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HOST PIPE SLIP LINING

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CHAMBER MODIFICATION

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SIPHON CHAMBER

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DRAINAGE PIPE

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DRAINAGE MANHOLE

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# PROJECT DESCRIPTION

SLIP LINING OF VARIOUS SIZE STORM SEWER THAT PENETRATE THRU THE EXISTING LEVEE STRUCTURE; MODIFICATION AND REHABILITATION OF EXISTING SANITARY CHAMBERS AND SHUT OFF VALVES; CLEANING EXISTING SANITARY LINES AND EPOXY LINING ALONG WITH CAST IN PLACE PIPE.

**EVEE** 

**INFRASTRUC** 

**TURE** 

**IMPROVEMENT** 

**PROJECT** 

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### CONVENTIONAL SIGNS PROPOSED:

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RIGHT OF WAY

**EXISTING:** 

GUARDRAIL CATCH BASINS EXIST. UTILITIES • • • PROPOSED POLES EXISTING POLES • MANHOLES • • FENCE LINE CORPORATION LINE • TOWNSHIP LINE COUNTY LINE • VALVE: POWER: POWER: EXISTING: **EXISTING: EXISTING:** 1-POST: **EXISTING:** , TELEPHONE , HYDRANT: TELEPHONE PROPOSED: 2-P0ST: PROPOSED: (3) PROPOSED: 3-P0ST: PROPOSED: , LIGHT , LIGHT , REHABILITATED: , REHABILITATED: METERS:  $\boxtimes$ STREET: , SPAN , GUY: SPAN  $\cap$   $\bullet$   $\circ$ 

## PERMIT TO INSTALL

PTI No. SANITARY SEWER PERMIT TO INSTALL (P.T.I.) HAS BEEN RECEIVED FROM THE OHIO ENVIROMENTAL PROTECTION AGENCY PROTECTION AGENCY THIS \_\_\_\_\_\_\_DAY , 20

### CALL CALL 1-800-362-2764 (TOLL FREE) OHIO UTILITIES PROTECTION SERVICE NON-MEMBERS MUST BE CALLED DIRECTLY TWO WORKING DAYS BEFORE YOU DIG 1-800-^~~ UNDERGROUND UTI 1-800-925-0988 (TOLL FREE) GAS PRODUCERS UNDERGROUND PROTECTION SERVICE UTILITIES

CITY OF MASSILLON 151 Lincoln Way East Massillon, Ohio 44646 OWNER:

CITY PLAN PREPARED BY: O<sub>F</sub>

Engineering Department

MASSILLON

STREETS •

PORTION TO BE IMPROVED

LOCATION MAP

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DRAINAGE MODIFICATION

SSS

MS

SANITARY PIPESANITARY MANHOLECAST IN PLACE GROUTING SLEEVE

## 17TH 17TH 9TH JR-8

### INDEX **SHEETS:**

DETAILS TITLE PLAN AND GENERAL SUMMARY GENERAL NOTES SHEET AND SIPHON **PROFILE** 18a **-13**  $\frac{\infty}{2}$ 

SR 241 (WALES)

DYLEWSKI, P.E., P.S.

DATE

CITY

**ENGINEER** 

## OF **MASSILLON** <u>OFFICIALS</u>

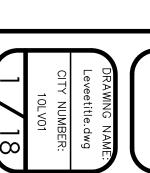
ANDREA SCASSA • • • • • QUENESSA N. HAMPTON • DONNIE PETERS JR. • • TONY M. TOWNSEND .

SARITA CUNNINGHAM-H

NANCY HALTER . . . . KATHY CATAZARO-PERICLES G. STEI JAYNE FERRERO MAUDE SLAGLE• COUNCIL ED LEWIS . . . PAUL MANSON . LARRY SLAGLE .
MILAN CHOVAN . CATAZARO-PERRY STERGIOS PROSECUTOR **TREASURER** PRESIDENT 2nd 3rd 5th 4th 1st **AUDITOR** MAYOR LARGE LARGE LARGE WARD WARD WARD WARD WARD WARD



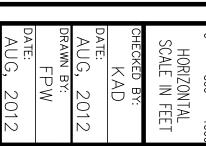


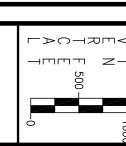


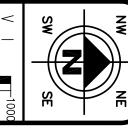


Levee Infrastructure Improvement Project Title Sheet City of Massillon Stark County, Ohio

RF	VISIONS:	Ţ
DATE	DESCRIPTION	
1/2015	AS-BUILTS	<b>1</b> ,







**FOLLOWING** NOTES ARE CITY 유 **MASSILLON** STANDARD NOTES AND MAY NOT 쁀 **APPLICABLE** O ALL **PROJECTS** 

### UTILITIES

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50 W.BOWERY, 6TH FLOOR AKRON, OH 44308 800-384-8057 LISTED BELOW ARE ALL KNOWN UTILITIES LOCATED AQUA WATER P.O. BOX 584 MASSILLON, OH 44648 (330) 833—4156 MIHIN THE PROJECT CONSTRUCTION LIMITS TOGETHER WITH THEIR RESPECTIVE OWNERS:

CITY OF MASSILLON
SANITARY SEWER
151 LINCOLN WAY EAST
MASSILLON, OH 44646
(330) 830—1722

OHIO EDISON STARK DIVISION 2600 S. ERIE ST. MASSILLON, OH 44545 (330) 830-7085

MASSILLON CABLE TV P.O. BOX 814 MASSILLON, OH 44648 (330) 833-4134

GREAT LAKES 104 6TH ST. S.W. CANTON, OH 44702 (330) 456-2454

THE CONTRACTOR IS REQUIRED TO COOPERATE WITH EACH RESPECTIVE UTILITY OWNER CONSTRUCTION OF THE PROJECT.

FOR

REMOVAL

AND

RELOCATION

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UTILITIES

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HORIZONTAL SCALE IN FEET

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ACCESS TO ALL DRIVEWAYS AND PARKING AREAS WITHIN THE PROJECT LIMITS SHALL B DAY TO PROVIDE ACCESS. THE CONTRACTOR MUST NOTIFY EACH PROPERTY OWNER AT

SE MAINTAINED AT LEAST 24 HOURS

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ADVANCE OF

TRENCH SHALL CUTTING THEIR

. BE BACKFILLED RIVEWAY.

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**EACH** 

WORK

ACCESSIBILITY TO PRIVATE PROPERTY

REMOVAL AND RELOCATION OF EXISTING UTILITIES

THE CONTRACTOR SHALL NOTIFY ALL UTILITIES 48 HOURS PRIOR TO WORK.

AT&T COMMUNICATIONS 2535 E. 40TH AVE. DENVER, CO 80205-3601 (800) 852-3786 DOMINION EAST OHIO ( 4725 SOUTHWAY ST. S CANTON, OH 44706 (330) 478-3142

COMPANY

## RTHEAST OHIO NATURAL S CORP. 31 S.R. 250 RASBURG, OH 44680-9766 (0) 878-5589

CONDITIONS OF WORK

CONTRACTOR IS RESPONSIBLE FOR ALL CONSTRUCTION LAYOUT.

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WORK

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BE UNDER

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623

CONSTRUCTION

**STAKING** 

ITEM 623 -

CONSTRUCTION STAKING

WHERE OBTAINED

AS

REQUIRED

FROM

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**OWNERS** 

AS

# OUPS - 1-800-362-2764 OGUPUPS - 1-800-925-0988 THE LOCATION OF THE UNDERGROUND UTILITIES SHOWN ON THE PLANS ARE SHOWN AT APPROXIMATE LOCATIONS AND REQUIRED BY SECTION 153.64 OF THE OHIO REVISED CODE

NOTIFICATION OF SAFETY FORCES AND BUS GARAGES THE CONTRACTOR SHALL NOTIFY CLOSING OR TRAFFIC CHANGE. AL. AGENCY LISTED BELOW AT LEAST 48 HOURS IN ADVANCE 유 ANY STREET

PERRY POLICE DEPARTMENT 330-833-3865 MASSILLON SAFETY SERVICE 330-830-1702 JACKSON TOWNSHIP 330-832-7416 TUSCARAWAS TOWNSHIP HALL 330-832-4337 HALL PERRY FIRE DEPARTMENT 330-478-5121 JACKSON FIRE DEPARTMENT 330-832-1553 MASSILLON FIRE DEPARTMENT 330-833-1053

PERRY SCHOOL 330-477-1300 BUS GARAGE STARK COUNTY SHERIFF 330-430-3887

SARTA 330-454-5333

**QUANTITIES** 

MASSILLON POLICE DEPARTMENT 330-830-1735 JACKSON POLICE DEPARTMENT 330-497-7440 PERRY TOWNSHIP HALL 330-833-2141 MASSILLON SCHOOL BUS GARAGE 330-830-1849 NORTH LAWRANCE 330-832-6347

FIRE DEPT.

JACKSON SCHOOL BUS GARAGE 330-830-8042

TUSCARAWAS SCHOOL BUS GARAGE 330-837-7805

PRESERVATION OF EXISTING UTILITY SERVICES THE RESPONSIBILITY OF CONTRACTOR TO NOTIFY THE CITY, PRIOR TO BID

EXISTING STRUCTURES, GRADES, PIPING, ETC. ARE INDICATED IN APPROXIMATE LOCATION ON THE THE DATA SHALL BE VERIFIED IN THE FIELD BY THE CONTRACTOR. THE EXISTENCE OF FACILITIES A CLAIM FOR EXTRA WORK.

EACH CONTRACTOR SHALL VISIT THE SITE PERSONALLY TO ASCERTAIN THE NATURE OF

THE WORK AND BECOME THOROUGHLY FAMILIARIZED WITH THE SITE PRIOR TO BID

PLAN. INFORMATION SHOWN IS NOT GUARANTEED ABOVE OR BELOW GROUND, WHICH MAY NOT BE

TO BE CORRECT SHOWN, WILL NOT

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A BASIS FOR

DATE

SUBMISSION.

**REVISIONS:** 

**DESCRIPTION** 

EXISTING DATA

EXISTING UNDERGROUND UTILITIES SHOWN ARE RECORDS PROVIDED BY UTILITY COMPANIES

OPENING

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NON-CONFORMING

OR CONFLICTING INFORMATION.

DAMAGED

DURING

CONSTRUCTION

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ARE APPROXIMATE ONLY. SERVICE LATERALS ARE

NOT SHOWN.

IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO PROVIDE AND MAINTAIN FACILITIES FOR A CONSTRUCTION OFFICE, EMPLOYEE PARKING, AND EMPLOYEE SANITARY FACILITIES. ON STREET PARKING WILL NOT BE PERMITTED. THE CONTRACTOR SHALL PROVIDE FOR THE LAWFUL OFF—SITE DISPOSAL OF DEMOLITION DEBRIS AND CONSTRUCTION WASTE.

IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO MAINTAIN SAFE AND SATISFACTORY ACCESS TO ALL ABUTTING PROPERTIES TO THE PROJECT SITE. ADJACENT ROADS SHALL BE MAINTAINED AND KEPT CLEAN OF MUD AND OTHER DEBRIS THAT MAY BE CAUSED BY TRAFFIC EXITING THE WORK SITE. THE CONTRACTOR SHALL COORDINATE AND PROVIDE FOR ALL NECESSARY TRAFFIC CONTROL. TRAFFIC CONTROL SHALL FOLLOW THE MORE STRINGENT GUIDELINES OF THE CITY OF MASSILLON OR ODOT AT THE DESCREATION OF THE CITY OF MASSILLON ENGINEER.

ALL WORK PERFORMED UNDER THIS CONTRACT SHALL COMPLY WITH THE U.S. DEPARTMENT OF LABOR, OCCUPATIONAL SAFETY AND HEALTH ACT, STATE, COUNTY, AND CITY OF MASSILLON LAWS AND REGULATIONS. ALL WORK, AT ALL TIMES SHALL BE SUBJECT TO OBSERVATION BY THE CITY OF MASSILLON ENGINEER AND/OR HIS REPRESENTATIVE. ALL WORK SHALL COMPLY WITH THE COMPLY WITH THE COMPLY WITH THE SHALL COMPLY WITH THE NATIONAL ELECTRICAL CODE, AND APPLICABLE CITY, COUNTY, STATE AND FEDERAL CODES.

ANY EXISTING WATER LINE, SANITARY SEWER, STORM SEWER, GAS LINE OR PROPOSED PROJECT SHALL BE REPLACED AT THE CONTRACTORS EXPENSE. OTHE UTILITY Z 유 OUTSIDE 유 품 CONSTRUCTION LIMITS,

# CONTRACTOR AVAILABILITY

THE CONTRACTOR SHALL SUPPLY THE ENGINEER WITH A 24 HOUR PHONE NUMBER WHE 沼 품 CONTRACTOR SHALL 쁌 **AVAILABLE** FOR EMERGENCIES

# PRESERVATION OF PRIVATE PROPERTY

THE CONTRACTOR SHALL PERFORM WORK AS TO NOT DISTURB, DAMAGE OR DESTROY ANY TELEPHONE OR POWER POLES, SIGNS, LANDSCAPING ITEMS, ETC.. ANY ITEM DAMAGED OR DESTROYED SHALL BE REPLACED AT THE CONTRACTOR'S EXPENSE AND ANY ITEM DISTURBED OR IN CONFLICT WITH THE WORK TO BE PERFORMED SHALL BE REMOVED AND RESET AT THE CONTRACTOR'S EXPENSE. PRIOR ENGINEER APPROVAL IS REQUIRED BEFORE ANY OF THE ABOVE ITEMS ARE PERFORMED.

RESTORATION

ALL CONSTRUCTION IS TO BE COMPLETED ACCORDING TO THE CURRENT CITY OF MASSILLON SPECIFICATIONS AND STANDARDS, AND THE LATEST EDITION OF THE STATE OF OHIO DEPARTMENT OF TRANSPORTATION CONSTRUCTION AND MATERIAL SPECIFICATIONS. WHEN A CONFLICT ARISES BETWEEN THE CITY OF MASSILLON AND ODOT'S STANDARDS, THE MORE STRINGENT STANDARD WILL BE USED AT THE DISCRETION OF THE CITY OF MASSILLON ENGINEER. THE CONTRACTOR SHALL FOLLOW ALL OSHA AND ADA REGULATIONS AND REQUIREMENTS.

QUANTITIES ARE INDICATED FOR COMPARISON OF BIDS ONLY. IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO VERIFY QUANTITIES BEFORE ORDERING MATERIALS. VARIATIONS FROM THE PLAN QUANTITIES SHALL BE APPROVED BY THE CITY OF MASSILLON ENGINEER BEFORE MATERIAL ORDERS ARE PLACED. MATERIALS REJECTED DUE TO INCOMPATIBILITY BETWEEN ORDERED QUANTITIES AND FIELD CONDITIONS SHALL BE REPLACED AT THE CONTRACTOR'S EXPENSE.

CONSTRUCTION SPECIFICATIONS & STANDARDS

FOR SANITARY SEWER INSTALLED, TESTED, AND ACCEPTED UP TO MAY 15TH OF ANY CALENDAR YEAR, RESTORATION SHALL BE COMPLETE BY JUNE 30th OF THAT YEAR. FOR INSTALLATION OF SANITARY SEWER TESTED AND ACCEPTED FROM MAY 15th TO SEPTEMBER 30th OF ANY CALANDAR, YEAR RESTORATION SHALL BE COMPLETE BY MAY 15th OF THAT CALENDAR YEAR. FOR SANITARY SEWER INSTALLED, TESTED, AND ACCEPTED AFTER NOVEMBER 15TH OF ANY CALENDAR YEAR. RESTORATION SHALL BE COMPLETE BY MAY 15th OF THE NEXT CALENDAR YEAR.

ALL SOIL AREAS DISTURBED BY THE CONTRACTOR SHALL BE TOPSOILED, SEEDED AND ITOPSOIL, SEEDING AND MULCHING SHALL NOT BE A SEPARATE PAY ITEM. THIS INCLUDE EACH ITEM OF AFFECTED WORK ALL PAVEMENT RESTORATION.

PAVEMENT CROSSINGS WILL RECEIVE TYPE C PAVEMENT REPLACEMENT WITH FULL WIDTH PAVEMENT OVERLAY

CONTRACTOR TO REPLACE ALL PAVEMENT MARKINGS. COST TO BE INCLUDED IN THE UNIT PRICE BID FOR PAVEMENT.

INTERSECTIONS

CONTRACTOR TO USE HOT APPLIED JOINT CRACK SEALER ON ASPHALT PAVEMENT AT

BE PERFORMED IN FEDERAL LAWS

FORM

ALTHOUGH THERE ARE NO TREES OR STUMPS SPECIFICALLY MARKED FOR REMOVAL WITHIN THE LIMITS OF THE PROJECTION FOR ITEM201SPEC, CLEARING AND GRUBBING. THIS ITEM SHALL INCLUDE ALL PROVISIONS AS SET FORTH IN THE 2008 STUMPS, AND BRUSH AS DETERMINED BY THE CITY ENGINEER.

THE CONTRACTOR SHALL PRESERVE ALL CORNERSTONES, IRON PINS, CONCRETE MONUMENTS AND ANY PROXIMITY OF THE WORK REFERENCED. HE SHALL REPLACE DESTROYED OR DAMAGED MONUMENTS AND THE MONUMENTS HAVE BEEN RESTORED.

PRESERVATION OF PROPERTY CORNERS

AND SURVEY MARKERS

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FOR ITEM

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MONUMENT. HE SHALL A CERTIFICATION BY /

. HAVE ALL LAND MONUMENTS IN THE AN OHIO REGISTERED SURVEYOR THAT

CT. A LUMP SUM QUANTITY HAS BEEN INCLUDED IN THE BID ODOT SPECIFICATIONS. REMOVAL ITEMS MAY INCLUDE TREES,

ALL PROVISIONS AS SET FORTH IN THE SPECIFICATIONS UNDER THIS ITEM SHALL BE INCLUDED

CLEARING AND GRUBBING

GRADING AND FILLING OPERATIONS

THE PLACEMENT OF COMPACTED AGGREGATE SHALL NOT EXTEND PAST THE EXISTING GRADED SHOULDERS. NO EXCAVATION, GRADING, OR FILLING OPERATIONS SHALL ANY WETLANDS OR STREAMS, UNLESS THE REQUIRED STATE AND/OR FEDERAL PERMITS HAVE BEEN OBTAINED IN ACCORDANCE WITH ALL APPLICABLE STATE AND/OR AND REGULATIONS. UNDER NO CIRCUMSTANCES SHALL THE CONTRACTOR STORE EQUIPMENT AND/OR MATERIALS IN ANY WETLANDS OR STREAMS.

THE PROPSED PAVEMENT RESURFACING SHALL FOLLOW ON THE TYPICAL SECTIONS.

THE ALIGNMENT AND PROFILE OF

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EXISTING PAVEMENT. THE

**PROPOSED** 

ASPHALT CONCRETE

OVERLAY SHALL

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**NMOHS** 

PROFILE AND ALIGNMENT

WORK LIMITS

THE WORK LIMITS SHOWN ON THESE PLANS ARE FOR PHYSICAL CONSTRUCTION ONLY. THE CONTRACTOR SHALL PROVIDED TRAFFIC CONTROL AND WORK ZONE TRAFFIC CONTROL DEVICES REQUIRED BY THESE PLANS WHETHER INSIDE OR OUTS

DE FOR THE INSTALLATION AND IDE THESE WORK LIMITS.

OPERATION OF

ALL WORK ZONE

A QUALIFIED FLAGGER SHALL BE EMPLOYED WHERE THE CONTRACTOR'S EQUIPMENT MUST MERGE WITH THE TRAFFIC STREAM. THE CONTRACTOR'S EQUIPMENT SHALL BE EQUIPPED AT LEAST ONE AMBER FLASHING LIGHT. THE EQUIPMENT SHALL BE STORED AT A STORAGE AREA OUTSIDE THE R/W. THE LOCATION OF WHICH SHALL HAVE PRIOR APPROVAL OF ENGINEER. WHEN PARKING ALONG THE HIGHWAY, THE EQUIPMENT SHALL BE PLACED AND DELINEATED AS PER 614.03. NO EQUIPMENT SHALL BE PARKED IN THE MEDIAN OF THE HIGHWAY. ADEQUATE BARRICADE AND LIGHTS SHALL BE PLACED ON THE PAVEMENT SIDE OF THE EQUIPMENT TO IDENTIFY THE LIMITS OF THE EQUIPMENT. ALL OTHER EQUIPMENT, INCLUDING PRIVATE VEHICLES, SHALL BE STORED AT THE APPROVED CONTRACTOR'S STORAGE AREA. NO EQUIPMENT SHALL BE PARKED ON PRIVATE PROPERTY UNLESS PRIOR APPROVAL OF THE OWNER AND THE PROPERTY UNLESS PRIOR APPROVAL OF THE OWNER AND THE PROPERTY ONLESS PRIOR APPROVAL OF THE OWNER AND THE PROJECT ENGINEER/SUPERVISOR HAS BEEN GRANTED.

# SANITARY SIPHON CHAMBER REHAB.

Kathy Catazaro-Perry, Mayor Massillon City of Champions

Levee Infrastructure Improvement Project

**Genral Notes** City of Massillon Stark County, Ohio

MULCHED. COST TO BE INCLUDED IN THE UNIT PRICE BID FOR ALONG THE EDGE OF

ALL TRENCHES IN ROAD RIGHT OF WAY WILL RECEIVE FULL DEPTH PREMUIM GRANULAR ALL ENDS **BACKFILL** AND

ITEM 604SPEC

THIS WORK CONSISTS OF REPLACING, REPAIRING, PATCHING, AND RECOATING OF EXISTING SANITARY SIPHON CHAMBER. ALL MECHANICAL PARTS SHALL BE REPAIRED OR REPLACED TO WORK PROPERLY. ALL RAILING AND STEPS SHALL BE REPLACED AND PAINTED. ALL CONCRETE AND BRICK WALLS, FLOORS AND SLABS SHALL BE PATCHED OR REPOINTED, EXTERIOR WALLS SHALL BE PAINT MORTAR. ACCESSES HATCHES AND LIDS SHALL BE REPLACED WITH NEW SAME SIZE AND LOCKABLE HATCHES.



CONTRACTOR'S EQUIPMENT - OPERATION STORAGE

# SANITARY SEWER SPECIFICATIONS

SANITARY SEWER CONSTRUCTION PROPOSED FOR THIS PROJECT SHALL CONFORM TO THE LATEST CITY OF MASSILLON TEN STATE STANDARDS, AND THE LATEST EDITION OF THE ODOT CMS, OR MODIFIED BY THE CONTRACT DRAWINGS. IF THE DISCRETION OF THE CITY OF MASSILLON ENGINEER AS TO WHICH STANDARD SHALL GOVERN. THE PROJECT CONTR STANDARDS AND CONSTRUCTION AND MATERIALS SPECIFICATIONS, A CONFLICT ARISES BETWEEN SAID STANDARDS IT SHALL BE AT ACT DRAWINGS SHALL GOVERN UNLESS NOTED OTHERWISE.

SANITARY GRAVITY SEWER PIPE AND FITTINGS SHALL BE PVC SDR 35 CONFORMING TO ASTM D-3034 UNLESS OTHERWISE NOTED. PVC COMPOUNDS SHALL CONFORM TO ASTM D-1784 PVC PIPE AND FITTINGS SHALL HAVE BELL AND SPIGOT TYPE JOINTS CONFORMING TO ASTM D-3212 AND GASKETS CONFORMING TO ASTM F-477

BACKFILL IN SEWER TRENCHES SHALL CONFORM TO ODOT ITEM 603.10 AND BE PLACED IN LAYERS SUFFICIENT TO MEET THE COMPACTION REQUIREMENT OF 100% OF MAXIMUM LABORATORY DRY DENSITY PER ASTM D-698 AND THOROUGHLY COMPACTED WITH MACHINE MOUNDED COMPACTION EQUIPMENT. THE PLACING OF BACKFILL MATERIAL SHALL BE CONTINUED UNTIL THE TRENCH IS ENTIRELY FILLED AND COMPACTED WITH THE APPROVED GRANULAR MATERIAL TO THE GRADE CALLED FOR ON THE CONTRACT DRAWINGS. EXCAVATED MATERIAL CONFORMING TO ODOT ITEM 203 SHALL BE USED FOR BACKFILLING STRUCTURES (AFTER REMOVAL) ONLY. CRUSHED GRAVEL CONFORMING TO GRADATION REQUIREMENTS OF ODOT ITEM 304 OR APPROVED EQUAL AS SHOWN IN ODOT TABLE 703-1 SHALL BE USED FOR BACKFILLING ALL SEWER TRENCH AREAS SHOWN ON THE PLANS AND AS DIRECTED BY THE CITY OF MASSILLON OF BACKFILL MATERIAL WILL NOT BE PERMITTED UNLESS APPROVED BY THE CITY OF MASSILLON ENGINEER. COMPACTION TESTING OF THE BACKFILL BY A GEOTECHNICAL ENGINEER MAY BE REQUIRED BY THE OWNER AT THE EXPENSE OF THE CONTRACTOR.

SANITARY SEWERS SHALL BE AIR TESTED FOR LEAKAGE AND MANDREL TESTED FOR DEFLECTION. THE MAXIMUM ALLOWABLE PIPE DEFLECTION SHALL BE 5%.

PRIOR TO FINAL PAYMENT FOR AND ACCEPTANCE OF FORWARDED TO THE CITY OF MASSILLON ENGINEER. SANITARY SEWER INSTALLATION THE RESULTS 유 THE AIR PRESSURE TESTS, TELEVISION TESTS AND MADREL **TESTS** 

## DEFLECTION TESTING

MAXIMUM ALLOWABLE PIPE DEFLECTION (REDUCTION IN VERTICAL INSIDE DIAMETER) SHALL BE 5%. DEFLECTION TESTS OF PIPE SHALL BE PERFORMED NOT SOONER THAN 30 DAYS AFTER THE BACKFILL HAS BEEN PROPERLY PLACED AND BEFORE FINAL ACCEPTANCE. LOCATIONS WITH EXCESS DEFLECTION SHALL BE EXCAVATED AND REPAIRED BY RE-BEDDING OR REPLACEMENT OF THE PIPE AT THE CONTRACTOR'S EXPENSE. DEVICES FOR TESTING INCLUDE A DEFLECTION METER, OR PROPERLY SIZED (60, NO-GO) MANDREL OR SEWER BALL. THE DEFLECTION TESTING MUST BE CONDUCTED WITHOUT MECHANICAL PULLING DEVICES. FOR THE PURPOSE OF DEFLECTION MEASUREMENTS, THE BASE INSIDE PIPE DIAMETERS WITHOUT DEFLECTION ARE PROVIDED IN TABLE A. THE MAXIMUM ALLOWABLE DEFLECTION SHALL BE APPLIED TO THE BASE INSIDE DIAMETER IN DETERMINING THE MINIMUM PERMISSIBLE DIAMETER. IT MUST BE EMPHASIZED THAT TO INSURE ACCURATE TESTING, THE LINES MUST BE THOROUGHLY CLEANED.

TABLE A INSIDE DIAMETERS FOR DEFLECTION MEASUREMENTS OF ASTM D 3034 SDR 35 / SDR 21 PVC SEWER PIPE

12"	10"	Φ,	6"	SIZE
35	35	35	35	SDR
12.500	10.500	8.400	6.275	AVG. O.D.
11.361	9.563	7.665	5.742	BASE I.D.
10.79	9.08	7.28	5.54	DEFLECTION MANDREL

### **TELEVISION TESTING**

ALL SANITARY SEWERS, 8-INCH DIAMETER AND LARGER, MUST PASS AN INTERNAL TELEVISION INSPECTION. THE CONTRACTOR SHALL PROVIDE A COMPLETE INTERNAL INSPECTION DVD TO THE CITY OF MASSILLON ENGINEERING DEPARTMENT. THE RECORDING PROCEDURE SHALL BE IN ACCORDANCE WITH CITY OF MASSILLON ENGINEERING DEPARTMENT STANDARDS.

## LEAKAGE TESTS

LEAKAGE TESTS SHALL BE PERFORMED WHICH MAY INCLUDE APPROPRIATE WATER CONSIDERATION THE RANGE IN GROUNDWATER ELEVATIONS DURING THE TEST AND OR LOW PRESSURE AIR TESTING. THE TESTING METHODS SELECTED ANTICIPATED DURING THE DESIGN LIFE OF THE SEWER COMPLETED SHOULD TAKE INTO AND ACCEPTED.

# TESTING AS PER ASTM F1417

WATER (HYDROSTATIC) TEST

AIR

THE SYSTEM. AN EXFILTRATION OR INFILTRATION SHALL NOT EXCEED 100 GALLONS PER INCH OF PIPE DIAMETER PER TEST SHALL BE PERFORMED WITH A MINIMUM POSITIVE HEAD 2 PER DAY [9L/(MM OF FEET (0.6 M). PIPE DIAMETER KM D)] FOR ANY SECTION

EQUIPMENT USED SHALL MEET THE FOLLOWING MINIMUM REQUIREMENTS AND BE APPROVED BY THE CITY ENGINEER: AFTER BACKFILLING A MANHOLE TO MANHOLE REACH OF SANITARY SEWER LINE, THE CONTRACTOR SHALL, AT HIS EXF BE PERFORMED ACCORDING TO THE STATED PROCEDURES AND UNDER THE SUPERVISION OF THE CITY ENGINEER OR HI

PENSE, CONDUCT THE LINE IS REPRESENTATIVE.

ACCEPTANCE TESTS.

TESTS SHALL

AIR TESTING WILL BE CONDUCTED AS THE PROJECT IS BEING CONSTRUCTED. AT NO TIME WILL MORE THAN 900 FEET OF PIPE BE INSTALLED BEFORE AIR TESTING IS PERFORMED. SEWAGE WILL NOT BE DIVERTED TO ANY SECTION OF PIPE, REGARDLESS OF LENGTH, UNTIL ALL TESTING IS COMPLETED AND ACCEPTED.

OF THE PIPE BEING INSPECTED OR BLOCKING.

PNEUMATIC PLUGS SHALL HAVE A SEALING LENGTH EQUAL TO OR A GREATER THAN THE DIAMETER OF THE PIPE BEING INSPIPE PREUMATIC PLUGS SHALL RESIST INTERNAL TEST PRESSURES WITHOUT REQUIRED EXTERNAL BRACING OR BLOCKING.

ALL AIR USED SHALL PASS THROUGH A SINGLE CONTROL PANEL.

THREE INDIVIDUAL HOSES SHALL BE USED FOR THE FOLLOWING CONNECTIONS:

a. FROM CONTROL PANEL TO PNEUMATIC PLUGS FOR INFLATION.

b. FROM CONTROL PANEL TO SEALED LINE FOR INTRODUCING THE LOW PRESSURE AIR.

c. FROM SEALED LINE TO CONTROL PANEL FOR CONTINUALLY MONITORING AIR PRESSURE RISE IN THE SEALED LINE.

ALL PNEUMATIC PLUGS SHALL BE SEAL TESTED BEFORE BEING USED IN THE ACTUAL TEST INSTALLATION. ONE LENGTH ENDS WITH THE PNEUMATIC PLUGS TO BE CHECKED. THE SEALED PIPE SHALL BE PRESSURED TO 5 PSIG. THE PLUGS N BRACED. H OF PIPE SHALL BE LAID ON THE GROUND AN SEALED MUST HOLD AGAINST THIS PRESSURE WITHOUT HAVING AT BOTH

AFTER A MANHOLE TO MANHOLE REACH OF PIPE HAS BEEN BACKFILLED AND CLEANED, AND THE PNEUMATIC PLUGS / PLACED IN THE LINE AT EACH MANHOLE. LOW PRESSURE AIR SHALL BE SLOWLY INTRODUCED INTO THIS SEALED LINE ARE CHECKED BY THE ABOVE PROCEDURE, THE PLUGS SHALL BE UNTIL THE INTERNAL AIR PRESSURE REACHES APPROXIMATELY 4

AT LEAST TWO MINUTES SHALL BE ALLOWED FOR THE AIR PRESSURE TO STABILIZE. IN CONTROL PANEL TO THE AIR SUPPLY SHALL BE DISCONNECTED. THE PORTION OF THE PRESSURE TO DECREASE FROM 3.5 TO 2.5 PSIG (GREATER THEN THE AVERAGE BACK TIME SHOWN FOR THE GIVEN DIAMETERS IN THE FOLLOWING TABLE: WHEN THE PRESSURE HAS STABILIZED AND IS AT OR ABOVE 3.5 PSIG, THE AIR HOSE FROM THE LINE BEING TESTED SHALL BE TERMED "ACCEPTABLE" IF THE TIME REQUIRED IN MINUTES FOR THE PRESSURE OF ANY GROUNDWATER THAT MAY BE OVER THE PIPE) SHALL NOT BE LESS THAN THE

PIPE	MINIMUM	FOR	LONGER			SPECIFICATION		TIME LENGTH (L) SHOWN, MINUTES	WN, MINUTES		
IN.	MINUTES	MINUTES TIME, FT.	LENGTH, S	100 FT.	150 FT.	200 FT.	250 FT.	300 FT.	350 FT.	400 FT.	450 FT.
4	3: 46	597	0.380 L	3: 46	3: 46	3: 46	3: 46	3: 46	3: 46	3: 46	3: 46
6	5: 40	398	0.854 L	5: 40	5: 40	5: 40	5: 40	5: 40	5: 40	5: 42	6:24
8	7: 34	298	1.520 L	7: 34	7: 34	7: 34	7: 36	7: 36	8: 52	10:08	11:24
10	9: 26	239	2.374 L	9: 26	9: 26	9: 26	9:53	11: 52	13: 51	15: 49	17:48
12	11: 20	198	3.416 L	11: 20	11: 20	11:24	14:15	17: 05	19: 56	22: 47	25: 38
15	14:10	159	6.342 L	14:10	14:10	17: 46	22:15	26: 42	31: 09	35: 36	40:04
18	17:0	133	7.692 L	17:00	19:13	25: 38	32:09	38: 27	44: 52	51:16	57:41

CONTINUED: AIR TESTING AS PER ASTM F1417

IN AREAS WHERE GROUND WATER IS KNOWN TO EXIST, THE CONTRACTOR SHALL INSTALL A 1/2 INCH DIAMETER CAPPED PIPE NIPPLE APPROXIMATELY 10 INCHES LONG, THROUGH THE MANHOLE WALL ON TOP OF ONE OF THE SANITARY SEWER LINES ENTERING THE MANHOLE. THIS SHALL BE DONE AT THE TIME THE SANITARY SEWER LINE IS INSTALLED. IMMEDIATELY PRIOR TO THE PERFORMANCE OF THE LINE ACCEPTABILITY TEST, THE GROUND WATER SHALL BE DETERMINED BY REMOVING THE PIPE CAP, BLOWING AIR THROUGH THE PIPE IN THE GROUND SO AS TO CLEAR IT, AND THEN CONNECTING A CLEAR PLASTIC TUBE TO THE NIPPLE. THE PLASTIC TUBE SHALL BE VERTICAL AND A MEASUREMENT OF THE HEIGHT, IN FEET OF THE INVERT OF THE INVERT OF THE PIPE, SHALL BE TAKEN AFTER THE WATER HAS STOPPED RISING IN THIS PLASTIC TUBE. THE HEIGHT, IN FEET OF WATER HAS STOPPED RISING IN THIS PLASTIC TUBE. STO BE INCREASED BY 0.433 PSI FOR EACH FOOT THE GROUND WATER IS ABOVE THE INVERT OF THE SEWER LINE BEING TESTED. THE ALLOWABLE DROP OF ONE POUND AND THE TIMING OF THE TEST REMAIN THE SAME.

IF A LINE ACCEPTABILITY TEST IS BEING CONDUCTED ON MORE THAN ONE MANHOLE REQUIREMENTS AS IF ONLY ONE (1) OF THE MANHOLE REACHES IN THE SECTION WEI REACH OF F PIPE, TESTED. THE ENTIRE SECTION BEING TESTED SHALL MEET THE LINE **ACCEPTABILITY** 

## NEGATIVE AIR PRESSURE (VACUUM) TESTING OF MANHOLES AS PER ASTM C-1244

PREPARATION OF THE MANHOLE:

ALL LIFT HOLES SHALL BE PLUGGED.

ALL PIPES ENTERING THE MANHOLE SHALL DRAWN INTO THE MANHOLE. TEMPORARILY PLUGGED, AKING CARE 7 SECURELY BRACE 품 **PIPES** AND PLUGS 70 PREVENT HEM FROM

PROCEDURE:

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- THE TEST HEAD SHALL BE PLACED AT THE TOP OF THE MANHOLE IN ACCORDANCE WITH THE MANUFACTURER'S RECOMMENDATIONS.
- A VACUUM OF 10 IN. OF MERCURY SHALL BE DRAWN ON THE MANHOLE, SHUT OFF. THE TIME SHALL BE MEASURED FOR THE VACUUM TO DROP , THE VALVE ON THE VACUUM MERCURY. LINE 유 품 **TEST** HEAD CLOSED, AND 蓔 VACUUM
- THE MANHOLE SHALL PASS IF THE TIME FOR THE VACUUM READING TO INDICATED IN TABLE BELOW. DROP FROM 10 N. 유 **MERCURY** 7 9 유 MERCURY **MEETS** 유 蓔

10 12 14 16 18 20 22 22 28 30		סבו ווו (ו ו)	DEDIH (FI) -	
11 11 22 22 23 33 33 42		30		
12 12 18 21 21 21 30 33 33 42		33		
14 18 21 21 32 33 35 46 46 46 46		36		MINIMU
17 22 22 30 32 42 42 55 55 63	TIME,	42	DIA	MINIMUM TEST
76655554433220 76649550505050	IME, IN SECONDS	48	METER, IN.	TIMES FOR
23 29 55 55 64 87	S	54		FOR MANHOLES
26 33 55 55 91 98 98		60		ES
29 36 43 51 58 65 72 79 101		66		
33 41 49 57 67 73 89 89 97 113		72		
		·		

# CLEAN WATER STATEMENT

## ATION TO WATER MAINS

SEWERS SHALL BE LAID AT LEAST 10 FEET HORIZONTALLY FROM ANY EXISTING OR P

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**INCHES** 

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ROOF DRAINS, FOUNDATION DRAINS, AND OTHER CLEAN WATER CONNECTIONS TO THE SANITARY SEWER ARE PROHIBITED.

WORKING AREA NO EXCAVATION WITH SIDE SLOPES STEEPER THAN 2:1 AND/OR DEEPER THAN 2', OF CONTRACTOR. THE CONTRACTOR SHALL SECURE ALL SUCH EXCAVATIONS, OPEN CAST BACKFILLING, FENCING AND SECURITY SERVICES SHALL BE INCLUDED IN THE PRICE BI SEWERS CROSSING WATER MAINS SHALL BE LAID TO PROVIDE A MINIMUM VERTICAL DISTANCE THE SEWER. TINGS A CASTINGS S AND PIPE NGS AND PIPES ACE WORK. ND PIPES AGAINST SHALL BE LEFT UNAUTHORIZED ENTRY CO COVERING S MTH SI. STEEL SI EIS L PLATES, TEM

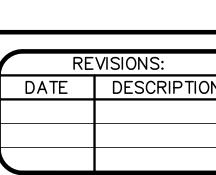
## FINAL APPROVAL

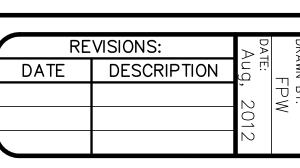
A VIDEO TAPE WILL BE MADE BY THE CONTRACTOR AND SUBMITTED TO THE CITY PRIOR TO VIDEO TAPED AGAIN BY THE CONTRACTOR. ANY DISCREPANCIES WILL BE RESOLVED PRIOR SUBMITTED TO THE CITY IN A CLEAR AND LEGENDABLE MANNER PRIOR TO FINAL INVOICE. 7 0 T THE PROJECT COMMENCING.

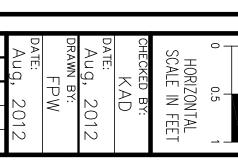
O FINAL PAYMENT. AS BUILT AFTER THE DRAWINGS SHALL INVOICE IS RECEIVED BE CREATED BY THE THE SITE WILL CONTRACTOR A AND -

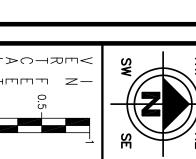
THIS WORK SHALL BE INCLUDED IN ITEM 623 CONSTRUCTION STAKING

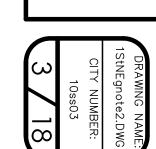
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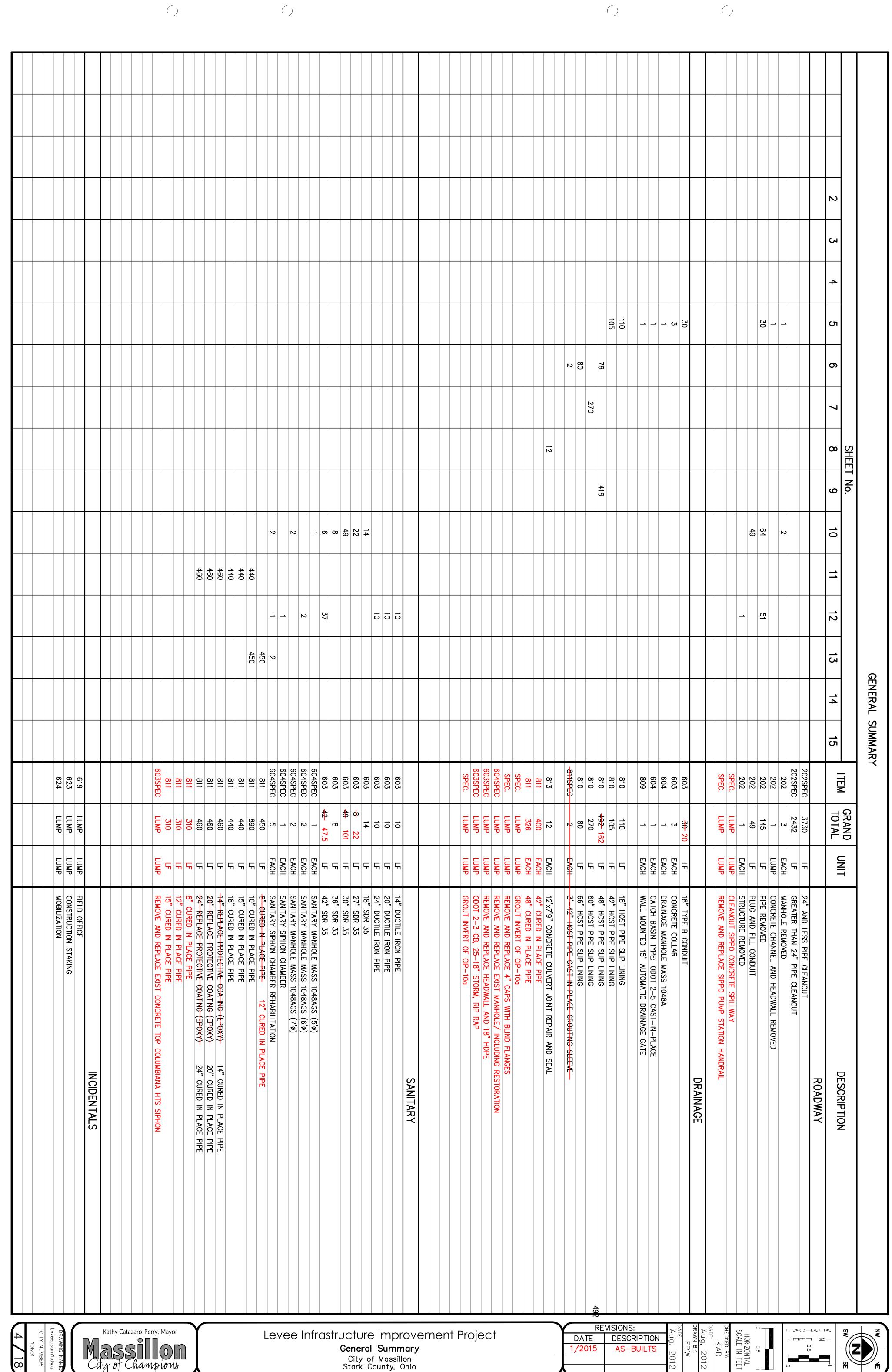








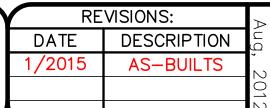


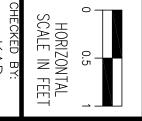


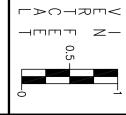




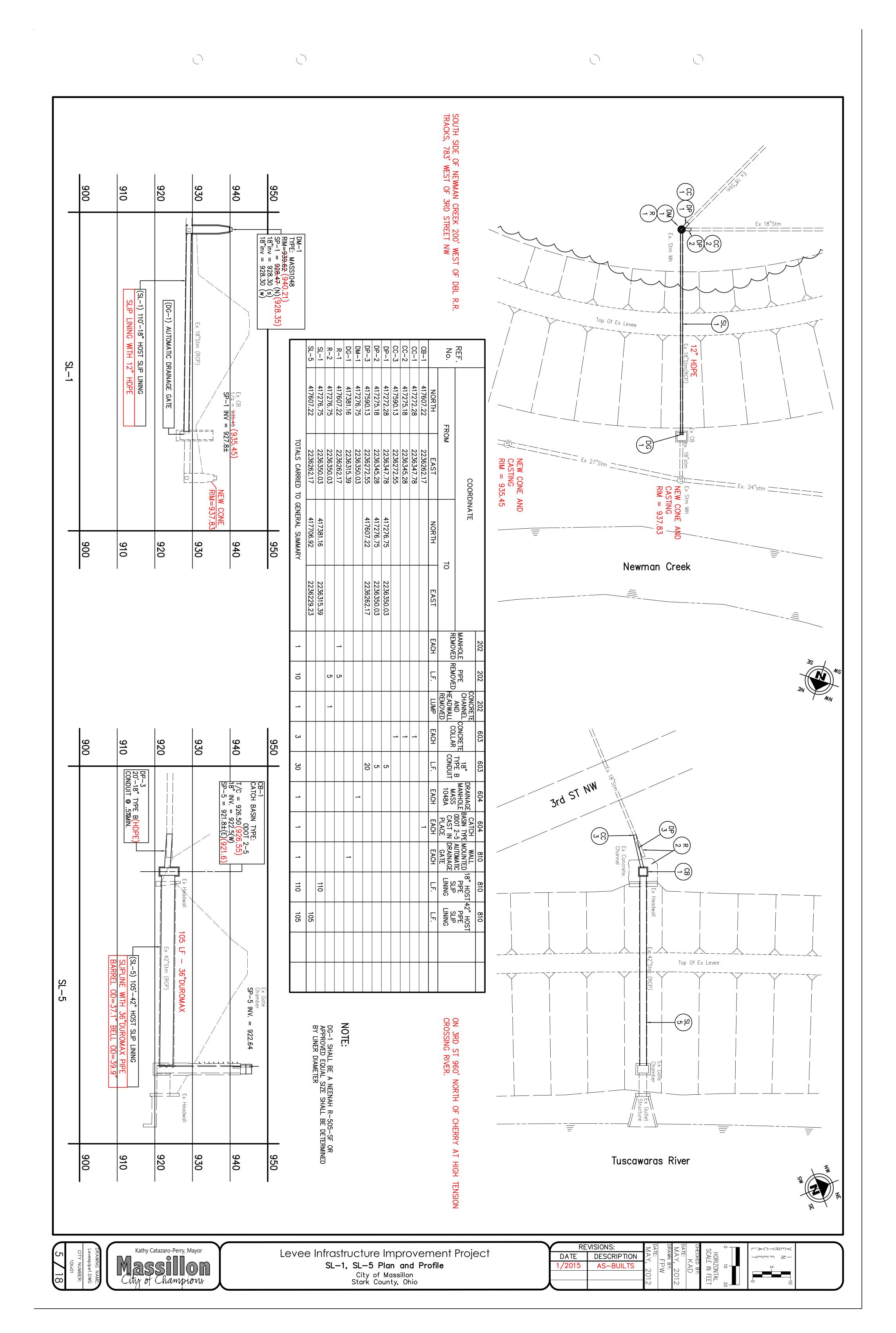


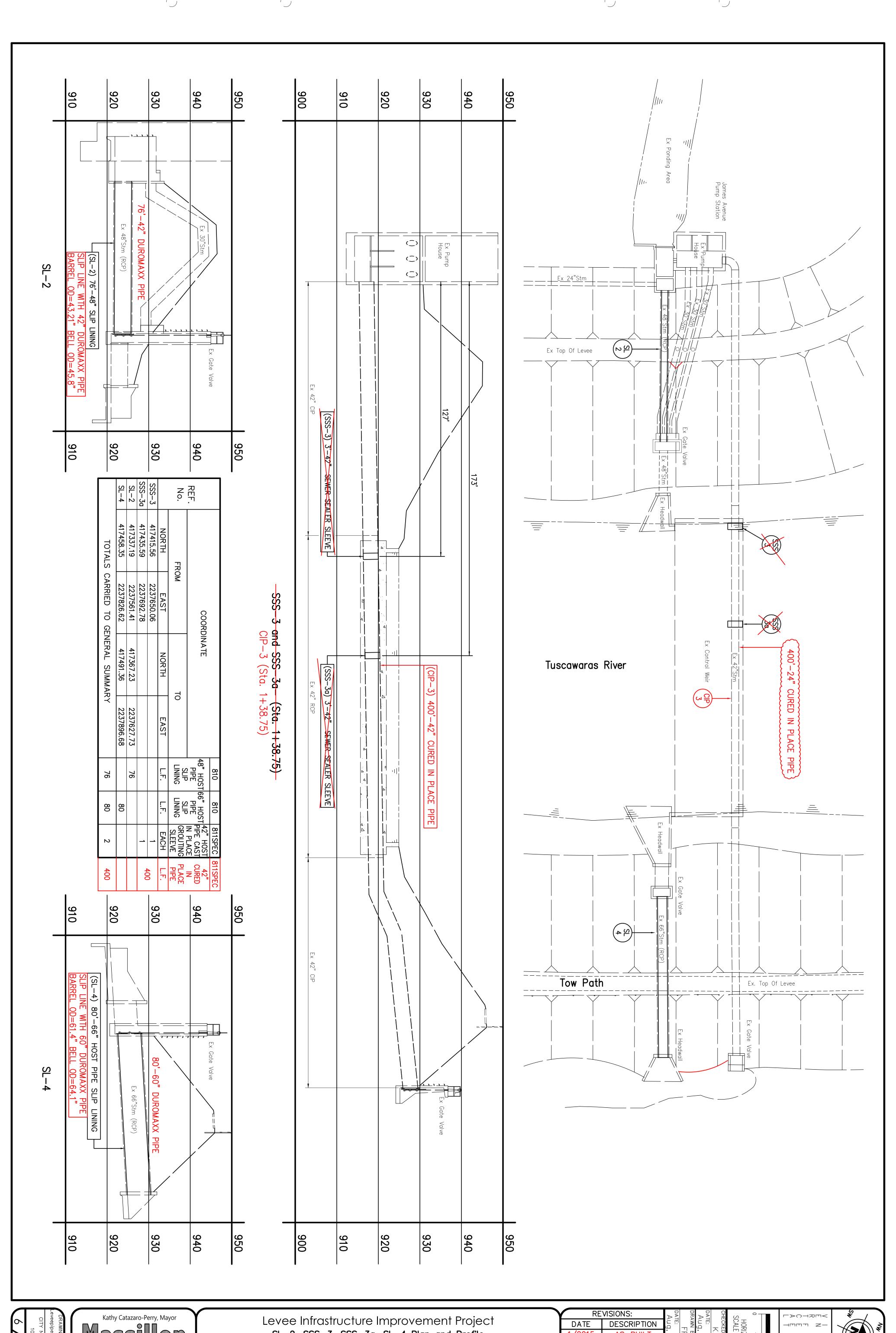


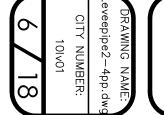






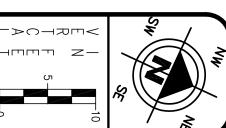


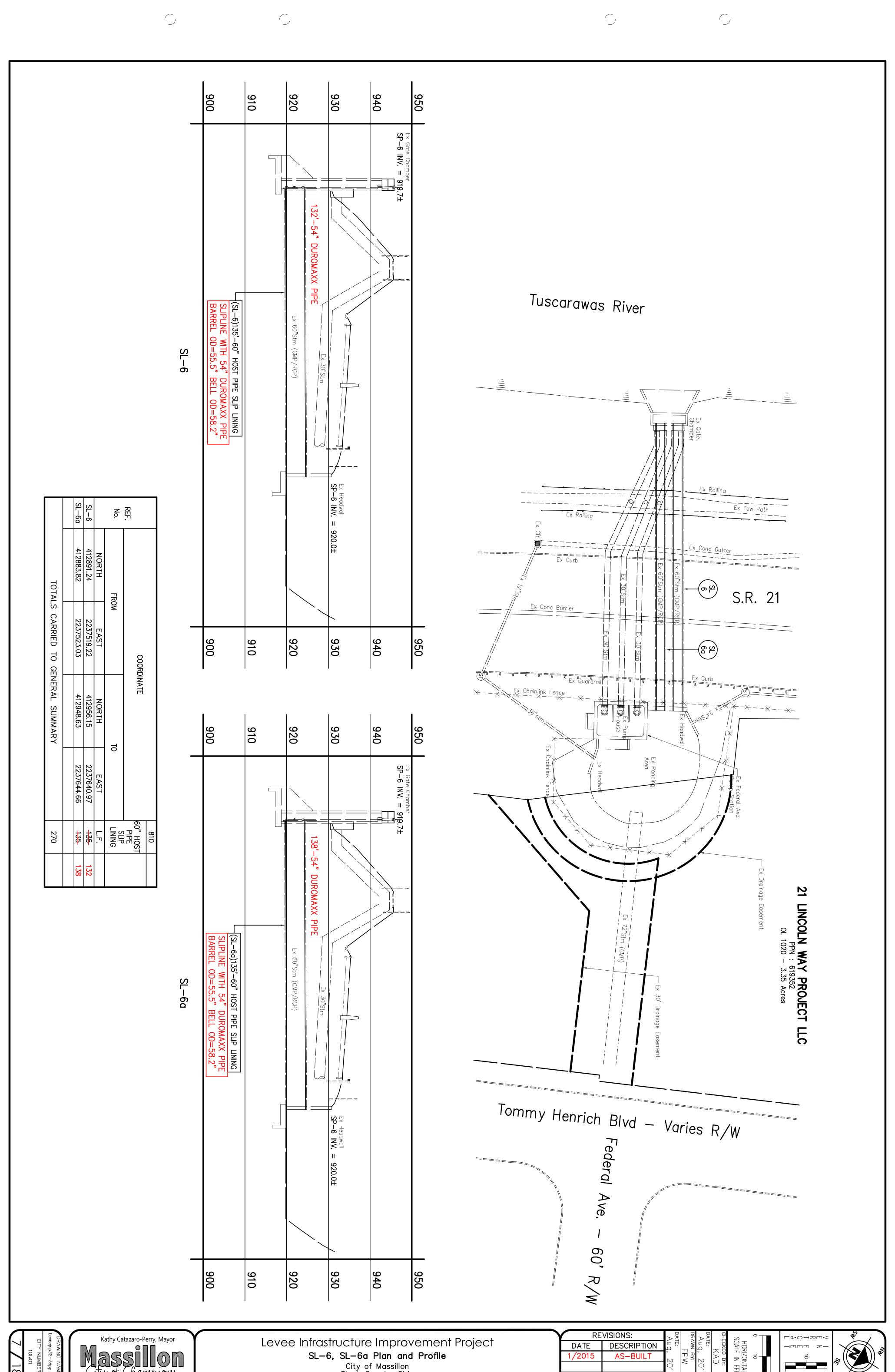






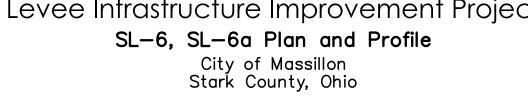
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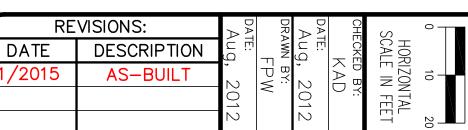


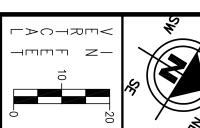


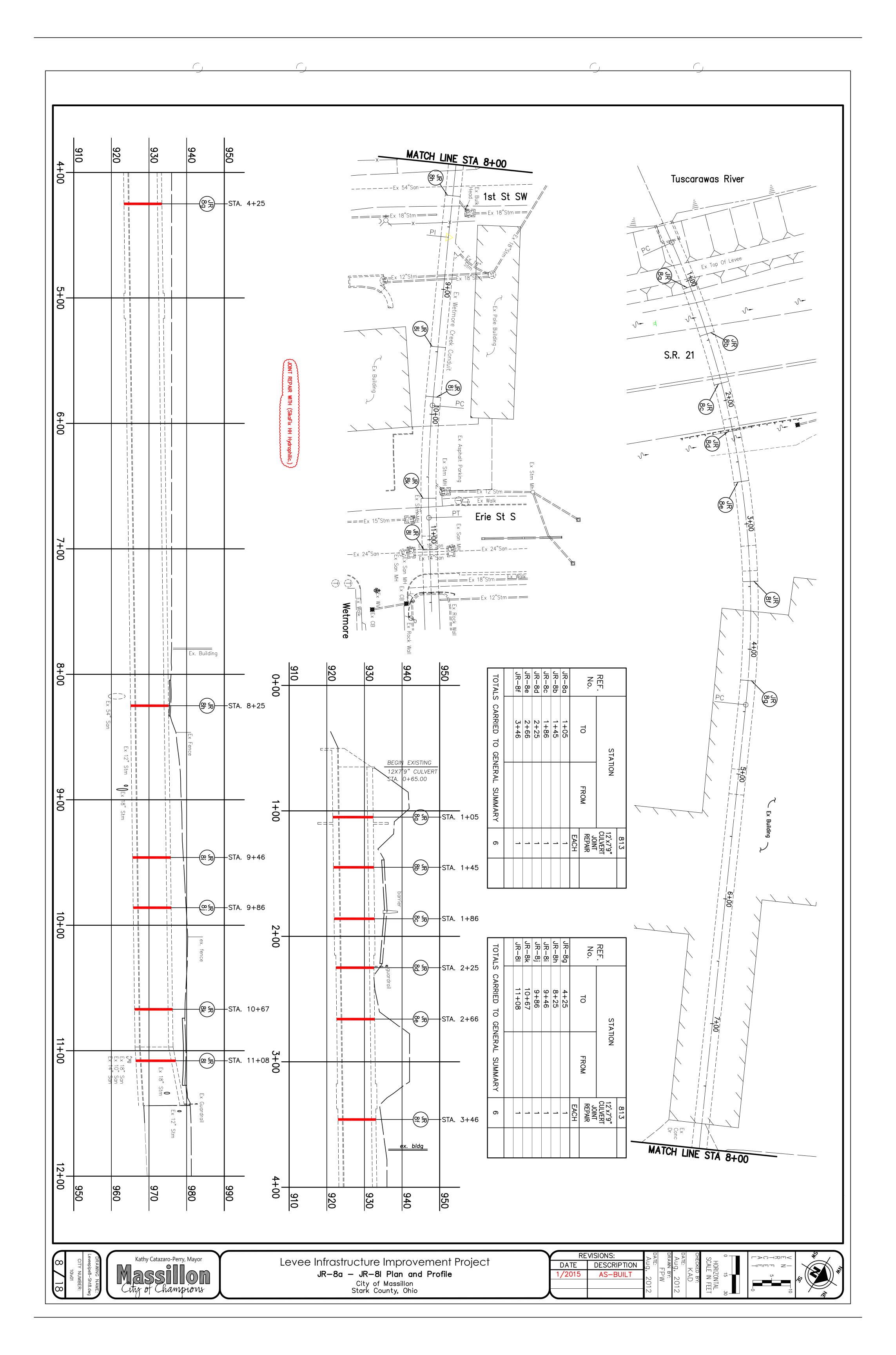


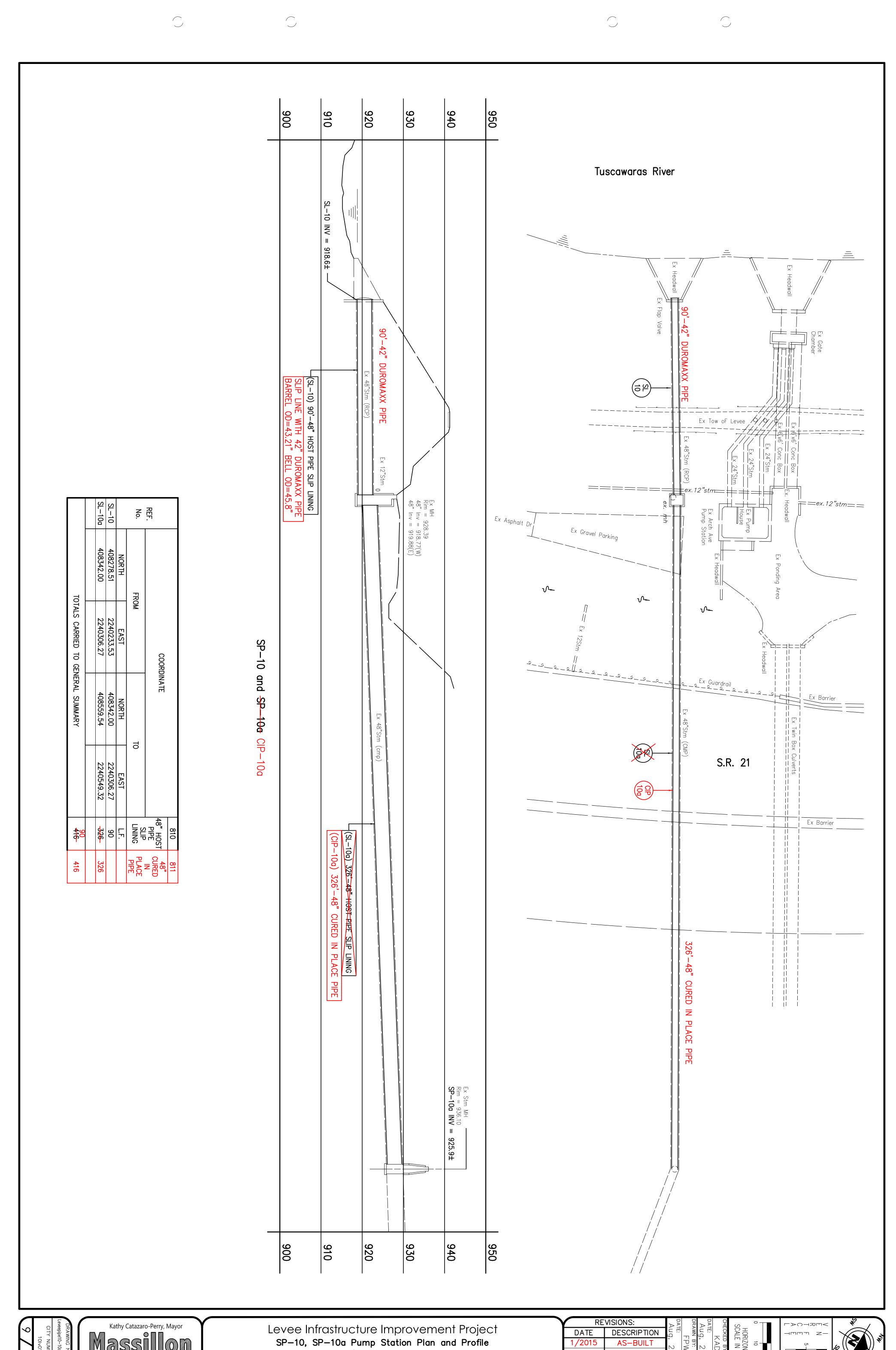


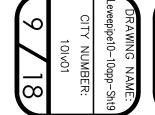






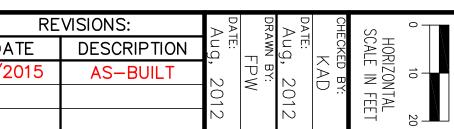


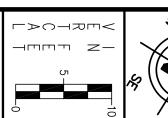




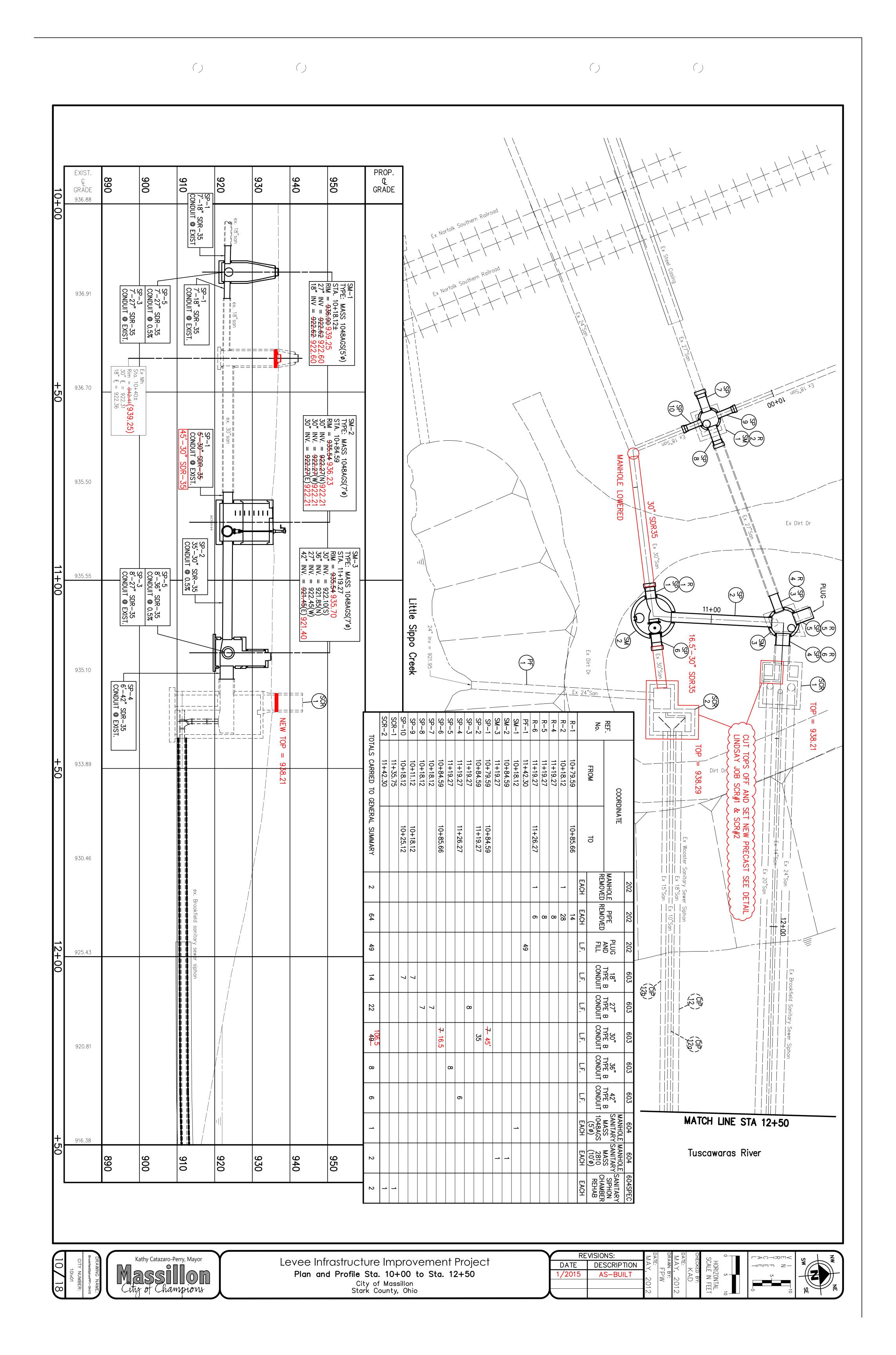








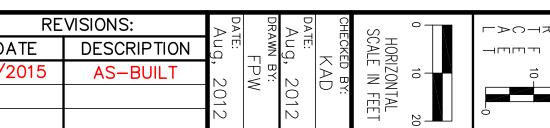


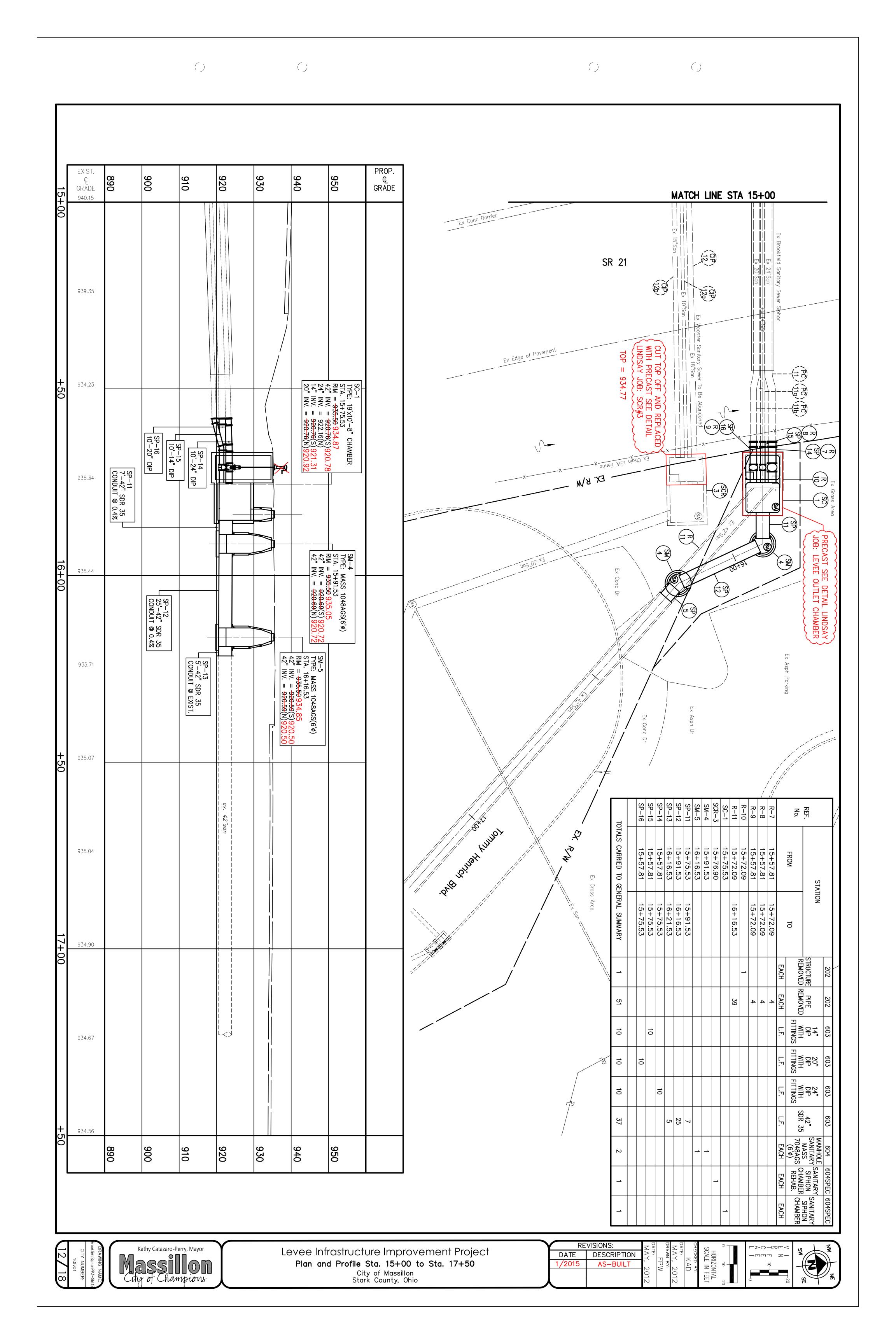


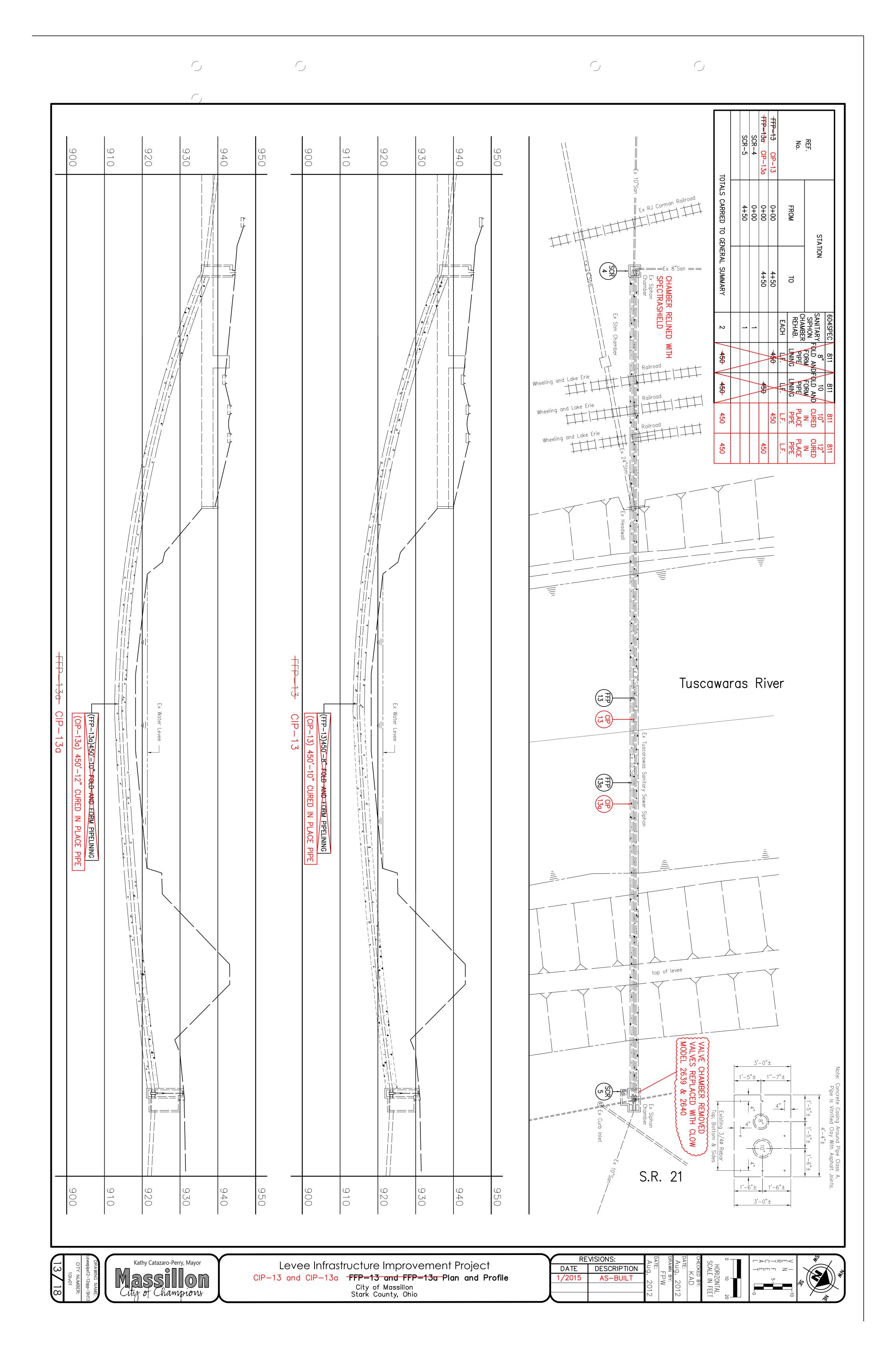
PROP. 900 GRĀDE MATCH LINE STA 12+50 202SPEC Tuscawaras River 921.96 926.65 #\_\_\_ \_\_ Ex 20"san 932.99 CIP-12 CIP-12a CIP-12b PC-11 PC-11a PC-11b TOTALS CARRIED 11+42.30 11+42.30 11+42.30 11+35.75 11+35.75 11+35.75 14+00 939.69 TO GENERAL 15+76.90 15+76.90 15+76.90 15+75.53 15+75.53 SUMMARY 7 Top of Levee 811 10" CURED IN PLACE PIPE L.F. 944.45 440 811 15" CURED IN PLACE PIPE L.F. 440 440 811 18" CURED IN PLACE PIPE L.F. Ex Conc Channel 440 460 941.38 460 S.R. 21 460 940.85 940.15 MATCH LINE STA 15+00 950 890 900 910 920 930 940 **REVISIONS:** Levee Infrastructure Improvement Project DESCRIPTION DATE 1/2015 AS-BUILT

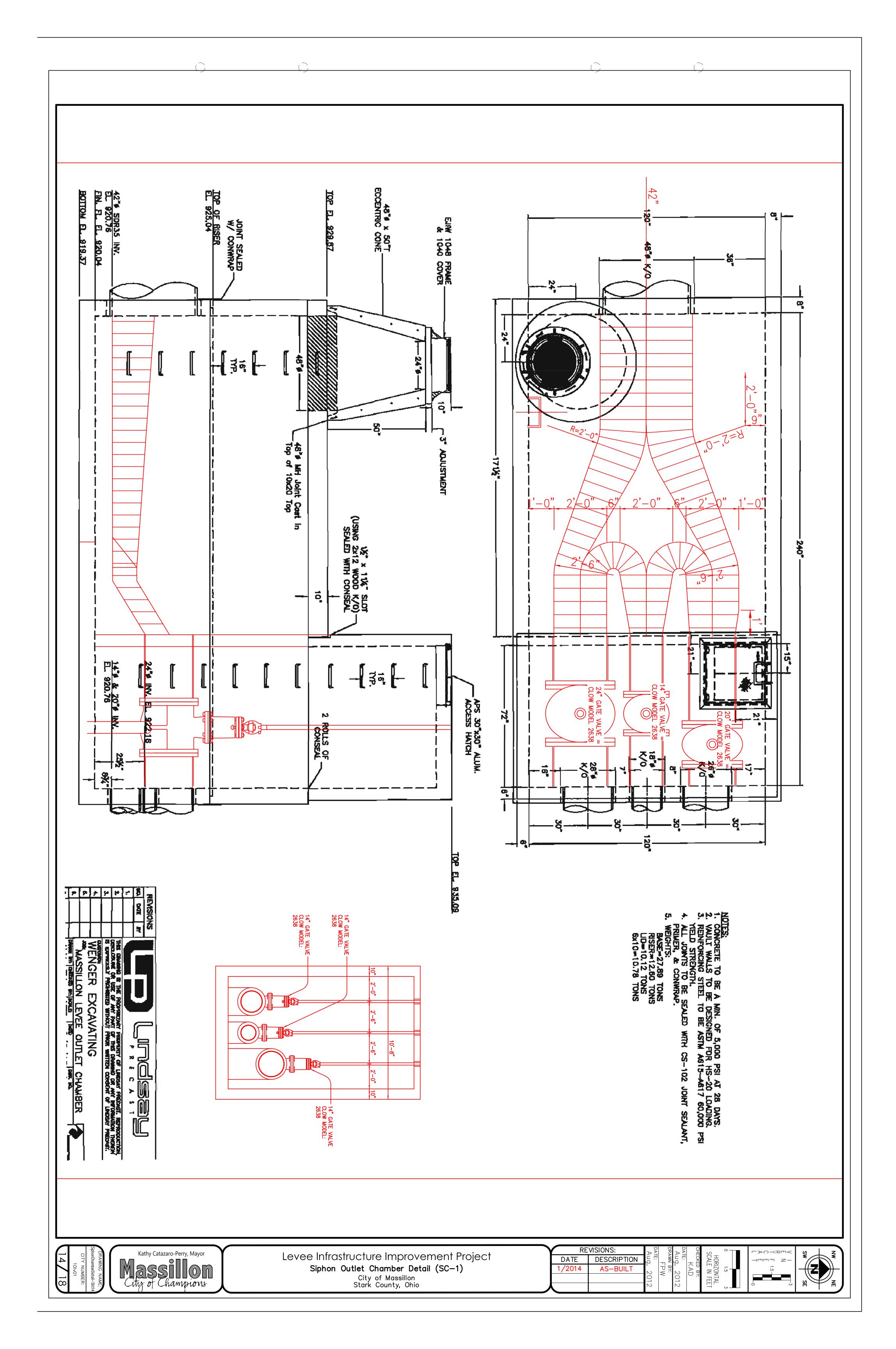


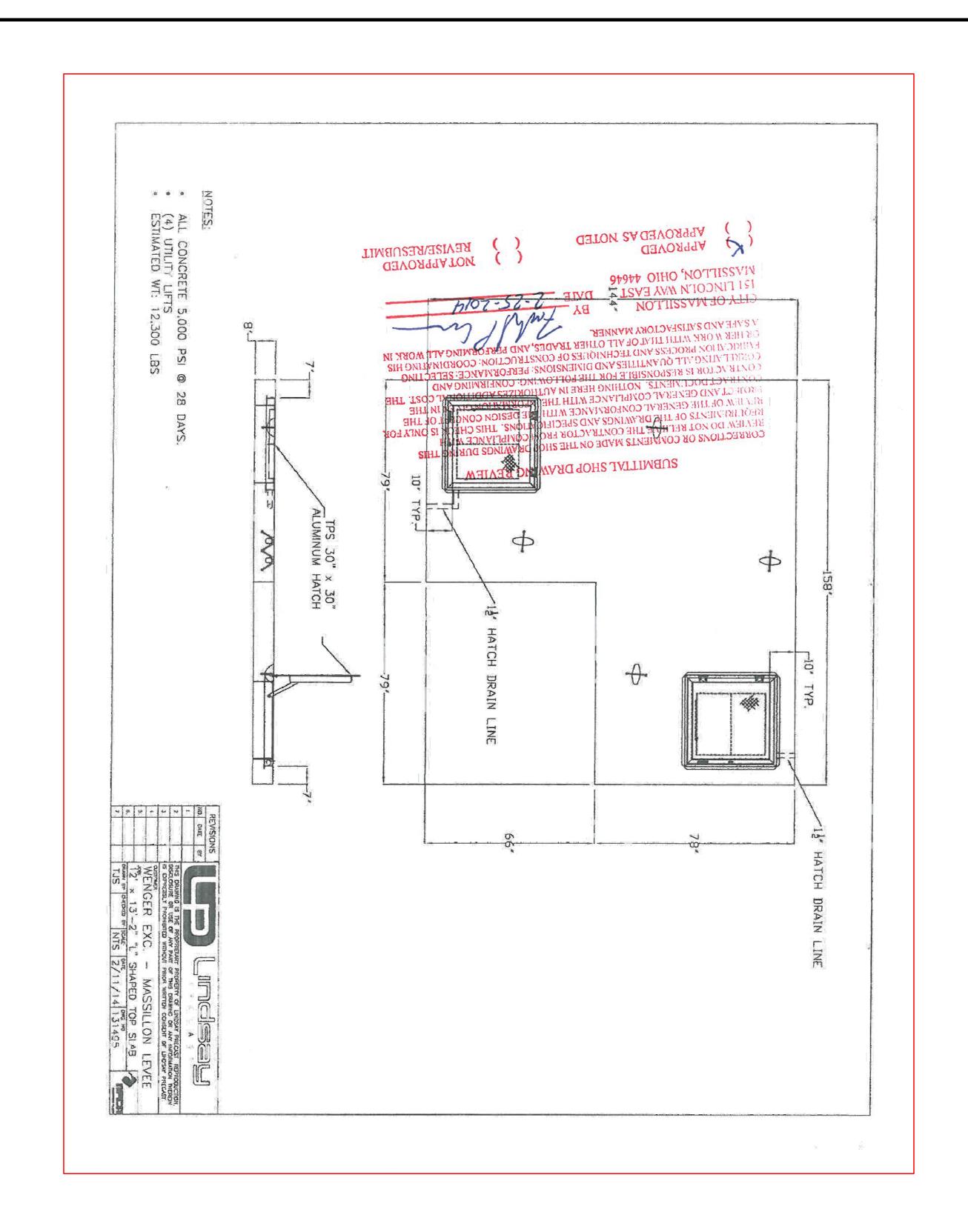


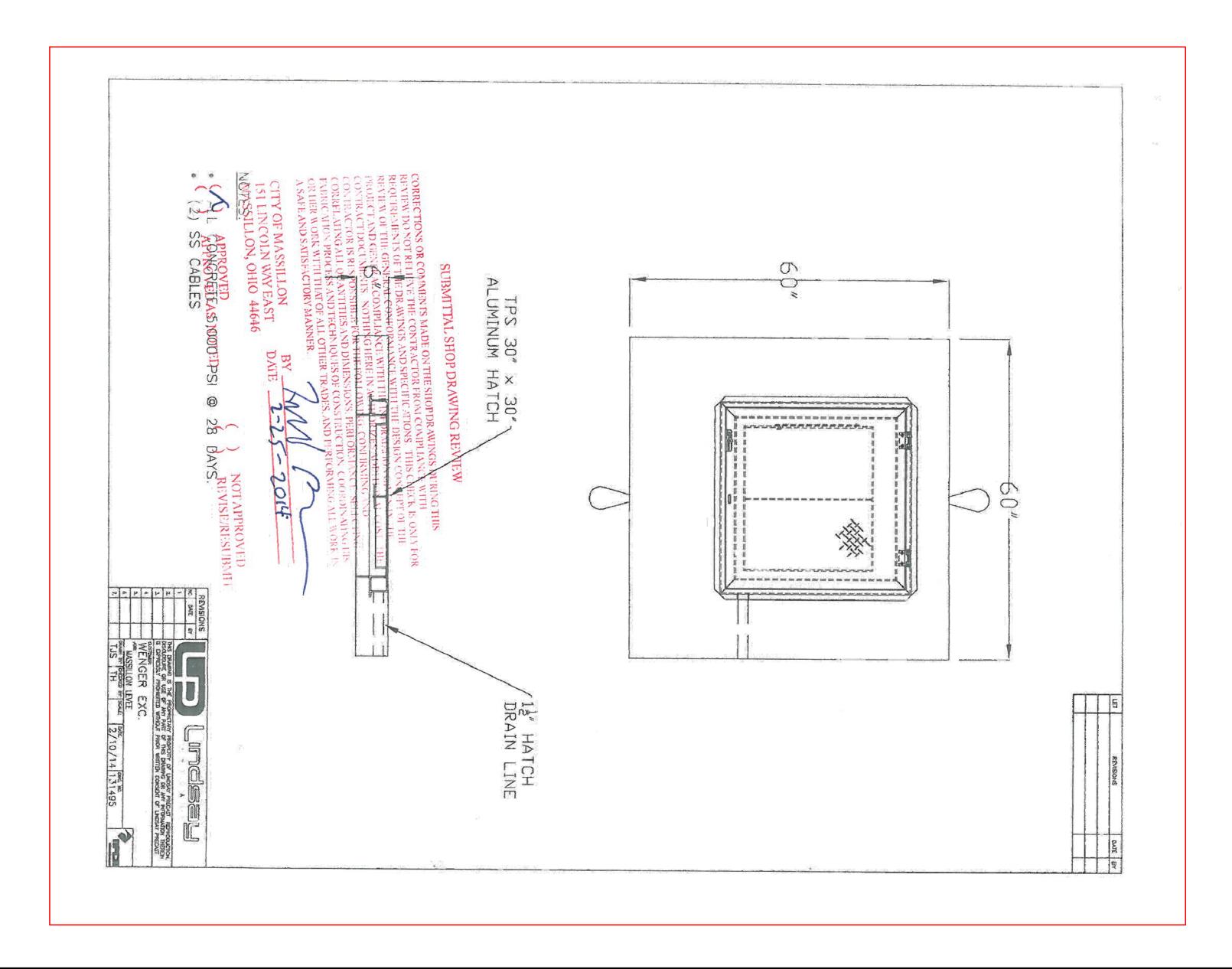


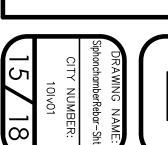
















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