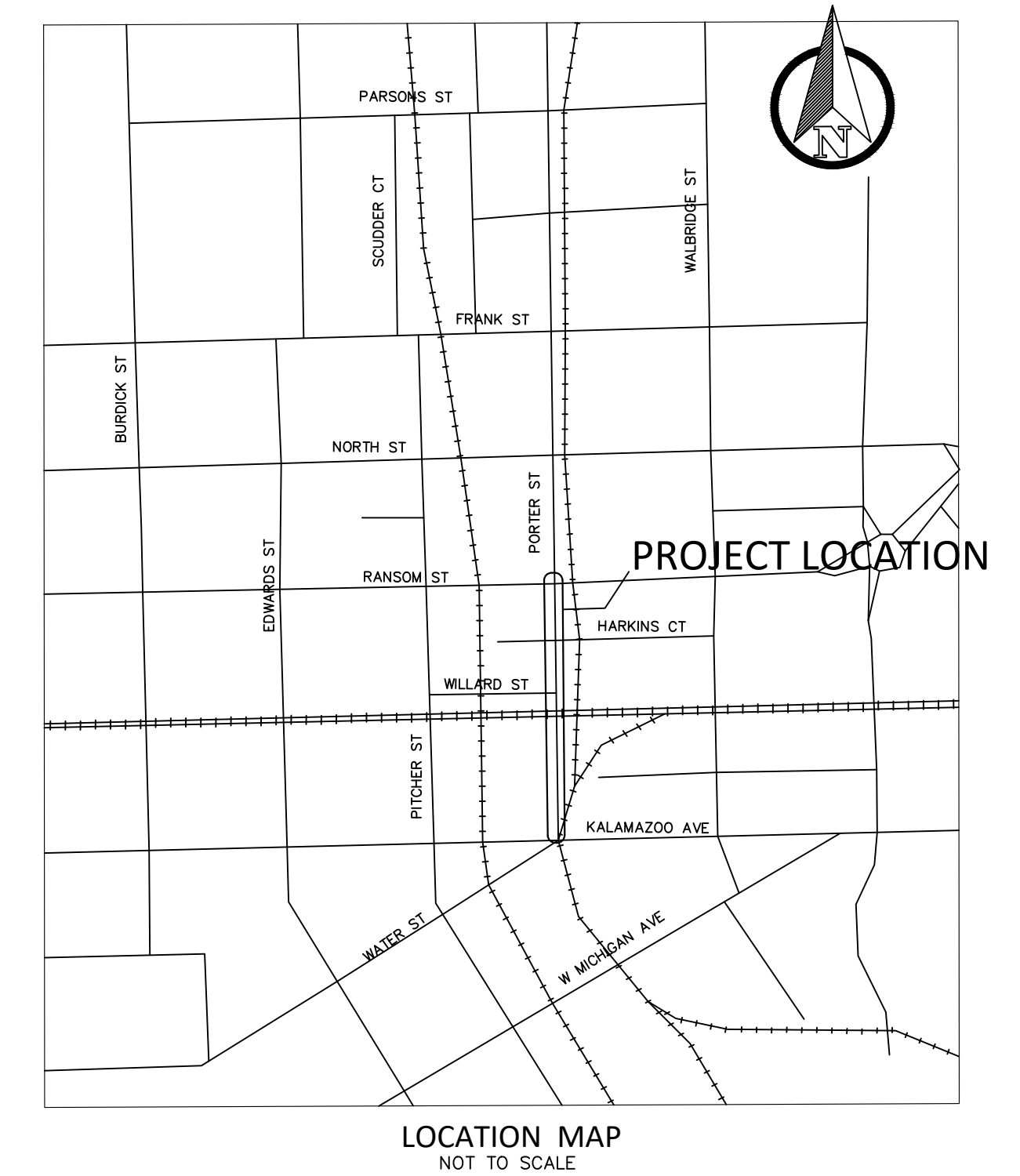
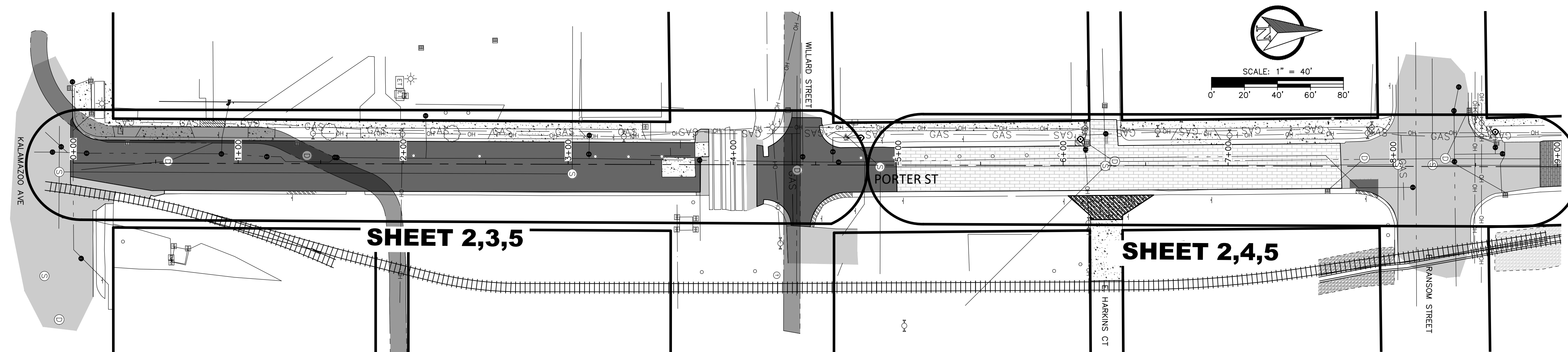


**CITY OF KALAMAZOO
KALAMAZOO COUNTY, MICHIGAN**

PORTER ST WATERMAIN REPLACEMENT & ROAD RESURFACING



PLAN INDEX	
SHEET No.	DESCRIPTION
1	TITLE SHEET
2	ROADWAY DEMO PLAN KALAMAZOO TO RANSOM
3	PLAN & PROFILE KALAMAZOO TO WILLARD
4	PLAN & PROFILE WILLARD TO RANSOM
5	ROADWAY REPLACEMENT KALAMAZOO TO RANSOM
6	PROJECT DETAILS
7	MAINTENANCE OF TRAFFICE

PROJECT NOTES:
 1) WATER MAIN TO BE BUILT TO CITY OF KALAMAZOO STANDARD SPECIFICATIONS FOR WATER MAIN AND SERVICE INSTALLATION, 2021
 2) SEE SME GEOTECHNICAL REPORT FOR ADDITIONAL SOIL BORING INFORMATION
 3) BRICKS SHALL BE OWNERSHIP OF THE CONTRACTOR AND SHALL BE DISPOSED OF OFFSITE

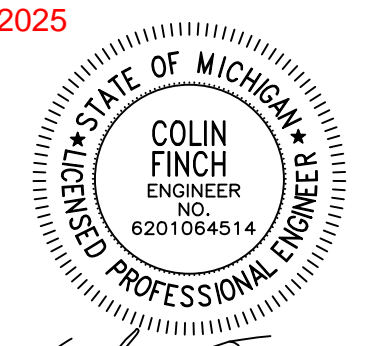
APPROVED BY:
THE CITY OF KALAMAZOO

Debbie Jung DATE: 02/28/2025

OWNER
 CITY OF KALAMAZOO
 DEBBIE JUNG
 269-337-8558
 JUNG@KALAMAZOOCITY.ORG

DESIGN ENGINEER
 VK CIVIL
 DAN LEWIS, P.E.
 269-697-7120
 DAN@VKCIVIL.COM

DEPARTMENT OF PUBLIC SERVICES
SENIOR CIVIL ENGINEER



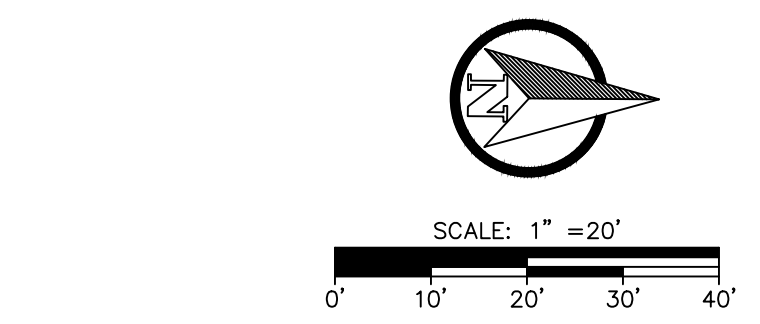
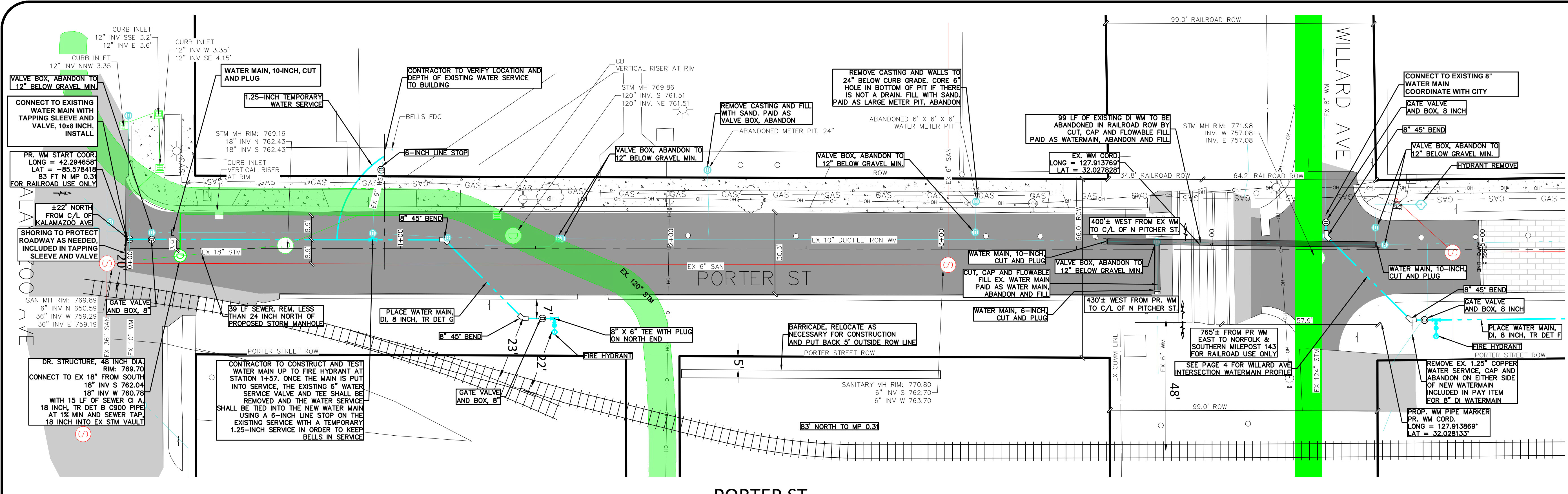
Colin Finch

NO.	DATE	REVISION	BY
6	09/20/2023	RAILROAD COMMENTS	CMF
7	02/23/2024	PER CITY	JTR
8	07/08/2024	PER CITY	NEF
9	12/04/2024	PER CITY	NEF
10	12/20/2024	FOR REVIEW	NEF
11	02/26/2025	FOR REVIEW	NEF

CITY OF KALAMAZOO
 KALAMAZOO COUNTY, MICHIGAN
**PORTER ST WATERMAIN REPLACEMENT
 TITLE SHEET**

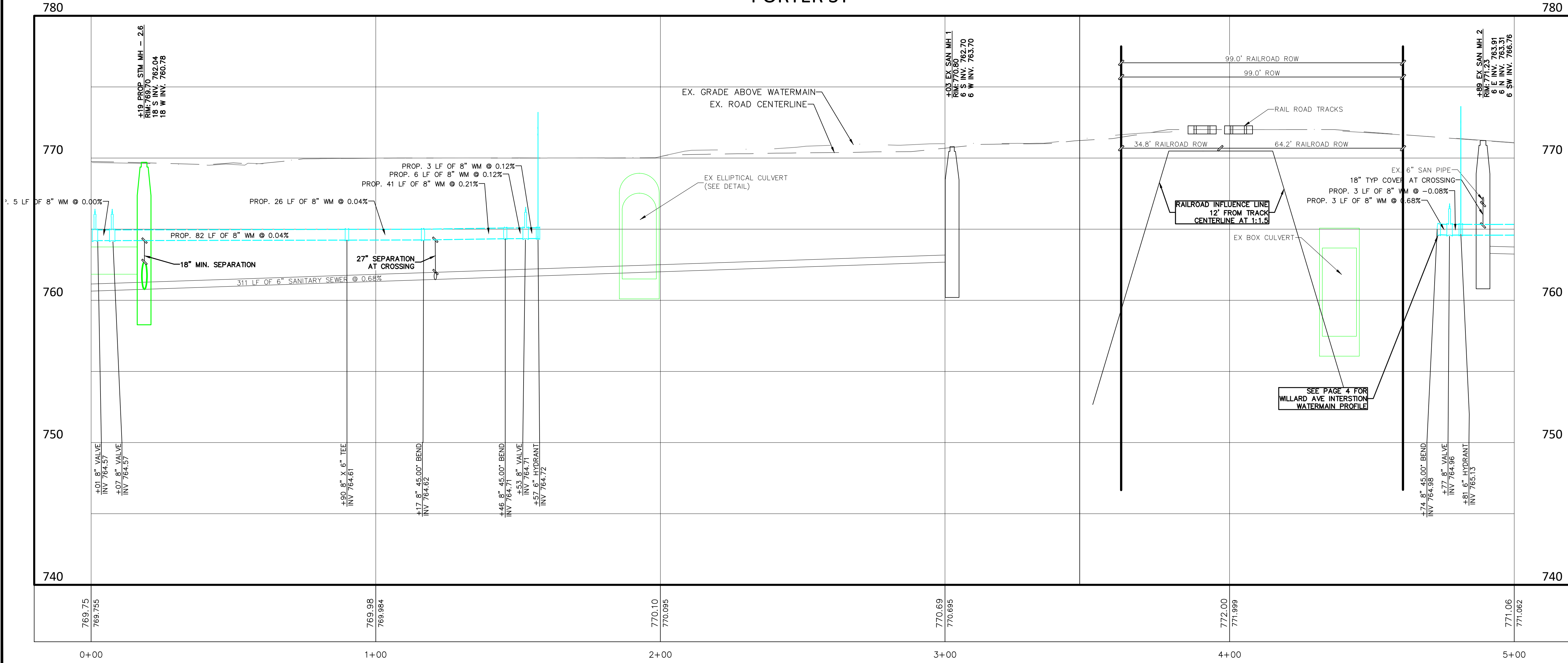
VK CIVIL Vriesman & Korhorn
 Byron Center, MI (616) 277-2185
 Kalamazoo, MI (269) 697-7120
 www.VKcivil.com

FILE NO. 1060
 CHECKED DGL
 Sheet No. 1 OF 7

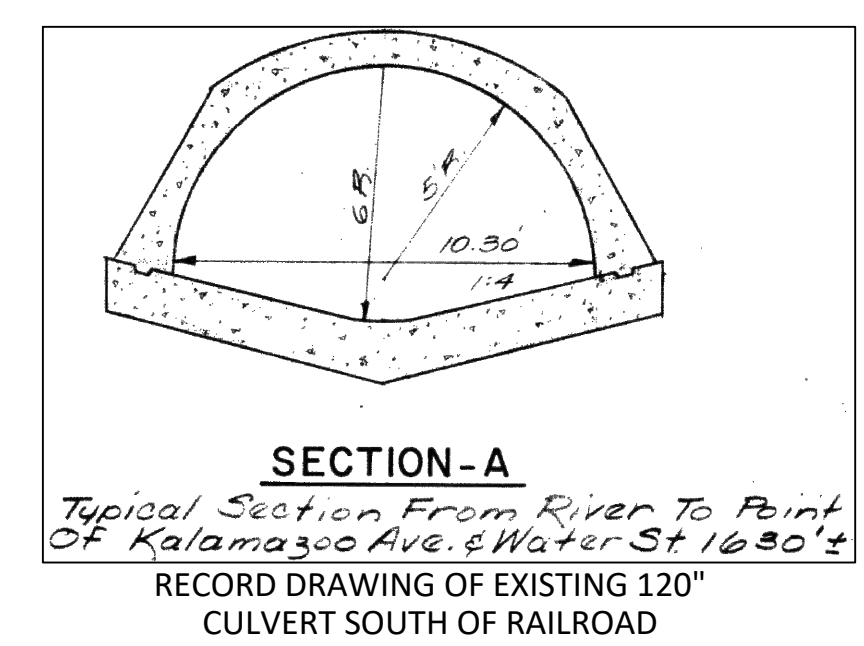


- HATCH LEGEND**
- EXISTING HMA
 - PROPOSED HMA
 - REMOVE & REPLACE CONCRETE CURB
- LINE AND HATCH LEGEND**
- EXISTING WATERMAIN
 - PROPOSED WATERMAIN

PORTER ST



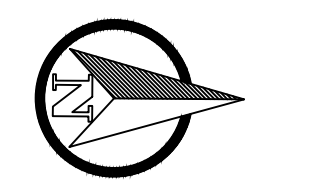
NECESSARY PRECAUTIONS SHALL BE TAKEN WHILE WORK IS BEING PERFORMED TO ENSURE APPROPRIATE DUE CARE MEASURES ARE TAKEN PURSUANT TO SECTION 20107a AND/OR 21304c OF THE NATURAL RESOURCES AND ENVIRONMENTAL PROTECTION ACT (NREPA), ACT 451, AS AMENDED. IN AREAS OF SOIL OR GROUNDWATER CONTAMINATION, THE USE OF PLASTIC PIPING FOR WATER MAIN AND ASSOCIATED FITTINGS ARE NOT PERMITTED. DUCTILE IRON PIPE IS THE PREVAILING MATERIAL. HYDRANT ASSEMBLIES SHALL HAVE PLUGGED WEEP HOLES TO ELIMINATE POSSIBLE CONTAMINATION SEEPAGE. ANY CONTAMINATED SOIL OR GROUNDWATER ENCOUNTERED DURING CONSTRUCTION OF THIS PROJECT SHALL BE MANAGED AND/OR DISPOSED OF IN ACCORDANCE WITH APPLICABLE FEDERAL, STATE, AND LOCAL REGULATIONS.



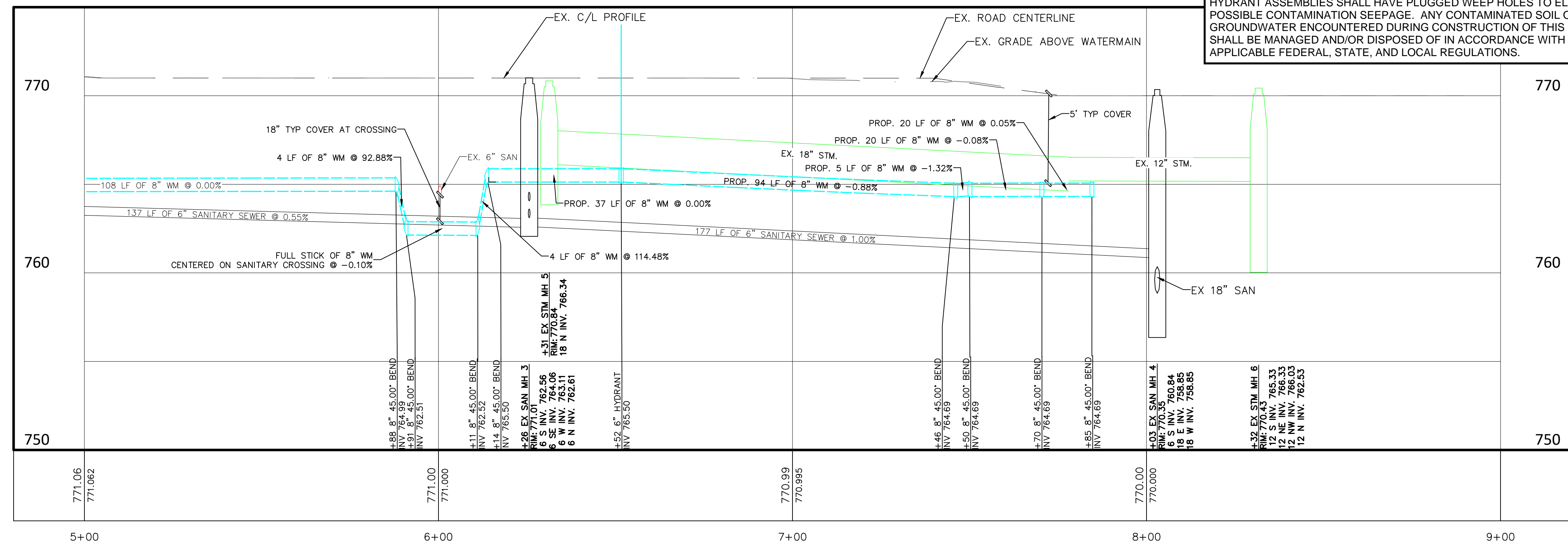
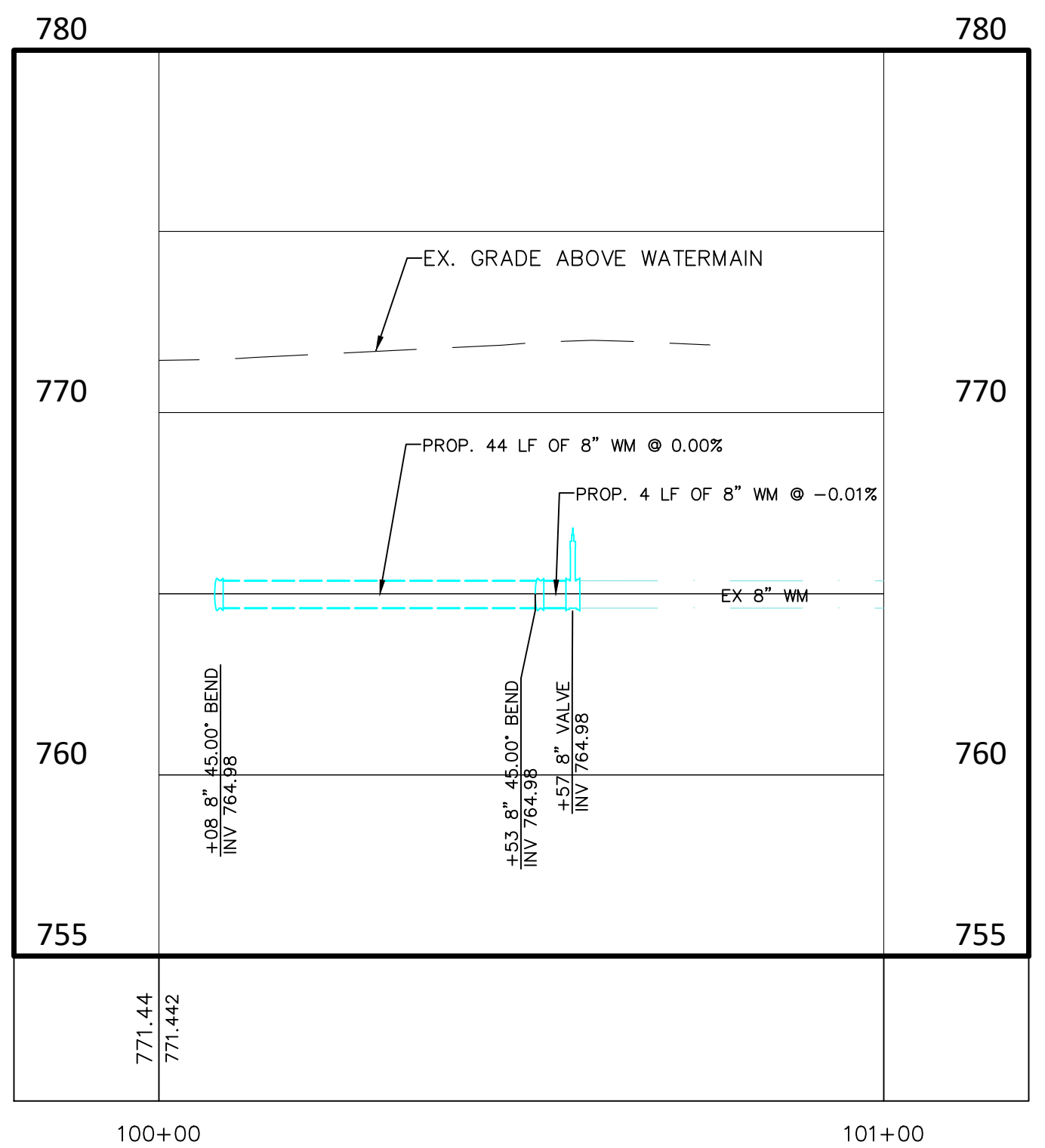
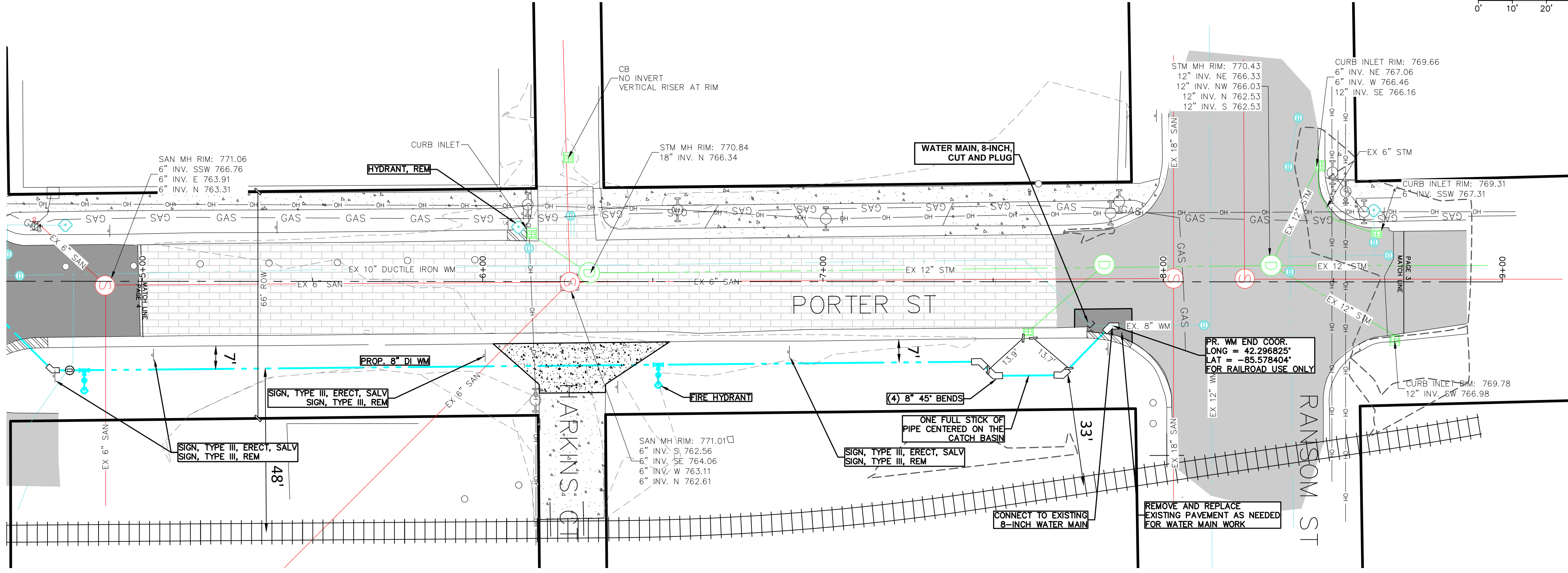
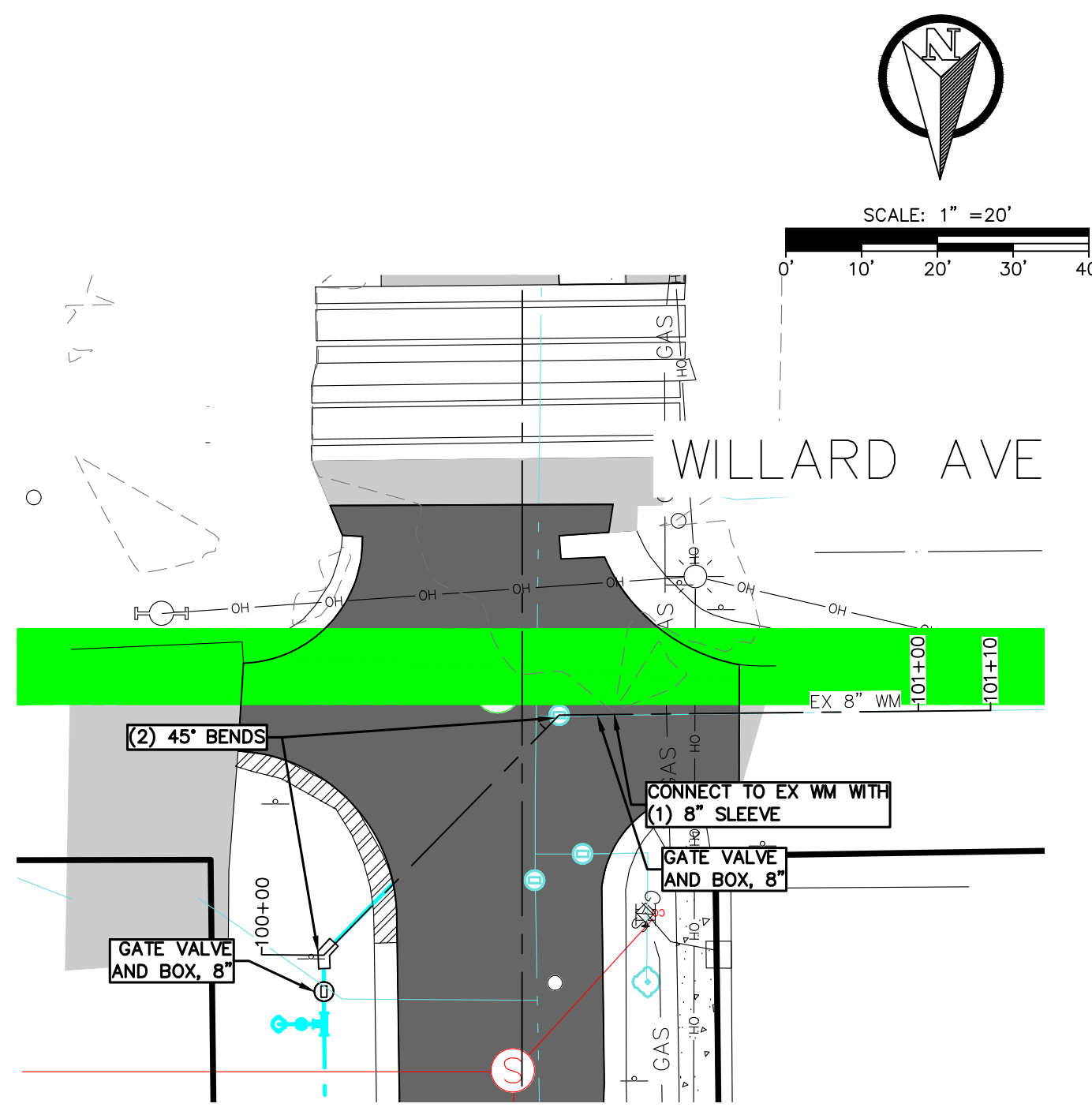
NO.	DATE	REVISION	BY
6	09/20/2023	RAILROAD COMMENTS	CMF
7	02/23/2024	PER CITY	JTR
8	07/08/2024	PER CITY	NEF
9	12/04/2024	PER CITY	NEF
10	12/20/2024	FOR REVIEW	NEF
11	02/26/2025	FOR REVIEW	NEF

CITY OF KALAMAZOO
KALAMAZOO COUNTY, MICHIGAN
**PORTER ST WATERMAIN REPLACEMENT
WATERMAIN PLAN AND PROFILE
KALAMAZOO TO WILLARD**

Byron Center, MI (616) 277-2185
Kalamazoo, MI (269) 697-7120
FILE NO. 1060
CHECKED DGL
Sheet No. 3 OF 7



SCALE: 1" = 20'



NECESSARY PRECAUTIONS SHALL BE TAKEN WHILE WORK IS BEING PERFORMED TO ENSURE APPROPRIATE DUE CARE MEASURES ARE TAKEN PURSUANT TO SECTION 20107a AND/OR 21304c OF THE NATURAL RESOURCES AND ENVIRONMENTAL PROTECTION ACT (NREPA), ACT 451, AS AMENDED. IN AREAS OF SOIL OR GROUNDWATER CONTAMINATION, THE USE OF PLASTIC PIPING FOR WATER MAIN AND ASSOCIATED FITTINGS ARE NOT PERMITTED. DUCTILE IRON PIPE IS THE PREVAILING MATERIAL. HYDRANT ASSEMBLIES SHALL HAVE PLUGGED WEEP HOLES TO ELIMINATE POSSIBLE CONTAMINATION SEEPAGE. ANY CONTAMINATED SOIL OR GROUNDWATER ENCOUNTERED DURING CONSTRUCTION OF THIS PROJECT SHALL BE MANAGED AND/OR DISPOSED OF IN ACCORDANCE WITH APPLICABLE FEDERAL, STATE, AND LOCAL REGULATIONS.

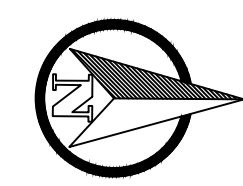
COLIN FINCH
ENGINEER
NO. 8201064514
PROFESSIONAL ENGINEER
STATE OF MICHIGAN
Colin Finch

NO.	DATE	REVISION	BY
6	09/20/2023	RAILROAD COMMENTS	CMF
7	02/23/2024	PER CITY	JTR
8	07/08/2024	PER CITY	NEF
9	12/04/2024	PER CITY	NEF
10	12/20/2024	FOR REVIEW	NEF
11	02/26/2025	FOR REVIEW	NEF

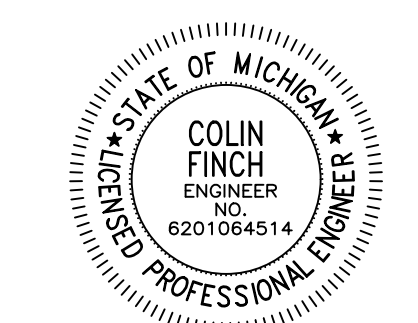
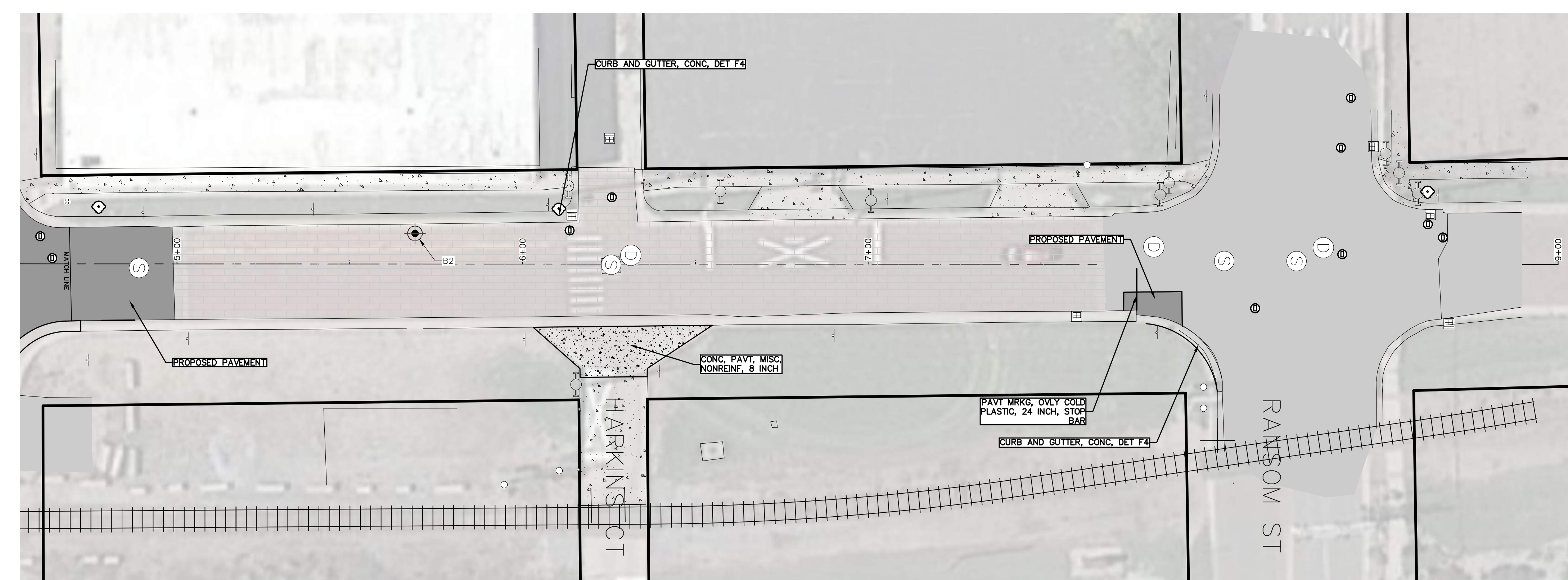
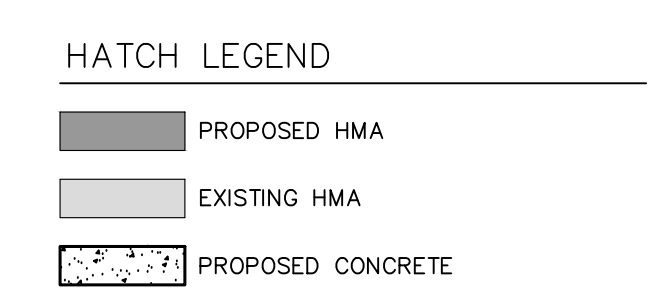
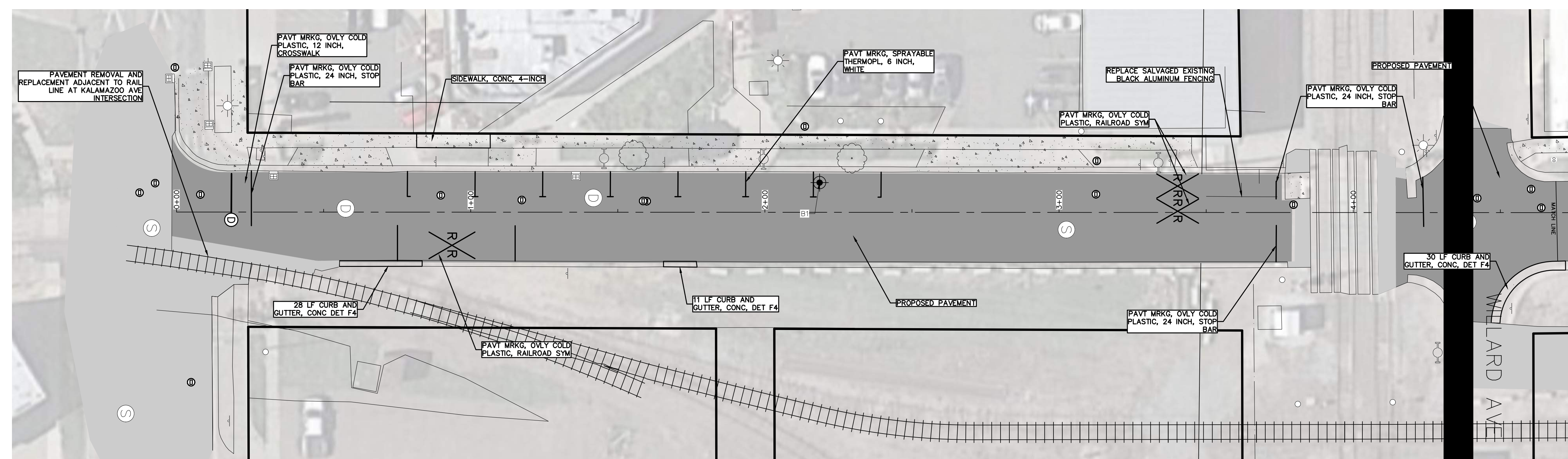
CITY OF KALAMAZOO
KALAMAZOO COUNTY, MICHIGAN
PORTER ST WATERMAIN REPLACEMENT
WATER MAIN PLAN AND PROFILE
WILLARD TO RANSOM



Byron Center, MI (616) 277-2185
Kalamazoo, MI (269) 697-7120
FILE NO. 1060
CHECKED DGL
Sheet No. 4 OF 7



SCALE: 1" = 20'



Colin Finch

NO.	DATE	REVISION	BY
6	09/20/2023	RAILROAD COMMENTS	CMF
7	02/23/2024	PER CITY	JTR
8	07/08/2024	PER CITY	NEF
9	12/04/2024	PER CITY	NEF
10	12/20/2024	FOR REVIEW	NEF
11	02/26/2025	FOR REVIEW	NEF

CITY OF KALAMAZOO
KALAMAZOO COUNTY, MICHIGAN

**PORTER ST WATERMAIN REPLACEMENT
ROADWAY REPLACEMENT
KALAMAZOO TO RANSOM**



Byron Center, MI
(616) 277-2185
Kalamazoo, MI
(269) 697-7120
www.VKcivil.com

FILE NO. 1060
CHECKED DGL
Sheet No. 5 OF 7

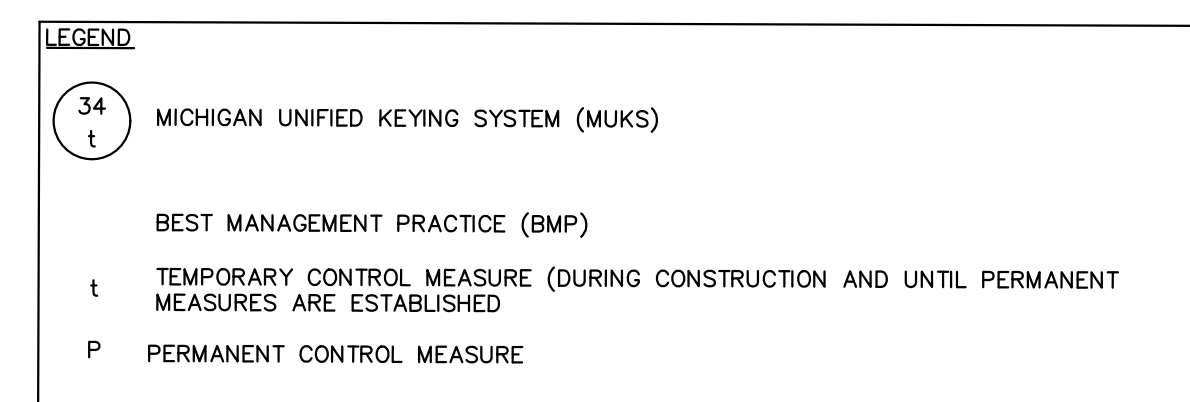
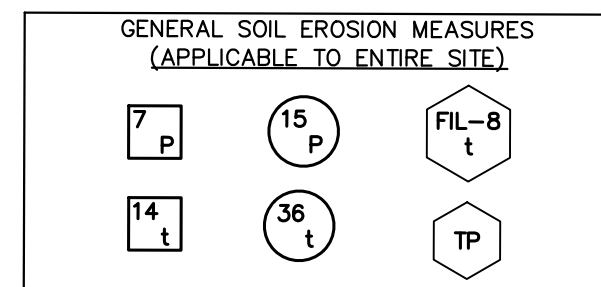
- SITE LAYOUT NOTES:**
- 1) ALL WORK SHALL BE DONE TO ALL FEDERAL, STATE, AND LOCAL LAWS, RULES, AND REGULATIONS.
 - 2) ALL WORK WITHIN ROW SHALL BE DONE IN ACCORDANCE WITH LOCAL ROADWAY JURISDICTION REQUIREMENTS.
 - 3) CONTRACTOR SHALL RESTORE ALL STREET SURFACES, DRIVEWAYS, CULVERTS, ROADSIDE DRAINAGE, AND OTHER INFRASTRUCTURE DISTURBED OR DAMAGED DUE TO CONSTRUCTION ACTIVITIES TO MATCH EXISTING CONDITIONS.
 - 4) ALL DEBRIS SHALL BE REMOVED FROM THE SITE, AND NO STOCKPILING ON SITE SHALL BE ALLOWED UNLESS APPROVED BY OWNER.
 - 5) THE CONTRACTOR SHALL LIMIT SAWCUT AND PAVEMENT REMOVAL TO ONLY THOSE AREAS WHERE REQUIRED OR AS SHOWN. ALL PAVEMENTS TO BE REMOVED SHALL BE SAWCUT AND REMOVED TO FULL DEPTH AT ALL PAVEMENT LIMITS OR EXISTING JOINTS. IF ANY DAMAGE IS INCURRED TO ANY OF THE SURROUNDING PAVEMENT, THE CONTRACTOR SHALL BE RESPONSIBLE FOR ITS REMOVAL AND REPAIR AT NO ADDITIONAL COST.
 - 6) CONTRACTOR SHALL CONTACT MISS DIG THREE WORKING DAYS BEFORE YOU DIG. CALL MISS DIG AT 1-800-482-7171 OR 811.
 - 7) ALL WORK SHALL BE DONE TO THE MICHIGAN HANDICAPPED ACCESSIBILITY CODE AND THE AMERICANS WITH DISABILITIES ACT.
 - 8) ADA PARKING SPACES SHALL BE MARKED WITH APPROVED PAVEMENT SYMBOL. MARK ADA SPACES WITH 4" BLUE PAINT AND SIGNS PER MMUTCD.
 - 9) CONTRACTOR SHALL ENSURE ALL ADA RAMP AND ACCESS MEET CURRENT ADA STANDARDS. IF IT IS DISCOVERED THAT ANY ITEMS WILL NOT MEET ADA STANDARDS IT SHALL BE BROUGHT TO THE ENGINEER'S ATTENTION.
 - 10) ALL SIGNAGE SHALL BE PER MDOT AND MMUTCD STANDARDS.
 - 11) THE CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING ALL PERMITS, PERMIT COSTS, DEMOLITION PERMITS, TAP FEES, ASSESSMENTS, UTILITY PERMITS, ROW PERMITS, BONDS, INSURANCE, OR OTHER FEES ASSOCIATED WITH CONSTRUCTION.
 - 12) SITE CONCRETE TO HAVE A COMPRESSIVE STRENGTH OF A MINIMUM 4000 PSI AND SHALL HAVE LIMESTONE AGGREGATE AND SHALL HAVE A 4-6% AIR ENTRAINMENT WITH A BROOM FINISH.
 - 13) INSTALL EXPANSION JOINTS AT ALL LOCATIONS WHERE CONCRETE ABUTS HMA PAVEMENT.
 - 14) CONTRACTOR SHALL REVIEW THE GEOTECHNICAL AND ENVIRONMENTAL REPORTS FOR THE SITE AND INCORPORATE INTO THEIR CONSTRUCTION MEANS AND METHODS.
 - 15) THESE PLANS HAVE BEEN DEVELOPED FOR ELECTRONIC FIELD SURVEY LAYOUT. DIMENSIONS SHOWN ARE FOR GRAPHIC PRESENTATION ONLY AND SHOULD NOT BE USED FOR LAYOUT. CONTACT THE ENGINEER IF ANY DISCREPANCIES BETWEEN THE PLAN AND ELECTRONIC DATA ARE DISCOVERED.
 - 16) THE WORK LIMITS SHOWN ON THESE PLANS ARE FOR PHYSICAL CONSTRUCTION ONLY. THE CONTRACTOR SHALL PROVIDE ALL NECESSARY LIGHTS, BARRICADES, FLAGMEN, ETC. AS REQUIRED TO PERFORM THE WORK. THE INSTALLATION AND OPERATION OF ALL TEMPORARY TRAFFIC CONTROL AND TEMPORARY TRAFFIC CONTROL DEVICES SHALL BE PROVIDED BY THE CONTRACTOR WHETHER INSIDE OR OUTSIDE THESE WORK LIMITS.
 - 17) THE CONTRACTOR SHALL PROTECT LOCATION OF ALL PROPERTY MARKERS AND BENCHMARKS.
 - 18) THE CONTRACTOR IS RESPONSIBLE FOR ALL SIGNS, BARRICADES, AND SAFETY FENCES TO DETER PEOPLE FROM ENTERING THE WORK AREA AND FOR MAINTAINING AND PROTECTING THE FLOW OF VEHICULAR AND PEDESTRIAN TRAFFIC AROUND THE JOB SITE. TRAFFIC CONTROLS SHALL BE COORDINATED WITH THE LOCAL POLICE DEPARTMENT AND MUNICIPALITY.
 - 19) PRIOR TO CONSTRUCTION OR GRADING A PROTECTIVE BARRIER, FENCE, POST, AND SIGNS CLEARLY INDICATING LIMITS OF DISTURBANCE SHALL BE INSTALLED OVERLAPPING ON ALL SLOPES THAT ARE 1:1 OR GREATER AFTER.
 - 20) NO PARKING OF CONTRACTOR OR SUBCONTRACTORS SHALL BE ALLOWED ON PUBLIC STREETS WITHOUT PRIOR APPROVAL.
 - 21) NO BUILDING MATERIAL, EQUIPMENT, VEHICLES, OR CHEMICALS SHALL BE STORED OR PLACED OUTSIDE OF THE LIMITS OF DISTURBANCE.
 - 22) CONSTRUCTION NOISE SHALL BE KEPT TO A MINIMUM DURING NIGHTTIME HOURS AND MUST COMPLY WITH LOCAL MUNICIPAL ORDINANCES.

- UTILITY PLAN NOTES:**
- 1) CONTRACTOR SHALL CONTACT PRIVATE AND PUBLIC UTILITY COMPANIES IF ANY COORDINATION IS NEEDED BETWEEN PROPOSED WORK AND EXISTING UTILITIES.
 - 2) UTILITIES SHOWN (IF ANY) ARE APPROXIMATE LOCATIONS DERIVED FROM MEASUREMENTS OR AVAILABLE MAPS AND IS NOT TO BE INTERPRETED AS SHOWING EXACT LOCATIONS OR SHOWING ALL UTILITIES IN THE AREA. THE ENGINEER ASSUMES NO RESPONSIBILITY FOR THE ACCURACY OF EXISTING UTILITY INFORMATION. THE CONTRACTOR SHALL FIELD VERIFY FOR ACCURACY, LOCATION, AND CONDITION.
 - 3) ALL WATERMAIN SHALL BE CONSTRUCTED IN ACCORDANCE WITH CITY OF KALAMAZOO STANDARD SPECIFICATIONS FOR WATER MAIN AND SERVICE INSTALLATION, 2021.
 - 4) ALL SANITARY SEWER TO BE CONSTRUCTED IN ACCORDANCE WITH LOCAL SANITARY SEWER UTILITY STANDARDS AND EGLE STANDARDS.
 - 5) ALL 6" UNDERDRAIN TO BE CORRUGATED PLASTIC PIPE WITH SOCK, ADS N-12 OR APPROVED EQUAL.
 - 6) ALL STORM SEWER SHALL BE SMOOTH LINED CORRUGATED PLASTIC PIPE, ADS N-12 OR EQUAL, UNLESS OTHERWISE LABELED ON THE PLANS.
 - 7) ALL EXISTING CASTINGS FOR STRUCTURES TO BE ADJUSTED OR RECONSTRUCTED TO GRADE SHALL BE FIELD VERIFIED AT THE TIME OF CONSTRUCTION AND MARKED SUITABLE FOR SALVAGE AND REUSE OR REPLACED.
 - 8) ROOF DRAINS, FOUNDATION DRAINS, AND OTHER CLEAN WATER CONNECTIONS TO THE SANITARY SEWER ARE PROHIBITED.
 - 9) CATCH BASINS WITHIN CONCRETE HEAD CURB SHALL HAVE EJ 7045 CASTINGS.
 - 10) CATCH BASINS WITHIN BIT VALLEY CURB SHALL HAVE EJ 7065 CASTINGS WITH M1 GRATE.
 - 11) CATCH BASINS WITHIN PAVED AREAS SHALL HAVE EJ 1020M1 RADIAL FLAT GRATE CASTINGS.
 - 12) STORM SEWER MANHOLES SHALL HAVE EJ 1020 CASTINGS WITH SOLID COVERS.
 - 13) STORM SEWER YARD DRAINS SHALL HAVE EJ 650B CASTINGS.
 - 14) ROOF DRAINS SHALL BE PVC SCH-40.
 - 15) CONTRACTOR IS TO UNCOVER AND VERIFY ALL TAP LOCATIONS AND INVERTS. LOCATION AND INVERT DISCREPANCIES SHALL BE BROUGHT TO THE ENGINEER'S ATTENTION FOR RESOLUTION PRIOR TO CONTINUING WORK.
 - 16) SANITARY AND STORM STRUCTURES SHALL BE PRECAST AND HAVE A MAXIMUM OF 2 ADJUSTING RINGS FOR FINISH GRADE ADJUSTMENT.
 - 17) THE CONTRACTOR SHALL MAINTAIN EXISTING UTILITY SERVICE TO ALL ADJOINING PROPERTIES.

- GRADING PLAN NOTES:**
- 1) SOILS EXPOSED IN THE BASE OF ALL SATISFACTORY FOUNDATION EXCAVATIONS SHOULD BE PROTECTED AGAINST ANY DETRIMENTAL CHANGES IN CONDITION SUCH AS FROM DISTURBANCE, RAIN AND FREEZING. SURFACE RUN-OFF WATER SHOULD BE DRAINED AWAY FROM THE EXCAVATION AND NOT ALLOWED TO POND. IF POSSIBLE, ALL FOOTING CONCRETE SHOULD BE POURED THE SAME DAY THE EXCAVATION IS MADE. IF THIS IS NOT PRACTICAL, THE FOOTING EXCAVATIONS SHOULD BE ADEQUATELY PROTECTED.
 - 2) REMOVE ALL SUBGRADE MATERIAL THAT MAY BE SOFTENED BY RAINS, FREEZING, OR CONSTRUCTION TRAFFIC, ETC. AND REPLACE WITH COMPACTED GRANULAR FILL.
 - 3) ALL CONSTRUCTION METHODS SHALL BE DONE IN COMPLIANCE WITH MDOT-MDEQ. THE OWNER SHALL BE RESPONSIBLE FOR OBTAINING A "SOIL EROSION PERMIT" FROM THE COUNTY AND A "PERMIT BY RULE/NOTICE OF COVERAGE" FROM EGLE IF APPLICABLE, PRIOR TO THE START OF CONSTRUCTION. THE CONTRACTOR SHALL BE RESPONSIBLE FOR COMPLYING WITH ALL REQUIREMENTS IF THE COUNTY "SOIL EROSION PERMIT" AND FOR ALL CERTIFIED STORM WATER INSPECTION SERVICE REQUESTED BY THE "PERMIT BY RULE." EROSION CONTROL MEASURES SHOWN ON THE PLANS ARE THE MINIMUM REQUIREMENTS AND SHALL NOT RELIEVE THE CONTRACTORS RESPONSIBILITY FOR PROVIDING ALL REQUIRED EROSION CONTROL MEASURES.
 - 4) AVOID UNNECESSARY DISTURBING OR REMOVING OF EXISTING VEGETATED TOPSOIL OR EARTH COVER. THESE COVER AREAS ACT AS SEDIMENT FILTERS.
 - 5) ALL TEMPORARY SOIL EROSION PROTECTION SHALL REMAIN IN PLACE UNTIL REMOVAL IS REQUIRED FOR FINAL CLEAN UP AND APPROVAL.
 - 6) GEOTEXTILE SILT FENCE SHALL BE INSTALLED AS REQUIRED WHEN CROSSING CREEKS OR WHEN ADJACENT TO WETLANDS OR SURFACE WATER BODIES TO PREVENT SILTATION AND ELSE WHERE AS DIRECTED BY THE ENGINEER. SEEDING AND/OR SODDING SHALL BE INSTALLED ON CREEK BANKS IMMEDIATELY AFTER CONSTRUCTION TO PREVENT EROSION.
 - 7) CONTRACTOR SHALL TAKE PRECAUTIONS TO AVOID TRACKING SOIL ONTO ADJACENT ROADWAYS. CONTRACTOR SHALL SWEEP IMMEDIATELY IS OCCURS.
 - 8) ANY DISTURBED AREA WHICH WILL BE LEFT UNWORKED 20 DAYS OR LONGER MUST BE SEED TO ESTABLISH VEGETATION FOR TEMPORARY STABILIZATION. BASINS TO BE SEED AND MULCH BLANKETS APPLIED IMMEDIATELY TO PROVIDE A STABLE BASE AND AVOID EXCESSIVE EROSION.
 - 9) ALL SOIL EROSION CONTROL MEASURES ARE TO BE IN PLACE PRIOR TO THE START OF ANY GRADING.
 - 10) ALL NON PAVED AREAS TO BE TOPSOILED (6" MIN.) & SEED.
 - 11) VARIATION IN EXISTING SOIL CONDITIONS MAY IMPACT THE EARTHWORK QUANTITIES IF UNUSABLE SOILS ARE ENCOUNTERED DURING CONSTRUCTION.
 - 12) DUST CONTROL: THE CONTRACTOR SHALL SUPPLY ALL LABOR, MATERIALS, AND EQUIPMENT NECESSARY SUCH AS CALCIUM CHLORIDE, WATER OR A MOTORIZED DUST-FREE STREET SWEEPING DEVICE TO MAINTAIN ALL ROADWAYS BEING USED FOR ACCESS TO THE CONSTRUCTION SITE AND SHALL ADHERE TO ALL ORDINANCES OF THE TOWNSHIP, COUNTY, MDEQ OR ANY OTHER GOVERNMENT AGENCY.
 - 13) IF MUD, SOIL OR OTHER DEBRIS IS DEPOSITED ON ADJACENT STREETS, ROADS OR OTHER PROPERTY, THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE REMOVAL OF SUCH AT THE END OF EACH WORK DAY OR AS REQUIRED DURING THE WORK DAY.
 - 14) STORMWATER POLLUTION PREVENTION ITEMS SHALL BE IN PLACE PRIOR TO COMMENCING CLEARING OPERATIONS, EARTHWORK GRADING, OR ANY OTHER TYPE OF CONSTRUCTION ACTIVITY.
 - 15) CONTRACTOR SHALL BE RESPONSIBLE FOR COMPLYING WITH THE SOIL EROSIONS AND SEDIMENT CONTROL PERMIT.
 - 16) PLACE TEMPORARY EROSION CONTROL MEASURES PRIOR TO EARTH MOVING ACTIVITIES.
 - 17) MULCH BLANKETS SHALL BE PLACED, STAPLED, AND OVERLAPPED ON ALL SLOPES THAT ARE 1:1 OR GREATER AFTER.
 - 18) CONTRACTOR TO INSTALL SILT SACK IN ALL CATCH BASINS ONCE THEY ARE CONSTRUCTED.
 - 19) ALL SOIL EROSION AND SEDIMENT CONTROL MEASURES SHALL BE INSPECTED BY A CERTIFIED STORM WATER OPERATOR AND MAINTAINED BY CONTRACTOR EVERY 7 DAYS AND AFTER EVERY SIGNIFICANT RAIN EVENT IN ACCORDANCE WITH NPDES PERMIT BY RULE REQUIREMENTS IF APPLICABLE.
 - 20) EROSION CONTROL MEASURES SHALL REMAIN IN PLACE UNTIL VEGETATION IS ESTABLISHED.
 - 21) BEST MANAGEMENT PRACTICES WILL BE UTILIZED DURING AND AFTER CONSTRUCTION OF THE PROJECT. MEASURES WILL INCLUDE THE USE OF SILT FENCING, SEEDING AND MULCHING, SEDIMENT INLET FILTERS, COMPACTION AND PAVING. THE OWNER OF THE SUBJECT PARCEL SHALL HAVE THE RESPONSIBILITY TO MAINTAIN THE PERMANENT SOIL EROSION PROTECTION MEASURES.

CONTROL MEASURE KEY

- SELECTIVE GRADING & SHAPING, PERMANENT
- HYDROSEEDING, PERMANENT. TYPICAL IN ALL NON-PAVED AREAS DISTURBED BY CONSTRUCTION ACTIVITIES
- AGGREGATE COVER, TEMPORARY. TYPICAL ON ALL STREETS DISTURBED BY CONSTRUCTION ACTIVITIES
- PAVING, PERMANENT, TYPICAL ON ALL STREETS DISTURBED BY CONSTRUCTION ACTIVITIES.
- SEDIMENT BASIN BMP EXHIBIT 2, SEDIMENT BASIN, TEMPORARY REQUIRED FOR DE-WATERING ACTIVITIES, SEVERE SLOPES, AND LARGE DISTURBED AREAS.
- SILTSACK, TEMPORARY, TYPICAL AT ALL CATCH BASINS WITHIN OR DISTURBED BY CONSTRUCTION ACTIVITIES
- CULVERT SEDIMENT TRAP, TEMPORARY. TYPICAL AT ALL STORM OUTLETS AND STREAMS DISTURBED BY CONSTRUCTION ACTIVITIES
- FILTER BMP EXHIBIT 8A, SILT FENCE, TEMPORARY. TYPICAL IN ALL AREAS, ESPECIALLY ADJACENT TO STREAMS, PONDS, ETC. AND ALONG PROJECT UNITS.
- TREE PROTECTION, INCLUDES TUNNELING UNDER TREES, TYPICAL FOR ALL TREES ENCOUNTERED UNLESS TREE REMOVAL IS DIRECTED BY THE ENGINEER.
- DENOTES GRAVEL ACCESS APPROACH. APPROACH SHALL BE INSTALLED TO PROVIDE STABLE ACCESS TO ROADWAYS AND MINIMIZE DUST AND TRACKING OF MATERIALS ONTO PUBLIC STREETS AND HIGHWAYS. THE APPROACH SHALL BE A MIN. OF 12' WIDE, 6" DEEP, AND CONSIST OF 2"-4" AGGREGATE.

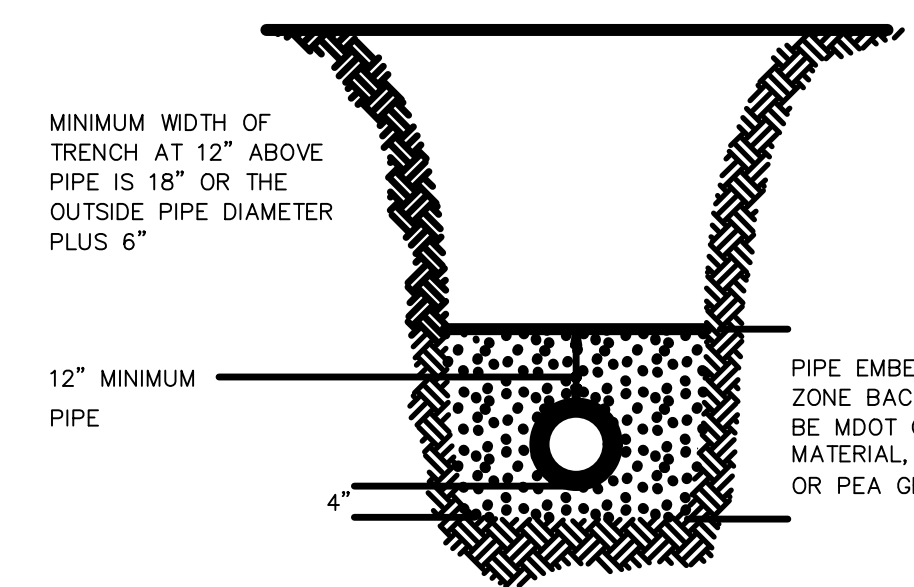


NOTE:
SOIL EROSION AND SEDIMENTATION CONTROL MEASURES INDICATED ARE KNOWN OR ANTICIPATED CONTROL MEASURES NEEDED DURING TYPICAL CONSTRUCTION ACTIVITIES. ADDITIONAL CONTROL MEASURES MAY BE REQUIRED DUE TO CONSTRUCTION ACTIVITY, LOCATION, SOIL TYPE, WEATHER EVENT, ETC. ALL ADDITIONAL SOIL EROSION AND SEDIMENTATION CONTROL MEASURES WILL BE INCIDENTAL TO THE CONSTRUCTION CONTRACT.

COMPACTED BACKFILL ABOVE PIPE EMBEDMENT ZONE SHALL BE CLEAN SITE SUBSOIL OR MDOT GRANULAR MATERIAL, CLASS II WHEN EXCAVATED AREA IS WITHIN A 10' MIN. DISTANCE FROM ROAD SURFACES, DRIVES, PAVED AREAS, ETC.

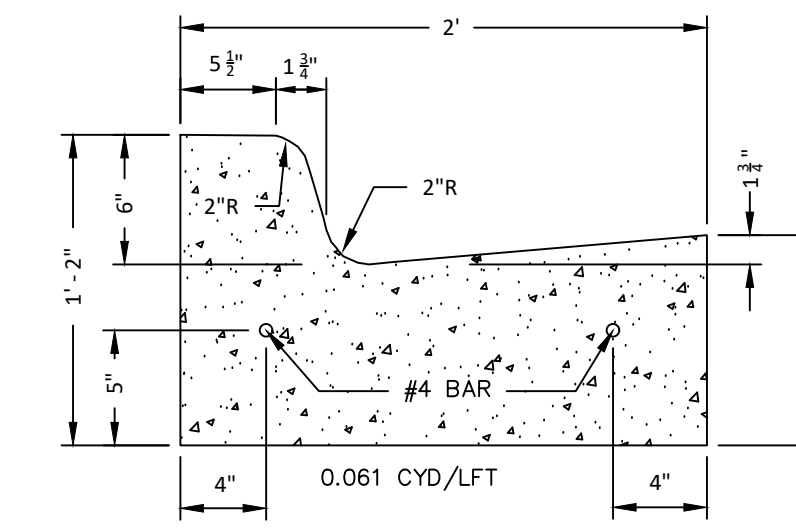
NOTE: USE 1/2 GAUGE (MIN.) LOCATOR WIRE ABOVE PIPE FOR NONMETALLIC PRESSURE PIPE AND SMALL DIAMETER GRAVITY PIPE.

SURFACE RESTORATION TO MATCH EXISTING CONDITIONS



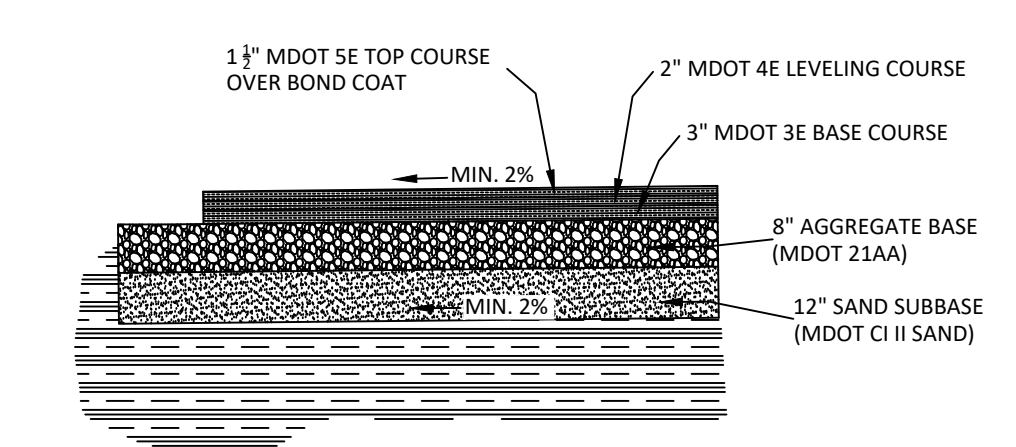
TYPICAL PIPE BEDDING DETAIL

NOT TO SCALE



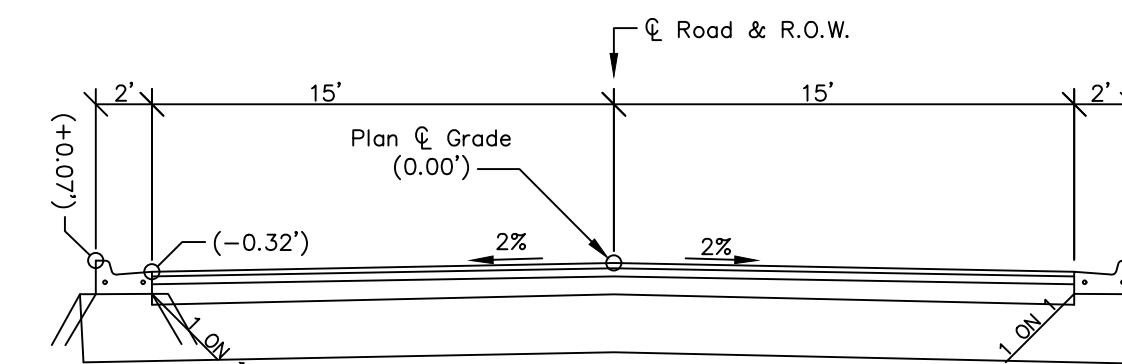
MDOT DETAIL F4 CONCRETE CURB & GUTTER

NOT TO SCALE



HEAVY DUTY PAVEMENT DETAIL

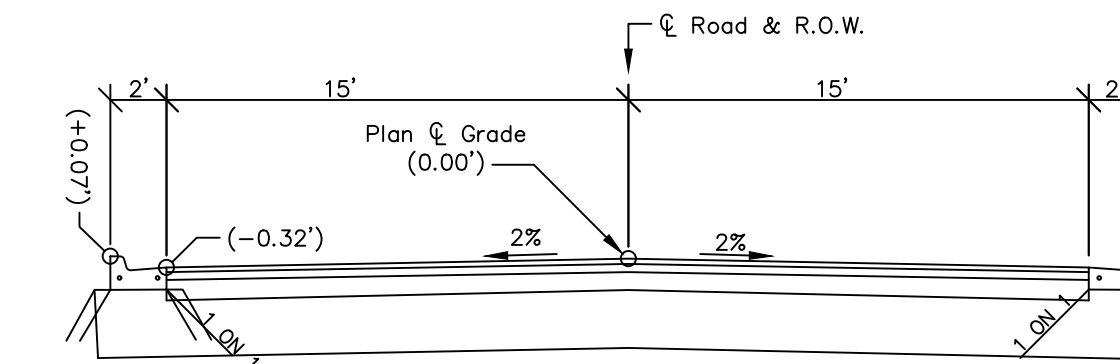
NOT TO SCALE



REMOVE 6" HMA PAVEMENT (PAVT, REM)
REMOVE 4" BRICK PAVERS AND SALVAGE TO OWNER (PAVT, REM)
REMOVE 4" FILL MATERIAL INCLUDING EXISTING CONCRETE BASE WHERE ENCOUNTERED (EXCAVATION, EARTH)
NOTE: SEE SOIL BORING B-1 ON SHEET 2
NOTE: SLOPE EARTH EXCAVATION AWAY FROM EXISTING CURB LINES AT 1:1 SLOPE AND PROTECT EXISTING CURBS (INCIDENTAL)

EXISTING TYPICAL CROSS SECTION TO BE REMOVED KALAMAZOO TO WILLARD STA 0+00 TO 4+98

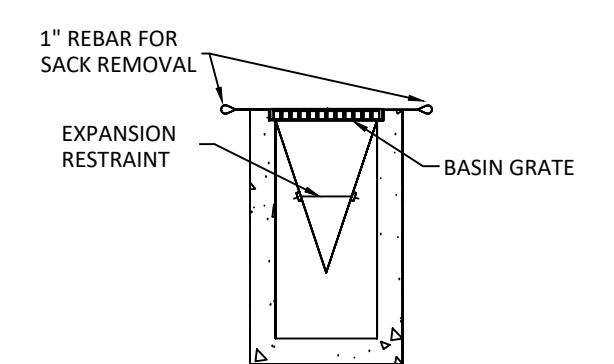
NOT TO SCALE



165 lbs/syd, HMA SE Wearing Course
220 lbs/syd, HMA 4E Leveling Course
330 lbs/syd, HMA 3E Base Course
8" MDOT 21AA Aggregate Base (CIP)

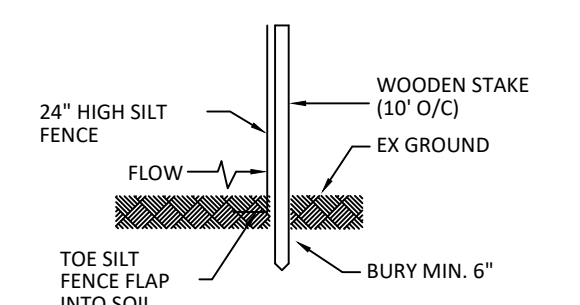
PROPOSED CROSS SECTION KALAMAZOO TO WILLARD STA 0+00 TO 4+98

NOT TO SCALE



SILT SACK DETAIL

NOT TO SCALE



SILT FENCE DETAIL

NOT TO SCALE

Table 3.1 Pipe Thrust Restraint Table

NON-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	44	18	9	5	42	-	-	42
6	62	26	13	7	59	31	-	59
8	82	34	17	9	78	33	56	78
10	100	42	20	10	94	32	58	94
12	119	50	24	12	110	33	59	110
16	157	65	32	16	143	61	85	143
20	195	81	39	20	173	61	109	173
24	233	97	47	23	204	61	111	204
30	288	120	58	29	246	86	134	246

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.

CITY OF KALAMAZOO - WATERMAIN PIPE RESTRAINT SCHEDULE

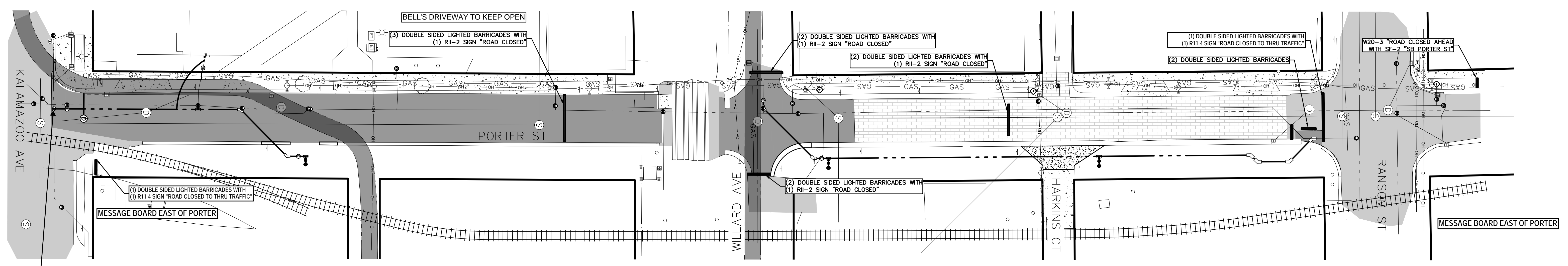
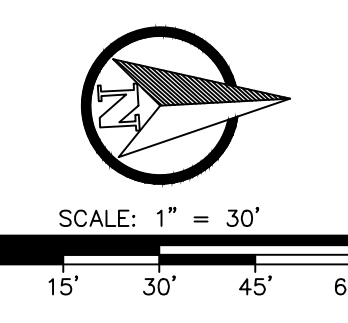
NO.	DATE	REVISION	BY
6	09/20/2023	RAILROAD COMMENTS	CMF
7	02/23/2024	PER CITY	JTR
8	07/08/2024	PER CITY	NEF
9	12/04/2024	PER CITY	NEF
10	12/20/2024	FOR REVIEW	NEF
11	02/26/2025	FOR REVIEW	NEF

CITY OF KALAMAZOO
KALAMAZOO COUNTY, MICHIGAN

PORTER ST WATERMAIN REPLACEMENT PROJECT DETAILS

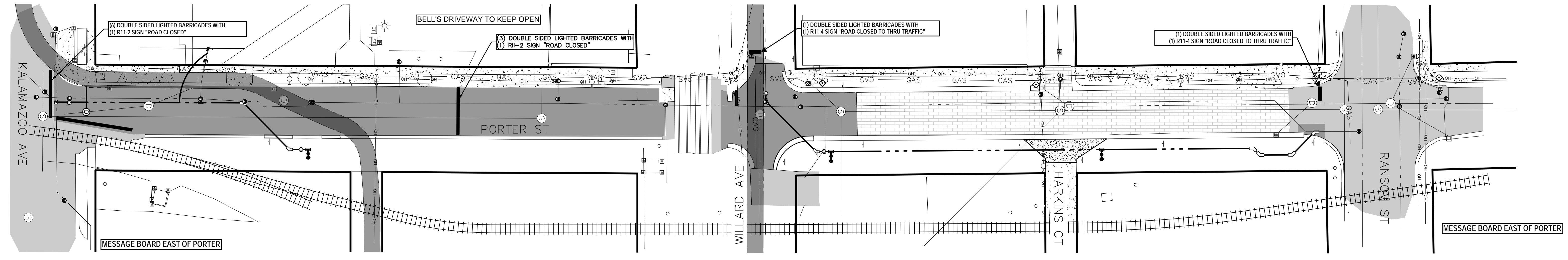
Vriesman & Korhorn
www.VKcivil.com

FILE NO.	1060
CHECKED	DGL
Sheet No.	6 OF 7



NORTH PHASE

PORTER STREET WILL BE CLOSED TO TRAFFIC FROM AMTRAK RR TO HARKINS COURT AND AT WILLARD STREET
LOCAL TRAFFIC WILL BE ALLOWED AT KALAMAZOO AVENUE AND RANSOM STREET

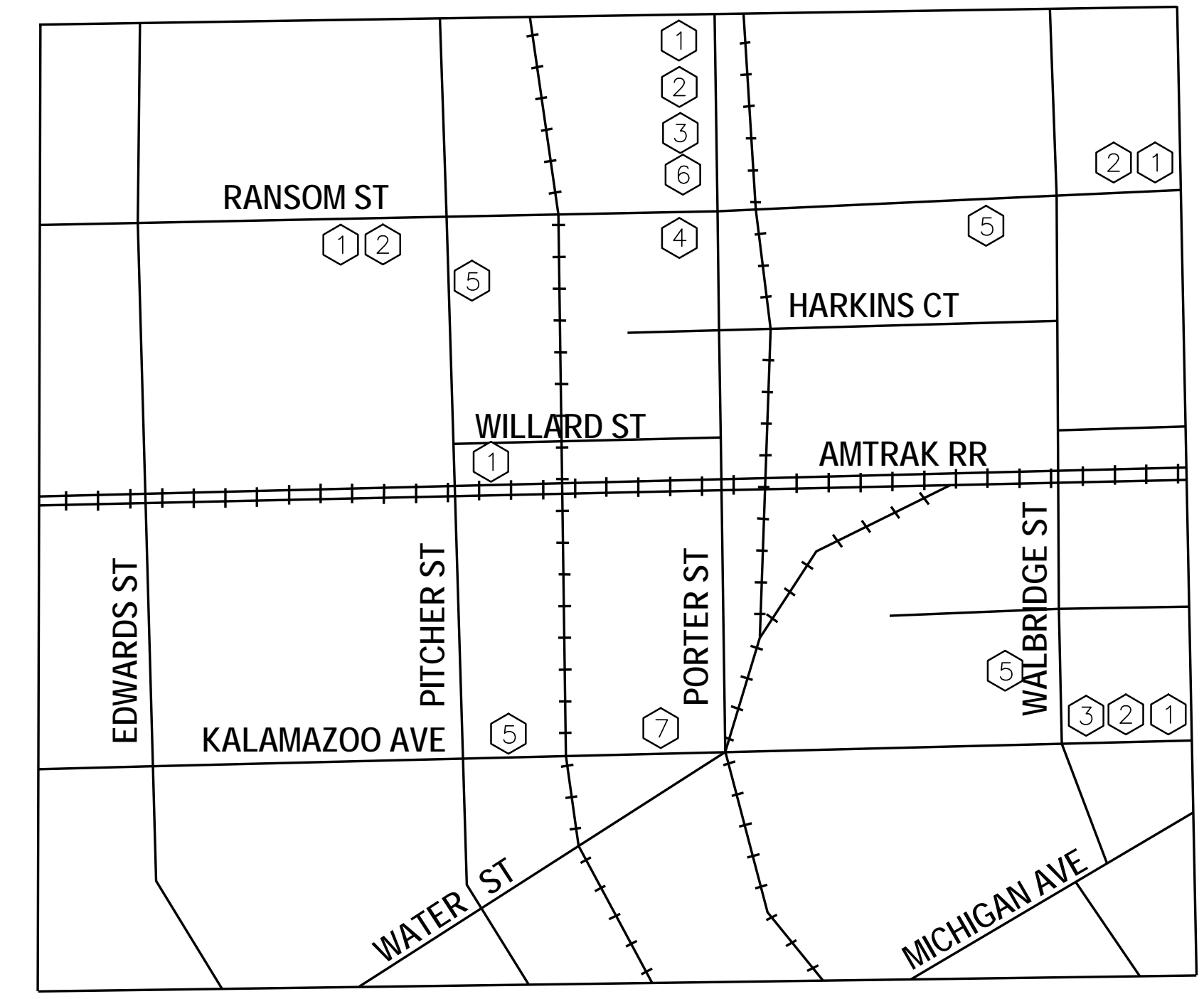


SOUTH PHASE

PORTER STREET WILL BE CLOSED FROM KALAMAZOO AVE TO SOUTH EDGE OF BELL'S NORTH DRIVEWAY (JUST SOUTH OF AMTRAK RR)
LOCAL TRAFFIC WILL BE ALLOWED AT WILLARD STREET AND RANSOM STREET

DETOUR ROUTING

NOT TO SCALE



 QTY: 5 SIZE: 48"x48" (16 SFT) TOTAL AREA: 80 SFT	 QTY: 4 SIZE: 48"x48" (16 SFT) TOTAL AREA: 64 SFT	 QTY: 2 SIZE: 48"x48" (16 SFT) TOTAL AREA: 32 SFT	 QTY: 1 SIZE: 36"x12" (3 SFT) TOTAL AREA: 3 SFT	 QTY: 4 SIZE: 30"x24" (5 SFT) TOTAL AREA: 20 SFT	 QTY: 1 SIZE: 30"x24" (5 SFT) TOTAL AREA: 5 SFT	 QTY: 1 SIZE: 30"x24" (5 SFT) TOTAL AREA: 5 SFT
DESIGNATION W20-1	DESIGNATION W20-3	DESIGNATION W20-2	DESIGNATION W20-12P	DESIGNATION M4-9R	DESIGNATION M4-9L	DESIGNATION M4-9U
 QTY: 8 SIZE: 36"x12" (3 SFT) TOTAL AREA: 24 SFT		 QTY: 1 SIZE: 24"x18" (3 SFT) TOTAL AREA: 3 SFT		 QTY: 7 SIZE: 36"x12" (3 SFT) TOTAL AREA: 21 SFT	 QTY: 5 SIZE: 36"x12" (3 SFT) TOTAL AREA: 15 SFT	 QTY: 3 SIZE: 36"x12" (3 SFT) TOTAL AREA: 9 SFT
DESIGNATION W20-12P		DESIGNATION M4-8A		DESIGNATION W20-12P	DESIGNATION W20-12P	DESIGNATION W20-12P