

APPROVED 1-12-16
Brad Fagrell
 CITY ENGINEER

REVISED:

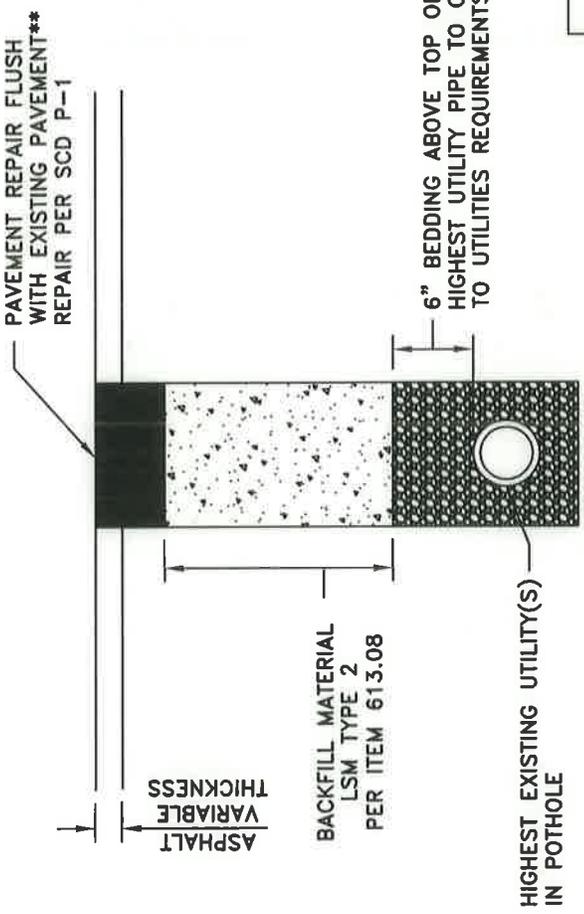
UTILITY
 POTHOLE
 REPAIR

CITY OF LANCASTER, OHIO
 DEPARTMENT OF ENGINEERING

STANDARD
 CONSTRUCTION DRAWING

DWG. BY: DDK
 CHK'D BY: MN

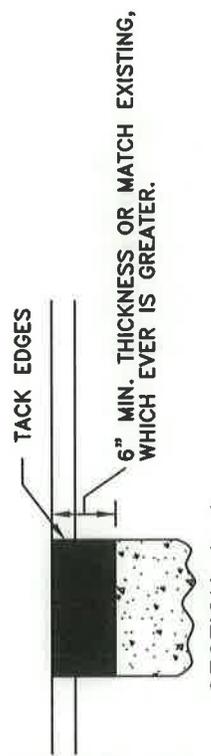
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SECTION VIEW



PLAN VIEW



SECTION A-A

NOTES:
 1. DIMENSIONS ARE NOMINAL.
 2. EDGES SHALL BE CUT TO A NEAT VERTICAL FACE.
 3. PLACE LSM BACKFILL IN ACCORDANCE WITH SECTION 613.08.
 4. PLACE ASPHALT CONCRETE IN MAXIMUM 2" LIFTS, PER SCD P-1.

TYPE A-PAVEMENT REPAIR

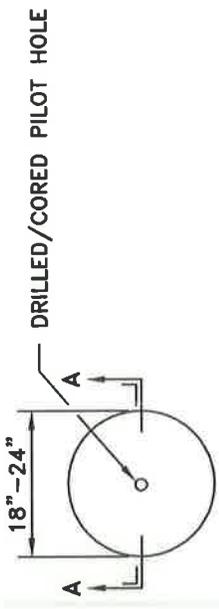
* WATER: FILL SAND PER ITEM 802.18
 SEWER: #57 AGGREGATE PER 901.11
 GAS: FILL SAND PER 703.02A

CONTACT NON-CITY UTILITIES FOR THEIR REQUIREMENTS

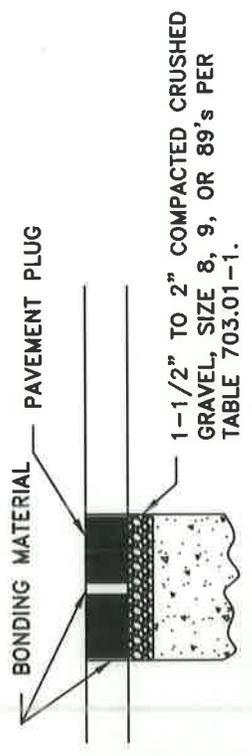
** PAVEMENT PATCH SHALL BE HEAT-WELDED IF PAVEMENT IS ≤ 5 YEARS OLD.

TYPE B-PAVEMENT REPAIR

NOTES:
 1. CUT, REMOVE AND REPLACE PAVEMENT PLUG IN ACCORDANCE WITH SECTION 259.07
 2. PLACE BACKFILL IN ACCORDANCE WITH SECTION 259.06
 3. BONDING MATERIAL SHALL BE AS SPECIFIED IN SECTION 259.03E



PLAN VIEW



SECTION A-A

ITEM 259 KEYHOLE POTHOLE EXCAVATION AND PAVEMENT RESTORATION

259.01 GENERAL

THIS SPECIFICATION COVERS THE REQUIREMENTS FOR KEYHOLE CORING, VACUUM EXCAVATION, BEDDING, BACKFILLING, AND REINSTATEMENT OF THE KEYHOLE CORE IN ASPHALT OR CONCRETE PAVEMENTS TO ALLOW FOR UNDERGROUND UTILITY REPAIRS AND UNDERGROUND EXPLORATORY POTHOLING.

259.02 DEFINITIONS

- A. KEYHOLE CORING: THE OPERATION OF CORING A CIRCULAR HOLE THROUGH THE ROADWAY PAVEMENT USING DIAMOND CORE DRILLING EQUIPMENT.
- B. ITEM ###: A REFERENCE TO ITEM WITH A NUMBER FOLLOWING IT REFERS TO A CONSTRUCTION AND MATERIAL SPECIFICATION OF LANCASTER.

259.03 MATERIALS GENERAL

- A. THE MATERIAL AND PLACEMENT REQUIREMENTS IN THE FINAL BEDDING AREA SHALL BE PER THE UTILITY OWNERS' REQUIREMENTS.
- B. THE MATERIAL AND PLACEMENT REQUIREMENTS IN THE FINAL BACKFILL AREA SHALL BE IN ACCORDANCE WITH ITEM 613 LOW STRENGTH MORTAR BACKFILL, TYPE 2.
- C. IF PERMITTED BY THE ENGINEER IN WRITING, A GRANULAR BACKFILL MAY BE USED. IN THIS INSTANCE, THE MATERIAL AND PLACEMENT REQUIREMENTS IN THE FINAL BACKFILL AREA SHALL BE IN ACCORDANCE WITH ITEM 603.11, "TRENCH EXCAVATION AND BACKFILL."
- D. PAVEMENT KEYHOLE CORES REMOVED SHALL EITHER BE REMOVED FROM THE WORK SITE OR STORED IN A SAFE AND SECURE ON-SITE LOCATION. THE CORES SHALL BE MADE READILY AVAILABLE FOR RESTORING THE PAVEMENT AFTER BACKFILLING IS COMPLETE AND APPROVED.
- E. BONDING AGENT: THE BONDING AGENT SHALL BE A SINGLE COMPONENT CEMENTITIOUS, RAPID HARDENING, HIGH STRENGTH, WATERPROOF BONDING AGENT CONFORMING TO THE PHYSICAL PROPERTIES SHOWN IN TABLE 1.
 - 1. THE BONDING MATERIAL SHALL BE IMPERVIOUS TO WATER PENETRATION AT THE JOINT AFTER APPLICATION.
 - 2. THE BONDING MATERIAL SHALL SECURELY BOND THE UNDAMAGED KEYHOLE CORE TO THE PAVEMENT AND SHALL COMPLETELY FILL THE ANNULAR SPACE AT THE JOINT.
 - 3. THE BONDING MATERIAL SHALL, WITHIN 30 MINUTES AT AN AMBIENT TEMPERATURE OF 70 DEGREES FAHRENHEIT, ALLOW THE CORE TO SUPPORT AN EQUIVALENT TRAFFIC LOAD CONDITION OF AT LEAST THREE (3) TIMES THE AASHTO H-25 STANDARD.
 - 4. THE BONDING MATERIAL SHALL BE UTILIBOND, MANUFACTURED BY UTILICOR TECHNOLOGIES, INC., OR AN ENGINEER APPROVED EQUAL.

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**TABLE I
BONDING MATERIAL REQUIREMENTS**

PROPERTY	ASTM TEST METHOD	REQUIREMENTS
BOND STRENGTH (SLANT SHEAR), PSI (70 DEGREES F, 30 MINUTE CURE)	C882	200 MIN.
COMPRESSIVE STRENGTH, PSI (70 DEGREES F, 60 MINUTE CURE)	C109	1500 MIN.

259.05 POTHOLE EXCAVATION, GENERAL

A. THE CONTRACTOR SHALL PLACE A TEMPORARY MARK ON THE PAVEMENT AREA WHERE THE KEYHOLE CORE WILL BE TAKEN PRIOR TO CUTTING TO INSURE THAT THE REMOVED SECTION IS REPLACED IN THE SAME ORIENTATION AS ORIGINALLY FOUND IN THE PAVEMENT.

B. THE VERTICAL ALIGNMENT OF THE KEYHOLE CORING SHALL BE PERPENDICULAR TO THE HORIZON, AND THE CUTTING SHALL EXTEND TO THE FULL DEPTH OF THE EXISTING PAVEMENT SECTION.

C. UNLESS OTHERWISE APPROVED BY THE ENGINEER IN WRITING, KEYHOLE CORES SHALL NOT BE GREATER THAN 24-INCHES IN DIAMETER. ADJACENT CORES SHALL NOT BE CLOSER THAN 3 FEET FROM EACH OTHER (EDGE TO EDGE), SHALL NOT CONTAIN A JOINT OR ANY PAVEMENT CRACKS GREATER THAN 1/8-INCH WIDE, AND SHALL NOT BE PERFORMED IN PAVEMENTS WHERE THE SECTION IS LESS THAN 4-INCHES THICK.

D. CORING SHALL BE PERFORMED WITH A KEYHOLE CORING SAW CAPABLE OF REMOVING AN INTACT CORE OF PAVEMENT.

E. SOILS WITHIN POTHOLES SHALL BE REMOVED BY AIR/VACUUM EXTRACTION METHODS TO EXPOSE UTILITIES. THE ZONE OF SOIL REMOVAL SHALL REMAIN ESSENTIALLY WITHIN A VERTICAL PLANE EXTENDING BELOW THE EDGES OF THE REMOVED PAVEMENT.

F. THE CONTRACTOR SHALL REMOVE ALL MATERIALS EXCAVATED FROM THE SITE AND DISPOSE OF IT TO A SPOIL SITE APPROVED BY THE ENGINEER.

259.06 POTHOLE BEDDING, BACKFILL AND COMPACTION

A. THE CONTRACTOR SHALL CAREFULLY PLACE THE BEDDING MATERIAL AROUND THE UTILITY LINE SO AS TO NOT DAMAGE OR HARM THE LINE. THE CONTRACTOR SHALL PLACE THE BEDDING MATERIAL SO AS TO ENSURE ALL VOIDS AROUND THE UTILITY LINE ARE FILLED. THE CONTRACTOR SHALL CAREFULLY COMPACT THE FILL MATERIAL TO THE LIMITS REQUIRED BY THE UTILITY OWNER.

B. BACKFILLING SHALL BE PERFORMED IN ACCORDANCE WITH ITEM 613.08 "PLACING MORTAR".

C. A 1-INCH OR LESS LAYER OF No. 9 AGGREGATE MAY BE PLACED OVER THE LOW STRENGTH MORTAR BACKFILL TO ALLOW SETTING THE KEYHOLE CORE AT THE PROPER ELEVATION.

D. WHERE GRANULAR BACKFILL HAS BEEN PERMITTED IN LIEU OF LOW STRENGTH MORTAR BACKFILL, BACKFILLING SHALL BE COMPLETED IN ACCORDANCE WITH ITEM 603.11, "TRENCH EXCAVATION AND BACKFILL." UNLESS OTHERWISE APPROVED BY THE ENGINEER, THE BACKFILL MATERIAL SHALL BE PLACED IN MAXIMUM 6-INCH LOOSE LIFTS. BACKFILL COMPACTION SHALL CONFORM TO THE REQUIREMENTS OF ITEM 203.07, "COMPACTION AND MOISTURE REQUIREMENTS."

APPROVED <u>1-12-16</u>	UTILITY POTHOLE REPAIR	CITY OF LANCASTER, OHIO DEPARTMENT OF ENGINEERING	
<i>Brad Fagell</i> CITY ENGINEER		STANDARD CONSTRUCTION DRAWING	
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259.07 PAVEMENT RESTORATION

- A. THE SURFACE CUT BY KEYHOLE CORING RESTORED TO ITS ORIGINAL CONDITION WITH THE REINSTATED CORE FLUSH WITH AND IN THE ORIGINAL ORIENTATION AS THE EXISTING SURFACE, MATCHING EXISTING PAVEMENT SURFACE APPEARANCE.
- B. EXCESS BONDING MATERIAL SHALL BE REMOVED FROM THE RESTORED SURFACE. A PATCHED APPEARANCE SHALL BE AVOIDED IN SURFACE RESTORATION WHEREVER POSSIBLE.
- C. UNLESS OTHERWISE APPROVED BY THE ENGINEER, THE CONTRACTOR SHALL REINSTATE THE BONDED KEYHOLE CORE WITHIN 24 HOURS OF CUTTING THE PAVEMENT. OPENINGS ALLOWED TO BE LEFT OPEN GREATER THAN 24 HOURS SHALL BE COVERED WITH AN APPROVED STEEL ROAD PLATE CAPABLE OF SUPPORTING TRAFFIC LOADS.
- D. SURFACE TOLERANCES: THE REINSTATED CORE SHALL BE FLUSH AND LEVEL WITH THE ADJACENT PAVEMENT. GAPS ATTRIBUTABLE TO THE POSITIONING OF THE CORE SHALL BE LESS THAN 1/16-INCH BETWEEN THE BOTTOM OF A MINIMUM 3-FOOT LONG STRAIGHTEDGE AND THE SURFACE OF THE PAVEMENT IN ANY DIRECTION ON THE SURFACE OF THE KEYHOLE CORE.

259.08 DEFICIENCIES

- A. WHERE THE KEYHOLE CORE IS FOUND TO BE FRACTURED OR DEFECTIVE UPON REMOVAL, OR BECOMES DAMAGED AFTER REMOVAL AND PRIOR TO REINSTATEMENT, THE CORE SHALL NOT BE USED TO RESTORE THE PAVEMENT. THE PAVEMENT AT DAMAGED KEYHOLE CORE LOCATIONS SHALL BE CUT AND A PERMANENT PATCH SHALL BE INSTALLED IN ACCORDANCE WITH ITEM 253, PAVEMENT REPAIR.
- B. A KEYHOLE CORE SHALL BE CONSIDERED UNACCEPTABLE WHEN ONE OF THE FOLLOWING CONDITIONS EXIST:
 - 1. THE KEYHOLE CORE CONTAINS ANY VERTICAL CRACKS WIDER THAN 1/8-INCH EXTENDING FULL DEPTH THROUGH THE CORE; OR
 - 2. ANY DETERIORATED PIECE OF THE KEYHOLE CORE IS LARGER THAN TEN PERCENT OF THE OVERALL AREA OF THE CORE; TWO OR MORE SUCCESSIVE LAYERS OF PAVEMENT IN THE KEYHOLE CORE BECOME HORIZONTALLY DELAMINATED AND CANNOT BE RE-BONDED TO EACH OTHER WITH THE BONDING MATERIAL.
- C. ALL KEYHOLE CORES THAT ARE DAMAGED OR DO NOT MEET THE SURFACE TOLERANCES SHALL BE REMOVED, AND THE CONTRACTOR SHALL CUT AND INSTALL A PERMANENT PATCH IN ACCORDANCE WITH STANDARD CONSTRUCTION DRAWING P-1 AND ITEM 253, PAVEMENT REPAIR.

259.09 METHOD OF MEASUREMENT

UNLESS OTHERWISE SHOWN IN THE CONTRACT DRAWINGS, THIS ITEM, KEYHOLE POTHOLE EXCAVATION AND PAVEMENT RESTORATION, WILL BE PAID AT AN EACH FOR EACH REPAIR COMPLETED AND ACCEPTED.

259.10 BASIS OF PAYMENT

PAYMENT WILL BE MADE FOR ITEM 259, KEYHOLE POTHOLE EXCAVATION AND PAVEMENT RESTORATION FOR ACCEPTED QUANTITIES AT THE CONTRACT PRICE AS FOLLOWS:

ITEM	UNIT	DESCRIPTION
259	EACH	KEYHOLE PAVEMENT CORE AND REPAIR, ____INCH DIA.

APPROVED <u>1-12-16</u>  CITY ENGINEER REVISED:	UTILITY POTHOLE REPAIR	CITY OF LANCASTER, OHIO	
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