



Project Name: Catherine Avenue Reconstruction, Irwin to Wood

Project Type: Complete reconstruction including some new storm sewers, new sanitary sewers, new water mains, water service lines replaced to the meter inside the homes, new road, new sidewalks, and new driveways.

Contractor: Kamminga & Roodvoets (K&R)

City Neighborhood(s): McLaughlin

Project Summary: The pavement and utilities in Catherine have reached the end of their life. In order to replace them, the entire street from sidewalk to sidewalk will need to be dug up and replaced. The project includes replacing your water service line all the way to the meter inside your home, so the contractor will need to enter your basement (or the area where your water service enters your home). You'll need to allow extra time to get to and from your home this spring and summer, and at times you will need to park on a street that may be a block or two away from your home. Your water will need to be shut off for short periods of time; you will have notice of when this will happen.

Changes to Expect: The road will look very similar to how it looks today, but everything on the surface and many things underground will be new. Many trees will need to be removed, but they will be replaced in the year following the project. You'll have a new water service line from the water main to your water meter. You may get a new water meter as part of this project.

Timeline/Timeframe: The project is expected to start around March 1. While the contractor has until October 2 to finish the project, they have plans to finish closer to the middle of summer.

Lane, Road or Intersection Shutdown: Catherine will be closed for the whole project, only residents will be allowed to enter the construction zone, and sometimes even residents will need to stay out or park away from their home. Side streets may also be closed for most of the project. Irwin and Wood will remain open.

Contractor Project Update Link: TBD

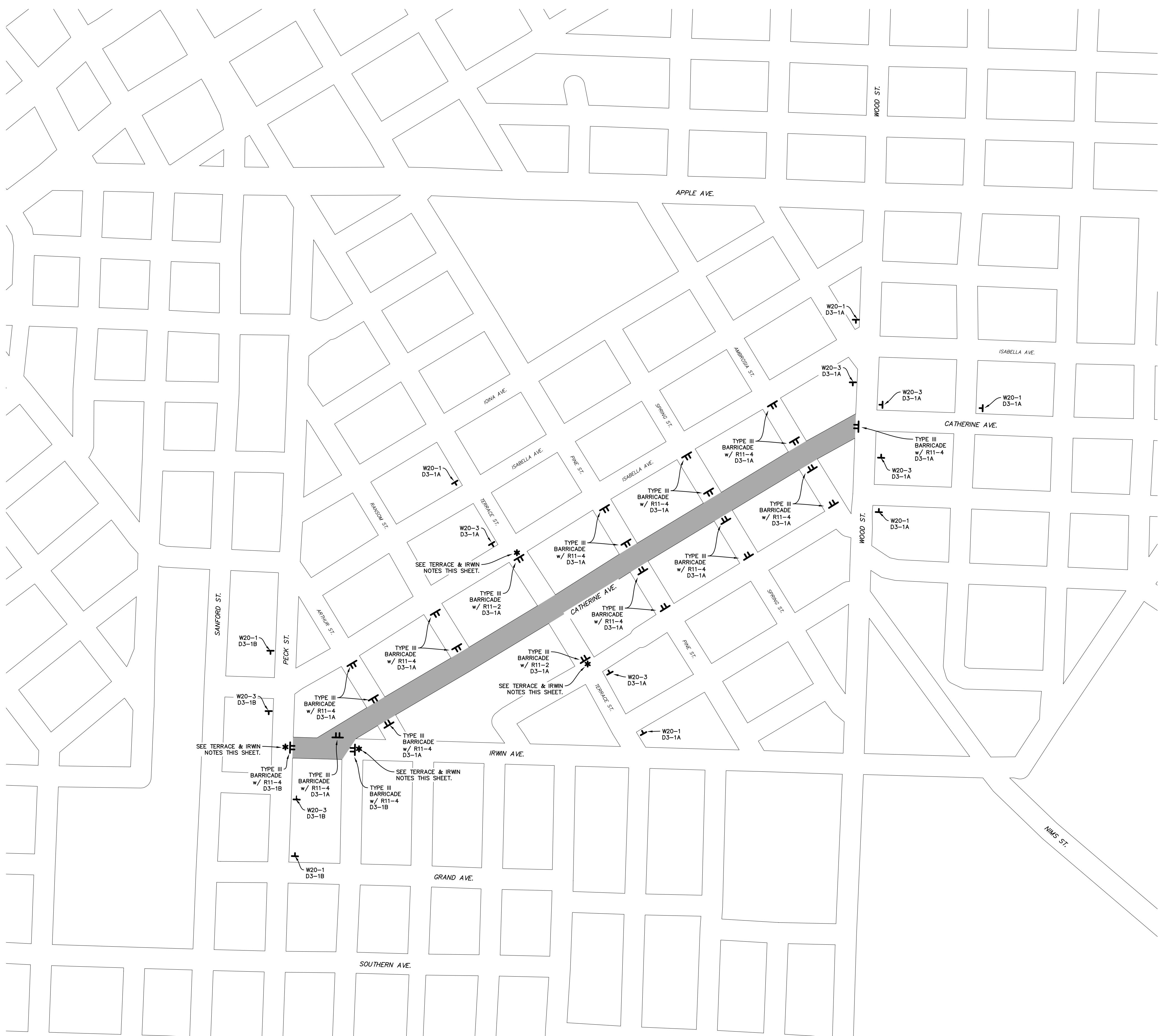
Project Contact Information:

Todd Myers

Matt Hulst

Deputy Director of Public Works
Todd.myers@shorelinecity.com
(231) 724-6920

Prein & Newhof (Consultant)
Mhulst@preinnewhof.com
(231) 798-0101



LEGEND

TYPE III BARRICADE, HIGH INTENSITY
 CONSTRUCTION SIGN

GENERAL NOTES

1. THE CONTRACTOR SHALL ERECT ALL DETOUR SIGNS, BARRICADES, AND PLASTIC DRUMS IN ACCORDANCE WITH THE MICHIGAN MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES (REVISED 2011).
2. THE CONTRACTOR SHALL STAKE PROPOSED LOCATIONS (WHITE FLAGGING) AND CALL MISS DIG PRIOR TO PLACING ANY GROUND DRIVEN SIGNS.

TERRACE & IRWIN NOTES

1. TERRACE STREET TO REMAIN OPEN THROUGHOUT PROJECT EXCEPT DURING PAVING OPERATIONS. WORK WITHIN INTERSECTION TO BE COMPLETED WITH TRAFFIC REGULATORS.
2. WORK WITHIN IRWIN STREET MUST BE LIMITED TO 30 DAYS. THIS WORK MAY BE COMPLETED AT ANYTIME DURING THE PROJECT. ALL WORK MUST BE COMPLETED WITHIN THE 30 DAYS INCLUDING FINAL PAVING OF HMA. FOLLOWING COMPLETION THE ROAD CLOSURE SIGNAGE MUST BE REMOVED.

SIGN LEGEND

NOTE : SIGN DIMENSIONS IN INCHES.

LIST OF SIGNS

ITEM	DESCRIPTION	SIZE	QUANTITY	TOTAL
D3-1A	CATHERINE AVE.	36 INCH X 16 INCH	31	124 SFT
D3-1B	IRWIN AVE.	36 INCH X 16 INCH	6	24 SFT
R11-2	ROAD CLOSED	60 INCH X 30 INCH	2	25 SFT
R11-4	ROAD CLOSED TO THRU TRAFFIC	60 INCH X 30 INCH	21	262.5 SFT
W20-1	ROAD WORK AHEAD	48 INCH X 48 INCH	7	112 SFT
W20-3	ROAD CLOSED AHEAD	48 INCH X 48 INCH	7	112 SFT
TOTAL				659.5 SFT

SHEET QUANTITIES

BARRICADE, TYPE III, HIGH INTENSITY, DOUBLE SIDED, LIGHTED, FURN	23	EA
BARRICADE, TYPE III, HIGH INTENSITY, DOUBLE SIDED, LIGHTED, OPER	23	EA
SIGN, TYPE B, TEMP, PRISMATIC, FURN	511.5	SFT
SIGN, TYPE B, TEMP, PRISMATIC, OPER	511.5	SFT
SIGN, TYPE B, TEMP, PRISMATIC, SPEC, FURN	148	SFT
SIGN, TYPE B, TEMP, PRISMATIC, SPEC, OPER	148	SFT

MAINTENANCE OF TRAFFIC PLAN

SCALE : 1" = 250'

North

NO.	REVISIONS	BY	DATE	DRAWN
1	ISSUED FOR BIDS	M.R.H.	5/25	STAFF
				DATE: FEB. '25
				CHECKED: M.R.H.
				DATE: MAY '25

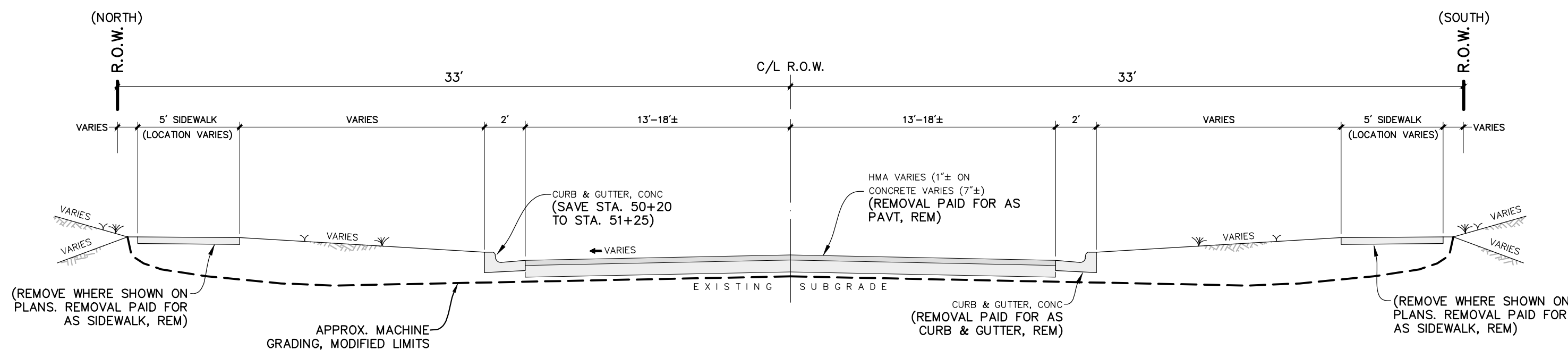
Prein & Newhof
Engineers • Surveyors • Environmental • Laboratory

CITY OF MUSKEGON
MUSKEGON COUNTY, MICHIGAN

STREET IMPROVEMENTS
MAINTENANCE OF TRAFFIC

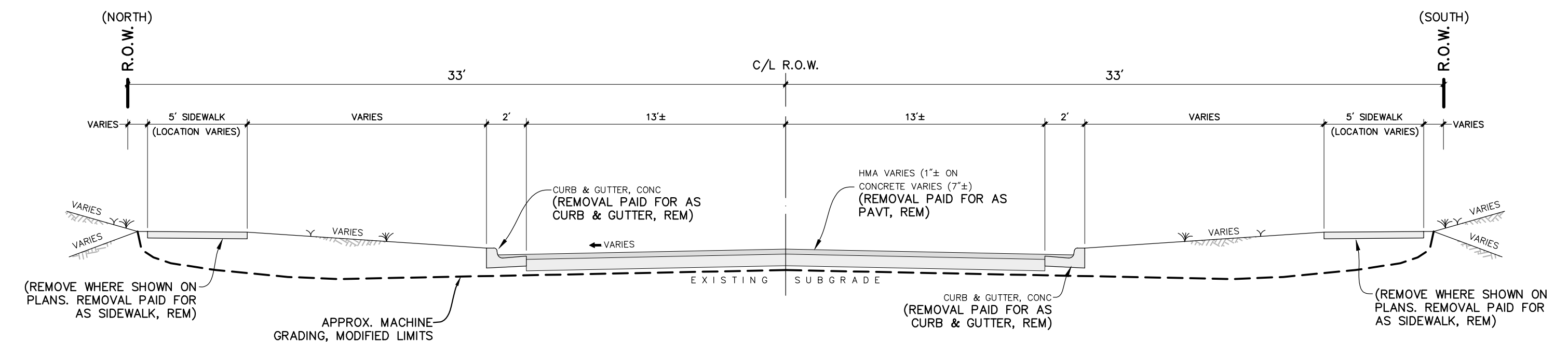
PROJECT NO. 2240838
SHEET NO. 2 OF 22

T:\QA\30 PROJECTS\2024\240838_MUSKEGON_CATHERINE_VBA\1_000\240838_2_MOT.DWG - PRJUS - May, 20 2025 - 08:49am - Print/Plot



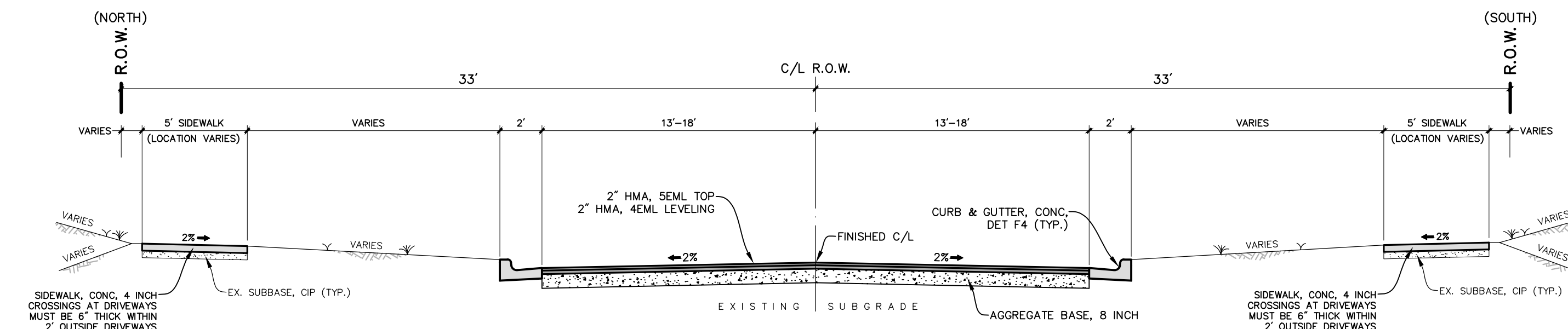
EXISTING TYPICAL CROSS SECTION

APPLIES : IRWIN AVENUE
SCALE : NONE



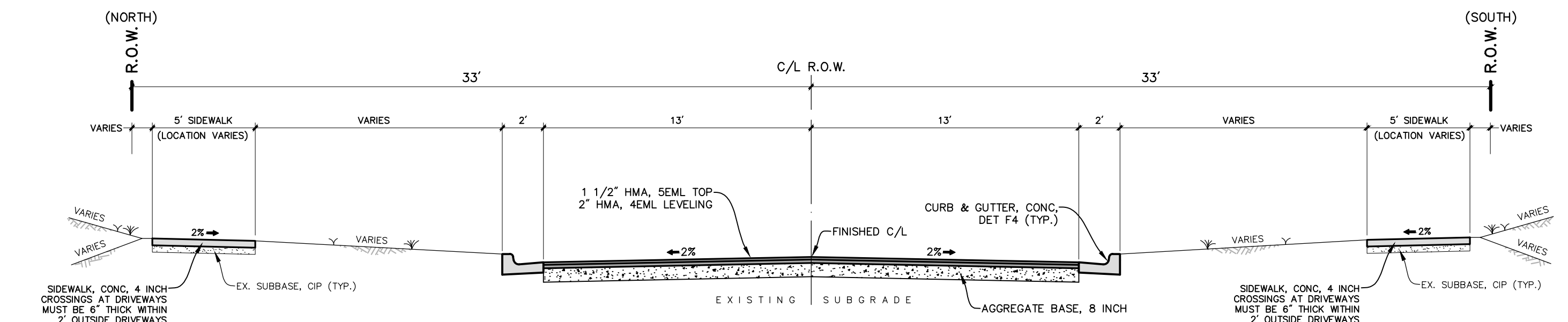
EXISTING TYPICAL CROSS SECTION

APPLIES : CATHERINE AVENUE
SCALE : NONE



PROPOSED TYPICAL CROSS SECTION

APPLIES : IRWIN AVENUE
SCALE : NONE



PROPOSED TYPICAL CROSS SECTION

APPLIES : CATHERINE AVENUE
SCALE : NONE

HOT MIX ASPHALT APPLICATION TABLE

IDENT. #	PAY ITEM	MIXTURE	APPLICATION RATE	PERFORMANCE GRADE BINDER	REMARKS
	HMA, 4EML	HMA, 4EML	220 LBS/SYD	PG 64-28	CATHERINE/IRWIN LEVELING
	HMA, 5EML	HMA, 5EML	165 LBS/SYD	PG 64-28	CATHERINE TOP
	HMA, 5EML	HMA, 5EML	165 LBS/SYD	PG 64-28	IRWIN TOP

NOTE :
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.

T:\OVL\PROJECTS\2024\240838_MUSKEGON_CATHERINE-VBA\1_000\240838_1_TPS.DWG - PRJUS - May, 20 2025 - 08:56am - Prein&Newhof

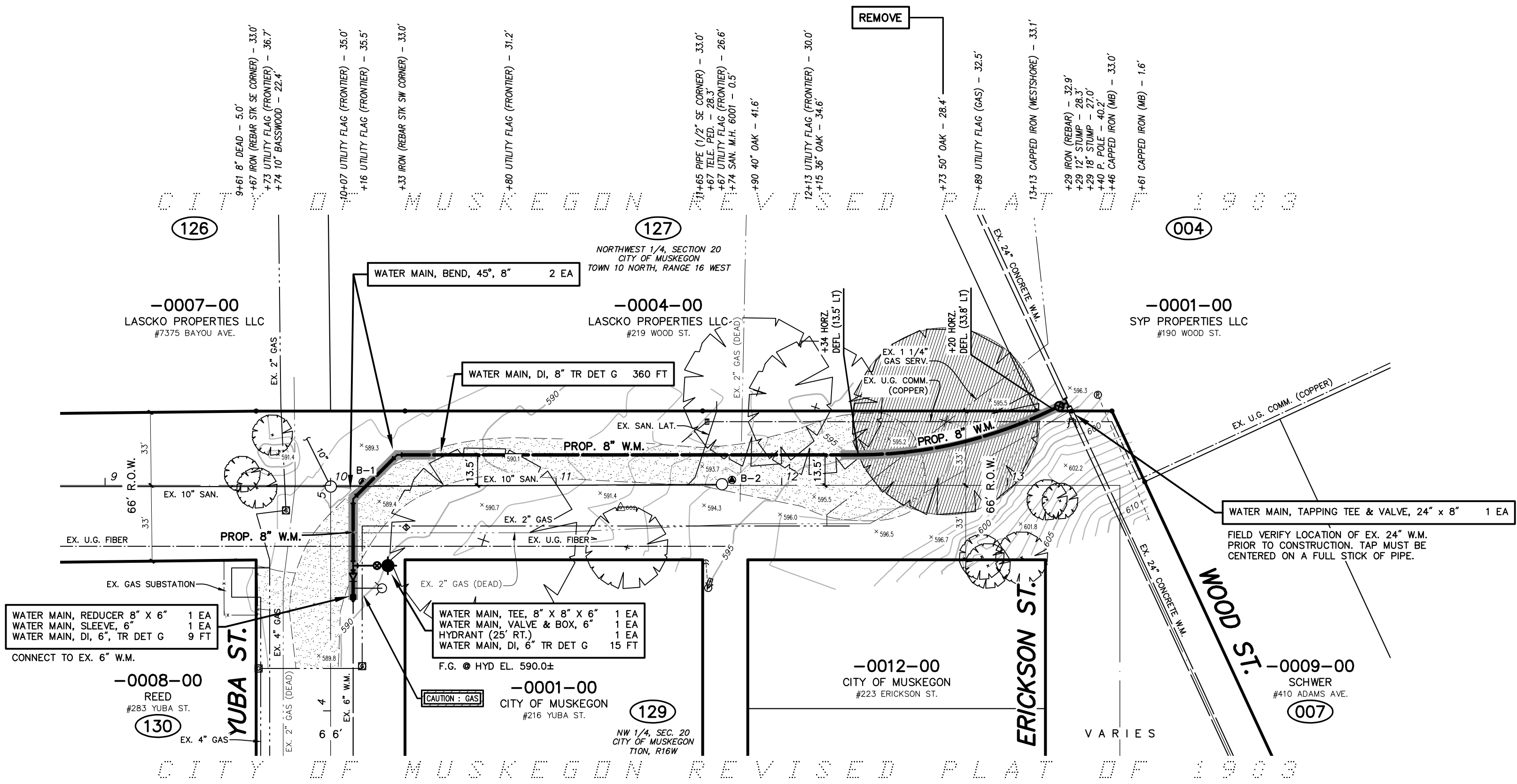
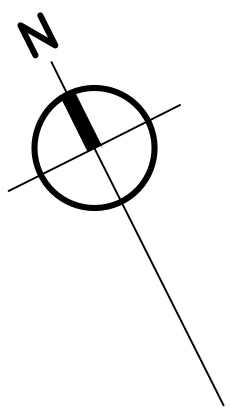
NO.	REVISIONS	BY	DATE	DRAWN
1	ISSUED FOR BIDS	M.R.H.	5/25	STAFF
				DATE: FEB. '25
				CHECKED: M.R.H.
				DATE: MAY '25

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

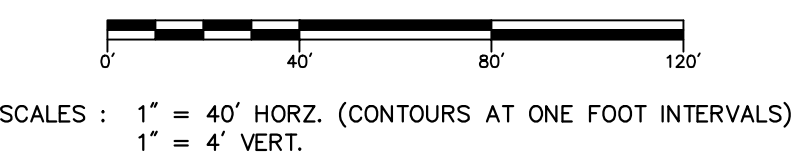
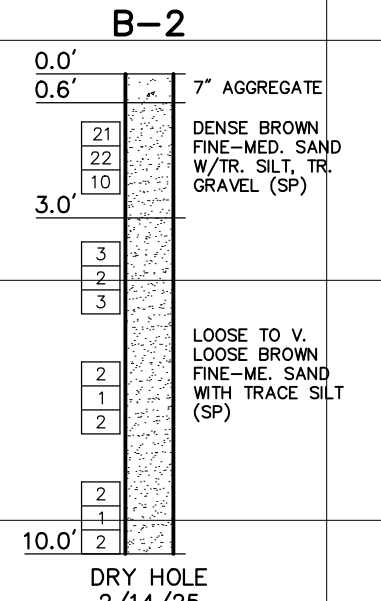
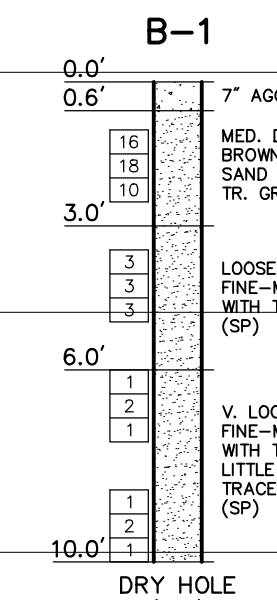
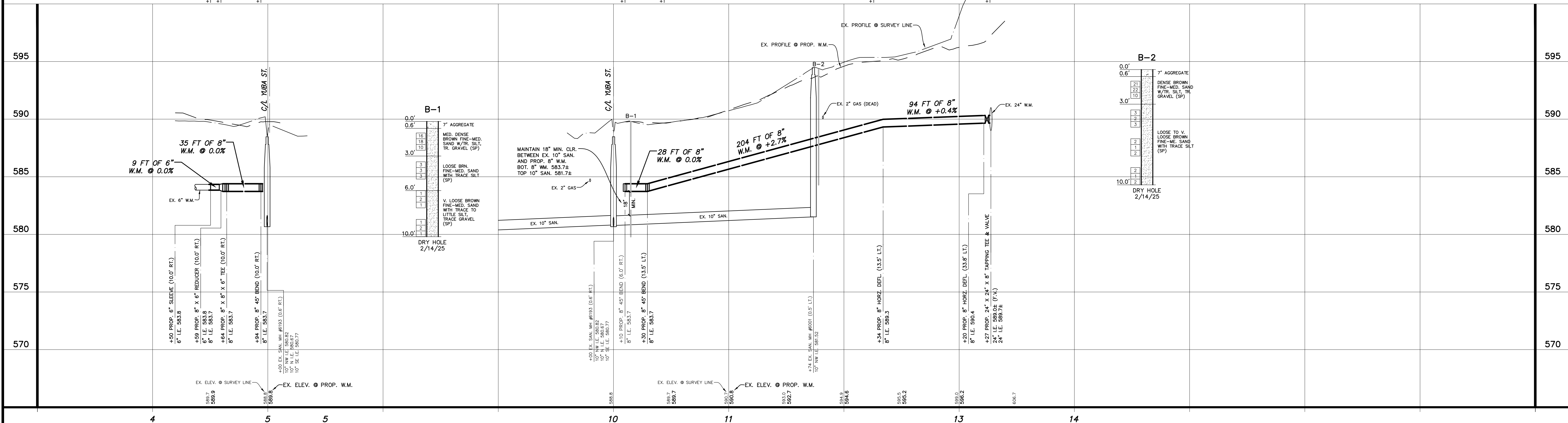
PROJECT NO.
2240838
SHEET NO.
3 OF 22

BENCHMARK
 BUTLER STREET & YUBA STREET
 45 ± S & 170' W OF C/L "X", CAP &
 NAIL SET IN N SIDE OF POWER POLE
 (1.3' A/GROUND)
 EL. 596.67



YUBA STREET
 (66' RIGHT OF WAY WIDTH GRAVEL PAVEMENT WIDTH VARIES)
 9 FT OF 6" R.J.W.M. 35 FT OF 8" R.J.W.M.

BUTLER STREET
 (66' RIGHT OF WAY WIDTH GRAVEL PAVEMENT WIDTH VARIES)
 89 FT OF 8" R.J.W.M. 104 FT OF 8" R.J.W.M.



NO.	REVISIONS	BY	DATE	DRAWN
1	ISSUED FOR BIDS	M.R.H.	5/25	STAFF

DATE: FEB. '25
 CHECKED: M.R.H.
 DATE: MAY '25

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 MUSKEGON COUNTY, MICHIGAN

PROJECT NO. 2240838
 SHEET NO. 4 OF 22

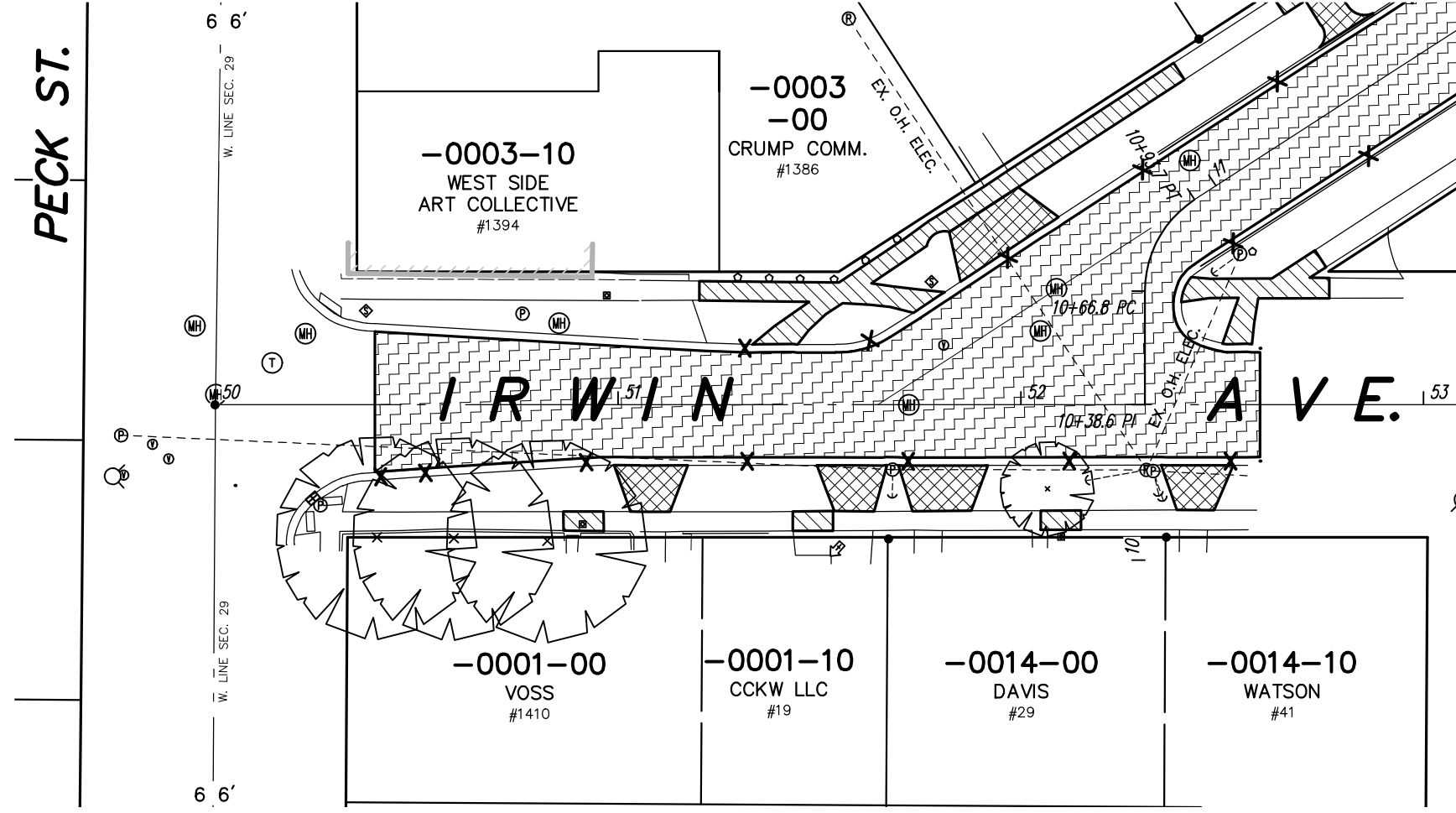
WATER SYSTEM IMPROVEMENTS
 YUBA ST. & BUTLER ST.

T:\PROJECTS\2024\2240838_MUSKEGON_CATHERINE_VBA\PROJECT\2240838_4_PIPE_BUILDDWG - 4Pipes.dwg - 08:55am - PrintSheet.dwg

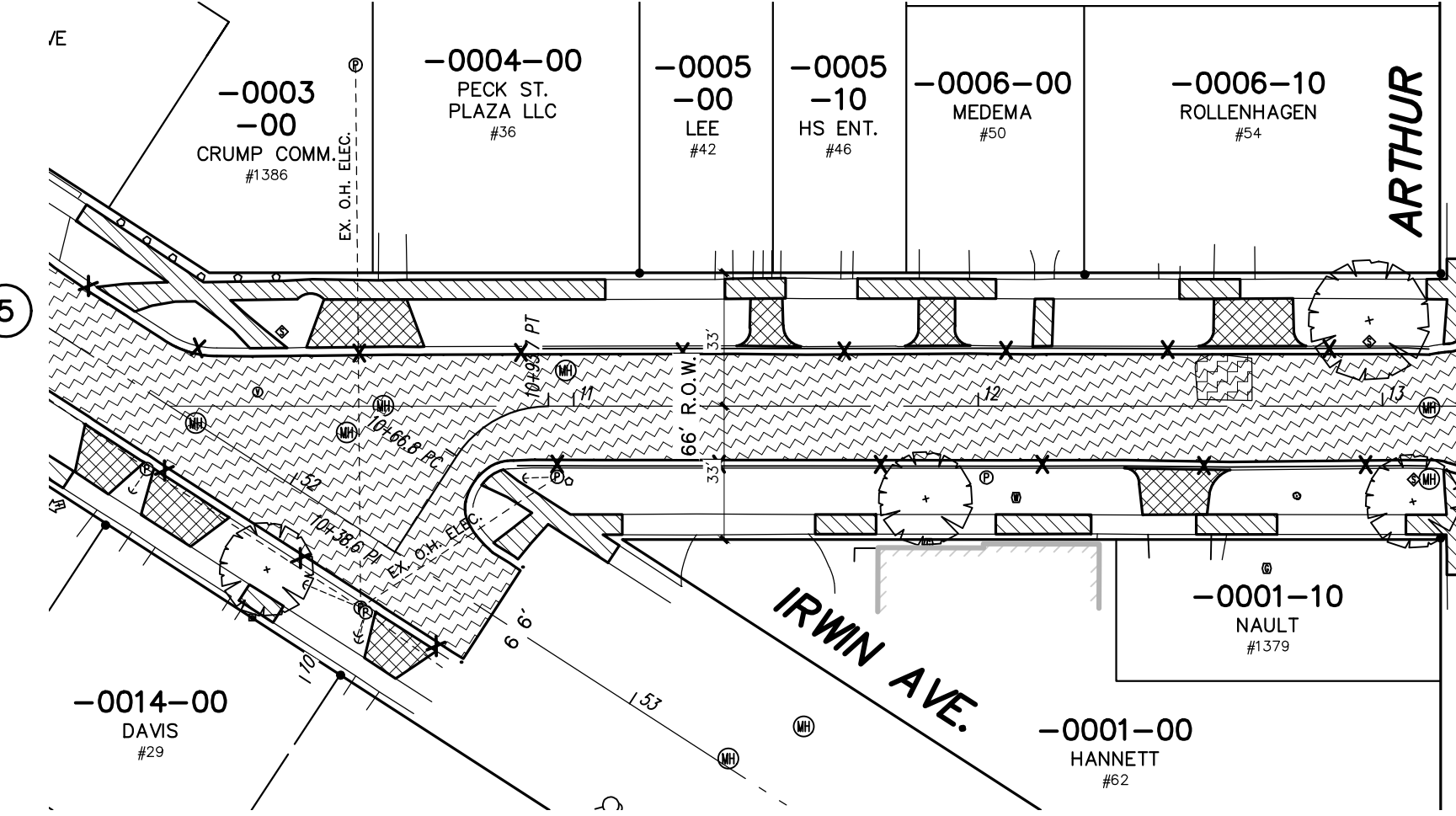
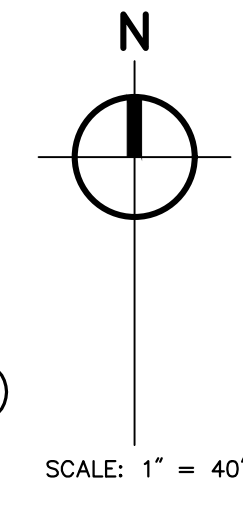
811
 Know what's below.
 Call before you dig.

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.

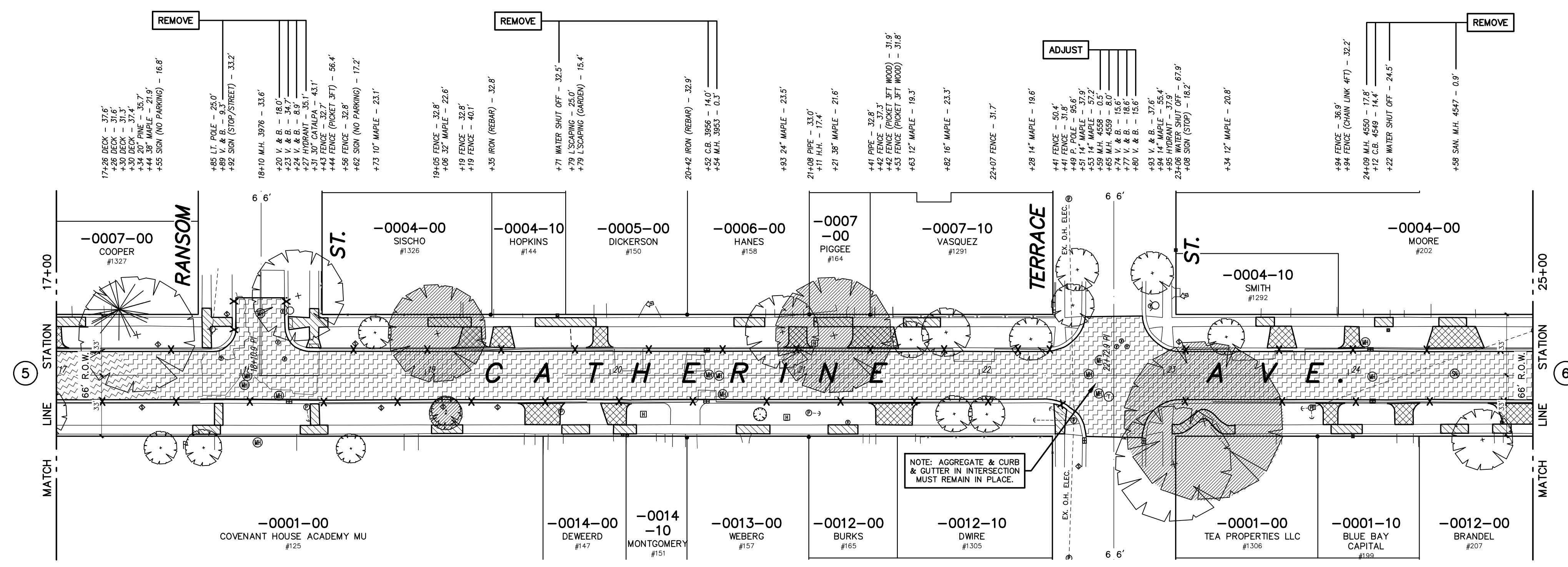
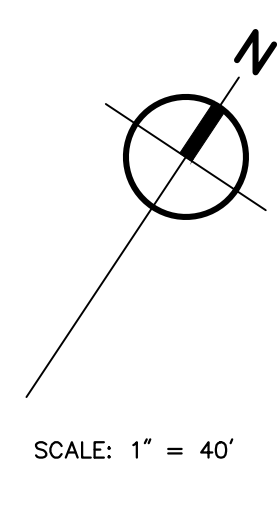
PECK ST.



- 49+75 HYPANT - 17.9'
- +77 V. & B. - 17.5'
- +84 V. & B. - 9.8'
- +80 V. & B. - 11.5'
- 50'00' CURVED ROW (5088 PW) - 0.1'
- +51 C.B. 3024 - 33.5'
- +52 P. POLE - 25.0'
- +51 1/2" WALL - 35.4'
- +40 3/4" OAK - 31.0'
- +46 1/2" WALL - 31.8'
- +57 1/2" WALL - 31.5'
- +59 3/4" OAK - 31.7'
- +82 3/4" OAK - 31.8'
- +87 1/2" WALL - 31.8'
- +90 1/2" STEP - 32.5'
- +91 1/2" STEP - 32.5'
- +91 1/2" WALL - 31.9'
- +91 1/2" WALL - 31.9'
- 50'00' WATER SHUT OFF - 23.7'
- +93 1/2" WALL - 32.6'
- +93 1/2" WALL - 32.6'
- +93 1/2" WALL - 31.9'
- +93 1/2" WALL - 31.9'
- +47 P. POLE (ROUND) - 31.3'
- +68 6/8" WIRE - 21.1'
- +68 P. POLE - 16.1'
- +72 M.H. 3009 - 0.0'
- 52+97 1/2" MAPLE - 15.9'
- +10 1/2" WATER SHUT OFF - 32.8'
- +16 6/8" WIRE - 18.9'
- +31 P. POLE - 16.2'
- +34 6/8" WIRE - 22.6'
- +35 6/8" WIRE - 23.9'
- +36 ROW (REBAR) - 31.9'
- 53+06 GAS MARKING - 19.1'
- +11 V. & B. - 23.3'



- 10+06 M.H. 3001 - 4.2'
- +44 M.H. 3008 - 6.6'
- +46 GAS MARKING - 1.8'
- +72 GAS MARKING - 18.0'
- +87 6/8" WIRE - 17.8'
- +86 P. POLE - 17.5'
- +89 POST - 18.7'
- +40 GAS MARKING - 33.1'
- +48 8/8" STEP - 38.4'
- +48 8/8" STEP - 38.1'
- +49 8/8" STEP - 38.1'
- +53 1/2" WALL - 37.7'
- +49 M.H. 3029 - 0.4'
- +49 M.H. 3029 - 0.4'
- +23 P. POLE - 21.7'
- +27 C.B. 452 - 20.7'
- +30 SON (NO P) - 36.4'
- +44 SON (NO P) - 38.4'
- +44 SON (NO P) - 21.5'
- +48 C.B. 3420 - 46.9'
- +71 GAS METER - 40.1'
- +79 2" BUSH - 22.7'
- 13+08 3/4" MAPLE - 21.6'
- +12 M.H. 3420 - 18.1'
- +12 M.H. 3420 - 18.1'
- +14 M.H. 3420 - 18.1'
- +23 P. POLE - 21.7'
- +27 C.B. 452 - 20.7'
- +30 SON (NO P) - 36.4'
- +44 SON (NO P) - 38.4'
- +44 SON (NO P) - 21.5'
- +48 C.B. 3420 - 46.9'
- 14+04 POST - 32.5'
- +33 SON (MUSK. C. A.) - 22.2'
- +33 P. POLE - 17.7'
- +65 M.H. 3409 - 0.0'
- 15+02 48" OAK - 22.5'
- +22 P. POLE - 16.3'
- +22 P. POLE - 16.3'
- +62 6/8" WIRE - 25.4'
- +62 6/8" WIRE - 23.4'
- +67 M.H. 3418 - 18.7'
- +67 M.H. 3418 - 18.7'
- +68 P. POLE - 16.3'
- +68 P. POLE - 16.3'
- +68 M.H. 3418 - 0.7'
- +68 M.H. 3418 - 0.8'
- +88 M.H. 3414 - 0.8'
- 16+32 8/8" STEP - 36.1'
- +66 6/8" WIRE - 23.4'
- +68 P. POLE - 16.3'
- +68 P. POLE - 16.3'
- +78 M.H. 3394 - 18.8'
- +81 1/2" MAPLE - 20.4'



- 17+46 SON (NO PARKING/DRIP OFF) - 17.4'
- +56 10" BRUSH - 39.3'
- +69 FLAG POLE - 39.8'
- +80 12" ORNAMENTAL GNO - 39.3'
- 18+02 M.H. 3974 - 5.7'
- +69 M.H. 3973 - 36.4'
- +69 M.H. 3973 - 36.4'
- +21 M.H. 3972 - 11.1'
- +28 C.B. 3971 - 14.7'
- +36 P. POLE - 17.2'
- +37 6/8" WIRE - 24.9'
- +60 8" ORNAMENTAL - 39.7'
- +76 SON (HANDCAP ONLY) - 17.6'
- 19+10 SON (NO PARKING/DRIP OFF) - 17.1'
- +64 FENCE - 42.9'
- +64 FENCE (CHAIN LINK 6 FT) - 33.0'
- +74 FOREY/LI. POLE - 18.0'
- +11 8" MAPLE - 19.2'
- +39 SON (DRIVEWAY) - 17.3'
- +42 ROW (REBAR) - 31.7'
- +47 TPO TRACK - 39.6'
- +52 C.B. 3955 - 14.4'
- +52 C.B. 3955 - 14.4'
- +68 M.H. 3954 - 10.3'
- +68 M.H. 3954 - 10.3'
- +81 J' MAPLE - 21.1'
- +88 TELE. RED. - 23.3'
- +88 H.H. - 22.7'
- 21+08 ROW (REBAR) - 33.4'
- +108 P. POLE - 20.1'
- +114 6/8" WIRE - 23.7'
- +29 V. & B. - 25.5'
- +68 FENCE - 33.4'
- +68 FENCE (CHAIN LINK 4 FT) - 36.9'
- +88 12" MAPLE - 20.9'
- 22+04 12" MAPLE - 21.1'
- +29 6/8" WIRE - 24.3'
- +43 6/8" WIRE - 17.8'
- +40 FENCE - 31.3'
- +49 P. POLE - 39.1'
- +51 FOREY/LI. POLE - 24.5'
- +57 C.B. 4531 - 35.3'
- +57 C.B. 4531 - 35.3'
- +65 M.H. 4527 - 8.9'
- +78 TELE. RED. - 11.6'
- +90 C.B. 4532 - 35.5'
- 23+05 38" OAK - 48.2'
- +22 3/4" OAK - 24.9'
- +25 FENCE (WOOD 3 FT) - 38.0'
- +35 FENCE - 40.8'
- +74 6/8" WIRE - 18.1'
- +80 P. POLE - 17.6'
- +81 TELE. RED. - 17.3'
- +81 TELE. RED. - 17.3'
- +83 ROW (REBAR) - 33.1'
- 24+02 WATER SHUT OFF - 33.1'
- +13 M.H. 4548 - 0.7'
- +13 C.B. 4531 - 14.3'
- 18 FENCE (CHAIN LINK 4 FT) - 33.4'
- +38 FENCE - 48.8'
- +73 20" MAPLE - 34.9'
- +83 WATER SHUT OFF - 25.5'

REMOVAL LEGEND

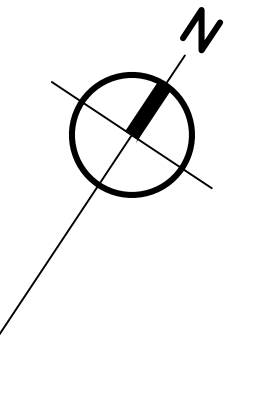
- REMOVE HMA SURFACE, PAID FOR AS: HMA SURFACE, REM
- REMOVE ROAD SURFACE, PAID FOR AS: PAVT, REM
- REMOVE CONCRETE SIDEWALK PAID FOR AS: SIDEWALK, REM
- REMOVE CONCRETE PAVEMENT OR DRIVEWAY, PAID FOR AS: PAVT, REM
- REMOVE CURB, GUTTER OR CURB AND GUTTER, PAID FOR AS: CURB AND GUTTER, REM
- TREE REMOVAL

NO.	REVISIONS	BY	DATE	DRAWN
1	ISSUED FOR BIDS	M.R.H.	5/25	STAFF
				DATE: FEB. '25
				CHECKED: M.R.H.
				DATE: MAY '25

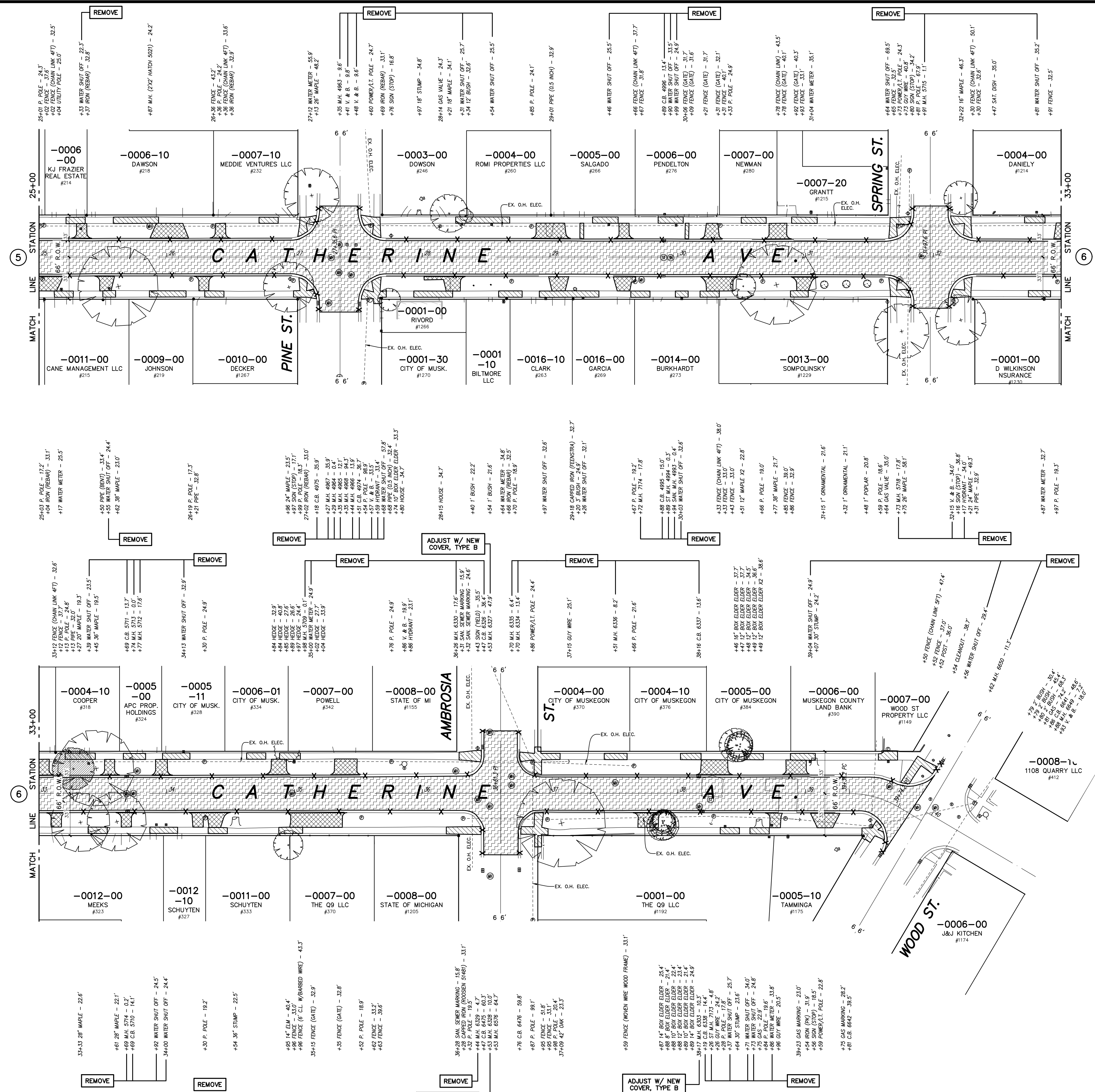
Prein&Newhof
Engineers-Surveyors-Environmental-Laboratory

CITY OF MUSKOGON
MUSKOGON COUNTY, MICHIGAN
REMOVAL PLANS
IRWIN AVE. & CATHERINE AVE.

PROJECT NO.
2240838
SHEET NO.
5 OF 22



SCALE: 1" = 40'



REMOVAL LEGEND

- REMOVE HMA SURFACE, PAID FOR AS: HMA SURFACE, REM
- REMOVE ROAD SURFACE, PAID FOR AS: PAVT, REM
- REMOVE CONCRETE SIDEWALK PAID FOR AS: SIDEWALK, REM
- REMOVE CONCRETE PAVEMENT OR DRIVEWAY, PAID FOR AS: PAVT, REM
- REMOVE CURB, GUTTER OR CURB AND GUTTER, PAID FOR AS: CURB AND GUTTER, REM
- TREE REMOVAL

NO.	REVISIONS	BY	DATE	DRAWN
1	ISSUED FOR BIDS	M.R.H.	5/25	STAFF

DATE: FEB. '25
 CHECKED: M.R.H.
 DATE: MAY '25

Prein & Newhof
 Engineers • Surveyors • Environmental • Laboratory

CITY OF MUSKOGON
 MUSKOGON COUNTY, MICHIGAN

REMOVAL PLANS
 CATHERINE AVENUE

PROJECT NO.
2240838

SHEET NO.
6 OF 22

I:\DRAWING PROJECTS\2024\2240838_MUSKOGON_CATHERINE_VBA\1_2024\2240838_5_DRAWING_CATH-REMOVAL.dwg - P:RUI - May 20 2025 - 08:03am - Prein&Newhof

B.M. EL. 623.78
 HOUSE 19 IRWIN 45'± SOUTH OF C/L
 IRWIN OPP. EASTERLY CURB OF CATHERINE
 ST EXT. TOP OF NE CORNER OF BOTTOM
 CONCRETE STEP TO PORCH
 (0.55 A/WALK)

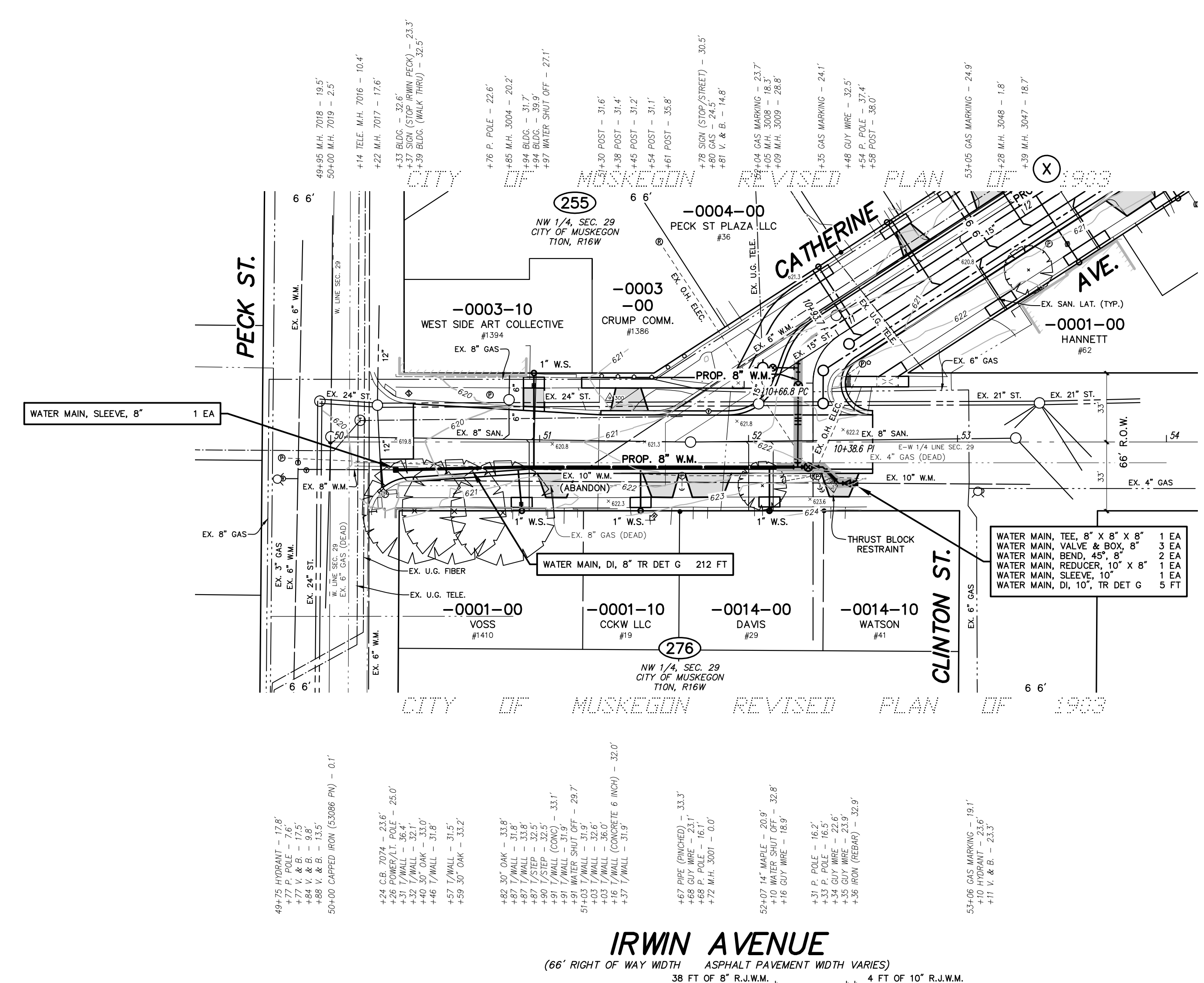
POINT No.	NORTHING	EASTING	ELEVATION
300	634948.65	126231.26	621.19

PROPOSED PAVEMENT LEGEND

■ PROPOSED HMA SURFACE

■ PROPOSED DRIVEWAY, NONREINF CONC, 6 INCH OR SIDEWALK, CONC, 4/8 INCH CONC PAVT, NONREINF, 8 INCH

NOTE: PROPOSED PAVEMENT ON STREET & INTERSECTIONS NOT SHADED FOR CLARITY.



TOPOGRAPHY TEXT NOTE

TOPOGRAPHY TEXT SHOWN FOR INFORMATION ONLY. SEE REMOVAL PLANS FOR ACTION ITEMS.

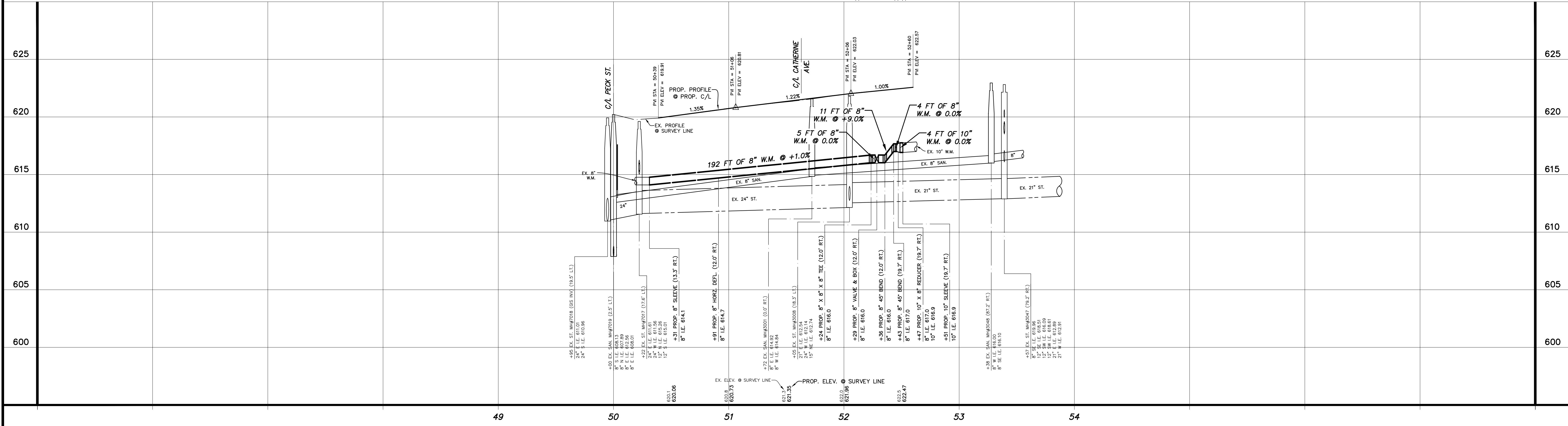
- WATER MAIN CONSTRUCTION NOTES**
- CONTRACTOR MUST PROVIDE A MINIMUM OF 18" VERTICAL CLEARANCE AND 10' HORIZONTAL CLEARANCE BETWEEN PROPOSED WATER MAIN, AND STORM AND SANITARY SEWERS.
 - USE HYDRANT EXTENSIONS OR VERTICAL BENDS ON HYDRANT LEADS TO ENSURE HYDRANT BREAKAWAY FLANGE IS 3"± FROM FINISHED GRADE. COST MUST BE INCLUDED IN THE HYDRANT PAY ITEM.
 - SHADED WATER MAIN INDICATES RESTRAINED JOINT WATER MAIN.
 - ALL HYDRANTS MUST BE RESTRAINED TO THE TEE.

- WATER SERVICE CONSTRUCTION NOTES**
- WATER SERVICES SHOWN ON THE PLANS ARE LOCATED BASED ON RECORDS, ACTUAL LOCATION MAY BE DIFFERENT THAN SHOWN. ALIGNMENT OF EXISTING WATER SERVICES FROM THE CURB STOP BOX TO THE HOUSE IS UNKNOWN AND MUST BE VERIFIED BY THE CONTRACTOR PRIOR TO REPLACEMENT.
 - WATER SERVICES ARE TO BE REPLACED TO THE WATER METER IF THE METER IS LOCATED INSIDE THE RESIDENCE UNLESS NOTED OTHERWISE. WATER SERVICES TO BE REPLACED TO 18 INCHES INSIDE THE RESIDENCES IF THE METER IS LOCATED OUTSIDE. LOCATION OF ENTRY INTO THE RESIDENCE, AND PLUMBING REQUIRED TO CONNECT TO THE EXISTING METER MUST BE APPROVED BY THE HOME OWNER AND ENGINEER PRIOR TO INSTALLATION. A NEW CURB STOP MUST BE INSTALLED AT THE PROPERTY LINE. IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO COORDINATE AND COMMUNICATE WITH THE PROPERTY OWNER AND RESIDENT FOR ENTRY INTO THE RESIDENCE.
 - IF THE WATER SERVICE METER IS LOCATED IN A PIT OUTSIDE THE HOUSE, THE CONTRACTOR SHALL ATTEMPT TO RELOCATE THE METER INTO THE RESIDENCE. RELOCATION MUST BE COORDINATED WITH THE CITY AND THE PROPERTY OWNER.
 - CONTRACTOR TO COORDINATE WITH THE CITY FOR METER REMOVAL AND REINSTALLATION.

WATER SERVICE TOTALS (THIS SHEET)

WATER SERVICE, CORPORATION STOP, 1"	4 EA
WATER SERVICE, CURB STOP AND BOX, 1"	4 EA
WATER SERVICE, 1"	350 FT
WATER SERVICE, CONNECT TO EX.	4 EA
WATER SERVICE, RESTORATION, PRIVATE	4 EA

IRWIN AVENUE
 (66' RIGHT OF WAY WIDTH ASPHALT PAVEMENT WIDTH VARIES)
 38 FT OF 8" R.J.W.M. 4 FT OF 10" R.J.W.M.



SCALES : 1" = 40' HORIZ. (CONTOURS AT ONE FOOT INTERVALS)
 1" = 4' VERT.

NO.	REVISIONS	BY	DATE	DRAWN
1	ISSUED FOR BIDS	M.R.H.	5/25	STAFF

Prein & Newhof
 Engineers • Surveyors • Environmental • Laboratory

DATE: FEB. '25
 CHECKED: M.R.H.
 DATE: MAY '25

CITY OF MUSKEGON
 MUSKEGON COUNTY, MICHIGAN

PROJECT NO. 2240838
 SHEET NO. 7 OF 22

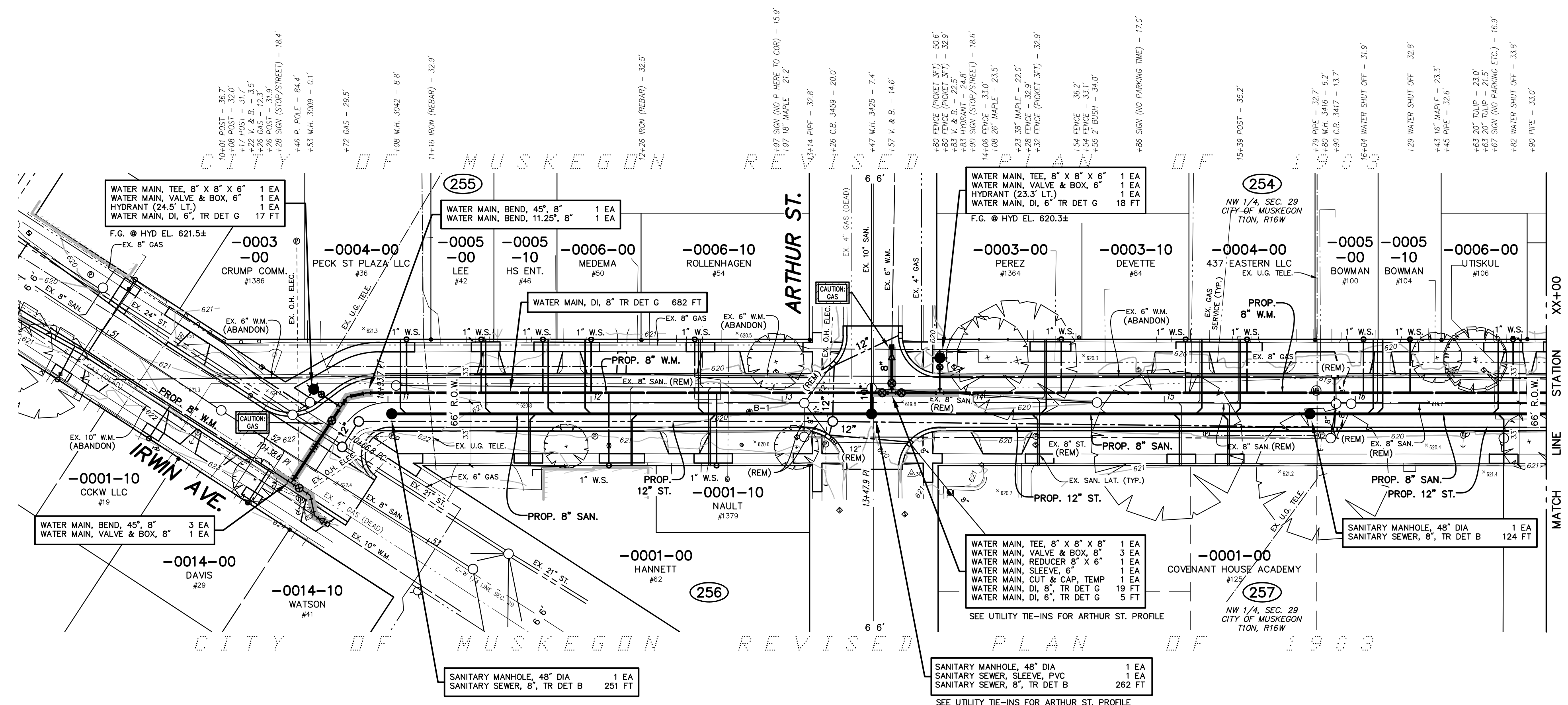
WATER SYSTEM IMPROVEMENTS
 IRWIN AVENUE

C:\USERS\PRIUS\APPDATA\LOCAL\TEMP\1216283_7_PIP_RUNNING - PRIUS - May, 20 2025 - 09:10:00 - PrintSheet.dwg

B.M. EL. 623.78
HOUSE 19 IRWIN 45'± SOUTH OF C/L
IRWIN OPP. EASTERLY CURB OF CATHERINE
ST EXT. TOP OF NE CORNER OF BOTTOM
CONCRETE STEP TO PORCH
(0.55 A/WALK)

CONTROL POINT TABLE			
POINT No.	NORTHING	EASTING	ELEVATION
300	634948.65	12623128.26	621.19
301	635085.88	12623492.16	620.64

WATER SERVICE INFORMATION				
ADDRESS	FULL REPLACEMENT		WATER SERVICE (1" FT)	
	PRIVATE SIDE REPLACEMENT ONLY	PUBLIC SIDE REPLACEMENT ONLY	PRIVATE SIDE REPLACEMENT ONLY	PUBLIC SIDE REPLACEMENT ONLY
62 IRWIN	X			64
1379 ARTHUR		X	X	28
36 CATHERINE	X			80
46 CATHERINE	X			80
50 CATHERINE	X			80
54 CATHERINE	X			80
1364 ARTHUR	X			80
84 CATHERINE	X			80
94 CATHERINE	X			80
100 CATHERINE	X			100
104 CATHERINE	X			100
106 CATHERINE	X			100



TOPOGRAPHY TEXT NOTE

TOPOGRAPHY TEXT SHOWN FOR INFORMATION ONLY. SEE REMOVAL PLANS FOR ACTION ITEMS.

SANITARY SEWER CONSTRUCTION NOTES

- ALIGNMENT & LOCATION OF EXISTING SANITARY SEWER LATERALS ARE FROM AVAILABLE RECORDS. EXACT LOCATION IS UNKNOWN. CONTRACTOR TO FIELD VERIFY LOCATION OF SANITARY LATERALS PRIOR TO INSTALLATION OF WYES.
- SANITARY SEWER LATERALS MUST BE REPLACED TO THE PROPERTY LINE AND CONNECTED TO THE EXISTING LATERAL.

WATER MAIN CONSTRUCTION NOTES

- CONTRACTOR MUST PROVIDE A MINIMUM OF 18" VERTICAL CLEARANCE AND 10" HORIZONTAL CLEARANCE BETWEEN PROPOSED WATER MAIN, AND STORM AND SANITARY SEWERS.
- USE HYDRANT EXTENSIONS OR VERTICAL BENDS ON HYDRANT LEADS TO ENSURE HYDRANT BREAKAWAY FLANGE IS 3" +/- FROM FINISHED GRADE. COST MUST BE INCLUDED IN THE HYDRANT PAY ITEM.
- SHADED WATER MAIN INDICATES RESTRAINED JOINT WATER MAIN.
- ALL HYDRANTS MUST BE RESTRAINED TO THE TEE.

WATER SERVICE CONSTRUCTION NOTES

- WATER SERVICES SHOWN ON THE PLANS ARE LOCATED BASED ON RECORDS. ACTUAL LOCATION MAY BE DIFFERENT THAN SHOWN. ALIGNMENT OF EXISTING WATER SERVICES FROM THE CURB STOP BOX TO THE HOUSE IS UNKNOWN AND MUST BE VERIFIED BY THE CONTRACTOR PRIOR TO REPLACEMENT.
- WATER SERVICES ARE TO BE REPLACED TO THE WATER METER IF THE METER IS LOCATED INSIDE THE RESIDENCE UNLESS NOTED OTHERWISE. WATER SERVICES TO BE REPLACED TO 18 INCHES INSIDE THE RESIDENCES IF THE METER IS LOCATED OUTSIDE. LOCATION OF ENTRY INTO THE RESIDENCE, AND PLUMBING REQUIRED TO CONNECT TO THE EXISTING METER MUST BE APPROVED BY THE HOME OWNER AND ENGINEER PRIOR TO INSTALLATION. A NEW CURB STOP MUST BE INSTALLED AT THE PROPERTY LINE. IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO COORDINATE AND COMMUNICATE WITH THE PROPERTY OWNER AND RESIDENT FOR ENTRY INTO THE RESIDENCE.
- IF THE WATER SERVICE METER IS LOCATED IN A PIT OUTSIDE THE HOUSE, THE CONTRACTOR SHALL ATTEMPT TO RELOCATE THE METER INTO THE RESIDENCE. RELOCATION MUST BE COORDINATED WITH THE CITY AND THE PROPERTY OWNER.
- CONTRACTOR TO COORDINATE WITH THE CITY FOR METER REMOVAL AND REINSTALLATION.

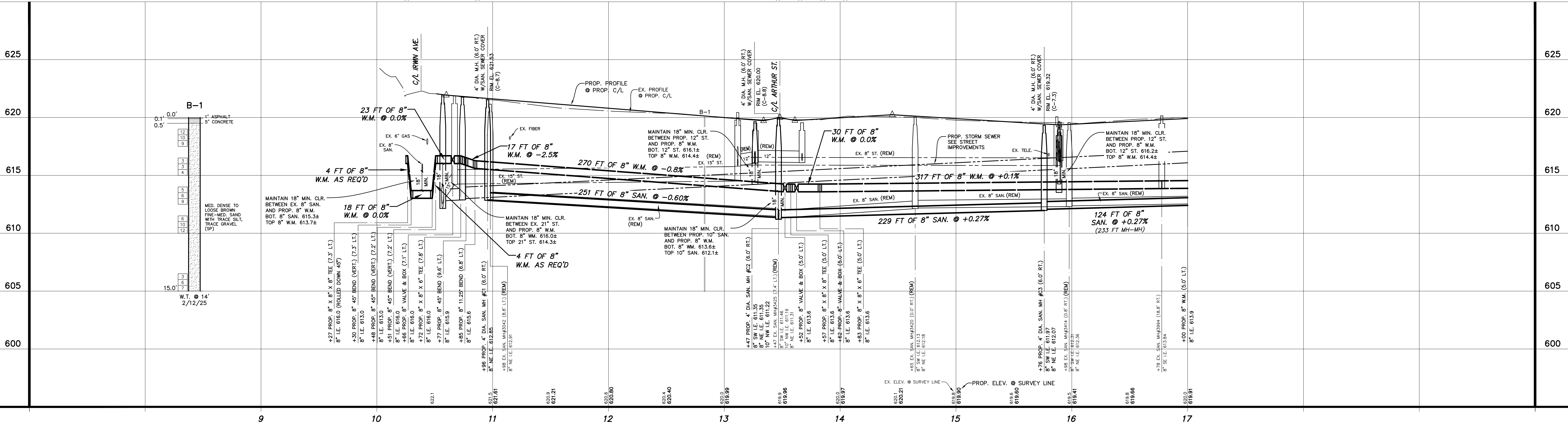
SANITARY LATERAL TOTALS (THIS SHEET)

SANITARY SEWER, WYE, 8" x 6"	18 EA
SANITARY LATERAL, 6"	640 FT
SANITARY LATERAL, CONNECTION TO EX.	18 EA

WATER SERVICE TOTALS (THIS SHEET)

WATER SERVICE, CORPORATION STOP, 1"	13 EA
WATER SERVICE, CURB STOP AND BOX, 1"	13 EA
WATER SERVICE, 1"	990 FT
WATER SERVICE, CONNECTION TO EX.	12 EA
WATER SERVICE, RESTORATION, PRIVATE	13 EA

CATHERINE AVENUE
(66' RIGHT OF WAY WIDTH ASPHALT PAVEMENT WIDTH VARIES)
20 FT OF 8" R.J.W.M.



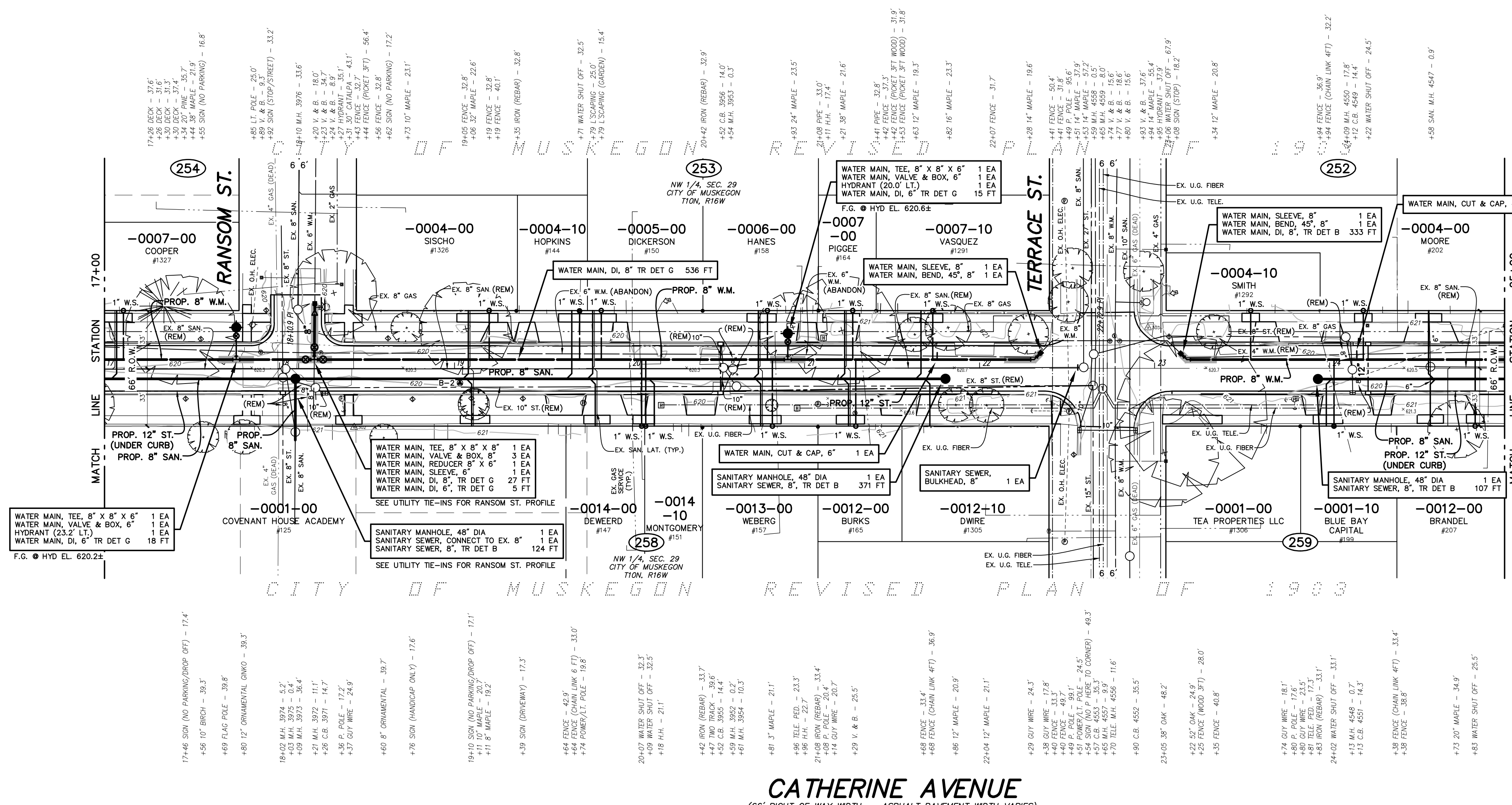
<p>UTILITY LOCATIONS ARE DERIVED FROM ACTUAL MEASUREMENTS OR AVAILABLE RECORDS. THEY SHOULD NOT BE INTERPRETED TO BE EXACT LOCATIONS NOR SHOULD IT BE ASSUMED THAT THEY ARE THE ONLY UTILITIES IN THIS AREA.</p>	<p>NO. 1</p> <p>REVISIONS</p> <p>ISSUED FOR BIDS</p>	<p>BY M.R.H.</p> <p>DATE 5/25</p>	<p>DRAWN STAFF</p> <p>DATE FEB. '25</p> <p>CHECKED M.R.H.</p> <p>DATE MAY '25</p>	<p>CITY OF MUSKEGON</p> <p>MUSKEGON COUNTY, MICHIGAN</p> <p>SANITARY SEWER & WATERMAIN</p> <p>CATHERINE AVENUE</p>	<p>PROJECT NO. 2240838</p> <p>SHEET NO. 8 OF 22</p>

B.M. EL. 622.50
150 CATHERINE AVE. NORTH SIDE OF
ROAD, TOP OF SW COR. BOTTOM
CONCRETE STEP (0.5 A/WALK)

B.M. EL. 621.51
1292 TERRACE, TOP OF SE COR. BOTTOM
CONCRETE STEP (0.5 A/WALK)

POINT No.	NORTHING	EASTING	ELEVATION
302	635335.93	12623895.97	621.00
303	636620.28	12624253.84	620.99

WATER SERVICE INFORMATION				
ADDRESS	FULL REPLACEMENT		WATER SERVICE (1" FT)	
	PRIVATE SIDE REPLACEMENT ONLY	PUBLIC SIDE REPLACEMENT ONLY		
147 CATHERINE			X	40
151 CATHERINE	X			90
157 CATHERINE	X			90
165 CATHERINE	X			90
1305 TERRACE		X		70
1306 TERRACE		X		60
199 CATHERINE	X			90
207 CATHERINE	X			80
1327 RANSOM	X			130
1326 RANSOM	X			130
144 CATHERINE	X			80
150 CATHERINE	X			80
158 CATHERINE	X			80
144 CATHERINE	X			80
1291 TERRACE	X			80
1292 TERRACE		X		50
202 CATHERINE	X			90



TOPOGRAPHY TEXT NOTE
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PLANS FOR ACTION ITEMS.

SANITARY SEWER CONSTRUCTION NOTES

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WATER MAIN CONSTRUCTION NOTES

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- USE HYDRANT EXTENSIONS OR VERTICAL BENDS ON HYDRANT LEADS TO ENSURE HYDRANT BREAKAWAY FLANGE IS 3'+/- FROM FINISHED GRADE. COST MUST BE INCLUDED IN THE HYDRANT PAY ITEM.
- SHADED WATER MAIN INDICATES RESTRAINED JOINT WATER MAIN.
- ALL HYDRANTS MUST BE RESTRAINED TO THE TEE.

WATER SERVICE CONSTRUCTION NOTES

- WATER SERVICES SHOWN ON THE PLANS ARE LOCATED BASED ON RECORDS. ACTUAL LOCATION MAY BE DIFFERENT THAN SHOWN. ALIGNMENT OF EXISTING WATER SERVICES FROM THE CURB STOP BOX TO THE HOUSE IS UNKNOWN AND MUST BE VERIFIED BY THE CONTRACTOR PRIOR TO REPLACEMENT.
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- CONTRACTOR TO COORDINATE WITH THE CITY FOR METER REMOVAL AND REINSTALLATION.

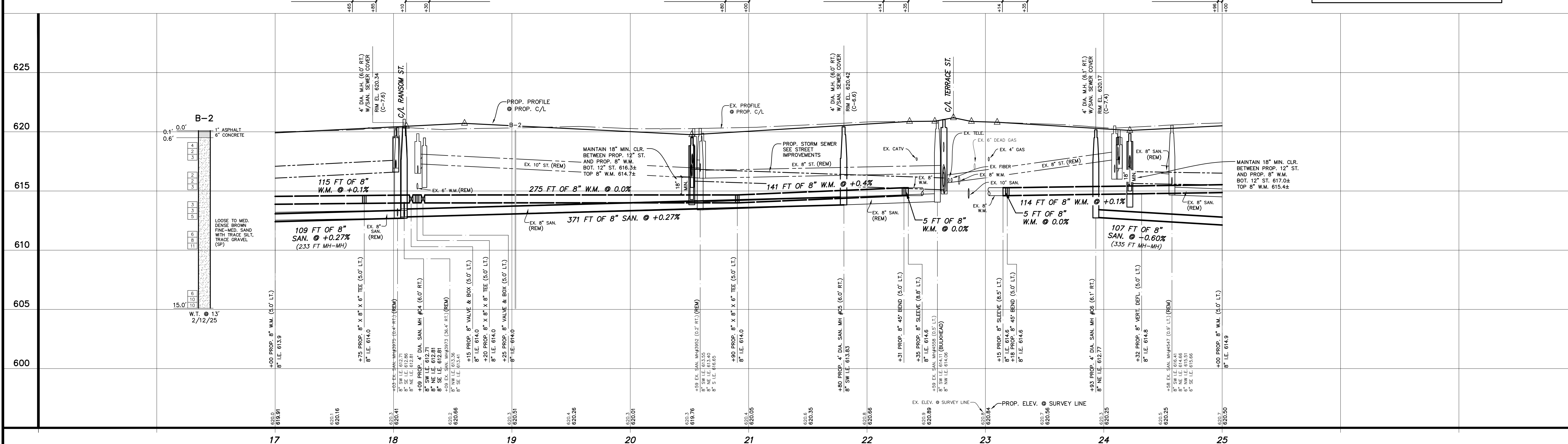
SANITARY LATERAL TOTALS (THIS SHEET)

SANITARY SEWER, WYE, 8" x 6"	16 EA
SANITARY LATERAL, 6"	560 FT
SANITARY LATERAL, CONNECTION TO EX.	16 EA

WATER SERVICE TOTALS (THIS SHEET)

WATER SERVICE, CORPORATION STOP, 1"	14 EA
WATER SERVICE, CURB STOP AND BOX, 1"	14 EA
WATER SERVICE, 1"	1410 FT
WATER SERVICE, CONNECTION TO EX.	17 EA
WATER SERVICE, RESTORATION, PRIVATE	16 EA

CATHERINE AVENUE
(66' RIGHT OF WAY WIDTH ASPHALT PAVEMENT WIDTH VARIES)



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		<p>DATE FEB. '25</p>	<p>CHECKED M.R.H.</p>	<p>DATE MAY '25</p>	<p>SHEET NO. 9 OF 22</p>				

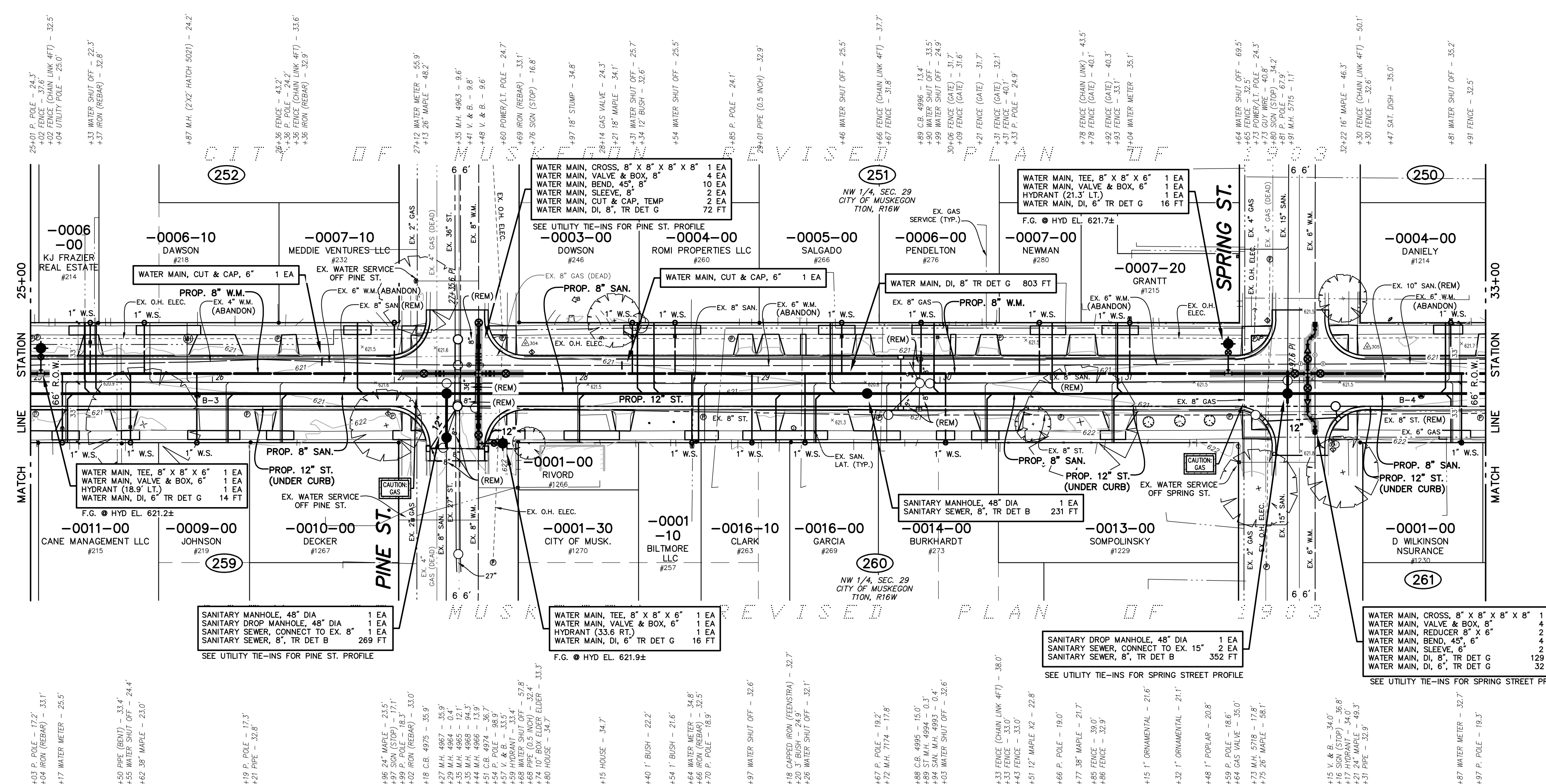
B.M. EL. 622.50
HOUSE 246 CATHERINE AVE. TOP OF SW
COR. BOTTOM CONCRETE STEP
(0.5 A/GROUND)

B.M. EL. 622.87
SPRING ST. AND CATHERINE AVE. SW
QUADRANT OF INTERSECTION. SET RR
SPIKE IN EAST SIDE POWER LIGHT POLE
(1.0 A/GROUND)

POINT No.	NORTHING	EASTING	ELEVATION
354	635666.20	1262461.27	621.89
355	636105.16	1262057.62	621.93

WATER SERVICE INFORMATION

ADDRESS	FULL REPLACEMENT			WATER SERVICE, 1" (FT)
	PRIVATE SIDE REPLACEMENT ONLY	PUBLIC SIDE REPLACEMENT ONLY	WATER SERVICE, 1" (FT)	
215 CATHERINE	X		90	
219 CATHERINE	X		80	
1267 PINE	X		150	
1267 PINE		X	50	
257 CATHERINE	X	X	40	
263 CATHERINE	X		40	
269 CATHERINE	X	X	40	
273 CATHERINE	X		90	
1229 SPRING	X		50	
1230 SPRING	X	X	40	
214 CATHERINE	X		80	
218 CATHERINE	X		80	
232 CATHERINE	X		80	
246 CATHERINE	X		80	
240 CATHERINE	X		80	
266 CATHERINE	X		90	
276 CATHERINE	X	X	40	
280 CATHERINE	X		80	
1215 SPRING	X	X	40	
1214 SPRING	X		90	



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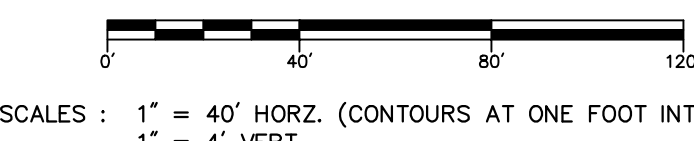
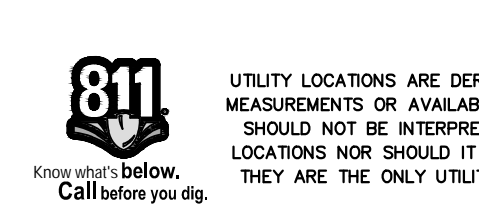
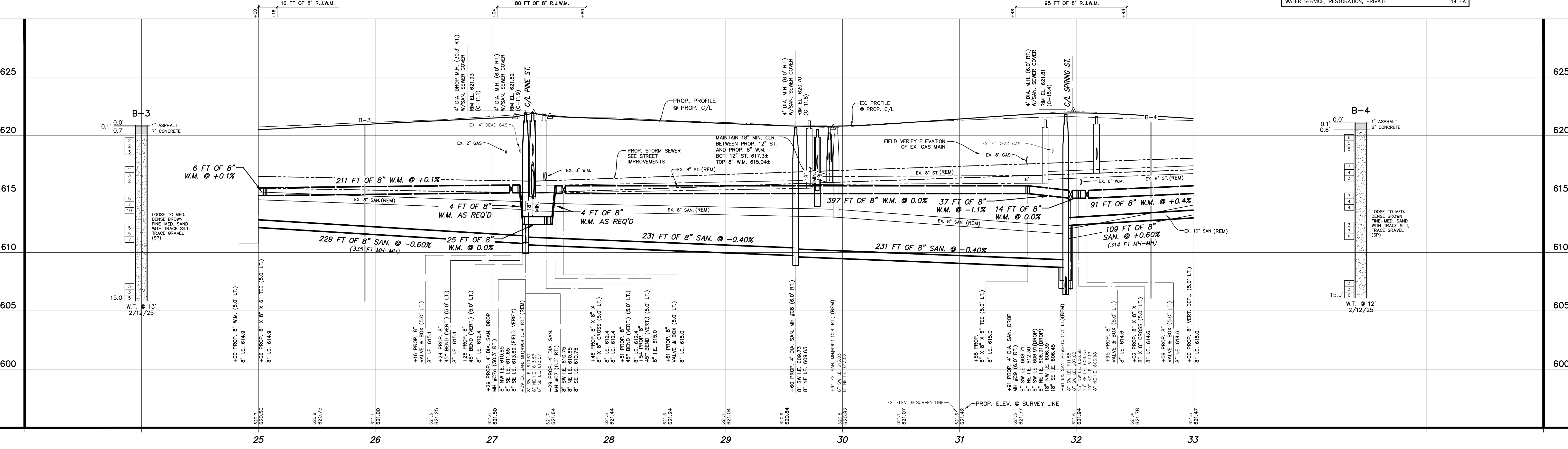
SANITARY LATERAL TOTALS (THIS SHEET)

SANITARY SEWER, WYE, 8" x 6"	20 EA
SANITARY LATERAL, CONNECTION TO EX.	700 FT
SANITARY LATERAL, CONNECTION TO EX.	20 EA

WATER SERVICE TOTALS (THIS SHEET)

WATER SERVICE, CORPORATION STOP, 1"	18 EA
WATER SERVICE, CURB STOP AND BOX, 1"	18 EA
WATER SERVICE, 1"	1410 FT
WATER SERVICE, CONNECTION TO EX.	20 EA
WATER SERVICE, RESTORATION, PRIVATE	14 EA

CATHERINE AVENUE
(66' RIGHT OF WAY WIDTH ASPHALT PAVEMENT WIDTH VARIES)



NO.	REVISIONS	BY	DATE	DRAWN
1	ISSUED FOR BIDS	M.R.H.	5/25	STAFF

Prein & Newhof
Engineers-Surveyors-Environmental-Laboratory

CITY OF MUSKEGON
MUSKEGON COUNTY, MICHIGAN

SANITARY SEWER & WATERMAIN
CATHERINE AVENUE

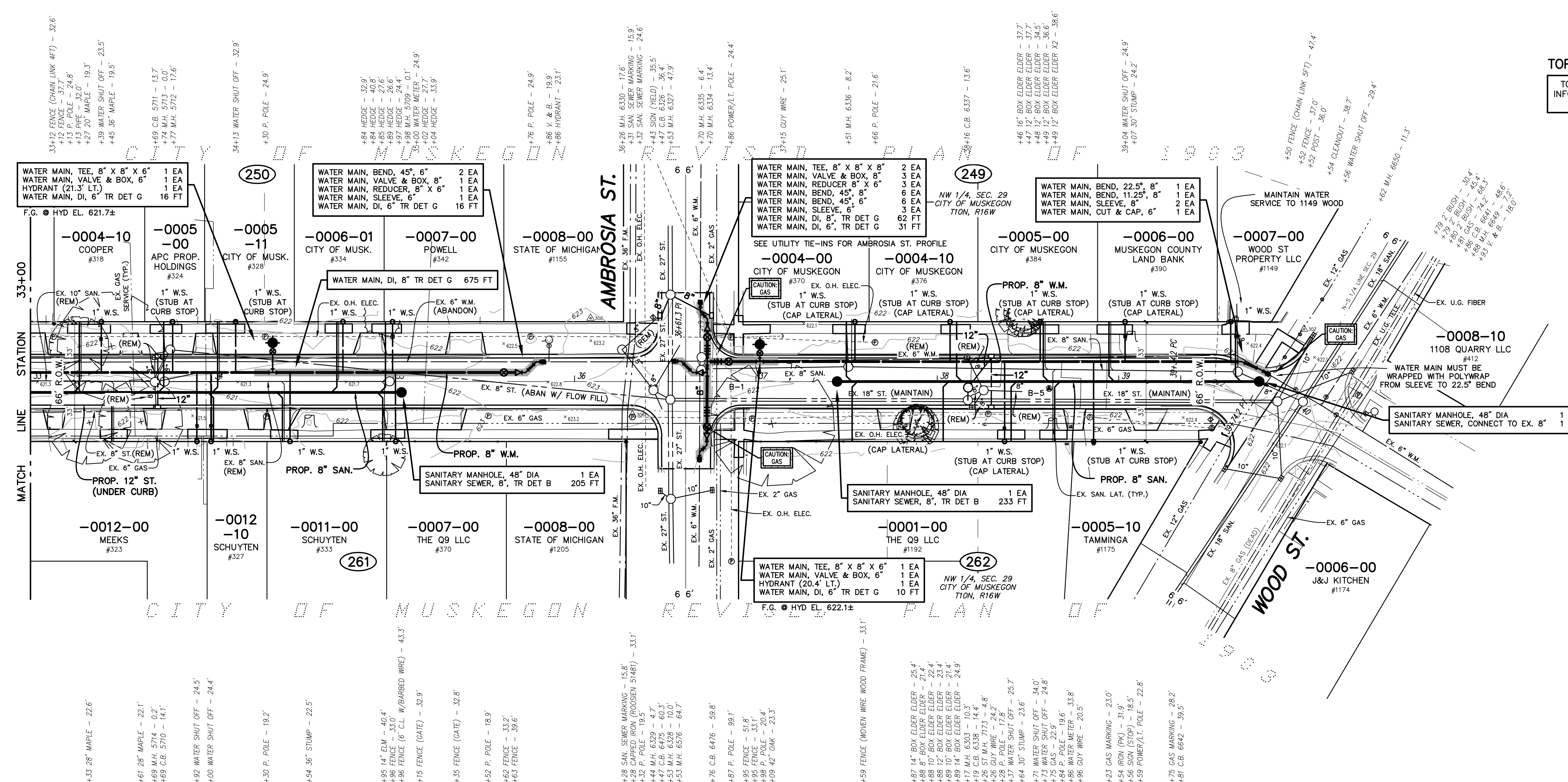
PROJECT NO. 2240838
SHEET NO. 10 OF 22

B.M. EL. 623.15
WOOD ST. AND CATHERINE AVE. 44'±
SOUTH AND 48'± WEST OF CENTERLINE "X"
CHISELED SQUARE TOP OF NW END CURB
ISLAND. (0.5 ABOVE ASPH. PARKING)

POINT NO.	NORTHING	EASTING	ELEVATION
306	636279.27	1262546.49	623.41
307	636511.80	12625708.35	622.48
308	636312.52	12625669.14	623.20

WATER SERVICE INFORMATION

ADDRESS	FULL REPLACEMENT		PRIVATE SIDE REPLACEMENT ONLY		PUBLIC SIDE REPLACEMENT ONLY		WATER SERVICE, 1" (FT)
	X		X		X		
323 CATHERINE	X						90
327 CATHERINE	X						40
333 CATHERINE	X						40
370 CATHERINE	X						40
1192 AMBROSIA	X						50
1175 WOOD	X						50
318 CATHERINE	X						80
324 CATHERINE	X						50
334 CATHERINE	X						40
342 CATHERINE	X						80
370 CATHERINE	X						40
376 CATHERINE	X						40
384 CATHERINE	X						40
390 CATHERINE	X						40
1149 WOOD	X						160



TOPOGRAPHY TEXT NOTE
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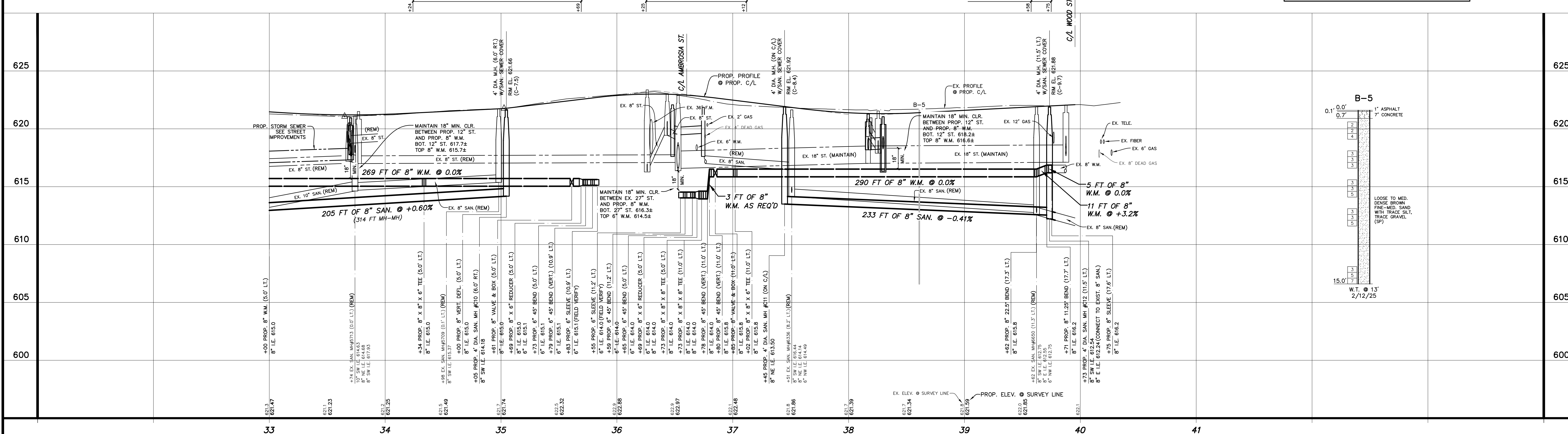
SANITARY LATERAL TOTALS (THIS SHEET)

SANITARY SEWER, WYE, 8" x 6"	18 EA
SANITARY LATERAL, 6"	800 FT
SANITARY LATERAL, CONNECTION TO EX.	7 EA

WATER SERVICE TOTALS (THIS SHEET)

WATER SERVICE, CORPORATION STOP, 1"	15 EA
WATER SERVICE, CURB STOP AND BOX, 1"	15 EA
WATER SERVICE, 1"	930 FT
WATER SERVICE, CONNECTION TO EX.	5 EA
WATER SERVICE, RESTORATION, PRIVATE	5 EA

CATHERINE AVENUE
(66' RIGHT OF WAY WIDTH ASPHALT PAVEMENT WIDTH VARIES)



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		<p>Prein & Newhof Engineers-Surveyors-Environmental-Laboratory</p>	<p>SANITARY SEWER & WATERMAIN CATHERINE AVENUE</p>	<p>SHEET NO. 11 OF 22</p>							

ARTHUR STREET

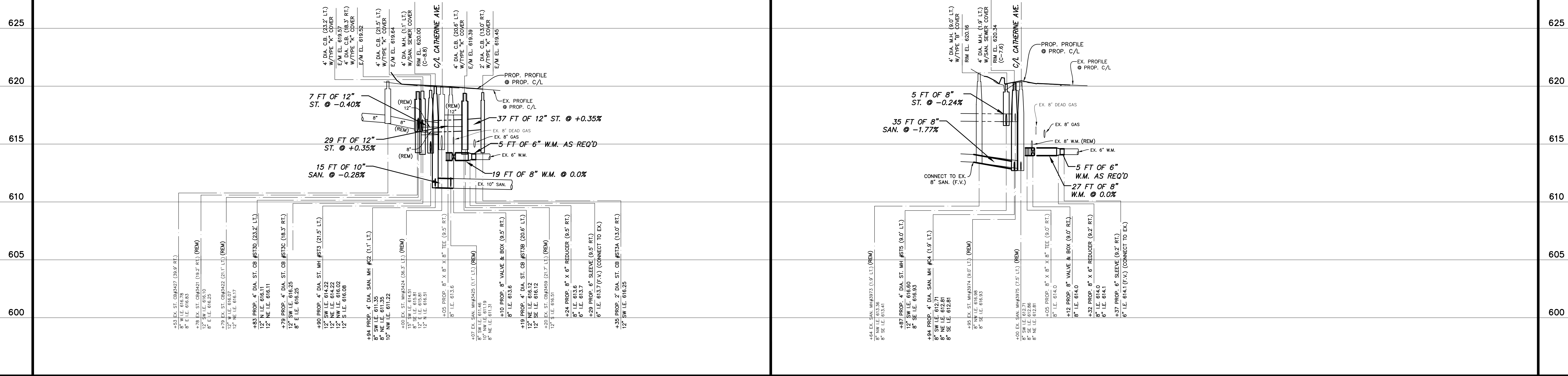
(LOOKING SOUTHWEST)

19 FT OF 8" R.J.W.M. 5 FT OF 6" R.J.W.M.

RANSOM STREET

(LOOKING SOUTHWEST)

27 FT OF 8" R.J.W.M. 5 FT OF 6" R.J.W.M.



PINE STREET

(LOOKING SOUTHWEST)

73 FT OF 8" R.J.W.M.

SPRING STREET

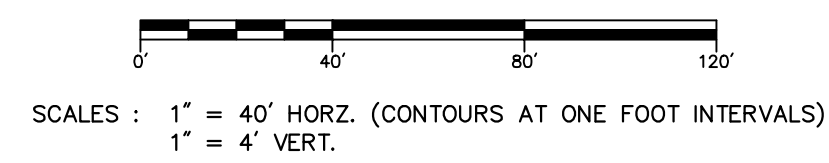
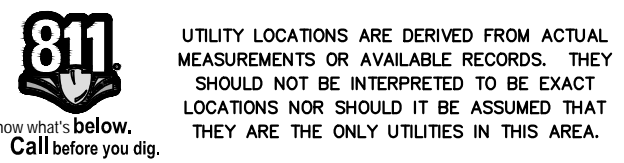
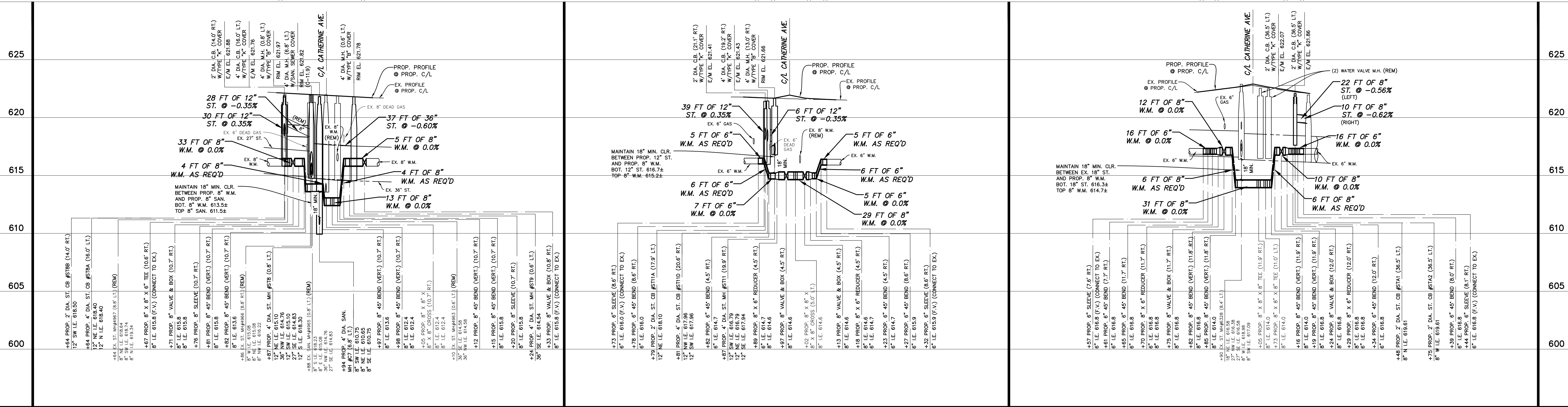
(LOOKING SOUTHWEST)

16 FT OF 6" R.J.W.M. 31 FT OF 8" R.J.W.M. 16 FT OF 6" R.J.W.M.

AMBROSIA STREET

(LOOKING SOUTHWEST)

16 FT OF 8" R.J.W.M. 65 FT OF 8" R.J.W.M. 16 FT OF 6" R.J.W.M.



NO.	REVISIONS	BY	DATE	DRAWN
1	ISSUED FOR BIDS	M.R.H.	5/25	STAFF



CITY OF MUSKEGON MUSKEGON COUNTY, MICHIGAN	PROJECT NO. 2240838
UTILITY & STREET IMPROVEMENTS	SHEET NO. 12 OF 22
UTILITY TIE-INS	

I:\D\10 PROJECTS\2024\2240838_MUSKEGON_CATHERINE_VBA\CD\2240838_12_PROJ_UTIL_TIE-INS.DWG - PDES - May, 20 2025 - 09:46am - Pdes\mwhcd

B.M. EL. 623.78
HOUSE 19 IRWIN 45'± SOUTH OF C/L
IRWIN OPP. EASTERLY CURB OF CATHERINE
ST EXT. TOP OF NE CORNER OF BOTTOM
CONCRETE STEP TO PORCH
(0.55 A/WALK)

CONTROL POINT TABLE		
POINT No.	NORTHING	EASTING ELEVATION
300	634948.65	12623128.26 621.19
301	635085.88	12623492.16 620.64

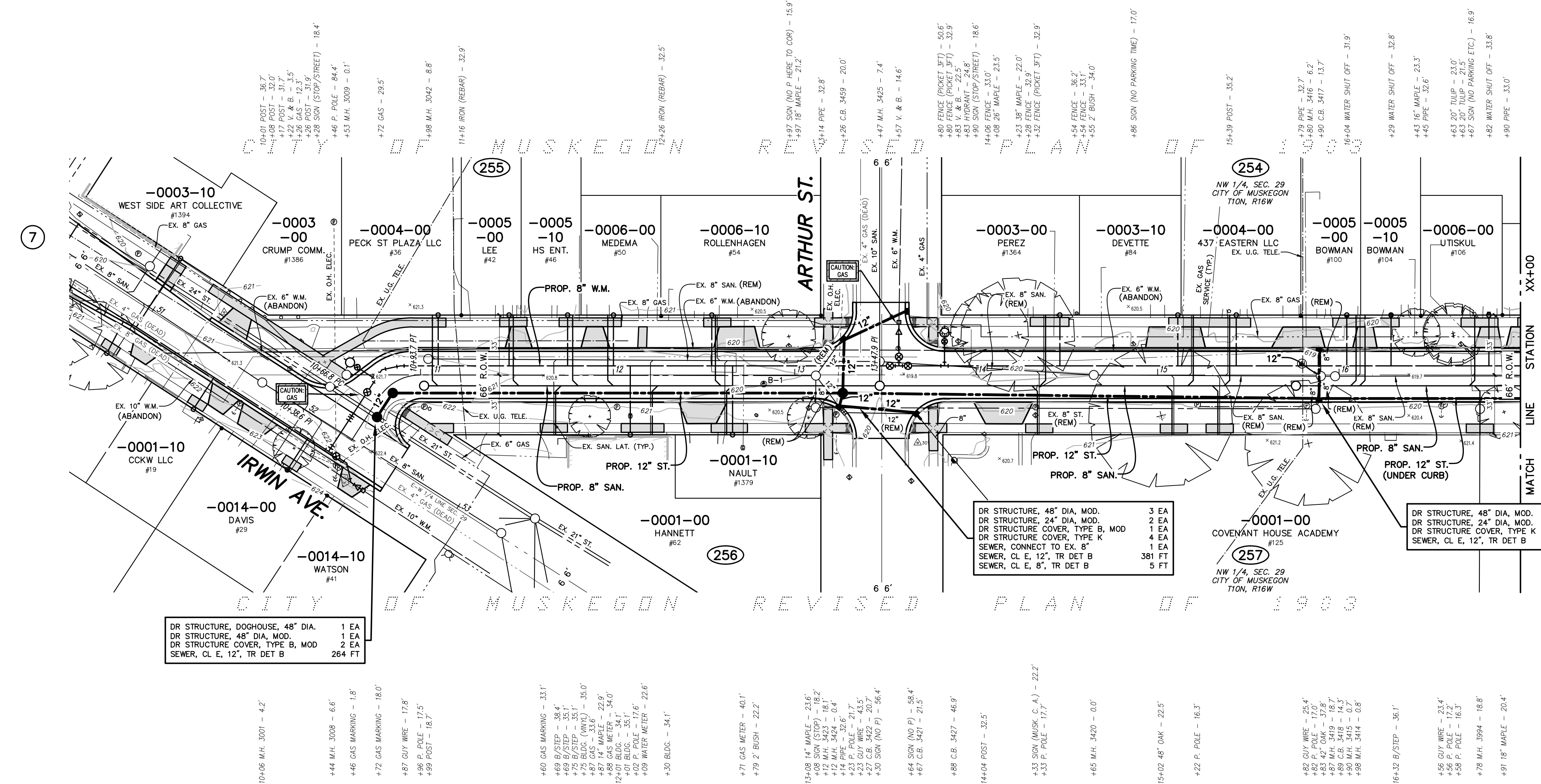
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INFORMATION ONLY. SEE REMOVAL
PLANS FOR ACTION ITEMS.

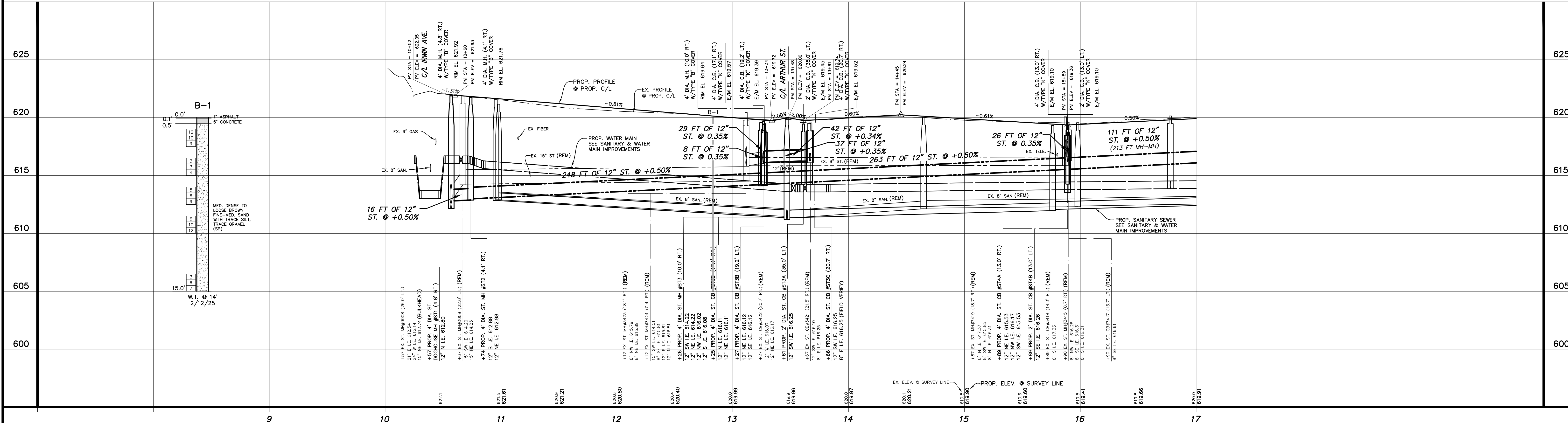
PROPOSED PAVEMENT LEGEND

- PROPOSED HMA SURFACE
- PROPOSED DRIVEWAY, NONREINFORCED CONC., 6 INCH CONC. PAVT., NONREINFORCED, 8 INCH

NOTE: PROPOSED PAVEMENT ON STREET & INTERSECTIONS NOT SHADED FOR CLARITY.



CATHERINE AVENUE
(66' RIGHT OF WAY WIDTH ASPHALT PAVEMENT WIDTH VARIES)



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NO.	REVISIONS	BY	DATE	DRAWN										
1	ISSUED FOR BIDS	M.R.H.	5/25	STAFF										



B.M. EL. 622.50
150 CATHERINE AVE. NORTH SIDE OF
ROAD, TOP OF SW COR. BOTTOM
CONCRETE STEP (0.5 A/WALK)

B.M. EL. 621.51
1292 TERRACE, TOP OF SE COR. BOTTOM
CONCRETE STEP (0.5 A/WALK)

CONTROL POINT TABLE			
POINT NO.	NORTHING	EASTING	ELEVATION
302	635335.93	12623895.97	621.00
303	635620.28	12624253.84	620.99

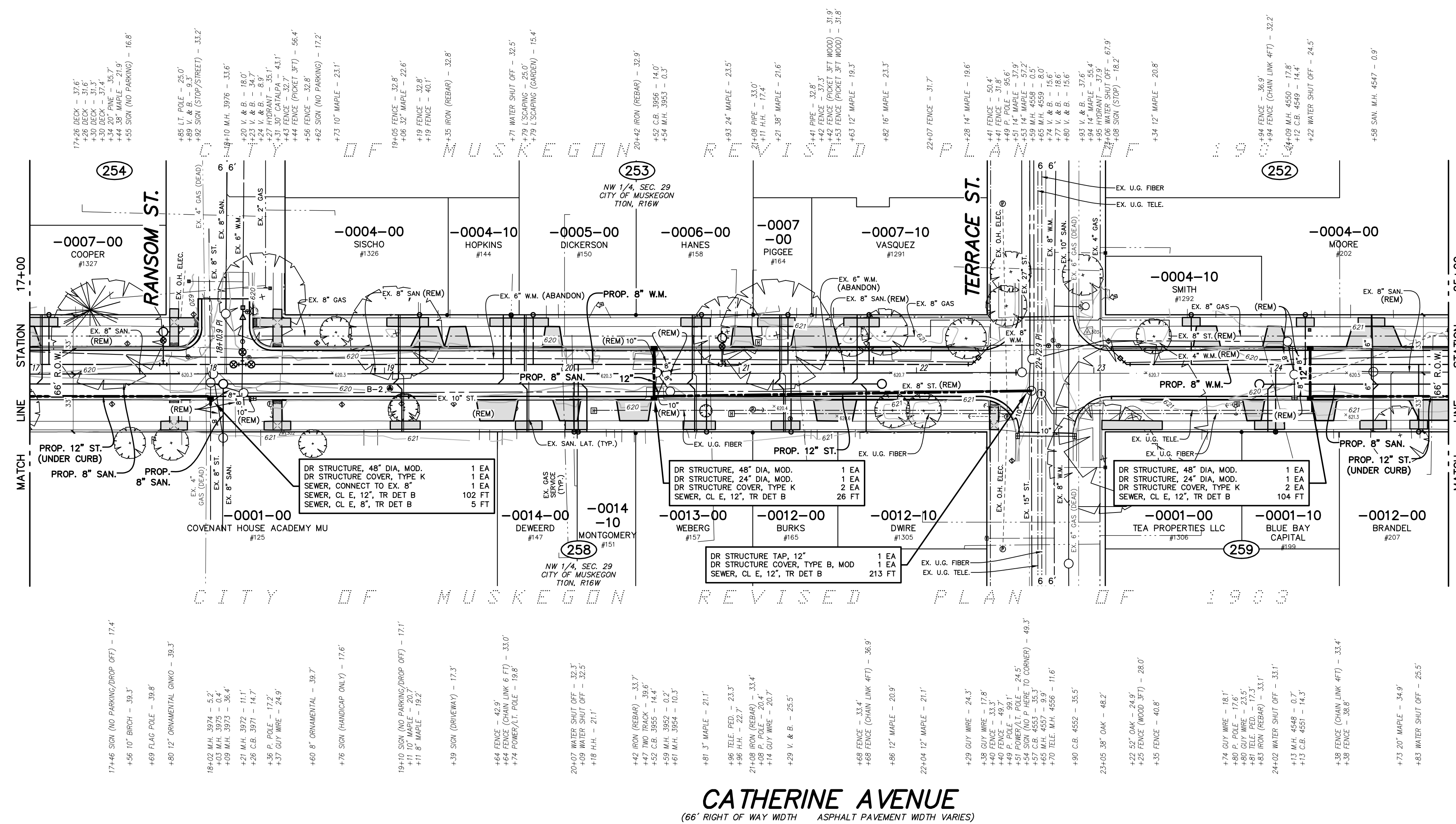
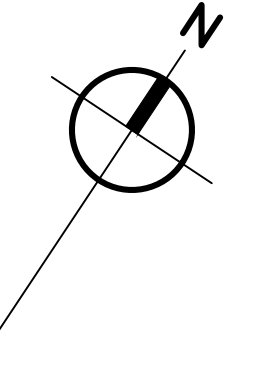
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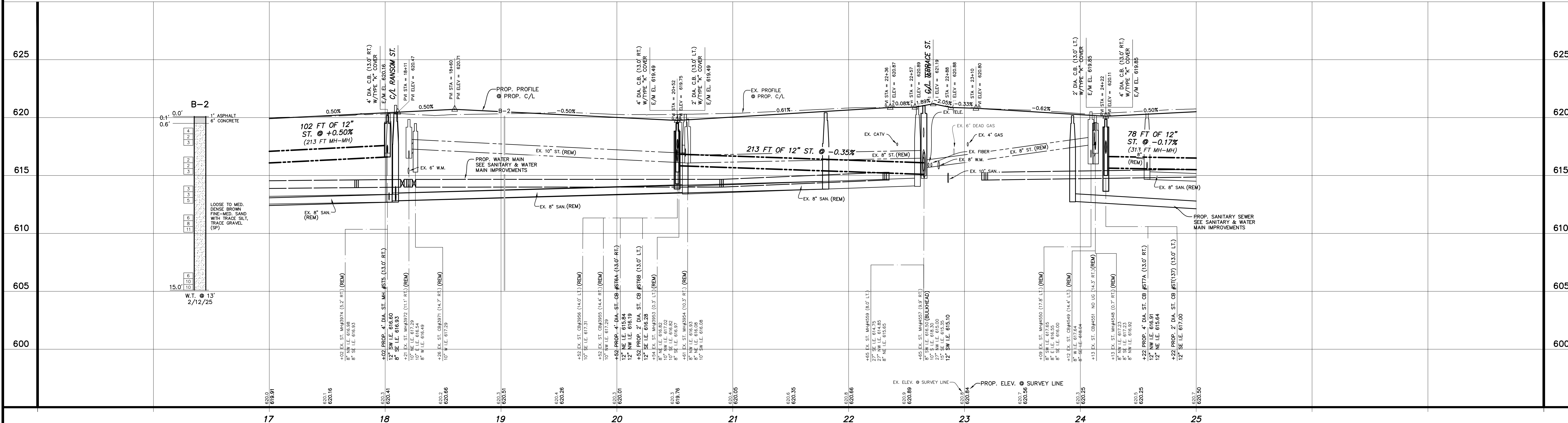
PROPOSED
PAVEMENT LEGEND

- PROPOSED HMA SURFACE
- PROPOSED DRIVEWAY,
NONREINFORCED CONC., 6 INCH OR
SIDEWALK, CONC., 4/6 INCH
CONC. PAVT., NONREINFORCED, 8 INCH

NOTE: PROPOSED PAVEMENT ON
STREET & INTERSECTIONS NOT
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CATHERINE AVENUE
(66' RIGHT OF WAY WIDTH ASPHALT PAVEMENT WIDTH VARIES)



811
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NO.	REVISIONS	BY	DATE	DRAWN
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CITY OF MUSKEGON
MUSKEGON COUNTY, MICHIGAN

STREET IMPROVEMENTS
CATHERINE AVENUE

PROJECT NO.
2240838

SHEET NO.
14 OF 22

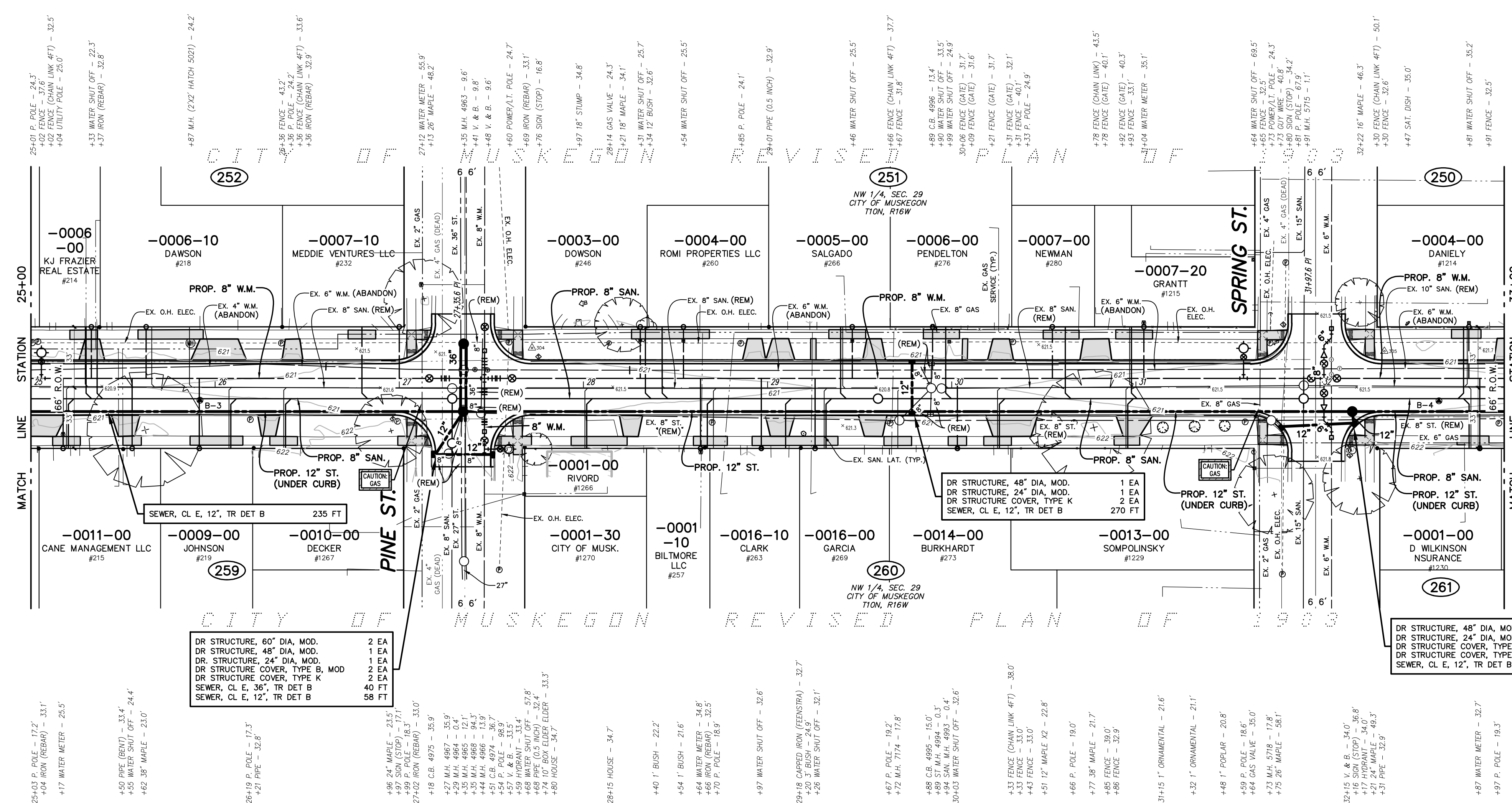
B.M.	EL. 622.50		
HOUSE 246 CATHERINE AVE. TOP OF SW COR. BOTTOM CONCRETE STEP (1.0 A/GROUND)			
B.M.	EL. 622.87		
SPRING ST. AND CATHERINE AVE. SW QUADRANT OF INTERSECTION. SET RR SPIKE IN EAST SIDE POWER LIGHT POLE (1.0 A/GROUND)			
CONTROL POINT TABLE			
POINT No.	NORTHING	EASTING	ELEVATION
304	635666.20	1262461.27	621.89
305	636105.16	12625057.62	621.93

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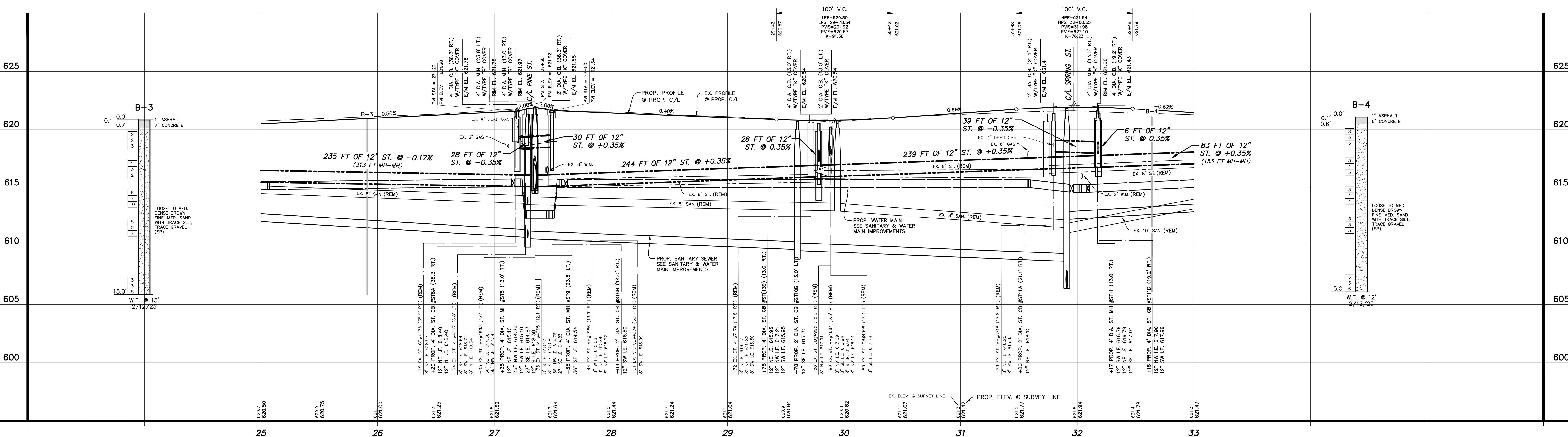
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DATE: FEB '25
CHECKED: M.R.H.
DATE: MAY '25

CITY OF MUSKEGON
MUSKEGON COUNTY, MICHIGAN

STREET IMPROVEMENTS
CATHERINE AVENUE

PROJECT NO. 2240838
SHEET NO. 15 OF 22

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B.M. EL. 623.15
WOOD ST. AND CATHERINE AVE. 44'±
SOUTH AND 48'± WEST OF CENTERLINE "X"
CHISELED SQUARE TOP OF NW END CURB
ISLAND. (0.5 ABOVE ASPH. PARKING)

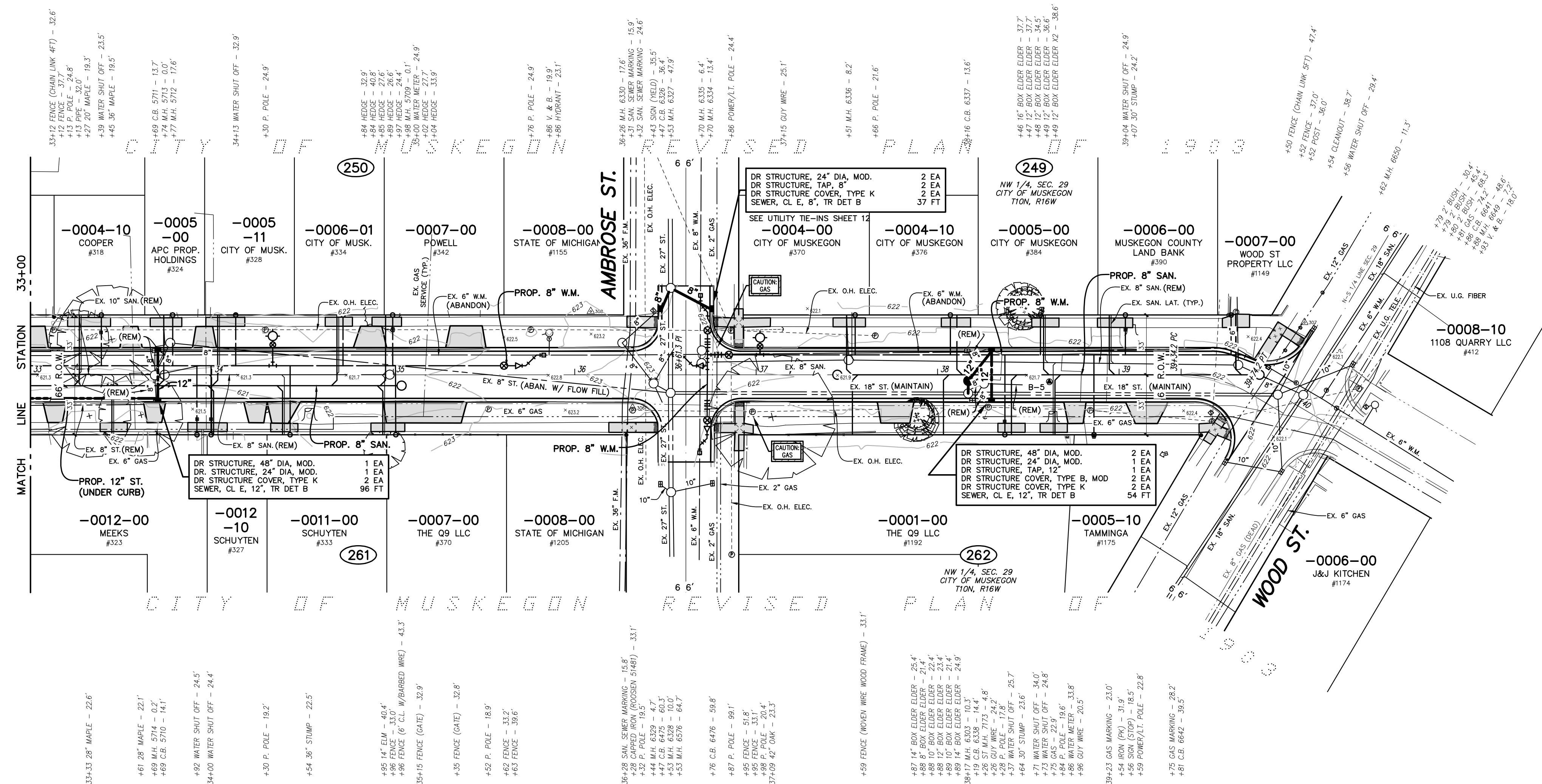
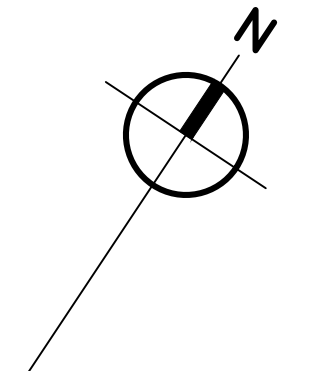
POINT NO.	NORTHING	EASTING	ELEVATION
306	636279.07	1262546.49	623.41
307	636511.80	12625708.35	622.48
308	636312.02	12623569.14	623.20

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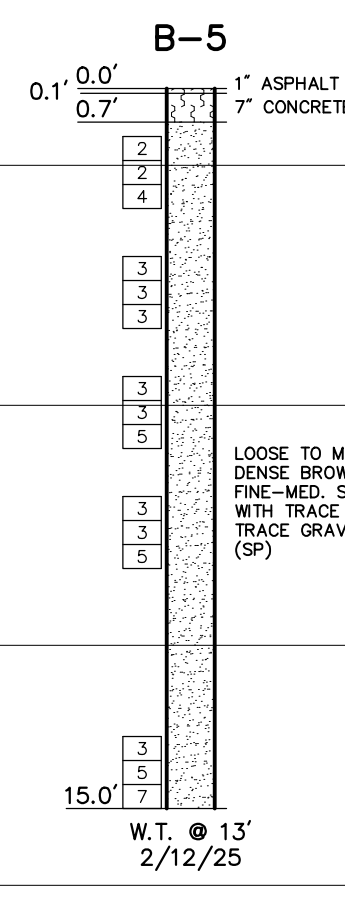
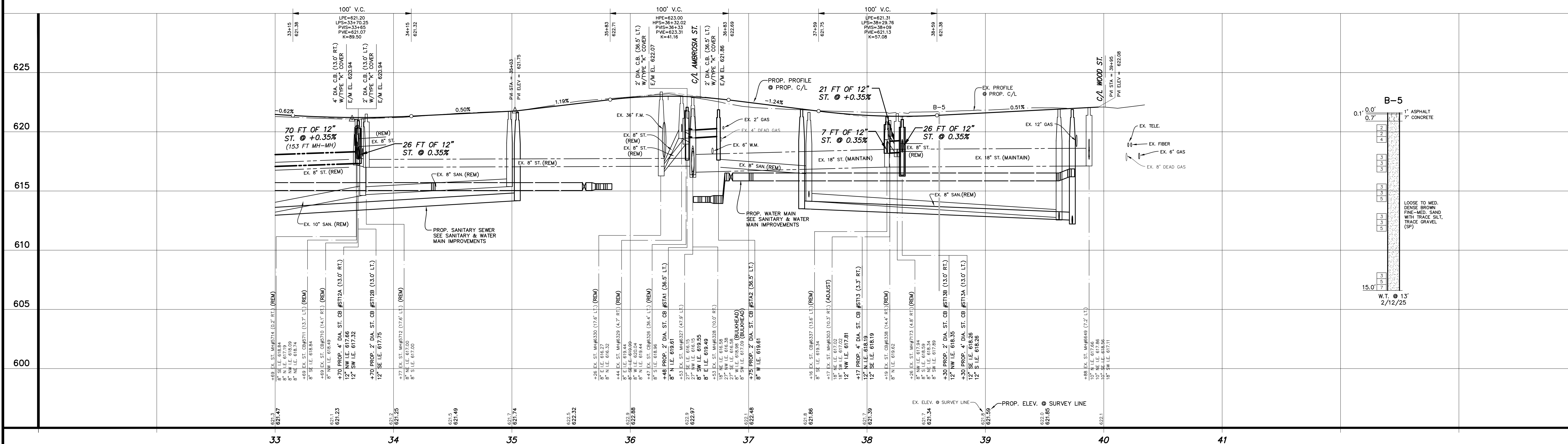
PROPOSED
PAVEMENT LEGEND

- PROPOSED HMA SURFACE
- PROPOSED DRIVEWAY,
NONREINF CONC, 6 INCH OR
CONC PAVT, NONREINF, 8 INCH

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MUSKOGON COUNTY, MICHIGAN

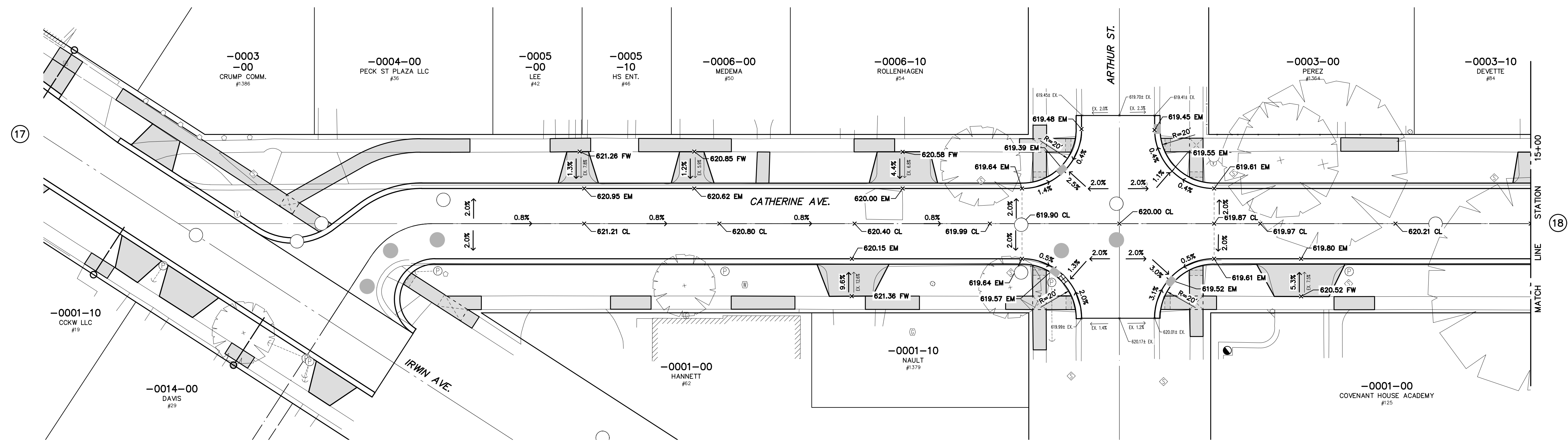
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CHECKED: FEB. '25
DATE: M.R.H.
DATE: MAY '25

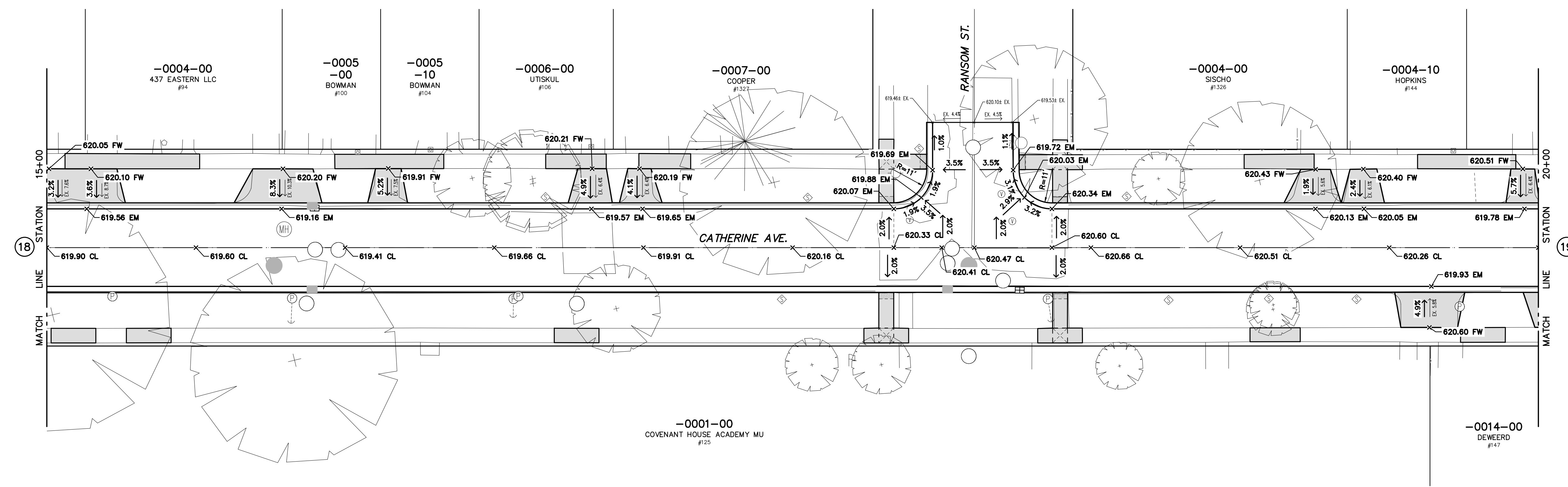
PROJECT NO.
2240838

SHEET NO.
16 OF 22

STREET IMPROVEMENTS
CATHERINE AVENUE



GRADING DETAILS – CATHERINE AVE. North
 SCALE : 1" = 20'

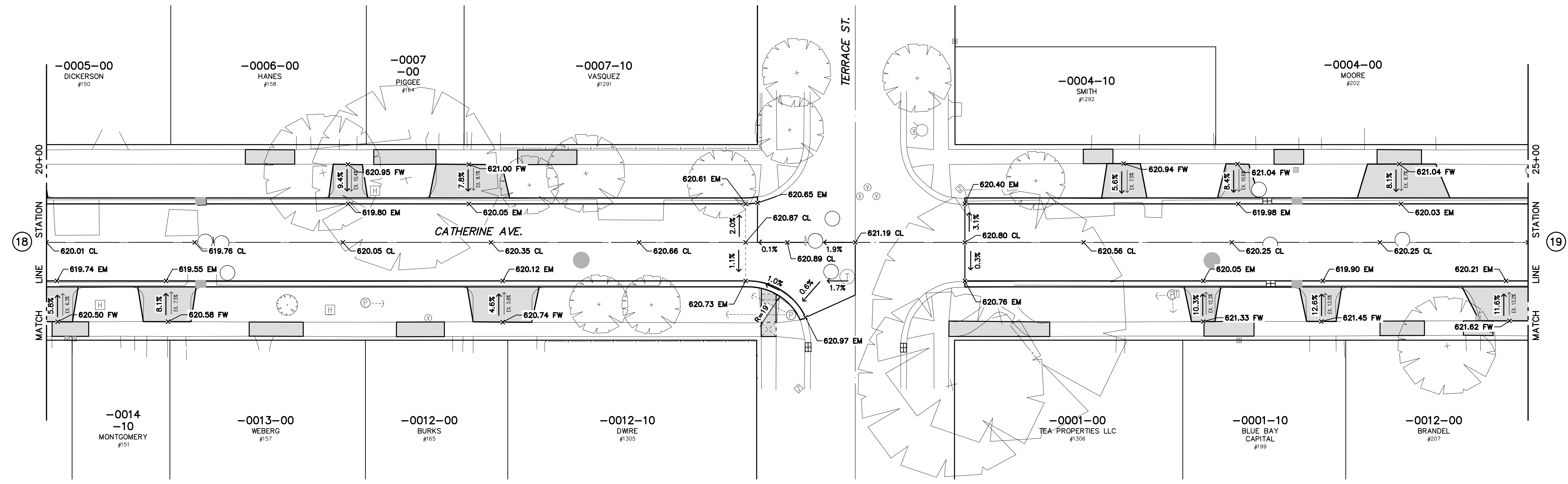


GRADING DETAILS – CATHERINE AVE. North
 SCALE : 1" = 20'

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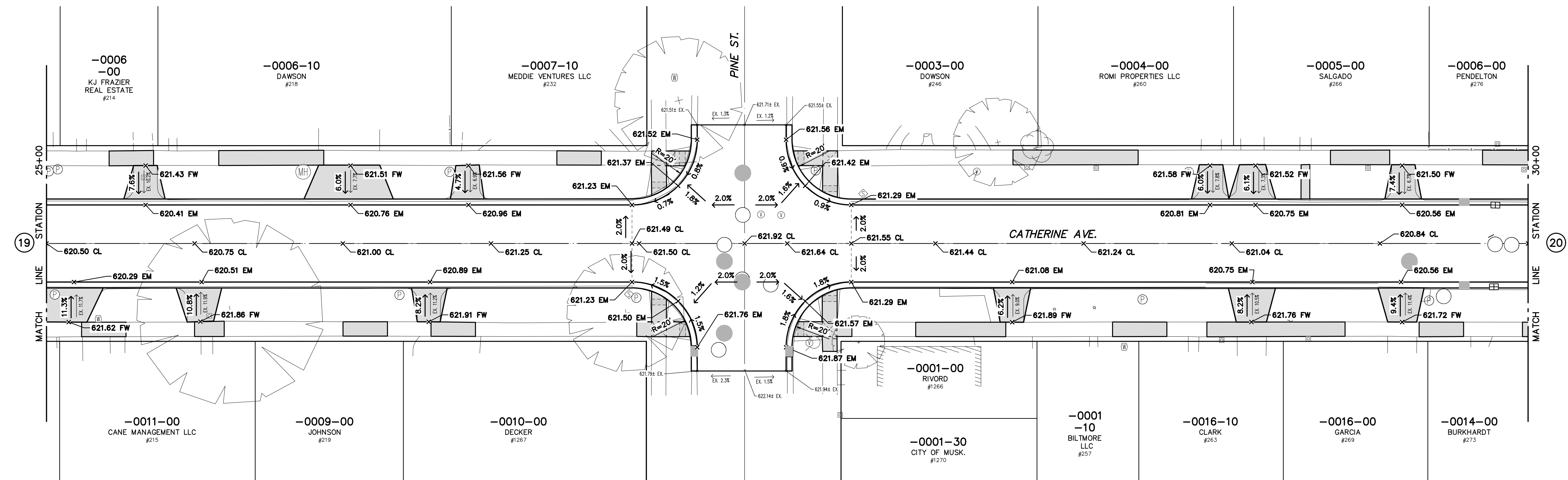
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				DATE: FEB. '25
				CHECKED: M.R.H.
				DATE: MAY '25

	CITY OF MUSKEGON MUSKEGON COUNTY, MICHIGAN	PROJECT NO. 2240838
	STREET IMPROVEMENTS GRADING DETAILS	SHEET NO. 18 OF 22



GRADING DETAILS - CATHERINE AVE. North

SCALE : 1" = 20'



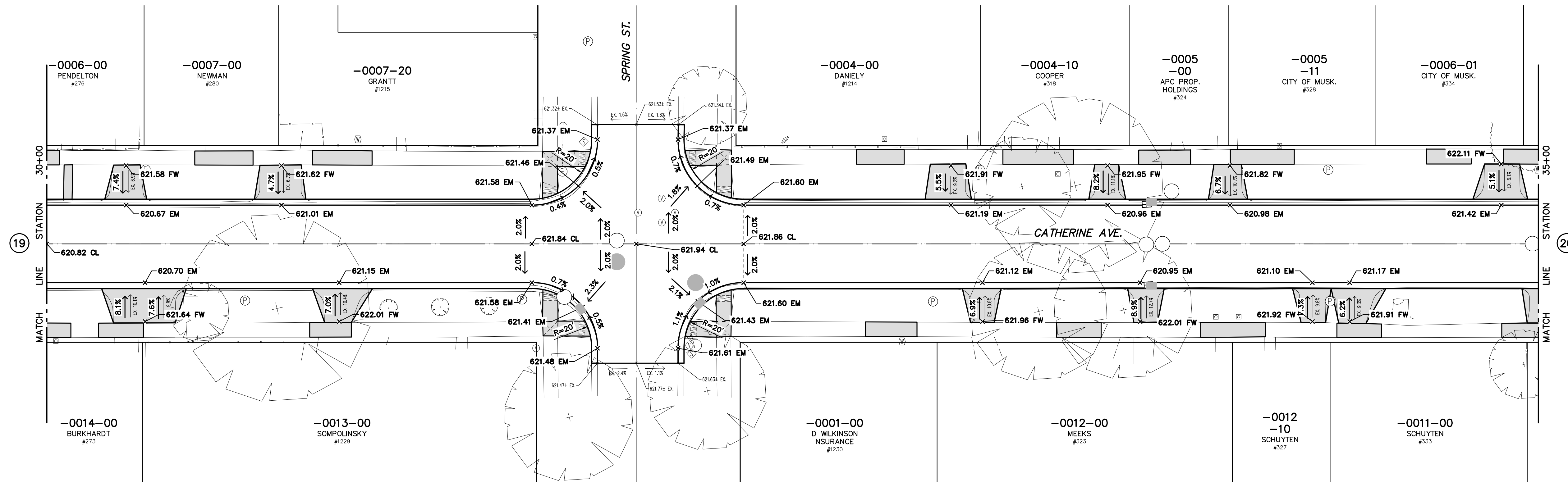
GRADING DETAILS - CATHERINE AVE. North

SCALE : 1" = 20'

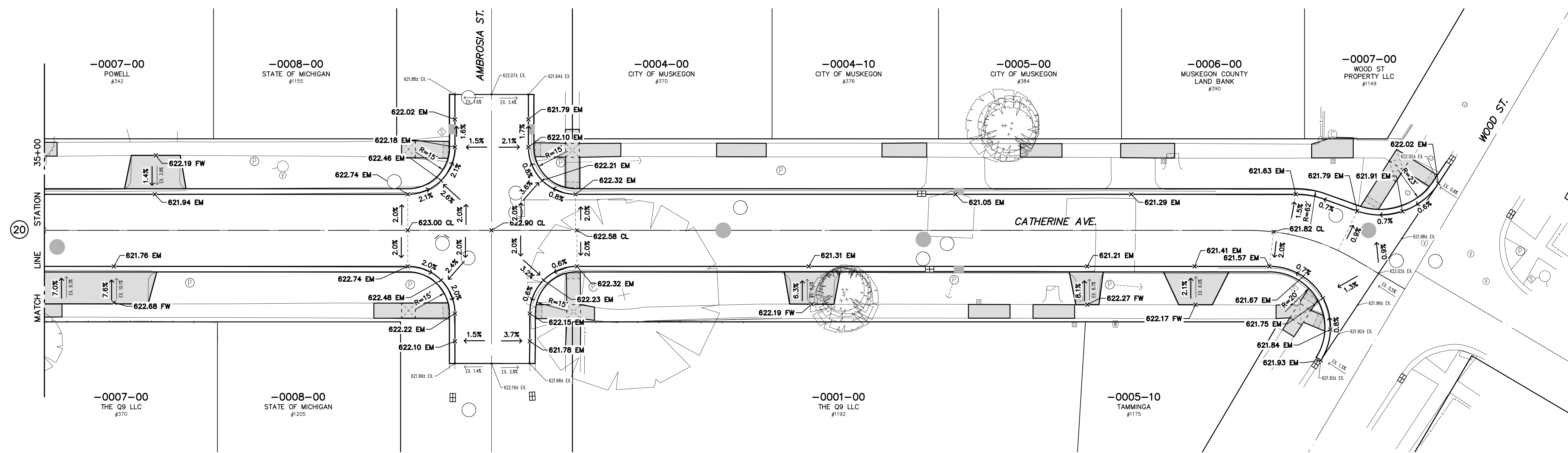
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				CHECKED: M.R.H.
				DATE: MAY '25

	CITY OF MUSKEGON MUSKEGON COUNTY, MICHIGAN STREET IMPROVEMENTS GRADING DETAILS	PROJECT NO. 2240838
		SHEET NO. 19 OF 22

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GRADING DETAILS – CATHERINE AVE. North
 SCALE : 1" = 20'



GRADING DETAILS – CATHERINE AVE. North
 SCALE : 1" = 20'

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CITY OF MUSKEGON
 MUSKEGON COUNTY, MICHIGAN
 STREET IMPROVEMENTS
 GRADING DETAILS

PROJECT NO.
 2240838
 SHEET NO.
 20 OF 22

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