CONSTRUCTION DRAWINGS
FOR

CITY OF TULSA
TMUA PROJECT NO. ES 2014-01
CONCRETE PIPE REPLACEMENT PROGRAM
CONTRACT 1

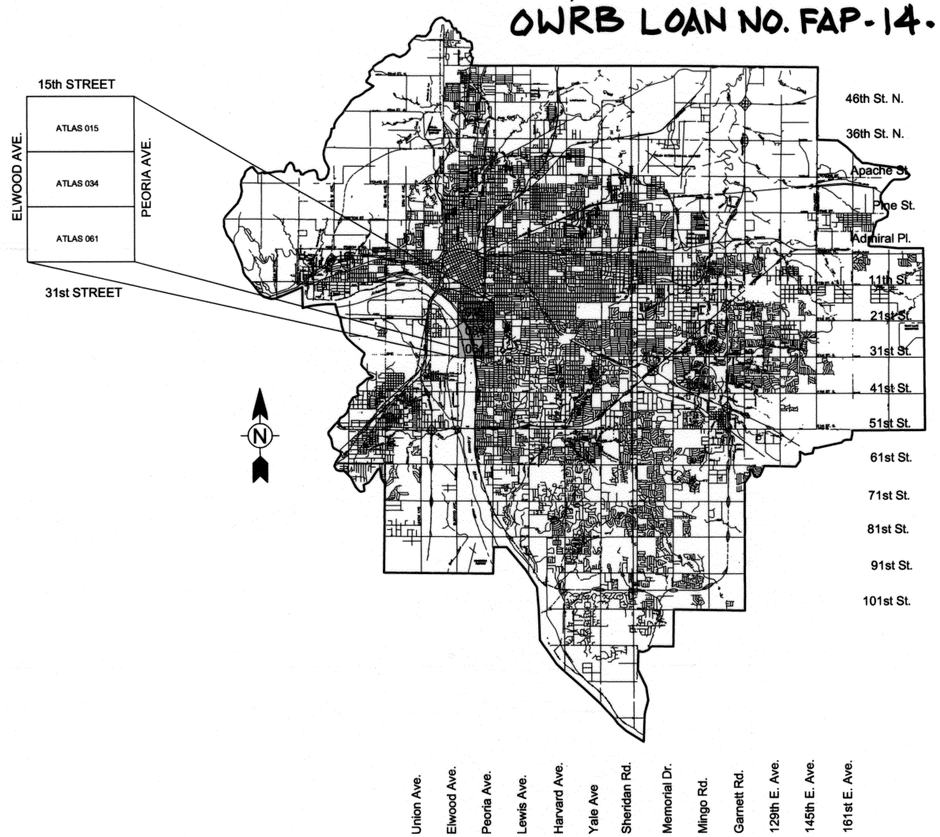
ACCOUNT NO. 6057-5455601-040522142004

ENGINEERING SERVICES DEPARTMENT
MAY, 2016

OWRB LOAN NO. FAP-14-0001-L

LEGEND

ATLAS SHEET NUMBER	177
ATLAS SHEET BOUNDARY	
MANHOLE CALLOUT	MANHOLE NUMBER 233; MANHOLE DEPTH 8.3 (SEE NOTE 6 MANHOLE REHAB., PAGE 2)
MAINTENANCE BOUNDARY	
MAINTENANCE DISTRICT	80-N
SLIPLINE	
REPLACEMENT	
WOOD FENCE	WD
CHAIN LINK FENCE	CL
OVERHEAD UTILITIES	OVH OVH
POWER POLE	PP
APPROXIMATE LOCATION OF TULSA REGULATORY FLOODPLAIN	
STORM SEWER LINE AND INLET	SD SD



PROJECT AREA

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414 - MANHOLE ADJUSTMENT RING
713 - STANDARD DETAIL FOR PAVEMENT REMOVAL AND REPLACEMENT
714 - STANDARD DETAIL FOR PAVEMENT CUTS

APPROVED BY:

Clayton Edwards 8-25-16
DIRECTOR, WATER AND SEWER DEPT. DATE

APPROVED BY:

08-29-16
CITY ENGINEER ADVERTISE DATE

APPROVED BY:

4/18/16
RYAN L. MITTASCH, P.E. NO. 21102 DATE
PROJECT MANAGER, TETRA TECH

REGISTERED PROFESSIONAL ENGINEER RYAN L. MITTASCH 21102 OKLAHOMA

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

UTILITY COORDINATION BOX		
ENGINEERING SERVICES		
UTILITY COORDINATOR	596-9649	MR. CHRIS KOVAC
WATER DESIGN	596-9566	MR. RYAN McKASKLE
WASTEWATER DESIGN	596-9564	MR. AARON JOHNSON
TRANSPORTATION DESIGN	596-9636	MR. DOUG HELT
TRAFFIC ENGINEERING DESIGN	596-9741	MR. KURT KRAFT
STORMWATER DESIGN	596-9498	MR. BRAD JACKSON
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PREPARED BY

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CA NO. 2388 (EXP. 6-30-2017)

TMUA PROJECT NO. ES2014-01, CONCRETE PIPE REPLACEMENT PROGRAM - CONTRACT 1

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ESTIMATED CONSTRUCTION QUANTITIES

Summary of Pipeline Improvements Schedule

Item No.	Description	Specifications	Unit	Pay Item Note	Atlas Sheet 015	034	061	Extra	Total
1	8" Slipline, SDR 19 / Cured-In-Place-Pipe	409, 410	(LF)	1				50	50
2	8" Slipline, SDR 21 / Cured-In-Place-Pipe	409, 410	(LF)	1	6581	9065	6644		22290
3	8" Slipline, SDR 26 / Cured-In-Place-Pipe	409, 410	(LF)	1				50	50
4	10" Slipline, SDR 19 / Cured-In-Place-Pipe	409, 410	(LF)	1				50	50
5	10" Slipline, SDR 21 / Cured-In-Place-Pipe	409, 410	(LF)	1				50	50
6	10" Slipline, SDR 26 / Cured-In-Place-Pipe	409, 410	(LF)	1				50	50
7	Open Cut or Trenchless 8"	405,406,407,408	(LF)	2		27			27
8	Open Cut or Trenchless 8" DIP	405,406,407,408	(LF)	2	542				542
9	Open Cut Only 8"	405	(LF)	2	18				18
10	Open Cut Only 8" DIP	405	(LF)	2	21				21
11	Trenchless Only 8"	405,406,407,408	(LF)	2		836			836
12	Trenchless Only 8" DIP	405,406,407,408	(LF)	2		1589			1589
13	Open Cut or Trenchless 10"	405,406,407,408	(LF)	2		73	523		596
14	Open Cut or Trenchless 10" DIP	405,406,407,408	(LF)	2	99				99
15	Open Cut Only 10"	405	(LF)	2	10				10
16	Pavement Removal and Replacement -Asphalt	402	(SY)	1,3	175	475			650
17	Pavement Removal and Replacement -Concrete	402	(SY)	1,3				50	50
18	Curb and Gutter Removal and Replacement	402	(LF)	1,3	31	65			96
19	Sidewalk/Driveway Removal and Replacement	402	(SY)	1,3	72	185	17		274
20	Sodding	402	(SY)	5,10	370	2301	1094		3765
21	Service Reconnections 4"	405,406,407,408,409	(EA)	10,11	147	211	217		575
22	Service Reconnections 6"	405,406,407,408,409	(EA)	1,2,11				10	10
23	4" Ductile Iron Pipe Service	405,406,407,408,409	(LF)	1,2,4,6,10,11				20	20
24	6" Ductile Iron Pipe Service	405,406,407,408,409	(LF)	1,2,4,6,10,11				20	20
25	Video Pre-Inspection	415	(LF)		7271	11590	7167		26028

Summary of Manhole Rehabilitation Schedule

Item No.	Description	Specifications	Unit	Pay Item Note	Atlas Sheet 015	034	061	Extra	Total
26	Replace Cover, Frame and Frame Seal	418 (Type A)	(EA)	1,8	2	8	13		23
27	Replace Frame Seal	418 (Type B)	(EA)	1,8	11	6	3		20
28	Replace Cover, Frame and Frame Seal, and Chimney	418 (Type C)	(EA)	1			2		2
29	Replace Frame Seal and Chimney	418 (Type D)	(EA)	1	7	9	3		19
30	Partial Manhole Replacement - Precast Corbel Section	418 (Type Fc)	(EA)	1				2	2
31	Partial Manhole Replacement - Precast Concrete Collar	418 (Type Fi)	(EA)	1				2	2
32	Interior Manhole Rehabilitation	421 (Type Gg)	(SF)	1	3772	3454	377		7603
33	Bench and Invert Rehabilitation	419 (Type Gh)	(EA)	1	11	17	8		36
34	Grout and Coat Pipe Seal	421 (Type Gk)	(EA)	1	10	18	3		31
35	Plug Lift Holes , Plug Holes	419 (Type Go)	(EA)	1				5	5
36	Seal Precast Joints	421 (Type Gp)	(EA)	1	1	2			3
37	Patch Hole	419 (Type Gr)	(EA)	1				5	5
38	Manhole Step Removal and Replacement	420 (Type I)	(EA)	1,8				5	5
39	Manhole Cleaning	Special (Type T)	(EA)	1,7				5	5
40	Lamphole Replacement	417	(EA)	1	1	3			4
41	Lamphole Frame and Cover Replacement	417	(EA)	1				1	1
42	Manhole Replacement	416	(EA)	1	11	10			21
43	Manhole Additional Vertical Foot over 6' depth	416	(VF)	1	38	61			99

Summary of General Contract Quantities

Item No.	Description	Specifications	Unit	Pay Item Note	015	034	061	Extra	Total
44	Traffic Control	327	SD	9					
45	Mobilization	400.7.4	(EA)						1
46	Photographic Documentation	400.7.4	(EA)						1
47	Owner Allowance	Special	(EA)						1

PAY ITEM NOTES

1. QUANTITIES UNDER THE "EXTRA" COLUMN HEADING ARE NOT ASSOCIATED WITH ANY SPECIFIC REPAIR SHOWN ON THE PLANS AND WILL ONLY BE USED TO COMPENSATE THE CONTRACTOR FOR ADDITIONAL COSTS INCURRED DUE TO CHANGED FIELD CONDITIONS.
2. FOR THE WORK BID UNDER "OPEN CUT..." OR "OPEN CUT or TRENCHLESS", SURFACE RESTORATION ITEMS SHALL BE PAID FOR IN ACCORDANCE WITH SPECIFICATION SECTION 402.17 ONLY WHEN THE OPEN CUT METHOD OF REPLACEMENT IS USED.
3. PER SECTION 402.17.2 PAYMENT FOR "SIDEWALK AND DRIVEWAY REMOVAL AND REPLACEMENT" AND "PAVEMENT REMOVAL AND REPLACEMENT" SHALL BE PAID FOR IN SQUARE YARDS. THE PAY QUANITY SHALL BE COMPUTED AS THE LENGTH ALONG THE CENTERLINE OF THE PIPE BEING REPLACED MULTIPLIED BY THE STANDARD PAY WIDTH. (SEE STANDARD NO. 713)
4. QUANTITY INCLUDES REQUIRED SURFACE RESTORATION FOR PLACING SERVICE LINES IN STREET R/W. SEE PAY ITEM NOTE 6.
5. THE SOD QUANTITY SHALL BE COMPUTED AS FOLLOWS - LENGTH OF GRASS ALONG SEGMENT DISTURBED x 20' WIDE DIVIDED BY 9 FOR A TOTAL SQUARE YARDS PER SEGMENT.
6. SEGMENTS WITHIN STREET RIGHT OF WAY SHALL HAVE EXISTING SERVICES REPLACED WITH DUCTILE IRON PIPE. SERVICE LINES WITHIN THE STREET RIGHT OF WAY SHALL BE REPLACED WITH SAME SIZE DUCTILE IRON PIPE.
7. THE CONTRACTOR SHALL REMOVE ALL DEBRIS OR FOREIGN MATERIALS FROM THE MANHOLE, CORBEL, WALL, BENCH, STEPS AND INVERT. DEBRIS SHALL BE KEPT FROM ENTERING THE SEWER LINES. CONTRACTOR SHALL AT NO EXTRA COST TO OWNER, REPLACE ANY PORTION OF THE EXISTING MANHOLE WHICH IS DAMAGED DURING CLEANING.
8. STEP REMOVAL AND REPLACEMENT (TYPE I REPAIR) WHEN SPECIFIED, SHALL BE FOR ALL THE STEPS IN THE MANHOLE REGARDLESS OF SIZE OR HEIGHT OF THE MANHOLE.
9. TRAFFIC CONTROL SHALL BE PERFORMED IN ACCORDANCE WITH THE LATEST EDITION OF THE MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES (MUTCD).
10. ALL SERVICE CONNECTIONS SHALL BE REPLACED AT LEAST ONE FOOT BEYOND THE UPPER BEND. IF CUSTOMER SIDE OF SERVICE LINE IN POOR CONDITION, THE CONTRACTOR SHALL MAKE TEMPORARY CONNECTION AND NOTIFY QUALITY ASSURANCE FOR CUSTOMER REPAIR.
11. CONTRACTOR SHALL COMPLETE A SERVICE REPORT FORM FOR EACH SERVICE RECONNECTED. THIS FORM IS PROVIDED IN THE SPECIAL PROVISIONS AND SHALL BE COMPLETED AND SUBMITTED WITH EACH MONTHLY PAY REQUEST.

THE FOLLOWING SEGMENTS SHALL BE REHABILITATED AS FOLLOWS:

ATLAS 15
0340075 - 0340074 - OPEN CUT ONLY
0340130 - 0340128 - OPEN CUT ONLY - DIP
0340167 - 0340166 - OPEN CUT ONLY

ATLAS 34
0440077 - 0440076 - TRENCHLESS ONLY - DIP
0440079 - 0440078 - TRENCHLESS ONLY
0440081 - 0440080 - TRENCHLESS ONLY
0440085 - 0440078 - TRENCHLESS ONLY - DIP
0440086 - 0440085 - TRENCHLESS ONLY
0440094 - 0440089 - TRENCHLESS ONLY - DIP
0440125 - 0440123 - TRENCHLESS ONLY - DIP
0440128 - 0440125 - TRENCHLESS ONLY - DIP
0440169 - 0440168 - TRENCHLESS ONLY - DIP

REGISTERED PROFESSIONAL ENGINEER 8/24/16 RYAN L. MITTASCH 21102 OKLAHOMA

PAY QUANTITIES
TMUA PROJECT NO. ES 2014-01
CONCRETE PIPE REPLACEMENT PROGRAM
CONTRACT 1
CITY OF TULSA, OKLAHOMA
ENGINEERING SERVICES DEPARTMENT

PLANS AND ESTIMATES PREPARED BY:
TETRA TECH
7645 E. 63rd Street, Suite 301, Tulsa, OK 74133
TEL918.249.3909 FAX918.249.3930

REVISION	BY	DATE

PLAN SCALE: DRAWN TT; DESIGNED TT; SURVEY TT
PROFILE SCALE: HORIZONTAL / VERTICAL
PROJ. MGR. 8/16; LEAD ENGR. 8-16; FIELD MGR. 8/16; RECOMMENDED: HAS 9/16; DESIGN MANAGER
APPROVED: CITY ENGINEER
FILE: DRAWING:
DATE: 8/24/16
ATLAS PAGE NO.: 015, 034, 061
SHEET 2 OF 24 SHEETS

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GENERAL NOTES

1. ALL CONSTRUCTION SHALL BE CONDUCTED IN STRICT ACCORDANCE WITH CITY OF TULSA, ENGINEERING SERVICES DEPARTMENT STANDARDS AND SPECIFICATIONS.

2. THE CONTRACTOR SHALL SUBMIT A CONSTRUCTION SAFETY PLAN TO THE ENGINEER PRIOR TO COMMENCEMENT OF WORK. THE SAFETY PLAN SHALL ADDRESS BUT NOT BE LIMITED TO ISSUES SUCH AS TRAFFIC CONTROL, WORKSITE SAFETY, MANHOLE VENTILATION, WORKER EQUIPMENT, FIRST AID, HYGIENE, AND OTHER RELATED TOPICS. THE CONTRACTOR WILL BE EXPECTED TO PERFORM THE WORK IN A MANNER THAT BEST PROTECTS THE SAFETY OF WORKERS, INSPECTORS, BYSTANDERS, AND OTHERS WHO MAY BE IN THE VICINITY OF THE PROJECT. FAILURE TO PERFORM THE WORK AND MAINTAIN THE SITE IN A SAFE MANNER, IN THE OPINION OF THE ENGINEER OR OWNER, SHALL BE SUFFICIENT CAUSE TO STOP ALL WORK UNTIL SAFETY PROBLEMS ARE CORRECTED.

3. THE CONTRACTOR SHALL HAVE ONE (1) EXECUTED COPY OF CONTRACT DOCUMENTS AT THE JOB SITE AT ALL TIMES.

4. UTILITIES SHOWN ON THE DRAWINGS ARE BASED ON THE ENGINEER'S REVIEW OF UTILITY ATLASES AND UTILITY COMPANY COMMENTS. CONTRACTOR IS RESPONSIBLE TO LOCATE ALL UTILITIES. PRIOR TO EXCAVATING FOR MANHOLE OR PIPELINE REPAIR OR REPLACEMENT, CONTRACTOR SHALL CONTACT 1-800-CALL-OKIE (1-800-522-6543) TO LOCATE BURIED UTILITIES. UTILITIES DISTURBED BY THE CONTRACTOR SHALL BE THE CONTRACTORS FULL RESPONSIBILITY FOR REPAIR ACCORDING TO THE UTILITY'S SPECIFICATIONS AND REQUIREMENTS AT NO COST TO OWNER.

5. CONTRACTOR SHALL PROVIDE TEMPORARY ORANGE SAFETY FENCING AROUND ALL EXCAVATION, INCLUDING TRENCHES, PITS, VAULTS, ETC. TO MAINTAIN SECURITY AND SAFETY FOR ANIMALS, CHILDREN OR ANY BYSTANDER. THE COST FOR ORANGE SAFETY FENCE TO BE INCLUDED IN OTHER PAY ITEMS.

6. THE CONTRACTOR SHALL WORK IN COOPERATION WITH THE CITY OF TULSA TO ESTABLISH, INSTALL, MAINTAIN, AND OPERATE COMPLETE, ADEQUATE AND SAFE TRAFFIC CONTROLS DURING THE ENTIRE CONSTRUCTION PERIOD. FOR ALL ROAD CLOSURES, A TRAFFIC CONTROL PLAN SHALL BE SUBMITTED AND APPROVED BY CITY OF TULSA, FIELD ENGINEERING. CONTRACTOR MUST NOTIFY EMSA, POLICE, FIRE AND MTTA 48 HOURS PRIOR TO STREET CLOSURE.

7. PRIOR TO EXCAVATING, THE CONTRACTOR IS RESPONSIBLE FOR BRACING OR SUPPORTING ANY POWER POLE OR GUY WIRE WITHIN 5 FEET OF EXCAVATION TO THE SATISFACTION OF THE OWNER AND THE UTILITY COMPANY, AT NO ADDITIONAL COST TO THE OWNER.

8. DRIVEWAYS, SIDEWALKS, FENCES AND OTHER AREAS PUBLIC AND PRIVATE DAMAGED BY THE CONTRACTOR SHALL BE RESTORED TO A CONDITION EQUAL TO OR BETTER THAN THAT PRIOR TO THE PROJECT AT HIS OWN EXPENSE.

9. ALL PAVEMENT REMOVAL SHALL BE SAW CUT AT THE NEAT LINES SHOWN ON THE PLANS OR AS INDICATED IN THE SPECIFICATIONS. SAW-CUTS REQUIRED FOR REMOVAL AND REPLACEMENT ITEMS SHALL BE FULL DEPTH OF THE EXISTING SURFACE. SAW-CUTS SHALL NOT BE PAID FOR DIRECTLY, BUT SHALL BE CONSIDERED SUBSIDIARY TO OTHER ITEMS.

10. ALL UNSUITABLE MATERIALS REMOVED DURING TRENCHING OR EXCAVATION SHALL BE DISPOSED OF AT A SITE APPROVED BY THE OWNER. PRIOR TO TRENCHING OR EXCAVATION, THE CONTRACTOR SHALL SUBMIT THE PROPOSED DISPOSAL SITE TO THE ENGINEER FOR HIS REVIEW. STOCKPILING OF EXCAVATED MATERIAL IN STREET OR ALLEY RIGHTS-OF-WAY MAY BE ALLOWED UPON APPROVAL BY THE ENGINEER. MAINTENANCE OF STOCKPILE SITES IS THE SOLE RESPONSIBILITY OF THE CONTRACTOR. CONTRACTOR MUST MAINTAIN STOCKPILE SITES IN A SAFE, POLLUTION FREE CONDITION THROUGHOUT THE PROJECT. THE CONTRACTOR SHALL NOT STOCKPILE MATERIAL OR STORE ANY EQUIPMENT OVERNIGHT IN THE TULSA REGULATORY FLOODPLAIN.

11. ALL CONCRETE PAVEMENTS, FLEXIBLE PAVEMENTS, CURB AND GUTTER, AND UNPAVED SURFACES SHALL BE FINISHED TO MATCH EXISTING SURROUNDING SURFACES.

12. IN ALL AREAS WHERE EXCAVATION WILL OCCUR, CONTRACTOR SHALL VIDEOTAPE ALL CONCRETE, PAVEMENT, BUILDINGS, FOUNDATIONS, LANDSCAPING, LAWNS, AND TREES PRIOR TO CONSTRUCTION AND SUBMIT THE VIDEO DATA TO ENGINEER FOR PROJECT RECORDS.

13. CONTRACTOR MUST EXERCISE DILIGENCE WHEN WORKING AROUND TREES, HOWEVER IF DAMAGE OCCURS TO TREES WITHIN AN EASEMENT, THE CONTRACTOR SHALL NOT BE HELD RESPONSIBLE.

14. TRAFFIC ON ALL STREETS AND ACCESS TO ALL BUSINESSES SHALL BE MAINTAINED DURING REGULAR BUSINESS HOURS FOR EACH ESTABLISHMENT. CONTRACTOR MUST MAINTAIN PROPER CONSTRUCTION SIGNAGE AND TRAFFIC CONTROL IN ACCORDANCE WITH THE MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES.

15. CONTRACTOR MUST NOTIFY HOMEOWNER A MINIMUM OF 48 HOURS PRIOR TO ANY REHAB OR CONSTRUCTION BEING DONE ON HOMEOWNERS PROPERTY.

16. ALL HIGH-PRESSURE GAS LINES SHALL BE POTHOLED TO VERIFY LOCATION.

17. CONTRACTOR TO BE RESPONSIBLE FOR THE PROTECTION AND RESTORATION OF ANY EXISTING STORAGE SHEDS LOCATED WITHIN THE CONSTRUCTION AREA DAMAGED DURING CONSTRUCTION, AT NO COST TO THE CITY OF TULSA OR THE HOMEOWNER.

18. CONTRACTOR SHALL REPAIR ANY IRRIGATION SYSTEMS DAMAGED OR DISTURBED DURING THE COURSE OF CONSTRUCTION. PAYMENT SHALL BE INCLUDED IN OTHER ITEMS. NO ADDITIONAL PAYMENT SHALL BE MADE.

19. ALL WATER, SANITARY SEWER, AND STORM SEWER MANHOLE CASTINGS, LIDS, FRAMES, CURB HOODS, GRATES, HYDRANTS, VALVES, AND ANY OTHER FITTINGS REMOVED AS PART OF ANY CONSTRUCTION PROJECT ARE THE PROPERTY OF THE CITY OF TULSA. CONTRACTOR WILL NOT TAKE OWNERSHIP.

    ALL SANITARY AND STORM SEWER MANHOLE CASTINGS AND LIDS THAT ARE LOCATED IN THE STREET AND ARE DISTURBED BY THE CONTRACTOR SHALL BE DELIVERED TO THE SEWER OPERATIONS MAINTENANCE BASE AT 9319 E. 42ND STREET N., AND PLACED IN THE METAL RECYCLE BIN IN THE STOCKROOM AREA BETWEEN THE HOURS OF 7:30 AM AND 3:00 PM, MONDAY THROUGH FRIDAY. PHONE: 918-669-6130,

    ALL HYDRANTS, VALVES, AND OTHER FITTINGS FROM ABANDONED WATER MAINS SHALL BE SALVAGED AND DELIVERED BY THE CONTRACTOR TO THE SOUTH YARD AT 2317 SOUTH JACKSON AVE. CONTRACTOR WILL COORDINATE THE RETURN OF SUCH ITEMS WITH THE SOUTH YARD PERSONNEL AT 918-596-9401.

MANHOLE REHABILITATION NOTES

1. ALL MANHOLES, PIPE SIZES AND LENGTHS, DEFECTS, SURFACE TYPES AND THEIR LOCATIONS SHOWN ON SCHEDULES ARE ACCORDING TO THE BEST INFORMATION AVAILABLE TO THE ENGINEER. THE CONTRACTOR IS RESPONSIBLE TO FIELD VERIFY ALL INFORMATION AND NOTIFY THE ENGINEER OF ANY DISCREPANCIES PRIOR TO PERFORMING THE WORK.

2. REPLACEMENT MANHOLES SHALL HAVE FLOWLINE AND RIM ELEVATIONS SET TO MATCH THOSE OF EXISTING MANHOLES UNLESS OTHERWISE NOTED BY THE ENGINEER. FRAMES AND COVERS SHALL BE PROVIDED IN ACCORDANCE WITH SPECIFICATION REQUIREMENTS. WHERE REPLACEMENT MANHOLES HAVE FLOWLINE AND OR RIM ELEVATIONS NOT MATCHING THE EXISTING, NEW FLOWLINE AND RIM ELEVATIONS SHALL BE MEASURED AND RECORDED ON THE PLANS FOR PURPOSES OF ACCURATE RECORD DRAWINGS. NO SEPARATE PAYMENT WILL BE MADE FOR THIS. COST TO BE INCLUDED IN OTHER ITEMS.

3. CONTRACTOR SHALL ENSURE THAT ALL MANHOLE FRAME AND COVER CASTINGS HAVE MACHINED SEATING SURFACES TO INSURE A TIGHT FIT AND COMPLY WITH THE OTHER PROVISIONS OF THE MATERIALS SPECIFICATION.

4. ACTIVE LEAKING JOINTS OR OTHER DEFECTS OBSERVED BY THE CONTRACTOR BUT NOT SCHEDULED FOR REHABILITATION SHALL BE REPORTED TO THE ENGINEER IMMEDIATELY UPON DETECTION.

5. IN AREAS OF MANHOLE REPAIRS, CONTRACTOR SHALL PLACE SPOIL ON PLASTIC SHEETING, PLYWOOD OR OTHER SUITABLE GROUND PROTECTION.

6. THE MANHOLE DEPTHS SHOWN ON THE REHABILITATION SCHEDULE ARE TAKEN FROM FIELD MEASUREMENTS AND SHALL GOVERN OVER MANHOLE DEPTHS SHOWN ON ATLAS DRAWINGS.

7. WHEN TYPE I REPAIR IS SPECIFIED, CONTRACTOR SHALL REMOVE AND REPLACE ALL STEPS IN MANHOLE, REGARDLESS OF SIZE OR HEIGHT OF MANHOLE.

8. CONTRACTOR SHALL BE REQUIRED TO VACUUM-TEST ALL MANHOLES, EXCEPT WHERE STEP REMOVAL AND REPLACEMENT ARE THE ONLY REHABILITATION WORK DONE ON THE MANHOLE, ACCORDING TO CITY OF TULSA, PUBLIC WORKS DEPARTMENT STANDARDS AND SPECIFICATIONS.

PIPELINE REHABILITATION NOTES

1. CONTRACTOR SHALL MAINTAIN ACCESS TO DRIVEWAYS AT ALL TIMES.

2. POST REHABILITATION TELEVISION INSPECTION OF ALL REPAIR WORK SHALL BE PERFORMED IN PACP FORMAT BY A CERTIFIED PACP TECHNICIAN. PAYMENT SHALL BE INCLUDED IN THE COST OF OTHER BID ITEMS.

3. QUANTITIES SHOWN IN THE SUMMARY TABLES ARE AN ESTIMATE OF QUANTITIES FOR THE WORK SHOWN AND DO NOT REFLECT FINAL WORK ITEM(S) QUANTITIES NECESSARY TO REHABILITATE LINE SEGMENT(S).

4. ALL LINE SEGMENTS SCHEDULED FOR SLIPLINING OR CURED-IN- PLACE PIPE SHALL BE CLEANED OF ALL ROOTS, DIRT, ROCKS, AND LOOSE DEBRIS PRIOR TO INSTALLING LINER IN HOST PIPE.

5. PIPELINE REHABILITATION PLANS AND PROFILES ARE FOR REFERENCE ONLY AND DO NOT DEPICT ALL OF THE EXISTING UTILITIES. THE LOCATIONS AND DEPTHS OF UTILITIES SHOWN IN THE PROFILE ARE APPROXIMATE. SEE GENERAL NOTE (4).

6. SERVICES ASSOCIATED WITH CIPP LINE REHABILITATION SHALL BE RECONNECTED IN ACCORDANCE WITH SPECIFICATION 410.12.I.
   ALL SERVICE RECONNECTIONS ARE BID AS EXTERNAL, PER SPECIFICATION 410.15.

7. ALL PIPELINE SEGMENTS THAT REQUIRE COMPLETE REPLACEMENT, AND ARE LOCATED WITHIN A STREET RIGHT-OF-WAY MAY ONLY BE REPLACED WITH DIP. PIPELINES THAT MUST BE REPLACED WITH DIP ARE BID SEPARATELY FROM OTHER LINE REPLACEMENTS AND ARE TABULATED ACCORDINGLY ON THE TABLE, "PIPELINE REHABILITATION SCHEDULE."

8. POST REHAB TV INSPECTION SHALL BE PERFORMED IN PACP FORMAT BY A PACP CERTIFIED TECHNICIAN.

9. PIPE EMBEDMENT WILL BE AS SHOWN IN THE STANDARD DETAIL EXCEPT WHERE SPECIFICALLY NOTED OTHERWISE ON THE PLANS.

PIPELINE REHABILITATION NOTES CONT.

10. CONTRACTOR SHALL SUBMIT A PROFESSIONALLY ENGINEERED TRENCH EXCAVATION PLAN FOR ALL EXCAVATIONS IN EXCESS OF 20 FEET OF DEPTH.

11. THE PIPELINE LENGTHS SHOWN ON THE REHABILITATION SCHEDULE ARE TAKEN FROM FIELD MEASUREMENTS AND SHALL GOVERN OVER PIPELINE LENGTHS SHOWN ON ATLAS SHEETS.

12. WHERE "OPEN CUT OR TRENCHLESS" METHODS OF PIPE REPLACEMENT ARE CALLED FOR, "TRENCHLESS" SHALL REFER TO THE PIPE REPLACEMENT METHODS DESCRIBED BY SECTIONS 406, 407, OR 408 OF THE CITY OF TULSA CONSTRUCTION SPECIFICATIONS.

13. COUPLINGS USED TO CONNECT PVC, D.I.P. OR V.C.P. TO EXISTING SEWER PIPE SHALL BE AWWA C100 LONG BODY SOLID SLEEVE OR EQUAL AS APPROVED BY ENGINEER.

14. WHERE OPEN CUT PIPELINE REPLACEMENT IS USED AND THE LINE SEGMENT IS CONSTRUCTED AT A DEPTH AND LENGTH NOT MATCHING THE EXISTING, THE UPSTREAM AND DOWNSTREAM ELEVATIONS OF THE NEW PIPE AND ITS LENGTH SHALL BE MEASURED AND RECORDED ON THE PLANS FOR PURPOSES OF ACCURATE RECORD DRAWINGS. NO SEPARATE PAYMENT WILL BE MADE FOR THIS. COST TO BE INCLUDED IN OTHER ITEMS.

15. CONTRACTOR SHALL COMPLETE A SERVICE REPORT FORM FOR EACH SERVICE RECONNECTED. THIS FORM IS PROVIDED IN THE SPECIAL PROVISIONS AND SHALL BE COMPLETED AND SUBMITTED WITH EACH MONTHLY PAY REQUEST.

REGISTERED PROFESSIONAL ENGINEER
5/18/16
RYAN L. MITTASCH
21102
OKLAHOMA

OKIE 811

GENERAL NOTES

TMUA PROJECT NO. ES 2014-01

CONCRETE PIPE REPLACEMENT PROGRAM
CONTRACT 1

CITY OF TULSA, OKLAHOMA
ENGINEERING SERVICES DEPARTMENT

PLANS AND ESTIMATES PREPARED BY:

TETRA TECH
7645 E. 63rd Street, Suite 301, Tulsa, OK 74133
TEL918.249.3909 FAX918.249.3930

REVISION	BY	DATE

PLAN SCALE:	DRAWN	TT	APPROVED:
	DESIGNED	TT	
	SURVEY	TT	
PROFILE SCALE: HORIZONTAL	PROJ. MGR.	CC 5/16	
	LEAD ENGR.	ADJ 5/16	
	FIELD MGR.	RBV 5/16	
VERTICAL	RECOMMENDED: DESIGN MANAGER	MS 5/16	CITY ENGINEER
FILE:	DRAWING:		DATE: 5/19/16
ATLAS PAGE NO.:	015, 034, 061		SHEET 3 OF 24 SHEETS

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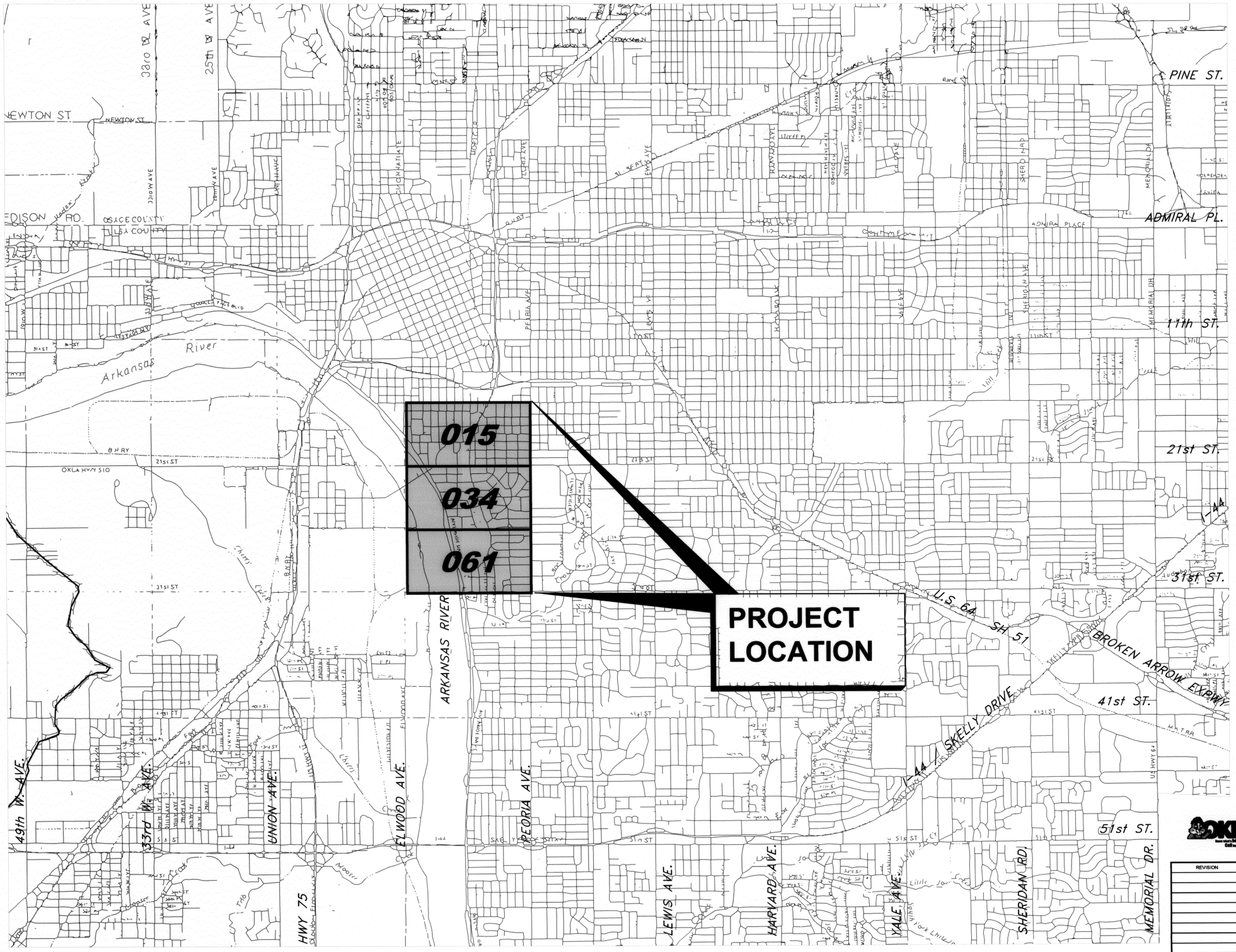

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REGISTERED PROFESSIONAL ENGINEER
5/13/16
RYAN L. MITTASCH
21102
OKLAHOMA

OKIE811 Know what's below. Call before you dig.

PROJECT LOCATION MAP

TMUA PROJECT NO. ES 2014-01

CONCRETE PIPE REPLACEMENT PROGRAM
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ATLAS PAGE NO.:			

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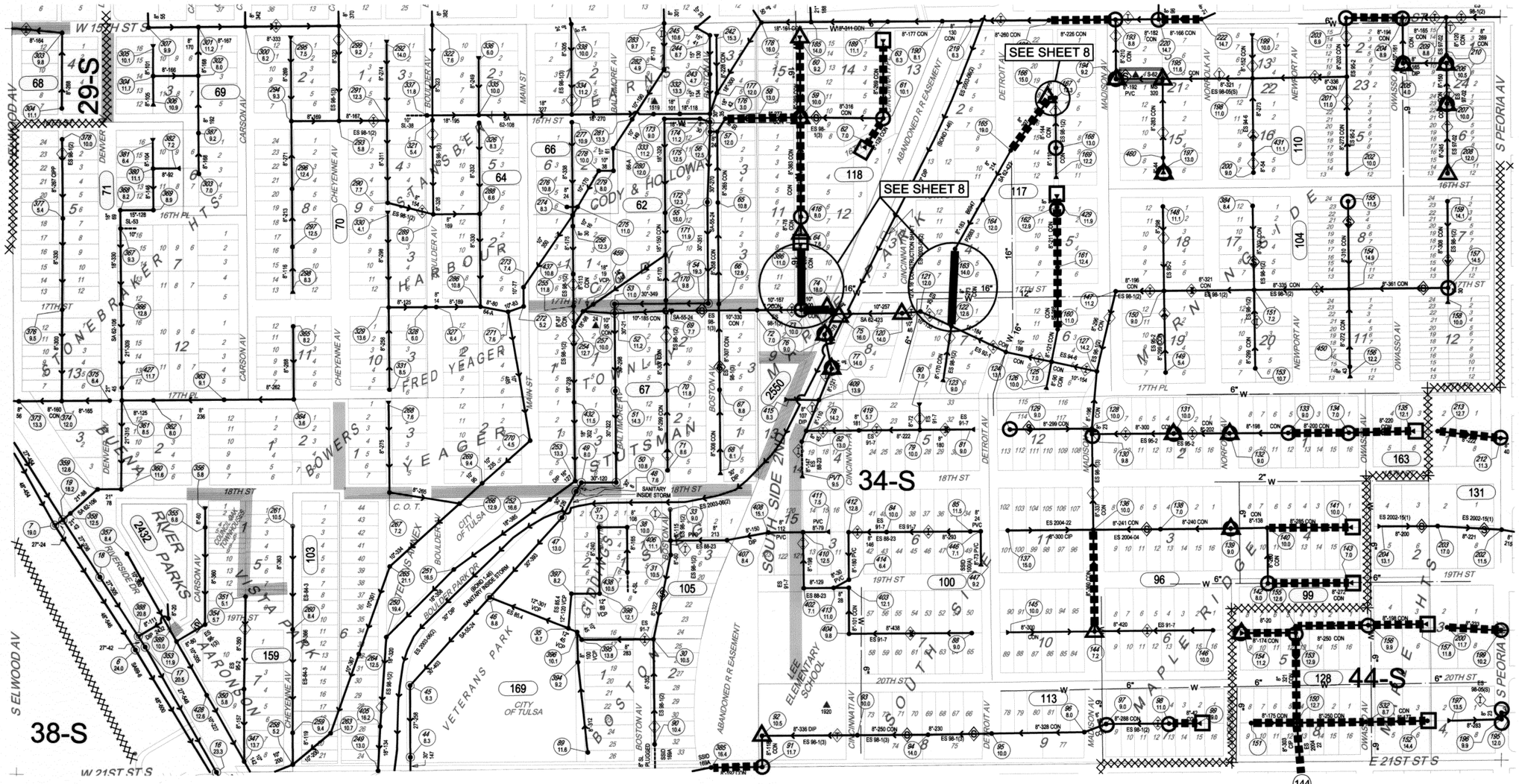
SEE ATLAS 4

SEE ATLAS 16



SEE ATLAS 14

SEE ATLAS 34

SEE SHEET 10 (ATLAS 34)

LEGEND

MANHOLE/LAMPHOLE REPLACEMENT	POINT REPAIR
TOPSIDE MANHOLE/LAMPHOLE REPAIR	LINE REPLACEMENT OPEN CUT OR TRENCHLESS
INTERIOR MANHOLE REPAIR	SLIPLINE / CIPP
APPROXIMATE LOCATION OF TULSA REGULATORY FLOODPLAIN	
MANHOLE BUBBLE (78 / 12.5)	MANHOLE # / MANHOLE DEPTH (per atlas)

CONTRACTOR SHALL NOT STOCKPILE MATERIAL OR STORE ANY EQUIPMENT OVERNIGHT IN THE TULSA REGULATORY FLOODPLAIN

REGISTERED PROFESSIONAL ENGINEER 4/10/16 RYAN L. MITTASCH 21102 OKLAHOMA

OKIE811

ATLAS 15

TMUA PROJECT NO. ES 2014-01

CONCRETE PIPE REPLACEMENT PROGRAM CONTRACT 1

CITY OF TULSA, OKLAHOMA

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LINE REHAB SCHEDULE

Atlas Page	Maint. Area	Upstream MH	US MH Depth	Downstream MH	DS MH Depth	Diameter	Pipe Length	Pipe Type	Drop D/S MH	8" Slipline SDR 19	8" Slipline SDR 21	8" Slipline SDR 26	10" Slipline SDR 19	10" Slipline SDR 21	10" Slipline SDR 26	8" Open Cut or Trenchless	8" Open Cut or Trenchless DIP	10" Open Cut or Trenchless	10" Open Cut or Trenchless DIP	Service Reconnect	Concrete Sidewalk, Drive Replacement	Asphalt Replacement	Concrete Replacement	Curb	Sodding	Video
						(Inch)	(Ft)			(LF)	(LF)	(LF)	(LF)	(LF)	(LF)	(LF)	(LF)		(LF)	(Ea.)	(SY)	(SY)	(SY)	(LF)	(SY)	(LF)
15	034	0340059	10.0	0340058	#N/A	8	266	Conc.			266									1						266
15	034	0340060	9.0	0340059	10.0	8	274	Conc.			274									7						274
15	034	0340062	9.0	0340061	11.0	8	112	Conc			112									2						112
15	034	0340063	7.0	0340061	11.0	8	263	Conc			263									4						263
15	034	0340074	18.0	0340073	10.0	10	99	Conc.											99	1		36		5	32	99
15	034	0340075	17.5	0340074	18.0	10	10	Conc.	Yes									(10 - OPEN CUT ONLY)		1					22	10
15	034	0340091	12.00	0340385	*16.4**	8	183	Conc.			183									0						183
15	034	0340099	*9.0**	0340098	*11.0**	8	42	Conc.			142									6						142
15	034	0340130	10.5	0340128	10.3	8	21	Conc.									(21- OPEN CUT ONLY- DIP)			1		12		21		21
15	034	0340134	8.3	0340133	10.6	8	212	Conc.			212									2						212
15	034	0340135	*12.1**	0340134	8.3	8	220	Conc.			220									3						220
15	034	0340141	*10.0**	0340140	*10.0**	8	288	Conc.			288									7						288
15	034	0340143	7.1	0340142	8.3	8	288	Conc.			288									3						288
15	034	0340144	7.5	0340136	10.3	8	360	Conc.			360									3						360
15	034	0340161	12.6	0340160	*12.4**	8	223	Conc.			223									8						223
15	034	0340162	12.8	0340161	12.6	8	215	Conc.			215									8						215
15	034	0340163	13.7	0340122	12.7	8	295	Conc.									295			8	72	13		5	276	295
15	034	0340166	14.0	0340165	10.4	8	232	VCP			232									4						232
15	034	0340167	14.5	0340166	14.0	8	18	Conc.								(18 - OPEN CUT ONLY)				0					40	18
15	034	0340193	9.2	0340191	*8.3**	8	237	Conc.			237									0						237
15	034	0340204	6.1	0340203	6.7	8	200	Conc.			200									3						200
15	034	0340222	14.5	0340220	14.8	8	156	Conc.			156									3						156
15	034	0340386	9.0	0340073	10.0	8	247	Conc.									247			4		114				247
15	034	0340416	8.0	0340059	10.0	8	352	Conc.			352									14						352
15	034	0340429	12.2	0340162	12.8	8	25	Conc.			25									1						25
15	044	0440150	13.0	0440144	*11.8**	8	303	Conc.			303									0						303
15	044	0440151	CNL	0440150	13.0	8	175	Conc.			175									6						175
15	044	0440152	13.5	0440532	8.7	8	218	Conc.			218									4						218
15	044	0440153	*12.9**	0440150	13.0	8	320	Conc.			320									2						320
15	044	0440154	11.2	0440153	*12.9**	8	181	Conc.			181									4						181
15	044	0440155	12.7	0440153	*12.9**	8	24	Conc.			24									0						24
15	044	0440156	*9.9**	0440155	12.7	8	258	Conc.			258									7						258
15	044	0440157	12.6	0440156	*9.9**	8	196	Conc.			196									6						196
15	044	0440200	12.0	0440199	10.4	8	191	VCP			191									8						191
15	044	0440213	*12.7**	0440212	11.6	8	222	VCP			222									9						222
15	044	0440532	8.7	0440150	13.0	8	245	Conc.			245									7						245

16.4(Italicised)* - DENOTES MANHOLE DEPTH FROM CITY OF TULSA ATLAS

CONTRACTOR TO REBUILD EXTERNAL DROP - MH 0340075 - MH 0340074

CONTRACTOR SHALL NOT STOCKPILE MATERIAL OR STORE ANY EQUIPMENT OVERNIGHT IN THE TULSA REGULATORY FLOODPLAIN

REGISTERED PROFESSIONAL ENGINEER
4/19/16
RYAN L. MITTASCH
21102
OKLAHOMA

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

ATLAS 15 - SCHEDULE

TMUA PROJECT NO. ES 2014-01

CONCRETE PIPE REPLACEMENT PROGRAM
CONTRACT 1

CITY OF TULSA, OKLAHOMA
ENGINEERING SERVICES DEPARTMENT

PLANS AND ESTIMATES PREPARED BY:

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VERTICAL	RECOMMENDED: HAS 8/16		
	DESIGN MANAGER		CITY ENGINEER
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ATLAS PAGE NO.:	015		SHEET 6 OF 24 SHEETS

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MANHOLE REHABILITATION SCHEDULE
ATLAS PAGE 15

						Repair Method																	
Atlas	Basin	MH	Diameter	Depth	Address	TYPE A	TYPE B	TYPE C	TYPE D	TYPE Fc	TYPE Gg	TYPE Gh	TYPE Gk	TYPE Go	TYPE Gp	TYPE Gr	TYPE I	TYPE T	Manhole Replacement (4')	Manhole Replacement Additional	Lamphole Replacement	Lamphole Cover and Frame	Sealed Lid
15	034	0340059	4	10	116A E. 16th St.		1				125.60												
15	034	0340060	0.68	9	1508 S. Cincinnati Ave.														1	3			
15	034	0340061	4	11	1502 S. Cincinnati Pl.						138.16												
15	034	0340062	0.68	9	212 E. 16th St.														1	3			
15	034	0340063	0.68	7	1500 S. Cincinnati Pl.														1	1			
15	034	0340064	0.68	8	1632 S. Cincinnati Ave.														1	2			
15	034	0340073	4	10	120 E. 17th St.							1											
15	034	0340074	4	18	120 E. 17th St.				1														
15	034	0340075	4	17	120 E. 17 th St.		1																
15	034	0340076	4	8	120 E. 17th St.		1				100.48												
15	034	0340077	4	14	1726 S. Cincinnati Ave.		1				175.84												
15	034	0340091	4	12	120 E. 21 st St.						150.72		1										
15	034	0340092	4	13	Lees Elementary school playground				1														
15	034	0340097	4	10	1005 S. Madison Ave.							1											
15	034	0340098	4	11	1029 E. 21st St.						138.16												
15	**034**	**0340099**	**0.68**	**9**	**1030 E. 20th St. ***														**1**	**3**			
15	034	0340120	4	13	1705 S. Cincinnati Pl.				1														
15	034	0340129	4	9	1735 S. Detroit Ave.										1								
15	034	0340130	4	10	1732 S. Madison Ave.						125.60												
15	034	0340131	4	10.3	1016 E.17th Pl.		1				129.37												
15	034	0340132	4	7	1732 S. Norfolk Ave.		1				87.92		1										
15	034	0340133	4	10	1114 E. 17th St						125.60												
15	034	0340134	4	8	1736 S. Owasso							1											
15	**034**	**0340135**	**0.68**	**12.1**	**1211 E. 18th St. ***														**1**	**6**			
15	034	0340139	4	9	1103 E. 19th St.		1				113.04												
15	**034**	**0340141**	**0.68**	**10**	**1131 E. 19th St. ***														**1**	**4**			
15	034	0340142	4	8	1112 E. 19th St.						100.48		1										
15	034	0340143	0.68	7	1904 S. Owasso Ave.														1	1			
15	034	0340144	4	7	320 E. 19th St.		1																
15	034	0340155	4	11	1140 E. 16th St.						138.16												
15	034	0340157	4	14	1719 S. Owasso Ave.						175.84		1										
15	034	0340162	4	12	1601 S. Detroit Ave.								1										
15	034	0340166	4	13	1522 S. Madison Ave.				1														
15	034	0340168	4	13	1539 S. Detroit Ave.						163.28	1											
15	034	0340193	4	9	1501 S. Madison Ave.						113.04	1											
15	034	0340194	4	9	1515 S. Madison Ave.				1			1	1										
15	034	0340195	4	11	1515 S. Madison Ave.				1														
15	034	0340197	4	13	1544 S. Norfolk Ave.		1				163.28	1											
15	034	0340203	4	6	1140 E. 15th St.								1										
15	034	0340204	4	6	1448 S. Owasso Ave.						75.36												
15	034	0340205	3	4	1507 S. Owasso Ave.	1					37.68	1											
15	034	0340206	4	10	1507 S. Owasso Ave.	1					125.60												
15	034	0340207	4	13	1521 S. Owasso Ave		1				163.28												
15	034	0340208	4	15	1540 S. Peoria Ave.				1														
15	034	0340220	4	14	1002 E. 15th St.						175.84		1										
15	034	0340386	0.68	9	1634 S. Cincinnati Ave.														1	3			
15	034	0340416	4	8	1628 S. Cincinnati Ave.							1											
15	044	0440152	0.68	13	1216 E. 20th St.																1		
15	044	0440153	4	12	1115 E. 20th St.						150.72												
15	044	0440154	4	11	1103 E. 20th St.		1				138.16												
15	044	0440156	4	8	1906 S. Owasso Ave.						100.48												
15	044	0440157	0.68	12	1210 E. 19th St.														1	6			
15	044	0440195	4	12	1304 E. 20th St.						150.72		1										
15	044	0440196	4	10	1304 E. 20th St.						125.60												
15	044	0440199	4	10	1231 E. 20th St.						125.60	1											
15	044	0440212	4	11	1735 S. Peoria Ave						138.16	1	1										
15	044	0440429	0.68	12	1601 S. Detroit Ave.														1	6			

MANHOLES / LAMPHOLES SHOWN IN BOLD AND WITH '*' WERE NOT INSPECTED, DUE TO NOT BEING FOUND OR NO ACCESS AT THE TIME.
TYPE OF ACTUAL REHABILITATION WILL BE DETERMINED DURING CONSTRUCTION. THE ADDITIONAL VERTICAL FOOTAGE IS APPROXIMATE.

REHABILITATION METHODS

TYPE A
REPLACEMENT OF MANHOLE COVER, FRAME AND FRAME SEAL (418)

TYPE B
REPLACEMENT OF MANHOLE FRAME SEAL (418)

TYPE C
REPLACEMENT OF MANHOLE COVER, FRAME, FRAME SEAL AND CHIMNEY (418)

TYPE D
REPLACEMENT OF MANHOLE FRAME SEAL AND CHIMNEY (418)

TYPE Fc
PRECAST CORBEL SECTION (418)

TYPE Gg
INTERIOR MANHOLE WALL REHABILITATION (421)

TYPE Gh
BENCH AND INVERT REHABILITATION (419)

TYPE Gk
PIPE SEAL REHABILITATION (421)

TYPE Go
PLUG LIFT HOLES, PLUG HOLES (419)

TYPE Gp
SEAL PRE-CAST JOINTS (421)

TYPE Gr
PATCH HOLE (419)

TYPE I
REPLACEMENT OF MANHOLE STEPS – AT THE TIME OF MANHOLE REHABILITATION, MANHOLE STEPS SHALL BE EVALUATED AND REPLACED ON A PER-STEP BASIS. MANHOLES WITH STEPS MOST LIKELY IN NEED OF REPLACEMENT ARE DESIGINATED WITH AN "*" IN THE MANHOLE REHABILITATION SCHEDULE. (420)

TYPE T
CLEAN MANHOLE (Special)

MANHOLE REPLACEMENT
COMPLETE MANHOLE REPLACEMENT (416)

MANHOLE REPLACEMENT
ADDITIONAL FOOTAGE (416)

LAMPHOLE REPLACEMENT
LAMPHOLE REPLACEMENT (417)

LAMPHOLE COVER AND FRAME REPLACEMENT
LAMPHOLE TOPSIDE REPAIR (417)

REGISTERED PROFESSIONAL ENGINEER
4/19/16
RYAN L. MITTASCH
21102
OKLAHOMA

CONTRACTOR SHALL NOT STOCKPILE MATERIAL OR STORE ANY EQUIPMENT OVERNIGHT IN THE TULSA REGULATORY FLOODPLAIN

OKIE 811

ATLAS 15 - MANHOLE SCHEDULE
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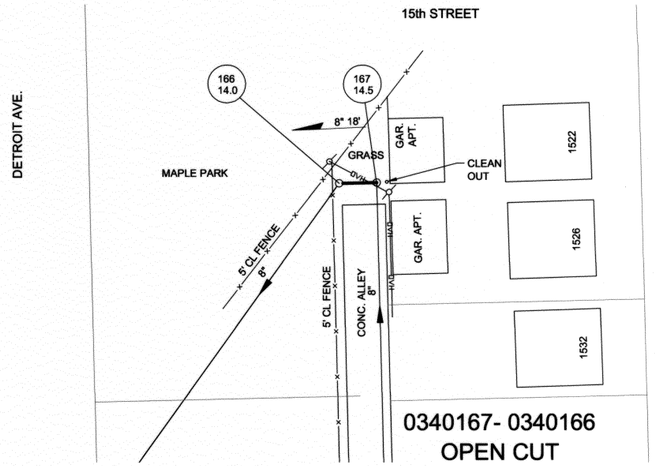

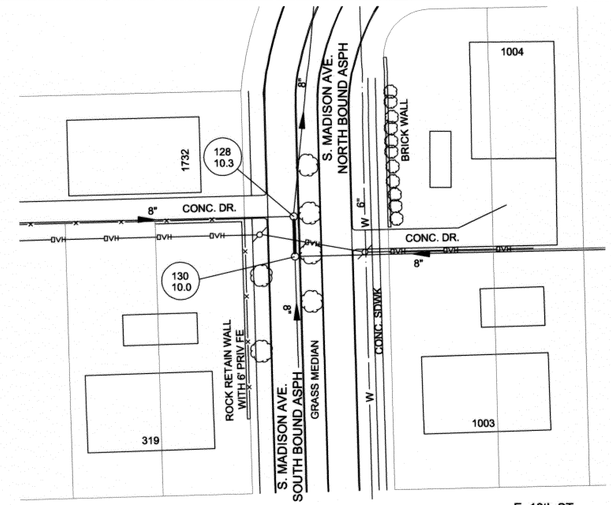

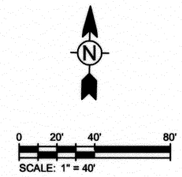

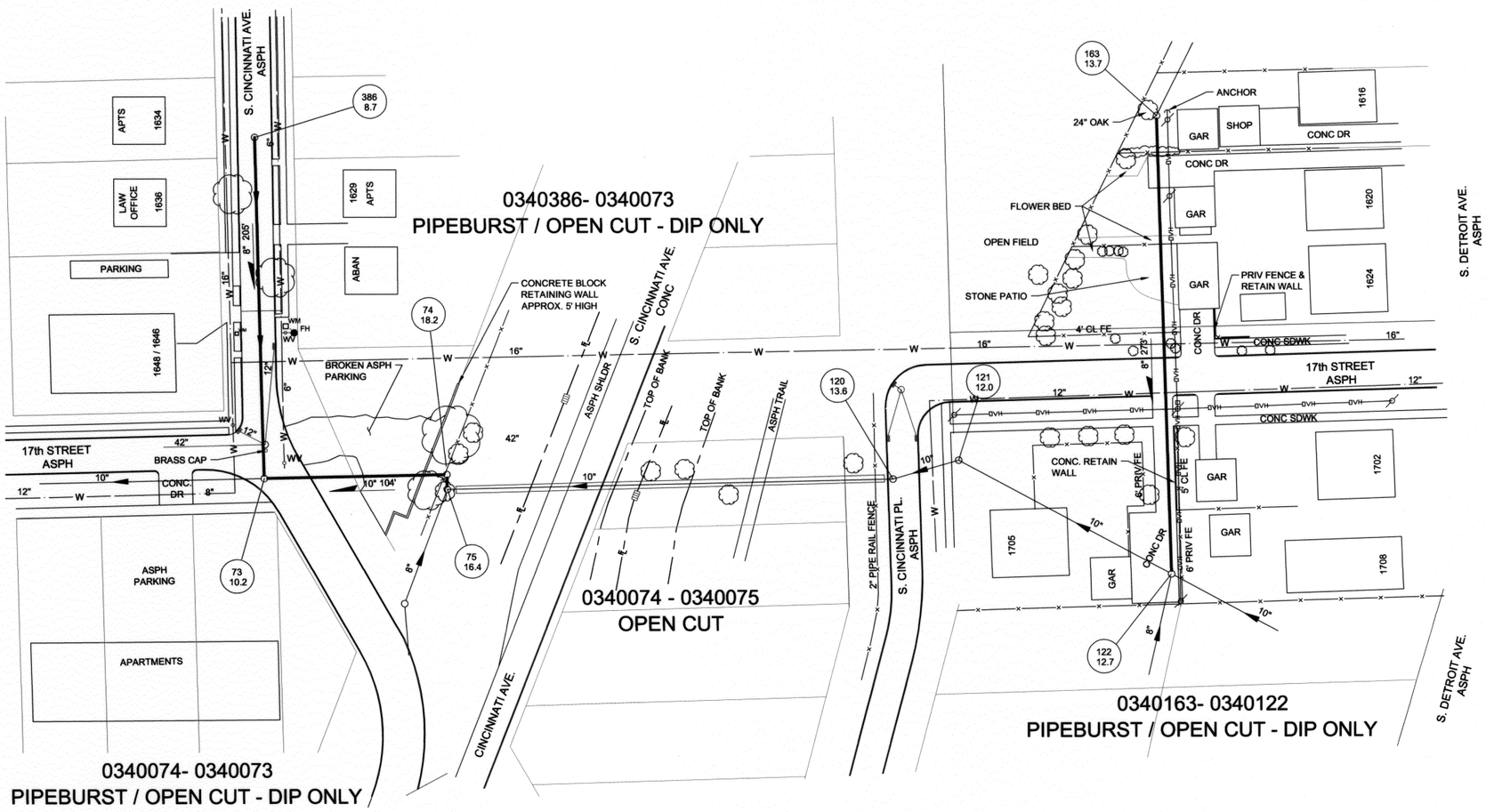

REGISTERED PROFESSIONAL ENGINEER
RYAN L. MITTASCH
21102
OKLAHOMA
5/16/16

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ATLAS 15 - DETAIL SHEET

TMUA PROJECT NO. ES 2014-01

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CONTRACT 1

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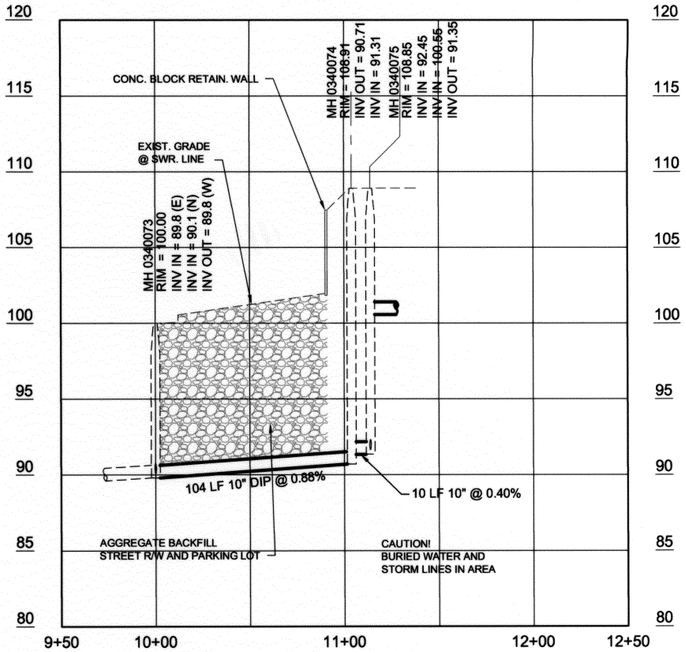

0340075 - 0340074 - 0340073
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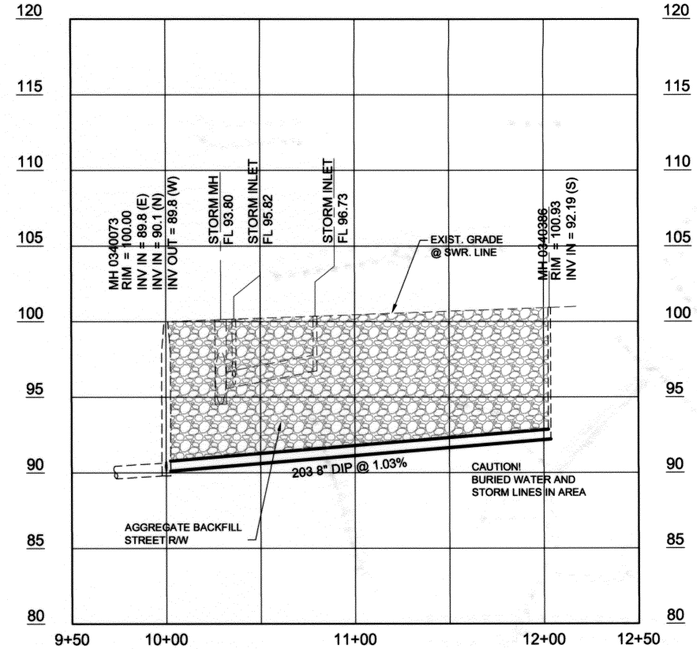

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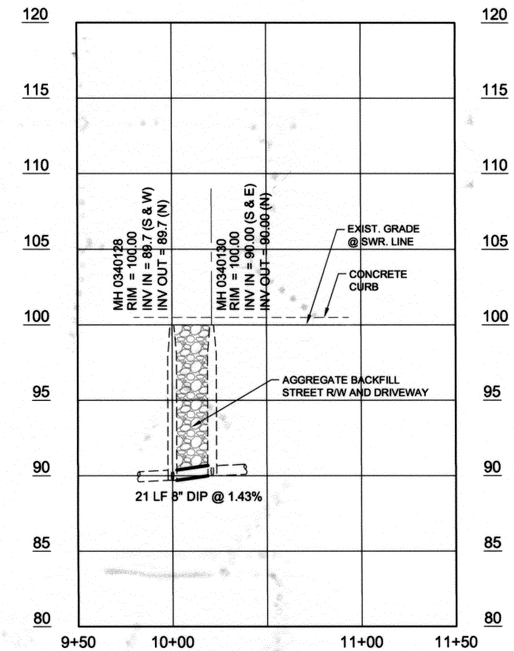
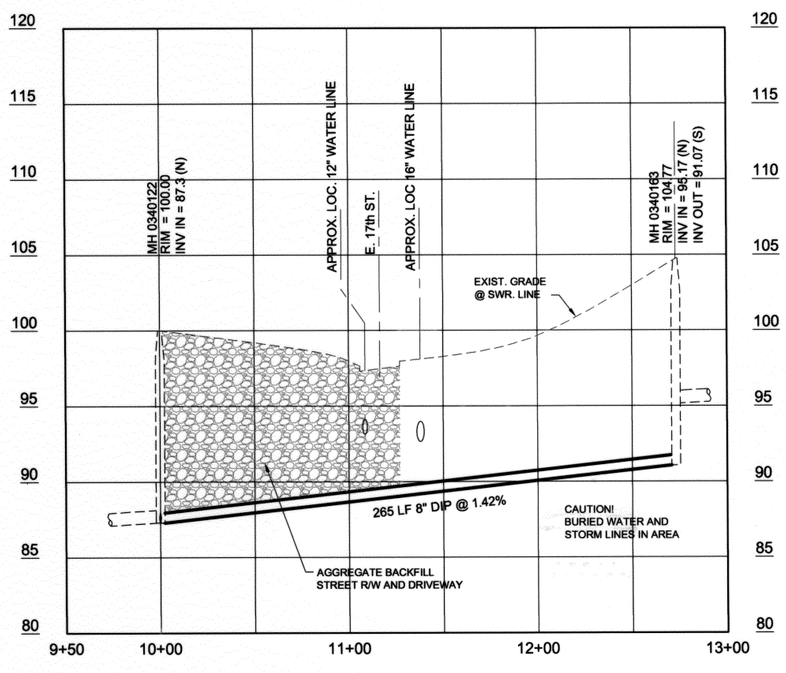
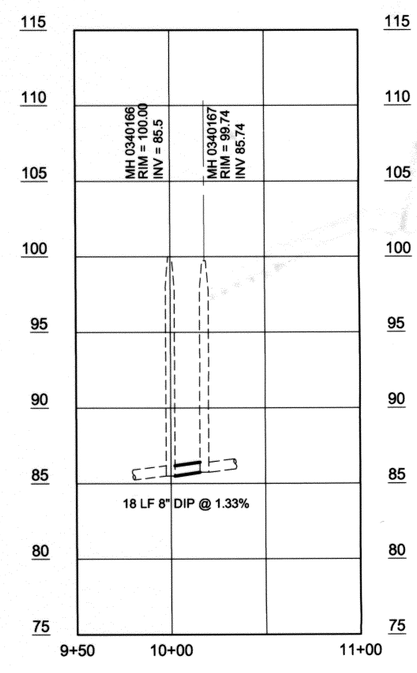


0340130- 0340128
OPEN CUT - DIP ONLY



0340163- 0340122
PIPEBURST / OPEN CUT - DIP ONLY



0340167- 0340166
OPEN CUT - DIP ONLY

REGISTERED PROFESSIONAL ENGINEER
RYAN L. MITTASCH
21102
OKIE 811

ATLAS 15 - DETAIL SHEET
TMUA PROJECT NO. ES 2014-01
CONCRETE PIPE REPLACEMENT PROGRAM
CONTRACT 1
CITY OF TULSA, OKLAHOMA
ENGINEERING SERVICES DEPARTMENT

PLANS AND ESTIMATES PREPARED BY:
TETRA TECH
7645 E. 63rd Street, Suite 301, Tulsa, OK 74133
TEL918.249.3909 FAX 918.249.3930

REVISION	BY	DATE

PLAN SCALE:	DRAWN	TT	
	DESIGNED	TT	
	SURVEY	TT	
PROFILE SCALE: HORIZONTAL 1" = 40'	PROJ. MGR.	CC	3/16
	LEAD ENGR.	ADS	5/16
	FIELD MGR.	CBW	5/16
VERTICAL 1" = 10'	RECOMMENDED: DESIGN MANAGER	HAS	8/16
FILE:	DRAWING:		
ATLAS PAGE NO.:	15		

APPROVED:
CITY ENGINEER
DATE: 8/24/16
SHEET 9 OF 24 SHEETS

4/15/2016 1:04 PM
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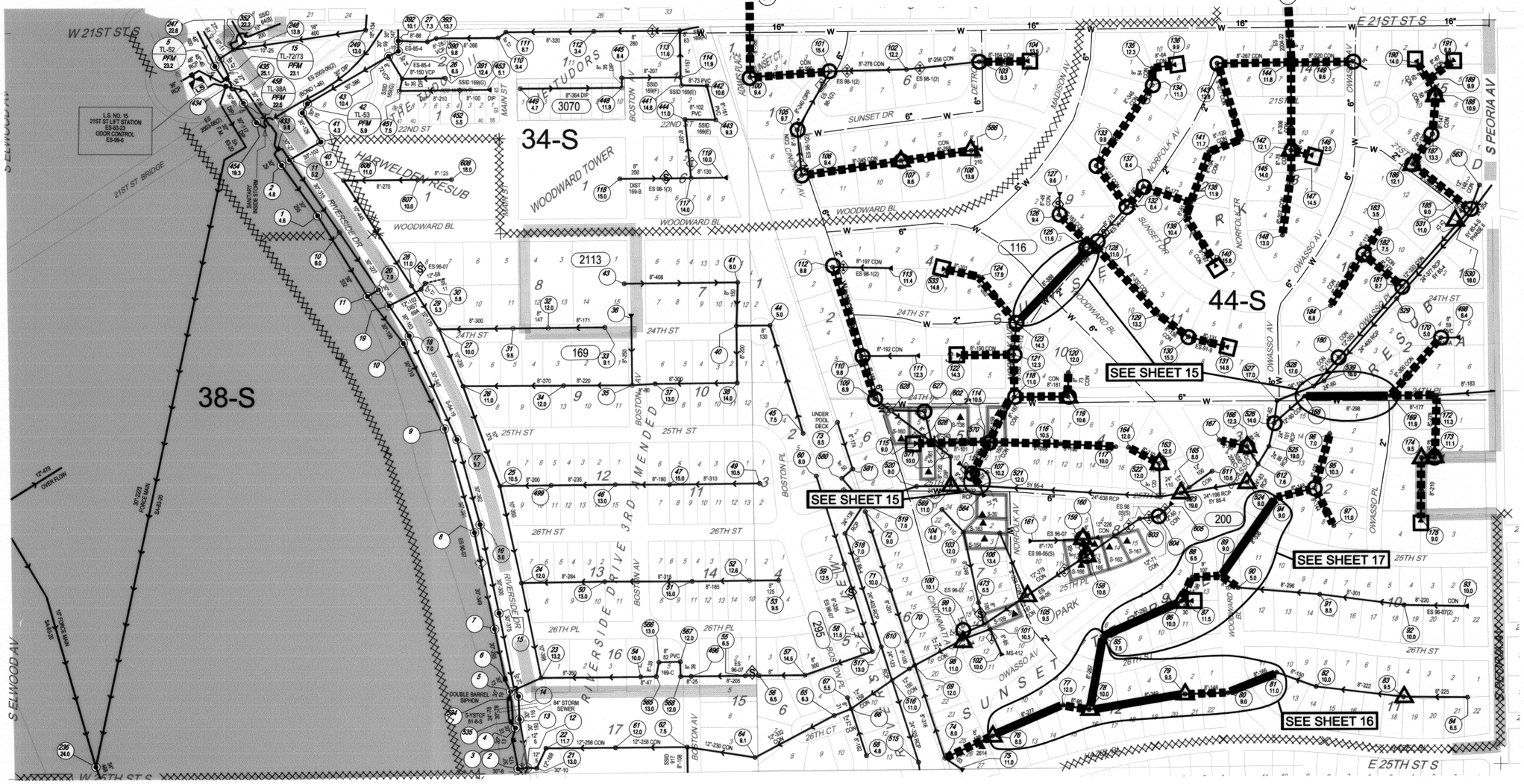
SEE ATLAS 15

SEE SHEET 5 (ATLAS 15)

SEE ATLAS 35



SEE ATLAS 33

SEE ATLAS 61

LEGEND

MANHOLE/LAMPHOLE REPLACEMENT	POINT REPAIR
TOPSIDE MANHOLE/LAMPHOLE REPAIR	LINE REPLACEMENT OPEN CUT OR TRENCHLESS
INTERIOR MANHOLE REPAIR	SLIPLINE / CIPP
APPROXIMATE LOCATION OF TULSA REGULATORY FLOODPLAIN	
MANHOLE BUBBLE (78 / 12.5) — MANHOLE # / MANHOLE DEPTH (per atlas)	

CONTRACTOR SHALL NOT STOCKPILE MATERIAL OR STORE ANY EQUIPMENT OVERNIGHT IN THE TULSA REGULATORY FLOODPLAIN

REGISTERED PROFESSIONAL ENGINEER 21102 OKLAHOMA — 4/19/16 RYAN L. MITTASCH

OKIE 811

ATLAS 34

TMUA PROJECT NO. ES 2014-01

CONCRETE PIPE REPLACEMENT PROGRAM
CONTRACT 1

CITY OF TULSA, OKLAHOMA
ENGINEERING SERVICES DEPARTMENT

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REVISION	BY	DATE

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	DESIGNED	TT	
	SURVEY	TT	
PROFILE SCALE:	PROJ. MGR.	CC 3/16	
HORIZONTAL	LEAD ENGR.	AOS 5/16	
	FIELD MGR.	RBW 5/16	
VERTICAL	RECOMMENDED:	HAG 8/16	
	DESIGN MANAGER		CITY ENGINEER
FILE:	DRAWING:		DATE: 8/23/16
ATLAS PAGE NO.:	034		SHEET 10 OF 24 SHEETS

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LINE REHAB SCHEDULE

Atlas Page	Maint. Area	Upstream MH	US MH Depth	Downstream MH	DS MH Depth	Diameter (Inch)	Pipe Length (Ft)	Pipe Type	Drop D/S MH	8" Slipline SDR 19 (LF)	8" Slipline SDR 21 (LF)	8" Slipline SDR 26 (LF)	10" Slipline SDR 19 (LF)	10" Slipline SDR 21 (LF)	10" Slipline SDR 26 (LF)	8" Open Cut or Trenchless (LF)	8" Open Cut or Trenchless DIP (LF)	10" Open Cut or Trenchless	10" Open Cut or Trenchless DIP (LF)	Service Reconnect (Ea.)	Concrete Sidewalk, Drive Replacement (SY)	Asphalt Replacement (SY)	Concrete Replacement (SY)	Curb (LF)	Sodding (SY)	Video (LF)
34	034	0340100	10.80	0340091	12.00	8	182	Conc.			182									2						182
34	034	0340101	15.05	0340100	10.80	8	283	Conc.			283									6						283
34	034	0340104	13.50	0340103	9.40	8	163	Conc.			163									3						163
34	034	0340107	14.60	0340106	9.60	8	357	Conc.			357									5						357
34	034	0340108	14.20	0340107	14.60	8	252	Conc.			252									5						252
34	044	0440076	9.10	0440074	*8.0**	8	186	Conc.			186									2						186
34	044	0440077	13.40	0440076	9.10	8	280	VCP									~~280~~ - TRENCHLESS ONLY - DIP			6		7		5	149	280
34	044	0440078	14.50	0440077	13.40	8	93	VCP			93									2						93
34	044	0440079	10.80	0440078	14.50	8	344	VCP	YES							(344 TRENCHLESS ONLY)				9					500	344
34	044	0440080	10.20	0440079	10.80	8	152	VCP			152									3						152
34	044	0440081	14.30	0440080	10.20	8	185	VCP								(185 TRENCHLESS ONLY)				2	60	28		10	22	185
34	044	0440085	*7.5**	0440078	14.50	8	265	VCP									(265 TRENCHLESS ONLY - DIP)			1	80	14		10	212	265
34	044	0440086	11.50	0440085	*7.5**	8	307	VCP								(307 TRENCHLESS ONLY)				11					638	307
34	044	0440087	11.50	0440086	11.50	8	27	VCP								(27 TRENCHLESS ONLY)				1					60	27
34	044	0440088	9.60	0440086	11.50	8	95	VCP			95									1						95
34	044	0440089	9.90	0440088	9.60	8	103	VCP			103									2						103
34	044	0440090	5.00	0440089	9.90	8	78	VCP	YES		78									2						78
34	044	0440094	8.40	0440089	9.90	8	339	VCP									(339 TRENCHLESS ONLY - DIP)			2	33	48		20	429	339
34	044	0440095	12.40	0440094	8.40	8	143	VCP			143									3						143
34	044	0440096	3.70	0440095	12.40	8	201	VCP			201									4						201
34	044	0440097	11.70	0440095	12.40	8	150	VCP	YES		150									3						150
34	044	0440107	10.45	0440521	11.65	10	73	Conc.	YES									73		2	3	13			98	73
34	044	0440110	9.95	0440109	7.10	8	160	Conc.			160									1						160
34	044	0440112	9.90	0440110	9.95	8	327	Conc.			327									5						327
34	044	0440114	10.60	0440107	10.45	8	129	Conc.			129									2						129
34	044	0440115	*9.0**	0440114	10.60	8	250	VCP			250									4						250
34	044	0440116	10.50	0440114	10.60	8	255	VCP			255									8						255
34	044	0440117	*10.0**	0440116	10.50	8	196	VCP			196									4						196
34	044	0440118	11.00	0440114	10.60	8	183	Conc.			183									2						183
34	044	0440119	10.55	0440118	11.00	8	190	Conc.			190									0						190
34	044	0440120	14.30	0440119	10.55	8	86	Conc.			86									1						86
34	044	0440121	12.35	0440118	11.00	8	151	Conc.			151									2						151
34	044	0440122	*14.3**	0440121	12.35	8	187	Conc.	YES		187									4						187
34	044	0440123	14.40	0440121	12.35	8	113	Conc.			113									2						113
34	044	0440124	*17.9**	0440123	14.40	8	213	Conc.	YES		213									1						213
34	044	0440125	11.90	0440123	14.40	8	380	Conc.									(380 - TRENCHLESS ONLY - DIP)			0		195		10	34	380
34	044	0440126	9.60	0440125	11.90	8	159	Conc.	YES		159									2						159
34	044	0440128	11.25	0440125	11.90	8	18	Conc.									(18 - TRENCHLESS ONLY - DIP)			0		10				18
34	044	0440129	*13.2**	0440125	11.90	8	341	Conc.			341									6						341
34	044	0440130	14.30	0440129	*13.2**	8	131	Conc.			131									2						131

16.4(Italicised)* - DENOTES MANHOLE DEPTH FROM CITY OF TULSA ATLAS

CONTRACTOR TO REBUILD EXTERNAL DROP - MH 0440079 - MH 0440078
MH 0440090 - MH 0440089
MH 0440096 - MH 0440095
MH 0440107 - MH 0440521
MH 0440122 - MH 0440121
MH 0440124 - MH 0440123
MH 0440126 - MH 0440125

REGISTERED PROFESSIONAL ENGINEER
4/19/16
RYAN L. MITTASCH
21102
OKLAHOMA

CONTRACTOR SHALL NOT STOCKPILE MATERIAL OR STORE ANY EQUIPMENT OVERNIGHT IN THE TULSA REGULATORY FLOODPLAIN

ATLAS 34 - LINE SCHEDULE 1 OF 2

TMUA PROJECT NO. ES 2014-01

CONCRETE PIPE REPLACEMENT PROGRAM
CONTRACT 1

CITY OF TULSA, OKLAHOMA
ENGINEERING SERVICES DEPARTMENT

PLANS AND ESTIMATES PREPARED BY:
TETRA TECH
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REVISION	BY	DATE

PLAN SCALE:	DRAWN	TT	APPROVED:
	DESIGNED	TT	
	SURVEY	TT	
PROFILE SCALE:	PROJ. MGR.	ec 3/16	
HORIZONTAL	LEAD ENGR.	ADJ 5/16	
	FIELD MGR.	RBV 5/16	
VERTICAL	RECOMMENDED:	TLAS 8/16	
	DESIGN MANAGER		CITY ENGINEER
FILE:	DRAWING:		DATE: 8/29/16
ATLAS PAGE NO.:	034		SHEET 11 OF 24 SHEETS

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LINE REHAB SCHEDULE

Atlas Page	Maint. Area	Upstream MH	US MH Depth	Downstream MH	DS MH Depth	Diameter (Inch)	Pipe Length (Ft)	Pipe Type	Drop D/S MH	8" Slipline SDR 19 (LF)	8" Slipline SDR 21 (LF)	8" Slipline SDR 26 (LF)	10" Slipline SDR 19 (LF)	10" Slipline SDR 21 (LF)	10" Slipline SDR 26 (LF)	8" Open Cut or Trenchless (LF)	8" Open Cut or Trenchless DIP (LF)	10" Open Cut or Trenchless (LF)	10" Open Cut or Trenchless DIP (LF)	Service Reconnect (Ea.)	Concrete Sidewalk, Drive Replacement (SY)	Asphalt Replacement (SY)	Concrete Replacement (SY)	Curb (LF)	Sodding (SY)	Video (LF)
34	044	0440131	14.30	0440130	14.30	8	131	Conc.			131									3						131
34	044	0440133	10.00	0440132	8.30	8	178	Conc.			178									1						178
34	044	0440134	11.25	0440133	10.00	8	346	Conc.			346									3						346
34	044	0440135	12.50	0440134	11.25	8	61	Conc.	YES		61									1						61
34	044	0440136	9.80	0440135	12.50	8	69	Conc.			69									3						69
34	044	0440137	8.70	0440132	8.30	8	92	Conc.			92															92
34	044	0440138	*11.9**	0440137	8.70	8	176	Conc.			176									3						176
34	044	0440139	*10.4**	0440138	*11.9**	8	51	Conc.			51									1						51
34	044	0440140	15.60	0440139	*10.4**	8	196	Conc.			196									4						196
34	044	0440141	11.75	0440138	*11.9**	8	193	Conc.			193									3						193
34	044	0440142	*12.1**	0440141	11.75	8	123	Conc.			123									3						123
34	044	0440143	13.00	0440142	12.1*	8	283	Conc.			283									2						283
34	044	0440144	*11.8**	0440143	13.00	8	261	Conc.			261									5						261
34	044	0440145	14.30	0440144	*11.8**	8	312	Conc.			312									2						312
34	044	0440146	*12.0**	0440145	14.30	8	65	Conc.			65									1						65
34	044	0440147	14.60	0440145	14.30	8	80	Conc.			80									2						80
34	044	0440148	12.00	0440147	14.60	8	223	Conc.			223									4						223
34	044	0440149	9.50	0440144	*11.8**	8	220	Conc.			220									4						220
34	044	0440164	*12.0**	0440163	*12.0**	8	122	Conc.			122									3						122
34	044	0440167	13.00	0440166	12.50	8	145	Conc.	Yes		145									2						145
34	044	0440169	11.90	0440168	16.00	8	307	Conc.								(307 - TRENCHLESS ONLY - DIP)				1	9	160		10	159	307
34	044	0440170	6.00	0440169	11.90	8	274	Conc.			274									1						274
34	044	0440172	*11.3**	0440169	11.90	8	164	Conc.			164									1						164
34	044	0440173	11.50	0440172	*11.3**	8	215	VCP			215									1						215
34	044	0440174	8.30	0440173	11.50	8	45	VCP			45									1						45
34	044	0440175	9.85	0440174	8.30	8	215	VCP			215									4						215
34	044	0440182	6.80	0440181	10.00	8	180	Conc.	Yes		180									1						180
34	044	0440183	*3.5**	0440182	6.80	8	108	Conc.			108									2						108
34	044	0440184	*6.8**	0440182	6.80	8	217	Conc.			217									5						217
34	044	0440186	12.15	0440185	9.40	8	259	Conc.			259									2						259
34	044	0440187	13.30	0440186	12.15	8	131	Conc.			131									3						131
34	044	0440188	11.40	0440187	13.30	8	138	Conc.			138									3						138
34	044	0440189	*9.9**	0440188	11.40	8	65	Conc.			65									1						65
34	044	0440190	14.00	0440189	*9.9**	8	65	Conc.			65									3						65
34	044	0440191	6.80	0440189	*9.9**	8	103	Conc.			103									3						103
34	044	0440533	*14.8**	0440124	*17.9**	8	115	Conc.			115									3						115

16.4(Italicised)* - DENOTES MANHOLE DEPTH FROM CITY OF TULSA ATLAS

CONTRACTOR TO REBUILD EXTERNAL DROP - MH 0440135 - MH 0440134
MH 0440167 - MH 0440166
MH 0440182 - MH 0440181

REGISTERED PROFESSIONAL ENGINEER
8/19/16
RYAN L. MITTASCH
21102
OKLAHOMA

CONTRACTOR SHALL NOT STOCKPILE MATERIAL OR STORE ANY EQUIPMENT OVERNIGHT IN THE TULSA REGULATORY FLOODPLAIN

ATLAS 34 - LINE SCHEDULE 2 OF 2

TMUA PROJECT NO. ES 2014-01

CONCRETE PIPE REPLACEMENT PROGRAM
CONTRACT 1

CITY OF TULSA, OKLAHOMA
ENGINEERING SERVICES DEPARTMENT

PLANS AND ESTIMATES PREPARED BY:
TETRA TECH
7645 E. 63rd Street, Suite 301, Tulsa, OK 74133
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REVISION	BY	DATE

PLAN SCALE:	DRAWN	TT	
	DESIGNED	TT	
	SURVEY	TT	
PROFILE SCALE: HORIZONTAL	PROJ. MGR.	CC	8/16
	LEAD ENGR.	ADJ	5/16
	FIELD MGR.	PBV	5/16
VERTICAL	RECOMMENDED: DESIGN MANAGER	HAS	8/16
FILE:	DRAWING:		
ATLAS PAGE NO.:	034		

APPROVED:
CITY ENGINEER
DATE: 8/30/16
SHEET 12 OF 24 SHEETS

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MANHOLE REHABILITATION SCHEDULE
ATLAS PAGE 34

Atlas	Basin	MH	Diameter	Depth	Address	Repair Method: TYPE A	TYPE B	TYPE C	TYPE D	TYPE Fc	TYPE Gg	TYPE Gh	TYPE Gk	TYPE Go	TYPE Gp	TYPE Gr	TYPE I	TYPE T	Manhole Replacement (4')	Manhole Replacement Additional	Lamphole Replacement	Lamphole Cover and Frame	Sealed Lid
34	034	0340100	4	10	140 E. 21st. St. (Sunset Court apartments)						125.60												
34	034	0340101	4	15	2106 S. Cincinnati Ave.						188.40	1											
34	034	0340103	4	9	2104 S. Detroit Ave.						113.04	1											
34	034	0340104	0.68	13	2105 S Detroit Ave.																1		
34	034	0340105	4	9	2136 S. Cincinnati Ave.						113.04				1								
34	034	0340106	4	9	2146 S. Cincinnati Ave.						113.04												
34	034	0340107	4	14	224 E. Sunset Dr.		1					1											
34	034	0340108	4	14	250 E. Sunset Dr.	1																	
34	044	0440076	4	9	2614 S. Cincinnati Ave.				1														
34	044	0440078	4	14	227 Hazel Blvd.				1														
34	044	0440079	4	10	237 Hazel Blvd.			1															
34	044	0440083	4	10	1250 E. 26th St. S.		1																
34	044	0440086	4	11	3528 S. Woodward Blvd.	1																	
34	**044**	**0440087**	**0.68**	**11.5**	**1145 E. 26th St. ***														1				
34	044	0440095	4	12	2458 S. Owasso Place						150.72												
34	044	0440098	4	10	2551 S. Cincinnati Ave.	1														6			
34	044	0440099	4	11	2551 S. Cincinnati							1											
34	044	0440105	4	9	2534 S. Norfolk Ave		1																
34	044	0440107	4	10	219 E. 25th St.						125.60		1										
34	044	0440109	4	7	2428 S. Cincinnati Ave.								1										
34	044	0440110	4	9	2414 S. Cincinnati Ave.							1	1										
34	044	0440112	4	9	2316 S. Cincinnati Ave.								1										
34	044	0440114	4	10	223 E. 25th St.						125.60	1											
34	**044**	**0440115**	**0.68**	**9**	**2445 S. Cincinnati Ave. ***														1				
34	044	0440118	4	11	235 E. 24th Pl. S.								1										
34	044	0440119	4	10	1120 E. 24th Pl.				1		125.60		1										
34	044	0440121	4	12	240 E. 24th St.						150.72												
34	**044**	**0440122**	**0.68**	**14.3**	**221 E. 24th Pl. ***														1	3			
34	044	0440123	4	14	240 E. 24th St.						175.84												
34	044	0440125	4	11	2168 S. Norfolk Ave.				1			1	1										
34	044	0440126	4	9	1015 S. Woodward Blvd.							1											
34	044	0440128	4	11	2168 S. Norfolk Ave.						138.16		1										
34	044	0440130	4	14	1136 E. Sunset Dr.							1								9			
34	044	0440131	0.68	14	2186 E. Sunset Dr.																1		
34	044	0440132	4	8	1107 E. Sunset Dr.						100.48												
34	044	0440133	4	10	1018 E. Sunset Dr.						125.60												
34	044	0440134	4	11	2114 S. Norfolk Ave.						138.16												
34	044	0440136	0.68	9	2112 S. Norfolk Ave.																1		
34	044	0440137	4	8	1107 E. Sunset Dr.								1										

MANHOLES / LAMPHOLES SHOWN IN BOLD AND WITH "*" WERE NOT INSPECTED, DUE TO NOT BEING FOUND OR NO ACCESS AT THE TIME.
TYPE OF ACTUAL REHABILITATION WILL BE DETERMINED DURING CONSTRUCTION. THE ADDITIONAL VERTICAL FOOTAGE IS APPROXIMATE.

REHABILITATION METHODS

TYPE A
REPLACEMENT OF MANHOLE COVER, FRAME AND FRAME SEAL (418)

TYPE B
REPLACEMENT OF MANHOLE FRAME SEAL (418)

TYPE C
REPLACEMENT OF MANHOLE COVER, FRAME, FRAME SEAL AND CHIMNEY (418)

TYPE D
REPLACEMENT OF MANHOLE FRAME SEAL AND CHIMNEY (418)

TYPE Fc
PRECAST CORBEL SECTION (418)

TYPE Gg
INTERIOR MANHOLE WALL REHABILITATION (421)

TYPE Gh
BENCH AND INVERT REHABILITATION (419)

TYPE Gk
PIPE SEAL REHABILITATION (421)

TYPE Go
PLUG LIFT HOLES, PLUG HOLES (419)

TYPE Gp
SEAL PRE-CAST JOINTS (421)

TYPE Gr
PATCH HOLE (419)

TYPE I
REPLACEMENT OF MANHOLE STEPS – AT THE TIME OF MANHOLE REHABILITATION, MANHOLE STEPS SHALL BE EVALUATED AND REPLACED ON A PER-STEP BASIS. MANHOLES WITH STEPS MOST LIKELY IN NEED OF REPLACEMENT ARE DESIGNATED WITH AN "*" IN THE MANHOLE REHABILITATION SCHEDULE. (420)

TYPE T
CLEAN MANHOLE (Special)

MANHOLE REPLACEMENT
COMPLETE MANHOLE REPLACEMENT (416)

MANHOLE REPLACEMENT
ADDITIONAL FOOTAGE (416)

LAMPHOLE REPLACEMENT
LAMPHOLE REPLACEMENT (417)

LAMPHOLE COVER AND FRAME REPLACEMENT
LAMPHOLE TOPSIDE REPAIR (417)

REGISTERED PROFESSIONAL ENGINEER
5/18/16
RYAN L. MITTASCH
21102
OKLAHOMA

CONTRACTOR SHALL NOT STOCKPILE MATERIAL OR STORE ANY EQUIPMENT OVERNIGHT IN THE TULSA REGULATORY FLOODPLAIN

ATLAS 34 - MANHOLE SCHEDULE
TMUA PROJECT NO. ES 2014-01
CONCRETE PIPE REPLACEMENT PROGRAM
CONTRACT 1
CITY OF TULSA, OKLAHOMA
ENGINEERING SERVICES DEPARTMENT

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	LEAD ENGR.	AOJ 5/16	
	FIELD MGR.	RBV 5/16	
VERTICAL	RECOMMENDED: HAS 8/16 DESIGN MANAGER		CITY ENGINEER
FILE:	DRAWING:		DATE: 8/29/16
ATLAS PAGE NO.:	034		SHEET 13 OF 24 SHEETS

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MANHOLE REHABILITATION SCHEDULE
ATLAS PAGE 34

						Repair Method																	
Atlas	Basin	MH	Diameter	Depth	Address	TYPE A	TYPE B	TYPE C	TYPE D	TYPE Fc	TYPE Gg	TYPE Gh	TYPE Gk	TYPE Go	TYPE Gp	TYPE Gr	TYPE I	TYPE T	Manhole Replacement (4')	Manhole Replacement Additional	Lamphole Replacement	Lamphole Cover and Frame	Sealed Lid
34	044	0440140	0.68	15	1125 E. Sunset Dr.														1				
34	044	0440143	4	13	2112 S. Norfolk Ave.						163.28												
34	044	0440145	4	14	2130 E. 21st Pl. S.				1			1											
34	044	0440146	0.68	12	2130 S. Owasso Ave.														1	9			
34	044	0440149	4	9	2121 S. Owasso Ave.							1											
34	044	0440158	4	10	2540 E. 25th Pl. S.	1					125.60	1											
34	044	0440159	4	11	2540 E. 25th Pl. S.	1						1								6			
34	044	0440163	4	14	1109 E. 25th St. S.	1							1										
34	044	0440166	4	12	2419 S. Woodward Blvd. -NE corner Woodward/Owasso	1						1											
34	044	0440170	4	6	1244 E. 24th St.						75.36												
34	044	0440173	4	11	2441 S. Owasso Place	1					138.16		1										
34	044	0440174	4	8	2441 S. Owasso Place				1														
34	044	0440175	0.68	9	2465 S. Owasso Place														1				
34	044	0440180	4		2187 S. Owasso Ave.								1										
34	044	0440181	4	10	2404 S. Owasso Pl.						125.60	1	1										
34	044	0440182	4	6	2156 S. Owasso Pl.						75.36	1											
34	044	0440185	4	9	1228 E. 21st Pl.						113.04	1	1										
34	044	0440186	4	12	1223 21st Pl.		1				150.72		1							3			
34	044	0440187	4	13	1219 E. 21st Pl.								1										
34	044	0440188	4	11	2116 S. Peoria Ave.		1				138.16		1										
34	044	0440190	0.68	14	1212 E. 21st St.														1				
34	044	0440191	0.68	6	2116 S. Peoria Ave.														1				
34	044	0440523	6	8	2424 S. Woodward Blvd.		1																
34	044	0440524	6	6	1203 E. 25th St.				1														
34	044	0440526	6	13	2407 S. Owasso								1										
34	044	0440531	4	12	1228 E. 21st Pl.				1														
34	044	0440533	0.68	14.8	230 E Woodward Blvd.														1				
34	044	0440569	6	10	212 E. 25th St.				1														
34	044	0440604	4	12	1136 E. 24th St. S.						150.72												
34	044	0440627	4	15	208 E. 24th Pl. S.						188.40				1								

MANHOLES / LAMPHOLES SHOWN IN BOLD AND WITH '*' WERE NOT INSPECTED, DUE TO NOT BEING FOUND OR NO ACCESS AT THE TIME.
TYPE OF ACTUAL REHABILITATION WILL BE DETERMINED DURING CONSTRUCTION. THE ADDITIONAL VERTICAL FOOTAGE IS APPROXIMATE.

REHABILITATION METHODS

TYPE A
REPLACEMENT OF MANHOLE COVER, FRAME AND FRAME SEAL (418)

TYPE B
REPLACEMENT OF MANHOLE FRAME SEAL (418)

TYPE C
REPLACEMENT OF MANHOLE COVER, FRAME, FRAME SEAL AND CHIMNEY (418)

TYPE D
REPLACEMENT OF MANHOLE FRAME SEAL AND CHIMNEY (418)

TYPE Fc
PRECAST CORBEL SECTION (418)

TYPE Gg
INTERIOR MANHOLE WALL REHABILITATION (421)

TYPE Gh
BENCH AND INVERT REHABILITATION (419)

TYPE Gk
PIPE SEAL REHABILITATION (421)

TYPE Go
PLUG LIFT HOLES, PLUG HOLES (419)

TYPE Gp
SEAL PRE-CAST JOINTS (421)

TYPE Gr
PATCH HOLE (419)

TYPE I
REPLACEMENT OF MANHOLE STEPS – AT THE TIME OF MANHOLE REHABILITATION, MANHOLE STEPS SHALL BE EVALUATED AND REPLACED ON A PER-STEP BASIS. MANHOLES WITH STEPS MOST LIKELY IN NEED OF REPLACEMENT ARE DESIGNATED WITH AN "*" IN THE MANHOLE REHABILITATION SCHEDULE. (420)

TYPE T
CLEAN MANHOLE (Special)

MANHOLE REPLACEMENT
COMPLETE MANHOLE REPLACEMENT (416)

MANHOLE REPLACEMENT
ADDITIONAL FOOTAGE (416)

LAMPHOLE REPLACEMENT
LAMPHOLE REPLACEMENT (417)

LAMPHOLE COVER AND FRAME REPLACEMENT
LAMPHOLE TOPSIDE REPAIR (417)

REGISTERED PROFESSIONAL ENGINEER
4/15/16
RYAN L. MITTASCH
21102
OKLAHOMA

CONTRACTOR SHALL NOT STOCKPILE MATERIAL OR STORE ANY EQUIPMENT OVERNIGHT IN THE TULSA REGULATORY FLOODPLAIN

ATLAS 34 - MANHOLE SCHEDULE
TMUA PROJECT NO. ES 2014-01
CONCRETE PIPE REPLACEMENT PROGRAM
CONTRACT 1
CITY OF TULSA, OKLAHOMA
ENGINEERING SERVICES DEPARTMENT

PLANS AND ESTIMATES PREPARED BY:
TETRA TECH
7645 E. 63rd Street, Suite 301, Tulsa, OK 74133
TEL918.249.3909 FAX918.249.3930

REVISION	BY	DATE

PLAN SCALE:	DRAWN	TT	APPROVED:
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	SURVEY	TT	
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	LEAD ENGR.	ADJ 5/16	
	FIELD MGR.	RBV 5/16	
VERTICAL	RECOMMENDED: HAS 8/16		
	DESIGN MANAGER		CITY ENGINEER
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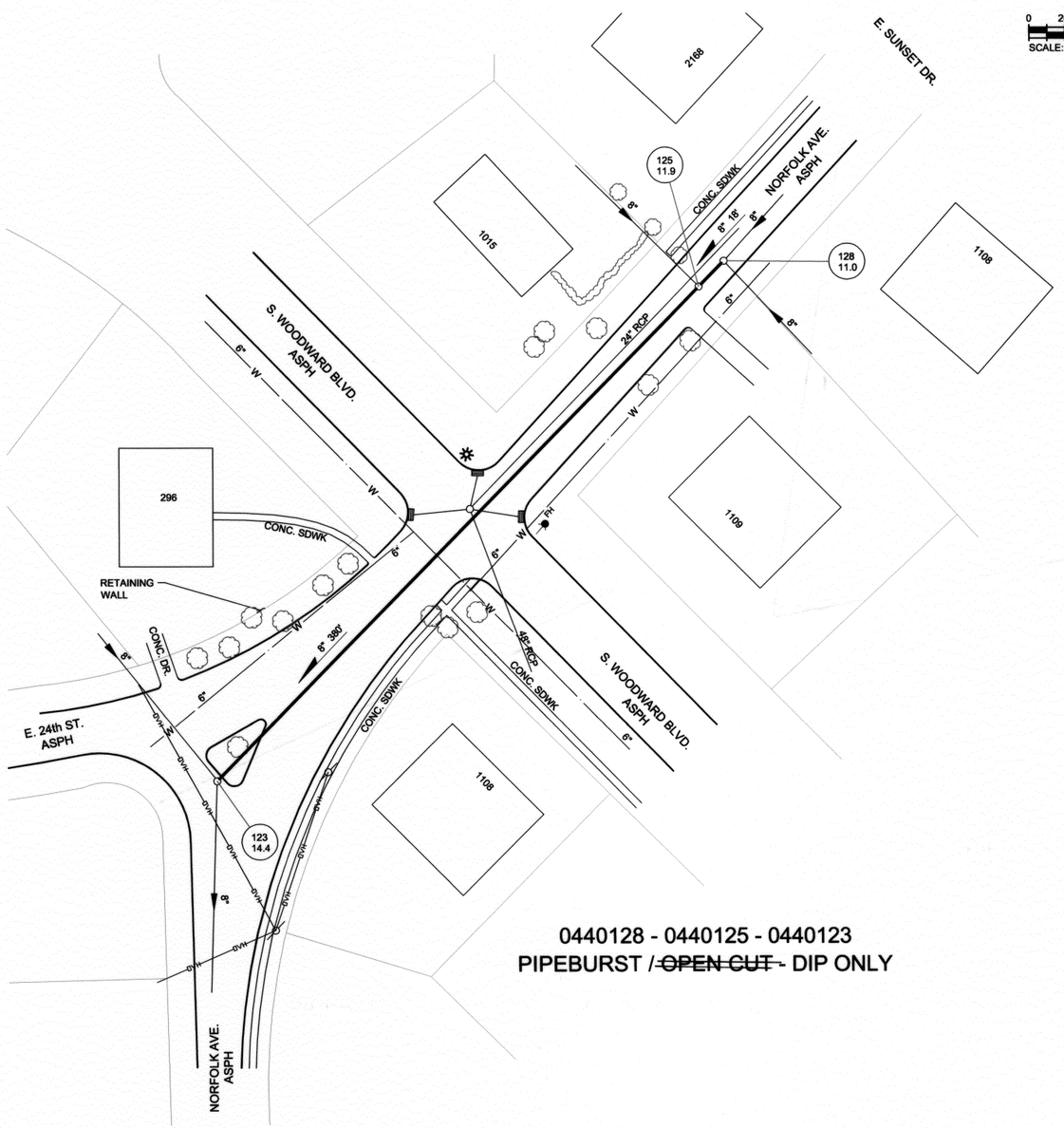
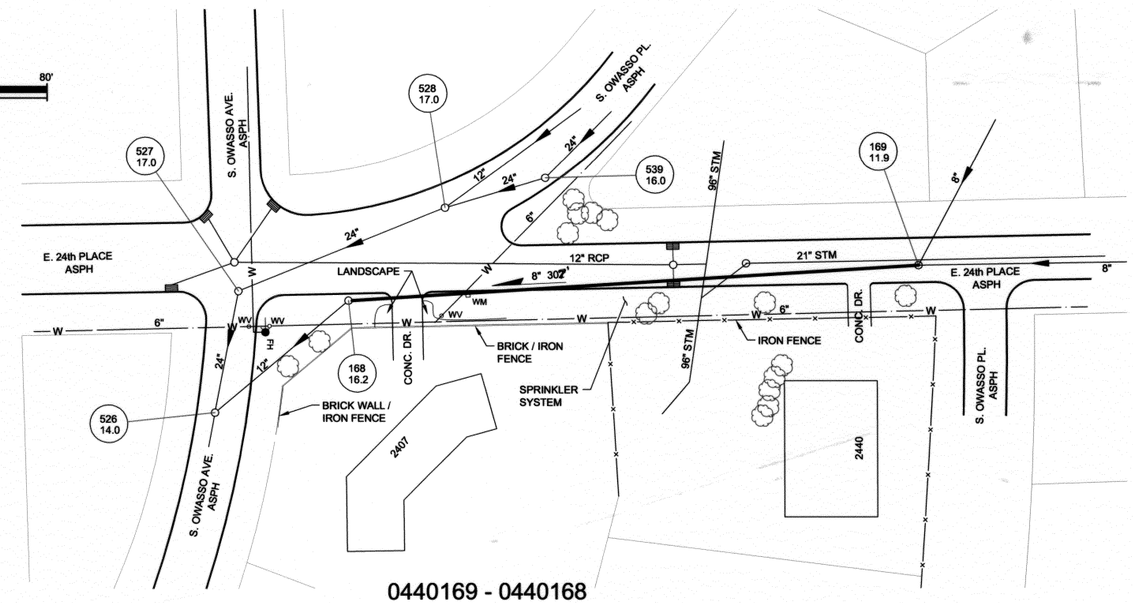


0440128 - 0440125 - 0440123
PIPEBURST / ~~OPEN CUT~~ - DIP ONLY



0440169 - 0440168
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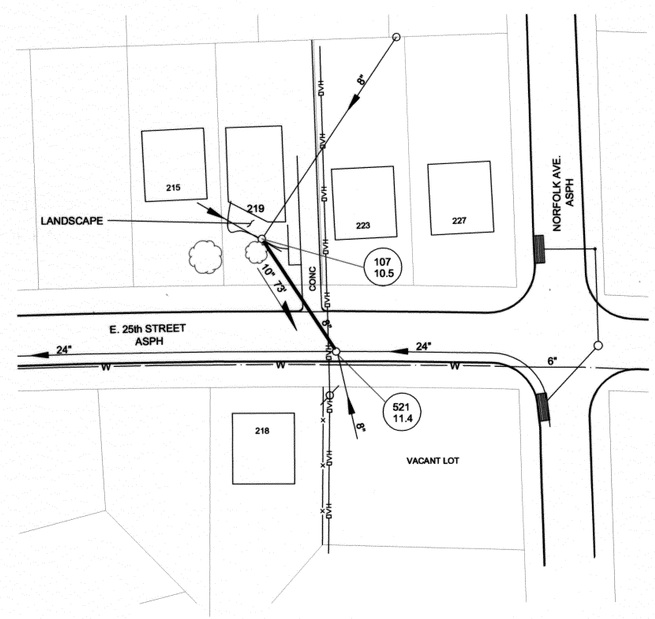

0440107 - 0440521
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REGISTERED PROFESSIONAL ENGINEER RYAN L. MITTASCH 21102 OKLAHOMA

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ATLAS 34 - DETAIL SHEET

TMUA PROJECT NO. ES 2014-01

CONCRETE PIPE REPLACEMENT PROGRAM
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	FIELD MGR.	BBV 5/16	
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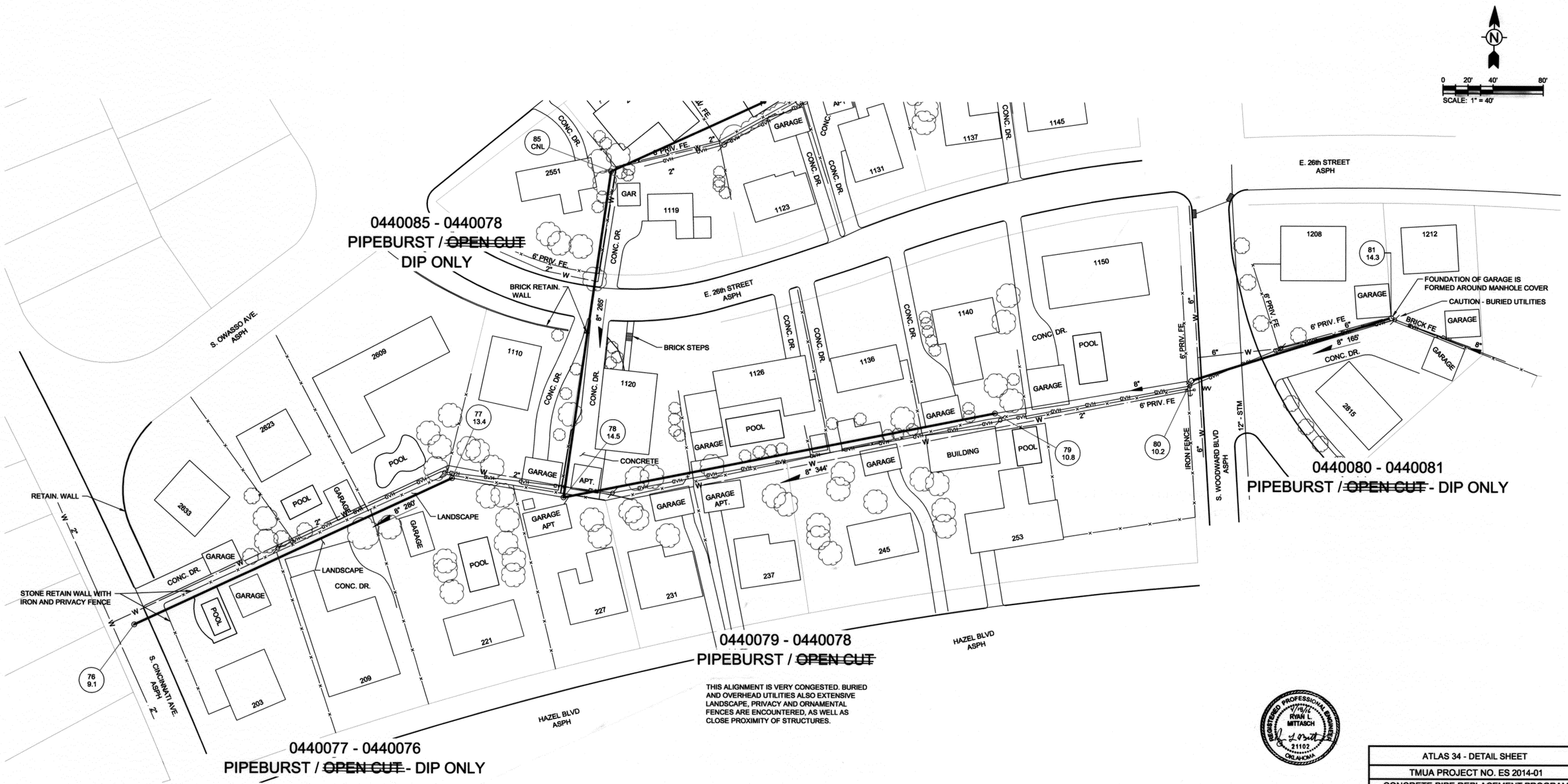

ATLAS 34 - DETAIL SHEET

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REGISTERED PROFESSIONAL ENGINEER RYAN L. MITTASCH 21102 OKLAHOMA 7/19/16

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	DESIGNED	TT	
	SURVEY	TT	
PROFILE SCALE:	PROJ. MGR.	ec 9/16	
HORIZONTAL	LEAD ENGR.	ADS 5/16	
	FIELD MGR.	RBV 5/16	
VERTICAL	RECOMMENDED: HAS 8/16		
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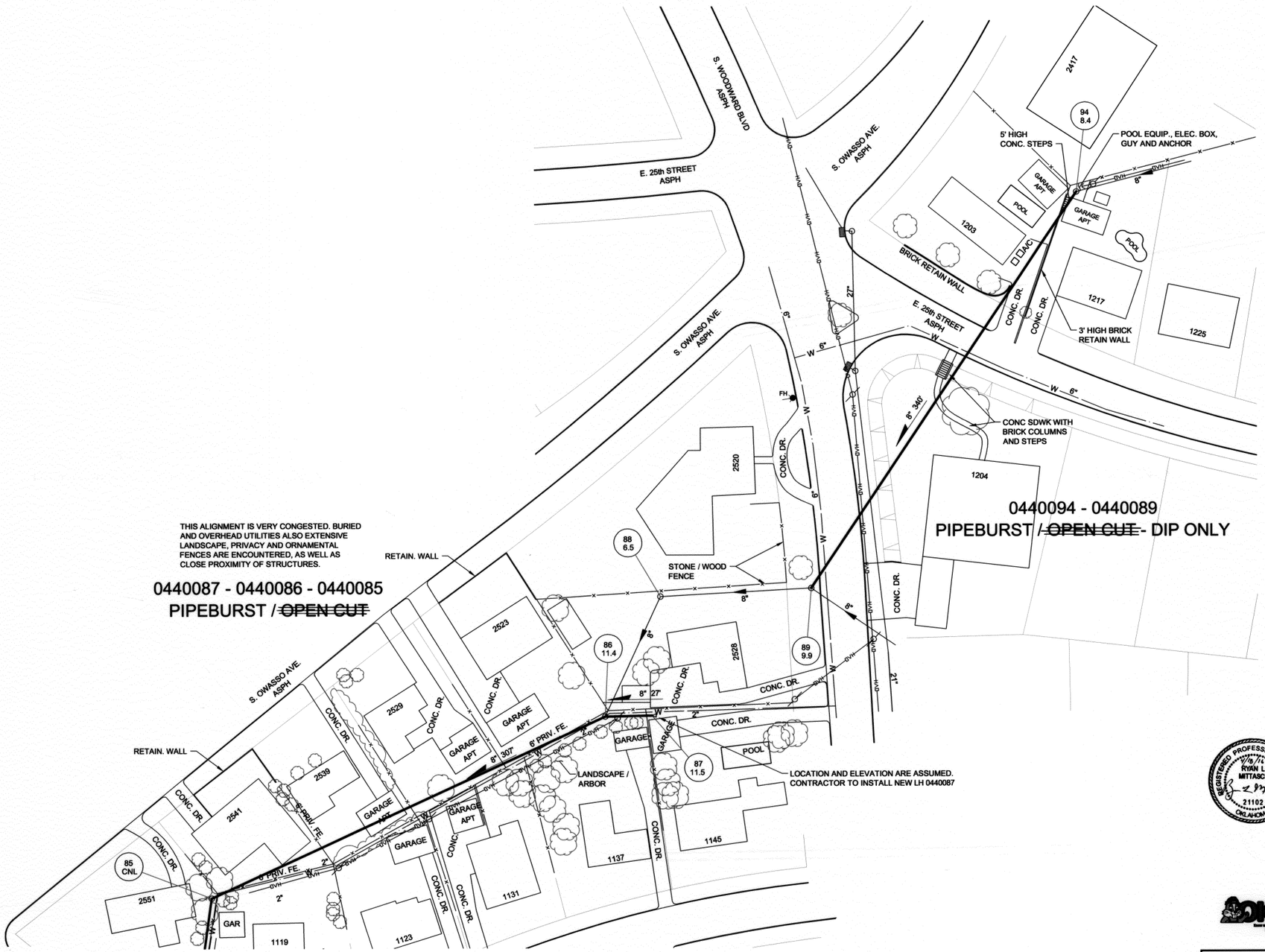

REGISTERED PROFESSIONAL ENGINEER
RYAN L. MITTASCH
21102
OKLAHOMA

ATLAS 34 - DETAIL SHEET

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	SURVEY	TT	
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	LEAD ENGR.	ADJ 5/16	
	FIELD MGR.	RBW 5/16	
VERTICAL	RECOMMENDED: DESIGN MANAGER	HRK 8/16	CITY ENGINEER
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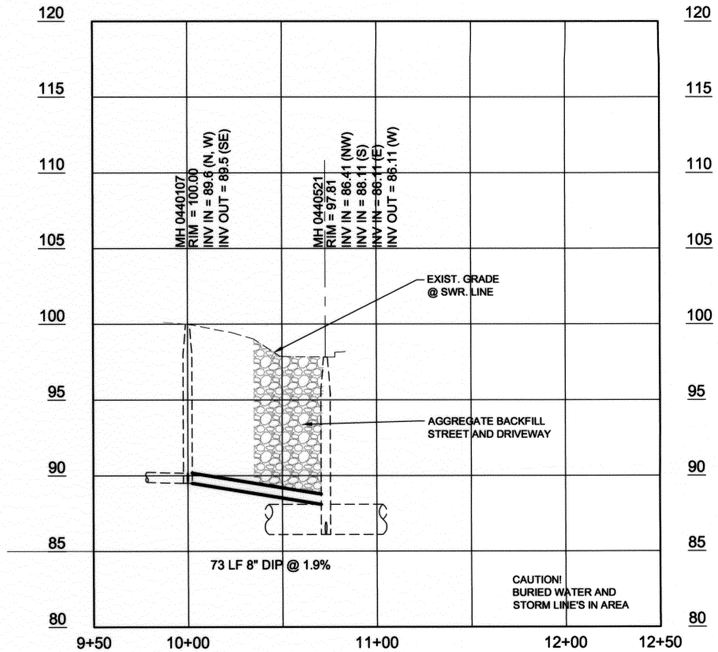
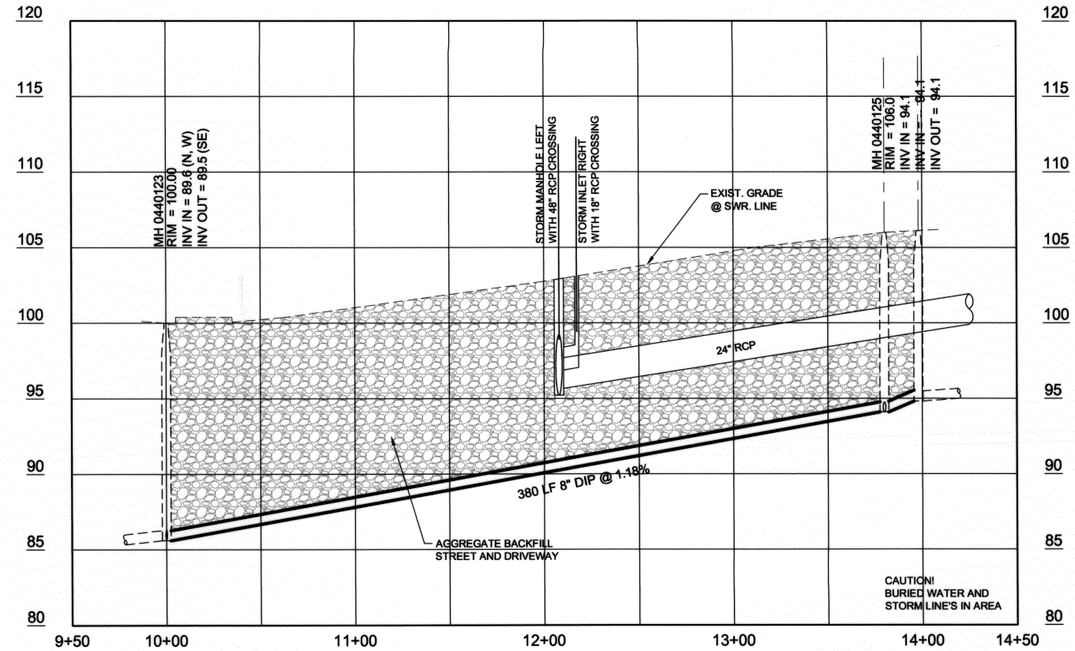


0440107 - 0440521
PIPEBURST / OPEN CUT - DIP ONLY



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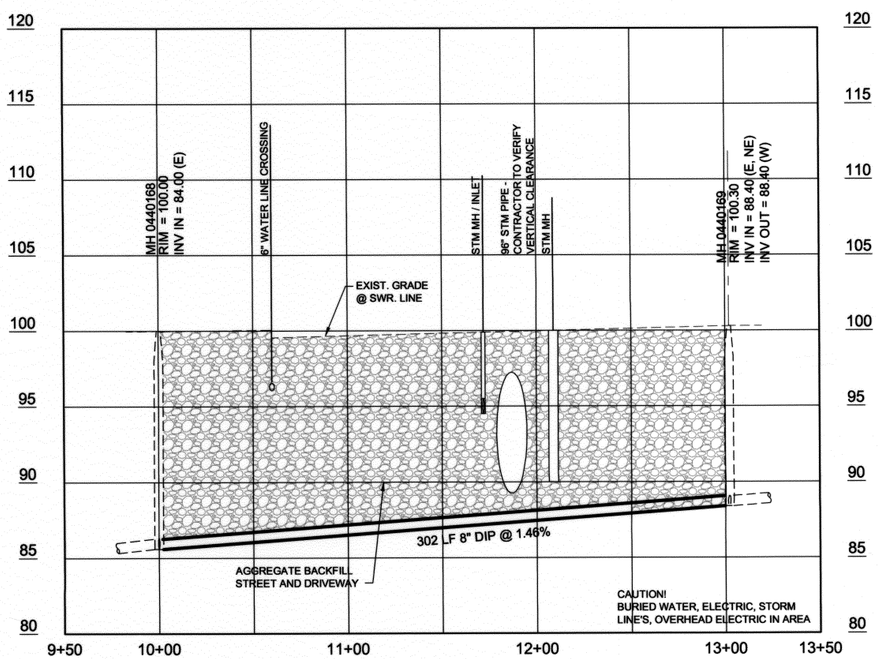

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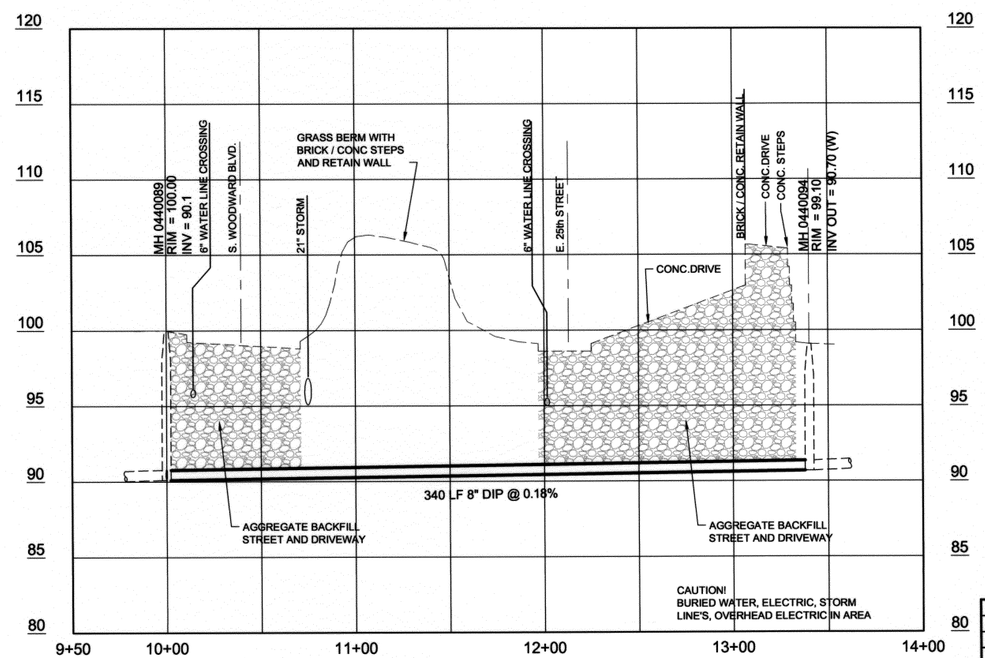

0440094 - 0440089
PIPEBURST / ~~OPEN CUT~~ - DIP ONLY

REGISTERED PROFESSIONAL ENGINEER
7/18/16
RYAN L. MITTASCH
21102
OKLAHOMA

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ATLAS 34 - DETAIL SHEET

TMUA PROJECT NO. ES 2014-01

CONCRETE PIPE REPLACEMENT PROGRAM
CONTRACT 1

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PROFILE SCALE:	PROJ. MGR.	CC 8/16	
HORIZONTAL	LEAD ENGR.	ATS 8/16	
	FIELD MGR.	PGV 8/16	
VERTICAL	RECOMMENDED:	MAS 8/16	
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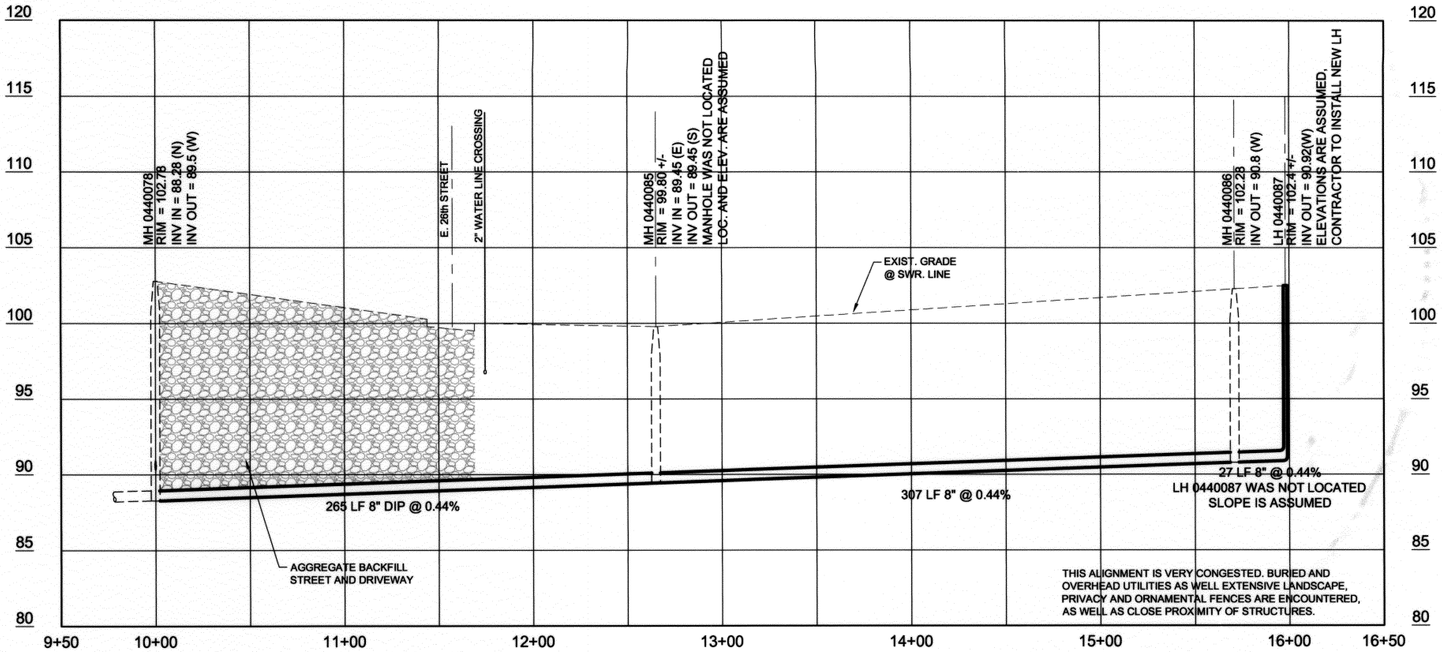
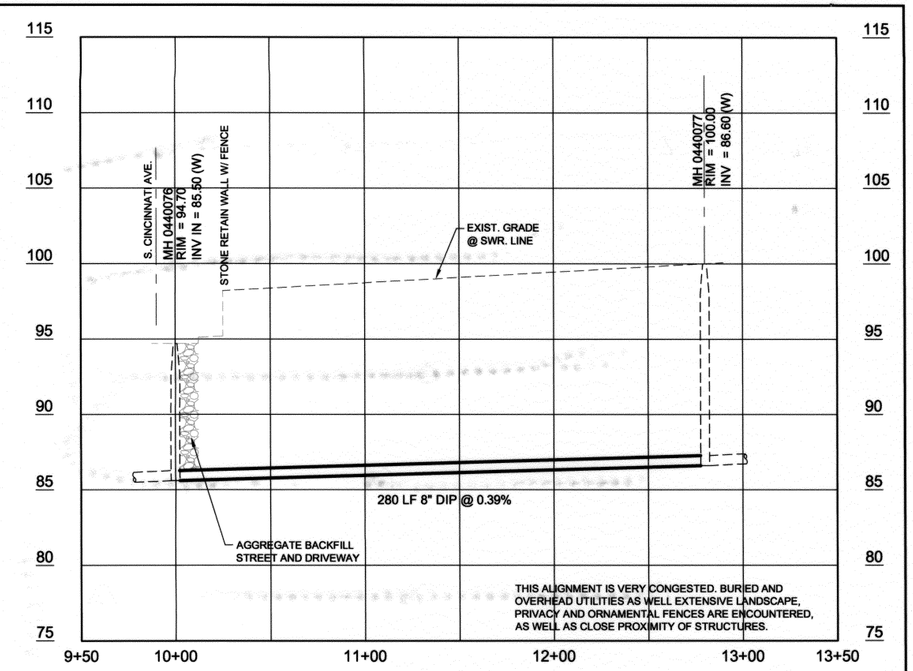


0440085 - 0440078
PIPEBURST / ~~OPEN CUT~~ - DIP ONLY

0440086 - 0440085
PIPEBURST / ~~OPEN CUT~~

0440087 - 0440086
PIPEBURST / ~~OPEN CUT~~



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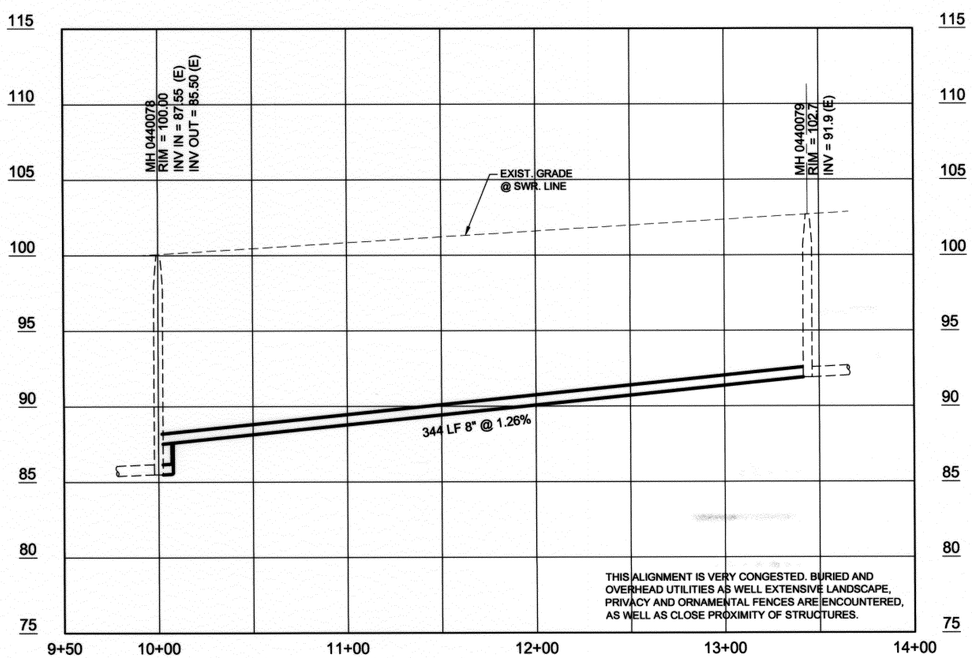

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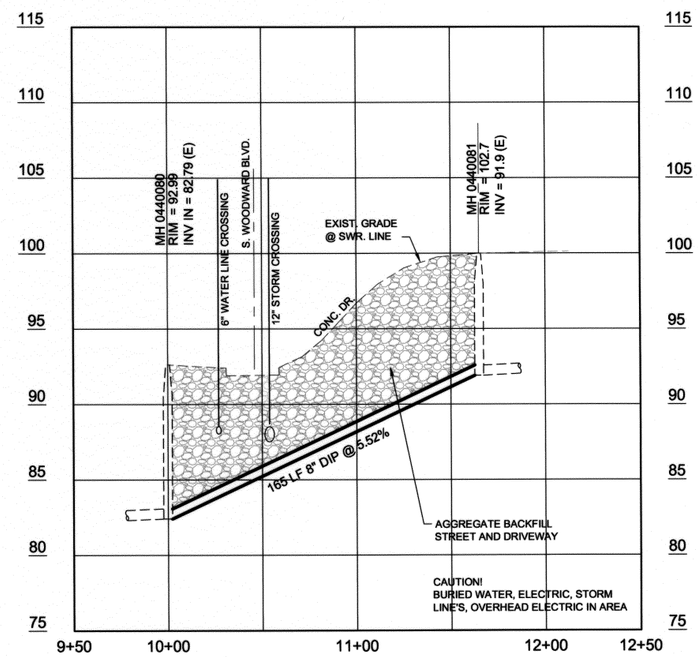

0440081 - 0440080
PIPEBURST / ~~OPEN CUT~~ - DIP ONLY

REGISTERED PROFESSIONAL ENGINEER
RYAN L. MITTASCH
21102
OKLAHOMA

ATLAS 34 - DETAIL SHEET
TMUA PROJECT NO. ES 2014-01
CONCRETE PIPE REPLACEMENT PROGRAM
CONTRACT 1

CITY OF TULSA, OKLAHOMA
ENGINEERING SERVICES DEPARTMENT

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TEL918.249.3909 FAX 918.249.3930

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	SURVEY	TT	
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	FIELD MGR.	RBH 5/16	
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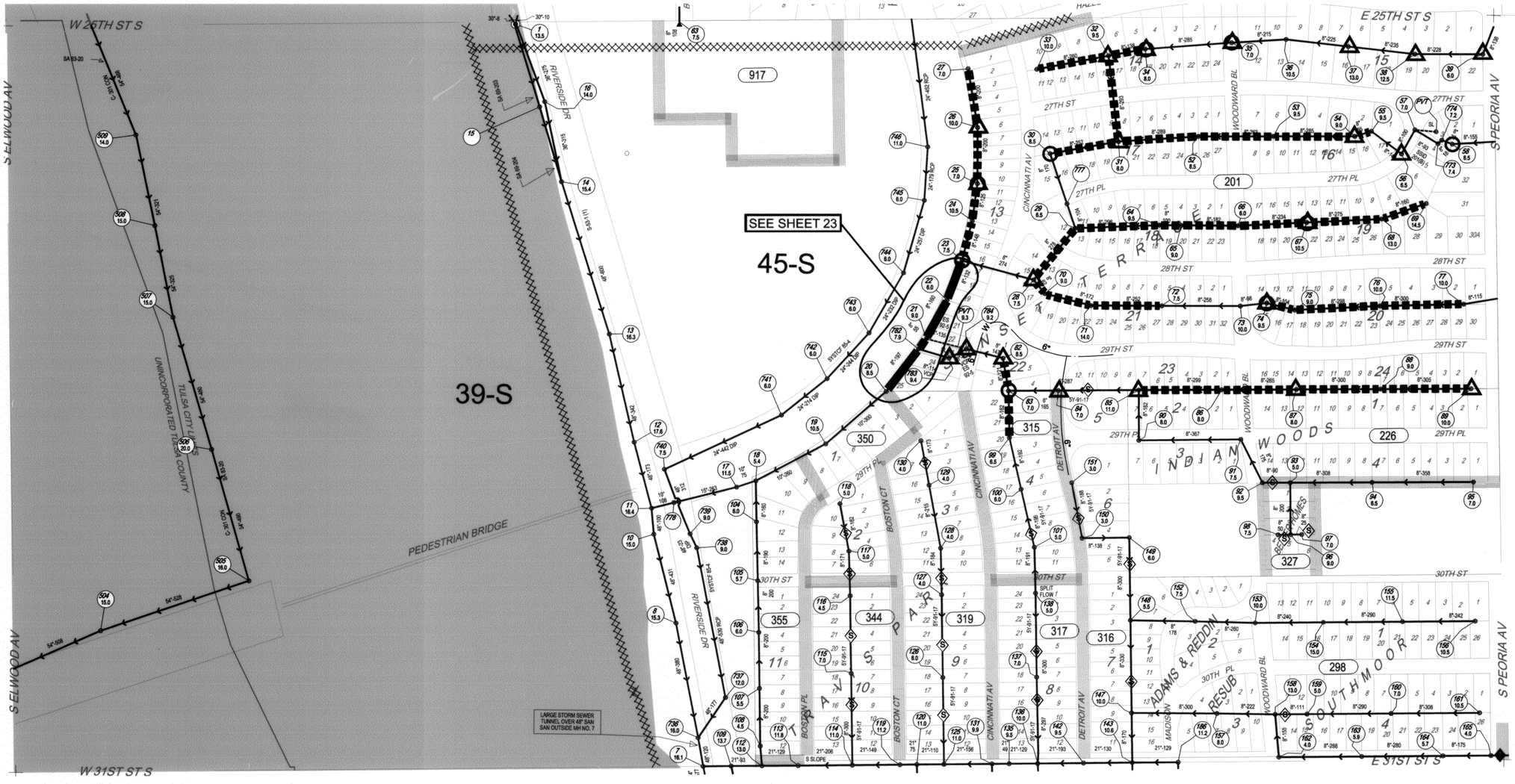
SEE ATLAS 34

SEE ATLAS 62



SEE ATLAS 60

SEE ATLAS 96

LEGEND

MANHOLE/LAMPHOLE REPLACEMENT	□	POINT REPAIR	×
TOPSIDE MANHOLE/LAMPHOLE REPAIR	△	LINE REPLACEMENT OPEN CUT OR TRENCHLESS	▬
INTERIOR MANHOLE REPAIR	○	SLIPLINE / CIPP	▪▪▪▪▪▪▪▪
APPROXIMATE LOCATION OF TULSA REGULATORY FLOODPLAIN	■		

MANHOLE BUBBLE (78 / 12.5) — MANHOLE # / MANHOLE DEPTH (per atlas)

CONTRACTOR SHALL NOT STOCKPILE MATERIAL OR STORE ANY EQUIPMENT OVERNIGHT IN THE TULSA REGULATORY FLOODPLAIN

REGISTERED PROFESSIONAL ENGINEER — 5/19/16 — RYAN L. MITTASCH — 21102 — OKLAHOMA

OKIE 811

ATLAS 61

TMUA PROJECT NO. ES 2014-01

CONCRETE PIPE REPLACEMENT PROGRAM CONTRACT 1

CITY OF TULSA, OKLAHOMA

ENGINEERING SERVICES DEPARTMENT

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	FIELD MGR.	RSV 5/16	
VERTICAL	RECOMMENDED: HAS 8/16		
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LINE REHAB SCHEDULE

Atlas Page	Maint. Area	Upstream MH	US MH Depth	Downstream MH	DS MH Depth	Diameter (Inch)	Pipe Length (Ft)	Pipe Type	Drop D/S MH	8" Slipline SDR 19 (LF)	8" Slipline SDR 21 (LF)	8" Slipline SDR 26 (LF)	10" Slipline SDR 19 (LF)	10" Slipline SDR 21 (LF)	10" Slipline SDR 26 (LF)	8" Open Cut or Trenchless (LF)	8" Open Cut or Trenchless DIP (LF)	10" Open Cut or Trenchless	10" Open Cut or Trenchless DIP (LF)	Service Reconnect (Ea.)	Concrete Sidewalk, Drive Replacement (SY)	Asphalt Replacement (SY)	Concrete Replacement (SY)	Curb (LF)	Sodding (SY)	Video (LF)
61	045	0450021	10.90	0450782	8.50	8	46	VCP										46		1					102	46
61	045	0450022	9.60	0450021	10.90	8	156	VCP										156		3	17				289	156
61	045	0450023	9.90	0450022	9.60	8	132	VCP										132		3					283	132
61	045	0450024	14.80	0450023	9.90	8	144	VCP			144									3						144
61	045	0450025	9.80	0450024	14.80	8	127	VCP	YES		127									3						127
61	045	0450026	11.50	0450025	9.80	8	200	VCP			200									5						200
61	045	0450027	7.50	0450026	11.50	8	210	VCP			210									6						210
61	045	0450029	*6.5**	0450028	11.80	8	236	VCP	YES		236									2						236
61	045	0450031	10.00	0450030	8.80	8	248	VCP			248									10						248
61	045	0450032	12.00	0450031	10.00	8	305	VCP			305									2						305
61	045	0450033	11.45	0450032	12.00	8	258	Conc.			258									6						258
61	045	0450034	11.90	0450032	12.00	8	131	VCP			131									5						131
61	045	0450052	9.40	0450031	10.00	8	286	VCP			286									14						286
61	045	0450053	*9.5**	0450052	9.40	8	246	VCP			246									8						246
61	045	0450054	10.25	0450053	*9.5**	8	289	VCP			289									12						289
61	045	0450055	*9.5**	0450054	10.25	8	62	VCP			62									2						62
61	045	0450064	*9.5**	0450029	*6.5**	8	296	VCP			296									12						296
61	045	0450065	*9.0**	0450064	*9.5**	8	77	VCP			77									4						77
61	045	0450066	6.60	0450065	*9.0**	8	202	VCP			202									6						202
61	045	0450067	12.50	0450066	6.60	8	243	VCP			243									8						243
61	045	0450068	14.70	0450067	12.50	8	268	VCP			268									10						268
61	045	0450069	14.5*	0450068	14.70	8	168	VCP			168									3						168
61	045	0450070	*9.9**	0450028	11.80	8	63	VCP	YES		63									2						63
61	045	0450071	*14.0**	0450070	*9.0**	8	171	VCP			171									6						171
61	045	0450072	*7.5**	0450071	*14.0**	8	249	VCP			249									6						249
61	045	0450075	*9.0**	0450074	10.25	8	102	VCP			102									3						102
61	045	0450076	12.00	0450075	*9.0**	8	302	VCP			302									15						302
61	045	0450077	*10.0**	0450076	12.00	8	297	VCP			297									6						297
61	045	0450083	10.20	0450082	12.30	8	119	VCP			119									3						119
61	045	0450086	*8.0**	0450085	10.60	8	293	VCP			293									8						293
61	045	0450087	10.30	0450086	*8.0**	8	268	VCP			268									8						268
61	045	0450088	10.60	0450087	10.30	8	298	VCP			298									11						298
61	045	0450089	8.20	0450088	10.60	8	320	VCP			320									15						320
61	045	0450099	*8.5**	0450083	10.20	8	166	VCP			166									4						166
61	045	0450782	8.50	0450020	*8.5**	8	189	VCP										189		2					420	189

16.4(Italicised)* - DENOTES MANHOLE DEPTH IS FROM CITY OF TULSA ATLAS

LINE SEGMENTS TO BE UPSIZED FROM 8" TO 10" - MH 0450021 - MH 0450782
MH 0450022 - MH 0450021
MH 0450023 - MH 0450022
MH 0450782 - MH 0450020

CONTRACTOR TO REBUILD EXTERNAL DROP - MH 0440025 - MH 0440024
MH 0440029 - MH 0440028
MH 0440070 - MH 0440028

CONTRACTOR SHALL NOT STOCKPILE MATERIAL OR STORE ANY EQUIPMENT OVERNIGHT IN THE TULSA REGULATORY FLOODPLAIN

REGISTERED PROFESSIONAL ENGINEER 5/9/16 RYAN L. MITTASCH 21102 OKLAHOMA

OKIE811 Know what's below. Call before you dig.

ATLAS 61 - LINE SCHEDULE

TMUA PROJECT NO. ES 2014-01

CONCRETE PIPE REPLACEMENT PROGRAM
CONTRACT 1

CITY OF TULSA, OKLAHOMA
ENGINEERING SERVICES DEPARTMENT

PLANS AND ESTIMATES PREPARED BY:
TETRA TECH
7645 E. 63rd Street, Suite 301, Tulsa, OK 74133
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REVISION	BY	DATE

PLAN SCALE:	DRAWN	TT	APPROVED:
	DESIGNED	TT	
	SURVEY	TT	
PROFILE SCALE:	PROJ. MGR.	CC 5/10	
HORIZONTAL	LEAD ENGR.	RLM 5/16	
	FIELD MGR.	RBV 5/16	
VERTICAL	RECOMMENDED:	HAS 8/16	CITY ENGINEER
	DESIGN MANAGER		
FILE:	DRAWING:		DATE: 8/30/16
ATLAS PAGE NO.:	061		SHEET 21 OF 24 SHEETS

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MANHOLE REHABILITATION SCHEDULE
ATLAS PAGE 61

							Repair Method																
Atlas	Basin	MH	Atlas	Diameter	Depth	Address	TYPE A	TYPE B	TYPE C	TYPE D	TYPE Fc	TYPE Gg	TYPE Gh	TYPE Gk	TYPE Go	TYPE Gp	TYPE Gr	TYPE I	TYPE T	Manhole Replacement (4')	Manhole Replacement Additional	Lamphole Replacement	Lamphole Cover and Frame	Sealed Lid
61	045	0450023	61	4	9	S. Cincinnati Ave.							1											
61	045	0450025	61	4	9	2720 S. Cincinnati Ave.	1					113.04												
61	045	0450026	61	4	11	2704 S. Cincinnati Ave.	1																	
61	045	0450028	61	4	11	2819 S. Cincinnati Ave.	1																	
61	045	0450030	61	4	8	203 S. Cincinnati Ave.							1											
61	045	0450031	61	4	10	228 E. 27th St. S.	1																	
61	045	0450032	61	4	12	240 Hazel Blvd.	1																	
61	045	0450034	61	4	11	232 Hazel Blvd.	1					138.16	1											
61	045	0450035	61	4	7	206 Hazel Blvd.		1					1											
61	045	0450037	61	4	13	1230 Hazel Blvd.	1																	
61	045	0450038	61	4	14	1245 E. 27th St. S.	1																	
61	045	0450039	61	4	10	Peoria / E. 27th St.	1																	
61	045	0450054	61	4	10	1235 E. 27th Pl.	1																	
61	045	0450056	61	4	7	1241 E. 27th Pl. S.		1																
61	045	0450058	61	4	23	1260 E. 27th Pl. S.							1	1										
61	045	0450067	61	4	12	1221 E. 28th St. S.			1				1											
61	045	0450074	61	4	10	2815 S. Woodward Blvd.	1						1	1										
61	045	0450082	61	4	12	218 E. 29th St. S.				1														
61	045	0450083	61	4	10	2912 S. Detroit Ave.						125.60	1	1										
61	045	0450084	61	4	7	S. Detroit Ave.			1															
61	045	0450085	61	4	10	E. 29th St. S.	1																	
61	045	0450087	61	4	10	1208 E. 29th St. S.				1														
61	045	0450089	61	4	8	1264 E. 29th St.				1														
61	045	0450783	61	4	10	2908 S. Cincinnati Ave.	1																	
61	045	0450784	61	4	9	2908 S. Cincinnati Ave.		1																

REHABILITATION METHODS

TYPE A
REPLACEMENT OF MANHOLE COVER, FRAME AND FRAME SEAL (418)

TYPE B
REPLACEMENT OF MANHOLE FRAME SEAL (418)

TYPE C
REPLACEMENT OF MANHOLE COVER, FRAME, FRAME SEAL AND CHIMNEY (418)

TYPE D
REPLACEMENT OF MANHOLE FRAME SEAL AND CHIMNEY (418)

TYPE Fc
PRECAST CORBEL SECTION (418)

TYPE Gg
INTERIOR MANHOLE WALL REHABILITATION (421)

TYPE Gh
BENCH AND INVERT REHABILITATION (419)

TYPE Gk
PIPE SEAL REHABILITATION (421)

TYPE Go
PLUG LIFT HOLES, PLUG HOLES (419)

TYPE Gp
SEAL PRE-CAST JOINTS (421)

TYPE Gr
PATCH HOLE (419)

TYPE I
REPLACEMENT OF MANHOLE STEPS – AT THE TIME OF MANHOLE REHABILITATION, MANHOLE STEPS SHALL BE EVALUATED AND REPLACED ON A PER-STEP BASIS. MANHOLES WITH STEPS MOST LIKELY IN NEED OF REPLACEMENT ARE DESIGNATED WITH AN "*" IN THE MANHOLE REHABILITATION SCHEDULE. (420)

TYPE T
CLEAN MANHOLE (Special)

MANHOLE REPLACEMENT
COMPLETE MANHOLE REPLACEMENT (416)

MANHOLE REPLACEMENT
ADDITIONAL FOOTAGE (416)

LAMPHOLE REPLACEMENT
LAMPHOLE REPLACEMENT (417)

LAMPHOLE COVER AND FRAME REPLACEMENT
LAMPHOLE TOPSIDE REPAIR (417)

CONTRACTOR SHALL NOT STOCKPILE MATERIAL OR STORE ANY EQUIPMENT OVERNIGHT IN THE TULSA REGULATORY FLOODPLAIN

REGISTERED PROFESSIONAL ENGINEER
4/18/16
RYAN L. MITTASCH
21102
OKLAHOMA

OKIE 811

ATLAS 61 - MANHOLE SCHEDULE
TMUA PROJECT NO. ES 2014-01
CONCRETE PIPE REPLACEMENT PROGRAM
CONTRACT 1

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	FIELD MGR.	RBN 5/16	
VERTICAL	RECOMMENDED: DESIGN MANAGER	HAS 5/16	CITY ENGINEER
FILE:	DRAWING:		DATE: 5/24/16
ATLAS PAGE NO.:	061		SHEET 22 OF 24 SHEETS

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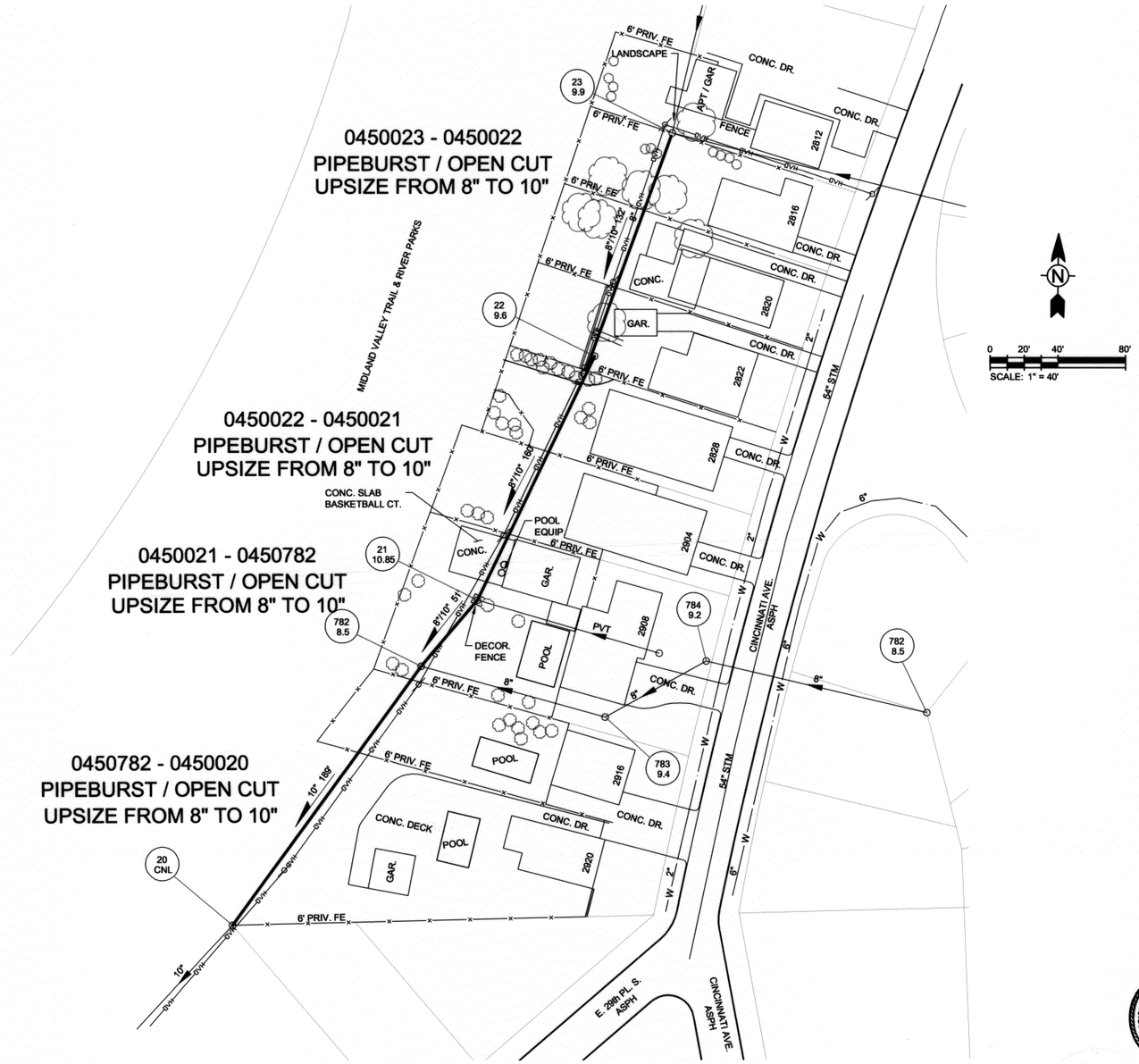

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ATLAS 61 - DETAIL SHEET

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	FIELD MGR.	RDM 5/16	
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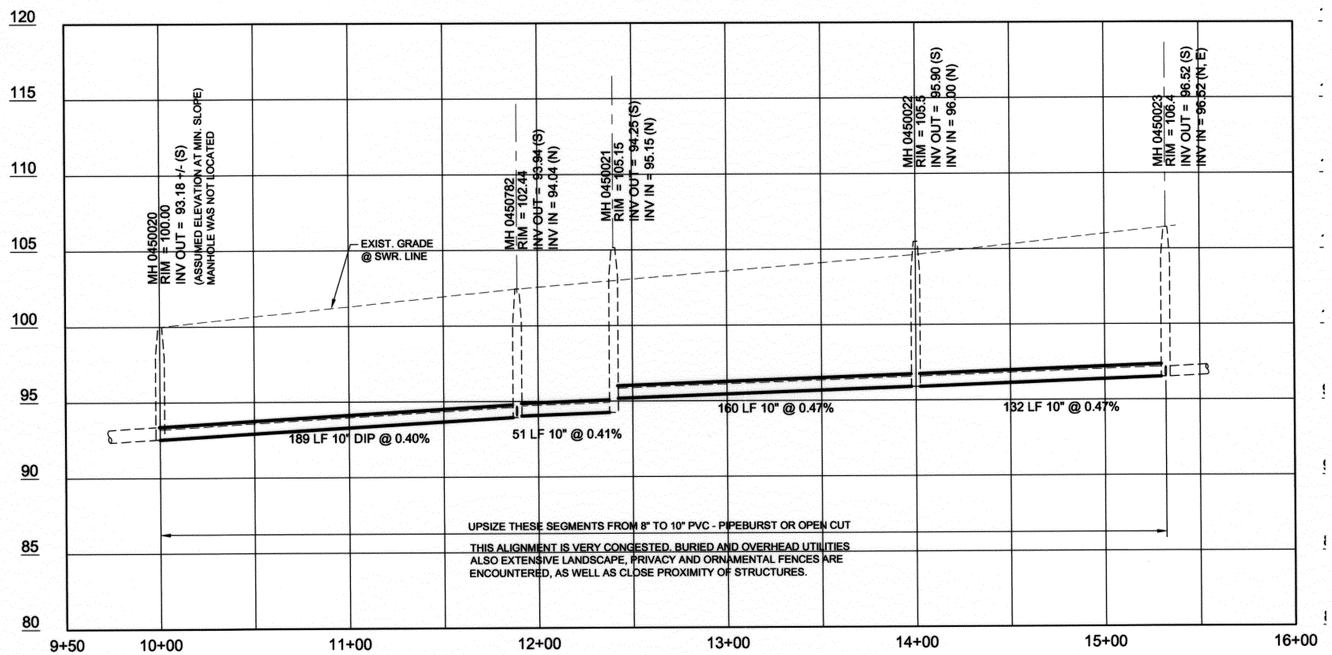

0450782 - 0450020
PIPEBURST / OPEN CUT

0450021 - 0450782
PIPEBURST / OPEN CUT

0450022 - 0450021
PIPEBURST / OPEN CUT

0450023 - 0450022
PIPEBURST / OPEN CUT

REGISTERED PROFESSIONAL ENGINEER
RYAN L. MITTASCH
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OKLAHOMA

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ATLAS 61 - DETAIL SHEET

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