAL AND REPLACEMENT FOR VARIOUS PAVEMENT TYPES

GENERAL

The limits of replacement outlined below are, in general, minimum requirements. All adjacent pavement damaged by construction operations shall be replaced. The Contractor should employ methods to minimize the amount of replacement necessitated by damage adjacent to the work area.

The requirements for replacement of isolated utility cuts are the same as the requirements for replacement of pavement over trenches. Where the word "trench" is used, the requirement also applies to isolated utility cuts.

DIMENSIONS

All of the following dimensions shall not be less than 3 feet:

The width of pavement replacement over the trench.

The distance from the near edge of the trench to the adjacent longitudinal or transverse joint.

The distance from the near edge of the trench to the face of the curb.

The distance from the near edge of the trench to an existing utility cut.

Small utility cuts may be a minimum of 3 feet long by 3 feet wide.

PAVEMENT DESIGNATIONS

The following are the designations of the types of pavement. Throughout this special provision the letter designation will be used:

A. Concrete Pavements 26 feet or Less in Width, with a Construction Joint in the Center.

B. Concrete Pavements Wider than 26 feet with a Construction Joint in the Center – (Excluding 33 feet - Divided Roadway with Center Island).

C. Concrete Pavement - (Divided Roadway with Center Island)

PAVEMENT DESIGNATIONS (CONT'D)

D. Major Arterial Concrete Pavement - {Streets over 36 feet Wide or Fronted by Commercial or Industrial Property}.

E. Reinforced Concrete Pavement.

F. Asphaltic Surface - Concrete Base.

G. Asphaltic Surface - Macadam Base - (Oil Aggregate or Asphaltic Concrete Binder and Wearing Courses) - Various Widths.

H. Economy Paving.

I. Intersections.

REMOVAL

A. Requirements for Pavements A,B,C,D,E, and F: In concrete street pavements, the width of the removal for the pavement replacement shall be determined by the location of the trench.

Unless otherwise directed by the Engineer, when the distance from the face of the curb to the near edge of the trench is less than 3 feet, the pavement shall be removed to the back of the curb. Separate type curb will only be removed if damaged by the construction operation.

When the distance from the near edge of the trench to the adjacent longitudinal or transverse joint or the near joint of an existing utility cut is less than 3 feet, the pavement shall be removed to the joint.

B. Requirement for Pavement I:

1. Concrete Surfaced: The entire slab shall be replaced from joint to joint when it is necessary to remove any part of the slab for construction of the utility trench or utility cut. Concrete removal for construction in trench shall be guided by the means employed to safely maintain pedestrian and vehicular traffic.

REMOVAL (CONT'D)

2. Asphaltic Surfaced: The pavement removal shall be as specified under REMOVAL, Article A, for Pavement F.

Pavement cutting shall be done by line drilling or sawing and by such other method as approved by City of Detroit, Department of Public Works, City Engineering Division (CED). If the line drilling method is used, the limits of the area shall first be scored with drill holes spaced 6 to 9 inches on center. Breaking of the pavement after line drilling shall not be done with a free-falling ball-type weight, or with a type of breaker commonly referred to as a "woodpecker". The use of a mobile hydraulic hammer or drop hammer will be permitted for pavement removal only if the height and rate of stroke are adjustable and the hammer is guided and free falling. The breaker should have automatic lateral movement to prevent any repeat drop in the same location.

The method of breaking pavement must be approved by CED. When line drilling is used, it will be necessary to saw concrete-surfaced streets before replacement can be started to provide a good joint.

The amount of removal must be sufficient to meet minimum replacement requirements.

C. Requirements for Pavements G and H: Excavate the surface with the trench excavation. Care shall be taken to maintain the pavement adjacent to the trench in such condition as to minimize the removal necessary to obtain a vertical butt joint when replacing the surface paving material.

BACKFILL OF TRENCH

Requirements for Pavements A through I: Open-cut trenches under all pavements, driveways, and sidewalks shall be backfilled with compacted fill (Grade A) materials to the required grade of the bottom of the concrete slab, bottom of base material, bottom of subbase materials, or bottom of sidewalk slab.

All backfill shall be placed and compacted by the Controlled Density method to at least 95% of the maximum laboratory density.

SUBBASE

Requirements for Pavements A through I: Where a subbase exists below the concrete pavement slab, the Grade "A" backfill shall be brought to the bottom of the subbase, and the subbase replaced to the required grade for the bottom of the concrete slab. The subbase material shall be 22A material.

BASE

Requirements for Pavement G: The base course shall be a minimum of 6 inches in thickness and shall be constructed of the 22A material.

All base material shall be placed and compacted by the Controlled Density Method to at least 95% of maximum laboratory density.

Requirements for Pavement H: The base course shall be a minimum of 6 inches in thickness and shall be constructed of 22A material.

All base material shall be placed and compacted by the Controlled Density Method to at least 95% of Maximum laboratory density.

FILL MATERIALS

A. Excavated Materials: Excavated materials to be suitable for backfill behind the curb in the berm area shall be a type that may be thoroughly compacted. Such material to be usable shall be free from rubbish or debris, vegetable matter, large stones, concrete fragments, or other road material, lumber, tree roots, or branches. In general, selected excavated material to be suitable for backfill shall be restricted to sand or crumbly yellow clay. The use of blue clay will not be permitted. If excavation undermines or excavation is under the curb, use Grade A fill material for the trench backfill.

B. Fill (Grade A) Materials Under Pavements, Curbs, Walks and Driveways: Fill (Grade A) shall conform to the following grading requirements:

Square Sieve Opening (U.S. Standard Series)	Total Percent Passing by Dry Weight
2-1/2 Inch	100
1Inch	60 - 100

FILL MATERIALS (CONT'D)

Square Sieve Opening (U.S. Standard Series)	Percent Passing by Dry Weight
No. 40	0 - 100
No. 100	0 - 30
Loss by Washing	0 - 7

Granular material, Class II, as specified by the current MDOT specifications may be substituted for the above described fill (Grade A).

C. Subbase and Base Materials (22A): (22A) shall consist of crushed gravel, crushed stone, blast-furnace slag, or approved combinations thereof. Subject to the Engineer's approval, processed crushed concrete may be used. The materials shall conform to the following grading requirements.

Square Sieve Opening (U.S. Standard by Series)	Total Percent Passing by Dry Weight
1 Inch	100
3/4 Inch	90 - 100
3/8 Inch	65 - 85
No. 8	30 - 50
No. 200	4 - 8

PAVEMENT REPLACEMENT

A. General: If conditions dictate the use of high-early strength concrete to facilitate opening of an area to traffic with a minimum of delay, the contractor shall provide a high-early strength concrete mixture as approved by the Engineer.

The following requirements shall apply unless superceded by other details on the contract plans or in the documents.

PAVEMENT REPLACEMENT (CONT'D)

B. Requirements for Pavements A,B,C,D, and E: Residential street pavements shall be replaced to the bottom of the existing pavement with a minimum of 8 inches of concrete. Major street pavements shall be replaced to the bottom of the existing pavement with a minimum of 9 inches of concrete. Concrete shall be Grade "A." Materials, workmanship, and details shall conform to current "Standard Paving Specifications".

Place 5/8 inch diameter dowel hook bolts at 36 inches center to center, when concrete replacement abuts existing concrete.

For cuts over 30 square feet when concrete replacement abuts existing concrete, the joint must be sealed. This is in addition to joint sealing required by the standard paving specifications.

Contour of curb replacement shall match adjacent curb. In most instances, integral curb can replace separate type curb; however, the upper contour must match the upper contour of the existing curb.

Where possible, the curb shall be replaced with a 7-inch curb face, or the maximum amount, less than 7 inches, that can be achieved and still maintain cross slope drainage from the sidewalk to the top of curb.

When replacing reinforced concrete, replace with the same size reinforcement and lap one width of mesh. Approved lane tie devices shall be installed in all the joints as directed by the Engineer.

C. Requirements for Pavement F: Residential street pavements shall be replaced to the bottom of existing pavement with a minimum of eight inches of concrete. Major street pavements shall be replaced to the bottom of the existing pavement with a minimum of nine inches of concrete. Concrete shall be Grade A. Material, workmanship, and details shall conform to current standard paving specifications.

Place 5/8 inch diameter dowel hook bolts at 36 inches center to center, when concrete replacement abuts existing concrete.

Unless otherwise directed or authorized by the Engineer, the concrete used to replace the existing pavement shall be placed to within 3 inches of the existing asphaltic surfaces.

Prior to placing asphaltic material, the existing asphaltic material shall be sawed to provide a vertical joint. This joint shall be primed with SS1-h (Asphaltic Emulsion).

PAVEMENT REPLACEMENT (CONT'D)

A minimum of 1½ inches of 3C Hot Mix Asphalt (HMA) material shall be used in the binder course and a minimum of 1½ inches of 4C HMA material shall be used for the wearing surface.

When the depth of asphaltic material replaced exceeds 1-1/2 inches, it shall be replaced in two or more lifts. A replacement of 1-1/2 inches can be made in one lift.

D. Requirements for Pavement G:

1. The Base Replacement shall be as specified under BACKFILL OF TRENCH.

   Replace the asphaltic mixture, wearing course and binder course, the width of the trench plus adjacent width required to make a straight vertical butt joint in the undisturbed pavement.

   Hot asphaltic materials and construction shall conform to the current MDOT Standard Specifications for Construction or as determined by the Engineer.

   When the depth of asphaltic material replaced exceeds 1½ inches, it shall be replaced in two or more lifts. A replacement of 1½ inches can be made in one lift.

2. The replacement of asphaltic material in excess of 1½ inches shall be made using a fine or course binder and a wearing surface material.

3. Curb, Curb and Gutter: Materials and construction shall conform to the Mdot Standard Specifications for Construction and City of Detroit special provisions. Change of alignment, due to settlement or other disturbances causing damage to curbs, or curb and gutter, shall necessitate their replacement.

   The cross section shall conform to the existing curb replaced. Replacement shall be made from original joint to original joint.

E. Requirements for Pavement H: The base replacement shall be as specified under BACKFILL OF TRENCH.

Upon the prepared completed base course, asphaltic leveling and wearing surface are to be placed, equivalent in thickness to the existing asphaltic surface, with a minimum thickness of 1½ inches each.

SIDEWALKS AND DRIVEWAYS

A. General: The requirements for concrete materials and installation shall conform to the current MDOT Standard Specifications for Construction and City of Detroit special provisions.

Before utility cuts are made in any driveway, the utility shall meet with the CED-Inspection Bureau's area supervisor. The replacement required will be determined by the CED-Inspection Bureau's area supervisor.

If the utility fails to arrange for the above procedure and makes the removal, the extent of the replacement will be determined by the supervisor before any concrete is replaced.

If the concrete replacement is made in violation of the above requirement, the utility will be required to remove the replacement and the adjacent concrete and replace same as directed by the CED-Inspection Bureau.

B. Sidewalks: When necessary to remove any part of a flag for utility construction, the entire flag shall be replaced. If blind joints are encountered, they shall be sawed to prevent damage to adjacent flags.

Sidewalks shall be placed on a compacted subgrade that will allow for a 4-inch concrete slab with its finished top surface at the original sidewalk grade and meeting the grade of any adjacent undisturbed sidewalks.

Sidewalks shall be replaced with Grade "A" Concrete.

C. Residential Driveways: Removal to the existing joints beyond the limits of the trench, will be permitted upon approval of the Engineer. However, any concrete replacement or remaining concrete shall have a minimum width of at least 5 feet.

Where there are no transverse joints, the entire driveway shall be replaced.

Residential driveways shall be replaced with a minimum of 6 inches of Grade "A" Concrete.

D. Commercial Driveways (Includes Industrial): Each location will require individual determination by the Engineer as to the limits of the driveway removal necessary prior to replacement. Commercial driveways shall be replaced with Grade "A" Concrete. The thickness of the concrete shall match the existing but in no case shall be less than 8 inches.

E. Temporary Driveway, Pavement, Sidewalk and Curb: Temporary sidewalks shall be a 2-inch layer of cold pack placed on the compacted backfill. Temporary pavements, driveways, and curbs shall consist of 2 inches of cold pack placed on a 6-inch stone subbase. The top surface shall be rolled or tamped to correspond with the adjacent surface.

CONCRETE AND BRICK ALLEY PAVEMENT

The entire width of a concrete or brick alley shall be removed, and replaced with Grade "A" concrete. The thickness of the concrete shall match the existing but in no case shall be less than 6 inches.

The alley pavement shall be replaced in accordance with the grades and elevations on the original paving. Prints of the original alley paving plans may be obtained from the City Engineering Division.

When a utility cut or new utility construction crosses the alley return, the whole alley return shall be replaced.

STONED AND UNIMPROVED ALLEYS AND STREETS

The entire width of the alley and, on streets, the trench width plus five feet on each side shall be resurfaced with a 4-inch layer of 10A(CD)-(M.D.O.T. 6AA,A) stone or slag conforming to the following requirements.

Square Sieve Opening (U.S. Standard Series)	Total Percent Passing by Dry Weight
1½ Inch	100
1 Inch	95 - 100
½ Inch	30 - 60
No. 4	0 - 8

JOINTS

Joints shall be replaced to match existing conditions. Joint materials shall conform to current standards as outlined in the current standard paving specifications.

PROTECTION OF WORK

All cuts shall be properly barricaded and steel plates shall be provided where required. Suitable warning devices shall be provided to protect both the general public and the completed work.

Working Restrictions - hours of work, lanes of traffic to maintain, etc., are under the jurisdiction of the Traffic Engineering Division, Department of Public Works, City of Detroit.