

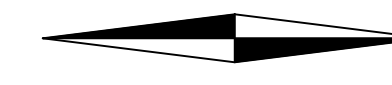


KALAMAZOO, MI



CITY OF KALAMAZOO, MICHIGAN

EAST F AVENUE & NORTH 28TH STREET TRANSMISSION WATERMAIN

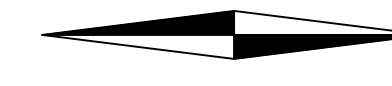


APRIL 2025



ADMINISTRATION

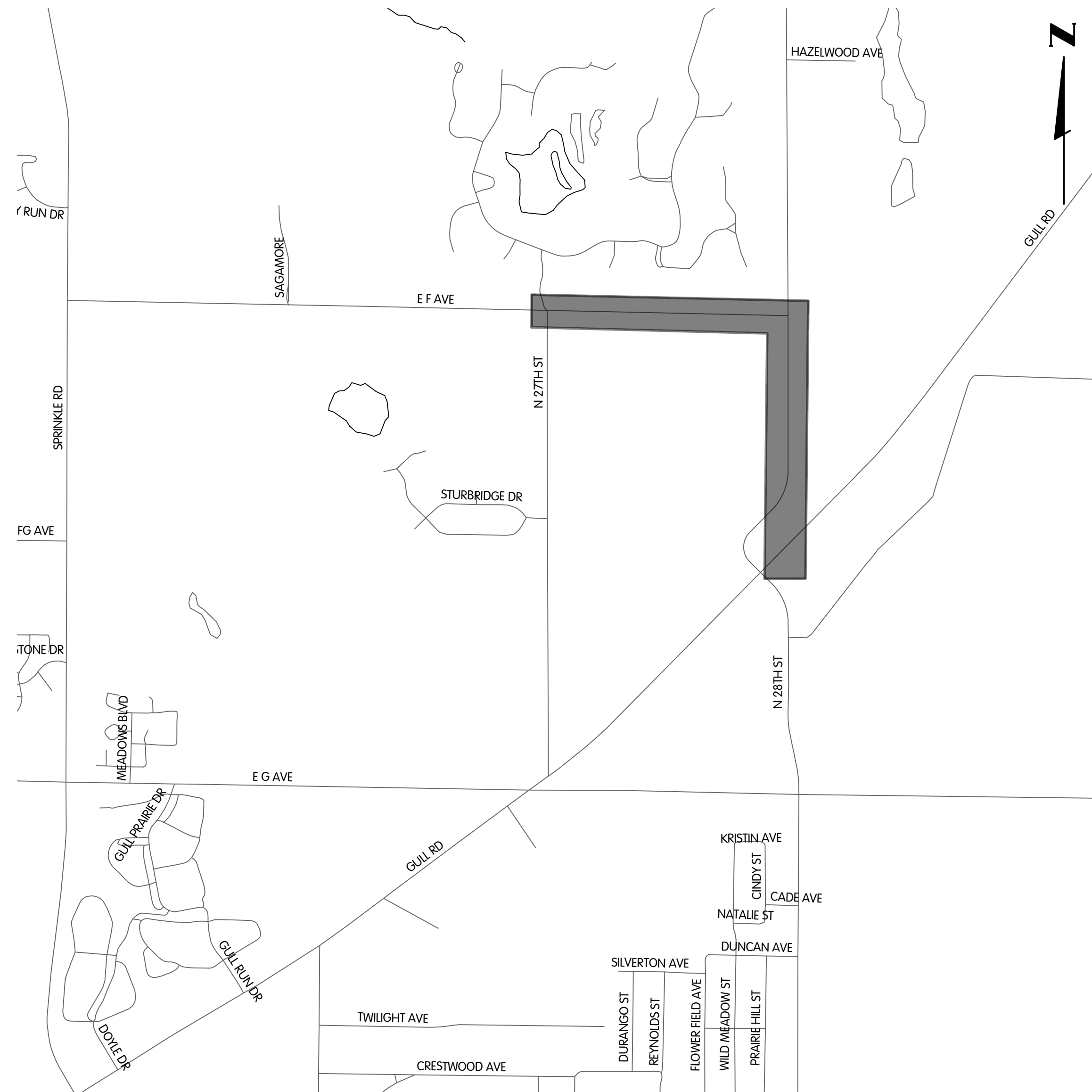
JAMES RITSEMA - CITY MANAGER
 JAMES BAKER, PE - PUBLIC SERVICES DIRECTOR
 ANNA CRANDALL, PE - ASSISTANT CITY ENGINEER - WATER RESOURCES DIVISION
 JAMIE BARNIER - SENIOR CIVIL ENGINEER - WATER RESOURCES DIVISION



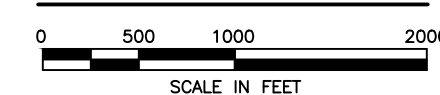
MEMBERS OF COMMISSION

DAVID ANDERSON - MAYOR

JEANNE HESS - VICE MAYOR DON COONEY
 QIANNA DECKER STEPHANIE HOFFMAN
 CHRIS PRAEDEL ALONZO WILSON



LOCATION MAP



ENGINEER:
JONES & HENRY ENGINEERS, LTD.
 4791 CAMPUS DRIVE
 KALAMAZOO, MICHIGAN 49008

OWNER:
CITY OF KALAMAZOO
 241 W SOUTH STREET
 KALAMAZOO, MI 49007

KAL-8189001 COVER-COVER
 6/24/2025 3:34 PM - CFERRELL
 6/24/2025 4:29 PM



Jones & Henry
 Engineers, Ltd.

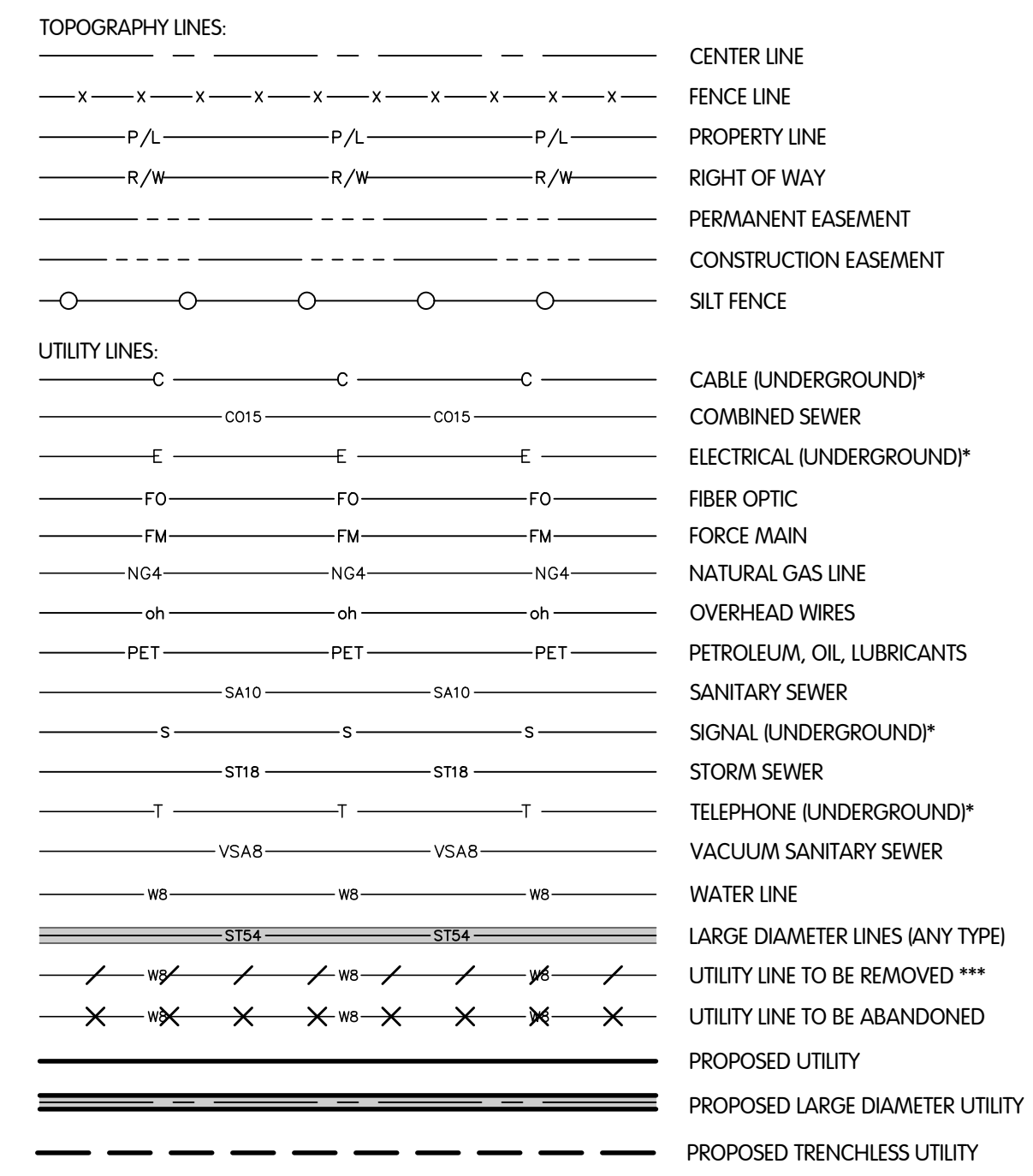
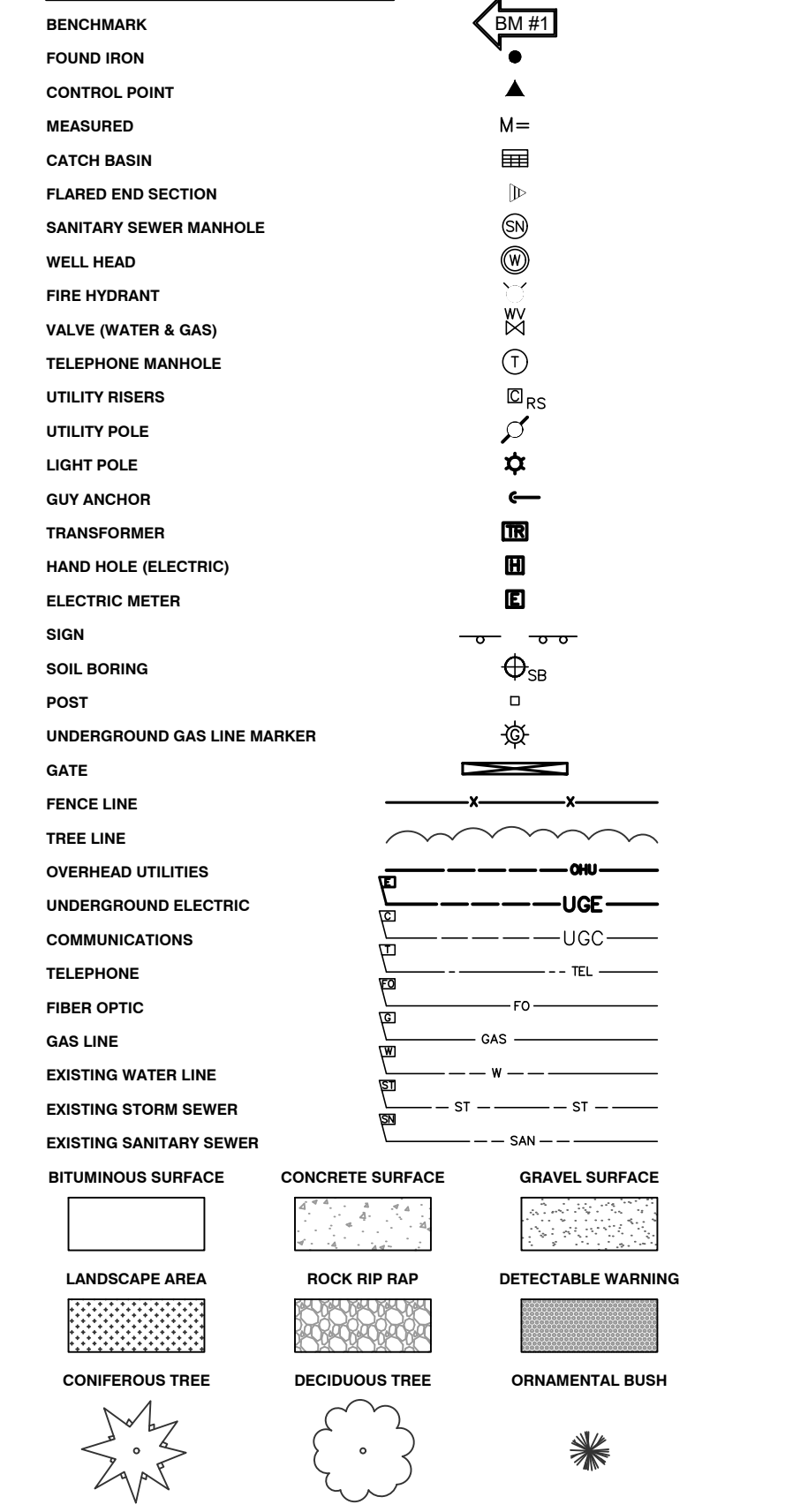
Fluid thinking®
 www.jheng.com

JOB NO. 17-8189.001
 STATUS: ISSUE FOR BID
 DATE: MAY 2025

EXISTING SYMBOLS AND ABBREVIATIONS

| | | | |
|--|---|--|---|
| | AERIAL CONTROL POINT | | POWER LINE MARKER |
| | AERIAL WING POINT | | POWER POLE |
| | AIR CONDITIONING UNIT | | POWER POLE AND TELEPHONE POLE |
| | AXLE | | RAIL ROAD CROSSING SIGNAL |
| | BARBEQUE GRILL | | RAIL ROAD GATE |
| | BENCHMARK | | RAIL ROAD FROG |
| | BOLLARD | | RAIL ROAD MILE POST |
| | BOLT | | RAIL ROAD SPIKE |
| | CABLE TV | | RAIL ROAD SPIKE SET |
| | CATCH BASIN | | SANITARY MANHOLE |
| | CLEAN OUT | | SANITARY VALVE |
| | CONCRETE MONUMENT | | SANITARY VENT |
| | CONIFEROUS TREE | | SANITARY MARKER |
| | CONTROL POINT | | SATELLITE DISH |
| | CONTROLLER POLE MOUNTED | | SEPTIC TANK |
| | CURB INLET | | SHRUB |
| | DECIDUOUS TREE | | SIGN |
| | DECORATIVE ROCK | | SIGNAL |
| | DRAIN TILE | | SOIL BORING |
| | DRILL HOLE | | SPIGOT |
| | DRY WELL | | SPRINKLER HEAD |
| | EDGE OF PAVEMENT | | SPOT ELEVATION *POINT OF ELEVATION IS DECIMAL |
| | ELECTRIC MANHOLE | | STORM LINE MARKER |
| | ELECTRIC METER | | STORM MANHOLE |
| | ELECTRIC PULLBOX | | STUMP |
| | ELECTRIC TRANSFORMER | | SUPPORT POLE |
| | ELECTRIC VAULT | | T-BAR |
| | EXISTING BUILDING | | TACKED HUB |
| | FIRE HYDRANT OR YARD HYDRANT | | TANK FILLER CAP |
| | FLAG POLE | | TC - TOP OF CURB ELEVATION |
| | FORCE MAIN FLUSHING CONNECTION | | G - GUTTER ELEVATION |
| | FOUND MONUMENT BOX | | TELEPHONE BOOTH |
| | GAS LINE MARKER | | TELEPHONE LINE MARKER |
| | GAS LINE VENT | | TELEPHONE MANHOLE |
| | GAS MANHOLE | | TELEPHONE PEDESTAL |
| | GAS METER | | TELEPHONE POLE |
| | GAS TEST STATION | | TELEPHONE POLE AND LIGHT POLE |
| | GAS VALVE | | TOP OF WALK |
| | GAS WELL | | TOPO GRADE SHOT (THE OF THE NUMBER SIGNIFIES THE LOCATION OF THE SHOT) |
| | GOLF BALL WASHER | | TOWER |
| | GUY WIRE | | TPB |
| | HEAD STONE | | TRAFFIC MANHOLE |
| | INLET PROTECTION | | TRAFFIC PULL BOX |
| | INVERT ELEVATION | | UNKNOWN BOX |
| | IRON PIN (OR LABELED POST, MARKER ETC.) | | UNKNOWN MANHOLE |
| | LIGHT, POWER POLE AND TELEPHONE POLE | | UNKNOWN PEDESTAL |
| | LIGHT POLE | | UNKNOWN POLE |
| | LIGHT POLE BOX | | UNKNOWN VALVE |
| | MAILBOX | | UNKNOWN WELL |
| | METER PIT | | VAULT |
| | MINE SPIKE | | VENT PIPE |
| | MONITORING WELL | | WATER LINE MARKER |
| | NEWS PAPER BOX | | WATER MANHOLE |
| | OIL TANK | | WATER MAIN PLUG |
| | PARKING METER | | WATER METER |
| | PAVEMENT BORING | | WATER METER PIT |
| | PAY PHONE | | WATER WELL |
| | PETROLEUM PUMP | | WATER VALVE |
| | POST | | WATER VENT |
| | | | YARD LIGHT |

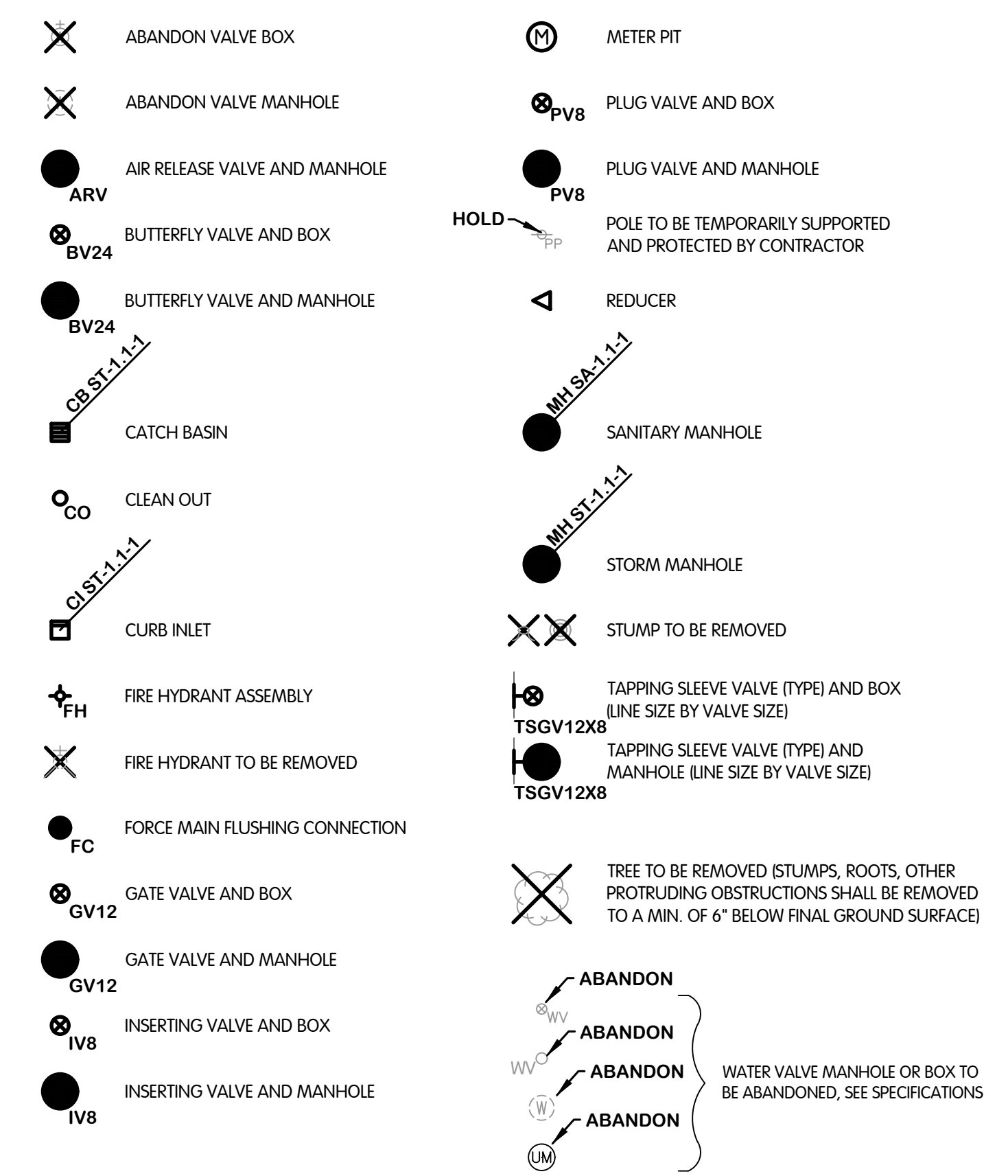
SURVEY LEGEND



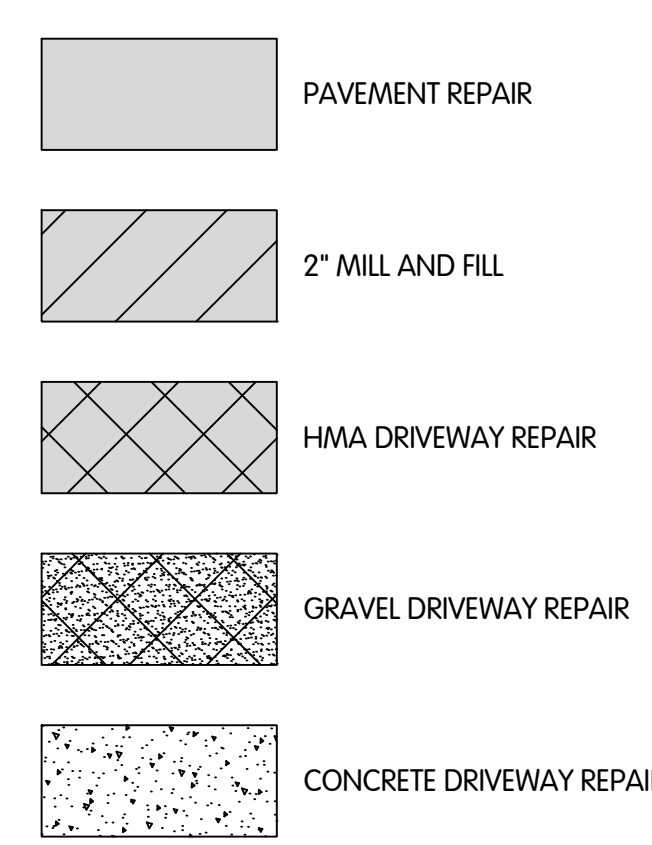
ALPHA DESIGNATION REFERS TO UTILITY TYPE OR SERVICE TYPES, NUMERICAL DESIGNATION REFERS TO PIPE NOMINAL DIAMETER. LINES WITH NO NUMERICAL DESIGNATION ARE OF UNKNOWN SIZE.

* AERIAL LINES, IF SHOWN, ARE DESIGNATED WITH LOWER CASE LETTERS
 ** FOR ELLIPTICAL SEWERS, THE VERTICAL DIMENSION (RISE) IS CALLED OUT FIRST FOLLOWED BY THE HORIZONTAL DIMENSION (SPAN). EXAMPLE: 45X35 (RISE X SPAN) THE VERTICAL DIMENSION IS 45", THE HORIZONTAL DIMENSION IS 35"
 *** INDICATES THE REMOVAL OF ALL SPECIFIED STRUCTURES AND APPURTENANCES.

PROPOSED SYMBOLS



SURFACE RESTORATION LEGEND



MISS DIG INFORMATION

- MISS DIG SURVEY TICKET # 2024080200266 REV: 000
 (INCLUDES INFORMATION RECEIVED THROUGH 09-13-2024)
- CONSUMERS ENERGY (GAS) - 08/02/2024 (MAPS RECEIVED)
 - CITY OF KALAMAZOO - 08/02/2024 (MAPS RECEIVED)
 - CONSUMERS ENERGY (ELECTRIC) - 08/02/2024 (MAPS RECEIVED)
 - COMCAST CATV/FIBER - 08/05/2024 (MAPS RECEIVED)
 - GULL LAKE SEWER & WATER AUTHORITY - 08/06/2024 (MAPS RECEIVED)
 - AT&T - 08/14/2024 (MAPS RECEIVED)
 - METRONET FIBER - 08/19/2024 (MAPS RECEIVED)

DRAWING INDEX

| CAD No. | CONST. No. | SHEET No. | DESCRIPTION |
|--------------------------------|------------|-----------|--|
| GENERAL | | | |
| 8189001G1 | 1 | G-0.1 | INDEX, LEGENDS, ABBREVIATIONS AND GENERAL NOTES |
| 8189001G2 | 2 | G-0.2 | SITE LOCATION, ALIGNMENT PLANS AND SURVEY CONTROLS |
| 8189001G3 | 3 | G-0.3 | SOIL BORING LOGS 1 THRU 5 |
| 8189001G3 | 4 | G-0.4 | SOIL BORING LOGS 6 THRU 11 |
| 8189001G3 | 5 | G-0.5 | SOIL BORING LOGS 11 THRU 17 |
| WATER TRANSMISSION MAIN | | | |
| 8189001W01 | 6 | W-0.1 | WATER DETAILS |
| 8189001W1 | 7 | W-1.1 | NORTH 28TH STREET, WATER PLAN AND PROFILE, STA. 0+00 TO 5+50 |
| 8189001W1 | 8 | W-1.2 | NORTH 28TH STREET, WATER PLAN AND PROFILE, STA. 5+50 TO 11+00 |
| 8189001W1 | 9 | W-1.3 | NORTH 28TH STREET, WATER PLAN AND PROFILE, STA. 11+00 TO 16+50 |
| 8189001W1 | 10 | W-1.4 | NORTH 28TH STREET, WATER PLAN AND PROFILE, STA. 16+50 TO 22+00 |
| 8189001W1 | 11 | W-1.5 | NORTH 28TH STREET, WATER PLAN AND PROFILE, STA. 22+00 TO 27+50 |
| 8189001W1 | 12 | W-1.6 | NORTH 28TH STREET, WATER PLAN AND PROFILE, STA. 27+50 TO 33+00 |
| 8189001W2 | 13 | W-2.1 | EAST F AVENUE, WATER PLAN AND PROFILE, STA. 0+00 TO 5+50 |
| 8189001W2 | 14 | W-2.2 | EAST F AVENUE, WATER PLAN AND PROFILE, STA. 5+50 TO 11+00 |
| 8189001W2 | 15 | W-2.3 | EAST F AVENUE, WATER PLAN AND PROFILE, STA. 11+00 TO 16+50 |
| 8189001W2 | 16 | W-2.4 | EAST F AVENUE, WATER PLAN AND PROFILE, STA. 16+50 TO 22+00 |
| 8189001W2 | 17 | W-2.5 | EAST F AVENUE, WATER PLAN AND PROFILE, STA. 22+00 TO 27+50 |
| 8189001W2 | 18 | W-2.6 | EAST F AVENUE, WATER PLAN AND PROFILE, STA. 27+50 TO 29+00 |
| SURFACE RESTORATION | | | |
| 8189001SR1 | 19 | SR-1.1-2 | EAST F AVENUE, SURFACE RESTORATION, STA. 0+00 TO 11+00 |
| 8189001SR1 | 20 | SR-1.3-4 | EAST F AVENUE, SURFACE RESTORATION, STA. 11+00 TO 22+00 |
| 8189001SR1 | 21 | SR-1.5-6 | EAST F AVENUE, SURFACE RESTORATION, STA. 22+00 TO 29+00 |
| TRAFFIC CONTROL | | | |
| 8189001TC1 | 22 | TC-1.1 | EAST F AVENUE, MAINTENANCE OF TRAFFIC PLAN |
| 8189001TC1 | 23 | TC-1.2 | NORTH 28TH STREET, MAINTENANCE OF TRAFFIC PLAN |

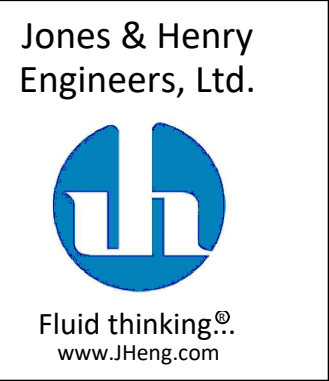
NOTE: ACCURACY OF EXISTING ELEVATIONS AND DIMENSIONS IS NOT GUARANTEED. FIELD VERIFY BEFORE CONSTRUCTION.

KAL-8189001G-0.1 LEGENDS
 4/10/2025 4:22 PM - CFERRELL
 6/24/2025 4:29 PM

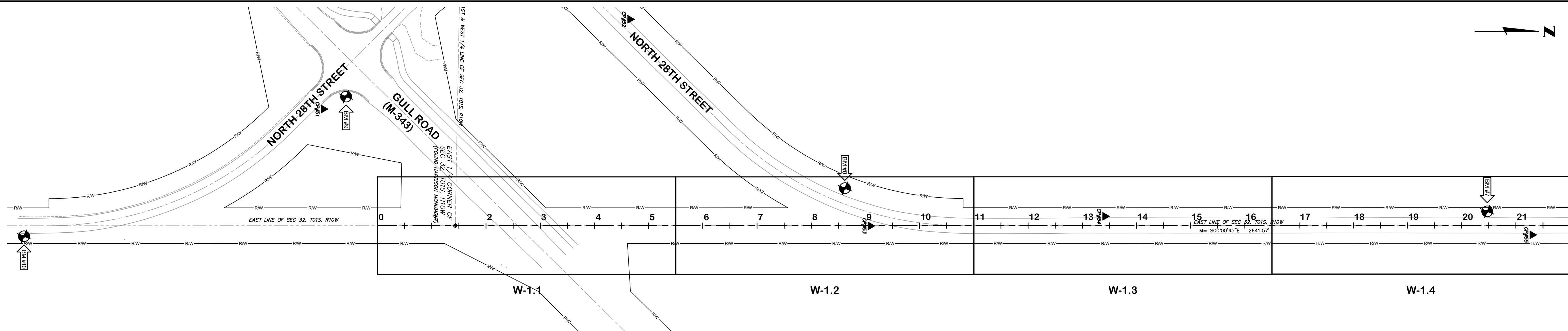


INDEX, LEGENDS, ABBREVIATIONS AND GENERAL NOTES

CITY OF KALAMAZOO, MICHIGAN
 EAST F AVENUE AND NORTH 28TH STREET WATER MAIN



| | |
|-----------|---------------|
| JOB NO. | 17-8189-001 |
| SCALE | AS INDICATED |
| DESIGNED | ERF |
| DRAWN | AJB |
| CHECKED | TLK |
| STATUS | ISSUE FOR BID |
| DATE | MAY 2025 |
| SHEET NO. | G-0.1 |
| OF | 23 |



BENCHMARK DATA

NAVD '88 AS DERIVED FROM GPS OBSERVATIONS UTILIZING M.D.O.T. CORRS GEOID 18

BM #1 EL= 920.78' (NAVD '88)
60D SPIKE IN NORTH SIDE OF 40" DECIDUOUS TREE, LOCATED 33'± SOUTH OF CENTERLINE OF EAST F AVENUE, AND 25'± EAST OF CENTERLINE OF DRIVE TO #6581 EAST F AVENUE.

BM #2 EL= 917.16' (NAVD '88)
60D SPIKE IN NORTH SIDE OF 30" DECIDUOUS TREE, LOCATED 33'± NORTH OF CENTERLINE OF EAST F AVENUE, AND 110'± EAST OF CENTERLINE OF DRIVE TO #6625 EAST F AVENUE.

BM #3 EL= 917.79' (NAVD '88)
60D SPIKE IN NORTH SIDE OF 24" DECIDUOUS TREE, LOCATED 30'± SOUTH OF CENTERLINE OF EAST F AVENUE, AND DIRECTLY SOUTH OF CENTERLINE OF DRIVE TO #6747 EAST F AVENUE.

BM #4 EL= 916.72' (NAVD '88)
60D SPIKE IN NORTH SIDE OF 30" DECIDUOUS TREE, LOCATED 30'± SOUTH OF CENTERLINE OF EAST F AVENUE, AND 54'± EAST OF CENTERLINE OF DRIVE TO #6791 EAST F AVENUE.

BM #5 EL= 917.04' (NAVD '88)
RAILROAD SPIKE IN NORTH SIDE OF TWIN 22" DECIDUOUS TREE, LOCATED 30'± SOUTH OF CENTERLINE OF EAST F AVENUE, AND 150'± WEST OF CENTERLINE OF DRIVE TO #6915 EAST F AVENUE.

BM #6 EL= 906.76' (NAVD '88)
SET NAIL IN EAST SIDE OF 28" DECIDUOUS TREE, LOCATED 21'± WEST OF CENTERLINE OF NORTH 28TH STREET, AND 92'± SOUTH OF CP#57.

BM #7 EL= 919.87' (NAVD '88)
SET NAIL IN EAST SIDE OF 29" DECIDUOUS TREE, LOCATED 22'± WEST OF CENTERLINE OF NORTH 28TH STREET, AND 92'± SOUTH-WEST OF CP#55.

BM #8 EL= 915.35' (NAVD '88)
SET NAIL IN EAST-SOUTH-EAST SIDE OF UTILITY POLE, LOCATED 24'± WEST OF CENTERLINE OF NORTH 28TH STREET, AND 72'± SOUTH-WEST OF CP#53.

BM #9 EL= 918.58' (NAVD '88)
LAG SCREW IN NORTHWEST SIDE OF LIGHT POLE, LOCATED 44'± SOUTH-SOUTHEAST OF CENTERLINE OF GULL ROAD, AND 33'± NORTHEAST OF CENTERLINE OF NORTH 28TH STREET, AND 42'± NORTHWEST OF CP#51

BM #10 EL= 918.21' (NAVD '88)
"X" ON SOUTHEAST BOLT UNDER "T" IN "TRAVERSE" ON HYDRANT, LOCATED 18'± EAST OF CENTERLINE OF NORTH 28TH STREET, AND 102'± NORTH OF CENTERLINE OF MAIN ENTRANCE TO "ZOETIS FARM".

SURVEYOR'S NOTES

- UTILITIES SHOWN ARE APPROXIMATE LOCATIONS DERIVED FROM ACTUAL FIELD MEASUREMENTS AND AVAILABLE RECORDS. THIS MAP IS NOT TO BE INTERPRETED AS SHOWING EXACT LOCATIONS OR SHOWING ALL UTILITIES IN THE AREA.
- NOTE TO CONTRACTORS: THREE WORKING DAYS BEFORE YOU DIG - CALL MISS DIG AT 811.
- CONTOUR INTERVAL = 1 FOOT.
- BY GRAPHIC PLOTTING ONLY, THIS PROPERTY IS IN ZONE "X" (NO SCREEN) OF THE FLOOD INSURANCE RATE MAP, COMMUNITY PANEL NO. 26077C0225E, WHICH BEARS AN EFFECTIVE DATE OF JULY 31, 2024. ZONE "X" (NO SCREEN) AREAS DETERMINED TO BE AREAS OF MINIMAL FLOOD HAZARD..
- THIS IS NOT INTENDED OR REPRESENTED TO BE A BOUNDARY SURVEY AND IS NOT TO BE RELIED UPON FOR THE ESTABLISHMENT OF ANY FENCE, BUILDING, OR OTHER IMPROVEMENT. LEGAL DESCRIPTION WAS NOT PROVIDED & NO PROPERTY CORNERS WERE SET.
- THE FIELD WORK WAS COMPLETED ON AUGUST 15, 2024.

**NORTH 28TH STREET
STA. 0+00 THRU 22+00**

1"=100'

ALIGNMENT DATA

Alignment: 1-NORTH 28TH STREET

| Tangent Data | PT Station | Northing | Eastng |
|--------------|-----------------|------------------------------|-------------|
| Description | 0 | 307985.7430 | 12818744.10 |
| Start: | 1+43.31 | 308129.0527 | 12818744.09 |
| End: | Length: 143.31' | Course: "N 00° 00' 25.93" W" | |

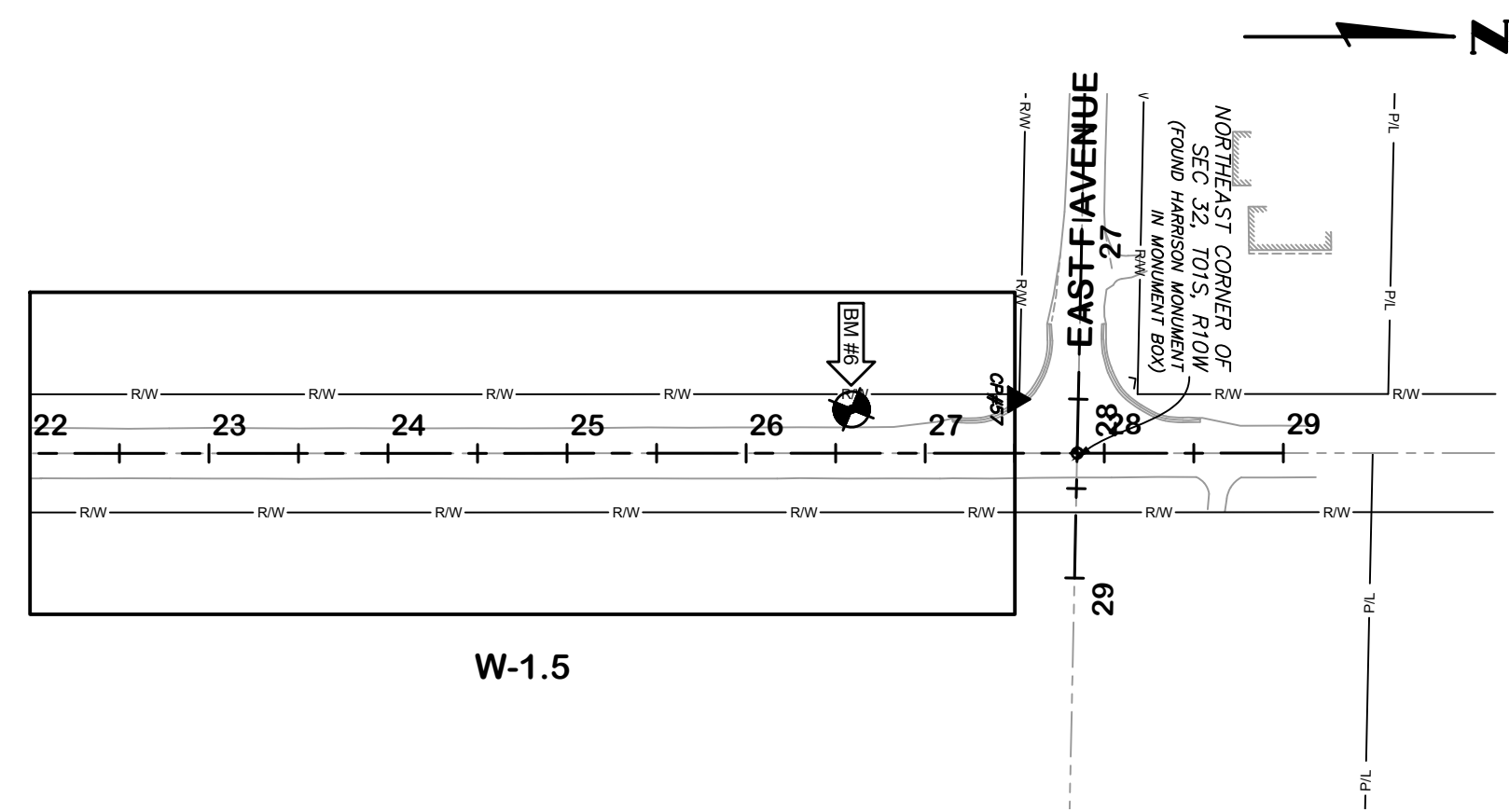
| Tangent Data | PT Station | Northing | Eastng |
|--------------|------------------|------------------------------|-------------|
| Description | 1+43.31 | 308129.0527 | 12818744.09 |
| Start: | 29+00.00 | 310885.7428 | 12818743.48 |
| End: | Length: 2756.69' | Course: "N 00° 00' 45.47" W" | |

Alignment: 2-EAST F AVENUE

| Tangent Data | PT Station | Northing | Eastng |
|--------------|-----------------|------------------------------|-------------|
| Description | 0 | 310831.1987 | 12815913.94 |
| Start: | 1+70.05 | 310826.9431 | 12816083.94 |
| End: | Length: 170.05' | Course: "S 88° 33' 57.54" E" | |

| Tangent Data | PT Station | Northing | Eastng |
|--------------|------------------|------------------------------|-------------|
| Description | 1+70.05 | 310826.9431 | 12816083.94 |
| Start: | 28+30.21 | 310770.621 | 12818743.5 |
| End: | Length: 2660.16' | Course: "S 88° 47' 12.54" E" | |

| Tangent Data | PT Station | Northing | Eastng |
|--------------|----------------|------------------------------|-------------|
| Description | 28+30.21 | 310770.621 | 12818743.5 |
| Start: | 29+00.00 | 310769.1429 | 12818813.28 |
| End: | Length: 69.79' | Course: "S 88° 47' 11.21" E" | |



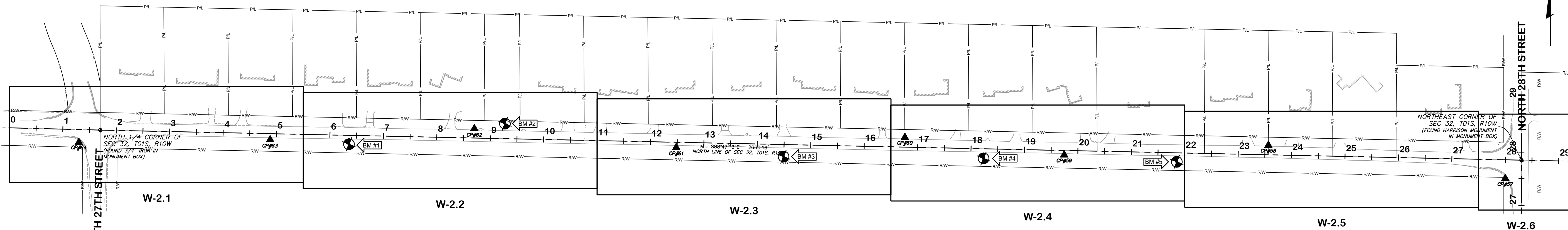
**NORTH 28TH STREET
STA. 22+00 THRU 29+00**

1"=100'

SURVEY CONTROL

GROUND COORDINATES AS DERIVED FROM THE MICHIGAN STATE PLANE COORDINATE SYSTEM, SOUTH ZONE, INTERNATIONAL FEET. H SURVEY DATA AND CONTROL HAVE BEEN PROJECTED TO THE GROUND AT THE EAST 1/4 CORNER OF SEC 32, T01S, R10W - HARRISON MONUMENT IN MONUMENT BOX (GRID TO GROUND SCALE FACTOR: 1.0000866731)

| POINT NUMBER | NORTHING (GROUND) | EASTING (GROUND) |
|--------------|-------------------|------------------|
| 50 | 308031.8989' | 12818286.5472' |
| 51 | 307886.0401' | 12818528.5900' |
| 52 | 308451.4502' | 12818362.7961' |
| 53 | 308894.8078' | 12818744.5533' |
| 54 | 309327.6790' | 12818726.7898' |
| 55 | 310115.7913' | 12818761.0946' |
| 56 | 310736.1499' | 12818713.3907' |
| 57 | 310736.1428' | 12818713.3368' |
| 58 | 310798.5691' | 12818269.9923' |
| 59 | 310780.2888' | 12817887.8414' |
| 60 | 310813.3583' | 12817589.7249' |
| 61 | 310794.2199' | 12817161.7019' |
| 62 | 310829.7157' | 12816784.0185' |
| 63 | 310808.9423' | 12816401.8179' |
| 64 | 310803.8349' | 12816043.8593' |



**EAST F AVENUE
STA. 0+00 THRU 29+00**

1"=100'

KAL-818900162-G-0.2
4/10/2025 4:26 PM - CFERRELL
6/24/2025 4:29 PM

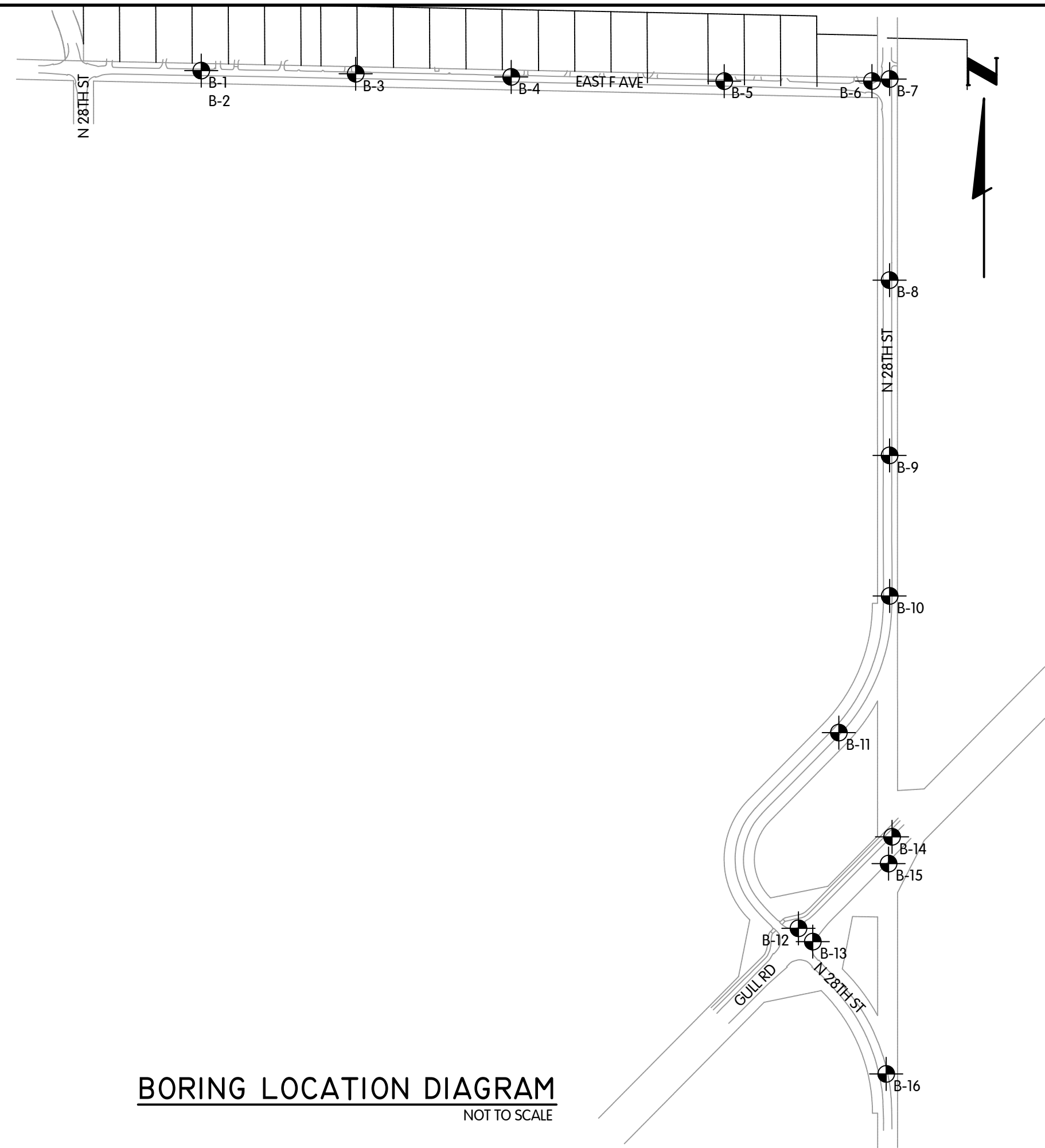
**SITE LOCATION AND
ALIGNMENT PLAN AND REPORT
SURVEY CONTROLS**

CITY OF KALAMAZOO, MICHIGAN
EAST F AVENUE AND NORTH 28TH STREET WATER MAIN

Jones & Henry
Engineers, Ltd.

Fluid thinking.[®]
www.JHeng.com

| | |
|-----------|---------------|
| JOB NO. | 17-8189.001 |
| SCALE | AS INDICATED |
| DESIGNED | ERF |
| DRAWN | AJB |
| CHECKED | TLK |
| STATUS | ISSUE FOR BID |
| DATE | MAY 2025 |
| SHEET NO. | G-0.2 |
| | 2 OF 23 |



DocuSign Envelope ID: 971A5606-D3E0-43E8-8613-D9F82CB3D123



BORING LOG TERMINOLOGY

| UNIFIED SOIL CLASSIFICATION AND SYMBOL CHART | LABORATORY CLASSIFICATION CRITERIA | VISUAL MANUAL PROCEDURE |
|---|--|---|
| <p>COARSE-GRAINED SOIL (more than 50% of material is larger than No. 200 sieve size.)</p> <p>GRAVEL More than 50% of coarse fraction larger than No. 4 sieve size</p> <p>SAND 50% or more of coarse fraction smaller than No. 4 sieve size</p> <p>FINE-GRAINED SOILS (50% or more of material is smaller than No. 200 sieve size)</p> <p>SILT AND CLAY Liquid limit less than 50%</p> <p>SILT AND CLAY Liquid limit 50% or greater</p> <p>HEAVILY ORGANIC SOIL</p> | <p>GW $D_{60} > 4; C_u > 6; D_{10} < 0.075$</p> <p>GM $D_{60} > 4; C_u > 6; D_{10} < 0.075$</p> <p>GC $D_{60} > 4; C_u > 6; D_{10} < 0.075$</p> <p>SW $D_{60} > 4; C_u > 6; D_{10} < 0.075$</p> <p>SP $D_{60} > 4; C_u > 6; D_{10} < 0.075$</p> <p>SM $D_{60} > 4; C_u > 6; D_{10} < 0.075$</p> <p>SC $D_{60} > 4; C_u > 6; D_{10} < 0.075$</p> <p>ML $U < 0.75; L < 0.25$</p> <p>CL $U < 0.75; L < 0.25$</p> <p>OL $U < 0.75; L < 0.25$</p> <p>MH $U < 0.75; L < 0.25$</p> <p>CH $U < 0.75; L < 0.25$</p> <p>PT $U < 0.75; L < 0.25$</p> | <p>When laboratory tests are not performed to confirm the classification of soils exhibiting borderline classifications, the two possible classifications would be separated with a dash, as follows:</p> <p>For soils where it is difficult to distinguish if it is a coarse or fine-grained soil:</p> <ul style="list-style-type: none"> SC/CL (CLAYEY SAND to SANDY LEAN CLAY) SM/ML (SILTY SAND to SANDY SILT) GC/CL (CLAYEY GRAVEL to GRAVELLY LEAN CLAY) GM/ML (SILTY GRAVEL to GRAVELLY SILT) <p>For soils where it is difficult to distinguish if it is sand or gravel, poorly or well-graded sand or gravel, silty or clayey, or plastic or non-plastic silt or clay:</p> <ul style="list-style-type: none"> SP/SW (SAND with Gravel to GRAVEL with Sand) SM/ML (SILTY SAND with Gravel to SILTY GRAVEL with Sand) SP/SM (SAND or SAND with Gravel) GM/ML (GRAVEL or GRAVEL with Sand) SC/SM (CLAYEY SILTY SAND to SILTY CLAYEY SAND) ML/CL (CLAYEY SILT) CL/ML (SILTY CLAY) ML/CH (CLAYEY SILT) CH/CL (LEAN to FAT CLAY) ML/ML (ELASTIC SILT to SILT) <p>DRILLING AND SAMPLING ABBREVIATIONS</p> <p>2ST - Shelby Tube - 2" O.D. 3ST - Shelby Tube - 3" O.D. AS - Auger Sample GS - Grab Sample LS - Line Sample NR - No Recovery PM - Pressuremeter RC - Rock Core diamond bit, NX axis, except where noted SB - Split Barrel Sample 1-3/8" I.D., 2" O.D., except where noted VS - Vane Shear WS - Wash Sample</p> <p>OTHER ABBREVIATIONS</p> <p>WOH - Weight of Hammer WDR - Weight of Rod SP - Soil Probe FID - Flame Ionization Device</p> <p>DEPOSITIONAL FEATURES</p> <p>Parting - as much as 1/16 inch thick Strain - 1/16 inch to 1/2 inch thick Layer - 1/2 inch to 12 inches thick Stratum - greater than 12 inches thick Pocket - deposit of limited lateral extent Lens - unstratified, consolidated or cemented Hardpan/TB - mixture of clay, silt, sand and/or gravel; the size/shape of the constituents vary widely soil deposited by lake water soil irregularly marked with spots of different colors that vary in number and size alternating partings or seams of silt and/or clay Occasional - one or less per foot of thickness Frequent - more than one per foot of thickness Interbedded - strata of soil or beds of rock lying between or alternating with other strata of a different nature</p> <p>DESCRIPTION OF RELATIVE QUANTITIES</p> <p>Trace - particles are present but estimated to be less than 5% Few - 5 to 10% Little - 10 to 25% Some - 30 to 45% Mostly - 50 to 100%</p> <p>CLASSIFICATION TERMINOLOGY AND CORRELATIONS</p> <p>Adhesive Soils</p> <p>Relative Density</p> <p>Very Loose 0 to 4 Loose 5 to 10 Medium Dense 11 to 30 Dense 31 to 50 Very Dense 51 to 80 Extremely Dense Over 81</p> <p>Acceptability</p> <p>Silty Soft 0 to 4 Soft 5 to 10 Stiff 11 to 30 Very Stiff 31 to 50 Hard 51 to 80 Over 81</p> <p>Undrained Shear Strength (kN/m²)</p> <p>0.25 or less 0.5 to 1.0 1.0 to 2.0 2.0 to 4.0 > 4.0 or greater</p> |

DocuSign Envelope ID: 971A5606-D3E0-43E8-8613-D9F82CB3D123



BORING B 1

| PROJECT NAME: F Avenue E and N. 28th Street Water Main | | PROJECT NUMBER: 097141.00 | | | | |
|--|------------------------|--|---------------------|---------------------------------------|---------------------------------|---------|
| CLIENT: City of Kalamazoo | | PROJECT LOCATION: Richland Township, Michigan | | | | |
| DATE STARTED: 7/17/24 | COMPLETED: 7/17/24 | BORING METHOD: Solid-stem Augers | CHECKED BY: NBS/AJR | | | |
| DRILLER: JRN | RIG NO.: 526-CME55-TRK | LOGGED BY: TAG | | | | |
| ELEVATION (FEET) | DEPTH (FEET) | PROFILE DESCRIPTION | DRY DENSITY (pcf) | HAMMER EFFICIENCY 85% DATE: 1/15/2024 | MOISTURE & ATTERBERG LIMITS (%) | REMARKS |
| 920.0 | 0.0 | 6 inches of ASPHALT PAVEMENT | | | | |
| 919.5 | 0.5 | FILL: SAND and GRAVEL | | | | |
| 915.0 | 5.0 | Fine to Medium SAND- Brown- Moist- Very Loose to Medium Dense (SP) | | | | |
| 910.0 | 10.0 | END OF BORING AT 10.0 FEET. | | | | |

DocuSign Envelope ID: 971A5606-D3E0-43E8-8613-D9F82CB3D123



BORING B 2

| PROJECT NAME: F Avenue E and N. 28th Street Water Main | | PROJECT NUMBER: 097141.00 | | | | |
|--|------------------------|--|---------------------|---------------------------------------|---------------------------------|---------|
| CLIENT: City of Kalamazoo | | PROJECT LOCATION: Richland Township, Michigan | | | | |
| DATE STARTED: 7/17/24 | COMPLETED: 7/17/24 | BORING METHOD: Solid-stem Augers | CHECKED BY: NBS/AJR | | | |
| DRILLER: JRN | RIG NO.: 526-CME55-TRK | LOGGED BY: TAG | | | | |
| ELEVATION (FEET) | DEPTH (FEET) | PROFILE DESCRIPTION | DRY DENSITY (pcf) | HAMMER EFFICIENCY 85% DATE: 1/15/2024 | MOISTURE & ATTERBERG LIMITS (%) | REMARKS |
| 920.0 | 0.0 | 3 inches of ASPHALT PAVEMENT | | | | |
| 919.5 | 0.5 | FILL: SAND and GRAVEL | | | | |
| 915.0 | 5.0 | Fine to Medium SAND- Brown- Moist- Loose to Very Loose (SP) | | | | |
| 910.0 | 10.0 | Fine to Medium CLAYEY SAND with Gravel- Brown- Moist- Loose (SC) | | | | |
| 905.0 | 15.0 | Fine to Medium SAND with Gravel- Brown- Moist- Very Loose (SP) | | | | |
| 900.0 | 20.0 | Fine to Medium SAND- Brown- Moist- Loose (SP) | | | | |
| 895.0 | 25.0 | END OF BORING AT 15.0 FEET. | | | | |

DocuSign Envelope ID: 971A5606-D3E0-43E8-8613-D9F82CB3D123



BORING B 3

| PROJECT NAME: F Avenue E and N. 28th Street Water Main | | PROJECT NUMBER: 097141.00 | | | | |
|--|------------------------|--|---------------------|---------------------------------------|---------------------------------|---------|
| CLIENT: City of Kalamazoo | | PROJECT LOCATION: Richland Township, Michigan | | | | |
| DATE STARTED: 7/17/24 | COMPLETED: 7/17/24 | BORING METHOD: Solid-stem Augers | CHECKED BY: NBS/AJR | | | |
| DRILLER: JRN | RIG NO.: 526-CME55-TRK | LOGGED BY: TAG | | | | |
| ELEVATION (FEET) | DEPTH (FEET) | PROFILE DESCRIPTION | DRY DENSITY (pcf) | HAMMER EFFICIENCY 85% DATE: 1/15/2024 | MOISTURE & ATTERBERG LIMITS (%) | REMARKS |
| 915.0 | 0.0 | 4 inches of ASPHALT PAVEMENT | | | | |
| 914.5 | 0.5 | FILL: SAND and GRAVEL | | | | |
| 912.0 | 3.0 | Sandy LEAN CLAY- Brown- Very Stiff (CL) | | | | |
| 910.0 | 5.0 | Fine to Medium SAND with Clay- Brown- Moist- Loose (SP-SC) | | | | |
| 905.0 | 10.0 | Fine to Medium CLAYEY SAND with Gravel- Brown- Moist- Loose (SC) | | | | |
| 900.0 | 15.0 | Fine to Medium SAND- Brown- Moist- Medium Dense (SP) | | | | |
| 895.0 | 20.0 | END OF BORING AT 10.0 FEET. | | | | |

DocuSign Envelope ID: 971A5606-D3E0-43E8-8613-D9F82CB3D123



BORING B 4

| PROJECT NAME: F Avenue E and N. 28th Street Water Main | | PROJECT NUMBER: 097141.00 | | | | |
|--|------------------------|---|---------------------|---------------------------------------|---------------------------------|---------|
| CLIENT: City of Kalamazoo | | PROJECT LOCATION: Richland Township, Michigan | | | | |
| DATE STARTED: 7/17/24 | COMPLETED: 7/17/24 | BORING METHOD: Solid-stem Augers | CHECKED BY: NBS/AJR | | | |
| DRILLER: JRN | RIG NO.: 526-CME55-TRK | LOGGED BY: TAG | | | | |
| ELEVATION (FEET) | DEPTH (FEET) | PROFILE DESCRIPTION | DRY DENSITY (pcf) | HAMMER EFFICIENCY 85% DATE: 1/15/2024 | MOISTURE & ATTERBERG LIMITS (%) | REMARKS |
| 917.0 | 0.0 | 5 inches of ASPHALT PAVEMENT | | | | |
| 916.5 | 0.5 | FILL: SAND and GRAVEL | | | | |
| 914.0 | 3.0 | Fine to Medium SAND with Silt- Brown- Moist- Loose (SP-SM) | | | | |
| 911.5 | 5.5 | Fine to Medium CLAYEY SAND- Brown- Moist- Loose (SC) | | | | |
| 909.0 | 8.0 | Fine to Medium CLAYEY SAND with Gravel- Brown- Moist- Loose (SC) | | | | |
| 906.5 | 10.5 | Fine to Medium SAND with Silt- Frequent Clay Sand Partings- Brown- Moist- Loose (SP-SM) | | | | |
| 895.0 | 20.0 | END OF BORING AT 10.0 FEET. | | | | |

KAL-8189001G3-G-03 BORE LOG
1/23/2025 8:01 AM - ABL/MSH
6/24/2025 4:29 PM

SOIL BORING LOGS
1 THRU 5
CITY OF KALAMAZOO, MICHIGAN
EAST F AVENUE AND NORTH 28TH STREET WATER MAIN

Jones & Henry Engineers, Ltd.

Fluid thinking.
www.JHeng.com

JOB NO. 17-8189-001

SCALE NONE

THIS LINE SCALES IF WHEN PLOTTED TO NOTED SCALE

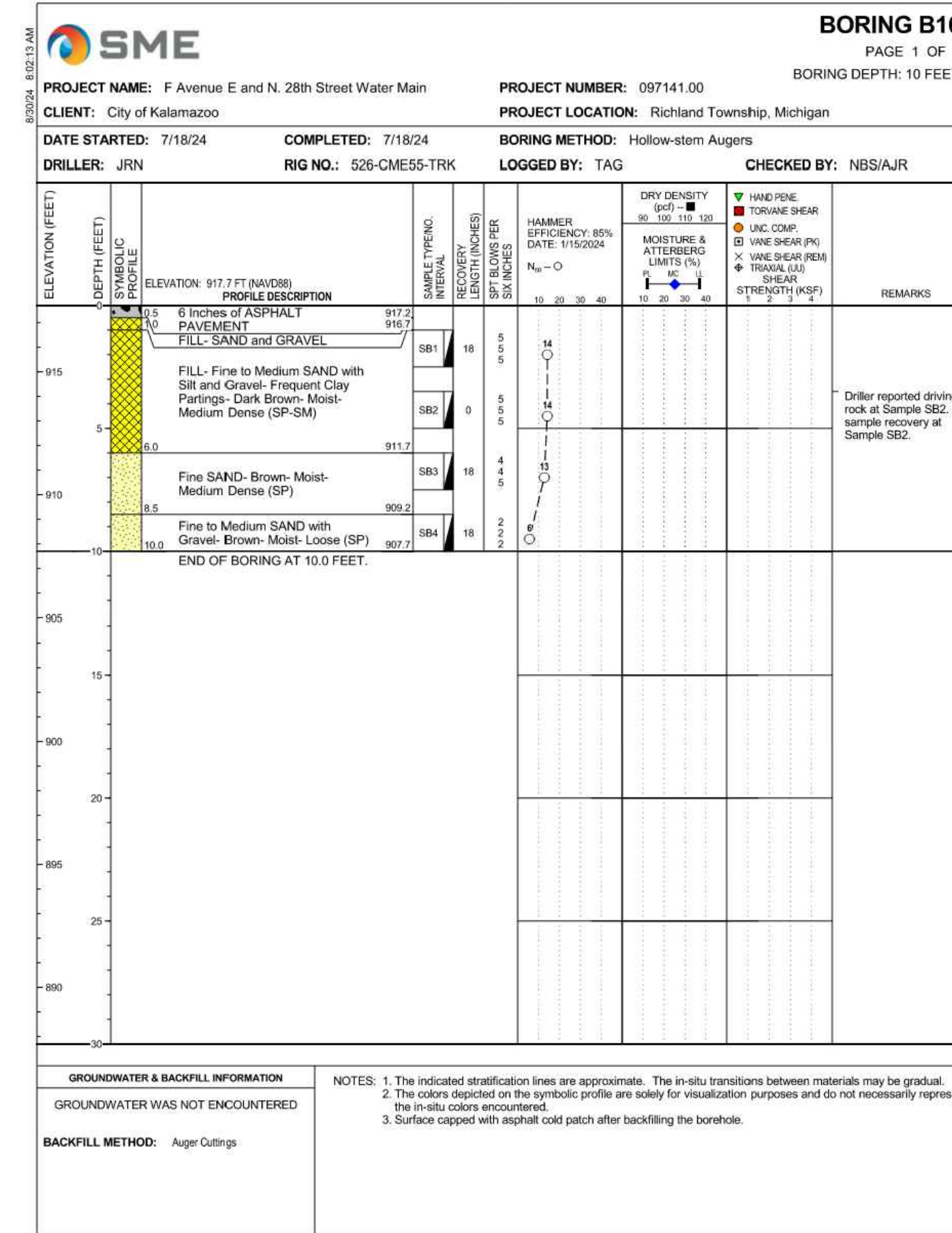
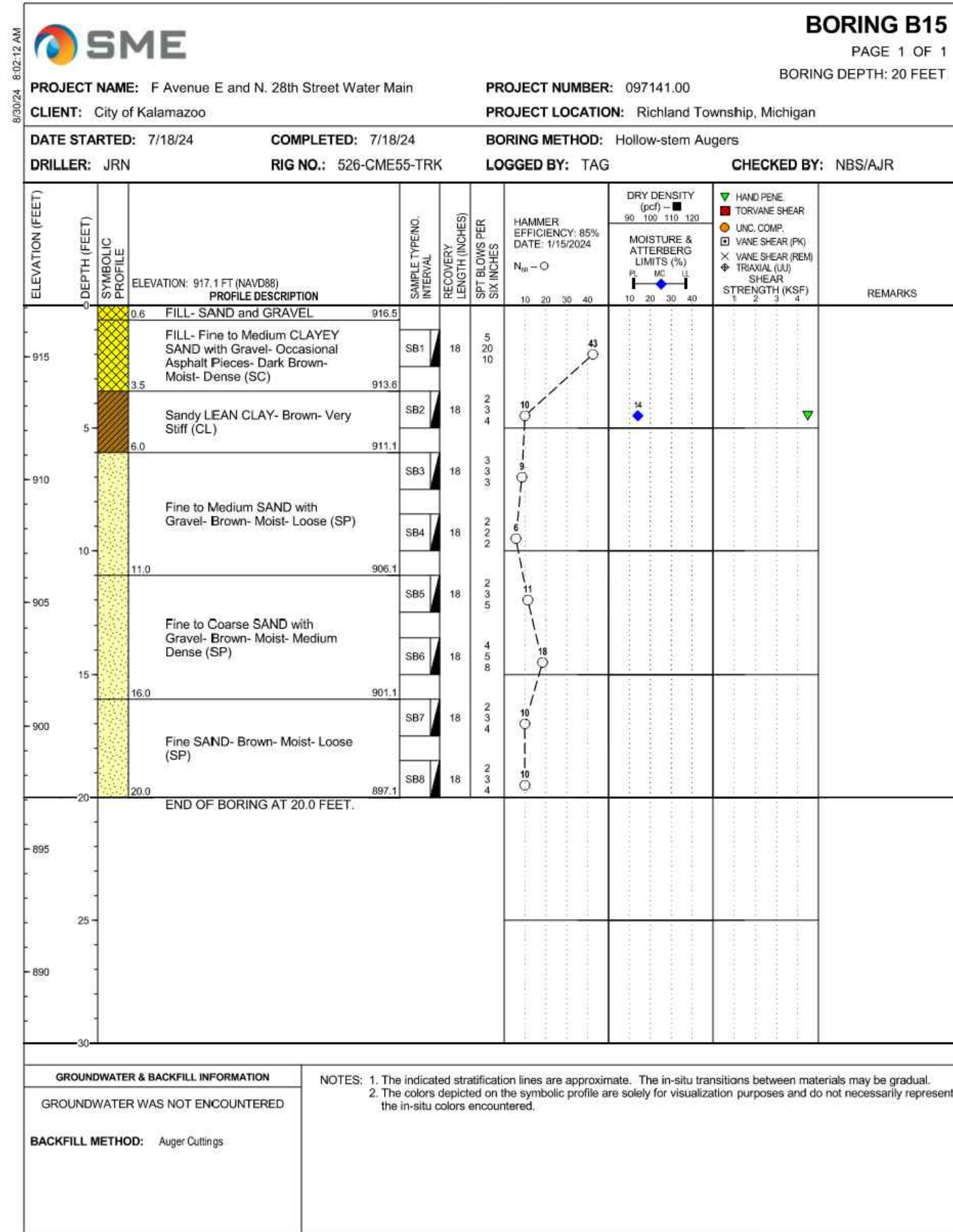
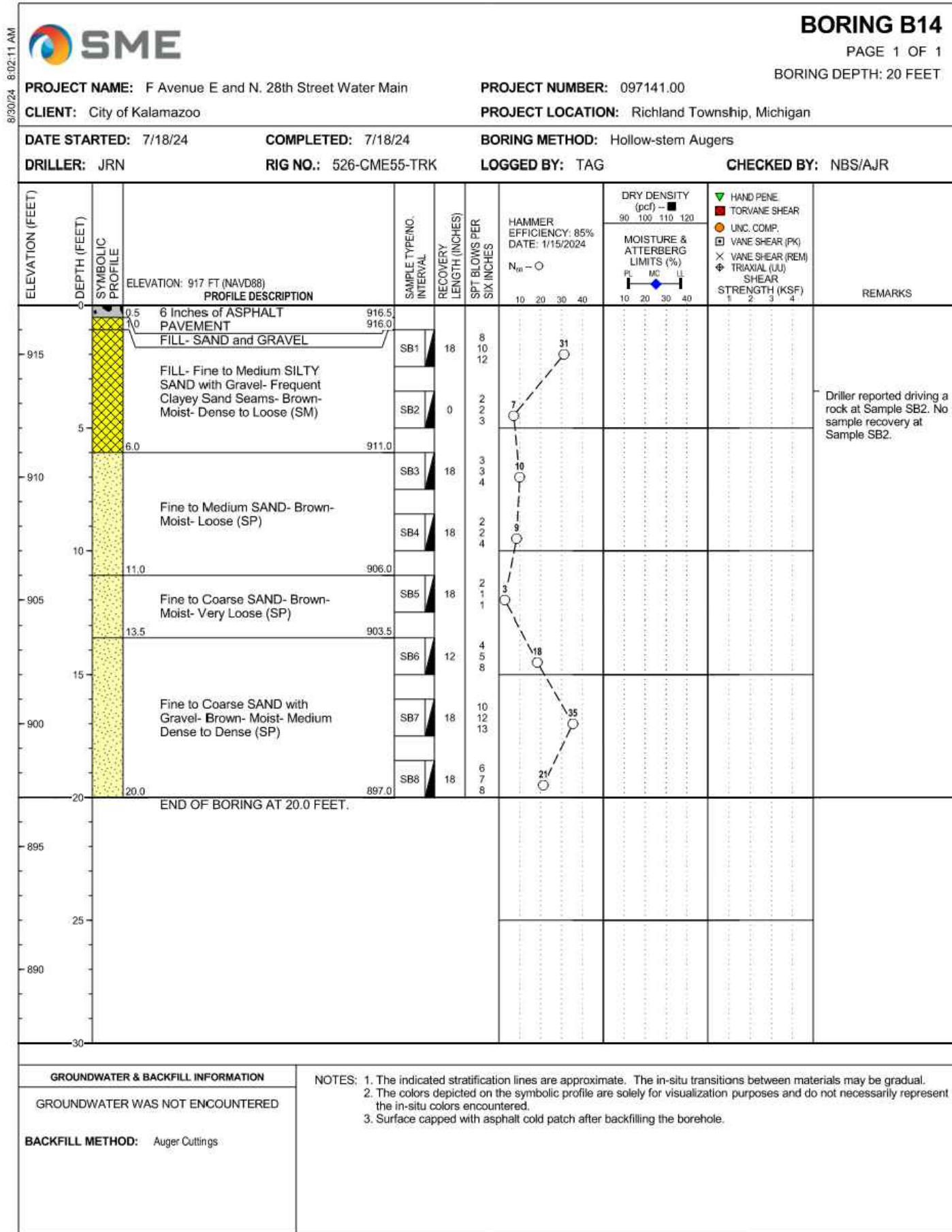
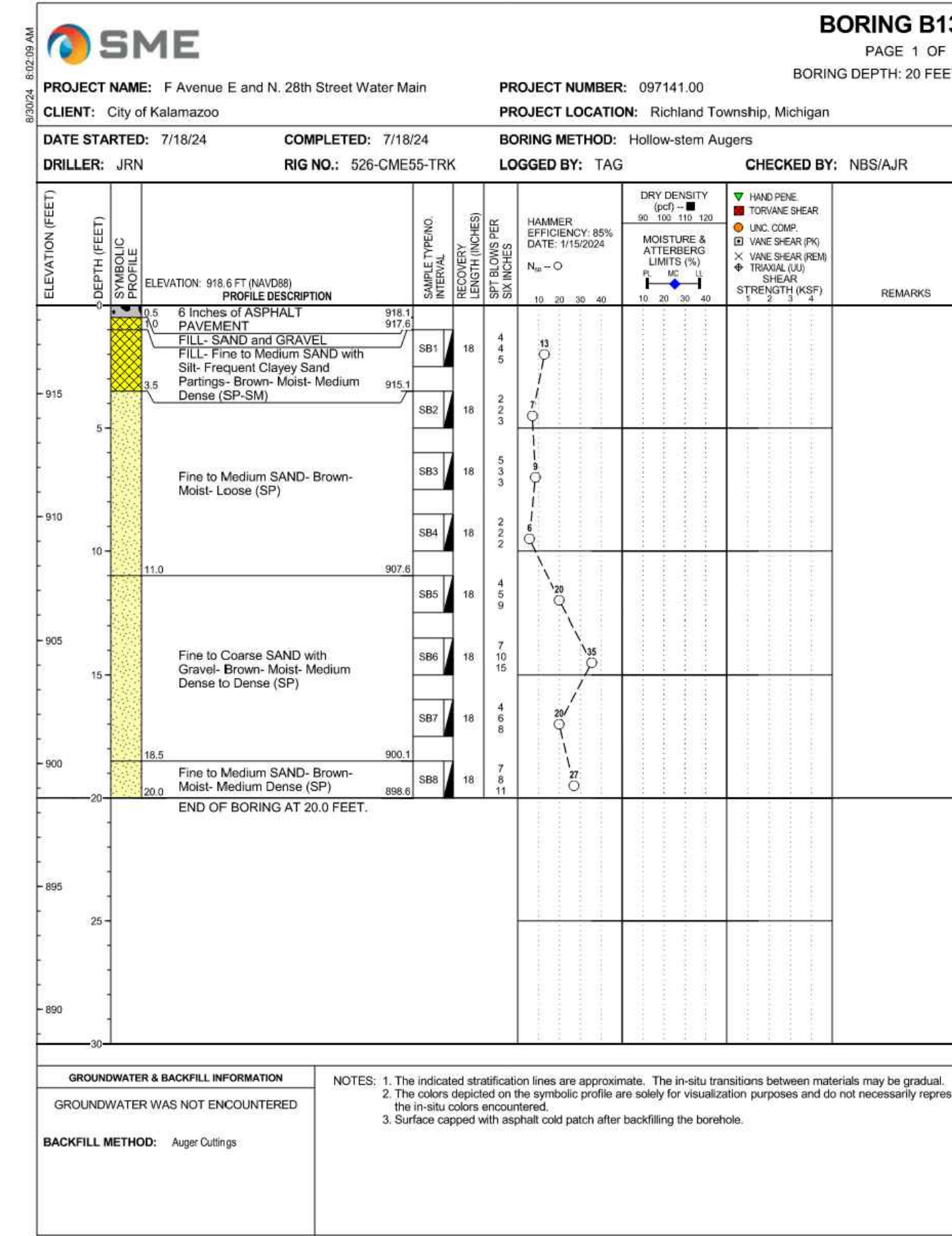
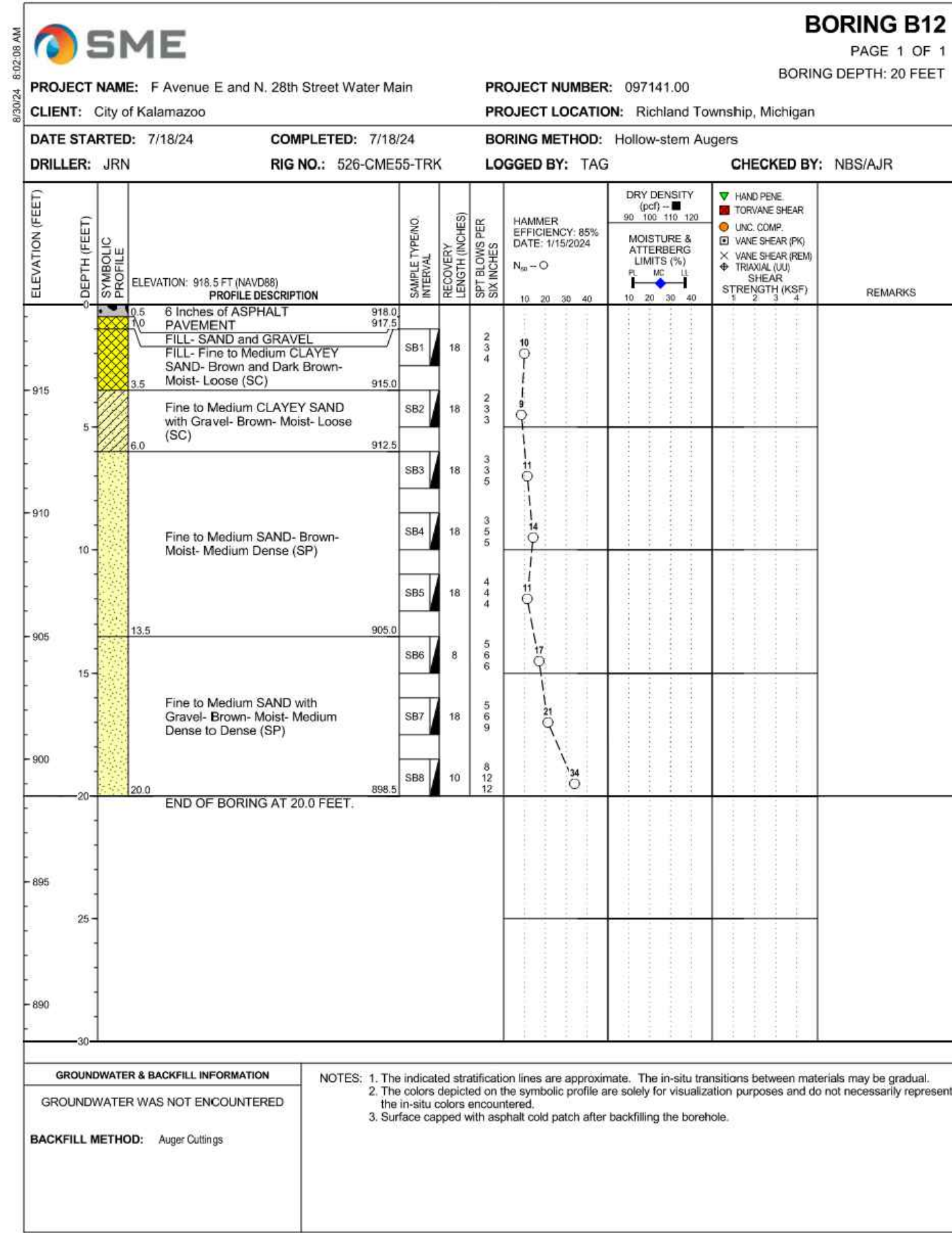
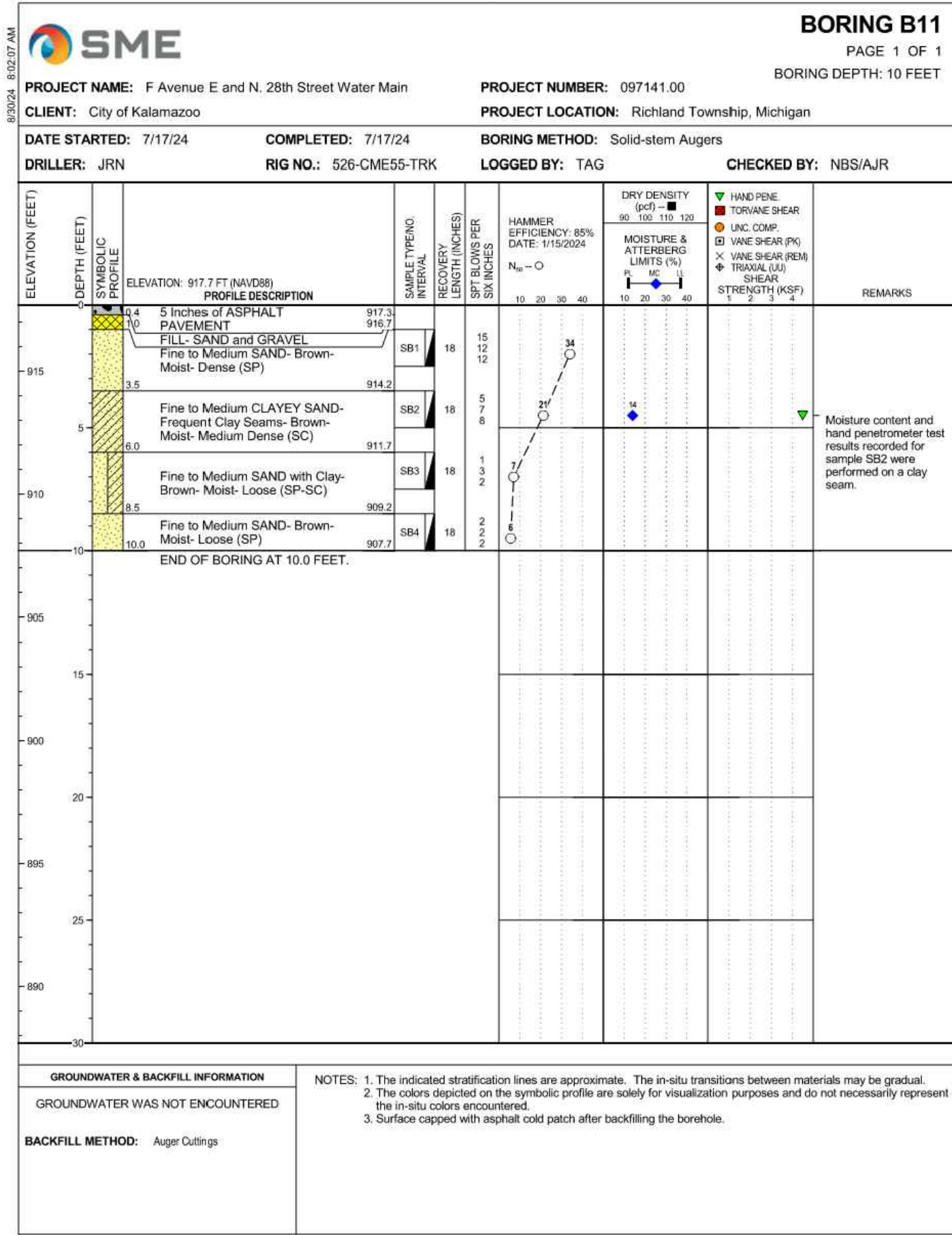
DESIGNED ERF DRAWN AJB CHECKED TLK

STATUS: ISSUE FOR BID

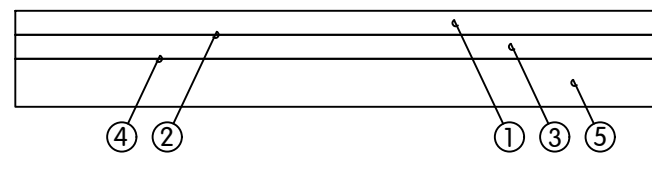
DATE: MAY 2025

SHEET NO. G-0.3

3 OF 23

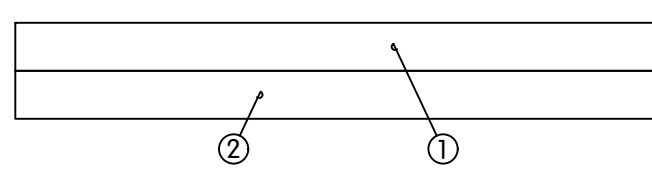


- ① 2" RCKC HMA 13A MOD. WEARING COURSE
- ② TACK COAT 0.05 GAL/SQ.YD.
- ③ 2" RCKC HMA 13A MOD. LEVELING COURSE
- ④ PRIME COAT 0.10 GAL/SQ.YD.
- ⑤ 6" MDOT 21AA AGGREGATE BASE



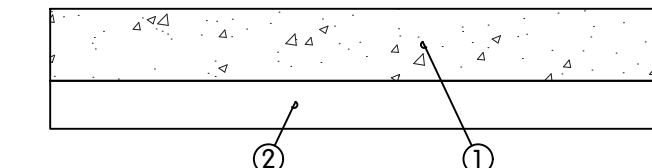
TYPICAL HMA DRIVEWAY SECTION
NTS

- ① 8" MDOT 21AA AGGREGATE BASE
- ② COMPACT EXISTING SUBBASE



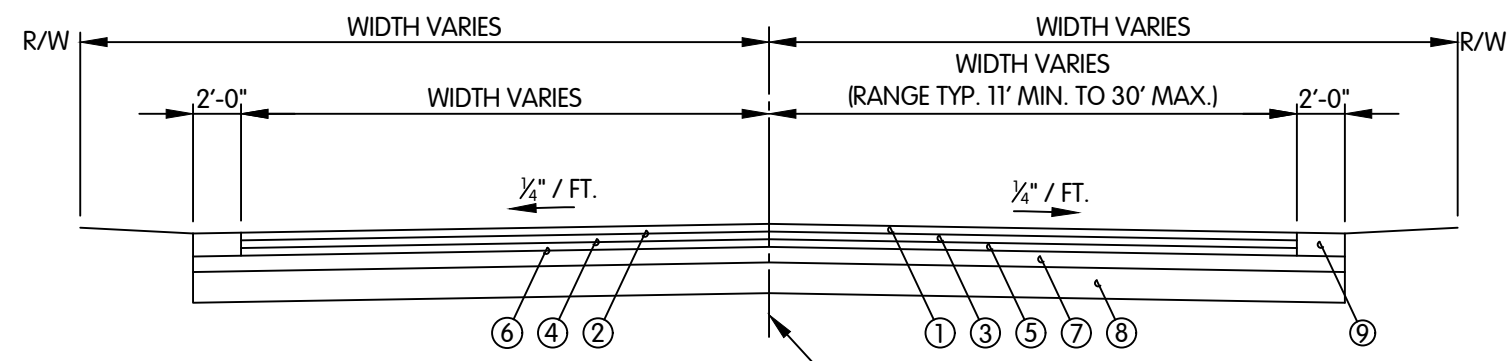
TYPICAL GRAVEL DRIVEWAY SECTION
NTS

- ① 6" CONCRETE SURFACE COURSE
- ② 4" MDOT 21AA AGGREGATE BASE



TYPICAL CONCRETE DRIVEWAY SECTION
NTS

- ① 2" RCKC HMA 36A MOD. WEARING COURSE
- ② TACK COAT 0.05 GAL/SQ.YD.
- ③ 2" RCKC HMA 13A MOD. LEVELING COURSE
- ④ TACK COAT 0.05 GAL/SQ.YD.
- ⑤ 2" RCKC HMA 13A MOD. BASE COURSE
- ⑥ PRIME COAT 0.10 GAL/SQ.YD.
- ⑦ 8" CIP MDOT 22A AGGREGATE BASE
- ⑧ 24" CIP MDOT GRANULAR MATERIAL CLASS III SUBBASE
- ⑨ 6" 21AA AGGREGATE SHOULDER

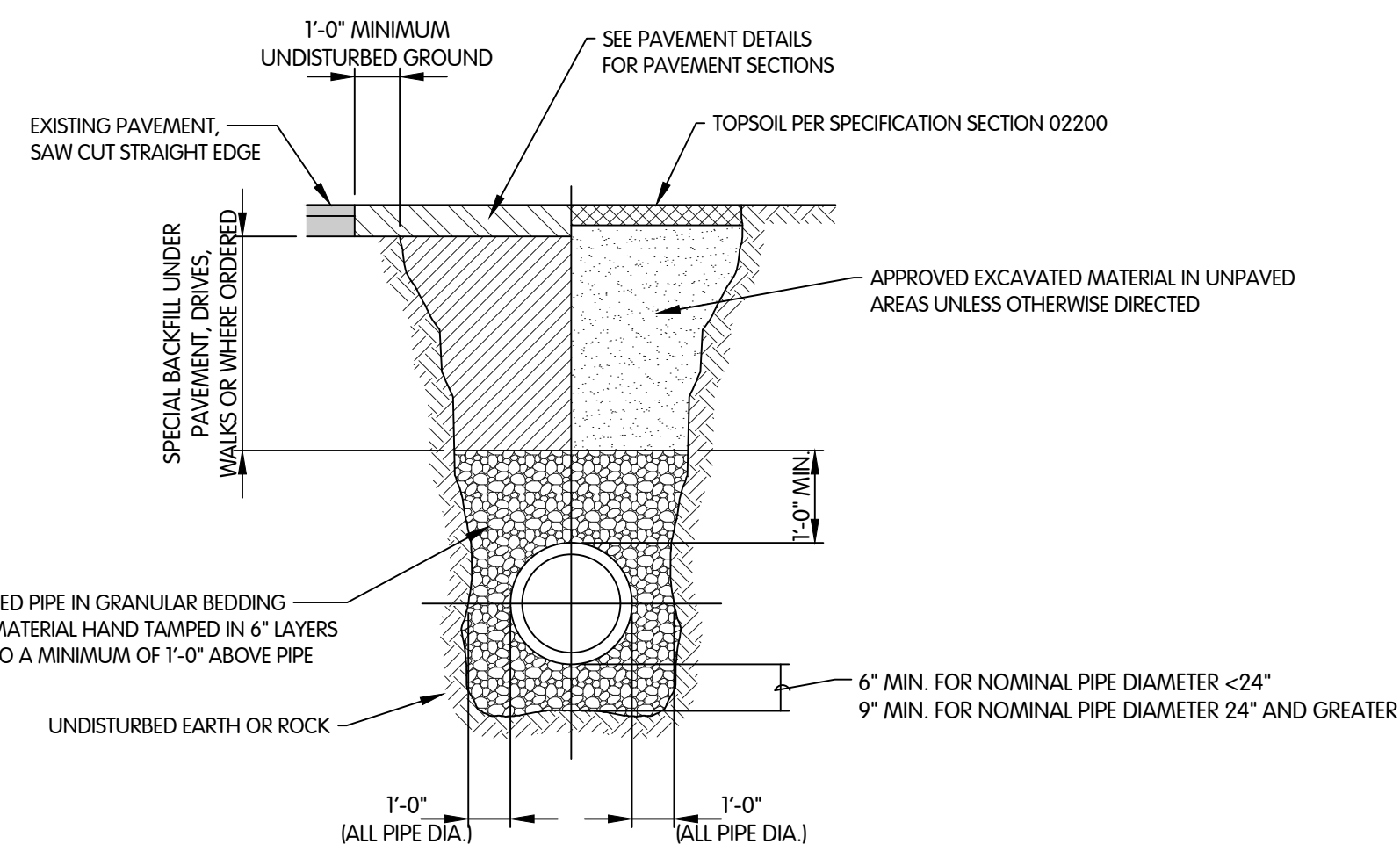


TYPICAL PAVEMENT SECTION
NTS

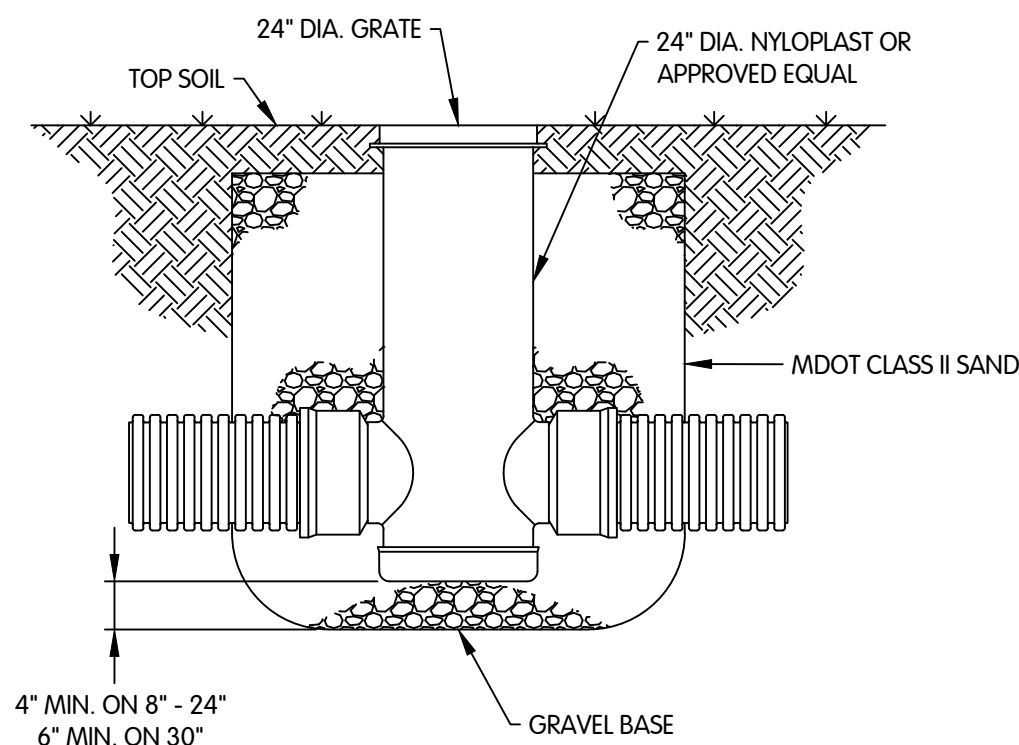
TABLE 3.1 PIPE THRUST RESTRAINT TABLE

| POLYWRAPPED PIPE | | | | | | | | |
|--------------------|----------|----------|------------|-------------|------|--------------------|---------------------|----------|
| Pipe Size (Inches) | 90° Bend | 45° Bend | 22.5° Bend | 11.25° Bend | Tee* | Reducer (One Size) | Reducer (Two Sizes) | Dead End |
| 4 | 62 | 26 | 13 | 7 | 60 | - | - | 60 |
| 6 | 88 | 37 | 18 | 9 | 84 | 44 | - | 84 |
| 8 | 117 | 49 | 24 | 12 | 111 | 47 | 80 | 111 |
| 10 | 142 | 59 | 29 | 14 | 133 | 45 | 82 | 133 |
| 12 | 170 | 71 | 34 | 17 | 158 | 47 | 84 | 158 |
| 16 | 224 | 93 | 45 | 23 | 203 | 87 | 121 | 203 |
| 20 | 278 | 116 | 56 | 28 | 247 | 87 | 155 | 247 |
| 24 | 332 | 138 | 66 | 33 | 291 | 87 | 159 | 291 |
| 30 | 411 | 171 | 82 | 41 | 351 | 123 | 191 | 351 |

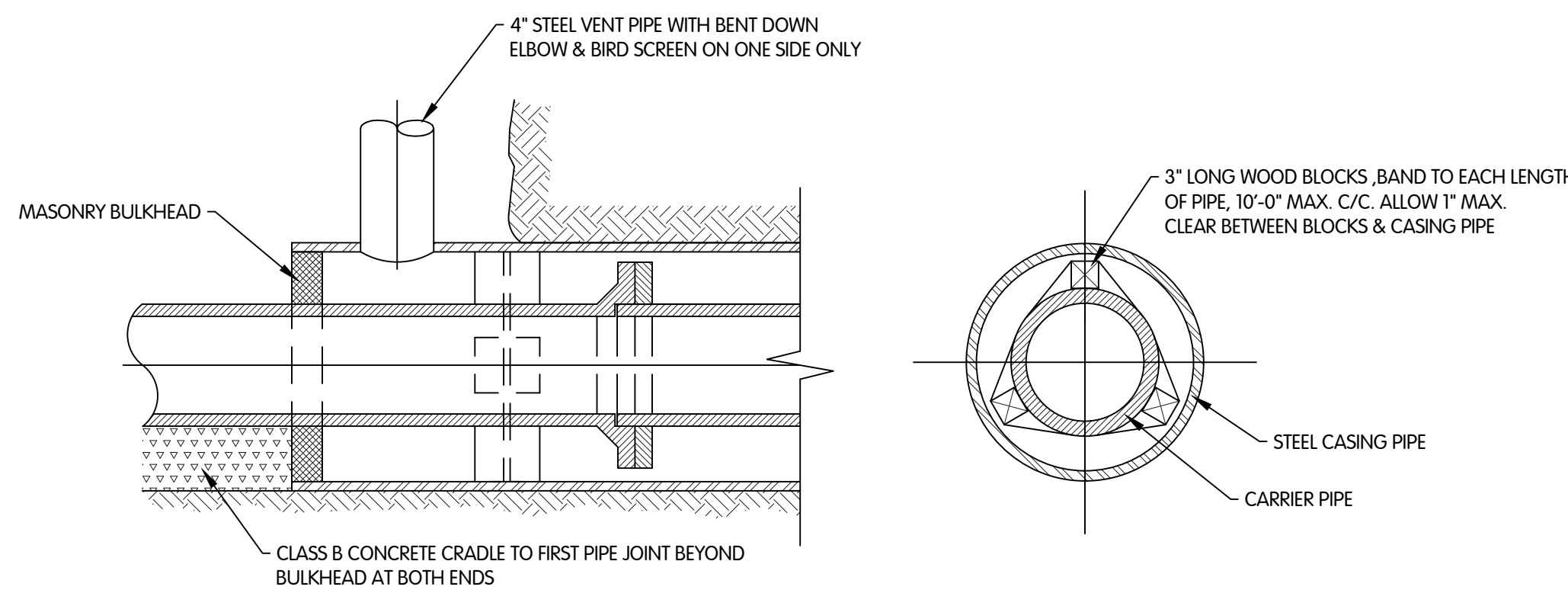
* Length of restraint for branch; use the size of the branch
Consult Engineer for scenarios not included in table.



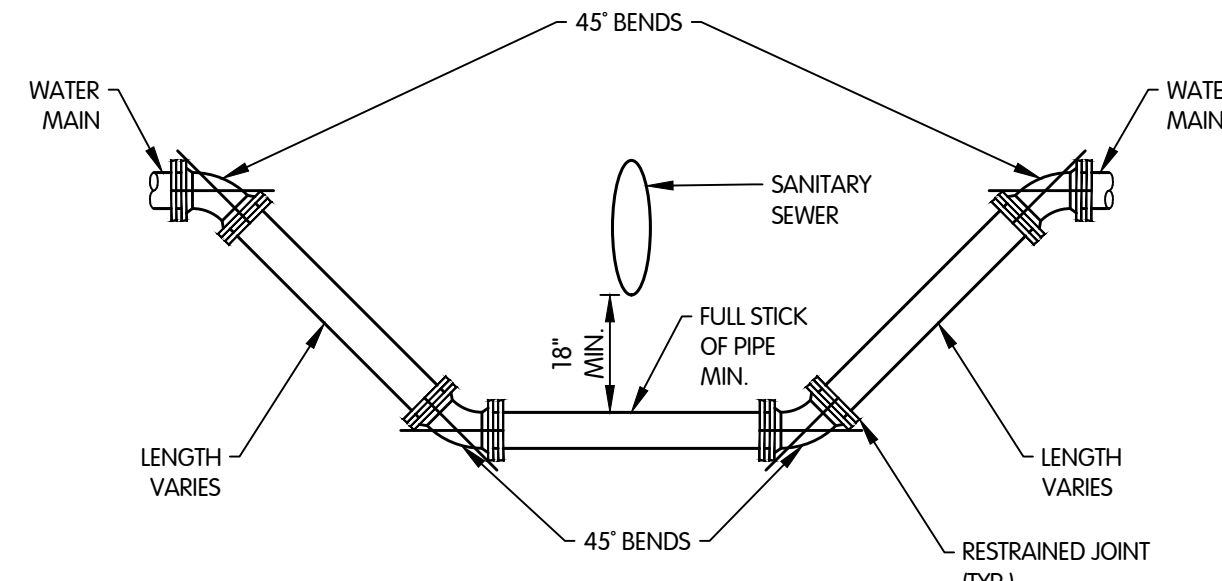
TRENCH DETAIL FOR RIGID PIPE (DIP)
NTS



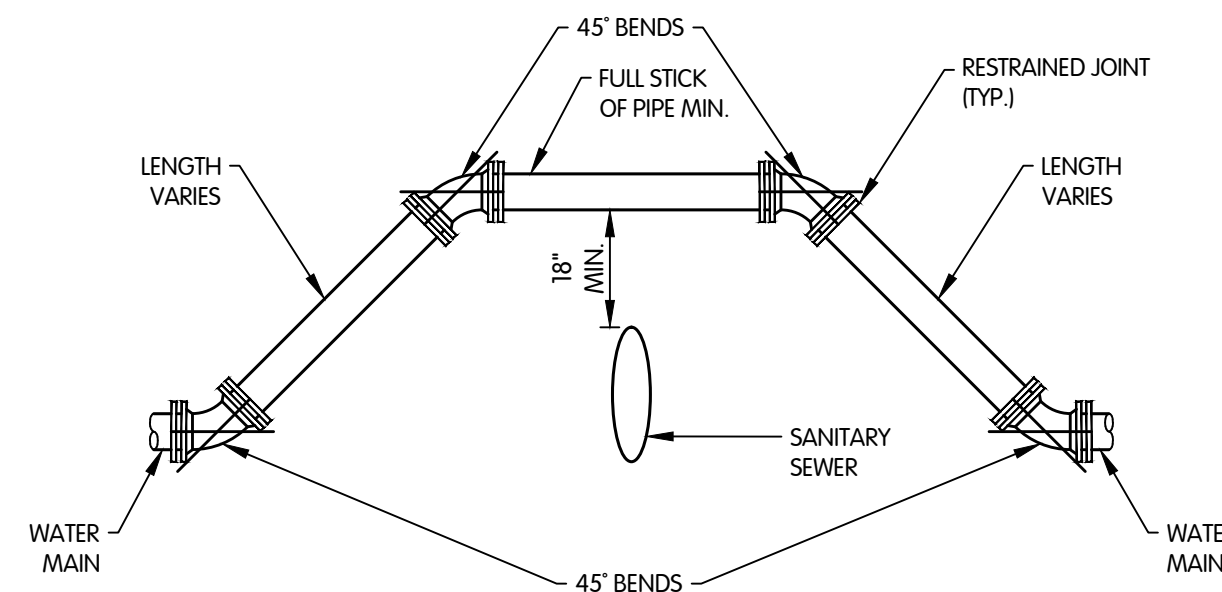
CATCH BASIN DETAIL
NTS



BORING DETAIL
NTS



MINIMUM SEPARATION DETAIL - UNDER
NTS



MINIMUM SEPARATION DETAIL - OVER
NTS

WA-04-A

NOTE: LIFT HOLES SHALL BE FILLED IN WITH NON-SHRINK MORTAR

TYPICAL 2" AIR RELEASE MANHOLE
PRECAST REINFORCED CONCRETE SHOWN (OTHER OPTIONS INCLUDE CONCRETE BLOCK, BRICK OR CAST IN PLACE WALL SECTIONS)

| ITEM DESCRIPTION | QUANTITY | ITEM DESCRIPTION | QUANTITY |
|----------------------------|----------|-------------------------|----------|
| AIR RELEASE VALVE, 2" | 1 | TAPPING SADDLE, XX X 2" | 1 |
| GALVANIZED PIPE, 2" X 60" | 1 | BRASS BALL VALVE, 2" | 1 |
| GALVANIZED NIPPLE, 2" X 4" | 1 | BRASS NIPPLE, 2" X 4" | 2 |
| GALVANIZED NIPPLE, 2" X 2" | 1 | | |
| GALVANIZED 90° ELBOW, 2" | 2 | | |
| PIPE SUPPORT BASE | 2 | | |

SCHEDULE OF FITTINGS

CITY OF KALAMAZOO
Department Of Public Services

AIR RELEASE MANHOLE

RECOMMENDED BY: _____ DATE: _____
APPROVED BY: _____
APPROVED BY: _____
ACCEPTED BY: _____

WA-1-D

| ITEM QTY. | # | DESCRIPTION |
|-----------|-------|----------------------------|
| 1 | 39887 | 6" HYDRANT W/CARROLL DRAIN |
| 2 | 70000 | CONNECTING PIECE (13") |
| 3 | 33801 | 6" CASKET (MJ) |
| 4 | 96696 | 6" GATE VALVE (MJ) |
| 5 | 08550 | VALVE BOX BOTTOM |
| 6 | 08520 | VALVE BOX TOP SECTION |
| 7 | 08500 | VALVE BOX RING CASTING |
| 8 | 08490 | VALVE BOX COVER |
| 9 | 91440 | 6" TEE MJ |
| 10 | 91525 | 8" X 6" TEE MJ W/MEGALUGS |
| 11 | 91750 | 10" X 6" TEE MJ W/MEGALUGS |
| 12 | 91825 | 12" X 6" TEE MJ W/MEGALUGS |
| 13 | 91909 | 16" X 6" TEE MJ W/MEGALUGS |
| 14 | 91940 | 20" X 6" TEE MJ W/MEGALUGS |
| 15* | | 24" X 6" TEE MJ W/MEGALUGS |

TYPICAL FIRE HYDRANT & GATE VALVE DETAIL

CITY OF KALAMAZOO
Department Of Public Services

RECOMMENDED BY: _____ DATE: _____
APPROVED BY: _____
APPROVED BY: _____
ACCEPTED BY: _____



CIVIL
WATER DETAILS

CITY OF KALAMAZOO, MICHIGAN
EAST F AVENUE AND NORTH 28TH STREET WATER MAIN

REVISIONS AFTER ISSUED FOR BID

Jones & Henry
Engineers, Ltd.



Fluid thinking®
www.JHeng.com

JOB NO. 17-8189.001

SCALE AS INDICATED

THIS LINE SCALES 1" WHEN PLOTTED TO NOTED SCALE

DESIGNED ERF DRAWN AJB CHECKED TLK

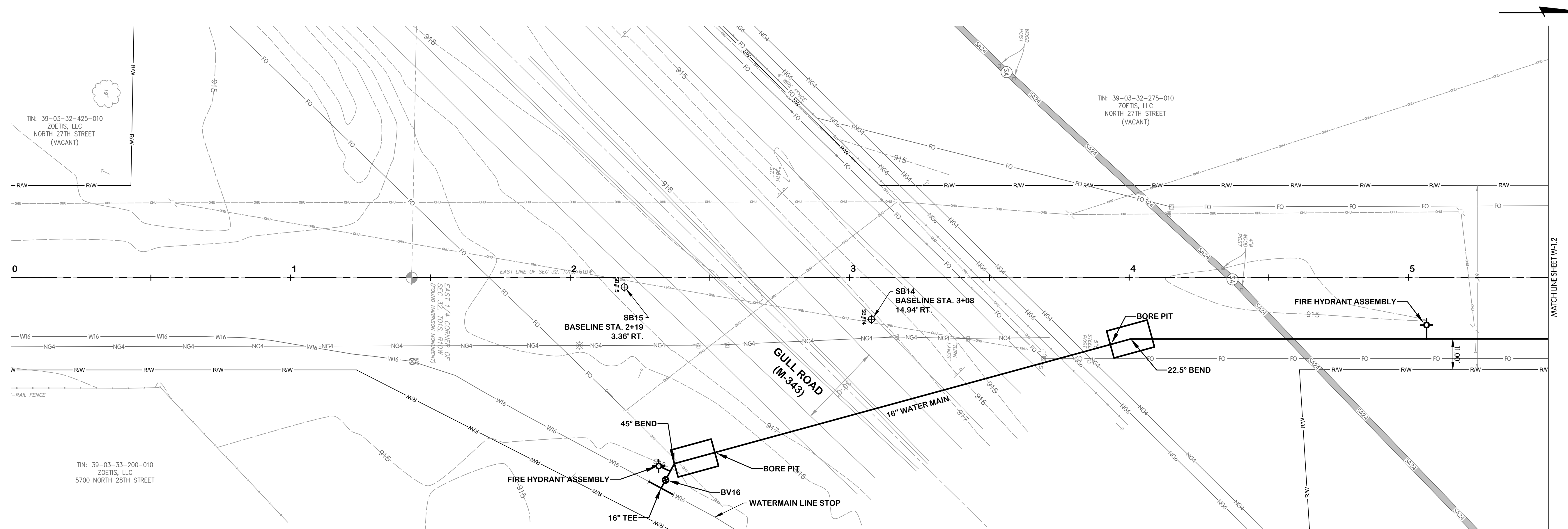
STATUS: ISSUE FOR BID

DATE: MAY 2025

SHEET NO.

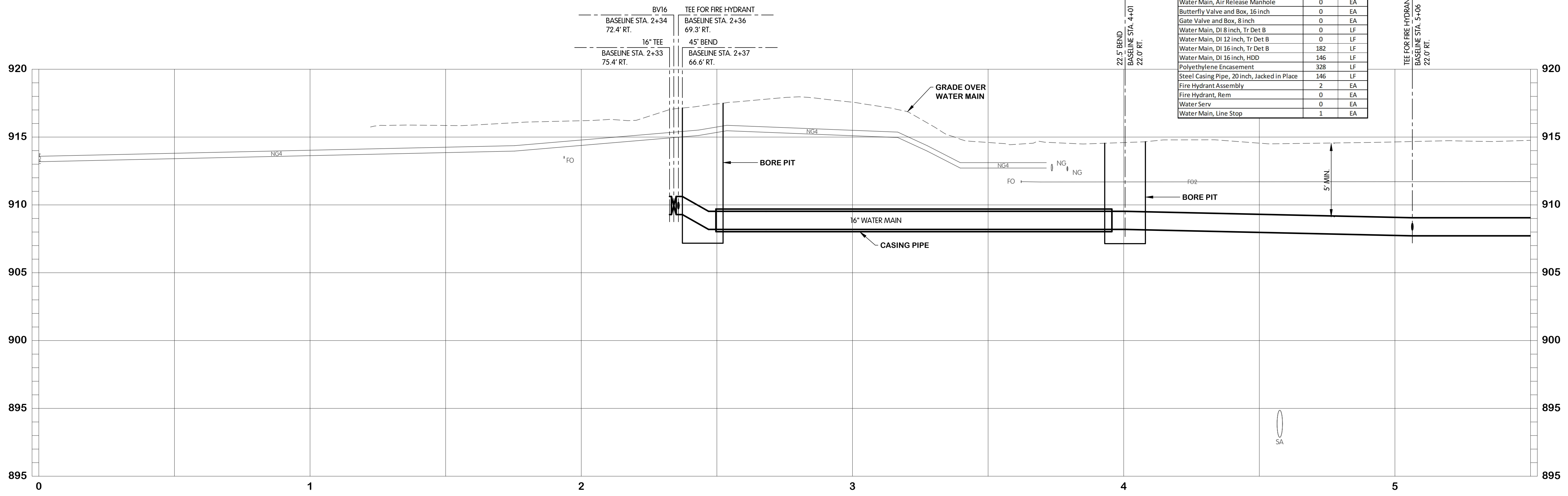
W-0.1

6 OF 23



- NOTES:**
1. ALL WATERMAIN SHALL BE POLYETHYLENE ENCASED USING V-BIO ENHANCED POLYETHYLENE ENCASEMENT. INSTALLATION SHALL BE PER DIPRA STANDARDS.
 2. NOT ALL TREES SCHEDULED FOR REMOVAL ARE SHOWN. COORDINATE IN FIELD WITH THE OWNER/ENGINEER TO DETERMINE/MARK TREES SCHEDULED FOR REMOVAL. TREE REMOVAL QUANTITIES LISTED IN THE QUANTITIES TABLE REPRESENT THE ACTUAL QUANTITIES SCHEDULED TO BE REMOVED.
 3. ALL WATER MAIN INSTALLATION TO CONFORM WITH CITY OF KALAMAZOO - STANDARD SPECIFICATIONS FOR WATER MAIN AND SERVICE INSTALLATION 2021.

| Description | Estimated Quantity | Unit |
|---|--------------------|------|
| Clearing | 0 | AC |
| Tree, Rem, 6 inch to 18 inch | 0 | EA |
| Tree, Rem, 19 inch to 36 inch | 0 | EA |
| Stump, Rem, 19 inch to 36 inch | 0 | EA |
| Tree, Rem, 37 inch or larger | 0 | EA |
| Culv, Rem, Less than 24 inch | 0 | LF |
| Dr Structure, Rem | 0 | EA |
| Culv, Cl A, 12 inch | 0 | LF |
| Dr Structure, 48 inch dia | 0 | EA |
| Water Main, Air Release Manhole | 0 | EA |
| Butterfly Valve and Box, 16 inch | 0 | EA |
| Gate Valve and Box, 8 inch | 0 | EA |
| Water Main, DI 8 inch, Tr Det B | 0 | LF |
| Water Main, DI 12 inch, Tr Det B | 0 | LF |
| Water Main, DI 16 inch, Tr Det B | 182 | LF |
| Water Main, DI 16 inch, HDD | 146 | LF |
| Polyethylene Encasement | 328 | LF |
| Steel Casing Pipe, 20 inch, Jacked in Place | 146 | LF |
| Fire Hydrant Assembly | 2 | EA |
| Fire Hydrant, Rem | 0 | EA |
| Water Serv | 0 | EA |
| Water Main, Line Stop | 1 | EA |



NORTH 28TH STREET
 WATER
 PLAN AND PROFILE
 STA. 0+00 TO 5+50
 CITY OF KALAMAZOO, MICHIGAN
 EAST F AVENUE AND NORTH 28TH STREET WATER MAIN

REVISIONS AFTER ISSUED FOR BID
 NO. DATE

Jones & Henry
 Engineers, Ltd.

 Fluid thinking.
 www.JHeng.com

| | |
|---|----------------------------|
| JOB NO. | 17-8189.001 |
| SCALE | 1"=20' HOR. 1"=4' VERT. |
| THIS LINE SCALES IF WHEN PLOTTED TO NOTED SCALE | |
| DESIGNED | ERF |
| DRAWN | AJB |
| CHECKED | TLK |
| STATUS | ISSUE FOR BID |
| DATE | MAY 2025 |
| SHEET NO. | W-1.1 |
| | 7 OF 23 |

KAL-8189001-W-1.1 28TH STA 0+00 TO 5+50
 6/24/2025 4:19 PM - CFERRELL
 6/24/2025 4:30 PM



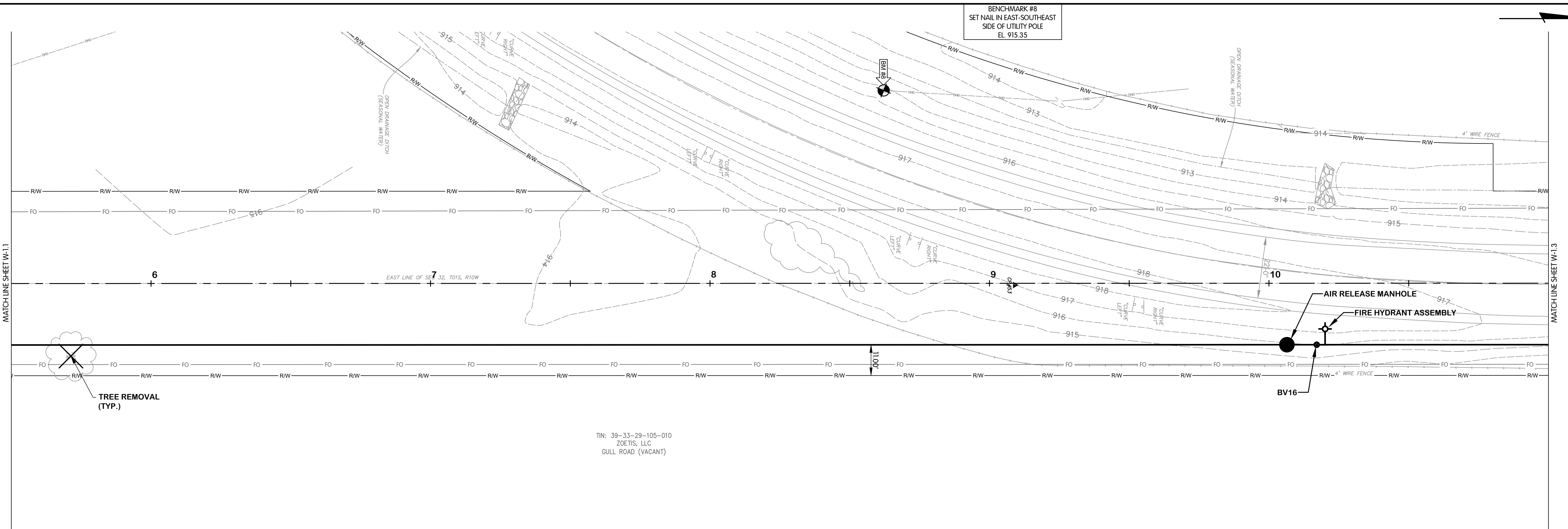
NORTH 28TH STREET
 WATER
 PLAN AND PROFILE
 STA. 5+50 TO 11+00
 CITY OF KALAMAZOO, MICHIGAN
 EAST F AVENUE AND NORTH 28TH STREET WATER MAIN

REVISIONS AFTER ISSUED FOR BID
 NO. DATE BY

Jones & Henry
 Engineers, Ltd.

 Fluid thinking.[®]
 www.JHeng.com

| | |
|---|----------------------------|
| JOB NO. | 17-8189.001 |
| SCALE | 1"=20' HOR. 1"=4' VERT. |
| THIS LINE SCALES IF WHEN PLOTTED TO NOTED SCALE | |
| DESIGNED | ERF |
| DRAWN | AJB |
| CHECKED | TLK |
| STATUS | ISSUE FOR BID |
| DATE | MAY 2025 |
| SHEET NO. | W-1.2 |
| | 8 OF 23 |

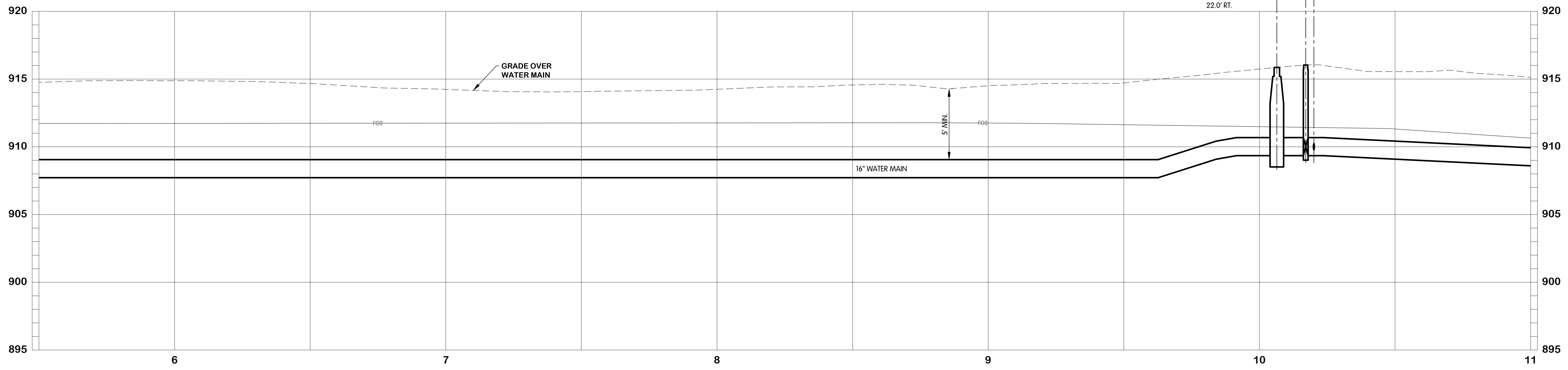


- NOTES:**
- ALL WATERMAIN SHALL BE POLYETHYLENE ENCASED USING V-BIO ENHANCED POLYETHYLENE ENCASUREMENT. INSTALLATION SHALL BE PER DIPRA STANDARDS.
 - NOT ALL TREES SCHEDULED FOR REMOVAL ARE SHOWN. COORDINATE IN FIELD WITH THE OWNER/ENGINEER TO DETERMINE/MARK TREES SCHEDULED FOR REMOVAL. TREE REMOVAL QUANTITIES LISTED IN THE QUANTITIES TABLE REPRESENT THE ACTUAL QUANTITIES SCHEDULED TO BE REMOVED.
 - ALL WATER MAIN INSTALLATION TO CONFORM WITH CITY OF KALAMAZOO - STANDARD SPECIFICATIONS FOR WATER MAIN AND SERVICE INSTALLATION 2021.

TIN: 39-33-29-105-010
 ZOETIS, LLC
 GULL ROAD (VACANT)

NORTH 28TH STREET

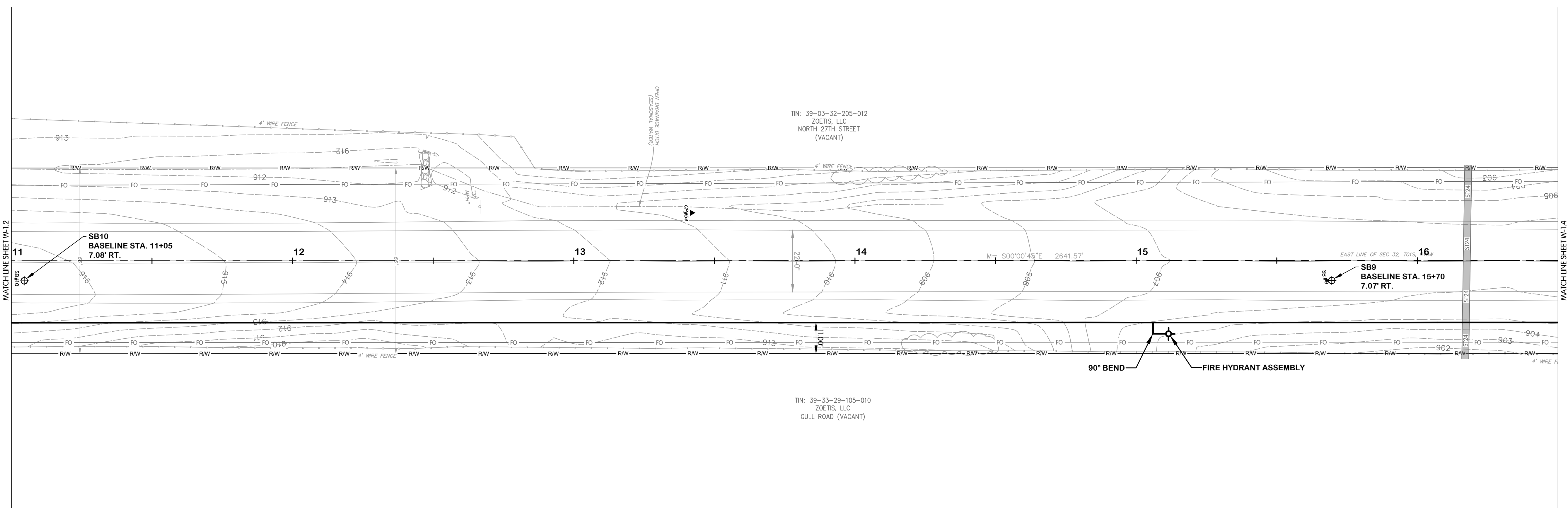
| Description | Estimated Quantity | Unit |
|----------------------------------|--------------------|------|
| Clearing | 0 | AC |
| Tree, Rem, 6 inch to 18 inch | 0 | EA |
| Tree, Rem, 19 inch to 36 inch | 0 | EA |
| Stump, Rem, 19 inch to 36 inch | 0 | EA |
| Tree, Rem, 37 inch or larger | 0 | EA |
| Culv, Rem, Less than 24 inch | 0 | LF |
| Dr Structure, Rem | 0 | EA |
| Culv, Cl A, 12 inch | 0 | LF |
| Dr Structure, 48 inch dia | 0 | EA |
| Water Main, Air Release Manhole | 1 | EA |
| Butterfly Valve and Box, 16 inch | 1 | EA |
| Gate Valve and Box, 8 inch | 0 | EA |
| Water Main, DI 8 inch, Tr Det B | 0 | LF |
| Water Main, DI 12 inch, Tr Det B | 0 | LF |
| Water Main, DI 16 inch, Tr Det B | 550 | LF |
| Water Main, DI 16 inch, HDD | 0 | LF |
| Polyethylene Encasement | 550 | LF |
| Fire Hydrant Assembly | 1 | EA |
| Fire Hydrant, Rem | 0 | EA |
| Water Serv | 0 | EA |
| Water Main, Line Stop | 0 | EA |



KAL-8189001-W-1.2 28TH STA 5+50 TO 11+00
 6/24/2025 4:09 PM - CFERRELL
 6/24/2025 4:30 PM



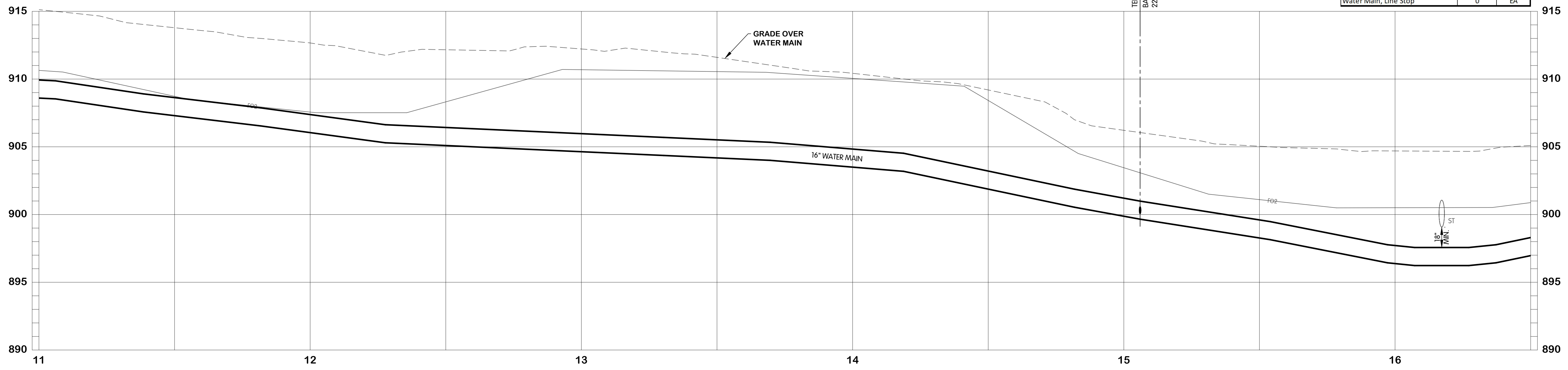
NORTH 28TH STREET
 WATER
 PLAN AND PROFILE
 STA. 11+00 TO 16+50
 CITY OF KALAMAZOO, MICHIGAN
 EAST F AVENUE AND NORTH 28TH STREET WATER MAIN



NORTH 28TH STREET

- NOTES:**
1. ALL WATERMAIN SHALL BE POLYETHYLENE ENCASED USING V-BIO ENHANCED POLYETHYLENE ENCASEMENT. INSTALLATION SHALL BE PER DIPRA STANDARDS.
 2. NOT ALL TREES SCHEDULED FOR REMOVAL ARE SHOWN. COORDINATE IN FIELD WITH THE OWNER/ENGINEER TO DETERMINE/MARK TREES SCHEDULED FOR REMOVAL. TREE REMOVAL QUANTITIES LISTED IN THE QUANTITIES TABLE REPRESENT THE ACTUAL QUANTITIES SCHEDULED TO BE REMOVED.
 3. ALL WATER MAIN INSTALLATION TO CONFORM WITH CITY OF KALAMAZOO - STANDARD SPECIFICATIONS FOR WATER MAIN AND SERVICE INSTALLATION 2021.

| Description | Estimated Quantity | Unit |
|----------------------------------|--------------------|------|
| Clearing | 0 | AC |
| Tree, Rem, 6 inch to 18 inch | 0 | EA |
| Tree, Rem, 19 inch to 36 inch | 0 | EA |
| Stump, Rem, 19 inch to 36 inch | 0 | EA |
| Tree, Rem, 37 inch or larger | 0 | EA |
| Culv, Rem, Less than 24 inch | 0 | LF |
| Dr Structure, Rem | 0 | EA |
| Culv, Cl A, 12 inch | 0 | LF |
| Dr Structure, 48 inch dia | 0 | EA |
| Water Main, Air Release Manhole | 0 | EA |
| Butterfly Valve and Box, 16 inch | 0 | EA |
| Gate Valve and Box, 8 inch | 0 | EA |
| Water Main, DI 8 inch, Tr Det B | 0 | LF |
| Water Main, DI 12 inch, Tr Det B | 0 | LF |
| Water Main, DI 16 inch, Tr Det B | 550 | LF |
| Water Main, DI 16 inch, HDD | 0 | LF |
| Polyethylene Encasement | 550 | LF |
| Fire Hydrant Assembly | 1 | EA |
| Fire Hydrant, Rem | 0 | EA |
| Water Serv | 0 | EA |
| Water Main, Line Stop | 0 | EA |



KAL-8189001-W-1.3 28TH STA 11+00 TO 16+50
 6/24/2025 4:19 PM - CFERRELL
 6/24/2025 4:30 PM

REVISIONS AFTER ISSUED FOR BID
 NO. DATE BY

Jones & Henry
 Engineers, Ltd.

Fluid thinking.[®]
 www.JHeng.com

JOB NO. 17-8189.001
 SCALE 1"=20' HOR.
 1"=4' VERT.
 THIS LINE SCALES IF WHEN PLOTTED TO NOTED SCALE

| | | |
|----------|-------|---------|
| DESIGNED | DRAWN | CHECKED |
| ERF | AJB | TLK |

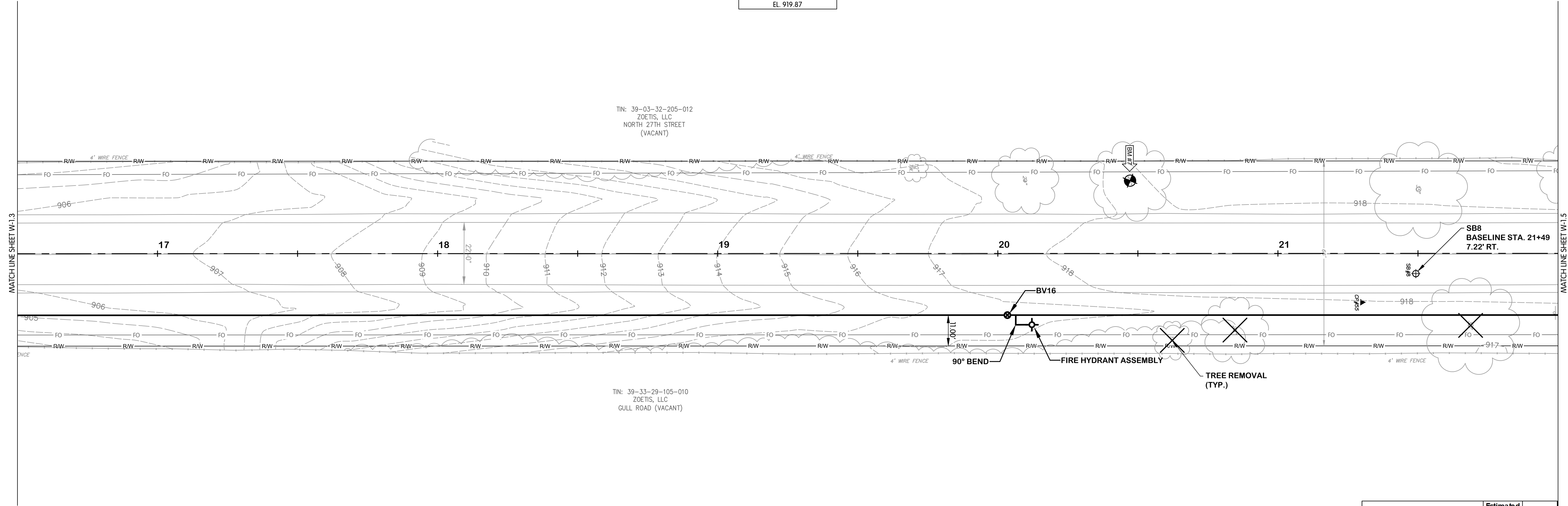
STATUS: ISSUE FOR BID
 DATE: MAY 2025

SHEET NO.
W-1.3
 9 OF 23

BENCHMARK #7
SET NAIL IN EAST SIDE OF 28"
DECIDUOUS TREE
EL. 919.87

TIN: 39-03-32-205-012
ZOEITIS, LLC
NORTH 27TH STREET
(VACANT)

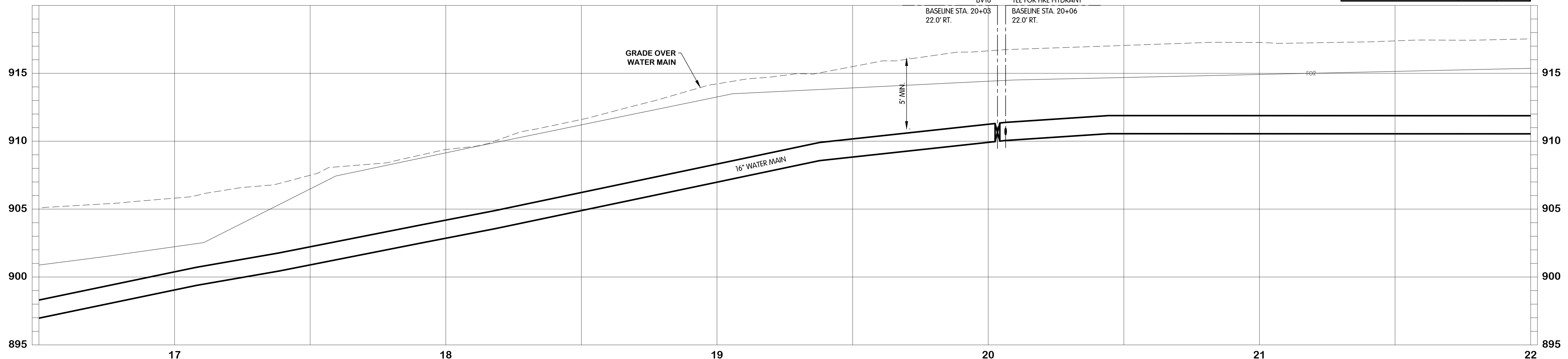
TIN: 39-33-29-105-010
ZOEITIS, LLC
GULL ROAD (VACANT)



- NOTES:**
1. ALL WATERMAIN SHALL BE POLYETHYLENE ENCASED USING V-BIO ENHANCED POLYETHYLENE ENCASEMENT. INSTALLATION SHALL BE PER DIPRA STANDARDS.
 2. NOT ALL TREES SCHEDULED FOR REMOVAL ARE SHOWN. COORDINATE IN FIELD WITH THE OWNER/ENGINEER TO DETERMINE/MARK TREES SCHEDULED FOR REMOVAL. TREE REMOVAL QUANTITIES LISTED IN THE QUANTITIES TABLE REPRESENT THE ACTUAL QUANTITIES SCHEDULED TO BE REMOVED.
 3. ALL WATER MAIN INSTALLATION TO CONFORM WITH CITY OF KALAMAZOO - STANDARD SPECIFICATIONS FOR WATER MAIN AND SERVICE INSTALLATION 2021.

NORTH 28TH STREET

| Description | Estimated Quantity | Unit |
|----------------------------------|--------------------|------|
| Clearing | 0.125 | AC |
| Tree, Rem, 6 inch to 18 inch | 4 | EA |
| Tree, Rem, 19 inch to 36 inch | 9 | EA |
| Stump, Rem, 19 inch to 36 inch | 1 | EA |
| Tree, Rem, 37 inch or larger | 0 | EA |
| Culv, Rem, Less than 24 inch | 0 | LF |
| Dr Structure, Rem | 0 | EA |
| Culv, Cl A, 12 inch | 0 | LF |
| Dr Structure, 48 inch dia | 0 | EA |
| Water Main, Air Release Manhole | 0 | EA |
| Butterfly Valve and Box, 16 inch | 0 | EA |
| Gate Valve and Box, 8 inch | 0 | EA |
| Water Main, DI 8 inch, Tr Det B | 0 | LF |
| Water Main, DI 12 inch, Tr Det B | 0 | LF |
| Water Main, DI 16 inch, Tr Det B | 550 | LF |
| Water Main, DI 16 inch, HDD | 0 | LF |
| Polyethylene Encasement | 550 | LF |
| Fire Hydrant Assembly | 1 | EA |
| Fire Hydrant, Rem | 0 | EA |
| Water Serv | 0 | EA |
| Water Main, Line Stop | 0 | EA |



KAL-8189001-W-1.4 28TH STA 16+50 TO 22+00
6/24/2025 4:09 PM - CFERRELL
6/24/2025 4:30 PM



NORTH 28TH STREET
WATER
PLAN AND PROFILE
STA. 16+50 TO 22+00
 CITY OF KALAMAZOO, MICHIGAN
EAST F AVENUE AND NORTH 28TH STREET WATER MAIN

REVISIONS AFTER ISSUED FOR BID
 NO. DATE BY

Jones & Henry Engineers, Ltd.

 Fluid thinking.
 www.JHeng.com

JOB NO. 17-8189.001
 SCALE 1"=20' HOR.
 1"=4' VERT.
 THIS LINE SCALES IF WHEN PLOTTED TO NOTED SCALE

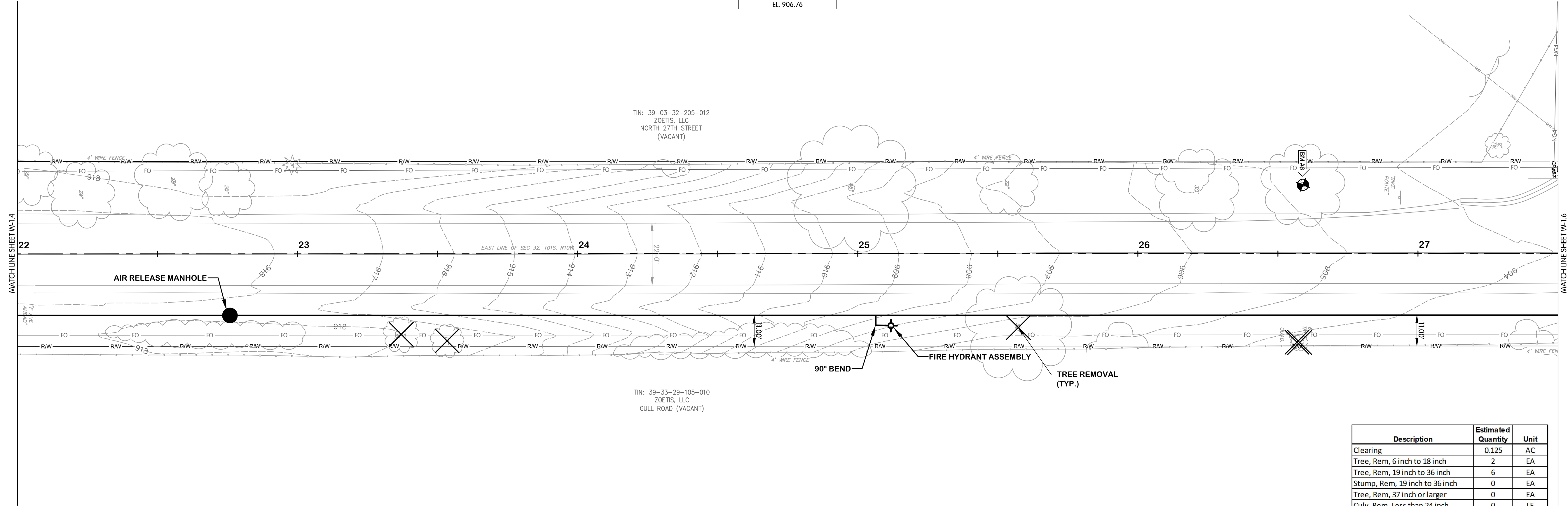
| | | |
|----------|-------|---------|
| DESIGNED | DRAWN | CHECKED |
| ERF | AJB | TLK |

 STATUS: ISSUE FOR BID
 DATE: MAY 2025
 SHEET NO. W-1.4
 10 OF 23

BENCHMARK #6
SET NAIL IN EAST SIDE OF 29"
DECIDUOUS TREE
EL. 906.76

TIN: 39-03-19-205-012
ZOETIS, LLC
NORTH 27TH STREET
(VACANT)

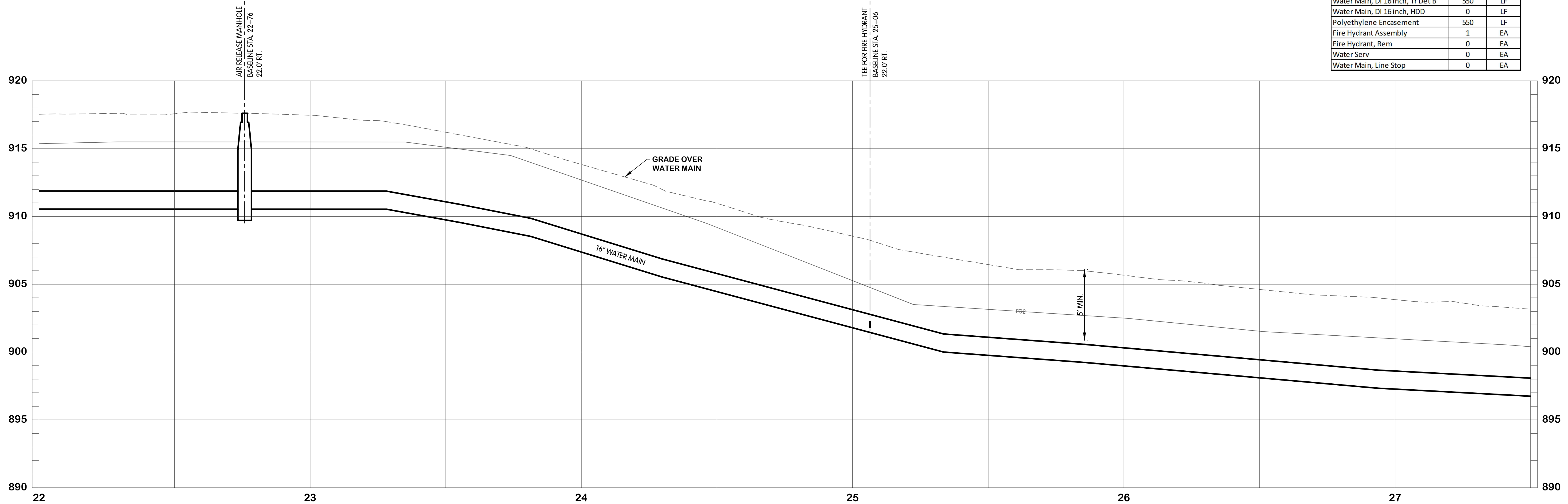
TIN: 39-33-29-105-010
ZOETIS, LLC
GULL ROAD (VACANT)



NORTH 28TH STREET

- NOTES:**
1. ALL WATERMAIN SHALL BE POLYETHYLENE ENCASED USING V-BIO ENHANCED POLYETHYLENE ENCASEMENT. INSTALLATION SHALL BE PER DIPRA STANDARDS.
 2. NOT ALL TREES SCHEDULED FOR REMOVAL ARE SHOWN. COORDINATE IN FIELD WITH THE OWNER/ENGINEER TO DETERMINE/MARK TREES SCHEDULED FOR REMOVAL. TREE REMOVAL QUANTITIES LISTED IN THE QUANTITIES TABLE REPRESENT THE ACTUAL QUANTITIES SCHEDULED TO BE REMOVED.
 3. ALL WATER MAIN INSTALLATION TO CONFORM WITH CITY OF KALAMAZOO - STANDARD SPECIFICATIONS FOR WATER MAIN AND SERVICE INSTALLATION 2021.

| Description | Estimated Quantity | Unit |
|----------------------------------|--------------------|------|
| Clearing | 0.125 | AC |
| Tree, Rem, 6 inch to 18 inch | 2 | EA |
| Tree, Rem, 19 inch to 36 inch | 6 | EA |
| Stump, Rem, 19 inch to 36 inch | 0 | EA |
| Tree, Rem, 37 inch or larger | 0 | EA |
| Culv, Rem, Less than 24 inch | 0 | LF |
| Dr Structure, Rem | 0 | EA |
| Culv, CI A, 12 inch | 0 | LF |
| Dr Structure, 48 inch dia | 0 | EA |
| Water Main, Air Release Manhole | 1 | EA |
| Butterfly Valve and Box, 16 inch | 0 | EA |
| Gate Valve and Box, 8 inch | 0 | EA |
| Water Main, DI 8 inch, Tr Det B | 0 | LF |
| Water Main, DI 12 inch, Tr Det B | 0 | LF |
| Water Main, DI 16 inch, Tr Det B | 550 | LF |
| Water Main, DI 16 inch, HDD | 0 | LF |
| Polyethylene Encasement | 550 | LF |
| Fire Hydrant Assembly | 1 | EA |
| Fire Hydrant, Rem | 0 | EA |
| Water Serv | 0 | EA |
| Water Main, Line Stop | 0 | EA |



KAL-8189-001-W-1.5 28TH STA 22+00 TO 27+50
6/24/2025 4:09 PM - CFERRELL
6/24/2025 4:30 PM



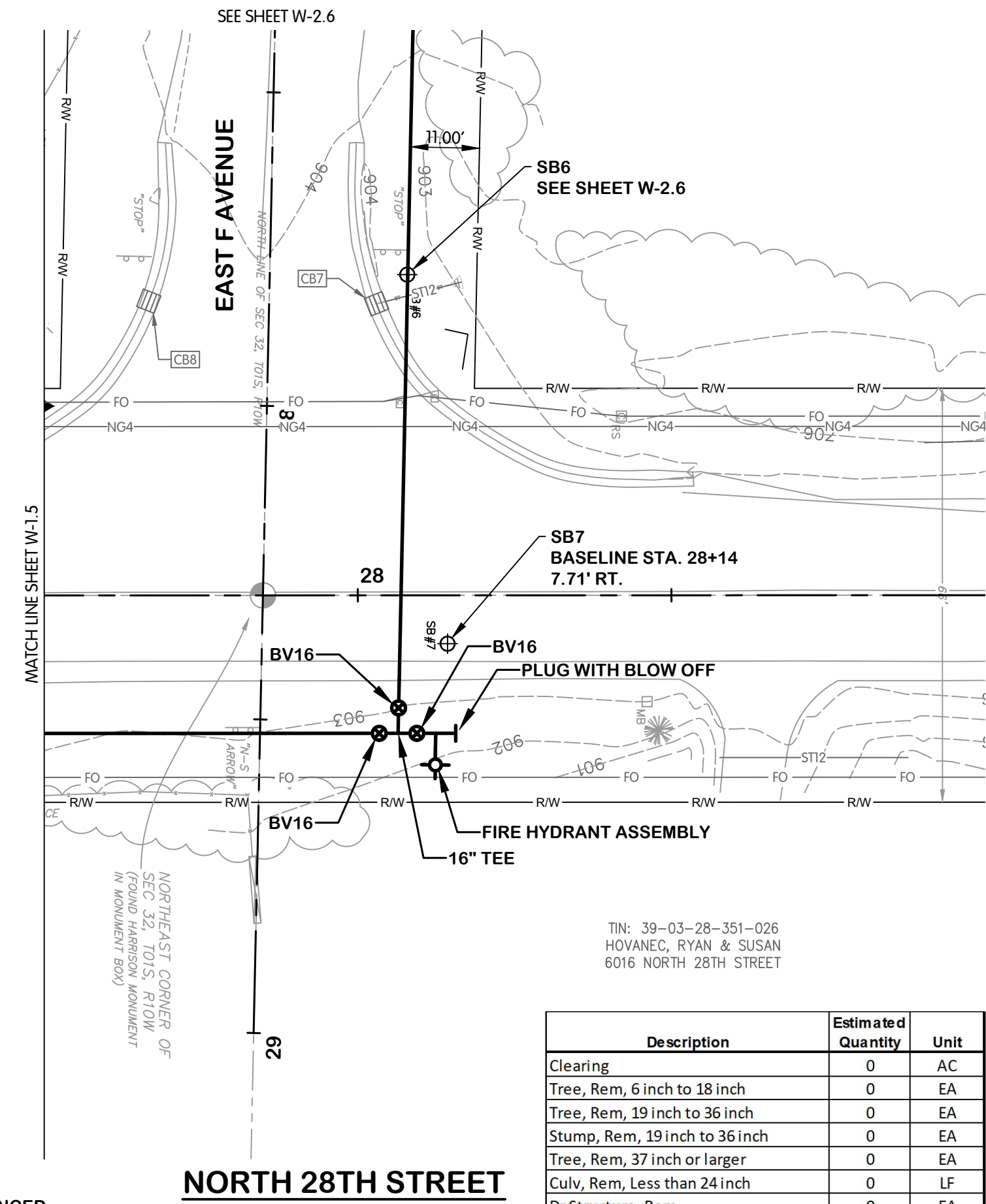
**NORTH 28TH STREET
WATER
PLAN AND PROFILE
STA. 22+00 TO 27+50**
CITY OF KALAMAZOO, MICHIGAN
EAST F AVENUE AND NORTH 28TH STREET WATER MAIN

DESIGNED: ERF
DRAWN: AJB
CHECKED: TLK
STATUS: ISSUE FOR BID
DATE: MAY 2025
SHEET NO. W-1.5
II OF 23

Jones & Henry
Engineers, Ltd.
Fluid thinking.
www.JHeng.com

JOB NO. 17-8189.001
SCALE 1"=20' HOR.
1"=4' VERT.
THIS LINE SCALES IF WHEN PLOTTED TO NOTED SCALE
DATE: MAY 2025
SHEET NO. W-1.5
II OF 23

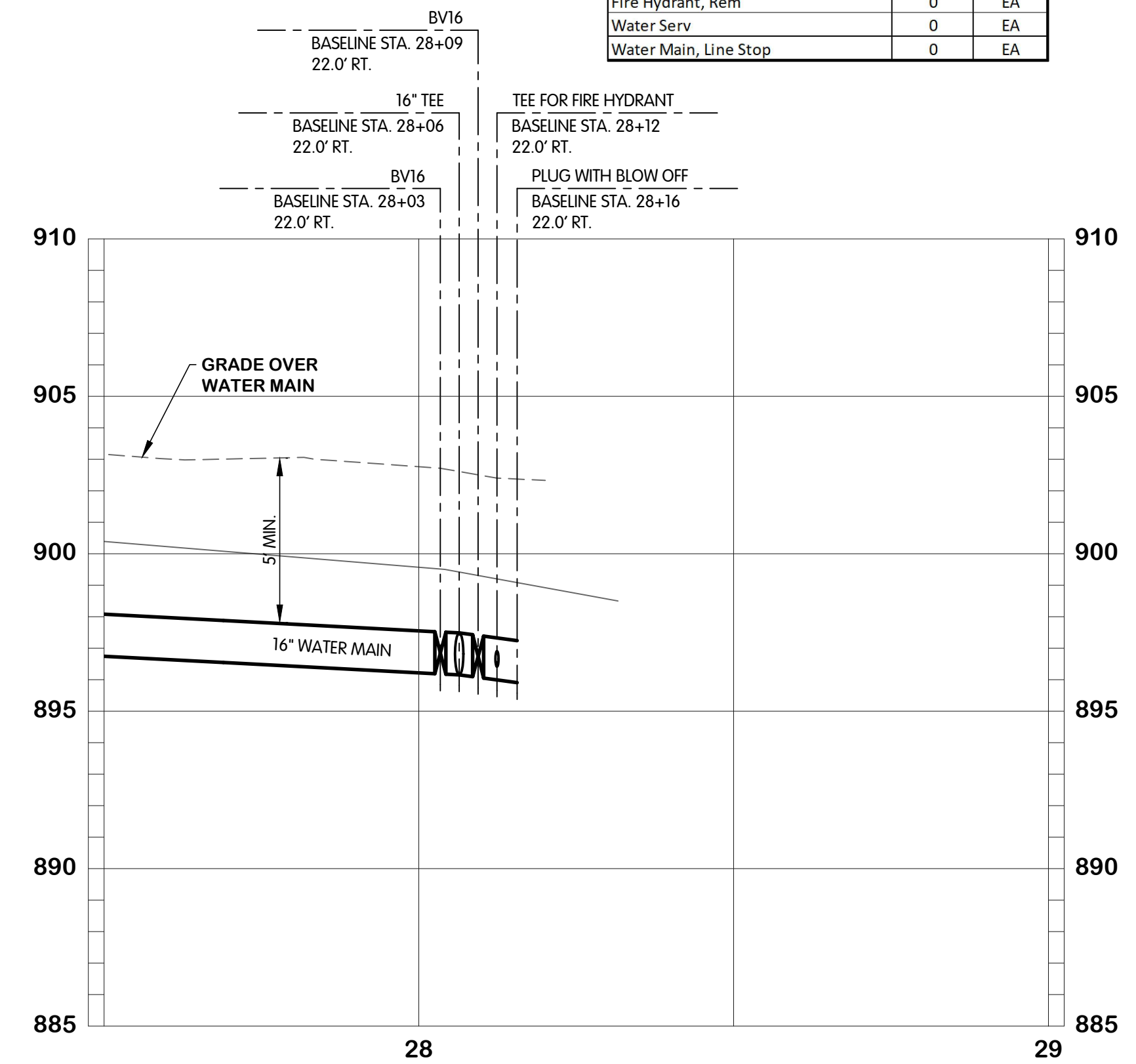
KAL-8189-001-W-1.6 28TH STA 27+50 TO 31+00
 6/24/2025 4:19 PM - CFERRELL
 6/24/2025 4:30 PM



TIN: 39-03-28-351-026
 HOVANEC, RYAN & SUSAN
 6016 NORTH 28TH STREET

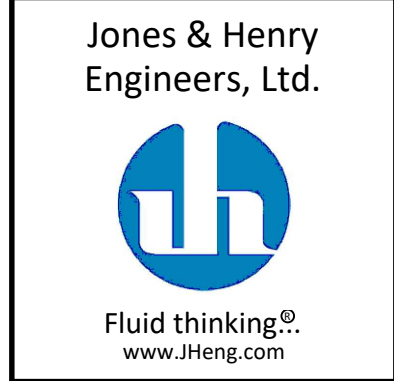
| Description | Estimated Quantity | Unit |
|----------------------------------|--------------------|------|
| Clearing | 0 | AC |
| Tree, Rem, 6 inch to 18 inch | 0 | EA |
| Tree, Rem, 19 inch to 36 inch | 0 | EA |
| Stump, Rem, 19 inch to 36 inch | 0 | EA |
| Tree, Rem, 37 inch or larger | 0 | EA |
| Culv, Rem, Less than 24 inch | 0 | LF |
| Dr Structure, Rem | 0 | EA |
| Culv, CI A, 12 inch | 0 | LF |
| Dr Structure, 48 inch dia | 0 | EA |
| Water Main, Air Release Manhole | 0 | EA |
| Butterfly Valve and Box, 16 inch | 2 | EA |
| Gate Valve and Box, 8 inch | 0 | EA |
| Water Main, DI 8 inch, Tr Det B | 0 | LF |
| Water Main, DI 12 inch, Tr Det B | 0 | LF |
| Water Main, DI 16 inch, Tr Det B | 66 | LF |
| Water Main, DI 16 inch, HDD | 0 | LF |
| Polyethylene Encasement | 66 | LF |
| Fire Hydrant Assembly | 1 | EA |
| Fire Hydrant, Rem | 0 | EA |
| Water Serv | 0 | EA |
| Water Main, Line Stop | 0 | EA |

- NOTES:**
1. ALL WATERMAIN SHALL BE POLYETHYLENE ENCASED USING V-BIO ENHANCED POLYETHYLENE ENCASEMENT. INSTALLATION SHALL BE PER DIPRA STANDARDS.
 2. NOT ALL TREES SCHEDULED FOR REMOVAL ARE SHOWN. COORDINATE IN FIELD WITH THE OWNER/ENGINEER TO DETERMINE/MARK TREES SCHEDULED FOR REMOVAL. TREE REMOVAL QUANTITIES LISTED IN THE QUANTITIES TABLE REPRESENT THE ACTUAL QUANTITIES SCHEDULED TO BE REMOVED.
 3. ALL WATER MAIN INSTALLATION TO CONFORM WITH CITY OF KALAMAZOO - STANDARD SPECIFICATIONS FOR WATER MAIN AND SERVICE INSTALLATION 2021.

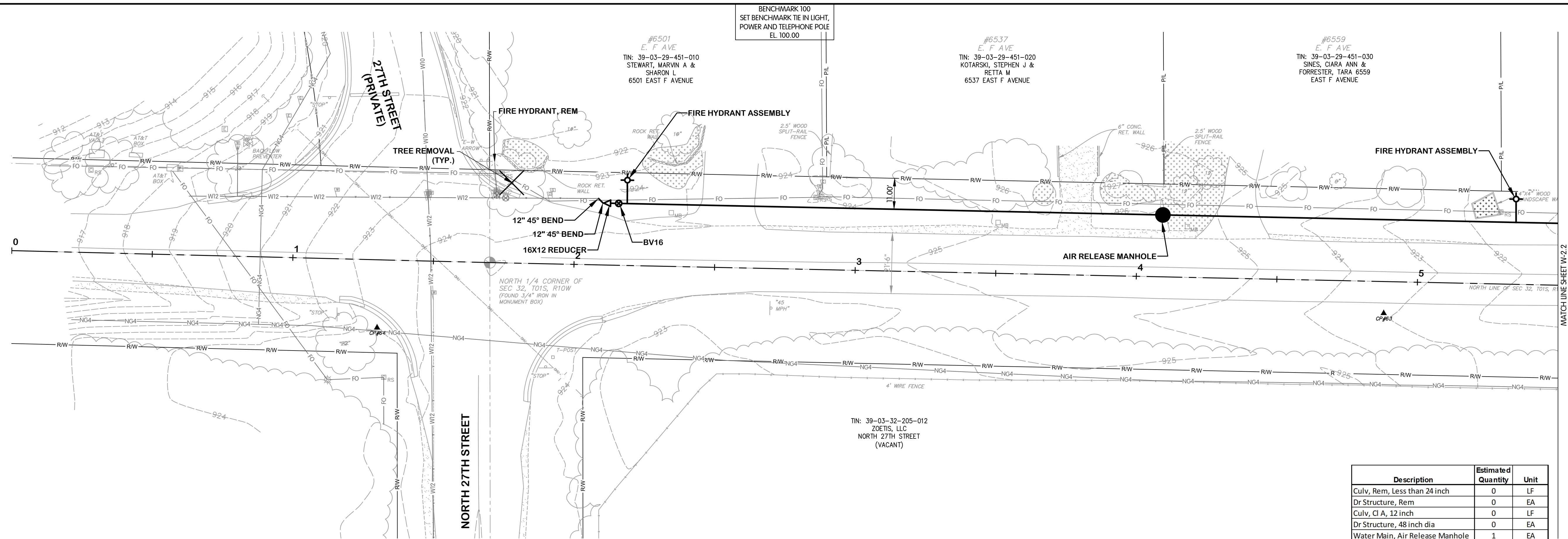


NORTH 28TH STREET
 WATER
 PLAN AND PROFILE
 STA. 27+50 TO 29+00
 CITY OF KALAMAZOO, MICHIGAN
 EAST F AVENUE AND NORTH 28TH STREET WATER MAIN

DESIGNED BY: ERF
 DRAWN BY: AJB
 CHECKED BY: TLK
 STATUS: ISSUE FOR BID
 DATE: MAY 2025
 SHEET NO.: W-1.6
 12 OF 23

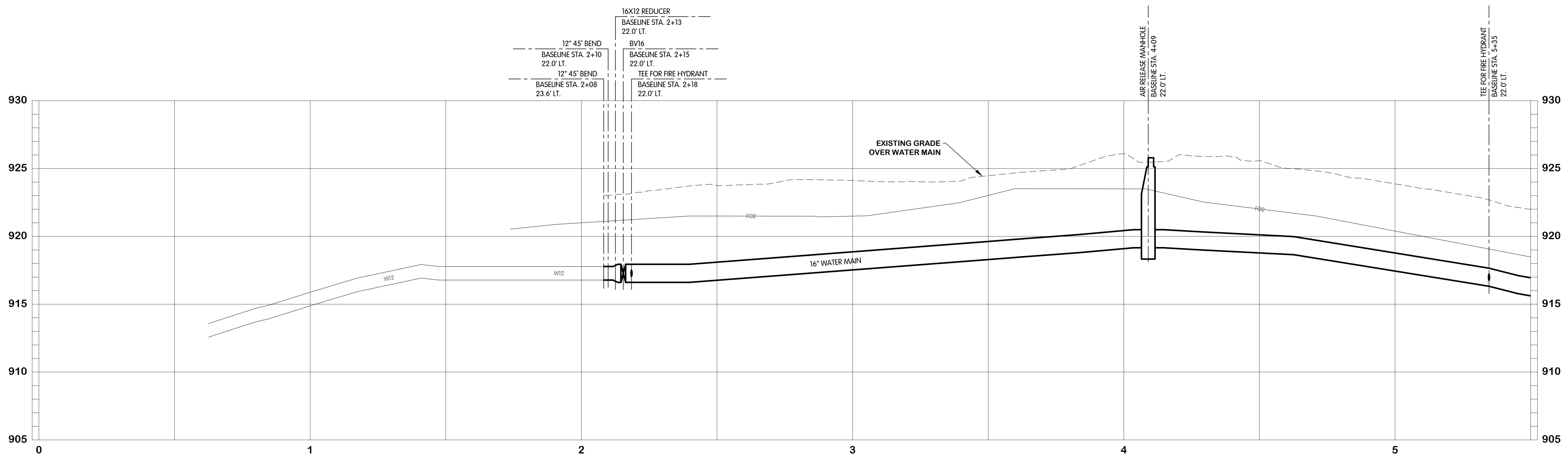


JOB NO.: 17-8189.001
 SCALE: 1"=20' HOR.
 1"=4' VERT.
 THIS LINE SCALES IF WHEN PLOTTED TO NOTED SCALE
 DESIGNED: ERF
 DRAWN: AJB
 CHECKED: TLK
 STATUS: ISSUE FOR BID
 DATE: MAY 2025
 SHEET NO.: W-1.6
 12 OF 23



- NOTES:**
1. ALL WATERMAIN SHALL BE POLYETHYLENE ENCASED USING V-BIO ENHANCED POLYETHYLENE ENCASEMENT. INSTALLATION SHALL BE PER DIPRA STANDARDS.
 2. NOT ALL TREES SCHEDULED FOR REMOVAL ARE SHOWN. COORDINATE IN FIELD WITH THE OWNER/ENGINEER TO DETERMINE/MARK TREES SCHEDULED FOR REMOVAL. TREE REMOVAL QUANTITIES LISTED IN THE QUANTITIES TABLE REPRESENT THE ACTUAL QUANTITIES SCHEDULED TO BE REMOVED.
 3. ALL WATER MAIN INSTALLATION TO CONFORM WITH CITY OF KALAMAZOO - STANDARD SPECIFICATIONS FOR WATER MAIN AND SERVICE INSTALLATION 2021.

| Description | Estimated Quantity | Unit |
|----------------------------------|--------------------|------|
| Culv, Rem, Less than 24 inch | 0 | LF |
| Dr Structure, Rem | 0 | EA |
| Culv, Cl A, 12 inch | 0 | LF |
| Dr Structure, 48 inch dia | 0 | EA |
| Water Main, Air Release Manhole | 1 | EA |
| Butterfly Valve and Box, 16 inch | 1 | EA |
| Gate Valve and Box, 8 inch | 0 | EA |
| Water Main, DI 8 inch, Tr Det B | 0 | LF |
| Water Main, DI 12 inch, Tr Det B | 5 | LF |
| Water Main, DI 16 inch, Tr Det B | 337 | LF |
| Water Main, DI 16 inch, HDD | 0 | LF |
| Polyethylene Encasement | 342 | LF |
| Fire Hydrant Assembly | 2 | EA |
| Fire Hydrant, Rem | 1 | EA |
| Water Serv | 0 | EA |
| Water Main, Line Stop | 0 | EA |



KAL-8189001W2-W-2.1.F STA 0+00 TO 5+50
 6/24/2025 4:29 PM - CFERRELL
 6/24/2025 4:30 PM



EAST F AVENUE
WATER
PLAN AND PROFILE
STA. 0+00 TO 5+50
 CITY OF KALAMAZOO, MICHIGAN
EAST F AVENUE AND NORTH 28TH STREET WATER MAIN

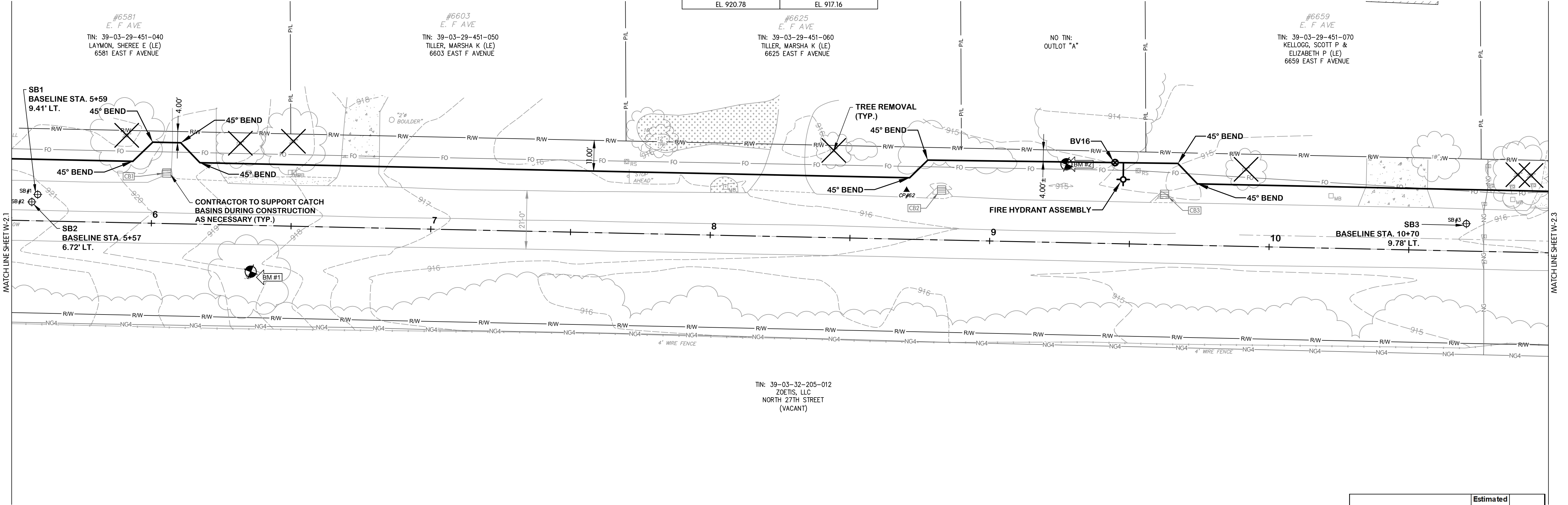
Jones & Henry
 Engineers, Ltd.

 Fluid thinking.[®]
 www.JHeng.com

| | |
|-----------|----------------------------|
| JOB NO. | 17-8189.001 |
| SCALE | 1"=20' HOR. 1"=4' VERT. |
| DESIGNED | ERF |
| DRAWN | AJB |
| CHECKED | TLK |
| STATUS | ISSUE FOR BID |
| DATE | MAY 2025 |
| SHEET NO. | W-2.1 |
| | 13 OF 23 |

BENCHMARK #1
60D SPIKE IN NORTH SIDE OF
40" DECIDUOUS TREE
EL. 920.78

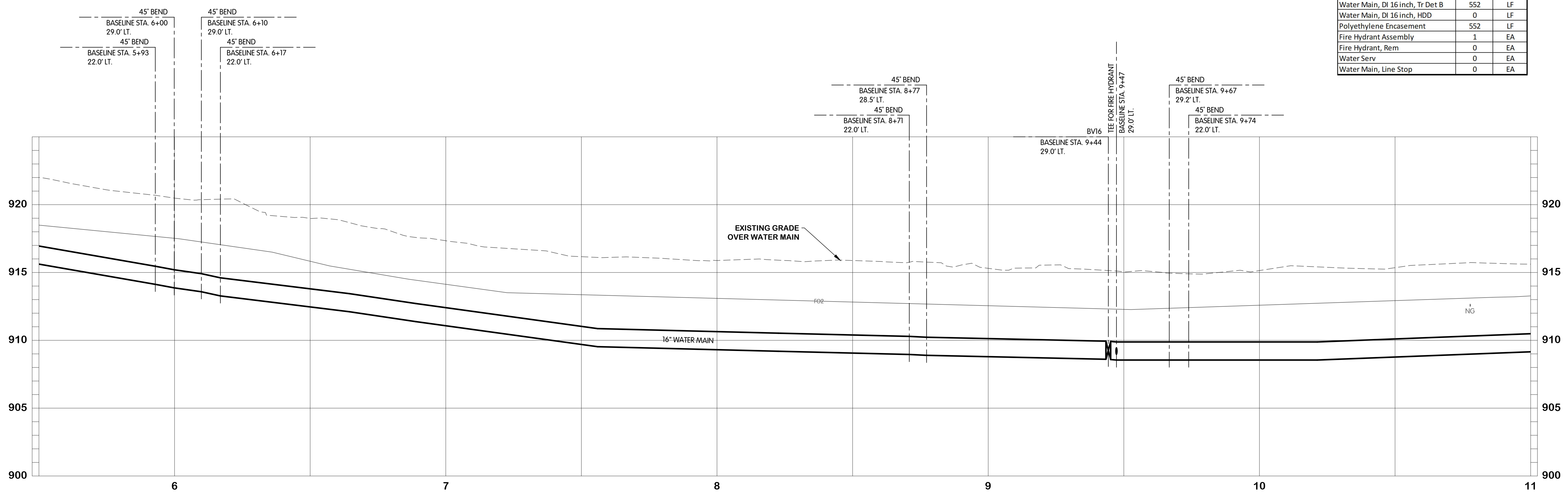
BENCHMARK #2
60D SPIKE IN NORTH SIDE OF
30" DECIDUOUS TREE
EL. 917.16



EAST F AVENUE

- NOTES:**
1. ALL WATERMAIN SHALL BE POLYETHYLENE ENCASED USING V-BIO ENHANCED POLYETHYLENE ENCASEMENT. INSTALLATION SHALL BE PER DIPRA STANDARDS.
 2. NOT ALL TREES SCHEDULED FOR REMOVAL ARE SHOWN. COORDINATE IN FIELD WITH THE OWNER/ENGINEER TO DETERMINE/MARK TREES SCHEDULED FOR REMOVAL. TREE REMOVAL QUANTITIES LISTED IN THE QUANTITIES TABLE REPRESENT THE ACTUAL QUANTITIES SCHEDULED TO BE REMOVED.
 3. ALL WATER MAIN INSTALLATION TO CONFORM WITH CITY OF KALAMAZOO - STANDARD SPECIFICATIONS FOR WATER MAIN AND SERVICE INSTALLATION 2021.

| Description | Estimated Quantity | Unit |
|----------------------------------|--------------------|------|
| Culv. Rem, Less than 24 inch | 0 | LF |
| Dr Structure, Rem | 0 | EA |
| Culv, CI A, 12 inch | 0 | LF |
| Dr Structure, 48 inch dia | 0 | EA |
| Water Main, Air Release Manhole | 0 | EA |
| Butterfly Valve and Box, 16 inch | 0 | EA |
| Gate Valve and Box, 8 inch | 0 | EA |
| Water Main, DI 8 inch, Tr Det B | 0 | LF |
| Water Main, DI 12 inch, Tr Det B | 0 | LF |
| Water Main, DI 16 inch, Tr Det B | 552 | LF |
| Water Main, DI 16 inch, HDD | 0 | LF |
| Polyethylene Encasement | 552 | LF |
| Fire Hydrant Assembly | 1 | EA |
| Fire Hydrant, Rem | 0 | EA |
| Water Serv | 0 | EA |
| Water Main, Line Stop | 0 | EA |



KAL-8189001W2-W-2 F STA. 5+50 TO 11+00
6/24/2025 4:29 PM - CFERRELL
6/24/2025 4:30 PM



EAST F AVENUE
WATER
PLAN AND PROFILE
STA. 5+50 TO 11+00
 CITY OF KALAMAZOO, MICHIGAN
EAST F AVENUE AND NORTH 28TH STREET WATER MAIN

DESIGNED BY: ERF
 DRAWN BY: AJB
 CHECKED BY: TLK
 STATUS: ISSUE FOR BID
 DATE: MAY 2025
 SHEET NO.: W-2.2
 OF 23

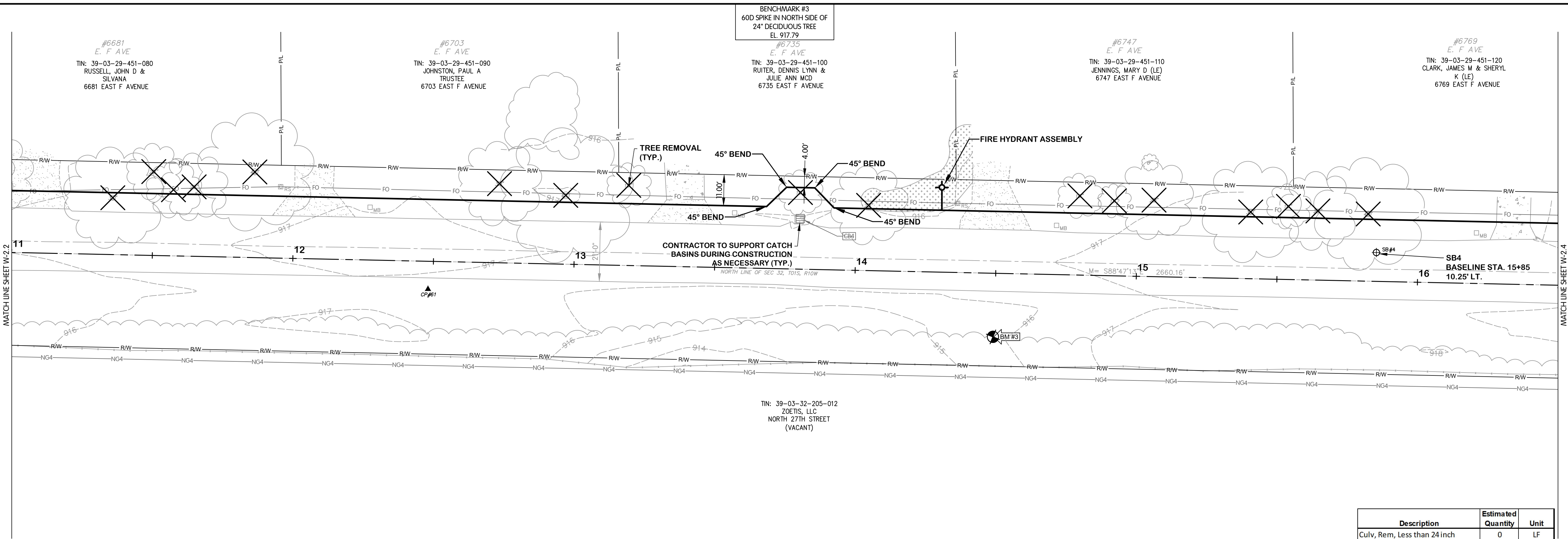
Jones & Henry Engineers, Ltd.

Fluid thinking.[®]
www.JHeng.com

JOB NO. 17-8189.001
SCALE 1"=20' HOR.
1"=4' VERT.
THIS LINE SCALES IF WHEN PLOTTED TO NOTED SCALE
DESIGNED ERF DRAWN AJB CHECKED TLK
STATUS: ISSUE FOR BID
DATE: MAY 2025
SHEET NO. W-2.2
OF 23



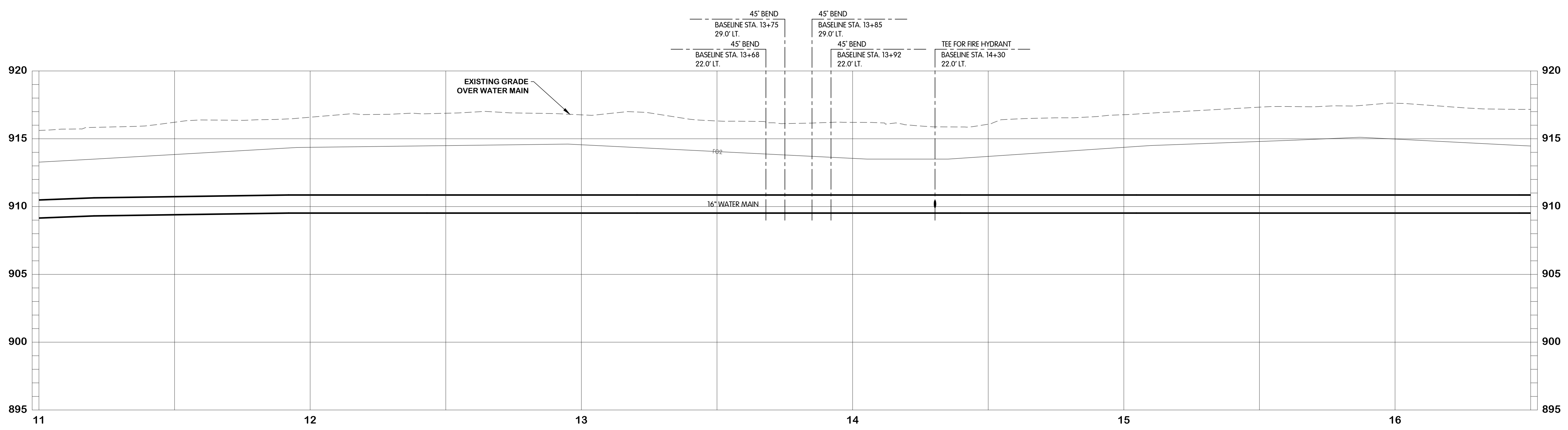
EAST F AVENUE
 WATER
 PLAN AND PROFILE
 STA. 11+00 TO 16+50
 CITY OF KALAMAZOO, MICHIGAN
 EAST F AVENUE AND NORTH 28TH STREET WATER MAIN



- NOTES:**
1. ALL WATERMAIN SHALL BE POLYETHYLENE ENCASED USING V-BIO ENHANCED POLYETHYLENE ENCASEMENT. INSTALLATION SHALL BE PER DIPRA STANDARDS.
 2. NOT ALL TREES SCHEDULED FOR REMOVAL ARE SHOWN. COORDINATE IN FIELD WITH THE OWNER/ENGINEER TO DETERMINE/MARK TREES SCHEDULED FOR REMOVAL. TREE REMOVAL QUANTITIES LISTED IN THE QUANTITIES TABLE REPRESENT THE ACTUAL QUANTITIES SCHEDULED TO BE REMOVED.
 3. ALL WATER MAIN INSTALLATION TO CONFORM WITH CITY OF KALAMAZOO - STANDARD SPECIFICATIONS FOR WATER MAIN AND SERVICE INSTALLATION 2021.

EAST F AVENUE

| Description | Estimated Quantity | Unit |
|----------------------------------|--------------------|------|
| Culv. Rem. Less than 24 inch | 0 | LF |
| Dr Structure, Rem | 0 | EA |
| Culv. CI A, 12 inch | 0 | LF |
| Dr Structure, 48 inch dia | 0 | EA |
| Water Main, Air Release Manhole | 0 | EA |
| Butterfly Valve and Box, 16 inch | 1 | EA |
| Gate Valve and Box, 8 inch | 0 | EA |
| Water Main, DI 8 inch, Tr Det B | 0 | LF |
| Water Main, DI 12 inch, Tr Det B | 0 | LF |
| Water Main, DI 16 inch, Tr Det B | 551 | LF |
| Water Main, DI 16 inch, HDD | 0 | LF |
| Polyethylene Encasement | 551 | LF |
| Fire Hydrant Assembly | 1 | EA |
| Fire Hydrant, Rem | 0 | EA |
| Water Serv | 0 | EA |
| Water Main, Line Stop | 0 | EA |



KAL-8189001W2-W-2.3 F STA. 11+00 TO 16+50
 6/24/2025 4:29 PM - CFERRELL
 6/24/2025 4:30 PM

REVISIONS AFTER ISSUED FOR BID
 NO. DATE BY

Jones & Henry
 Engineers, Ltd.

 Fluid thinking.[®]
 www.JHeng.com

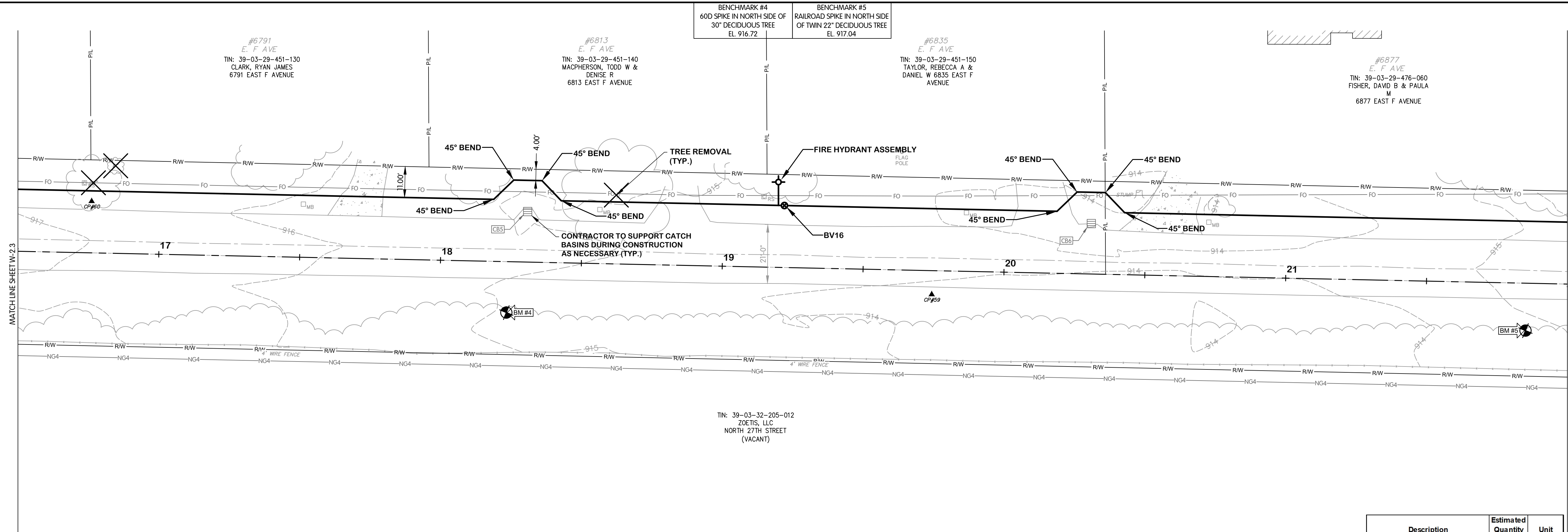
JOB NO. 17-8189.001
 SCALE 1"=20' HOR.
 1"=4' VERT.
 THIS LINE SCALES IF WHEN PLOTTED TO NOTED SCALE

| | | |
|----------|-------|---------|
| DESIGNED | DRAWN | CHECKED |
| ERF | AJB | TLK |

STATUS: ISSUE FOR BID
 DATE: MAY 2025
 SHEET NO. W-2.3
 15 OF 23



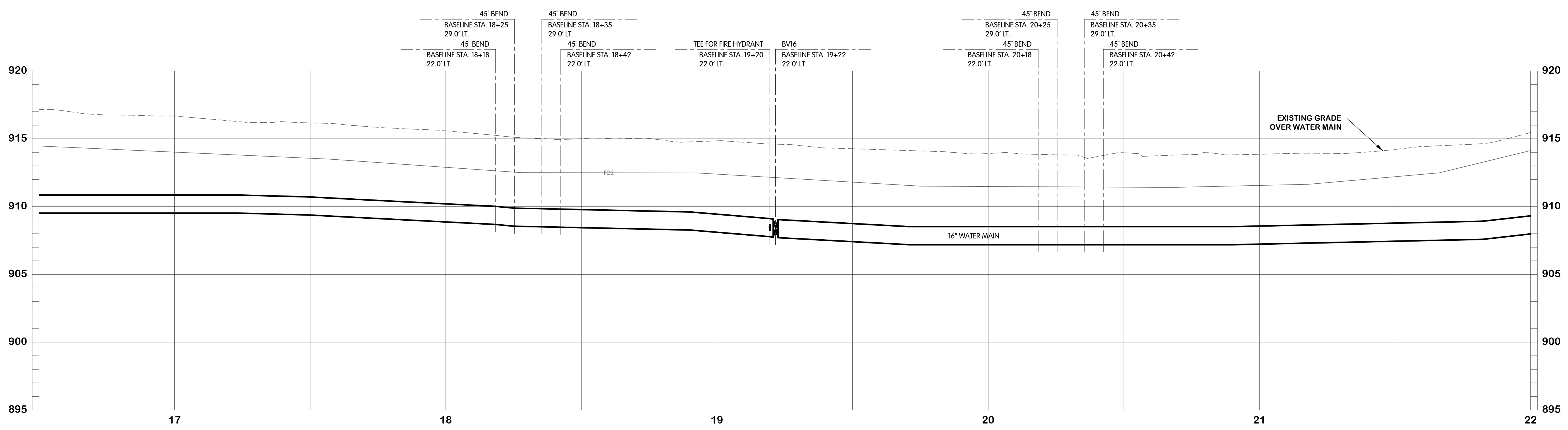
EAST F AVENUE
WATER
PLAN AND PROFILE
STA. 16+50 TO 22+00
CITY OF KALAMAZOO, MICHIGAN
EAST F AVENUE AND NORTH 28TH STREET WATER MAIN



- NOTES:**
1. ALL WATERMAIN SHALL BE POLYETHYLENE ENCASED USING V-BIO ENHANCED POLYETHYLENE ENCASUREMENT. INSTALLATION SHALL BE PER DIPRA STANDARDS.
 2. NOT ALL TREES SCHEDULED FOR REMOVAL ARE SHOWN. COORDINATE IN FIELD WITH THE OWNER/ENGINEER TO DETERMINE/MARK TREES SCHEDULED FOR REMOVAL. TREE REMOVAL QUANTITIES LISTED IN THE QUANTITIES TABLE REPRESENT THE ACTUAL QUANTITIES SCHEDULED TO BE REMOVED.
 3. ALL WATER MAIN INSTALLATION TO CONFORM WITH CITY OF KALAMAZOO - STANDARD SPECIFICATIONS FOR WATER MAIN AND SERVICE INSTALLATION 2021.

EAST F AVENUE

| Description | Estimated Quantity | Unit |
|----------------------------------|--------------------|------|
| Culv, Rem, Less than 24 inch | 0 | LF |
| Dr Structure, Rem | 0 | EA |
| Culv, CI A, 12 inch | 0 | LF |
| Dr Structure, 48 inch dia | 0 | EA |
| Water Main, Air Release Manhole | 0 | EA |
| Butterfly Valve and Box, 16 inch | 1 | EA |
| Gate Valve and Box, 8 inch | 0 | EA |
| Water Main, DI 8 inch, Tr Det B | 0 | LF |
| Water Main, DI 12 inch, Tr Det B | 0 | LF |
| Water Main, DI 16 inch, Tr Det B | 550 | LF |
| Water Main, DI 16 inch, HDD | 0 | LF |
| Polyethylene Encasement | 550 | LF |
| Fire Hydrant Assembly | 1 | EA |
| Fire Hydrant, Rem | 0 | EA |
| Water Serv | 0 | EA |
| Water Main, Line Stop | 0 | EA |



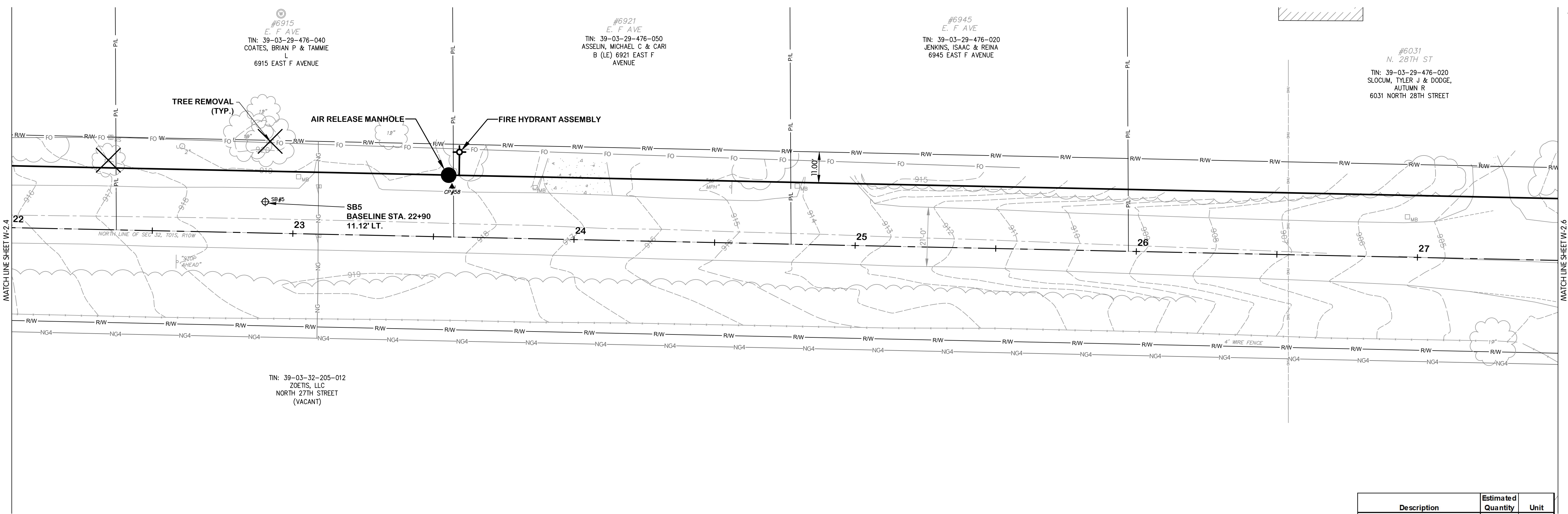
KAL-8189001W2-W-2.4 F. STA. 16+50 TO 22+00
6/24/2025 4:29 PM - CFERRELL
6/24/2025 4:30 PM

NO. 1 2 3 4 5 6 7 8 9 10 11 12
DATE
REVISIONS AFTER ISSUED FOR BID
BY

Jones & Henry
Engineers, Ltd.

Fluid thinking.[®]
www.JHeng.com

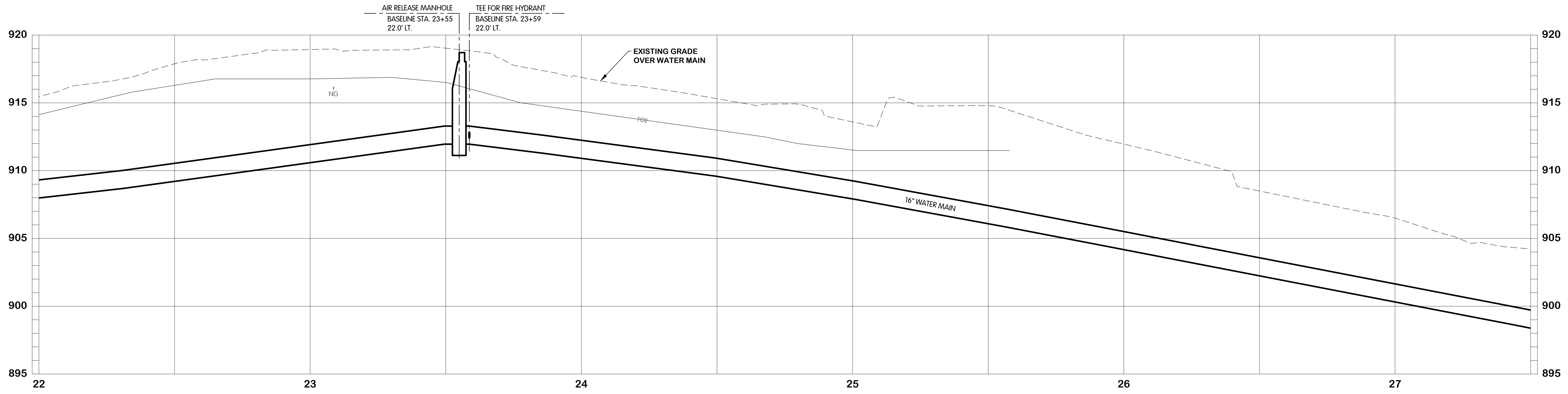
| | |
|---|----------------------------|
| JOB NO. | 17-8189.001 |
| SCALE | 1"=20' HOR. 1"=4' VERT. |
| THIS LINE SCALES IF WHEN PLOTTED TO NOTED SCALE | |
| DESIGNED | ERF |
| DRAWN | AJB |
| CHECKED | TLK |
| STATUS | ISSUE FOR BID |
| DATE | MAY 2025 |
| SHEET NO. | W-2.4 |
| OF | 23 |



- NOTES:**
1. ALL WATERMAIN SHALL BE POLYETHYLENE ENCASED USING V-BIO ENHANCED POLYETHYLENE ENCASEMENT. INSTALLATION SHALL BE PER DIPRA STANDARDS.
 2. NOT ALL TREES SCHEDULED FOR REMOVAL ARE SHOWN. COORDINATE IN FIELD WITH THE OWNER/ENGINEER TO DETERMINE/MARK TREES SCHEDULED FOR REMOVAL. TREE REMOVAL QUANTITIES LISTED IN THE QUANTITIES TABLE REPRESENT THE ACTUAL QUANTITIES SCHEDULED TO BE REMOVED.
 3. ALL WATER MAIN INSTALLATION TO CONFORM WITH CITY OF KALAMAZOO - STANDARD SPECIFICATIONS FOR WATER MAIN AND SERVICE INSTALLATION 2021.

EAST F AVENUE

| Description | Estimated Quantity | Unit |
|----------------------------------|--------------------|------|
| Culv. Rem, Less than 24 inch | 0 | LF |
| Dr Structure, Rem | 0 | EA |
| Culv, CI A, 12 inch | 0 | LF |
| Dr Structure, 48 inch dia | 0 | EA |
| Water Main, Air Release Manhole | 1 | EA |
| Butterfly Valve and Box, 16 inch | 0 | EA |
| Gate Valve and Box, 8 inch | 0 | EA |
| Water Main, DI 8 inch, Tr Det B | 0 | LF |
| Water Main, DI 12 inch, Tr Det B | 0 | LF |
| Water Main, DI 16 inch, Tr Det B | 552 | LF |
| Water Main, DI 16 inch, HDD | 0 | LF |
| Polyethylene Encasement | 552 | LF |
| Fire Hydrant Assembly | 1 | EA |
| Fire Hydrant, Rem | 0 | EA |
| Water Serv | 0 | EA |
| Water Main, Line Stop | 0 | EA |



KAL-8189001W-2.5 F STA. 22+00 TO 27+50
 6/24/2025 4:29 PM - CFERRELL
 6/24/2025 4:31 PM



EAST F AVENUE
WATER
PLAN AND PROFILE
STA. 22+00 TO 27+50
 CITY OF KALAMAZOO, MICHIGAN
EAST F AVENUE AND NORTH 28TH STREET WATER MAIN

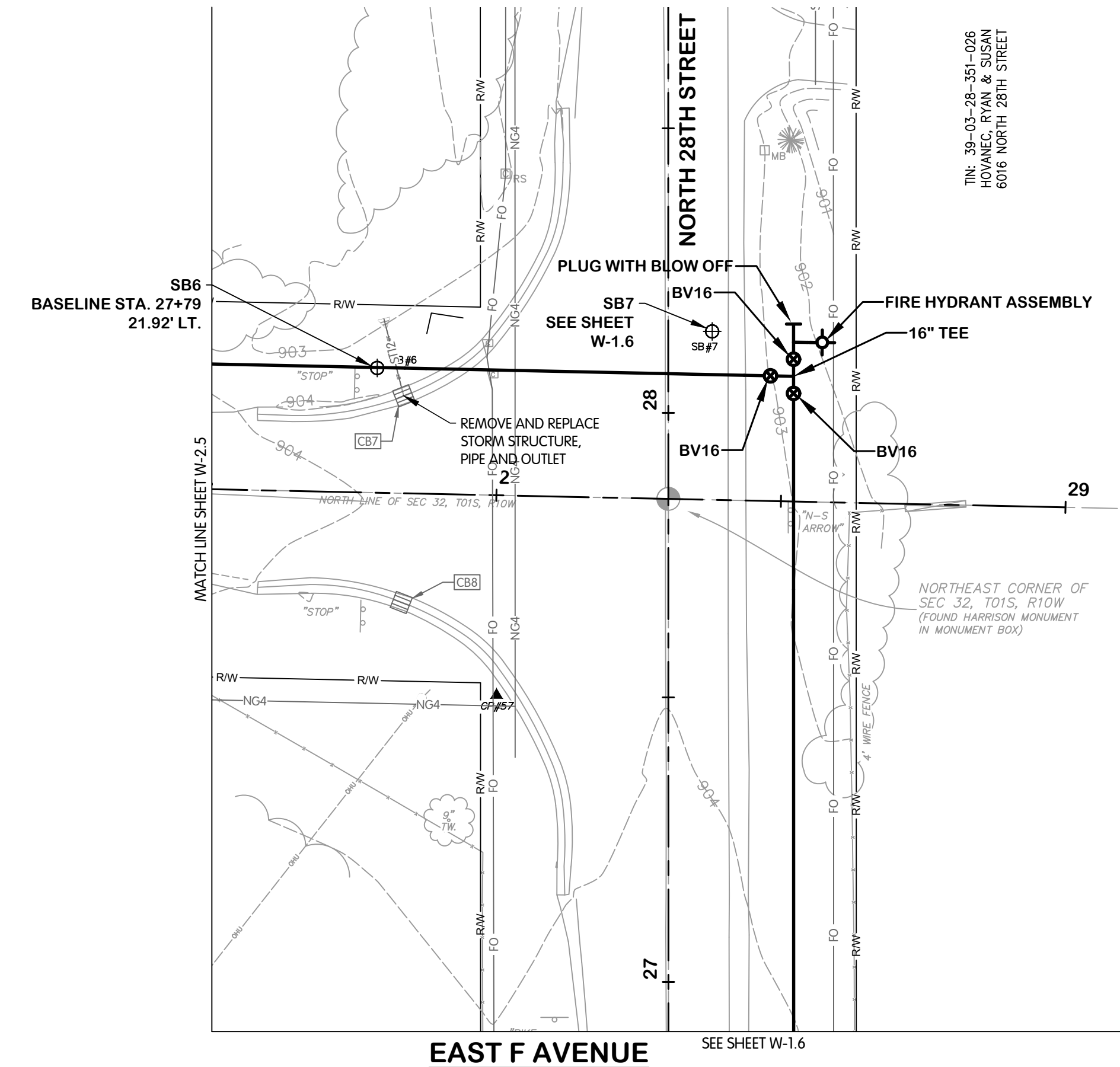
REVISIONS AFTER ISSUED FOR BID
 NO. 1
 DATE

Jones & Henry
 Engineers, Ltd.

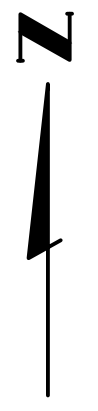
 Fluid thinking.[®]
 www.JHeng.com

| | |
|---|----------------------------|
| JOB NO. | 17-8189.001 |
| SCALE | 1"=20' HOR. 1"=4' VERT. |
| THIS LINE SCALES IF WHEN PLOTTED TO NOTED SCALE | |
| DESIGNED | ERF |
| DRAWN | AJB |
| CHECKED | TLK |
| STATUS | ISSUE FOR BID |
| DATE | MAY 2025 |
| SHEET NO. | W-2.5 |
| | 17 OF 23 |

KAL-8189001W2-W-2.6 F STA. 27+50 TO 33+00
 6/24/2025 4:29 PM - CFERRELL
 6/24/2025 4:31 PM



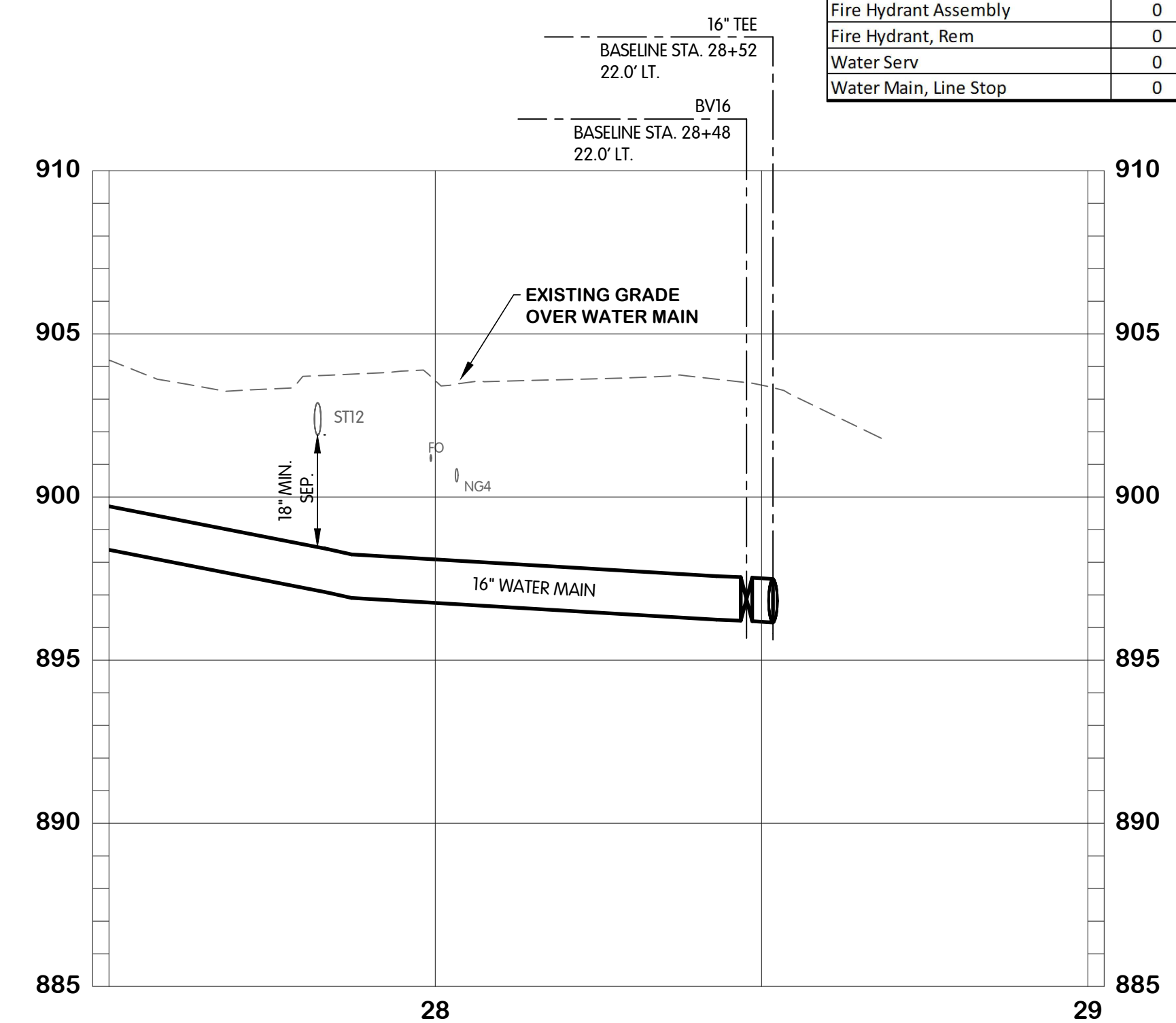
TIN: 39-03-28-361-026
 HOWANEC, RYAN & SUSAN
 6016 NORTH 28TH STREET



NOTES:

1. ALL WATERMAIN SHALL BE POLYETHYLENE ENCASED USING V-BIO ENHANCED POLYETHYLENE ENCASEMENT. INSTALLATION SHALL BE PER DIPRA STANDARDS.
2. NOT ALL TREES SCHEDULED FOR REMOVAL ARE SHOWN. COORDINATE IN FIELD WITH THE OWNER/ENGINEER TO DETERMINE/MARK TREES SCHEDULED FOR REMOVAL. TREE REMOVAL QUANTITIES LISTED IN THE QUANTITIES TABLE REPRESENT THE ACTUAL QUANTITIES SCHEDULED TO BE REMOVED.
3. ALL WATER MAIN INSTALLATION TO CONFORM WITH CITY OF KALAMAZOO - STANDARD SPECIFICATIONS FOR WATER MAIN AND SERVICE INSTALLATION 2021.

| Description | Estimated Quantity | Unit |
|----------------------------------|--------------------|------|
| Culv, Rem, Less than 24 inch | 15 | LF |
| Dr Structure, Rem | 1 | EA |
| Culv, Cl A, 12 inch | 15 | LF |
| Dr Structure, 48 inch dia | 1 | EA |
| Water Main, Air Release Manhole | 0 | EA |
| Butterfly Valve and Box, 16 inch | 1 | EA |
| Gate Valve and Box, 8 inch | 0 | EA |
| Water Main, DI 8 inch, Tr Det B | 0 | LF |
| Water Main, DI 12 inch, Tr Det B | 0 | LF |
| Water Main, DI 16 inch, Tr Det B | 102 | LF |
| Water Main, DI 16 inch, HDD | 0 | LF |
| Polyethylene Encasement | 102 | LF |
| Fire Hydrant Assembly | 0 | EA |
| Fire Hydrant, Rem | 0 | EA |
| Water Serv | 0 | EA |
| Water Main, Line Stop | 0 | EA |



**EAST F AVENUE
 WATER
 PLAN AND PROFILE
 STA. 27+50 TO 29+00
 CITY OF KALAMAZOO, MICHIGAN
 EAST F AVENUE AND NORTH 28TH STREET WATER MAIN**

BY _____
 DATE _____
 REVISIONS AFTER ISSUED FOR BID

Jones & Henry
 Engineers, Ltd.

 Fluid thinking.[®]
 www.JHeng.com

JOB NO. 17-8189.001
 SCALE 1"=20' HOR.
 1"=4' VERT.
 THIS LINE SCALES IF WHEN PLOTTED TO NOTED SCALE

| | | |
|----------|-------|---------|
| DESIGNED | DRAWN | CHECKED |
| ERF | AJB | TLK |

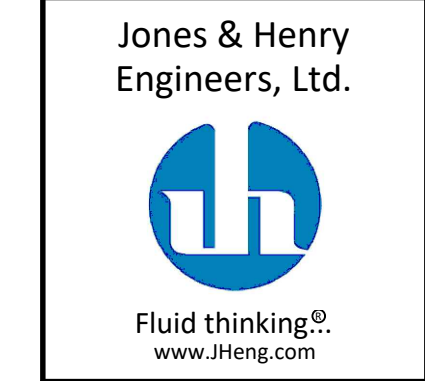
STATUS: ISSUE FOR BID
 DATE: MAY 2025
 SHEET NO. W-2.6
 18 OF 23



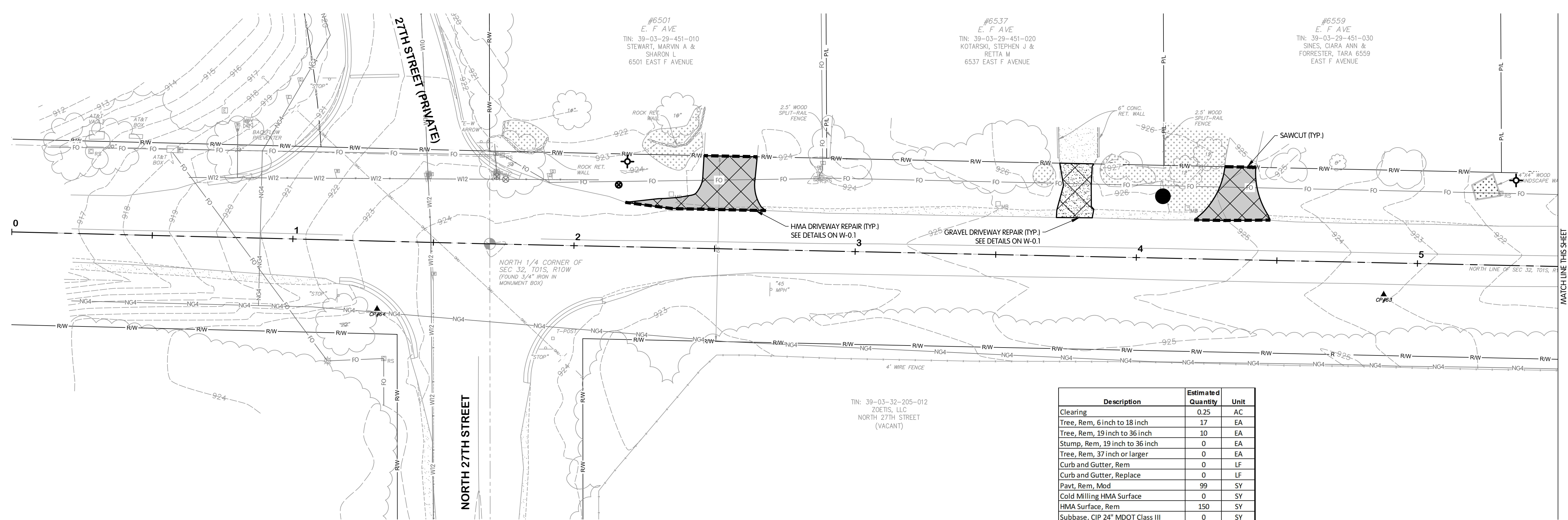
**EAST F AVENUE
SURFACE RESTORATION
PLANS
STA. 0+00 TO 11+00**

CITY OF KALAMAZOO, MICHIGAN
EAST F AVENUE AND NORTH 28TH STREET WATER MAIN

REVISIONS AFTER ISSUED FOR BID
DATE
NO.

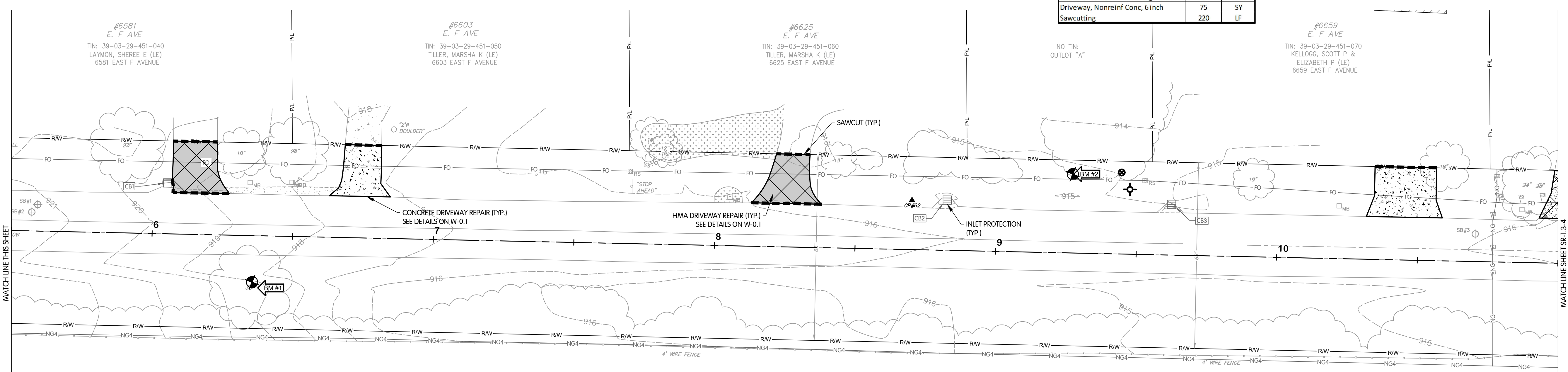


| | |
|---|---------------|
| JOB NO. | 17-8189.001 |
| SCALE | 1"=20' |
| THIS LINE SCALES IF WHEN PLOTTED TO NOTED SCALE | |
| DESIGNED | ERF |
| DRAWN | AJB |
| CHECKED | TLK |
| STATUS | ISSUE FOR BID |
| DATE | MAY 2025 |
| SHEET NO. | SR-1.1-2 |
| | 19 OF 23 |



**EAST F AVENUE
STA. 0+00 TO 5+50**

| Description | Estimated Quantity | Unit |
|-----------------------------------|--------------------|------|
| Clearing | 0.25 | AC |
| Tree, Rem, 6 inch to 18 inch | 17 | EA |
| Tree, Rem, 19 inch to 36 inch | 10 | EA |
| Stump, Rem, 19 inch to 36 inch | 0 | EA |
| Tree, Rem, 37 inch or larger | 0 | EA |
| Curb and Gutter, Rem | 0 | LF |
| Curb and Gutter, Replace | 0 | LF |
| Pavt, Rem, Mod | 99 | SY |
| Cold Milling HMA Surface | 0 | SY |
| HMA Surface, Rem | 150 | SY |
| Subbase, CIP 24" MDOT Class III | 0 | SY |
| Aggregate Base, 4 inch | 75 | SY |
| Aggregate Base, 6 inch | 150 | SY |
| Aggregate Base, 8 inch | 24 | SY |
| HMA Approach | 150 | SY |
| HMA MDOT 13A - 2" Base Course | 0 | TON |
| HMA MDOT 13A - 2" Leveling Course | 0 | TON |
| HMA MDOT 13A - 2" Wearing Course | 0 | TON |
| Driveway, Nonreinf Conc, 6 inch | 75 | SY |
| Sawcutting | 220 | LF |



**EAST F AVENUE
STA. 5+50 TO 11+00**

KAL-8189001SR-1.1-F STA 0+00 TO 11+00
6/24/2025 4:08 PM - CFERRELL
6/24/2025 4:31 PM

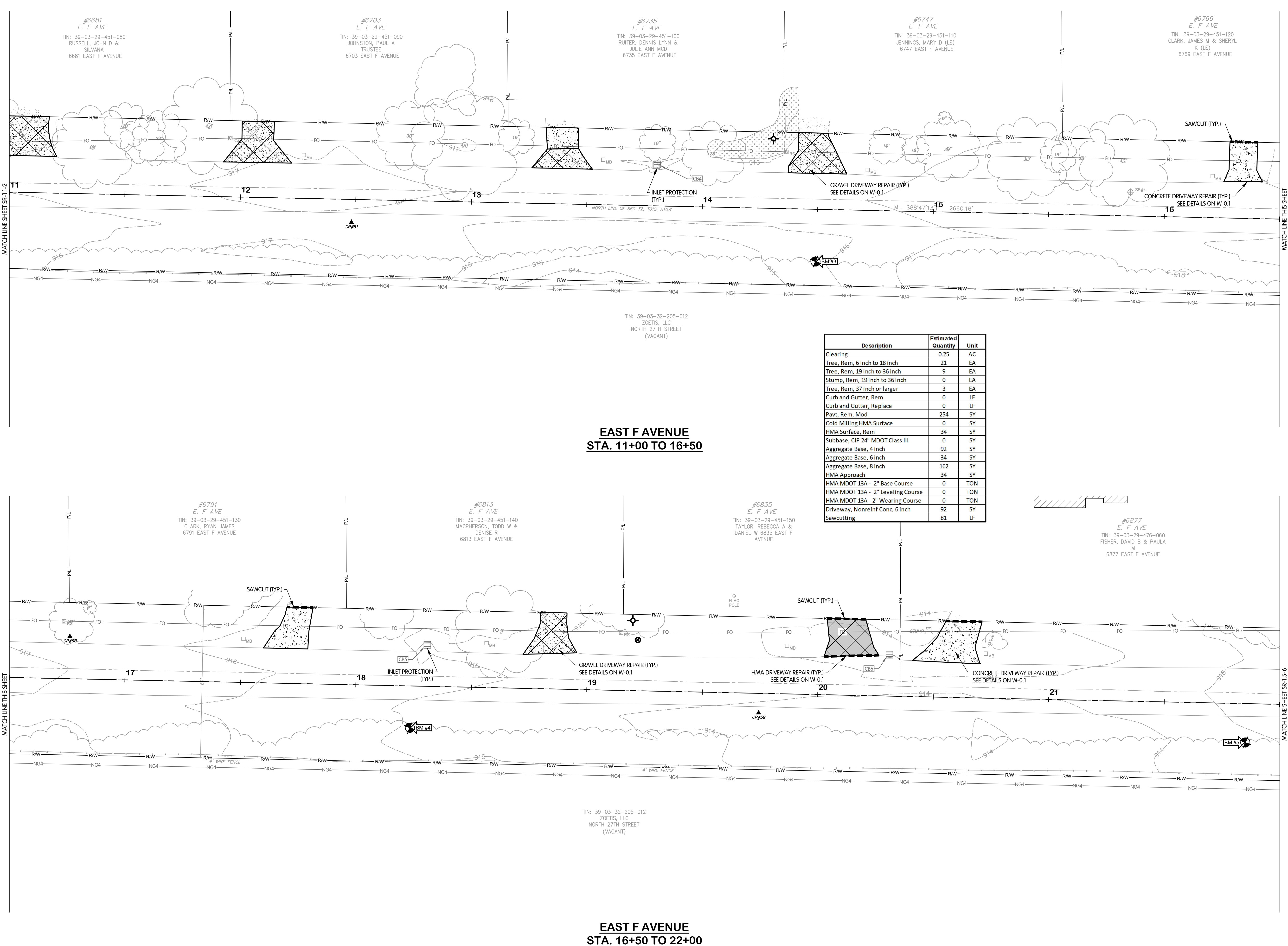


EAST F AVENUE
SURFACE RESTORATION
PLANS
STA. 11+00 TO 22+00
CITY OF KALAMAZOO, MICHIGAN
EAST F AVENUE AND NORTH 28TH STREET WATER MAIN

BY _____
REVISIONS AFTER ISSUED FOR BID
DATE _____
NO. _____



JOB NO. 17-8189.001
SCALE 1"=20'
THIS LINE SCALES IF WHEN PLOTTED TO NOTED SCALE
DESIGNED ERF DRAWN AJB CHECKED TLK
STATUS: ISSUE FOR BID
DATE: MAY 2025
SHEET NO. SR-1.3-4
20 OF 23

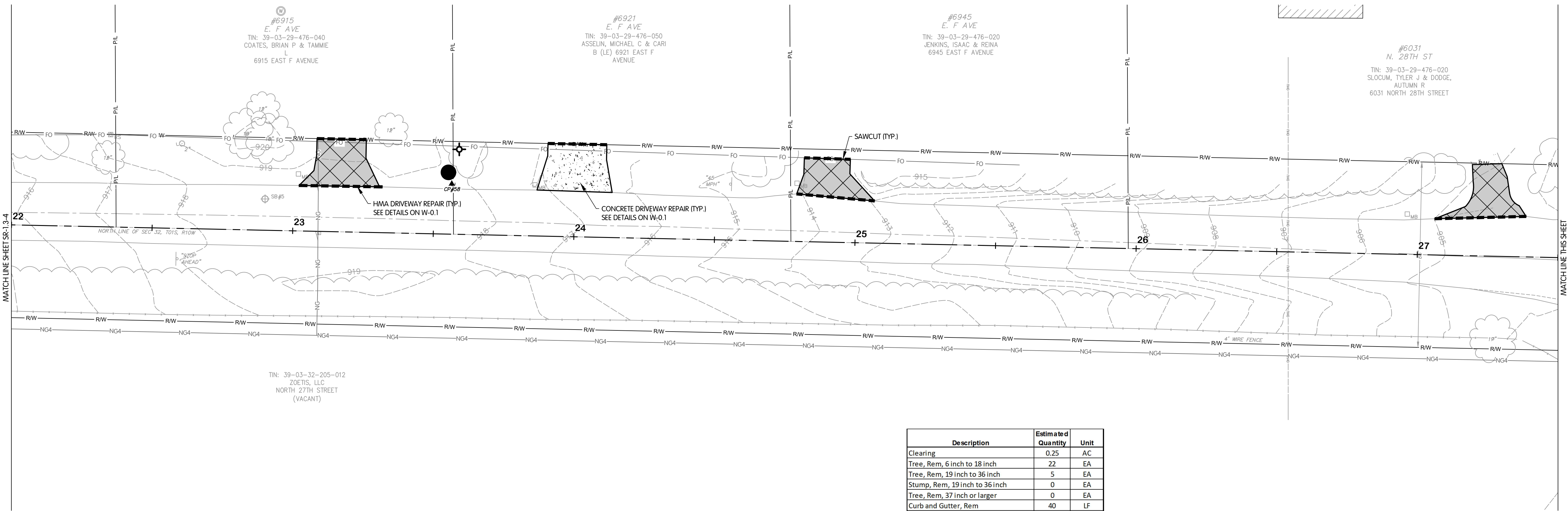


EAST F AVENUE
STA. 11+00 TO 16+50

EAST F AVENUE
STA. 16+50 TO 22+00

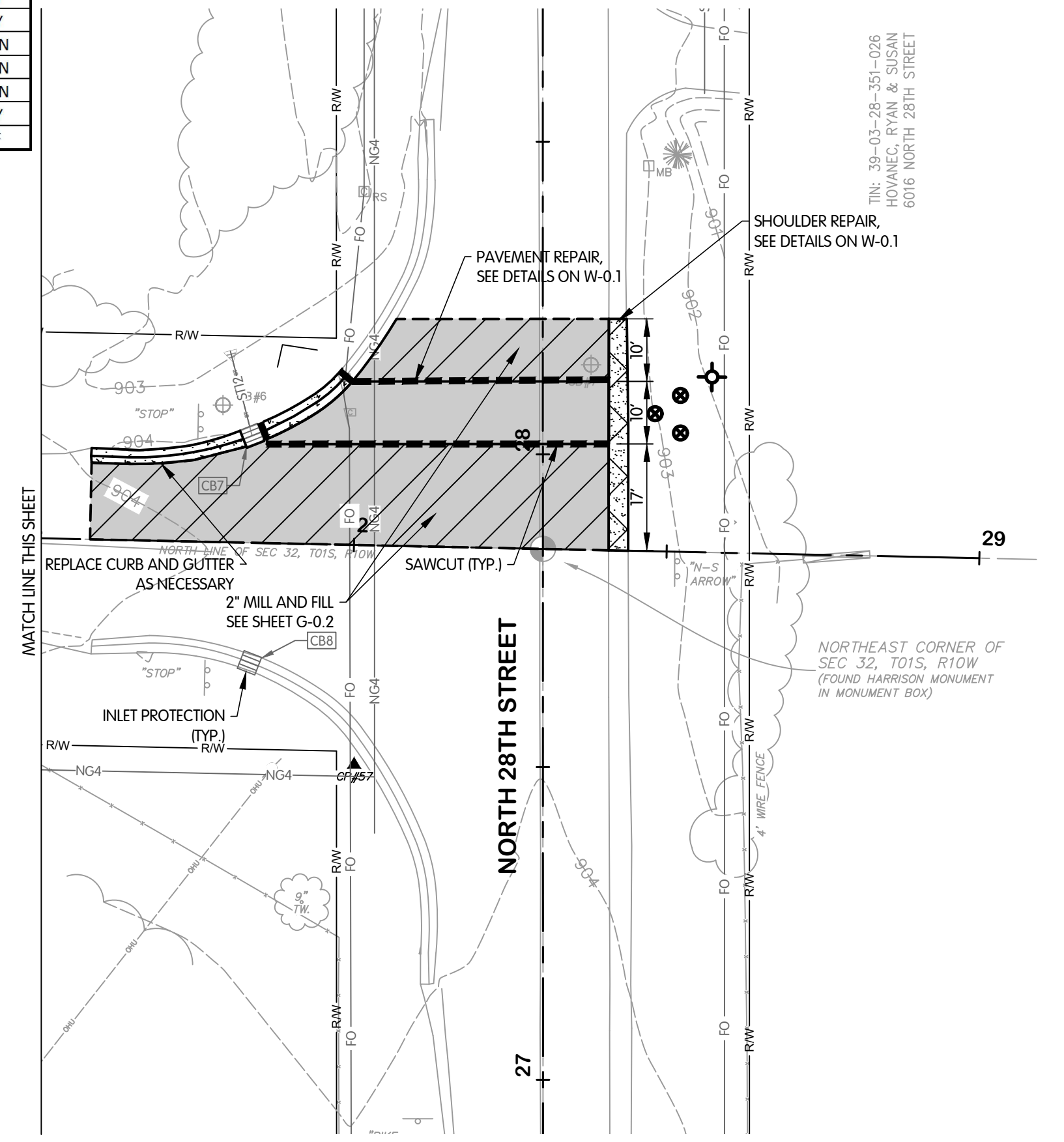
| Description | Estimated Quantity | Unit |
|-----------------------------------|--------------------|------|
| Clearing | 0.25 | AC |
| Tree, Rem, 6 inch to 18 inch | 21 | EA |
| Tree, Rem, 19 inch to 36 inch | 9 | EA |
| Stump, Rem, 19 inch to 36 inch | 0 | EA |
| Tree, Rem, 37 inch or larger | 3 | EA |
| Curb and Gutter, Rem | 0 | LF |
| Curb and Gutter, Replace | 0 | LF |
| Pavt, Rem, Mod | 254 | SY |
| Cold Milling HMA Surface | 0 | SY |
| HMA Surface, Rem | 34 | SY |
| Subbase, CIP 24" MDOT Class III | 0 | SY |
| Aggregate Base, 4 inch | 92 | SY |
| Aggregate Base, 6 inch | 34 | SY |
| Aggregate Base, 8 inch | 162 | SY |
| HMA Approach | 34 | SY |
| HMA MDOT 13A - 2" Base Course | 0 | TON |
| HMA MDOT 13A - 2" Leveling Course | 0 | TON |
| HMA MDOT 13A - 2" Wearing Course | 0 | TON |
| Driveway, Nonrein Conc, 6 inch | 92 | SY |
| Sawcutting | 81 | LF |

KAL-8189001SR-1.3 STA. 11+00 TO 22+00
6/24/2025 4:08 PM - CFERRELL
6/24/2025 4:31 PM



**EAST F AVENUE
STA. 22+00 TO 27+50**

| Description | Estimated Quantity | Unit |
|-----------------------------------|--------------------|------|
| Clearing | 0.25 | AC |
| Tree, Rem, 6 inch to 18 inch | 22 | EA |
| Tree, Rem, 19 inch to 36 inch | 5 | EA |
| Stump, Rem, 19 inch to 36 inch | 0 | EA |
| Tree, Rem, 37 inch or larger | 0 | EA |
| Curb and Gutter, Rem | 40 | LF |
| Curb and Gutter, Replace | 40 | LF |
| Pavt, Rem, Mod | 58 | SY |
| Cold Milling HMA Surface | 190 | SY |
| HMA Surface, Rem | 207 | SY |
| Subbase, CIP 24" MDOT Class III | 51 | SY |
| Aggregate Base, 4 inch | 53 | SY |
| Aggregate Base, 6 inch | 156 | SY |
| Aggregate Base, 8 inch | 51 | SY |
| HMA Approach | 156 | SY |
| HMA MDOT 13A - 2" Base Course | 6 | TON |
| HMA MDOT 13A - 2" Leveling Course | 6 | TON |
| HMA MDOT 36A - 2" Wearing Course | 27 | TON |
| Driveway, Nonreinf Conc, 6 inch | 43 | SY |
| Sawcutting | 248 | LF |

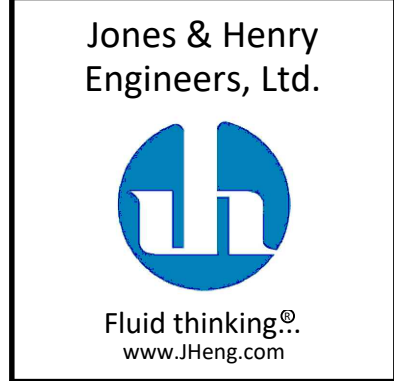


**EAST F AVENUE
STA. 27+50 TO 29+00**

KAL-8189001SR1-SR-1.3 STA 22+00 TO 29+00
6/24/2025 4:08 PM - CFERRELL
6/24/2025 4:31 PM



**EAST F AVENUE
SURFACE RESTORATION
PLANS
STA. 22+00 TO 29+00
CITY OF KALAMAZOO, MICHIGAN
EAST F AVENUE AND NORTH 28TH STREET WATER MAIN**



JOB NO. 17-8189.001
SCALE 1"=20'
THIS LINE SCALES IF WHEN PLOTTED TO NOTED SCALE
DESIGNED ERF DRAWN AJB CHECKED TLK
STATUS: ISSUE FOR BID
DATE: MAY 2025
SHEET NO. SR-1.5-6
21 OF 23

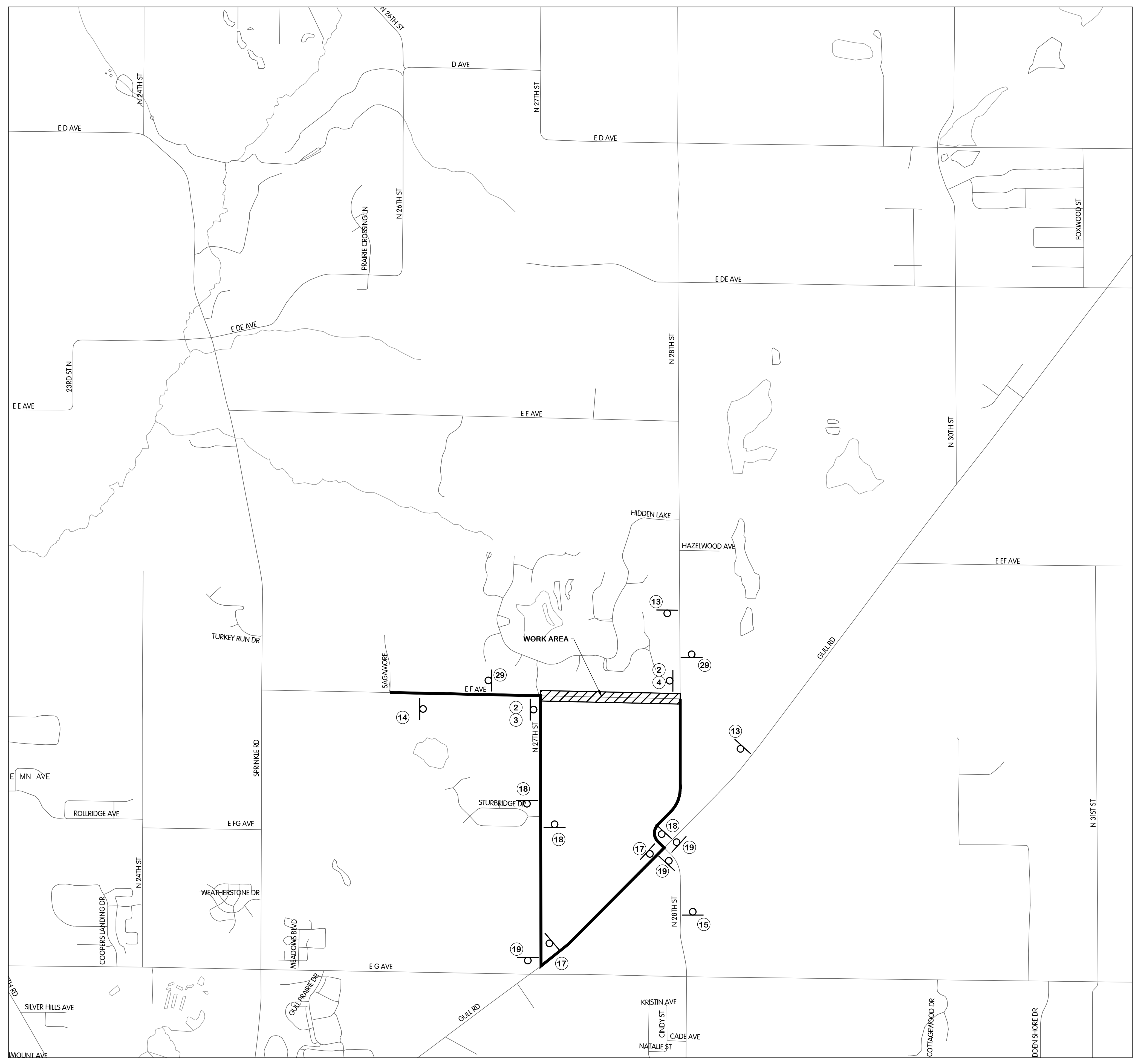
LEGEND

○ = SIGN LOCATION — = ROUTE

| | | | |
|---------------------|---|---|--|
| 1 (X Required) | 2 (Z Required) | 3 (I Required) | 4 (I Required) |
| 5 (X Required) | 6 (X Required) | 7 (X Required) | 8 (X Required) |
| 9 (X Required) | 10 (X Required) | 11 (X Required) | 12 (X Required) |
| 13 (Z Required) | 14 (I Required) | 15 (I Required) | 16 (X Required) |
| 17 (Z Required) | 18 (Z Required) | 19 (S Required) | 20 (X Required) |
| 21 (X Required) | 22 (X Required) | 23 (X Required) | 24 (X Required) |
| 25 (X Required) | 26 (X Required) | 27 (X Required) | 28 (Z Required) |
| 29 (X Required) | (Use In Place Of Street Name For State Highway) | (Use In Place Of Street Name For Federal Highway) | (Use In Place Of Street Name For Interstate Highway) |

DETOUR ROUTE AND LANE/ROADWAY CLOSURES

- ACCESS FOR EMERGENCY VEHICLES MUST BE PROVIDED AT ALL TIMES.
- ACCESS FOR LOCAL TRAFFIC AND SCHOOL TRAFFIC MUST BE PROVIDED AT ALL TIMES.
- THE KALAMAZOO COUNTY CONSOLIDATED DISPATCH AUTHORITY SHALL BE NOTIFIED, VIA THEIR NON-EMERGENCY NUMBER, OF ALL LANE CLOSURES AND CLOSURE DURATION. CONTACT CENTRAL DISPATCH AT (269)-488-8911.
- IF COMPLETE ROADWAY CLOSURE IS REQUIRED, CONTRACTOR SHALL CONTACT THE KALAMAZOO COUNTY CONSOLIDATED DISPATCH AUTHORITY AT LEAST 24 BUSINESS HOURS PRIOR TO THE CLOSURE. CONTRACTOR SHALL RECEIVE APPROVAL OF THE CLOSURE FROM THE KALAMAZOO COUNTY CONSOLIDATED DISPATCH AUTHORITY PRIOR TO MOVING FORWARD WITH THE CLOSURE.



**EAST F AVENUE
MAINTENANCE OF TRAFFIC PLAN**

CITY OF KALAMAZOO, MICHIGAN
EAST F AVENUE AND NORTH 28TH STREET WATER MAIN

DESIGNED BY: []
 DRAWN BY: []
 CHECKED BY: []
 STATUS: ISSUE FOR BID
 DATE: MAY 2025
 SHEET NO. []

Jones & Henry
Engineers, Ltd.

 Fluid thinking.[®]
 www.JHeng.com

JOB NO. 17-8189.001
 SCALE 1"=1000'
 THIS LINE SCALES IF WHEN PLOTTED TO NOTED SCALE
 DESIGNED ERF DRAWN AJB CHECKED TLK
 STATUS: ISSUE FOR BID
 DATE: MAY 2025
 SHEET NO. TC-1.1
 22 OF 23

