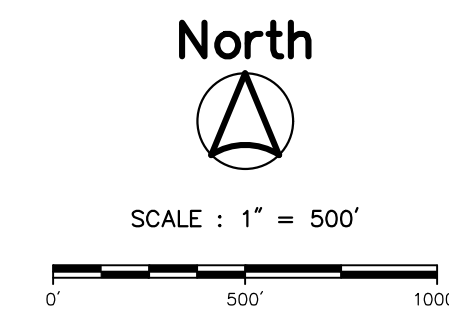
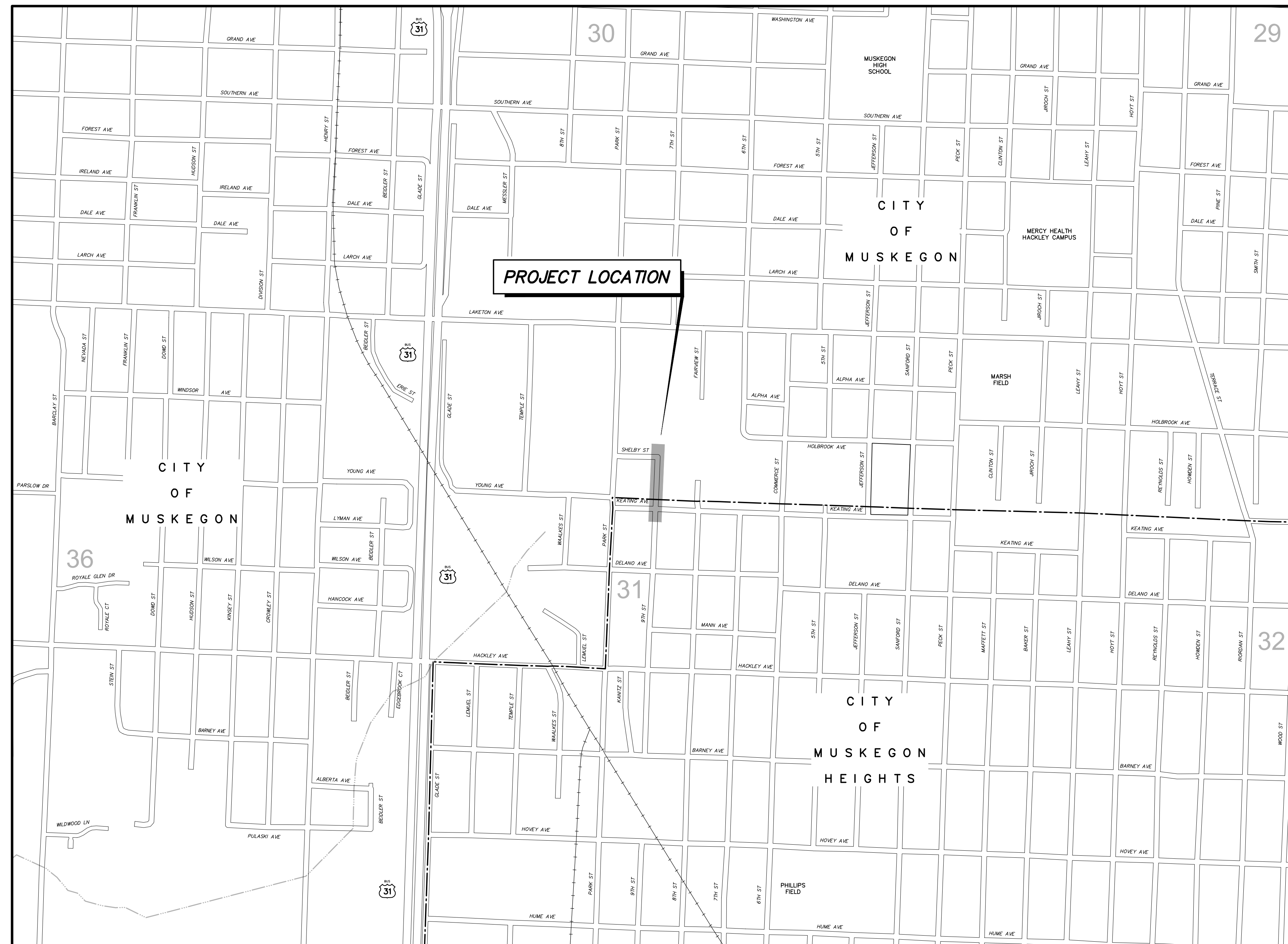


# CITY OF MUSKEGON MUSKEGON COUNTY, MICHIGAN

# UTILITY AND STREET IMPROVEMENTS

## 9TH STREET DWSRF PROJECT #7929-01



**SOIL BORING GENERAL NOTES**

WITHIN EACH SOIL BORING, WHERE SHOWN, SOIL SAMPLES WERE OBTAINED BY THE STANDARD PENETRATION TEST METHOD, ASTM D1586, WHEREBY A SPLIT-SPoon SAMPLER IS DRIVEN THREE SUCCESSIVE 6-INCH INCREMENTS WITH A 140 POUND WEIGHT FALLING 30 INCHES. THE NUMBER OF BLOWS REQUIRED TO DRIVE THE SAMPLER FOR EACH INCREMENT IS PRESENTED ON THE SOIL BORING LOGS.

GRANULAR SOILS (COARSE-GRAINED) HAVE MORE THAN 50% OF THEIR DRY WEIGHT RETAINED ON A #200 SEVE; THEY ARE DESCRIBED AS: BOLLERS, COBBLES, GRAVEL, OR SAND. FINE-GRAINED SOILS HAVE LESS THAN 50% OF THEIR DRY WEIGHT RETAINED ON A #200 SEVE; THEY ARE DESCRIBED AS: CLAYS OR CLAYEY SILTS IF THEY ARE COHESIVE, AND SILTS IF THEY ARE NON-COHESIVE. IN ADDITION TO GRANULAR, GRANULAR SOILS ARE DEFINED BASED ON THEIR W-SU DENSITY; FINE GRAINED SOILS ARE FURTHER DEFINED BASED ON THEIR STRENGTH OR CONSISTENCY, AND ON THEIR PLASTICITY.

MAJOR SOIL COMPONENT	GRADATION RANGE	DESCRIPTION TERM(S) (OF MINOR SOIL CONSTITUENTS)	PERCENT OF DRY WEIGHT
BOLLERS	OVER 12 INCHES (305mm)	TRACE	1 - 10
COBBLES	12 INCHES TO 3 INCHES (305mm TO 76mm)	LITTLE	10 - 20
GRAVEL	3 INCHES TO 3/4 INCHES (76mm TO 19mm)	SOME	20 - 35
SAND	3/4 INCHES TO #4 SEVE (19mm TO 4.75mm)	AND	35 - 50
	#4 SEVE TO #10 SEVE (4.75mm TO 2.00mm)		
	#10 SEVE TO #60 SEVE (2.00mm TO 0.425mm)		
	#60 SEVE TO #200 SEVE (0.425mm TO 0.075mm)		
	PASSING #200 SEVE (0.075mm) TO 0.005mm		

**CONSISTENCY OF COHESIVE SOILS:**

UNCONFINED COMP STRENGTH, QU (TSF)	CONSISTENCY
<0.25	VERY SOFT
0.25 - 0.50	SOFT
0.50 - 1.00	MEDIUM (FIRM)
1.00 - 2.00	STIFF
2.00 - 4.00	VERY STIFF
4.00 - 8.00	HARD
>8.00	VERY HARD

**IN-SITU DENSITY OF GRANULAR SOILS:**

N - BLOWS/FT.	IN-SITU DENSITY	CONSISTENCY
0 - 4	VERY LOOSE	SOFT
5 - 10	LOOSE	STIFF
11 - 30	MEDIUM DENSE	VERY STIFF
31 - 50	DENSE	HARD
50 +	VERY DENSE	VERY HARD

WATER LEVELS INDICATED ON THE BORING LOGS ARE THE LEVELS MEASURED IN THE BORING AT THE TIMES INDICATED. IT SHOULD BE NOTED THAT GROUNDWATER LEVELS OBSERVED DURING DRILLING IN PREDOMINANTLY COHESIVE SOILS ARE NOT NECESSARILY INDICATIVE OF THE STATIC GROUNDWATER LEVEL. THIS IS DUE TO THE RELATIVELY LOW PERMEABILITY OF CLAY SOILS AND THE TENDENCY OF DRILLING OPERATIONS TO TEMPORARILY SEAL OFF NATURAL PATHS OF GROUNDWATER MOTION INTO THE BORING. ADDITIONALLY, FLUCTUATIONS IN GROUNDWATER LEVELS SHOULD BE ANTICIPATED WITH SEASONAL VARIATIONS AND FOLLOWING PERIODS OF HEAVY OR PROLONGED PRECIPITATION.

THE SOIL BORING LOGS SHOWN ON THE CONSTRUCTION PLANS ARE BEING FURNISHED FOR YOUR CONVENIENCE AND GENERAL INFORMATION ONLY. THE DATA SHOWN ON THE BORING LOGS REPRESENTS SOIL AND GROUNDWATER CONDITIONS ENCOUNTERED AT THE RESPECTIVE BORING LOCATIONS. VARIATIONS MAY OCCUR BETWEEN THESE LOCATIONS. ADDITIONALLY, THE STRATIGRAPHIC LINES REPRESENT THE APPROXIMATE BOUNDARIES BETWEEN SOIL TYPES; HOWEVER, THE TRANSITION MAY BE MORE GRADUAL THAN WHAT IS SHOWN. THE ENGINEER WILL BE RESPONSIBLE FOR MAKING THEMSELVES FAMILIAR WITH SUBSURFACE CONDITIONS BY WHATEVER MEANS THEY DEEM NECESSARY AND SHALL MAKE THEIR OWN DETERMINATIONS THEREOF.

THE BORER BY SUBMITTING A BID, WAIVES ALL CLAIMS FOR DAMAGES WHICH THEY MAY SUFFER BY REASONS OF THE INADEQUACIES OR DISCREPANCIES OF THE INFORMATION SHOWN ON THESE SOIL BORING LOGS AND UNDERSTANDS THAT NO COMPENSATION WILL BE PAID TO THEM DUE TO AN INADEQUACY OR DISCREPANCY IN THIS DATA.

**GENERAL NOTES**

- CONTRACTOR TO CALL MISS DIG (CALL TOLL FREE 1-800-482-7171) THREE WORKING DAYS BEFORE STARTING YOUR PROJECT. (EXCLUDING WEEKENDS AND HOLIDAYS)
- CONTRACTOR SHALL PRESERVE ALL GOVERNMENT AND PROPERTY CORNERS.

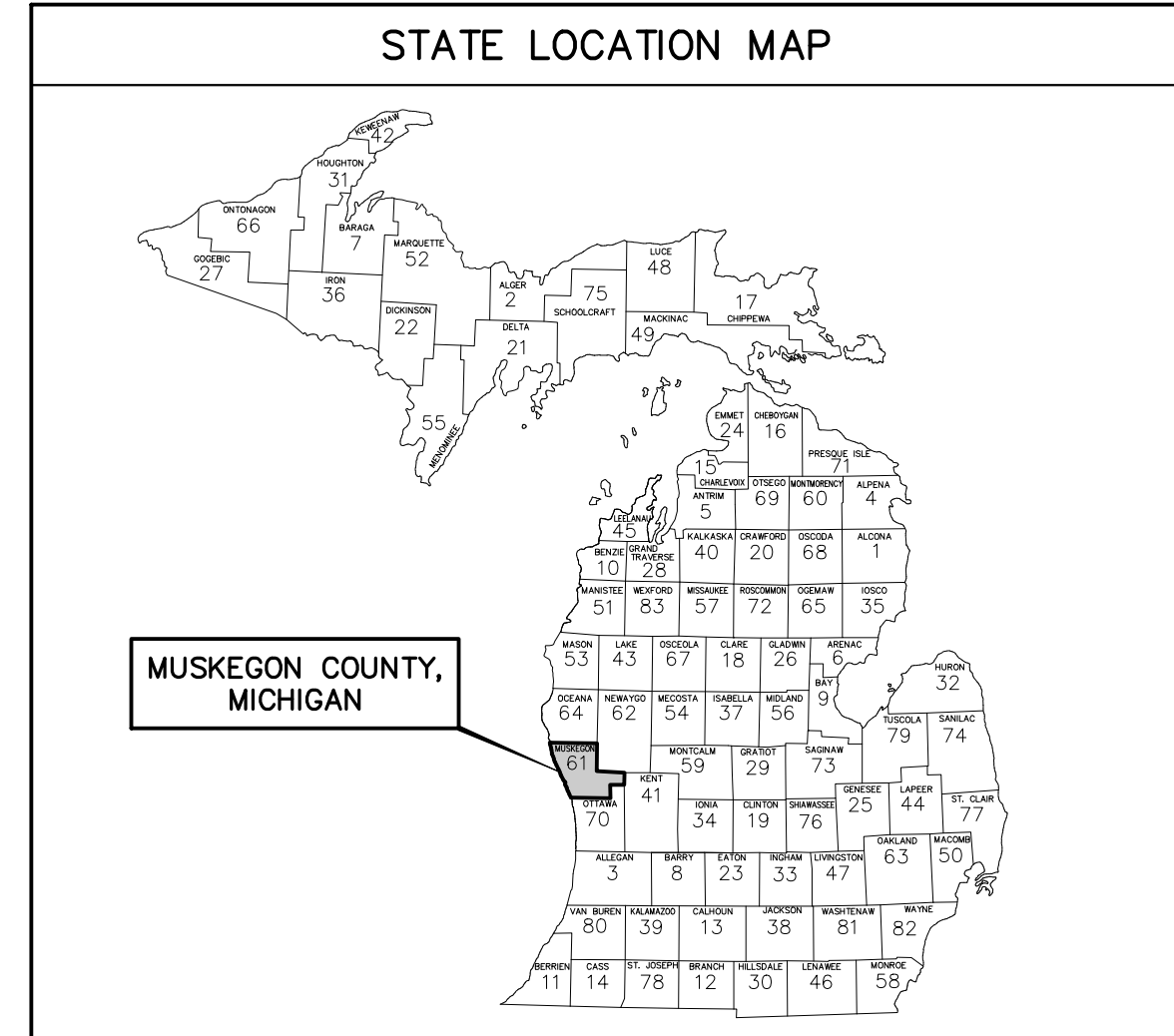
**UTILITIES**

<b>SANITARY SEWER</b> CITY OF MUSKEGON 1350 E KEATING AVENUE MUSKEGON, MI 49442 ATTN: JOE BUTHKER PHONE: (231) 734-4184 EMAIL: Joe.Buthker@shorelinecity.com	<b>GAS</b> DTE ENERGY 2359 OLTHOF DRIVE MUSKEGON, MI 49444 ATTN: JON OCHOA PHONE: (231) 332-2682 EMAIL: jonathon.ochoa@dteenergy.com
<b>WATER</b> CITY OF MUSKEGON 1350 E KEATING AVENUE MUSKEGON, MI 49442 ATTN: JOE BUTHKER PHONE: (231) 734-4184 EMAIL: Joe.Buthker@shorelinecity.com	<b>ELECTRIC-DISTRIBUTION</b> CONSUMERS ENERGY 700 E STERNBERG ROAD MUSKEGON, MI 49441 ATTN: JOEL BROWN PHONE: (231) 332-2682 EMAIL: Joel.M.Brown@cmsenergy.com
<b>STORM SEWER</b> CITY OF MUSKEGON 1350 E KEATING AVENUE MUSKEGON, MI 49442 ATTN: VERNON BERNDT PHONE: (231) 724-6192 EMAIL: Vern.Berndt@shorelinecity.com	<b>COMMUNICATION</b> FRONTIER COMMUNICATIONS 860 TERRACE STREET MUSKEGON, MI 49443 ATTN: MIKE THOMPSON PHONE: (231) 740-4273 EMAIL: Mike.Thompson@ftr.com
	<b>CABLE TELEVISION</b> COMCAST 700 W BROADWAY AVENUE MUSKEGON, MI 49441 ATTN: JON CHARLAND PHONE: (231) 375-5112 EMAIL: jonathan_charland@comcast.com

**PROJECT DATUM INFORMATION**

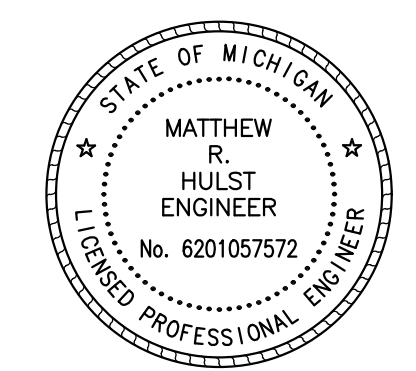
COORDINATE SYSTEM : STATE PLANE GRID  
ZONE : MICHIGAN SOUTH 2113  
ELLIPSOID : GRS 80  
HORIZONTAL DATUM : NAD 83 (2011)  
VERTICAL DATUM : NAVD 88  
GEOID : GEOID 18  
UNITS : INTERNATIONAL FEET

PROJECT COMBINED SCALE FACTOR (PCSF) = 0.999923591387  
GROUND DISTANCE = GRID DISTANCE/PCSF



**SHEET INDEX**

SHEET No.	DESCRIPTION
1	COVER SHEET
2	TYPICAL CROSS SECTIONS AND DETAILS
3	UTILITY AND STREET IMPROVEMENTS

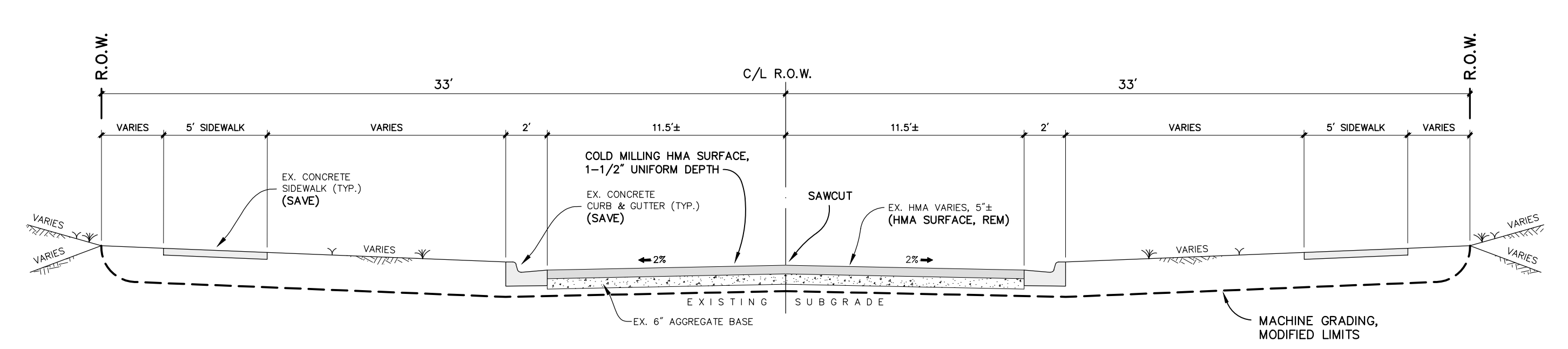


**Prein&Newhof**  
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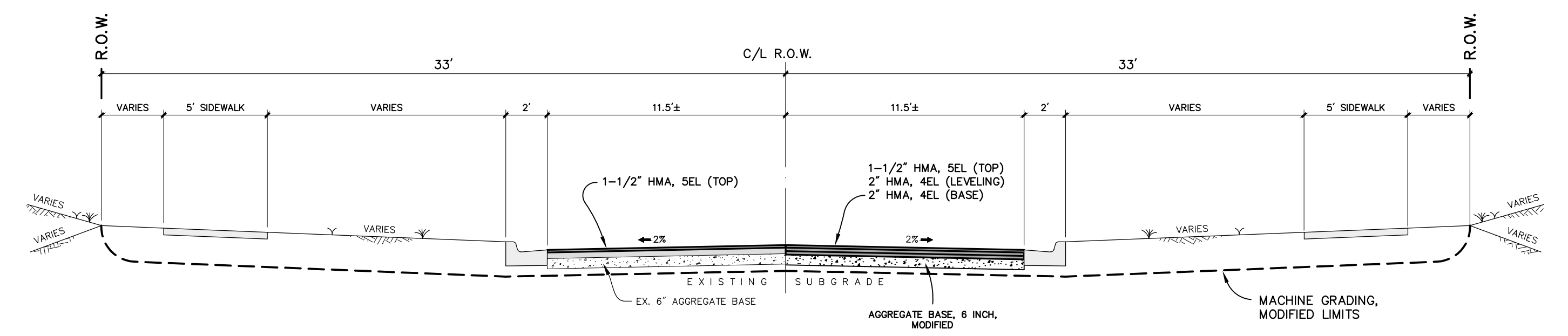
PROJECT NO.  
**2250950**  
SHEET NO.  
**1 OF 3**

T:\01\30 PROJECTS\2025\2250950\MUSKEGON\_9TH STREET\PROJ\2250950\MUSKEGON\_9TH STREET.dwg - 04/10/25 - 04/10/25 - Prein&Newhof

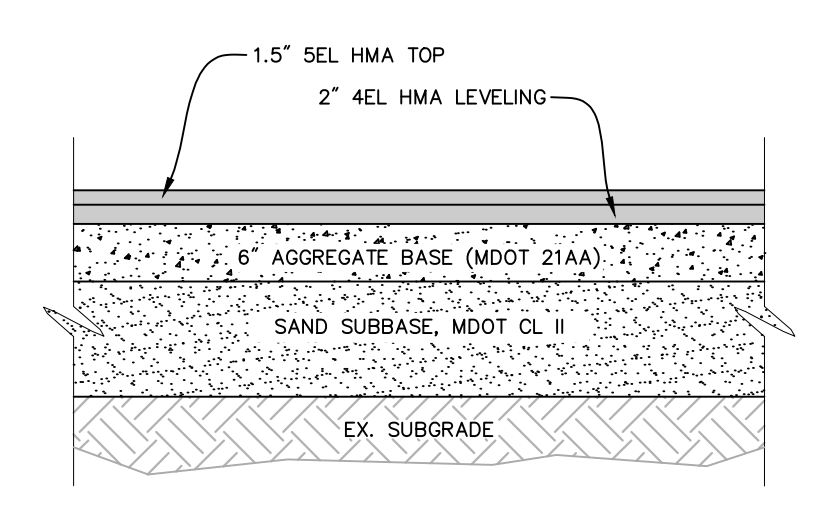
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**EXISTING TYPICAL CROSS SECTION**  
SCALE : NONE



**PROPOSED TYPICAL CROSS SECTION**  
SCALE : NONE



**TYPICAL PAVEMENT SECTION**  
APPLIES: PARKING LOT  
SCALE : NONE

**HOT MIX ASPHALT APPLICATION TABLE**

IDENT. #	PAY ITEM	MIXTURE	APPLICATION RATE	PERFORMANCE GRADE BINDER	REMARKS
5EL	HMA, 5EL	5EL	165 LBS/SYD	PG 58-28	STREET, PARKING LOT TOP
4EL	HMA, 4EL	4EL	220 LBS/SYD	PG 58-28	STREET, PARKING LOT LEVELING
4EL	HMA, 4EL	4EL	220 LBS/SYD	PG 58-28	STREET BASE

NOTES:

- HMA BOND COAT (MDOT SS-1h) SHALL BE APPLIED @ 0.05-0.15 GAL/SYD BETWEEN HMA LIFTS. THE COST OF THIS WORK SHALL BE INCLUDED IN THE HMA ITEMS. HMA BOND COAT SHALL ALSO BE APPLIED TO THE VERTICAL EDGE OF THE ADJACENT HMA PAVEMENT AND/OR CONCRETE CURB & GUTTER.
- HMA PAVEMENT DEPTH TO MATCH EXISTING HMA PAVEMENT THICKNESS.

NO.	REVISIONS	BY	DATE	DRAWN
				J.J.S.
				DATE: MAY '26
				CHECKED: M.R.H.
				DATE: MAY '26

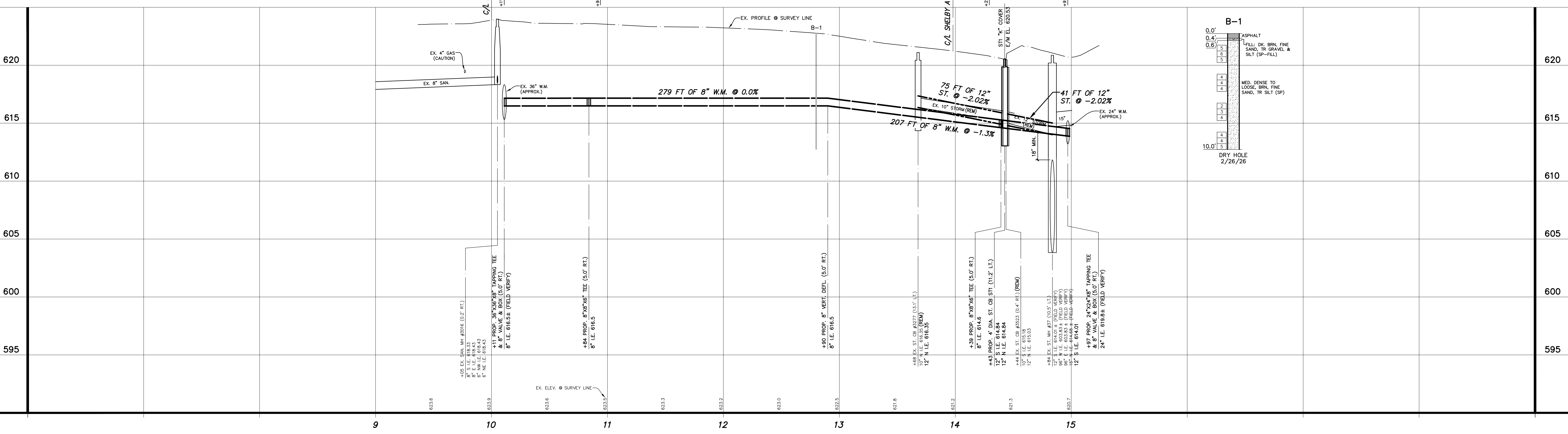
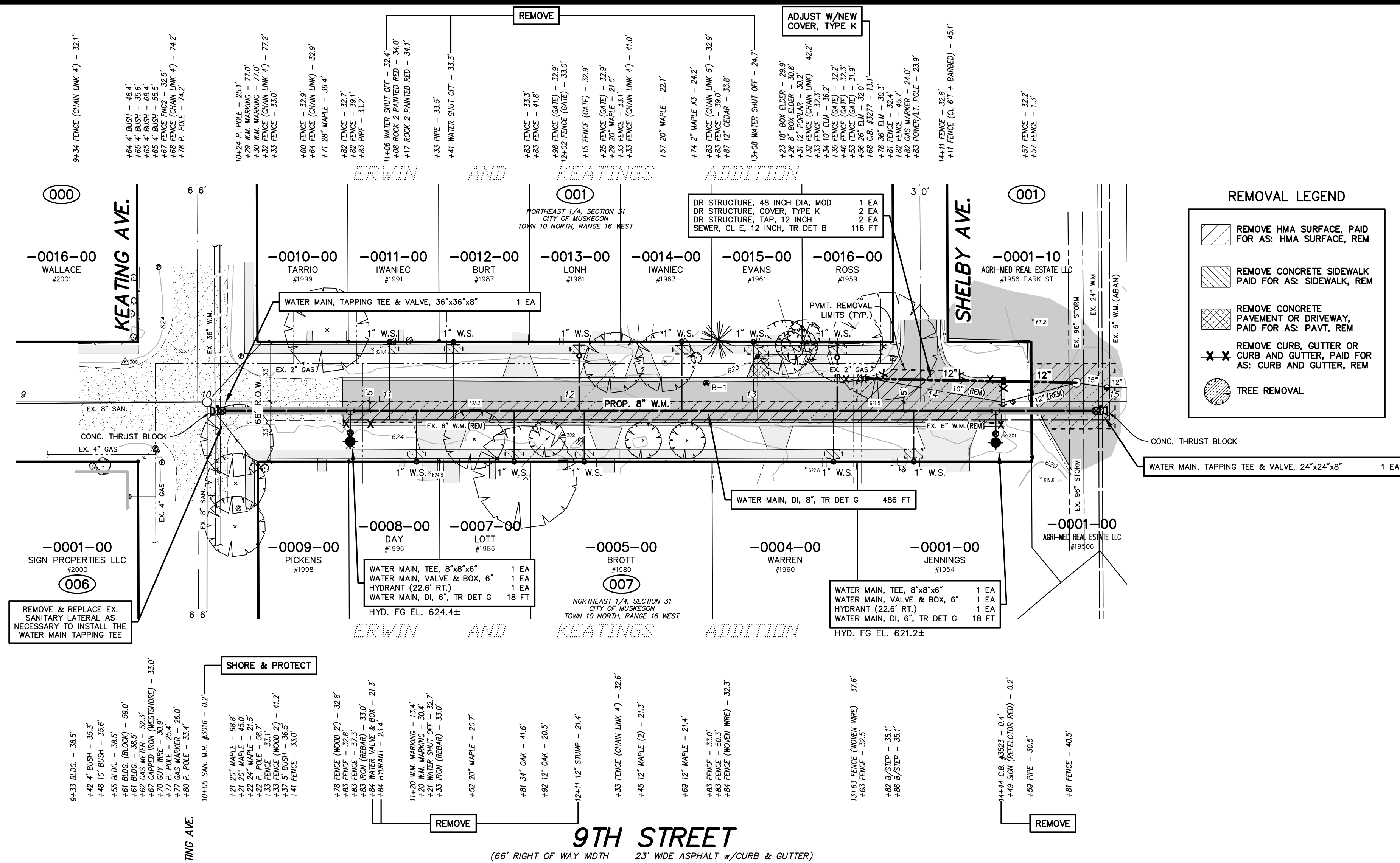
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CITY OF MUSKEGON  
MUSKEGON COUNTY, MICHIGAN  
UTILITY AND STREET IMPROVEMENTS  
**TYPICAL CROSS SECTIONS & DETAILS**

PROJECT NO.  
**2250950**  
SHEET NO.  
**2 OF 3**

B.M.	EL. 625.23
9TH STREET & KEATING AVENUE, 25'± E. & 25'± S OF C/L 'X', FOUND RR SPIKE SW SIDE P. POLE (1.0' A/GROUND)	
B.M.	EL. 622.63
9TH STREET AT HOUSE #1954, TOP OF NW CORNER BOTTOM OF CONC. STEP (0.4' A/GROUND)	

POINT No.	NORTHING	EASTING	ELEVATION
300	630924.22	1262021.14	623.93
301	631406.51	1262079.66	621.26
302	631163.26	1262070.27	623.72



<p>UTILITY LOCATIONS ARE DERIVED FROM ACTUAL MEASUREMENTS OR AVAILABLE RECORDS. THEY SHOULD NOT BE INTERPRETED TO BE EXACT LOCATIONS NOR SHOULD IT BE ASSUMED THAT THEY ARE THE ONLY UTILITIES IN THIS AREA.</p>	<p>NO. REVISIONS BY DATE</p> <p>J.J.S.</p> <p>MAY '26</p> <p>M.R.H.</p> <p>MAY '26</p>	<p>CITY OF MUSKEGON MUSKEGON COUNTY, MICHIGAN</p> <p>UTILITY AND STREET IMPROVEMENTS</p> <p>9TH STREET</p>	<p>PROJECT NO. 2250950</p> <p>SHEET NO. 3 OF 3</p>
	<p>SCALE: 1" = 40' HORZ. (CONTOURS AT ONE FOOT INTERVALS) 1" = 4' VERT.</p>		
	<p>Prein &amp; Newhof Engineers-Surveyors-Environmental-Laboratory</p>		
	<p>DATE: MAY '26</p>		