



August 1, 2024

Mila Carter, Township Manager  
Westtown Township  
P.O. Box 79  
Westtown, PA 19395

Dear Mila:

Subject: 1502 West Chester Pike (Westtown AM West TIC, LLC)

This office has received plans for the above subject project. This is the first submission to Carroll Engineering Corporation for this project, and upon review, we offer the following comments.

A. SUBMISSION

1. Plans titled “Preliminary/Final Land Development Plan for Westtown AM West TIC, LLC Proposed Chase Bank” prepared by Dynamic Engineering for Westtown AM West TIC, LLC. The current plan submission consists of 21 sheets dated July 12, 2024, with no revisions.

B. GENERAL

1. The plan proposes the construction of a bank on a pad site in the parking lot of the Marketplace at Westtown Shopping Center (TPN 67-2-42.4).
2. The existing 18.45-acre parcel is located on the south side of West Chester Pike, between Manley Road and Cavanaugh Court, in the C-1 Neighborhood and Highway Commercial District.
3. Sanitary sewer service will be provided by connecting to the existing sewer crossing the property behind the existing shopping center. Flows will be conveyed to Chester Creek Wastewater Treatment Plant.

*Today's Commitment to Tomorrow's Challenges*

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Corporate Office: 949 Easton Road Warrington, PA 18976 215.343.5700	630 Freedom Business Center Third Floor King of Prussia, PA 19406 610.572.7093	433 Lancaster Avenue Suite 200 Malvern, PA 19355 610.489.5100	101 Larry Holmes Drive Suite 201 Easton, PA 18042 610.989.4940	105 Raider Boulevard Suite 206 Hillsborough, NJ 08844 908.874.7500
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C. SANITARY SEWER

1. The location of the lateral connection to the existing sewer should be revised. Instead of connecting directly to the manhole, the lateral should connect to the main a minimum of five feet downstream of the existing manhole.
2. The sewer main is a PVC-lined asbestos cement pipe (ACP). The lateral connection should be made with an LMT saddle, as manufactured by LMK Technologies, or an approved equal. Information on the saddle is attached for the applicant's use. An appropriate detail should be added to the plan set.
3. Cleanouts should be provided in accordance with the Township's building code.

Should you have any questions or require additional information, please feel free to contact this office.

Very truly yours,

CARROLL ENGINEERING CORPORATION



Mark T. Yoder

MTY/WNM:cam

Attachment

cc: William N. Malin, P.E., Senior Vice President, CEC (w/Attachment)



## PRODUCT SUBMITTAL DOCUMENT INFORMATION

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# LINED MAIN TAP™ (LMT) OR LMK SADDLE SYSTEM

Updated 3/28/16

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## **Lined Main Tap (LMT) and/or LMK Saddle System Submittal**

### **ITEM 1:**

**Manufacturer Company Name:** LMK Technologies, LLC

Contact Individual(s): Rick Gage  
Street Address: 1779 Chessie Lane  
City, State, Zip Code: Ottawa, IL 61350  
Telephone: 815.433.1275  
Facsimile: 815.433.0107

**Product Submittal:** This submittal is for the product called Lined Main Tap™ System, hereby known as LMT™, or a LMK Saddle System. The LMT is a PVC Saddle that is specifically designed to attach to a mainline CIPP Liner or a mainline host pipe for the purposes of connecting or reconnecting a lateral pipe.

**The LMT and/or LMK Saddle System by LMK®** has been used throughout the United States since 2011.

**LMK Technologies, LLC, is the owner of Trademarks: LMT™ and LMK®.**

**Larry Kiest, Jr. CEO/President** - Inventor of more than one hundred issued patents teaching methods and apparatuses for the Rehabilitation of Underground Pipes, Conduits and Structures. Mr. Kiest is a Licensed Plumber in the State of Illinois, Advisory Board Member of Trenchless Technology Center Louisiana Tech University, Member of ASCE/ PINS Lateral Committee, Board Member of NASSCO, Chairman of NASSCO Lateral Committee, Active Board Member NASSCO 2008-2010, Member of NASTT, Member of AWWA Standards Committee, Member of WEF, Member of MSTT, Active Board Member MSTT 2008-2010, Member of ASTM, and Chairman of Task Committee F17, subcommittee 17.67 standard practice for rehabilitation of a sewer service lateral using a one piece main and lateral cured-in-place liner installed by means of air inversion. Mr. Kiest has conducted business in the field of Trenchless Pipe Renewal Systems since 1985.

### **LMK's Management Team**

General Manager: Gregor Norgaard  
Vice President of Sales: Rick Gage  
Director of Technology Team: Bruce Kamin

## **ITEM 2:**

### **References**

1. Michael Jankovic, City of Wheaton, IL  
Title: Assistant Superintendent of Sewers  
Phone: 630-260-2107 E-mail: [mjankovic@wheaton.il.us](mailto:mjankovic@wheaton.il.us)
2. Pablo San Martin, Jefferson Parish, LA  
Title: Sewer Rehab Manager  
Phone: 504-736-6686 E-mail: [psanmartin@jeffparish.net](mailto:psanmartin@jeffparish.net)
3. Tom Richards, Dane County Contracting, LLC, WI  
Title: Manager  
Phone: 608-849-3040 E-mail: [danecountycontracting@tds.net](mailto:danecountycontracting@tds.net)
4. John Langhans, P.E., MSA Professional Services, WI, IA, MN  
Title: Engineer  
Phone: 608-356-2771 E-mail: [janghans@msa-ps.com](mailto:janghans@msa-ps.com)
5. Don Brown, City of Ukiah, CA  
Title: Water & Sewer Supervisor  
Phone: 707-467-2813 Email: [dbrown@cityofukiah.com](mailto:dbrown@cityofukiah.com)
6. Philip Howery, City of Tulsa, OK  
Title: Operations Manager  
Phone: 918-669-6117 Email: [phowery@cityoftulsa.org](mailto:phowery@cityoftulsa.org)
7. David Scriver, City of Hagerstown, MD  
Title: Collection Systems Supervisor  
Phone: 301-739-8577 Email: [dscriver@hagerstown.org](mailto:dscriver@hagerstown.org)

### **ITEM 3:**

#### **1.0 INTENT**

- 1.1 It is the intent of this specification to provide a cost effective installation of a sewer lateral tap to a rehabilitated mainline pipe with lining or to a mainline pipe.
- 1.2 This specification takes precedence over any other similar specification that may be found in other sections of the bid documents.

#### **2.0 GENERAL**

2.1 The lateral service connection for the LMT Lined Main Tap or LMK Main Tap saddle installation system is located within the mainline pipe by the most effective means available to the installer. The most common method utilized and associated with this system consists of inserting a video camera with an internal sonde either through the lateral service and pushing the camera to the mainline pipe or from main pipe to the service location. Locating the service location is achieved with a receiving unit and marked on the surface.

2.2 Once the service connection has been located an entry pit will be made by conventional excavation or, if the installation is a vertical TEE configuration, by creating a bore hole approximately thirty-inches in diameter by vacuum excavation.

2.3 The surface crown of the pipe shall be cleaned with high pressure water leaving the surface free of debris.

2.3.1 If LMT saddle is going to be installed to a CIPP lining, the original host pipe will be broken away from the lining around the entire circumference of the lining and beyond the saddle length by 2 inches on each side. Care must be taken not to damage the CIPP lining inside the host pipe.

2.3.2 If the LMK saddle is going to be installed onto a host pipe, the pipe must be clean and free of debris in all areas that the saddle will make contact with the pipe.

2.3.3 If new lateral service connection, the saddle shall be placed on the lining or host pipe and the opening marked for the location of the service line. The saddle is removed and the service opening will be cut into the lining or host pipe.

2.4 A length measurement will be taken for the new section of service lateral pipe. The lateral service pipe will be prepped and primed.

2.4.1 The saddle riser shall be connected to the new section of PVC pipe (4" or 6" SDR 26 or SDR 35) utilizing a solvent weld or a push gasket joint.

2.5 The LMK proprietary adhesive/sealant will be applied to the underside of the saddle. The adhesive shall be smoothed out with the supplied applicator stick. (For HDPE pipe, a special 2-part Epoxy adhesive must be used.)

2.6 The saddle/PVC pipe assembly will be snapped onto the exposed CIPP Lining or directly to the host pipe.

2.6.1 The saddle is attached to the host pipe encompassing more than fifty percent (50%) of the pipe diameter. The LMT™ saddle shall be a self-supporting component, which allows the resin to cure without affecting the integrity of the seal to the host pipe.

2.6.2 Two quick bands (four total) that are provided in the kit shall be attached to each end of the saddle around the circumference of the pipe to ensure no slippage during the curing process or during backfilling while the adhesive completely cures.

2.6.3 Once secure, the adhesive will be smoothed out around the new service opening and the host lining or pipe ensuring an optimal finished product.

2.7 The new PVC lateral service pipe shall be connected to the existing lateral pipe using a non-shear leak-free coupling.

2.8 The saddle fitting and host pipe will be properly bedded and the pit or bore hole back filled. The site will be restored according to engineering specifications.

2.9 The process shall be LMT™ (LINED MAIN TAP) or LMK Main Tap Saddle System by LMK® Technologies or equal.

2.10 Lateral service flow will not be resumed until 24 hours after installation.

### **3.0 MATERIAL**

3.1 The LMT or LMK Saddle Kit consists of one Type 1 SCH 40 PVC Saddle, the appropriate amount of adhesive tubes for the saddle size, four appropriately sized Quick Bands, and adhesive applicator stick.

3.1.1 The saddle is sized to surround the liner or pipe beyond the spring line, which creates a clamping effect that draws the saddle firmly on to the liner or the pipe.

3.1.2 The universal LMK Adhesive bonds the saddle to the liner or host pipe, providing a flexible non-leaking main/ lateral connection. A special two part adhesive is available for HDPE liners/pipes.

3.1.3 The saddle is compatible with a variety of lining materials including CIPP and fold and form liners.

3.1.4 The saddle is also compatible with a variety of pipes including cast iron, vitrified clay, concrete, PVC and HDPE.

3.1.5 A variety of saddle sizes are available - for pipes ranging from 6 inch to 24 inch.

3.1.6 Many saddle sizes are stocked but not all; contact LMK customer service for availability.

### **4.0 INSTALLATION RECOMMENDATIONS**

4.1 Safety – all proper personal protective equipment and traffic control shall be utilized.

4.2 Access Safety - Prior to entering access areas such as manholes, an excavation pit, performing inspection or cleaning operations, an evaluation of the atmosphere to determine the presence of toxic or flammable vapors or lack of oxygen shall be undertaken in accordance with local, state, or federal safety regulations.

4.3 Cleaning and Inspection - As per NASSCO Standards.

4.4 Plugging – Lateral line plugging may be required. When required, the main pipe flow will be by-passed. The pumping system shall be sized for peak flow conditions. The upstream manhole shall be monitored at all times and an emergency deflating system will be incorporated so that the plugs may be removed at any time without requiring confined space entry.

### **5.0 FINAL ACCEPTANCE**

5.0 Upon completion, the installer will deliver an internal CCTV video of the main/lateral connection to the owner. The owners will review the documentation and the site to determine that the scope of work is complete and the work is satisfactory.

**Respectfully Submitted By:**

*Larry Kiest, Jr.,*

Larry Kiest, Jr. President, LMK Technologies, LLC.



# LMT AND LMK SADDLE TECHNICAL DATA SHEET



LINED MAIN TAP SADDLE SYSTEM



LMK SADDLE SYSTEM

## TECHNICAL DATA SHEET

The LMT™ (Lined Main Tap) Saddle Installation System is engineered to connect a lateral sewer service pipe to a liner inside a rehabilitated mainline.

The LMK Saddle Installation System is designed to connect a lateral sewer service pipe directly to a mainline pipe.

- The saddle is sized to surround the liner or pipe beyond the spring line, which creates a clamping effect that draws the saddle firmly on to the liner or the pipe.
- The universal LMK Adhesive bonds the saddle to the liner or host pipe, providing a flexible non-leaking main/lateral connection. A special two part adhesive is available for HDPE liners/pipes.
- The saddle is compatible with a variety of lining materials including polyethylene used in Fold & Form liners and pipe bursting, CIPP liners, and PVC folded liners.
- The saddle is also compatible with a variety of pipes including cast iron, clay, PVC and HDPE.
- A variety of saddle sizes are available - for pipes ranging from 6 inch to 24 inch.
- Many saddle sizes are stocked but not all; contact LMK customer service for availability.

Each Saddle Kit Contains:

1. Type 1 SCH 40 PVC Saddle
2. Appropriate amount of LMK Adhesive
3. 4 to 8 appropriately sized Quick Bands
4. Applicator Stick

Each Saddle:

1. Accepts a 6 inch SDR35 lateral pipe
2. Has a gasketed connection fitting
3. Is available in a TEE or WYE configuration

### INSTALLATION NOTES:

An LMT Saddle installation requires a pit excavation in order to expose the host pipe and to allow room to remove the host pipe wall where the connection will be made, exposing the liner inside.

An LMK Saddle connected directly to a host pipe can be installed through either hydro excavation or through a pit excavation. A WYE connection or a non-90 degree TEE connection would need to be performed through a pit excavation.

The saddle must be clamped to the lining to keep pressure and to prevent slippage during bedding/backfill.



## SADDLE DIMENSIONS

Pipe Size	Length of Saddle	Inside Diameter of Saddle		
		Clay	Cast Iron	PVC
6"	13"	8.0"	6.5"	6.5"
8" - 24"	Mandrel Formed Saddles are available to fit HDPE, Concrete, Vitriified Clay, Cast Iron and PVC. The outside dimension (O.D.) of the pipe and pipe construction are needed so that saddle size can be selected that will best fit the pipe. Call LMK , Customer Service, for more information on availability. CIPP saddles are formed to 6 inch—24 inch OD's.			

## SADDLE TECHNICAL DATA

Property	Nominal Value (English)	Nominal Value (SI)	Test Method
Specific Gravity	1.40	1.40 g/cm <sup>3</sup>	ASTM D792
PVC Cell Classification	12454	12454	ASTM D1784
Tensile Modulus	440000psi	3030 MPa	ASTM D638
Tensile Strength (Yield)	7200 psi	49.6 MPa	ASTM D638
Flexural Modulus	450000 psi	3100 MPa	ASTM D790
Flexural Strength	13200 psi	91.0 MPa	ASTM D790
Notched Izod Impact 73°F (23°C), 0.125 in (3.18mm), Injection Molded	1.0 ft-lb/in	53 J/m	ASTM D256A
Notched Izod Impact 73°F (23°C), 0.250 in (6.35mm), Injection Molded	0.70 ft-lb/in	37 J/m	ASTM D256A
Durometer Hardness (Shore D)	81	81	ASTM D2240
Deflection Temperature Under Load 66 psi (0.45 MPa), Unannealed, 0.250 in (6.35mm)	163°F	72.8°C	ASTM D648
Deflection Temperature Under Load 264 psi (1.8 MPa), Unannealed, 0.250 in (6.35mm)	162°F	72.2°C	ASTM D648
Flame Rating (0.0630 in (1.60mm) , ALL)	V-0	V-0	UL 94
Agency Ratings	NSF 14, NSF 61, NSF Type 1		
PVC Grade	Type 1, Schedule 40		

Storage: Store indoors. At time of installation saddles should be brought to temperatures between 60°F and 80°F.