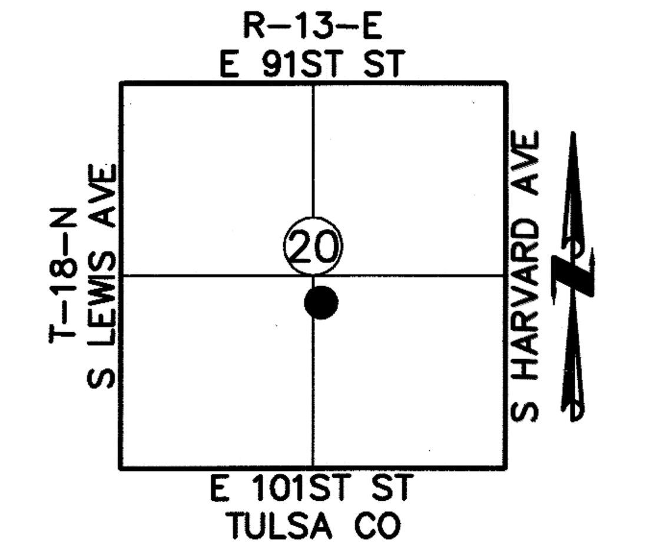
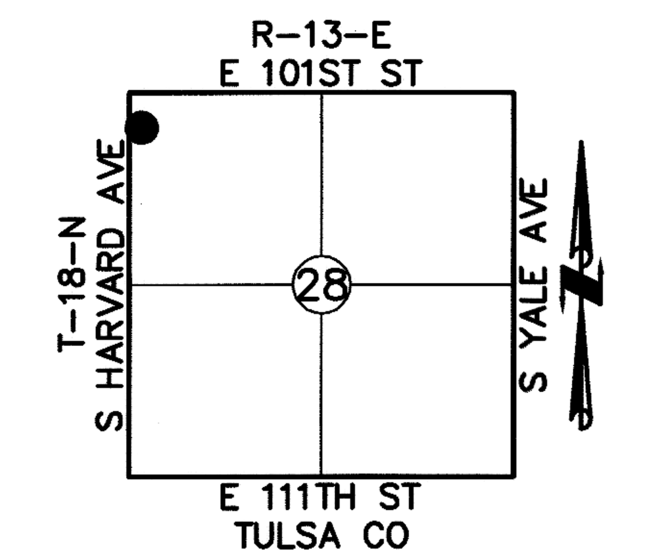
CONSTRUCTION PLANS FOR
CITYWIDE LIFT STATION IMPROVEMENTS
FRANCIS HILLS RELIEF SEWER AND VENSEL CREEK LIFT STATION
PROJECT NO. ES 2019-01

ACCOUNT NO. 193320017Z.SEWERTREAT.75003122.541101

ENGINEERING SERVICES DEPARTMENT
CITY OF TULSA, OKLAHOMA



VENSEL CREEK LIFT STATION



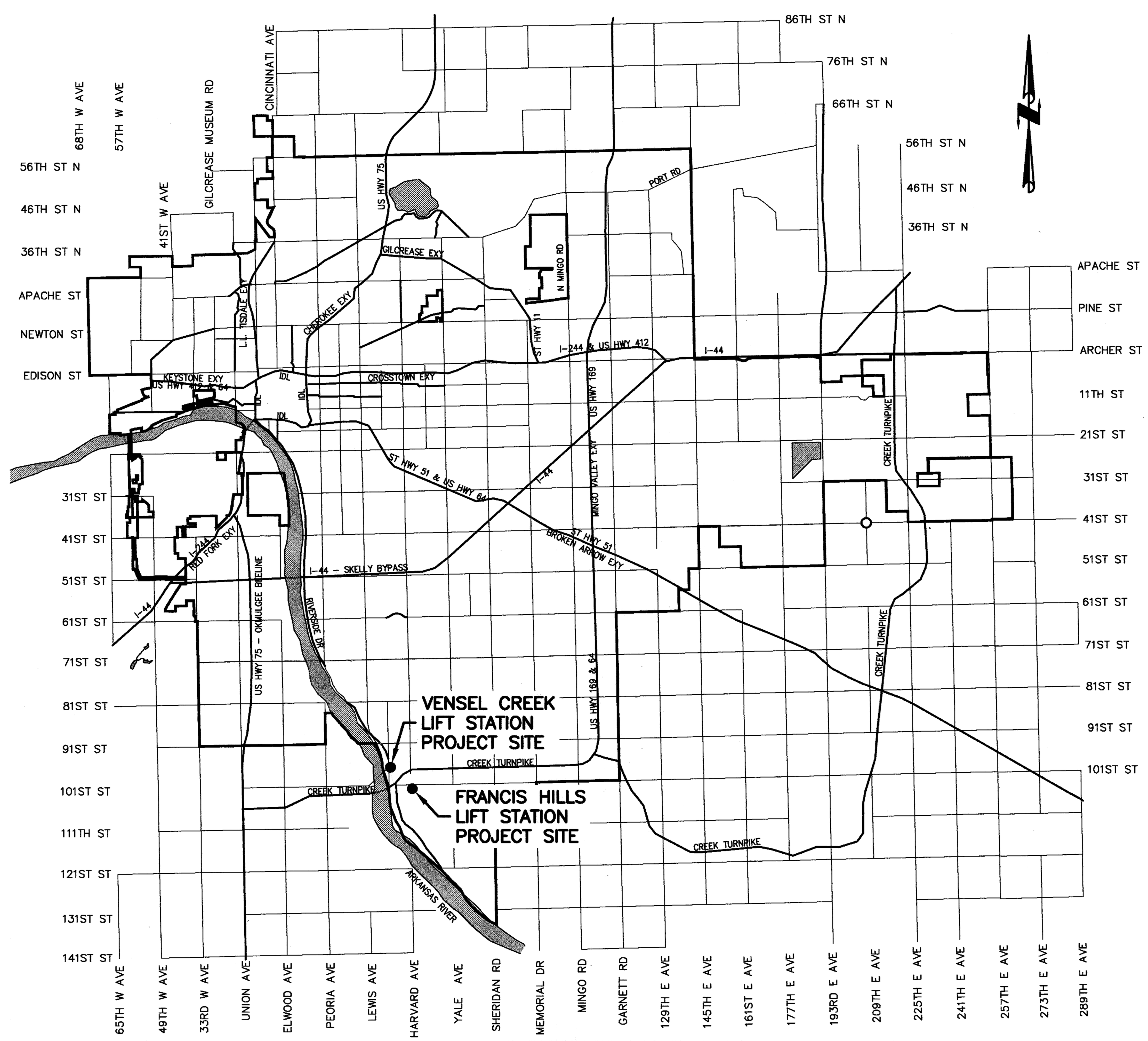
FRANCIS HILLS LIFT STATION

PLANS PREPARED BY
Holloway, Updike and Bellen, Inc.
Muskogee – Broken Arrow, Oklahoma
905-A SOUTH 9TH STREET, BROKEN ARROW, OK. 74012
918-251-0717, FAX 918-251-0754
ENGINEERS (C.A. No. 219, EXP. 6-30-21)

BEFORE YOU DIG... CALL OKIE 1-800-522-6543

PROJECT LOCATION

— CITY LIMITS



INDEX TO DRAWINGS

APPROVED BY

Clayton Edwards 9-21-20
WATER AND SEWER DIRECTOR DATE

09.24.20
CITY ENGINEER DATE

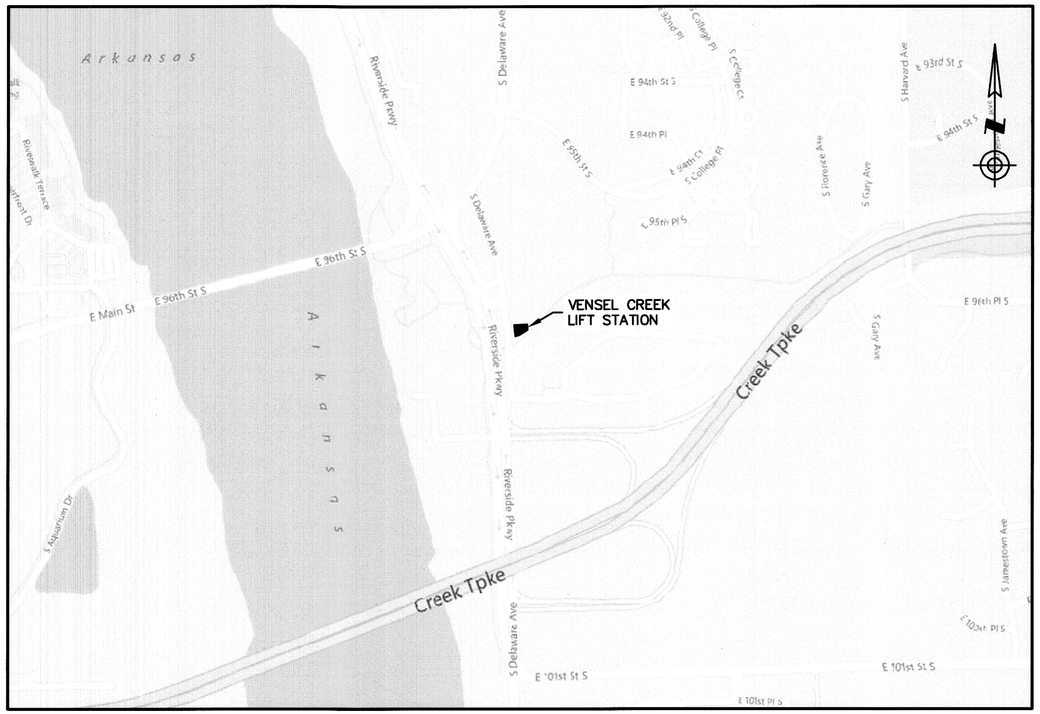
REGISTERED PROFESSIONAL ENGINEER LOYD STEPHEN TOLAR 20679 OKLAHOMA

9-8-2020
STEPHEN TOLAR, P.E. DATE
HOLLOWAY, UPDIKE & BELLEN INC.

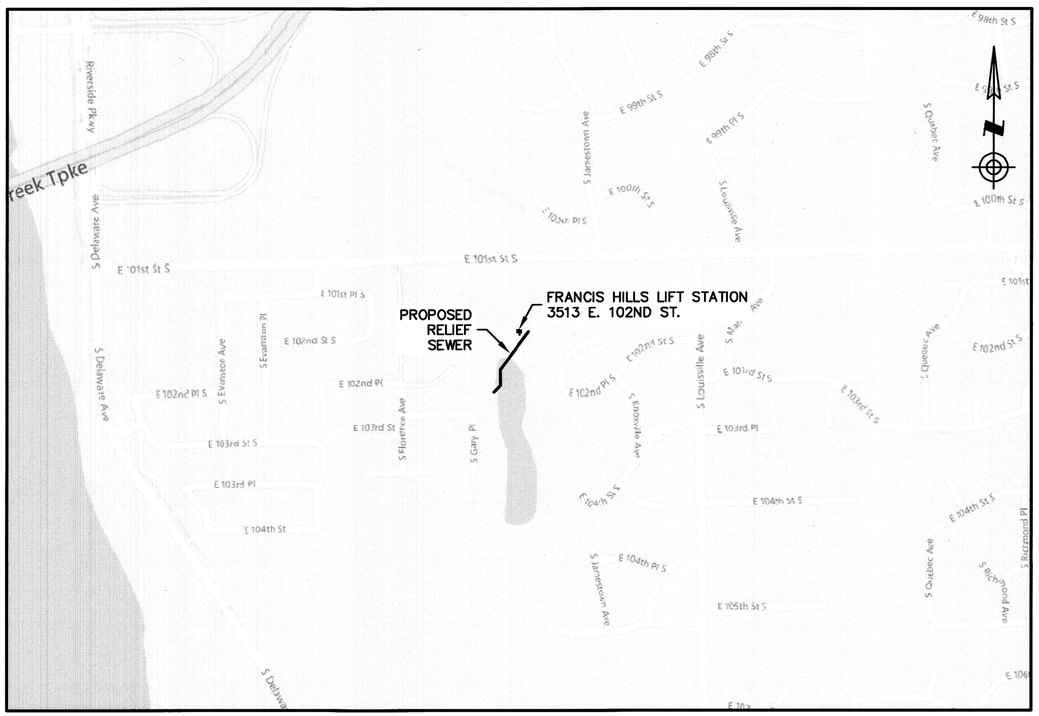
UTILITY COORDINATION BOX

	NUMBER	NOTIFIED
ENGINEERING SERVICES DEPARTMENT		
WATER DESIGN	(918)-596-9566	
WASTEWATER DESIGN	(918)-596-9564	
TRANSPORTATION DESIGN	(918)-596-9636	
TRAFFIC ENGINEERING DESIGN	(918)-596-9741	
STORMWATER DESIGN	(918)-596-9498	
COT IT NETWORK SERVICES	(918)-596-7070	
OKLAHOMA GAS & ELECTRIC		
OKLAHOMA NATURAL GAS CO.	(918)-831-8261	
THERMAL SYSTEM, INC (TRIGEN)		
COX COMMUNICATIONS	(918)-669-4866	
PUBLIC SERVICE CO.	(918)-599-2757	
VALOR TELECOM		
SOUTHWESTERN BELL TELEPHONE	(918)-596-6702	
AT&T		
SPRINT		

FRANCIS HILLS RELIEF SEWER + VENSEL CREEK LIFT STATION-PROJECT NO. ES 2019-01



1/2 VENSEL CREEK LIFT STATION
SCALE: NTS



2/2 FRANCIS HILLS LIFT STATION
SCALE: NTS

SUMMARY OF PAY ITEMS - LIFT STATION REHABILITATION

ITEM NO.	SPEC NO.	DESCRIPTION	PAY NOTE	UNIT	QUANTITY
1	301	RIGHT-OF-WAY CLEARING AND RESTORATION	1,4	LF	478
2	302	EXCAVATION AND BACKFILL, UNCLASSIFIED	5	CY	200
3	303	TYPE "A" AGGREGATE BASE		CY	220
4	313	8" GRAVITY SEWER (PVC SDR-35)	3	LF	478
5	314	MANHOLE (4'), COMPLETE IN PLACE (SANITARY SEWER)	8, 9	EA	4
6	314	MANHOLE (4') ADDITIONAL DEPTH IN MANHOLE (SANITARY SEWER)	8	VF	1
7	314	CONNECTION TO EXISTING MANHOLE		EA	1
8	330	EROSION CONTROL - SILT FENCE		LF	425
9	330	EROSION CONTROL - SILT DIKE		EA	10
10	ODOT (325)	SOLID SLAB SOD	7	SY	220
11	ODOT (610)	6" THICK CONCRETE SURFACE		SY	41
12	619	REMOVE EXISTING PAVEMENT SURFACE		SY	133
13	SPECIAL	FRANCIS HILLS LIFT STATION DEMOLITION, COMPLETE	2	EA	1
14	SPECIAL	VENSEL CREEK LIFT STATION IMPROVEMENTS, COMPLETE		EA	1
15	ODOT (641)	MOBILIZATION		EA	1
16	ODOT (642)	CONSTRUCTION STAKING		EA	1
17	367	WATER TABLE CRADLE		LF	220
18	SPECIAL	OWNERS ALLOWANCE	6	ALLOW	1
		ADDITIVE ALTERNATE #1			
19	SPECIAL	VENSEL CREEK LS INFLUENT GRINDER & ODOR CONTROL SYSTEM	10	EA	1
		ADDITIVE ALTERNATE #2			
20	SPECIAL	VENSEL CREEK LS ASPHALT PAVING	11	SY	652
		ADDITIVE ALTERNATE #3			
21	SPECIAL	VENSEL CREEK LS CONCRETE PAVING	12	SY	652

PAY ITEM NOTES – LIFT STATION REHABILITATION:

1. INCLUDES THE COST OF ALL SURVEYING AND STAKING NECESSARY TO COMPLETE THE ENTIRE PROJECT. WORK SHALL BE PERFORMED BY AN OKLAHOMA REGISTERED LAND SURVEYOR.
2. INCLUDES DEMOLITION OF EXISTING LIFT STATION AND SITE RESTORATION. SEE DEMOLITION PLAN SHEETS FOR ADDITIONAL REQUIREMENTS.
3. PIPE SHALL BE INSTALLED PER THE CITY OF TULSA'S STANDARD SPECIFICATIONS.
4. INCLUDES RIGHT-OF-WAY CLEARING AND RESTORATION FOR GRAVITY SEWER AND FORCE MAIN. EXISTING FENCES DISTURBED DUE TO CONSTRUCTION SHALL BE REPLACED WITH NEW MATERIALS AND SHALL BE INCLUDED IN THE COST FOR RIGHT-OF-WAY CLEARING AND RESTORATION FOR LINES 4"ø AND LARGER. NO ADDITIONAL PAYMENT SHALL BE MADE.
5. INCLUDES ALL COSTS FOR UNCLASSIFIED EXCAVATION AND BACKFILL FOR THE PROPOSED GRAVITY SEWER AND FORCE MAIN. THIS ITEM INCLUDES PAYMENT FOR COMPACTED CLASS A AGGREGATE BACKFILL WHERE REQUIRED UNDER PAVEMENT IN ACCORDANCE WITH STANDARD SPECIFICATION 302. THIS ITEM DOES NOT INCLUDE COSTS FOR LIFT STATION DEMOLITION. BLASTING WILL NOT BE PERMITTED. ALL BACKFILL SHALL BE COMPACTED TO 95% STANDARD DENSITY UNLESS NOTED SPECIFICALLY OTHERWISE.
6. ALLOWANCE SHALL BE USED FOR THE COST OF MATERIALS, LABOR, INSTALLATION, OVERHEAD AND PROFIT, IN ACCORDANCE WITH GC-26, FOR ADDITIONAL MECHANICAL, ELECTRICAL, AND PLUMBING WORK THAT IS NOT IDENTIFIED IN THE CONSTRUCTION DOCUMENTS/PLANS. REFER TO SPECIFICATION SECTION SP1.1 – ALLOWANCE FOR REQUIREMENTS.
7. PAYMENT OF SOD IS BASED ON THE LIMITS OF CITY LS SITE EASEMENT AND UTILITY EASEMENT. OTHER DISTURBED AREAS ARE NOT INCLUDED IN THESE QUANTITIES.
8. ADDITIONAL DEPTH IN A MANHOLE SHALL BE MEASURED FROM 6FT BELOW THE TOP OF RIM TO THE LOWEST FLOWLINE.
9. ALL MANHOLES SHALL BE COMPLETE IN PLACE. THIS PAY ITEM INCLUDES FRAME, COVER, CONCRETE AND ALL OTHER INCIDENTALS REQUIRED FOR PLACEMENT.
10. ADDITIVE ALTERNATE INCLUDES ALL WORK NECESSARY TO REMOVE EXISTING BASKET AND GUIDE RAILS. REPAIR CONCRETE AND INSTALL A NEW GRINDER, BASKET AND RAILING SYSTEM COMPLETE. ALSO INCLUDED IN THIS WORK IS THE ODOR CONTROL SYSTEM RELOCATION IMPROVEMENTS AND HATCH.
11. ADDITIVE ALTERNATE INCLUDES PAVING DEMOLITION AND REPLACEMENT OF THE PAVING SURFACE AREAS AT THE VENSEL CREEK LS. WORK ALSO INCLUDES A 3'-0" WIDE PERIMETER SIDEWALK AROUND THE LIFT STATION, BASE ROCK, ASPHALT PAVING AND DRAINAGE IMPROVEMENTS.
12. ADDITIVE ALTERNATE INCLUDES PAVING DEMOLITION AND REPLACEMENT OF THE PAVING SURFACE AREAS AT THE VENSEL CREEK LS. WORK INCLUDES BASE ROCK, CONCRETE PAVING, SAW CUTTING, JOINT SEALING OF JOINTS AND DRAINAGE IMPROVEMENTS.

REVISION	BY	DATE

BAR IS ONE INCH ON ORIGINAL DRAWING 0 —— 1" IF NOT ONE INCH ON THIS SHEET, ADJUST SCALES ACCORDINGLY

FRANCIS HILLS RELIEF SEWER & VENSEL CREEK LIFT STATION IMPROVEMENTS
TMUA PROJECT NO. ES 2019-01

LOCATION MAP &
SUMMARY OF PAY ITEMS

ENGINEERING SERVICES DEPARTMENT
CITY OF TULSA, OKLAHOMA
ENGINEERING SERVICES DEPARTMENT

PLANS AND ESTIMATES PREPARED BY: HOLLOWAY, UPDIKE + BELLEN, Inc.
906-A S 6TH ST, BROKEN ARROW, OKLAHOMA 74012
(918)259-4727, FAX (918)251-4764

PLAN SCALE: 1"=X'	DRAWN	JME	APPROVED:
	DESIGNED	LST	
	SURVEY		
PROFILE SCALE:	PROJ. MGR.	RBV 9/2020	
HORIZONTAL: 1"=X'	LEAD ENGR.	ADJ 5/20	
	FIELD MGR.	9/20	
VERTICAL: 1"=X'	RECOMMENDED:	9.20	
	DESIGN MANAGER		CITY ENGINEER
HUB PROJECT NO:	19TMUACITYLS		DATE: 08/13/2020
ATLAS PAGE NO:	1277/1423		SHEET 2 OF 21 SHEETS

REGISTERED PROFESSIONAL ENGINEER
LOYD STEPHEN TOLAR
20670
9-3-2020
OKLAHOMA

Z:\Projects\2019\STRUCTYLS 2019 Citywide \Design\Vensel Creek\Location Map\Location Map.dwg, 9/1/2020 11:38:34 PM

GENERAL NOTES

1. THE CONTRACTOR SHALL CALL OKIE AT 1-800-522-6543 PRIOR TO ANY EXCAVATION TO DETERMINE LOCATION OF EXISTING UTILITIES.
2. THE CONTRACTOR SHALL, AT HIS EXPENSE, UNCOVER AND DETERMINE THE DEPTH OF PIPE LINES AND OTHER UTILITIES WHICH, IN HIS OPINION, COULD INTERFERE WITH THE CONSTRUCTION.
3. THE CITY OF TULSA ENGINEERING SERVICES DEPARTMENT STANDARD SPECIFICATIONS AND STANDARD DETAIL, OCTOBER 2013, ARE HEREBY ADOPTED AS PART OF THESE SPECIFICATIONS WHERE REFERENCE IS MADE. SAID SPECIFICATIONS WILL BE HEREINAFTER REFERRED TO AS THE "STANDARD SPECIFICATIONS".
4. CONTRACTOR SHALL HAVE ONE (1) EXECUTED COPY OF THE CONTRACT DOCUMENTS, SPECIFICATIONS AND DRAWINGS AT THE JOBS SITE AT ALL TIMES.
5. CONTRACTOR SHALL MAINTAIN SANITARY FACILITIES FOR THE CONSTRUCTION WORKERS AND OTHER ON-SITE VISITORS AT THE PROJECT SITE AT ALL TIMES.
6. CONTRACTOR SHALL MAINTAIN A CLEAN CONSTRUCTION SITE AT ALL TIMES. TRASH, SPENT PALLETS, CONTAINER REMNANTS, BINDINGS, ETC. SHALL BE PICKED UP WHEN NO LONGER IN USE AND DEPOSITED IN TRASH CONTAINERS.
7. CONTRACTOR SHALL REMOVE AND DISPOSE OF ALL CLEARED DEBRIS, BRUSH AND TIMBER AT CONTRACTOR'S EXPENSE.
8. ALL STAINLESS STEEL SHALL BE MINIMUM TYPE 316 SUITABLE FOR SANITARY APPLICATIONS, UNLESS OTHERWISE NOTED.
9. ALL DIMENSIONS SHOWN WITH ± SHALL BE CONFIRMED BY THE CONTRACTOR ACCORDING TO ACTUAL FIELD CONDITIONS OR EQUIPMENT REQUIREMENTS.
10. DISSIMILAR METALS SHALL BE SEPARATED BY GASKET TO PREVENT GALVANIC CORROSION.
11. ANY EXISTING ITEMS, EQUIPMENT, STRUCTURES OR SURFACES DISTURBED OR DAMAGED BY CONTRACTOR SHALL BE REPAIRED OR REPLACED TO ORIGINAL CONDITION OR BETTER AT NO ADDITIONAL COST TO THE OWNER.
12. CONTRACTOR SHALL VERIFY EXISTING UTILITIES IN THE VICINITY OF PROPOSED CONSTRUCTION PRIOR TO CONSTRUCTION. NOTIFY ENGINEER OF DISCREPANCIES FROM DRAWINGS.
13. CONTRACTOR SHALL CONFIRM ALL DIMENSIONS WITH EQUIPMENT SUPPLIERS PRIOR TO CONSTRUCTION AND NOTIFY ENGINEER OF DISCREPANCIES.
14. CONSTRUCTION STAKING SHALL BE PROVIDED BY THE CONTRACTOR.
15. THE IMPROVEMENTS SET FORTH IN THE PLANS SHALL NOT PROHIBIT ON-SITE TRAFFIC AND/OR RELATED TASKS REQUIRED IN THE TREATMENT AND DISCHARGE OF WASTEWATER.
16. TOPSOIL (MINIMUM 6") IN THE DISTURBED AREAS SHALL BE REMOVED, STOCKPILED AND REPLACED AFTER CONSTRUCTION OPERATIONS.
17. ALL CONSTRUCTION TO BE IN STRICT ACCORDANCE WITH CURRENT CITY OF TULSA ENGINEERING SERVICES DEPARTMENT STANDARDS AND SPECIFICATIONS.
18. ALL WORKMANSHIP SHALL BE NEAT, PLUMB, SQUARE AND CONSTRUCTED IN A PROFESSIONAL MANNER.
19. ALL ELECTRICAL CONSTRUCTION SHALL BE IN STRICT ACCORDANCE WITH ALL N.E.C. AND CITY OF TULSA ELECTRICAL CODES. ELECTRICAL, MECHANICAL, AND PLUMBING INSPECTIONS ARE REQUIRED AT BOTH ROUGH AND FINAL STAGES OF THE PROJECT.
20. COMPILE ALL PRODUCT AND DATA SHEETS, OF ANY AND ALL EQUIPMENT INSTALLED IN EACH LIFT STATION, TO FORM A USABLE O&M MANUAL. PROVIDE THE CITY OF TULSA (5) FIVE HARD COPIES AND ONE DIGITAL COPY IN PDF FORMAT OF THESE O&M MANUALS (10) TEN DAYS PRIOR TO THE REQUESTED FINAL ACCEPTANCE DATE. MANUALS SHALL BE TABBED AND AN INDEX SHEET PROVIDED TO ALLOW OWNER TO QUICKLY FIND INDIVIDUAL SECTIONS AND EQUIPMENT. COPIES OF ALL ELECTRICAL AND EQUIPMENT TESTING INFORMATION SHALL BE INCLUDED IN THE O&M MANUALS.
21. SHUT DOWN TIMES FOR ALL LIFT STATIONS SHALL BE LIMITED TO (4) FOUR HOURS DURING LOW FLOW PERIODS (8PM TO 4AM). ALL SHUT DOWNS SHALL BE COORDINATED WITH, CITY OF TULSA SEWER OPERATIONS AND MAINTENANCE GROUP, AT LEAST (48) FORTY EIGHT HOURS IN ADVANCE OF SHUT DOWN. LONGER SHUT DOWN PERIODS WILL REQUIRE BYPASS PUMPING TO BE PROVIDED AND OPERATED BY THE CONTRACTOR AT NO ADDITIONAL COST TO THE CITY. CONTACT NUMBER FOR JOSH DRYBREAD IS 918-586-6958 (WORK).
22. ANY BY-PASS PUMPING AND/OR BY-PASS PIPING INSTALLED SHALL BE OPERATED AND MAINTAINED BY THE CONTRACTOR. THE CONTRACTOR IS RESPONSIBLE FOR PREVENTING UNAUTHORIZED DISCHARGES.
23. CONTRACTOR IS RESPONSIBLE FOR ANY DEWATERING REQUIRED TO CONSTRUCT FOUNDATIONS IN DRY CONDITIONS AND TO PROTECT EXCAVATION SIDE SLOPES.
24. ALL BURIED CONSTRUCTION, INCLUDING BUT NOT LIMITED TO PIPE AND CONDUIT, SHALL BE PHOTOGRAPHED PRIOR TO COVER. EQUIPMENT DATA TAGS SHALL ALSO BE PHOTOGRAPHED WITH EQUIPMENT. SUBMIT IN A DIGITAL JPEG FORMAT ON USB DRIVE AS PART OF CONTRACTORS CONSTRUCTION PHOTOGRAPHIC RECORD.
25. ALL CONSTRUCTION SHALL BE IN ACCORDANCE WITH STANDARDS ESTABLISHED BY THE CITY OF TULSA SEWER OPERATION AND MAINTENANCE GROUP. LIFT STATION STANDARDS ARE AVAILABLE SEWER OPERATIONS & MAINTENANCE.

GENERAL PIPING NOTES

P1. LAY PIPE TO UNIFORM GRADE BETWEEN INDICATED ELEVATION POINTS.

P2. SIZE OF FITTINGS SHOWN ON THE PLANS SHALL CORRESPOND TO ADJACENT STRAIGHT RUN OF PIPE, UNLESS OTHERWISE INDICATED.

P3. ALL BURIED D.I.P., C.I.P. AND PVC PIPE SHALL UTILIZE D.I. MECHANICAL JOINT FITTINGS AT ALL CONNECTIONS UNLESS OTHERWISE DEPICTED ON THE PLANS. PUSH ON JOINTS SHALL BE UTILIZED ONLY FOR STRAIGHT SEGMENTS UNLESS OTHERWISE NOTED.

P4. ALL UNRESTRAINED, BURIED FITTINGS SUCH AS BENDS, TEES, WYES, ETC. SHALL BE BLOCKED FOR THRUST BLOCKS AS SHOWN ON STANDARD DETAILS. THIS REQUIREMENT INCLUDES BOTH GRAVITY AND PRESSURE PIPING.

P5. A MINIMUM OF 10 FEET OF HORIZONTAL SEPARATION (FOR PARALLEL LINES) AND 2 FEET OF VERTICAL SEPARATION (FOR LINES CROSSING) SHALL BE MAINTAINED BETWEEN WATER AND SANITARY SEWER LINES IN ACCORDANCE WITH OKLAHOMA DEPARTMENT OF ENVIRONMENTAL QUALITY.

P6. CONTRACTOR SHALL REMOVE AND RECONSTRUCT INVERTS WHERE NEW CONNECTIONS ARE MADE TO EXISTING MANHOLES.

P7. ALL FLANGE COUPLING ADAPTERS SHOWN ON THE CONSTRUCTION DRAWINGS SHALL BE RESTRAINED TYPE, MEGAFLANGE SERIES 2100, OR EQUAL.

P8. CONTRACTOR IS REQUIRED TO VACUUM TEST ALL MANHOLES ACCORDING TO CITY OF TULSA, ENGINEERING SERVICES STANDARDS AND SPECIFICATIONS.

REVISION	BY	DATE

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FRANCIS HILLS RELIEF SEWER & VENSEL CREEK LIFT STATION IMPROVEMENTS
TMUA PROJECT NO. ES 2019-01

GENERAL NOTES

ENGINEERING SERVICES DEPARTMENT
CITY OF TULSA, OKLAHOMA
ENGINEERING SERVICES DEPARTMENT

PLANS AND ESTIMATES PREPARED BY: HOLLOWAY, UPDIKE + BELLEN, Inc.
3105-A S. 6TH ST., BROKEN ARROW, OKLAHOMA 74012
(918)258-1777, FAX (918)258-6764

PLAN SCALE: 1"=X'	DRAWN	JME	APPROVED:
	DESIGNED	LST	
	SURVEY		
PROFILE SCALE:	PROJ. MGR.	[signature]	9/2020
HORIZONTAL: 1"=X'	LEAD ENGR.	AAS	9/20
	FIELD MGR.	[signature]	9/20
VERTICAL: 1"=X'	RECOMMENDED: DESIGN MANAGER	AAS	9.20
			CITY ENGINEER

HUB PROJECT NO: 19TMUACITYLS — DATE: 08/13/2020
ATLAS PAGE NO: — SHEET 3 OF 21 SHEETS

REGISTERED PROFESSIONAL ENGINEER — LOYD STEPHEN TOLAR — 20670 — 9.3.20 — OKLAHOMA

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STANDARD ABBREVIATIONS

AC	ASBESTOS CEMENT PIPE	LS	LUMP SUM
ASP	ASPHALT	LT	LEFT
AWWA	AMERICAN WATER WORKS ASSOC.	MAX	MAXIMUM
BM	BENCH MARK – ELEVATION	MIN	MINIMUM
CI	CAST IRON INLET	MJ	MECHANICAL JOINT PIPE FITTING
C–C	CENTER TO CENTER	MSL	MEAN SEA LEVEL
CFS	CUBIC FEET PER SECOND	O.C.	ON CENTER
CIP	CAST IRON PIPE	OD	OUTSIDE DIAMETER
CL	CENTER LINE	ODEQ	OK. DEPT. OF ENV. QUALITY
CMP	CORRUGATED METAL PIPE	ODOT	OK. DEPT. OF TRANSPORTATION
CMPA	CORRUGATED METAL PIPE – ARCH	PE	POLYETHYLENE PIPE
CONC	CONCRETE	PL	PROPERTY LINE
CP	SURVEY CONTROL POINT	PP	POWER POLE
CPVC	CHLORINATED POLYVINYL CHLORIDE PIPE	PSI	POUNDS PER SQUARE INCH
CY	CUBIC YARD	PVC	POLYVINYL CHLORIDE PIPE
D/E	DRAINAGE EASEMENT	Q100	100 YR FLOW
DIP	DUCTILE IRON PIPE	RCB	REINFORCED CONCRETE BOX
EA	EACH	RCP	REINFORCED CONCRETE PIPE
EL	ELEVATION	RJ	RESTRAINED JOINT – PIPE
E–W	EACH WAY	RT	RIGHT
FG	FINISHED GROUND ELEVATION	RW	RIGHT OF WAY LINE
FH	FIRE HYDRANT	SS	SANITARY SEWER
FL	FLOW LINE	STA	STATION
FM	FORCE MAIN (SEWER)	STM	STORM SEWER LINE
GV	GATE VALVE	SY	SQUARE YARD
HW	HEADWALL	TYP	TYPICAL
HYD	FIRE HYDRANT	U/E	UTILITY EASEMENT
ID	INSIDE DIAMETER	WL	WATER LINE
IP	IRON PIN		
LF	LINEAL FEET		

MISCELLANEOUS SYMBOLS AND ABBREVIATIONS

SYMBOL	ABBREV.	DESCRIPTION
021 S 12	PF	PARSHALL FLUME
	LL	LINE LABELS
	FM	FLOW METER
	GV	GATE VALVE
	BFV	BUTTERFLY VALVE
	BV	BALL VALVE
	BCV	BALL CHECK VALVE
	CV	CHECK VALVE
	PV	PLUG VALVE
	PRV	PRESSURE RELIEF VALVE
	PCV	PRESSURE CONTROL VALVE
		VALVE w/ MECHANICAL OPERATOR
	DV	DIAPHRAGM VALVE
	BFP	BACK FLOW PREVENTER
	ARV	AIR RELIEF VALVE
	SW	STRUCTURE WALL
	ES	EXISTING STRUCTURE
	B	BLOWER
	P	PUMPS
	MV	MUD VALVE
	FC	FLEXIBLE COUPLING
	FC	FLEXIBLE METAL COUPLING
		SAMPLER
	TV	TELESCOPIC VALVE
		MOTOR OPERATOR
		PRESSURE GAUGE
		TEMPERATURE GAUGE
	SA	SURFACE AERATOR
	PT	PRESSURE TRANSDUCER
	BF	BLIND FLANGE
		HOSE CONNECTION
		"Y" TYPE STRAINER
		EXPANSION JOINT
		AIR RELEASE VALVE

SYMBOL	DESCRIPTION
	FENCE
	SECTION LINE
	PROPERTY LINE
	POWER POLE
	TRAFFIC SIGN
	LIGHT POLE
—700—	PROPOSED CONTOUR
700	EXIST. CONTOUR
	TREES
	℄ SWALE & FLOW
	CREEK OR DITCH SWALE
	DRIVES & MINOR ROADS
	RAILROAD
	EXIST. RIGHT OF WAY
	REFERENCE POINT
B–3	BORING LOCATION
	SURVEY BASE LINE
	PROPOSED LINE
	CONDUIT
	IRON PIN
	EXISTING TREE LINE
	PROPOSED CLEARING LIMIT
	PIPING (TO BE ABANDONED)
	MATCHLINE
A / A	SECTION NUMBER OR DETAIL LETTER
	SHEET NUMBER WHERE SECTION OR DETAIL APPEARS

PIPE FITTINGS AND PLUMBING ITEMS

DOUBLE LINE	SINGLE LINE	DESCRIPTION	ABBREV.
		WELDED JOINT	
		GROOVED END JOINT	
		BELL & SPIGOT JOINT	
		FLANGED COUPLING ADAPTER WITH THRUST TIES	
		FLEXIBLE COUPLING	FLW. CPLG.
		FLEXIBLE COUPLING WITH THRUST TIES	
		ELASTOMETER BELLOWS EXP. JOINT	EXP. JT.
		ELBOW UP	ELL
		ELBOW DOWN	ELL
		ELBOW 90 DEGREE	ELL
		ELBOW 45 DEGREE	
		LATERAL	
		TEE	TEE
		TEE UP	TEE
		TEE DOWN	TEE
		CROSS	CROSS
		Y–STRAINER	YS
		COUPLING	CPLG
		LATERAL UP	
		LATERAL DOWN	
		CONCENTRIC REDUCER	CONC. RED.
		ECCENTRIC REDUCER	ECC. RED.
		UNION	UN
		CAP	
		FLANGED JOINT	FLG
		FLANGED COUPLING ADAPTER	FCA
		MECHANICAL JOINT	MJ
		MJ w/ RETAINER GLAND	RJ

SURVEY SYMBOLS

SYMBOL	DESCRIPTION
WM	WATER METER
	WATER VALVE
	FIRE HYDRANT
	IRON PIN FOUND
S	SANITARY SEWER MANHOLE
T	TELEPHONE PEDESTAL
F	FIBER OPTIC PEDESTAL
E	ELECTRICAL BOX
	BENCH MARK
	POWER POLE
	GUY WIRE
	LIGHT POLE
D	STORM SEWER MANHOLE
	TRAFFIC SIGN
C	SANITARY SEWER CLEANOUT

EXISTING UTILITY LINE SYMBOLS

SYMBOL	DESCRIPTION
WL	WATER LINE
SS	SANITARY SEWER LINE
FM	SANITARY SEWER FORCE MAIN
STM	STORM SEWER
UGE	UNDERGROUND ELECTRIC
GAS	GAS LINE
OHE	OVERHEAD ELECTRIC
TUG	UNDERGROUND TELEPHONE
FOC	FIBER OPTIC CABLE
PL	PROPERTY LINE

FLOW STREAM IDENTIFICATION

ALP – AIR, LOW PRESSURE
CGP – CHLORINE GAS, PRESSURE
CGV – CHLORINE GAS, VACUUM
CS – CHLORINE SOLUTION
DR – DRAIN (PLANT PROCESS)
DS – DIGESTED SLUDGE
GR – GRIT
MLSS – MIXED LIQUOR SUSPENDED SOLIDS
NPW – NONPOTABLE WATER (SAME AS W3)
PEW – PLANT EFFLUENT WATER (NONPOTABLE)
PLE – PLANT EFFLUENT
PO – LIQUID POLYMER
PSW – PLANT SERVICE WATER (NONPOTABLE)
PW – POTABLE WATER
RS – RAW SEWAGE
RAS/WAS – RETURN/WASTE ACITVATED SLUDGE
RAS – RETURN ACTIVATED SLUDGE
SCUM – SCUM
SDS – SULFUR DIOXIDE SOLUTION
SE – SECONDARY EFFLUENT
SHX – SODIUM HYDROXIDE
SS – SANITARY SEWER
STM – STORMWATER
W3 – EQUIPMENT WATER (NONPOTABLE)
WAS – WASTE ACTIVATED SLUDGE

REGISTERED PROFESSIONAL ENGINEER
LOYD STEPHEN TOLAR
20679
9.3.2020
OKLAHOMA

REVISION	BY	DATE

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FRANCIS HILLS RELIEF SEWER & VENSEL CREEK LIFT STATION IMPROVEMENTS
TMUA PROJECT NO. ES 2019–01

SYMBOLS & LEGEND

ENGINEERING SERVICES DEPARTMENT
CITY OF TULSA, OKLAHOMA
ENGINEERING SERVICES DEPARTMENT

PLANS AND ESTIMATES PREPARED BY: HOLLOWAY, UPDIKE + BELLEN, Inc. 905–A & 9TH ST, BROKEN ARROW, OKLAHOMA 74012 (918)251-0717, FAX (918)251-0754

PLAN SCALE: 1"=X'	DRAWN	JME		APPROVED:
	DESIGNED	LST		
	SURVEY			
PROFILE SCALE:	PROJ. MGR.	[signature]	9/2020	
HORIZONTAL: 1"=X'	LEAD ENGR.	ADJ	9/20	
	FIELD MGR.	[signature]	9/20	
VERTICAL: 1"=X'	RECOMMENDED: HAS 9.20 DESIGN MANAGER			CITY ENGINEER
HUB PROJECT NO:	19TMUACITYLS			DATE: 08/15/2020
ATLAS PAGE NO:				SHEET 4 OF 21 SHEETS

STORMWATER MANAGEMENT PLAN

SITE DESCRIPTION

PROJECT LIMITS:
FRANCIS HILL LS 3513 EAST 102ND STREET SOUTH

PROJECT DESCRIPTION:
STRUCTURE DEMOLITION, EXCAVATION, GRADING, YARD PIPING

SUGGESTED SEQUENCE OF EROSION CONTROL ACTIVITIES:

1. CLEAR AND GRUB AREA ALONG IMPROVEMENTS
2. STRIP, STOCKPILE AND STABILIZE TOPSOIL
3. REPLACE SALVAGED TOPSOIL AND DEVICES PRIOR TO INSTALLATION OF PERMANENT SOD AND SEEDING
4. AS SITE CONDITIONS WARRANT, THE CONTRACTOR MAY CHOOSE TO MODIFY THE TYPE OR ARRANGEMENT OF SPECIFIED PRACTICES TO IMPROVE THEIR EFFECTIVENESS AS APPROVED BY THE ENGINEER
5. THE CONTRACTOR SHALL MAINTAIN A LOG OF DATES OF MAJOR SOIL DISTURBANCE ACTIVITIES, AND ALSO THE DATES OF INSTALLATION OF EROSION CONTROL MEASURES.

AREA TO BE DISTURBED: 0.29 AC

OFFSITE AREA TO BE DISTURBED:
(FOR CONTRACTOR USE)

WEIGHTED RUNOFF COEFFICIENT
Before Construction: 0.0
After Construction: 0.0

NAME OF RECEIVING WATERS: -

NOTE: THIS SHEET SHOULD BE USED IN CONJUNCTION WITH THE EROSION CONTROL SUMMARIES, PAY ITEMS, & NOTES.

EROSION AND SEDIMENT CONTROLS

SOIL STABILIZATION PRACTICES:

- ____ TEMPORARY SEEDING
- _X_ PERMANENT SODDING, SPRIGGING OR SEEDING
- ____ VEGETATIVE MULCHING
- ____ SOIL RETENTION BLANKET
- _X_ PRESERVATION OF EXISTING VEGETATION

NOTE: TEMPORARY EROSION CONTROL METHODS MUST BE USED ON ALL DISTURBED AREAS WHERE CONSTRUCTION ACTIVITIES HAVE CEASED FOR OVER 21 DAYS. METHODS USED WILL BE AS SHOWN ON DRAWINGS, OR AS DIRECTED BY THE ENGINEER.

STRUCTURAL PRACTICES:

- ____ TEMPORARY BRUSH SEDIMENT BARRIERS
- _X_ TEMPORARY SILT FENCE
- _X_ TEMPORARY SILT DIKES
- ____ TEMPORARY BALE BARRIERS
- ____ DIVERSION, INTERCEPTOR OR PERIMETER DIKES
- ____ DIVERSION, INTERCEPTOR OR PERIMETER SWALES
- ____ SANDBAG BERMS
- ____ ROCK FILTER DAMS
- ____ TEMPORARY SLOPE DRAIN
- ____ PAVED DITCH W/ DITCH LINER PROTECTION
- ____ TEMPORARY DIVERSION CHANNELS
- ____ RIP RAP
- ____ TEMPORARY STREAM CROSSINGS
- ____ TEMPORARY SEDIMENT BASINS
- ____ TEMPORARY SEDIMENT TRAPS
- ____ TEMPORARY SEDIMENT FILTERS
- ____ TEMPORARY SEDIMENT REMOVAL
- ____ INLET SEDIMENT FILTER
- ____ STABILIZED CONSTRUCTION EXIT

OFFSITE VEHICLE TRACKING:

- ____ HAUL ROADS DAMPENED FOR DUST CONTROL
- _X_ LOADED HAUL TRUCKS TO BE COVERED WITH TARP
- _X_ EXCESS DIRT ON ROAD REMOVED DAILY

NOTES:

1. THERE ARE NO ENDANGERED OR THREATENED SPECIES OR CRITICAL HABITAT FOUND IN THE PROXIMITY OF THE PROJECT. CONTRACTOR SHALL NOTIFY THE ENGINEER IMMEDIATELY IF SUCH SPECIES LISTED ON THE U.S. FISH AND WILDLIFE'S LIST OF THREATENED OR ENDANGERED SPECIES ARE ENCOUNTERED.

2. THERE ARE NO PROTECTED PROPERTIES SUCH AS FEDERAL, STATE OR LOCAL HISTORIC PRESERVATION SITES IMPACTED BY THIS PROJECT.

THE CONTRACTOR SHALL ALSO BE RESPONSIBLE FOR THE FOLLOWING:

MAINTENANCE AND INSPECTION:
ALL EROSION AND SEDIMENT CONTROLS WILL BE MAINTAINED IN GOOD WORKING ORDER FROM THE BEGINNING OF CONSTRUCTION UNTIL AN ACCEPTABLE VEGETATIVE COVER IS ESTABLISHED. INSPECTION BY THE CONTRACTOR AND ANY NECESSARY REPAIRS SHALL BE PERFORMED ONCE EVERY 7 CALENDAR DAYS AND WITHIN 24 HOURS AFTER ANY STORM EVENT GREATER THAN 0.5 IN (1.25 CM) AS RECORDED BY A NON-FREEZING RAIN GAUGE TO BE LOCATED ON SITE. POTENTIALLY ERODIBLE AREAS, DRAINAGEWAYS, MATERIAL STORAGE, STRUCTURAL DEVICES, CONSTRUCTION ENTRANCES AND EXITS ALONG WITH EROSION AND SEDIMENT CONTROL LOCATIONS ARE EXAMPLES OF SITES THAT NEED TO BE INSPECTED.

WASTE MATERIALS:
PROPER MANAGEMENT AND DISPOSAL OF CONSTRUCTION WASTE MATERIAL IS REQUIRED BY THE CONTRACTOR. MATERIALS INCLUDE STOCKPILES, SURPLUS, DEBRIS AND ALL OTHER BY-PRODUCTS FROM THE CONSTRUCTION PROCESS. PRACTICES INCLUDE DISPOSAL, PROPER MATERIALS HANDLING, SPILL PREVENTION AND CLEANUP MEASURES. CONTROLS AND PRACTICES SHALL MEET THE REQUIREMENTS OF ALL FEDERAL, STATE AND LOCAL AGENCIES.

HAZARDOUS MATERIALS:
PROPER MANAGEMENT AND DISPOSAL OF HAZARDOUS WASTE MATERIALS IS REQUIRED. THE CONTRACTOR IS RESPONSIBLE FOR FOLLOWING MANUFACTURER'S RECOMMENDATIONS, STATE AND FEDERAL REGULATIONS TO ENSURE CORRECT HANDLING, DISPOSAL, SPILL PREVENTION AND CLEANUP MEASURES. EXAMPLES INCLUDE BUT ARE NOT LIMITED TO: PAINTS, ACIDS, CLEANING SOLVENTS, CHEMICAL ADDITIVES, CONCRETE CURING COMPOUNDS AND CONTAMINATED SOILS.

GENERAL NOTES:
A STORMWATER POLLUTION PREVENTION PLAN (SW3P) IS REQUIRED TO COMPLY WITH THE OKLAHOMA POLLUTION DISCHARGE ELIMINATION SYSTEM (OPDES) REGULATIONS. THIS PLAN IS INITIATED DURING THE DESIGN PHASE, CONFIRMED IN THE PRE-WORK MEETINGS AND AVAILABLE ON THE JOB SITE ALONG WITH COPIES OF THE NOTICE OF INTENT (NOI) FORMS THAT HAVE BEEN FILED WITH THE OKLAHOMA DEPARTMENT OF ENVIRONMENTAL QUALITY (ODEQ). THE PLAN MUST BE KEPT CURRENT WITH UP-TO-DATE AMENDMENTS DURING THE PROGRESSION OF THE PROJECT. THE BASIC GOAL OF STORMWATER MANAGEMENT IS TO IMPROVE WATER QUALITY BY REDUCING POLLUTANTS IN STORM WATER DISCHARGES. RUNOFF FROM CONSTRUCTION SITES HAS A POTENTIAL FOR POLLUTION DUE TO EXPOSED SOILS AND THE PRESENCE OF HAZARDOUS MATERIALS USED IN THE CONSTRUCTION PROCESS. THE PREVENTION OF SOIL EROSION, CONTAINMENT OF HAZARDOUS MATERIALS AND/OR THE INTERCEPTION OF THESE POLLUTANTS BEFORE LEAVING THE CONSTRUCTION SITE ARE THE BEST PRACTICES FOR CONTROLLING STORMWATER POLLUTION.

THE FOLLOWING SUBSECTIONS OF ODOT'S STANDARD SPECIFICATIONS BOOK SHOULD BE NOTED:

104.10	FINAL CLEANING UP
104.14	CONTRACTOR'S RESPONSIBILITY FOR WORK
106.08	STORAGE OF MATERIALS
107.01	LAWS TO BE OBSERVED
107.15	STORMWATER MANAGEMENT
220.01-05	TEMPORARY EROSION, SEDIMENTATION AND STORMWATER POLLUTION PREVENTION AND CONTROL

IN ADDITION:
ODOT SPECIAL PROVISION 220-1 MANAGEMENT OF EROSION SEDIMENTATION, AND STORMWATER POLLUTION PREVENTION AND CONTROL.

"ODEQ GENERAL PERMIT (OKR10) FOR STORMWATER DISCHARGES FROM CONSTRUCTION ACTIVITIES WITHIN THE STATE OF OKLAHOMA." ODEQ, WATER QUALITY DIVISION, SEPTEMBER 13, 2007.

REVISION	BY	DATE

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FRANCIS HILLS RELIEF SEWER & VENSEL CREEK LIFT STATION IMPROVEMENTS TMUA PROJECT NO. ES 2019-01

STORMWATER MANAGEMENT PLAN

ENGINEERING SERVICES DEPARTMENT
CITY OF TULSA, OKLAHOMA
ENGINEERING SERVICES DEPARTMENT

PLANS AND ESTIMATES PREPARED BY: HOLLOWAY, UPDIKE + BELLEN, Inc.
906-A S. 6TH ST., BROKEN ARROW, OKLAHOMA 74012
(918)258-1717, FAX (918)258-1764

PLAN SCALE: NTS	DRAWN	JME		APPROVED:
	DESIGNED	LST		
	SURVEY			
PROFILE SCALE:	PROJ. MGR.	[illegible]	9/2020	
HORIZONTAL: 1"=X'	LEAD ENGR.	[illegible]	9/20	
	FIELD MGR.	[illegible]	9/20	
VERTICAL: 1"=X'	RECOMMENDED: DESIGN MANAGER	HAS	9.20	CITY ENGINEER

HUB PROJECT NO: 19TMUACITYLS — DATE: 08/13/2020
ATLAS PAGE NO: — SHEET 5 OF 21 SHEETS

REGISTERED PROFESSIONAL ENGINEER — LOYD STEPHEN TOLAR — 20670 — 9.7.2020 — OKLAHOMA

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FRANCIS HILLS RELIEF SEWER & VENSEL CREEK LIFT STATION IMPROVEMENTS
TMUA PROJECT NO. ES 2019-01

FRANCIS HILLS
STORMWATER EXHIBIT
EXISTING PIPING & DRAINAGE LIMITS

ENGINEERING SERVICES DEPARTMENT
CITY OF TULSA, OKLAHOMA

ENGINEERING SERVICES DEPARTMENT

PLANS AND ESTIMATES PREPARED BY: HOLLOWAY, UPDIKE + BELLEN, Inc.
905-A S. 9TH ST, BROKEN ARROW, OKLAHOMA 74012
(918)251-0717, FAX (918)251-0754

PLAN SCALE: 1"=30'	DRAWN	JME		APPROVED:
	DESIGNED	LST		
	SURVEY			
PROFILE SCALE:	PROJ. MGR.	REV	9/2020	
HORIZONTAL:	LEAD ENGR.	ADJ	9/20	
	FIELD MGR.	RCW	9/20	
VERTICAL:	RECOMMENDED: HAS 9.20 DESIGN MANAGER			CITY ENGINEER
HUB PROJECT NO:	19TMUACITYLS			DATE: 08/13/2020
ATLAS PAGE NO:	1423			SHEET 6 OF 21 SHEETS

LIFE TABERNACLE UNITED PENTECOSTAL CHURCH INC
3210 EAST 101ST SOUTH
SEC 29–T18N–R13E

WHEATLEY, PATRICIA LOU TRUST
SEC 28–T18N–R13E

WHEATLEY, PATRICIA LOU TRUST
SEC 28–T18N–R13E

N

0 40' 80'
SCALE: 1" = 40'

17.5' UTIL. EASE.

FRANCIS HILLS LIFT STATION

MH–D

MH–C

MH–B

MH–A

24.75' UTIL. EASE.

24.75' UTIL. EASE.

15' TEMP. EASE.

20' PERM. EASE.

15' TEMP. EASE.

17.5' UTIL. EASE.

20' UTIL. EASE.

11' UTIL. EASE.

20' ACESS EASE.

11' UTIL. EASE.

20' UTIL. EASE.

5' UTIL. EASE.

11' UTIL. EASE.

5' UTIL. EASE.

UTIL. EASE.

17.50' UTIL. EASE.

24.75' UTIL. EASE.

ZALOUDEK, JOE AND JAN TRUST
LOT 9 BLOCK 1

BILLINGS, MICHAEL J & JANET K REVOCABLE TRUST
LOT 10 BLOCK 1

MORROW, CHRISTOPHER LEE & KATHERINE L
LOT 11 BLOCK 1

DYBDAHL, ARTHUR W & SANDRA L
LOT 12 BLOCK 1

SCHOEFFLER, JERRY S & PAMELA K FAMILY TRUST
LOT 13 BLOCK 1

CLARK, RICHARD & CAROLYN J
LOT 14 BLOCK 1

CHELSEA POND PROPERTY OWNERS ASSOCIATION INC.
SEC 28–T18N–R13E

CUMMINGS, STEPHEN P
3224 E 101ST ST S
SEC 29–T18N–R13E

PALOMA CAPITAL LLC
LOT 5 BLOCK 5

PALOMA CAPITAL LLC
LOT 6 BLOCK 5

PALOMA CAPITAL LLC
LOT 7 BLOCK 5

E 102ND ST

E 102ND PL

PL

SS

STM

FM

W

G

D

S

CHARLES W CHASTAIN L.S. 1952
REGISTERED LAND SURVEYOR OKLAHOMA

REVISION	BY	DATE

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FRANCIS HILLS RELIEF SEWER & VENSEL CREEK LIFT STATION IMPROVEMENTS TMUA PROJECT NO. ES 2019–01

FRANCIS HILLS RELIEF SEWER RIGHT–OF–WAY PLAN

ENGINEERING SERVICES DEPARTMENT CITY OF TULSA, OKLAHOMA

ENGINEERING SERVICES DEPARTMENT

PLANS AND ESTIMATES PREPARED BY: HOLLOWAY, UPDIKE + BELLEN, Inc.
905-A S. 9TH ST., BROKEN ARROW, OKLAHOMA 74012
(918)251-0777, FAX (918)251-0784

PLAN SCALE: 1"=40'	DRAWN	JME		APPROVED:
	DESIGNED	LST		
	SURVEY			
PROFILE SCALE:	PROJ. MGR.	CBN	9/2020	
HORIZONTAL:	LEAD ENGR.	AJD	9/20	
	FIELD MGR.	RWL	9/20	
VERTICAL:	RECOMMENDED: DESIGN MANAGER	HAS	9.20	CITY ENGINEER

HUB PROJECT NO: 19TMUACITYLS — DATE: 08/13/2020

ATLAS PAGE NO: 1423 — SHEET 7 OF 21 SHEETS

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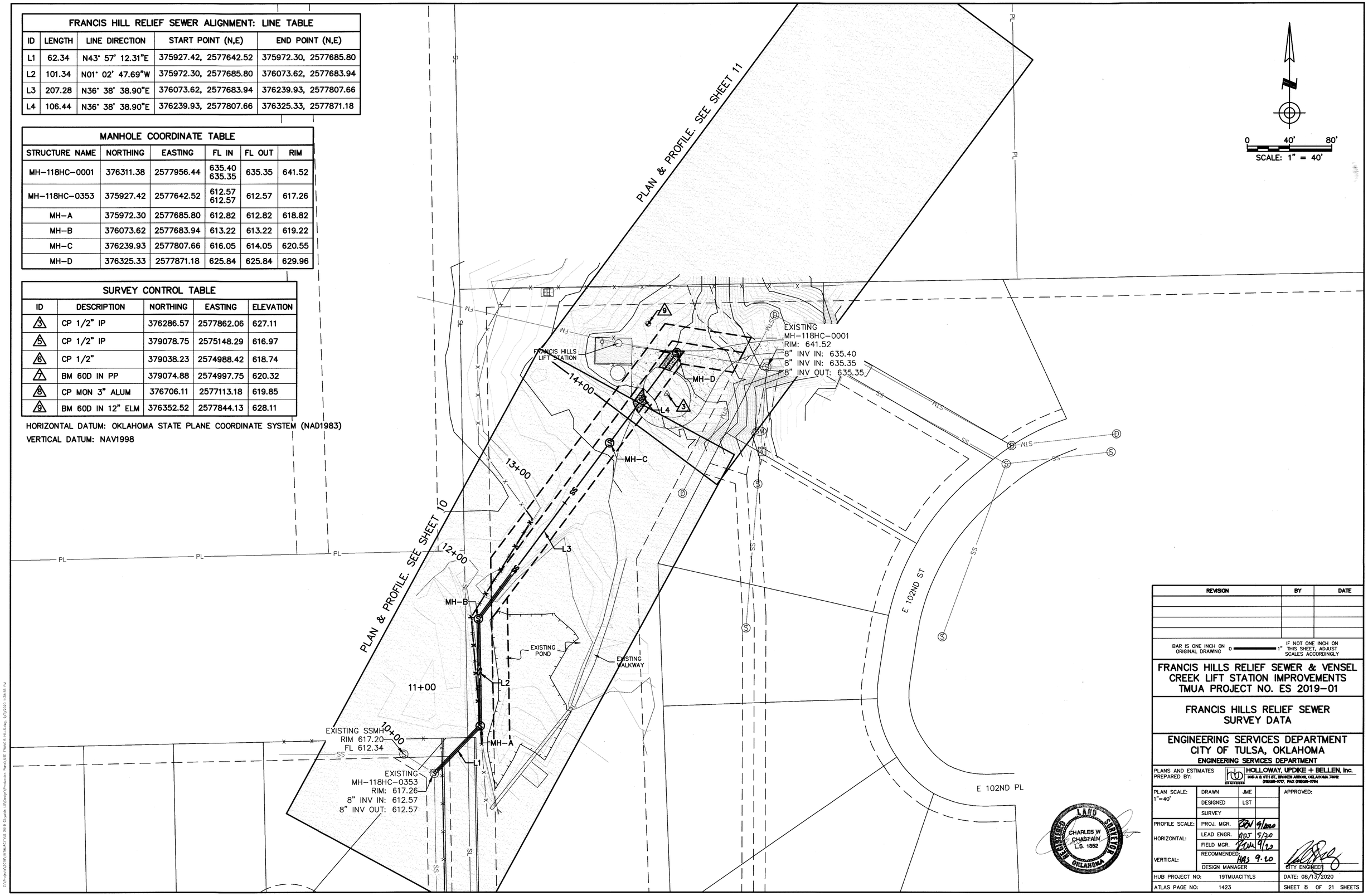
FRANCIS HILL RELIEF SEWER ALIGNMENT: LINE TABLE				
ID	LENGTH	LINE DIRECTION	START POINT (N,E)	END POINT (N,E)
L1	62.34	N43° 57' 12.31"E	375927.42, 2577642.52	375972.30, 2577685.80
L2	101.34	N01° 02' 47.69"W	375972.30, 2577685.80	376073.62, 2577683.94
L3	207.28	N36° 38' 38.90"E	376073.62, 2577683.94	376239.93, 2577807.66
L4	106.44	N36° 38' 38.90"E	376239.93, 2577807.66	376325.33, 2577871.18

MANHOLE COORDINATE TABLE					
STRUCTURE NAME	NORTHING	EASTING	FL IN	FL OUT	RIM
MH-118HC-0001	376311.38	2577956.44	635.40 635.35	635.35	641.52
MH-118HC-0353	375927.42	2577642.52	612.57 612.57	612.57	617.26
MH-A	375972.30	2577685.80	612.82	612.82	618.82
MH-B	376073.62	2577683.94	613.22	613.22	619.22
MH-C	376239.93	2577807.66	616.05	614.05	620.55
MH-D	376325.33	2577871.18	625.84	625.84	629.96

SURVEY CONTROL TABLE				
ID	DESCRIPTION	NORTHING	EASTING	ELEVATION
3	CP 1/2" IP	376286.57	2577862.06	627.11
5	CP 1/2" IP	379078.75	2575148.29	616.97
6	CP 1/2"	379038.23	2574988.42	618.74
7	BM 60D IN PP	379074.88	2574997.75	620.32
8	CP MON 3" ALUM	376706.11	2577113.18	619.85
9	BM 60D IN 12" ELM	376352.52	2577844.13	628.11

HORIZONTAL DATUM: OKLAHOMA STATE PLANE COORDINATE SYSTEM (NAD1983)
VERTICAL DATUM: NAV1998



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FRANCIS HILLS RELIEF SEWER & VENSEL CREEK LIFT STATION IMPROVEMENTS
TMUA PROJECT NO. ES 2019-01

FRANCIS HILLS RELIEF SEWER SURVEY DATA

ENGINEERING SERVICES DEPARTMENT
CITY OF TULSA, OKLAHOMA
ENGINEERING SERVICES DEPARTMENT

PLANS AND ESTIMATES PREPARED BY: HOLLOWAY, UPDIKE + BELLEN, Inc.
308-A S 6TH ST, BROKEN ARROW, OKLAHOMA 74012
(918)251-1717, FAX (918)251-1764

PLAN SCALE: 1"=40'	DRAWN	JME		APPROVED:
	DESIGNED	LST		
	SURVEY			
PROFILE SCALE:	PROJ. MGR.	[illegible]	9/2020	
HORIZONTAL:	LEAD ENGR.	[illegible]	9/20	
	FIELD MGR.	[illegible]	9/20	
VERTICAL:	RECOMMENDED: DESIGN MANAGER	HAS	9.20	CITY ENGINEER

HUB PROJECT NO: 19TMUACITYLS — DATE: 08/13/2020
ATLAS PAGE NO: 1423 — SHEET 8 OF 21 SHEETS

LICENSED PROFESSIONAL ENGINEER LAND SURVEYOR CHARLES W CHASTAIN L.S. 1352 OKLAHOMA

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SALVAGE ITEM SCHEDULE		
1	PUMPS	PROTECT & PALLETIZE
2	VALVES	PROTECT & PALLETIZE
3	TRANSFER SWITCH	PROTECT & PALLETIZE
4	SCADA SYSTEM	PROTECT & PALLETIZE
5	AREA LIGHT	PROTECT & PALLETIZE

*DELIVER & TRANSMIT TO SEWER OPERATIONS MAINTENANCE FACILITY

A/9 PHOTO @ EXISTING STEEL WET WELL
SCALE: NTS

B/9 PHOTO @ EXISTING LIFT STATION
SCALE: NTS

SEE NOTE #8

0 10' 20'
SCALE: 1" = 10'

EXISTING 4" FORCEMAIN (ABANDON) (SEE NOTE #1)

DOWNSTREAM MANHOLE IS NOT SHOWN ON THIS PLAN SHEET. CONNECT TO EXISTING CITY OF TULSA MH-118HC-0137 APPROXIMATLY AT THE NW CORNER OF SECTION 28. DOWN-STREAM MANHOLE IS NOT SHOWN ON THIS PLAN SHEET. CONNECT TO EXISTING CITY OF TULSA MH-118HC-0137 APPROXIMATLY AT THE NW CORNER OF SECTION 28.

REMOVE ELECTRICAL SERVICE COMPLETELY (SEE NOTE #8)

EXISITNG LIFT STATION DRY WELL TOS: 627.94 FF: 615.79 (DEMOLISH) (SEE NOTE #2)

EXISTING 8" SAN SEW (ABANDON) (SEE NOTE #1)

REMOVE & DISPOSE EXISTING 6' CHAIN-LINK FENCE AROUND EXISTING LIFT STATION PERIMETER

REMOVE PAVEMENT COMPLETELY 91 SY

REMOVE & REPLACE 41 SY PAVEMENT FOR PROPOSED MANHOLE OR AS REQUIRED FOR WORK.

EXISTING WET WELL TOS: 627.98 (DEMOLISH) (SEE NOTE #2)

EXISTING WALKWAY

NOTES:

1. ABANDON EXISTING FORCEMAIN IN PLACE. INSTALL 2'-0" LONG CONCRETE PLUG AT BOTH ENDS. REPAIR DOWNSTREAM MANHOLE AS REQUIRED AT DOWNSTREAM PLUG LOCATION.
2. REMOVE EXISTING LIFT STATION EQUIPMENT ENTIRELY, EXCEPT ITEMS SPECIFICALLY NOTED IN SALVAGE ITEM SCHEDULE. ALL EQUIPMENT NOT SALVAGED BY OWNER SHALL BE PROPERLY DISPOSED OF BY CONTRACTOR.
3. DEMOLISH EXISTING STEEL LIFT STATION WET WELL AND DRY WELL 6'-0" BELOW GRADE. BREAK OUT 2'x2' HOLE IN BOTTOM OF BOTH STRUCTURES. BACK FILL WITH COMPACTED SELECT WASHED ROCK. PROVIDE 6" MINIMUM OF TOPSOIL.
4. GRADE ENTIRE LIFT STATION SITE TO DRAIN.
5. SLAB SOD ENTIRE DISTURBED AREA AND ESTABLISH VIABLE VEGETATIVE COVER. COSTS FOR SODDING DEMOLITION AREA SHALL BE INCLUDED IN LIFT STATION LUMP SUM ITEM.
6. BEFORE DEMOLITION, OR REMOVAL OF ANY USEFUL EQUIPMENT FROM THE LIFT STATION, GIVE THE CITY OF TULSA SEWER OPERATIONS & MAINTENANCE 4 WEEK NOTICE. GRAVITY SEWER MUST BE IN SERVICE PRIOR TO DEMOLITION OF LIFT STATION. PALLETIZE & TRANSMIT SALVAGE ITEMS TO SEWER OPERATIONS MAINTENANCE YARD.
7. CONTRACTOR TO PROTECT EXISTING UTILITY LINES DURING CONSTRUCTION AND DEMOLITION ACTIVITIES.
8. REMOVE ELECTRICAL SERVICE BACK TO SOURCE SERVICE POLE, COORDINATE WITH SOM AND POWER COMPANY AS REQUIRED. DEMOLITION INCLUDES BUT NOT LIMITED TO: WIRE, CONTROLS, PHONE, POWER POLE(S) AND RELATED SERVICES TO EXISTING LIFT STATION BEING DEMOLISHED BOTH PUBLIC (COT) & PRIVATE (PSO)

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FRANCIS HILLS RELIEF SEWER & VENSEL CREEK LIFT STATION IMPROVEMENTS TMUA PROJECT NO. ES 2019-01

FRANCIS HILLS EXISTING LIFT STATION DEMOLITION PLAN

ENGINEERING SERVICES DEPARTMENT
CITY OF TULSA, OKLAHOMA
ENGINEERING SERVICES DEPARTMENT

PLANS AND ESTIMATES PREPARED BY: HOLLOWAY, UPDIKE + BELLEN, Inc.
808-A S. 9TH ST., BROKEN ARROW, OKLAHOMA 74012
(918)251-4717, FAX (918)251-4764

PLAN SCALE: 1"=10'	DRAWN	JME	
	DESIGNED	LST	
	SURVEY		
PROFILE SCALE:	PROJ. MGR.	[illegible]	9/2020
HORIZONTAL:	LEAD ENGR.	[illegible]	9/20
	FIELD MGR.	[illegible]	9/20
VERTICAL:	RECOMMENDED: DESIGN MANAGER	HAS 9.20	

APPROVED: CITY ENGINEER

REGISTERED PROFESSIONAL ENGINEER LOYD STEPHEN TOLAR 20670 9-2-2020 OKLAHOMA

HUB PROJECT NO: 19TMUACITYLS
DATE: 08/13/2020
ATLAS PAGE NO: 1423
SHEET 9 OF 21 SHEETS

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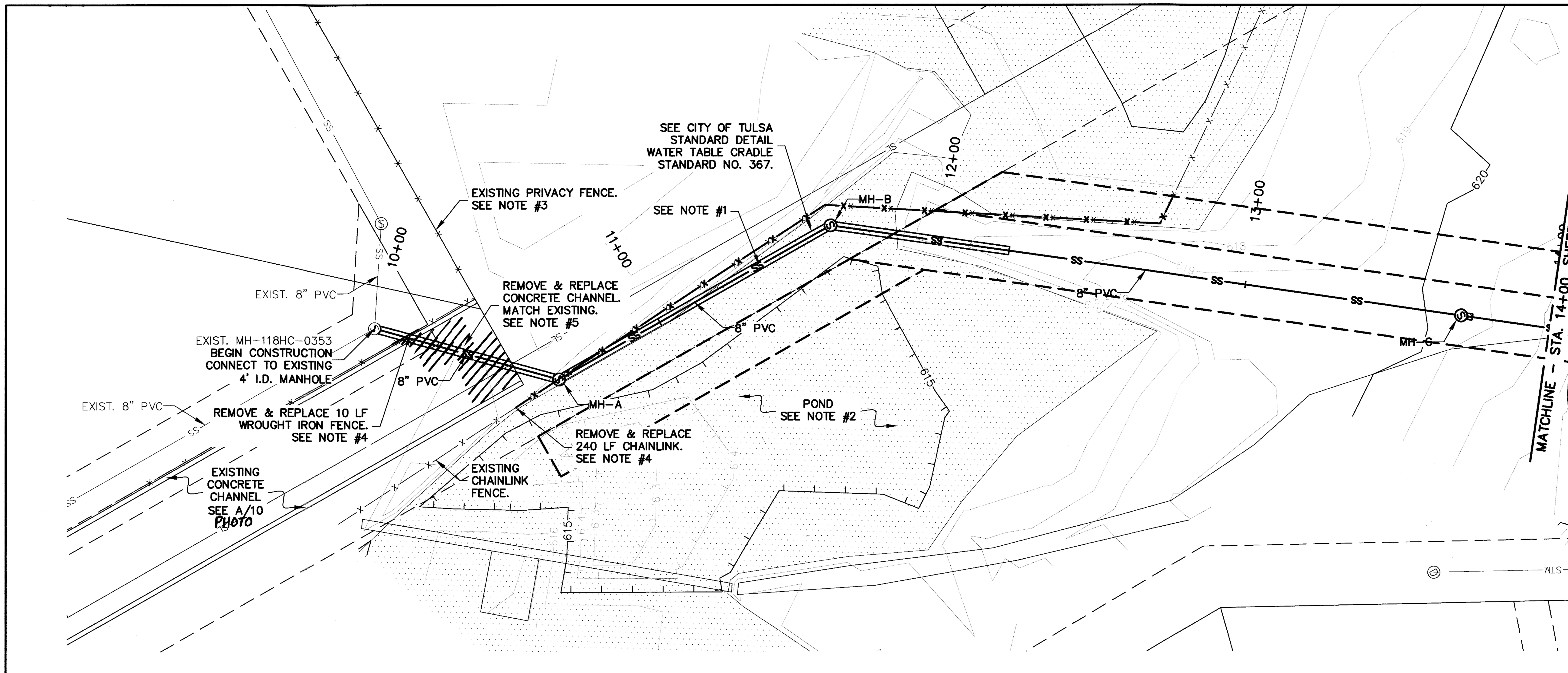


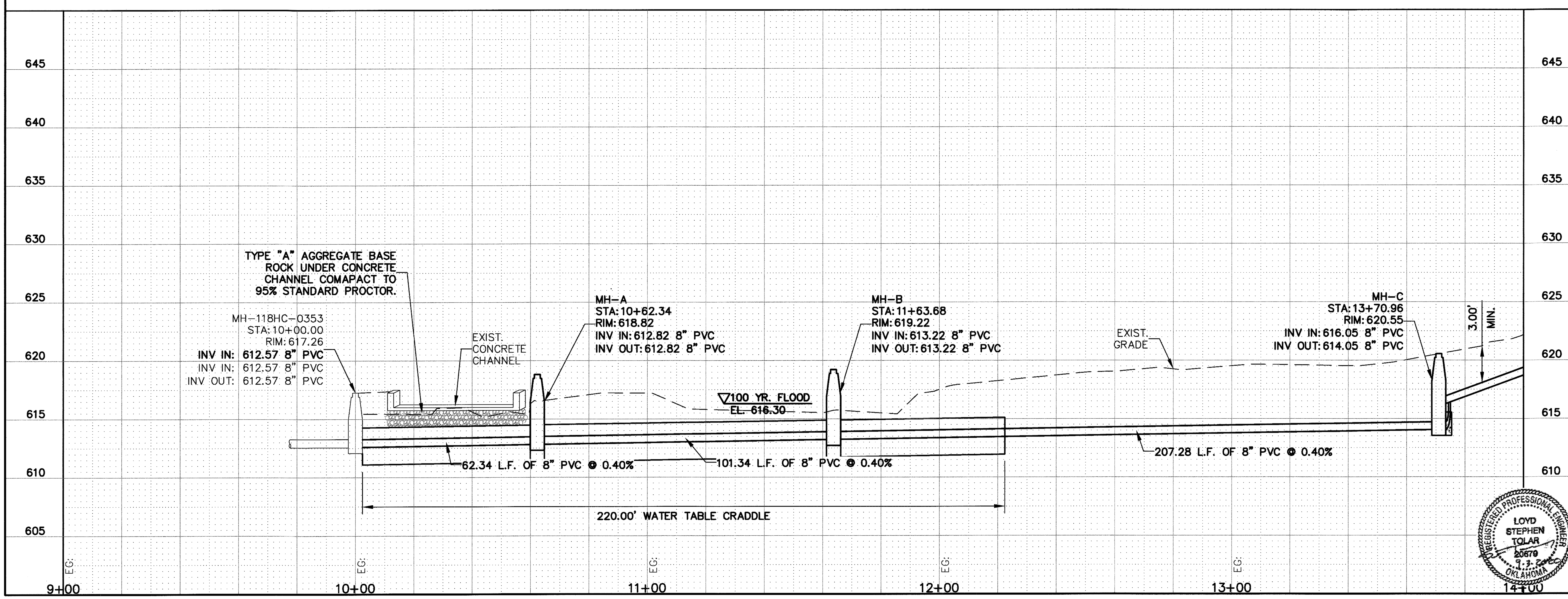
A/10 PHOTO @ EXISTING CHANNEL

SCALE: NTS

NOTES:

1. CLEAR PROPOSED ALIGNMENT OF VEGETATION AND TREES FOR NEW WORK.
2. PROTECT POND, DRAINAGE AND HOME OWNERS ASSOCIATION PARK AREA DURING CONSTRUCTION.
3. PROTECT EXISTING FENCES ALONG AND ADJACENT TO WORK.
4. REMOVE AND REPLACE 6'-0" CHAIN LINK FENCE WITH LIKE KIND. PROVIDE SPECIAL 3'x12" CONCRETE POST FOOTINGS. COORDINATE WITH CITY AND DEVELOPMENT HOA FOR FINAL ALIGNMENT.
5. PROTECT, REMOVE SECTIONS AND REPLACE SECTION(S) OF SPECIAL WROUGHT IRON PANEL FENCING ON THE CONCRETE CHANNEL WALL AS REQUIRED FOR NEW WORK. CONTRACTOR SHALL PROVIDE FULL CONCRETE PANEL REPLACEMENT. COORDINATE WITH OWNERS REPRESENTATIVE.

0 20' 40'
SCALE: 1" = 20'



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FRANCIS HILLS RELIEF SEWER & VENSEL CREEK LIFT STATION IMPROVEMENTS TMUA PROJECT NO. ES 2019-01

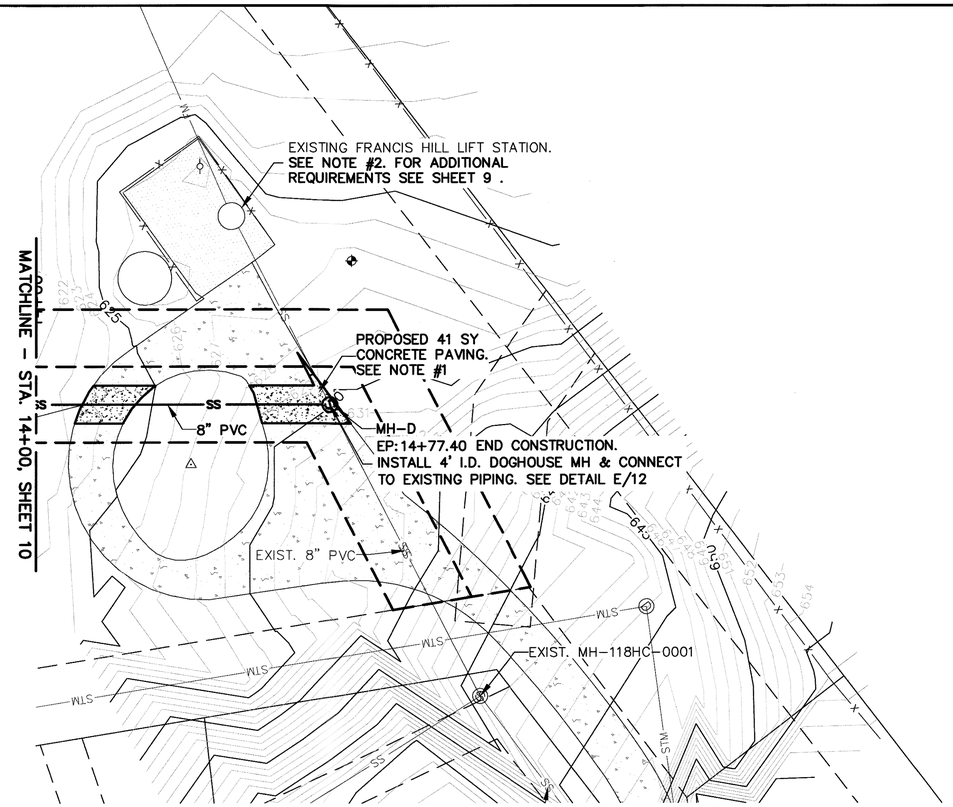
FRANCIS HILLS RELIEF SEWER PLAN & PROFILE

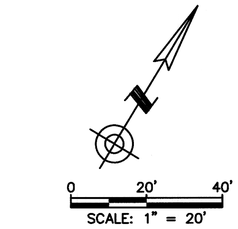
ENGINEERING SERVICES DEPARTMENT CITY OF TULSA, OKLAHOMA
ENGINEERING SERVICES DEPARTMENT

PLANS AND ESTIMATES PREPARED BY: HOLLOWAY, UPDIKE + BELLEN, Inc.

PLAN SCALE: 1"=20'	DRAWN	JME		APPROVED:
	DESIGNED	LST		
	SURVEY			
PROFILE SCALE:	PROJ. MGR.	RPN	9/2020	
HORIZONTAL: 1"=20'	LEAD ENGR.	ADJ	9/20	
	FIELD MGR.		9/20	
VERTICAL: 1"=5'	RECOMMENDED	AHS	9-20	
	DESIGN MANAGER			CITY ENGINEER
HUB PROJECT NO:	19TMUACITYLS			DATE: 08/13/2020
ATLAS PAGE NO:	1423			SHEET 10 OF 21 SHEETS

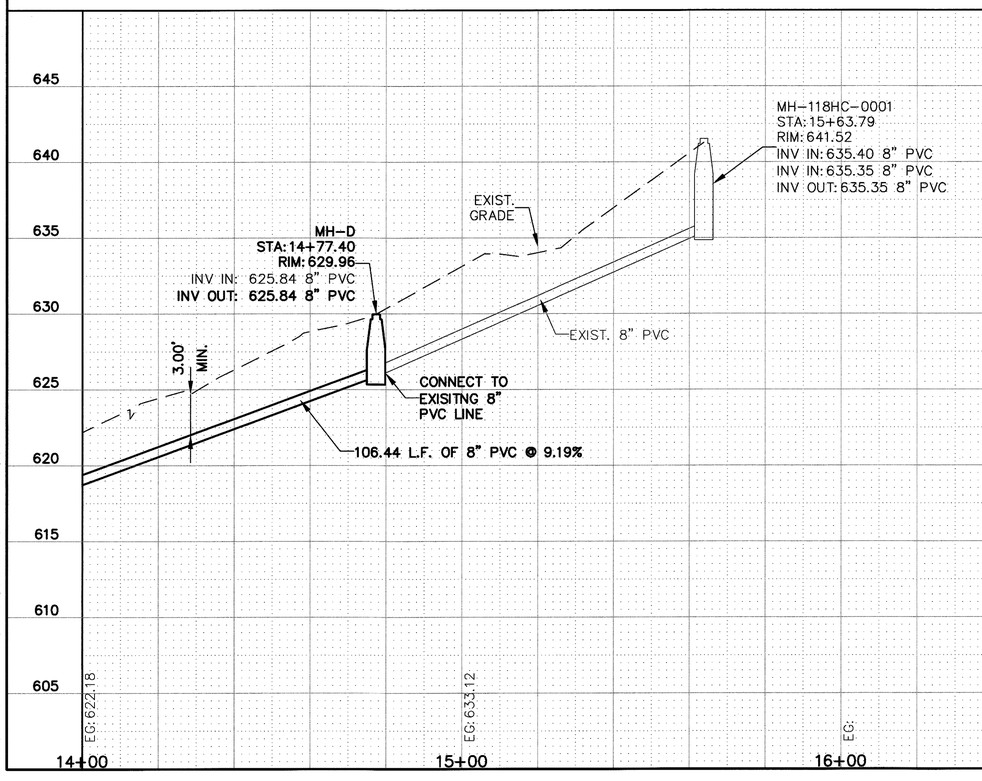
REGISTERED PROFESSIONAL ENGINEER LOYD STEPHEN TOLAR 20679 OKLAHOMA





NOTES:

1. REPLACE CONCRETE PAVING AS REQUIRED FOR INSTALLATION OF THE PROPOSED MANHOLE.
2. SOD ALL DISTURBED AREAS AS REQUIRED.



REVISION	BY	DATE

BAR IS ONE INCH ON ORIGINAL DRAWING 0 —— 1" IF NOT ONE INCH ON THIS SHEET, ADJUST SCALES ACCORDINGLY

FRANCIS HILLS RELIEF SEWER & VENSEL CREEK LIFT STATION IMPROVEMENTS TMUA PROJECT NO. ES 2019–01

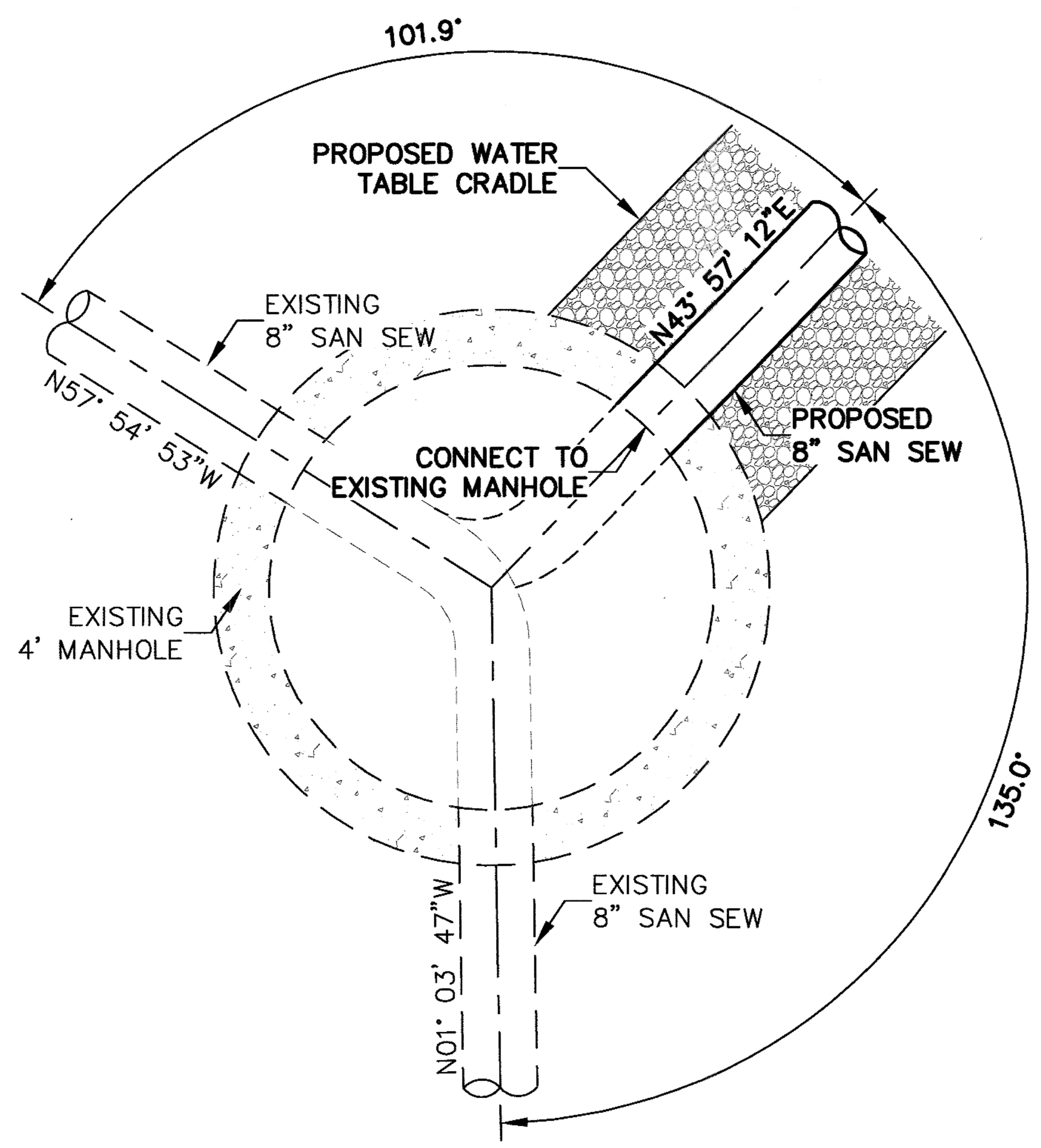
FRANCIS HILLS RELIEF SEWER PLAN & PROFILE

ENGINEERING SERVICES DEPARTMENT
CITY OF TULSA, OKLAHOMA
ENGINEERING SERVICES DEPARTMENT

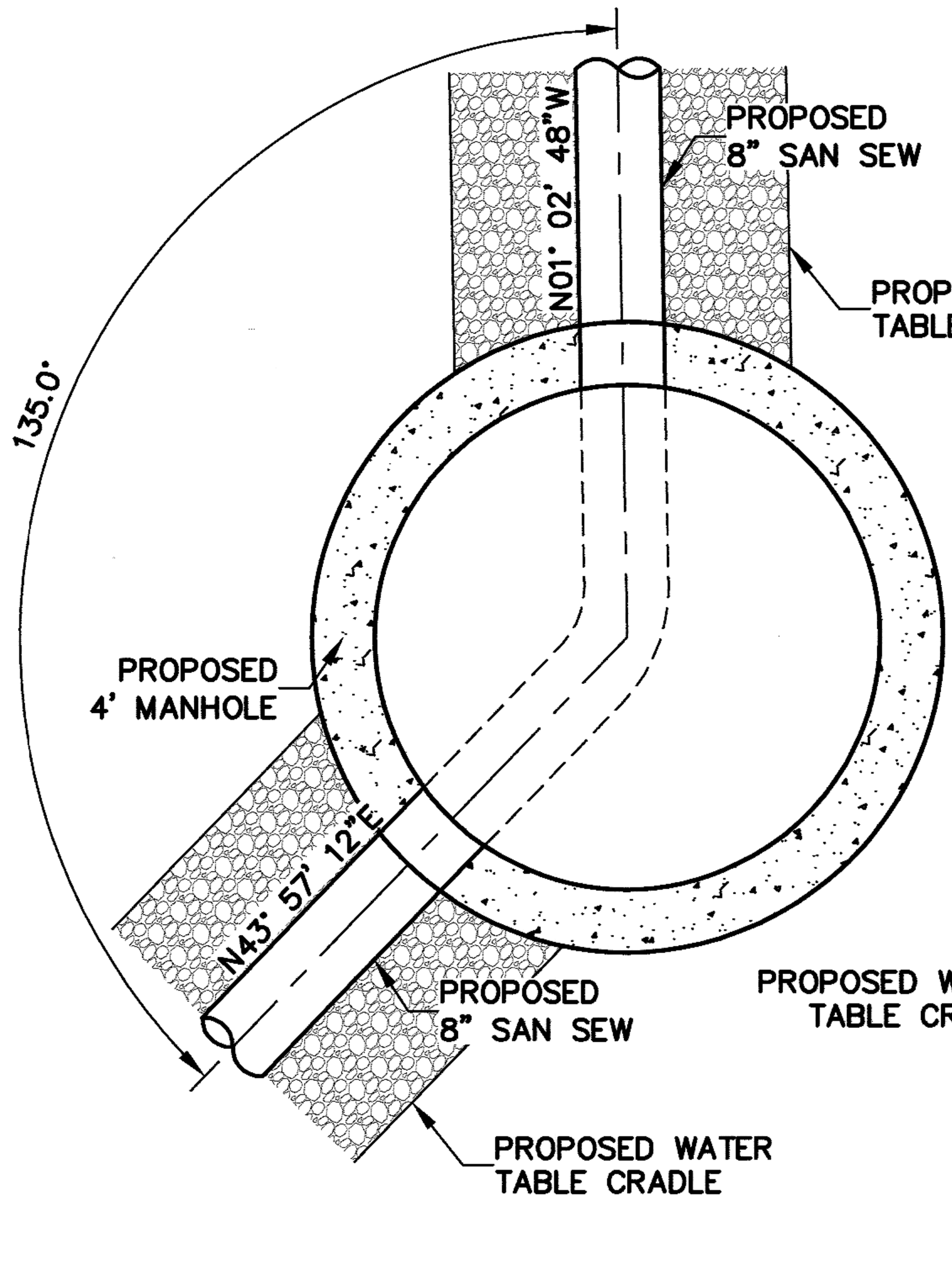
PLANS AND ESTIMATES PREPARED BY: HOLLOWAY, UPDIKE + BELLEN, Inc.
808-A S. 9TH ST., BROKEN ARROW, OKLAHOMA 74012
(918)258-4777, FAX (918)258-4784

PLAN SCALE: 1"=20'	DRAWN	JME	APPROVED:
	DESIGNED	LST	
	SURVEY		
PROFILE SCALE:	PROJ. MGR.	[illegible] 9/2020	
HORIZONTAL: 1"=20'	LEAD ENGR.	ADT 9/20	
	FIELD MGR.	[illegible] 9/20	
VERTICAL: 1"=5'	RECOMMENDED: DESIGN MANAGER	HAS 9.20	CITY ENGINEER
HUB PROJECT NO:	19TMUACITYLS		DATE: 08/31/2020
ATLAS PAGE NO:	1423		SHEET 11 OF 21 SHEETS

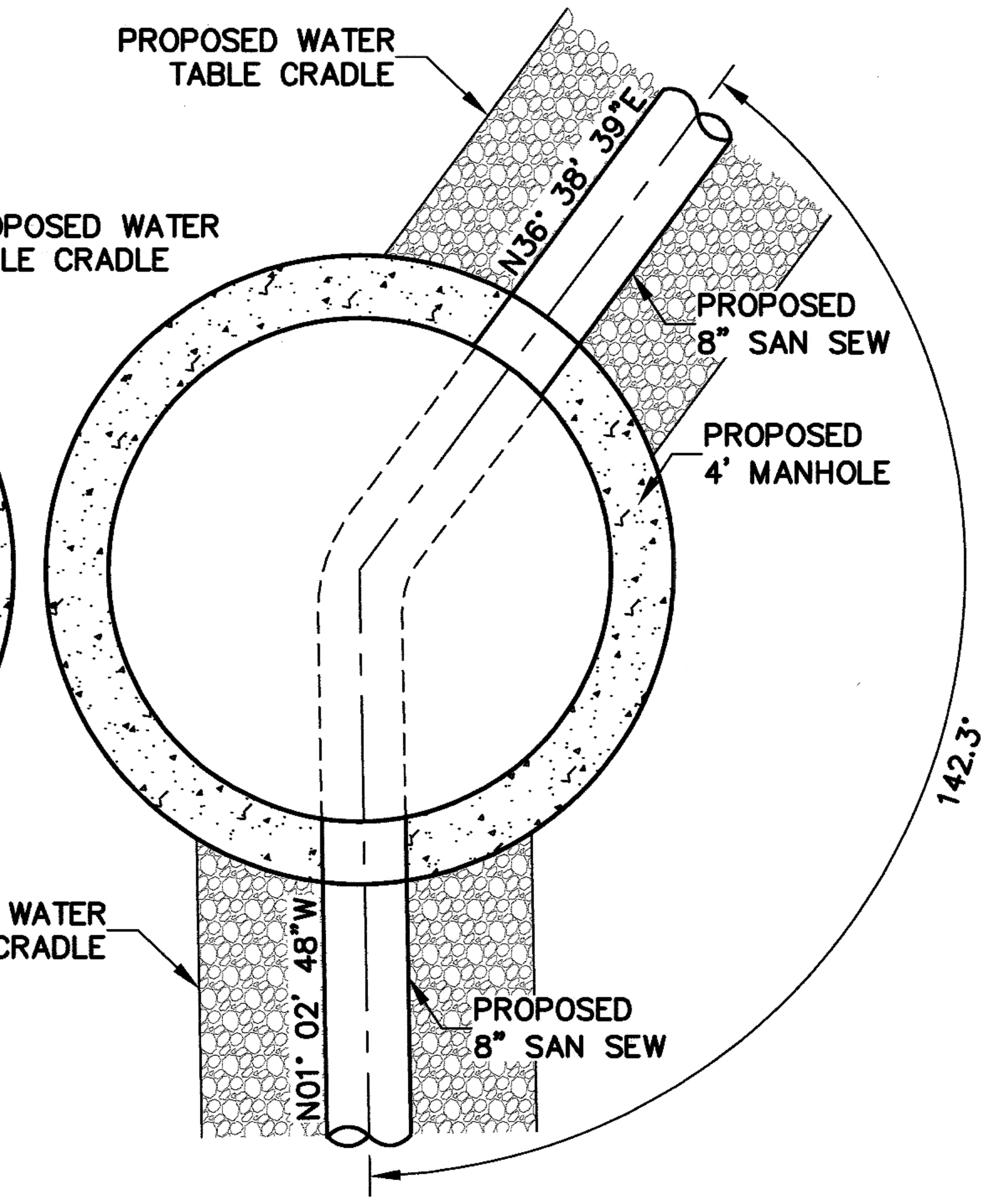
REGISTERED PROFESSIONAL ENGINEER
LOYD STEPHEN TOLAR
20679
8-31-2020
OKLAHOMA



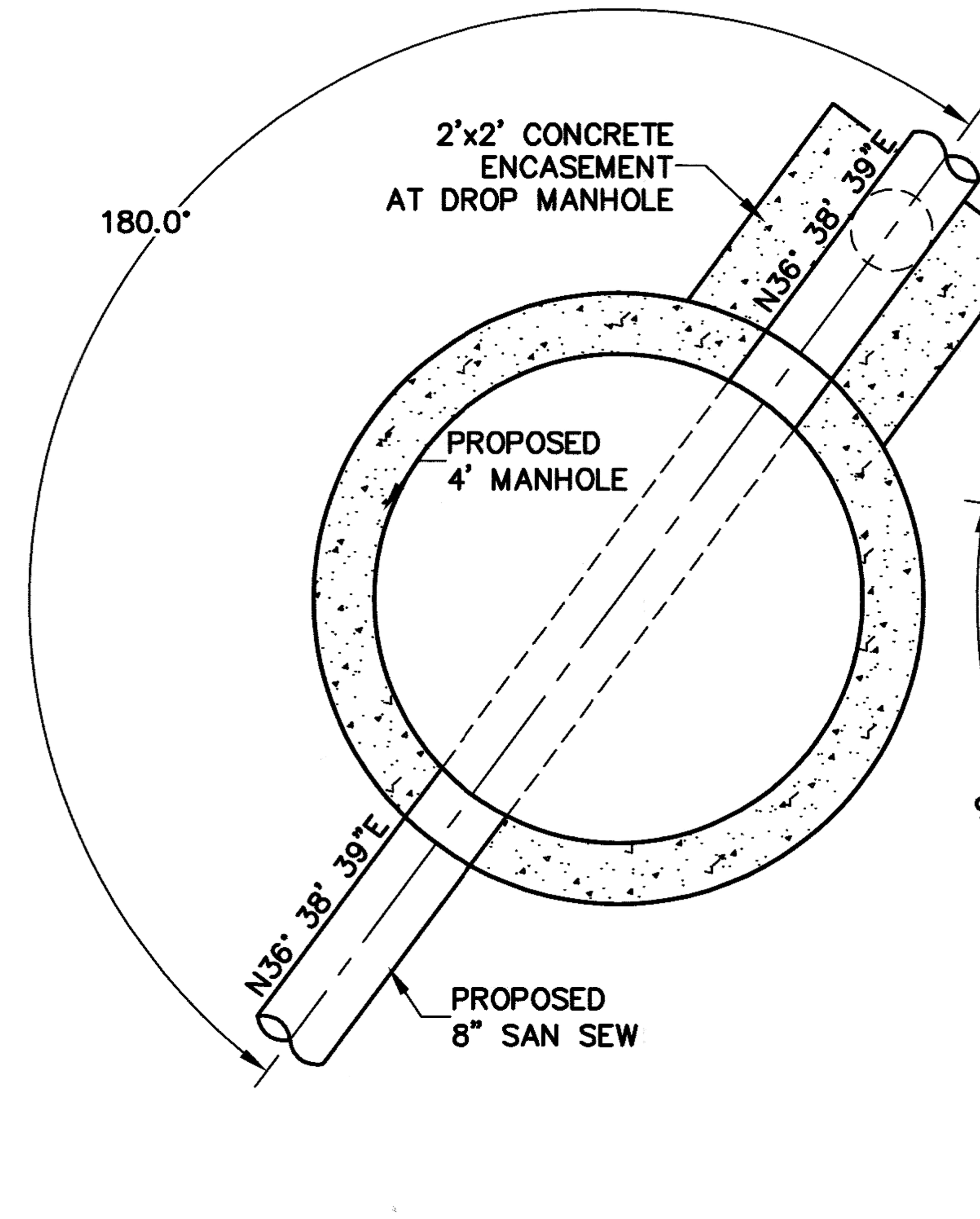
A 12 MANHOLE–118HC–0353
SCALE: 3/4" = 1'–0"



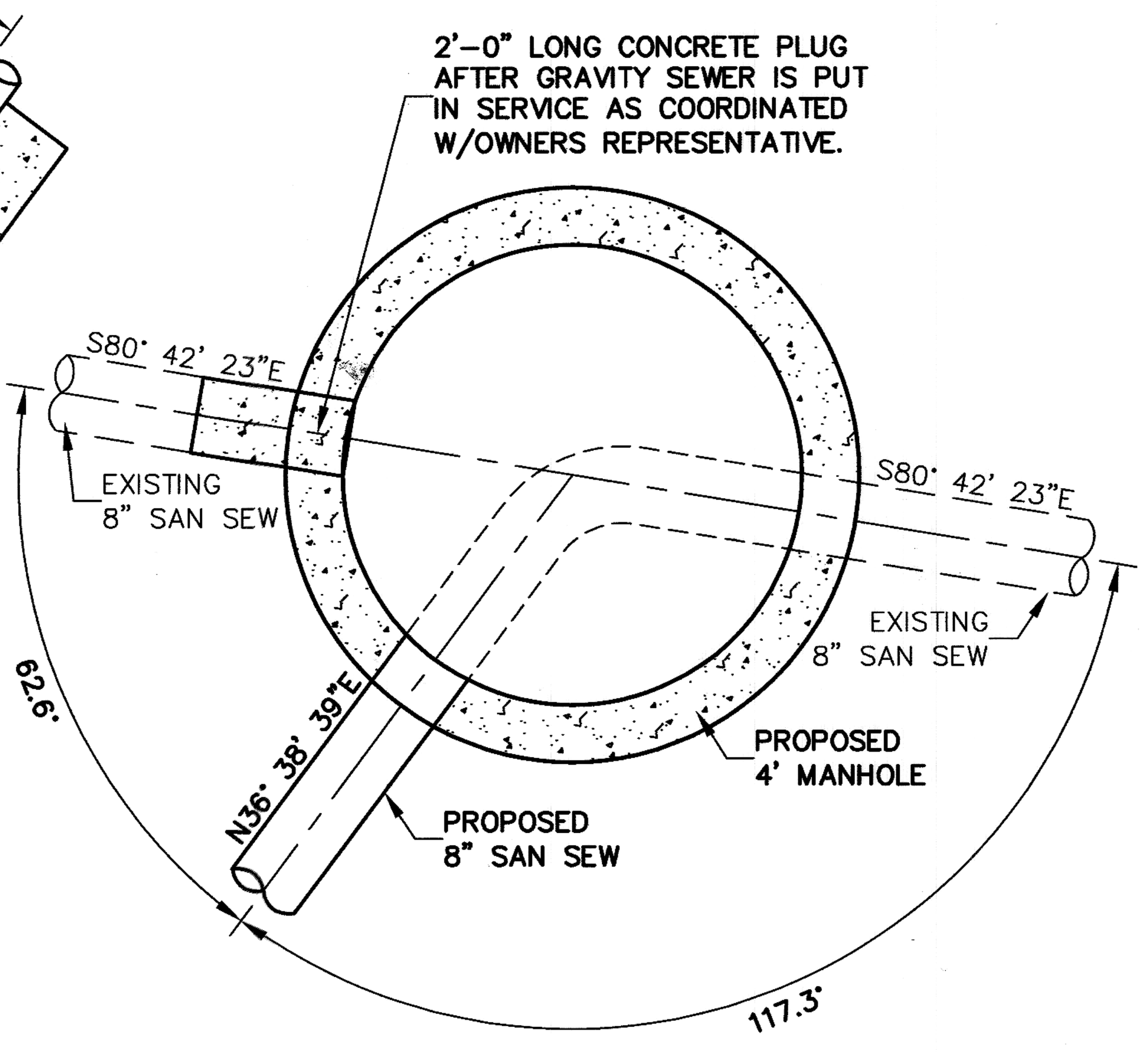
B 12 MANHOLE–"A"
SCALE: 3/4" = 1'–0"



C 12 MANHOLE–"B"
SCALE: 3/4" = 1'–0"



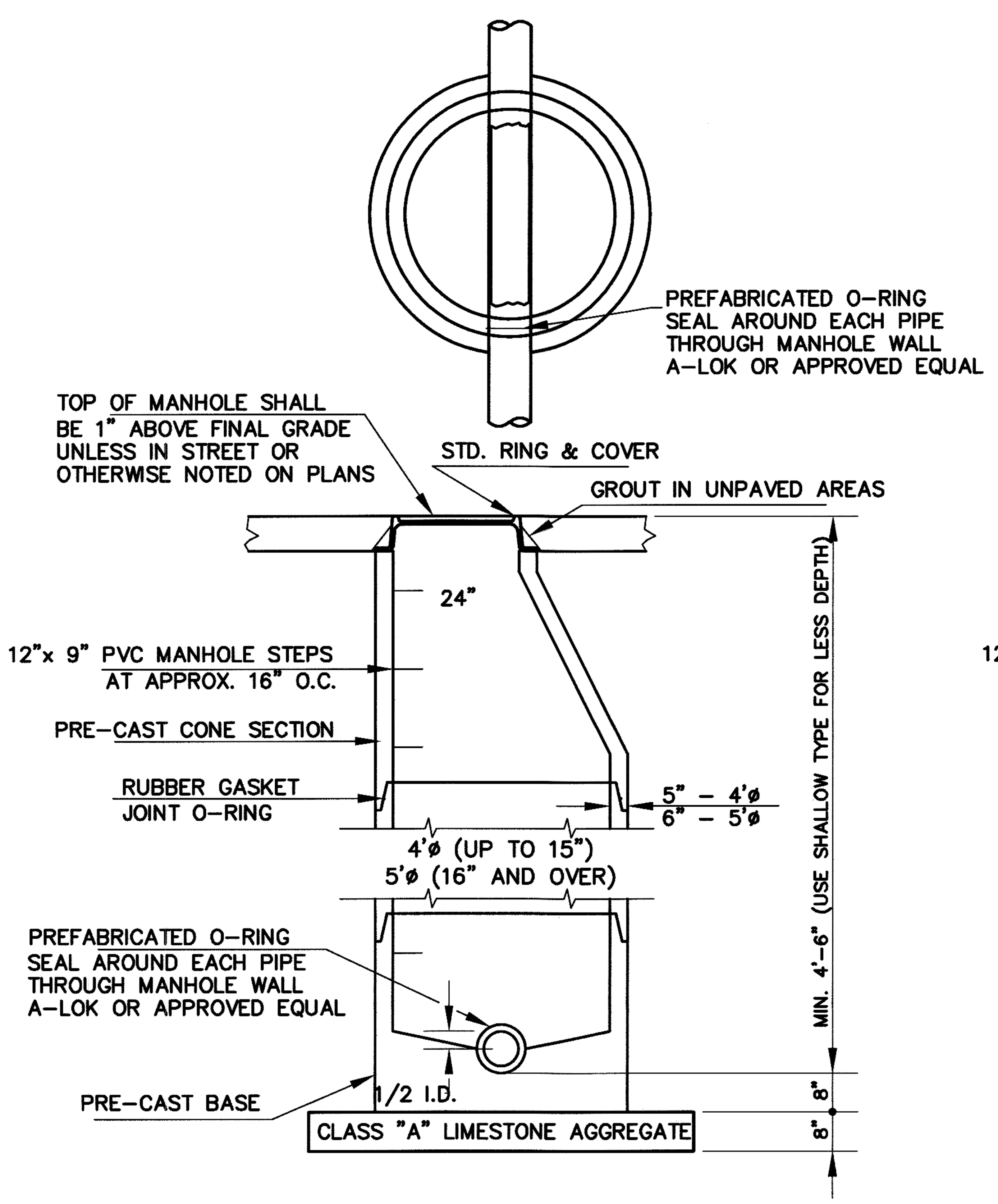
D 12 DROP MANHOLE–"C"
SCALE: 3/4" = 1'–0"



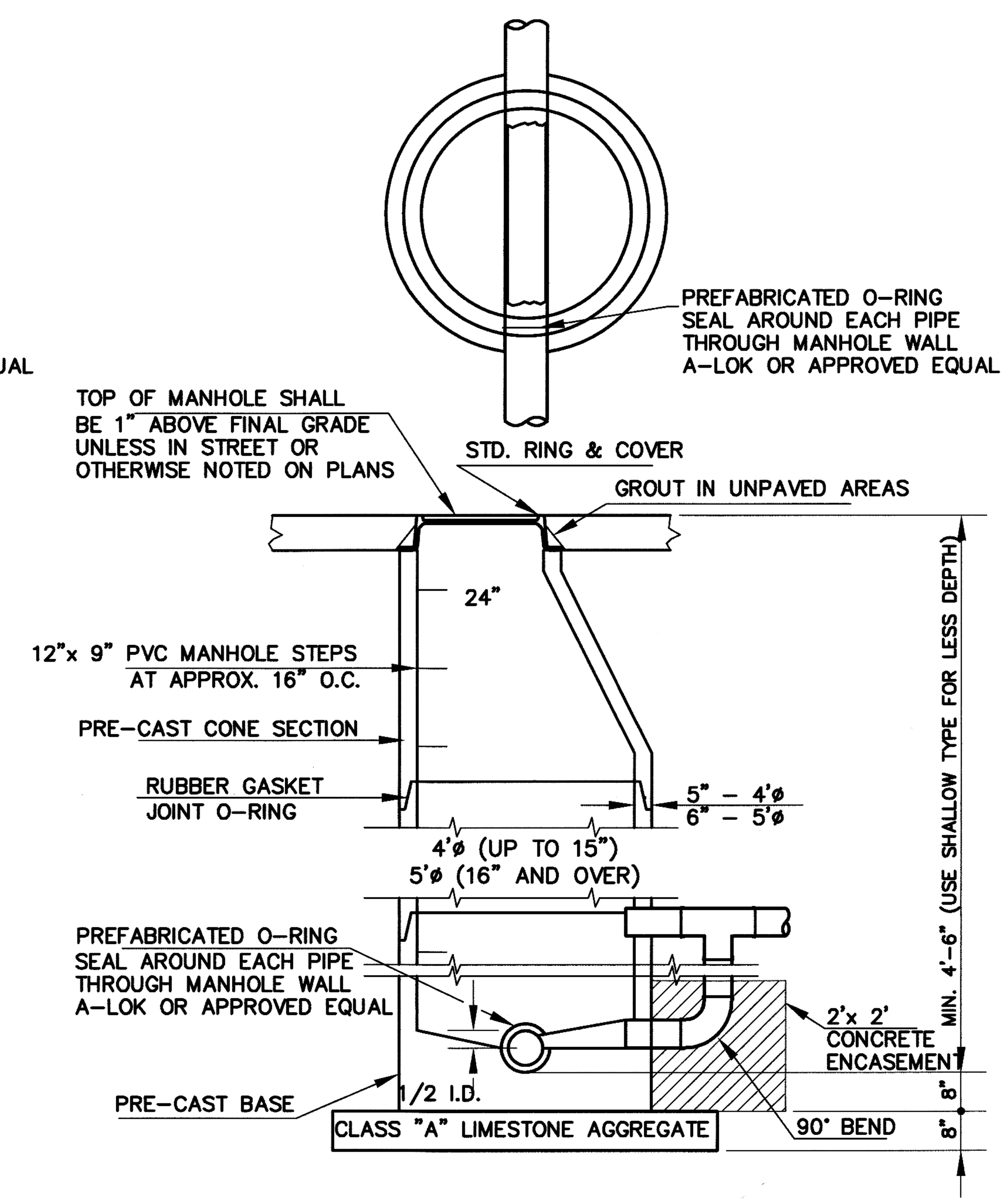
E 12 MANHOLE–"D"
SCALE: 3/4" = 1'–0"

NOTES:

1. REFER TO CITY OF TULSA STANDARD SPECIFICATIONS & DRAWINGS OCTOBER 2013



STANDARD PRECAST CONCRETE MANHOLE



STANDARD PRECAST CONCRETE DROP MANHOLE
(WHEN DROP IS 2'–0" OR MORE)
DETAIL NOTES:
1. SEE CITY OF TULSA STANDARD DETAILS & SPECIFICATIONS FOR REQUIREMENTS.

REGISTERED PROFESSIONAL ENGINEER LOYD STEPHEN TOLAR 20679 OKLAHOMA 9.3.2020

REVISION	BY	DATE

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FRANCIS HILLS RELIEF SEWER & VENSEL CREEK LIFT STATION IMPROVEMENTS
TMUA PROJECT NO. ES 2019–01

FRANCIS HILLS RELIEF SEWER
MANHOLE DETAILS

ENGINEERING SERVICES DEPARTMENT
CITY OF TULSA, OKLAHOMA
ENGINEERING SERVICES DEPARTMENT

PLANS AND ESTIMATES PREPARED BY: HOLLOWAY, UPDIKE + BELLEN, Inc.

PLAN SCALE: VARIES	DRAWN	JME	APPROVED:
	DESIGNED	LST	
	SURVEY		
PROFILE SCALE:	PROJ. MGR.	RBV 9/2020	
HORIZONTAL:	LEAD ENGR.	ADJ 5/20	
	FIELD MGR.	[illegible] 9/20	
VERTICAL:	RECOMMENDED: DESIGN MANAGER	HAS 9.20	CITY ENGINEER
HUB PROJECT NO:	19TMUACITYLS		DATE: 08/13/2020
ATLAS PAGE NO:	1423		SHEET 12 OF 21 SHEETS

SDMH
RIM 618.24
FL 18" RCP 609.14

BM
60d NAIL IN PP
EL 620.32

EXISTING 24"
GRAVITY SEWER

SSMH
RIM 619.93
FL 24" 601.58

DEMOLISH
HANDRAIL
AS REQUIRED.

EXISTING
HATCH
(DEMOLISH
SEE NOTE 1)

TOS 623.68

EXISTING
ELEVATED
WALKWAY

DEMOLISH ODOR CONTROL
CAN DRAIN, CHIP BACK
CONCRETE/PVC PIPE
& REPAIR SURFACE

PROTECT ODOR
CONTROL INTAKE
PIPING FOR REUSE

EXISTING WET WELL
ODOR CONTROL SYSTEM
(REMOVE SEE NOTE 2)

EXISTING CONCRETE
ELECTRCIAL PAD

EXISTING
GENERATOR
PAD

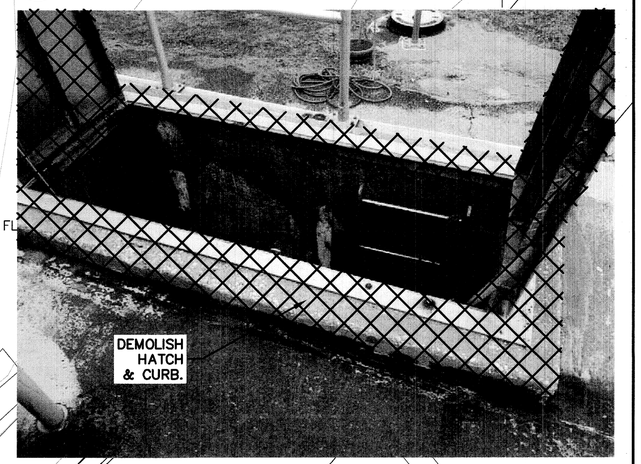
CONTROL
BUILDING
FF 623.84

MANHOLE
RIM: 618.53
FF: 609.70

SSMH
RIM 618.01
FL 12" VCP 602.62

0 5' 10'
SCALE: 1" = 5'

A/13 PHOTO @ EXISTING EXHAUST SYSTEM
SCALE: NTS



B/13 PHOTO @ EXISTING HATCH
SCALE: NTS

NOTES:

1. DEMOLISH HATCH AND CURB DOWN TO TOP OF THE SLAB PREPARING FOR THE NEW HATCH. CUT STRUCTURE DECK FOR NEW HATCH WITH WEST FACE OF THE NEW HATCH FLUSH WITH THE WEST WET WELL WALL. CHIP BACK EXPOSED REBAR AND CARBON STEEL AT DEMOLISHED CONCRETE AREA BACK 3/4" MINIMUM AND INSTALL NON-SHRINK GROUT REPAIRING SURFACE.
2. DEMOLISH THE EXISTING ODOR CONTROL SYSTEM AND PIPING. PROTECT ELECTRIC AND CONDUITS. REMOVE ANCHOR BOLT FROM SLAB, CHIP BACK 3/4" AND REPAIR WITH NON-SHRINK GROUT. STORE AND PROTECT ODOR CONTROL SYSTEM FOR INSTALLATION AT NEW LOCATION.

ADDITIVE ALTERNATE #1
GRINDER & ODOR CONTROL SYSTEM

REGISTERED PROFESSIONAL ENGINEER
LOYD STEPHEN TOLAR
20670
9.3.20
OKLAHOMA

REVISION	BY	DATE

BAR IS ONE INCH ON ORIGINAL DRAWING 0 —— 1" IF NOT ONE INCH ON THIS SHEET, ADJUST SCALES ACCORDINGLY

FRANCIS HILLS RELIEF SEWER & VENSEL CREEK LIFT STATION IMPROVEMENTS TMUA PROJECT NO. ES 2019-01

VENSEL CREEK LIFT STATION DEMOLITION PLAN

ENGINEERING SERVICES DEPARTMENT
CITY OF TULSA, OKLAHOMA
ENGINEERING SERVICES DEPARTMENT

PLANS AND ESTIMATES PREPARED BY: HOLLOWAY, UPDIKE + BELLEN, Inc.
1408-A S. 6TH ST., BROKEN ARROW, OKLAHOMA 74012
(918)251-1717, FAX (918)251-1764

PLAN SCALE: 1"=5'	DRAWN	JME		APPROVED:
	DESIGNED	LST		
	SURVEY			
PROFILE SCALE:	PROJ. MGR.	[illegible]	9/2020	
HORIZONTAL:	LEAD ENGR.	ADJ	9/20	
	FIELD MGR.	[illegible]	9/20	
VERTICAL:	RECOMMENDED:	HAS	9-20	CITY ENGINEER
	DESIGN MANAGER			

HUB PROJECT NO: 19TMUACITYLS
DATE: 08/13/2020
ATLAS PAGE NO: 1277
SHEET 13 OF 21 SHEETS

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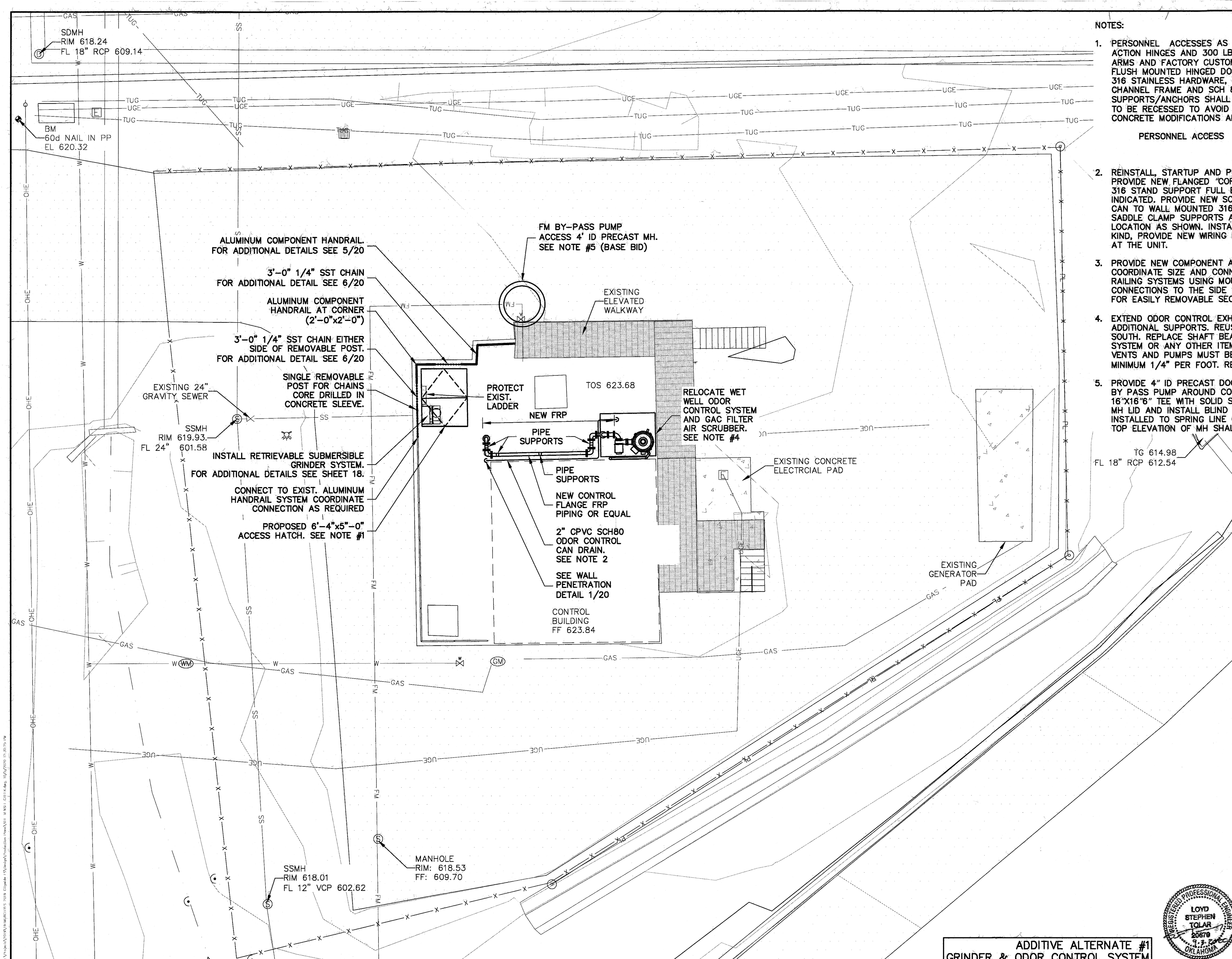
SDMH
RIM 618.24
FL 18" RCP 609.14
BM
60d NAIL IN PP
EL 620.32
ALUMINUM COMPONENT HANDRAIL. FOR ADDITIONAL DETAILS SEE 5/20
3'-0" 1/4" SST CHAIN FOR ADDITIONAL DETAIL SEE 6/20
ALUMINUM COMPONENT HANDRAIL AT CORNER (2'-0"x2'-0")
3'-0" 1/4" SST CHAIN EITHER SIDE OF REMOVABLE POST. FOR ADDITIONAL DETAIL SEE 6/20
SINGLE REMOVABLE POST FOR CHAINS CORE DRILLED IN CONCRETE SLEEVE.
EXISTING 24" GRAVITY SEWER
SSMH
RIM 619.93
FL 24" 601.58
INSTALL RETRIEVABLE SUBMERSIBLE GRINDER SYSTEM. FOR ADDITIONAL DETAILS SEE SHEET 18.
CONNECT TO EXIST. ALUMINUM HANDRAIL SYSTEM COORDINATE CONNECTION AS REQUIRED
PROPOSED 6'-4"x5"-0" ACCESS HATCH. SEE NOTE #1
FM BY-PASS PUMP ACCESS 4' ID PRECAST MH. SEE NOTE #5 (BASE BID)
EXISTING ELEVATED WALKWAY
PROTECT EXIST. LADDER
TOS 623.68
NEW FRP
PIPE SUPPORTS
RELOCATE WET WELL ODOR CONTROL SYSTEM AND GAC FILTER AIR SCRUBBER. SEE NOTE #4
PIPE SUPPORTS
NEW CONTROL FLANGE FRP PIPING OR EQUAL
2" CPVC SCH80 ODOR CONTROL CAN DRAIN. SEE NOTE 2
SEE WALL PENETRATION DETAIL 1/20
CONTROL BUILDING FF 623.84
EXISTING CONCRETE ELECTRCIAL PAD
EXISTING GENERATOR PAD
TG 614.98
FL 18" RCP 612.54
MANHOLE
RIM: 618.53
FF: 609.70
SSMH
RIM 618.01
FL 12" VCP 602.62
SCALE: 1" = 5'

NOTES:

1. PERSONNEL ACCESSES AS SHOWN SHALL BE ALUMINUM DOORS WITH CAM ACTION HINGES AND 300 LB/SF LOAD RATING. AUTO LOCK HOLD DOOR OPEN ARMS AND FACTORY CUSTOM 3" DEEP, 4" X 6" PAD LOCK BOX WITH SMALL FLUSH MOUNTED HINGED DOOR SHALL BE INCLUDED. ALL HARDWARE SHALL BE 316 STAINLESS HARDWARE, FASTENERS AND HINGES. VALVE VAULT HATCH WITH CHANNEL FRAME AND SCH 80 PVC DRAIN PIPED WITH STAINLESS PIPE SUPPORTS/ANCHORS SHALL BE ROUTED TO THE FLOOR DRAIN. HATCH HANDLES TO BE RECESSED TO AVOID TRIP HAZARD. CONTRACTOR TO COORDINATE CONCRETE MODIFICATIONS AND REPAIRS AS REQUIRED.

   PERSONNEL ACCESS — HALLIDAY, 316 STAINLESS WITH SAFETY GRATING AND CUSTOM HINGED RECESSED PAD LOCK BOX OR EQUAL.

2. REINSTALL, STARTUP AND PUT INTO SERVICE THE ODOR CONTROL SYSTEM. PROVIDE NEW FLANGED "CORTOL" OR EQUAL FLANGED FRP PIPING WITH 2" - 316 STAND SUPPORT FULL BOLTED SADDLE CLAMP STYLE SUPPORTS AS INDICATED. PROVIDE NEW SCH 80 CPVC DRAIN PIPING FROM ODOR CONTROL GAC CAN TO WALL MOUNTED 316 STAINLESS STEEL WALL MOUNTED FULL BOTTLED SADDLE CLAMP SUPPORTS AND ROUTE TO NEW CONCRETE CORE DRILLED DRAIN LOCATION AS SHOWN. INSTALL NEW JUNCTION BOX, EXTEND CONDUIT WITH LIKE KIND, PROVIDE NEW WIRING BACK TO SOURCE AND A NEW DISCONNECT SWITCH AT THE UNIT.

3. PROVIDE NEW COMPONENT ALUMINUM 2" HANDRAIL SYSTEM WHERE SHOWN. COORDINATE SIZE AND CONNECTIONS TO EXISTING RAILING. PROVIDE REMOVABLE RAILING SYSTEMS USING MOUNTED POCKETS AT THE SLAB AND CHAINED CONNECTIONS TO THE SIDE RAILING OR SOME OTHER EASY OPERATION SYSTEM FOR EASILY REMOVABLE SECTIONS. CONTRACTOR TO COORDINATE.

4. EXTEND ODOR CONTROL EXHAUST VENT 2' ABOVE TOP OF ROOF ALONG WITH ADDITIONAL SUPPORTS. REUSE SCREENED TEE AND FACE OPENING NORTH & SOUTH. REPLACE SHAFT BEARING AND SPENT CARBON MEDIA IN ODOR CONTROL SYSTEM OR ANY OTHER ITEMS FOUND NOT TO BE IN WORKING ORDER. ALL VENTS AND PUMPS MUST BE CONFIGURED TO DRAIN BACK INTO WET WELL MINIMUM 1/4" PER FOOT. RECONNECT ELECTRICAL AS REQUIRED.

5. PROVIDE 4" ID PRECAST DOGHOUSE MANHOLE OVER EXISTING FORCE MAIN FOR BY PASS PUMP AROUND CONNECTIONS. REMOVE EXISTING VALVE AND INSTALL 16"X16"6" TEE WITH SOLID SLEEVE. INCLUDED 6" DIP UP TO WITHIN 6" OF THE MH LID AND INSTALL BLIND FLANGE. MH SHALL HAVE 12" OF WASHED #57 ROCK INSTALLED TO SPRING LINE OF PIPING AND BEDDING PER COT STANDARDS 2013. TOP ELEVATION OF MH SHALL BE INSTALLED 6" ABOVE THE PAVEMENT SURFACE.

REVISION	BY	DATE

BAR IS ONE INCH ON ORIGINAL DRAWING — IF NOT ONE INCH ON THIS SHEET, ADJUST SCALES ACCORDINGLY

FRANCIS HILLS RELIEF SEWER & VENSEL CREEK LIFT STATION IMPROVEMENTS
TMUA PROJECT NO. ES 2019-01

VENSEL CREEK LIFT STATION SITE PLAN

ENGINEERING SERVICES DEPARTMENT
CITY OF TULSA, OKLAHOMA
ENGINEERING SERVICES DEPARTMENT

PLANS AND ESTIMATES PREPARED BY: HOLLOWAY, UPDIKE + BELLEN, Inc.

PLAN SCALE: 1"=5	DRAWN	JME	APPROVED:
	DESIGNED	LST	
	SURVEY		
PROFILE SCALE:	PROJ. MGR.	9/2020	
HORIZONTAL:	LEAD ENGR.	9/20	
	FIELD MGR.	9/20	
VERTICAL:	RECOMMENDED	HAS 9-20	
	DESIGN MANAGER		CITY ENGINEER
HUB PROJECT NO:	19TMUACITYLS		DATE: 08/13/2020
ATLAS PAGE NO:	1277		SHEET 14 OF 21 SHEETS

REGISTERED PROFESSIONAL ENGINEER LOYD STEPHEN TOLAR 20679 OKLAHOMA

ADDITIVE ALTERNATE #1
GRINDER & ODOR CONTROL SYSTEM

SDMH
RIM 618.24
FL 18" RCP 609.14

BM
60d NAIL IN PP
EL 620.32

10.00'

EXISTING
ELEVATED
WALKWAY

PROTECT &
SUPPORT
WALKWAY.
SEE NOTE #2

TOS 623.68

EXISTING CONCRETE
ELECTRCIAL PAD

EXISTING
GENERATOR
PAD

SEE NOTE #1

EXISTING 24"
GRAVITY SEWER

SSMH
RIM 619.93
FL 24" 601.58

SEE NOTE #3

SEE NOTE #1

CONTROL
BUILDING
FF 623.84

DEMOLISH EXISITNG PAVING
ALTERNATE #2 OR #3

MANHOLE
RIM: 618.53
FF: 609.70

SSMH
RIM 618.01
FL 12" VCP 602.62

TG 614.98
FL 18" RCP 612.54

FL 608.56

NOTES:

1. PAVING DEMOLITION INCLUDES ALL EXCAVATION AND HARD SURFACE TO THE FENCE LINE FOR ALL PROPOSED PAVING IMPROVEMENTS.
2. PROTECT & SUPPORT EXISTING ELEVATED WALKWAY OR AT CONTRACTOR OPTIONS REMOVE & STORE DURING WORK & REINSTALL.
3. PROTECT EXISTING EQUIPMENT & SERVICES.

0 5' 10'
SCALE: 1" = 5'

ADDITIVE ALTERNATE #2
ASPHALT PAVING
ADDITIVE ALTERNATE #3
CONCRETE PAVING

REGISTERED PROFESSIONAL ENGINEER
LOYD STEPHEN TOLAR
20670
9-7-2020
OKLAHOMA

REVISION	BY	DATE

BAR IS ONE INCH ON ORIGINAL DRAWING 0 —— 1" IF NOT ONE INCH ON THIS SHEET, ADJUST SCALES ACCORDINGLY

FRANCIS HILLS RELIEF SEWER & VENSEL CREEK LIFT STATION IMPROVEMENTS TMUA PROJECT NO. ES 2019-01

VENSEL CREEK LIFT STATION PAVEMENT DEMOLITION PLAN

ENGINEERING SERVICES DEPARTMENT
CITY OF TULSA, OKLAHOMA
ENGINEERING SERVICES DEPARTMENT

PLANS AND ESTIMATES PREPARED BY: HOLLOWAY, UPDIKE + BELLEN, Inc.
908-A S. 9TH ST., BROKEN ARROW, OKLAHOMA 74012
(918)251-7717, FAX (918)251-7764

PLAN SCALE: 1"=5'	DRAWN	JME	APPROVED:
	DESIGNED	LST	
	SURVEY		
PROFILE SCALE:	PROJ. MGR.	[illegible] 9/2020	
HORIZONTAL:	LEAD ENGR.	[illegible] 9/20	
	FIELD MGR.	[illegible] 9/20	
VERTICAL:	RECOMMENDED:	HAS 9.20	CITY ENGINEER
	DESIGN MANAGER		

HUB PROJECT NO: 19TMUACITYLS
DATE: 08/17/2020
ATLAS PAGE NO: 1277
SHEET 15 OF 21 SHEETS

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NOTES:

1. PROTECT & SUPPORT EXISTING ELEVATED WALKWAY OR AT CONTRACTOR OPTIONS REMOVE & STORE DURING WORK & REINSTALL.
2. BOLLARDS ARE PART OF ALT #2 OR #3 WORK.
3. SURVEY AND RECORD EXISTING ASPHALT SURFACE ELEVATION PRIOR TO DEMOLITION. MATCH EXISTING ELEVATIONS AND MAINTAIN EXISTING DRAINAGE WITH NEW CONSTRUCTION. SUBMIT SURVEY PRIOR TO WORK.
4. SEE PAVING DETAILS SHEET 21.

SDMH
RIM 618.24
FL 18" RCP 609.14

BM
60d NAIL IN PP
EL 620.32

FL 608.56

TG 614.98
FL 18" RCP 612.54

SEE NOTE #3

10.00'

EXISTING ELEVATED WALKWAY

PROTECT & SUPPORT WALKWAY. SEE NOTE #2

TOS 623.68

EXISTING 24" GRAVITY SEWER

BOLLARDS, (TYP) SEE DETAIL 8/20

SSMH
RIM 619.93
FL 24" 601.58

EXISTING CONCRETE ELECTRCIAL PAD

EXISTING GENERATOR PAD

CONTROL BUILDING
FF 623.84

44 SY 3'-0" WIDE SIDEWALK AROUND STRUCTURE. FOR ADDITIONAL DETAILS SEE 3/21

609 SY PAVING ALTERNATE #2 OR #3

SSMH
RIM 618.01
FL 12" VCP 602.62

MANHOLE
RIM: 618.53
FF: 609.70

0 5' 10'
SCALE: 1" = 5'

ADDITIVE ALTERNATE #2
ASPHALT PAVING
ADDITIVE ALTERNATE #3
CONCRETE PAVING

REVISION	BY	DATE

BAR IS ONE INCH ON ORIGINAL DRAWING 0 —— 1" IF NOT ONE INCH ON THIS SHEET, ADJUST SCALES ACCORDINGLY

FRANCIS HILLS RELIEF SEWER & VENSEL CREEK LIFT STATION IMPROVEMENTS TMUA PROJECT NO. ES 2019-01

VENSEL CREEK LIFT STATION PAVEMENT SITE PLAN

ENGINEERING SERVICES DEPARTMENT
CITY OF TULSA, OKLAHOMA
ENGINEERING SERVICES DEPARTMENT

PLANS AND ESTIMATES PREPARED BY: HOLLOWAY, UPDIKE + BELLEN, Inc.
906-A S. 9TH ST., BROKEN ARROW, OKLAHOMA 74012
(918)258-4777, FAX (918)258-4784

PLAN SCALE: 1"=5	DRAWN	JME	APPROVED:
	DESIGNED	LST	
	SURVEY		
PROFILE SCALE:	PROJ. MGR.	RBN 9/2020	
HORIZONTAL:	LEAD ENGR.	ADJ 9/20	
	FIELD MGR.	BMW 9/20	
VERTICAL:	RECOMMENDED: DESIGN MANAGER	AAS 9.20	CITY ENGINEER
HUB PROJECT NO:	19TMUACITYLS		DATE: 08/13/2020
ATLAS PAGE NO:	1277		SHEET 16 OF 21 SHEETS

REGISTERED PROFESSIONAL ENGINEER — LOYD STEPHEN TOLAR — 20679 — 9-3-2020 — OKLAHOMA

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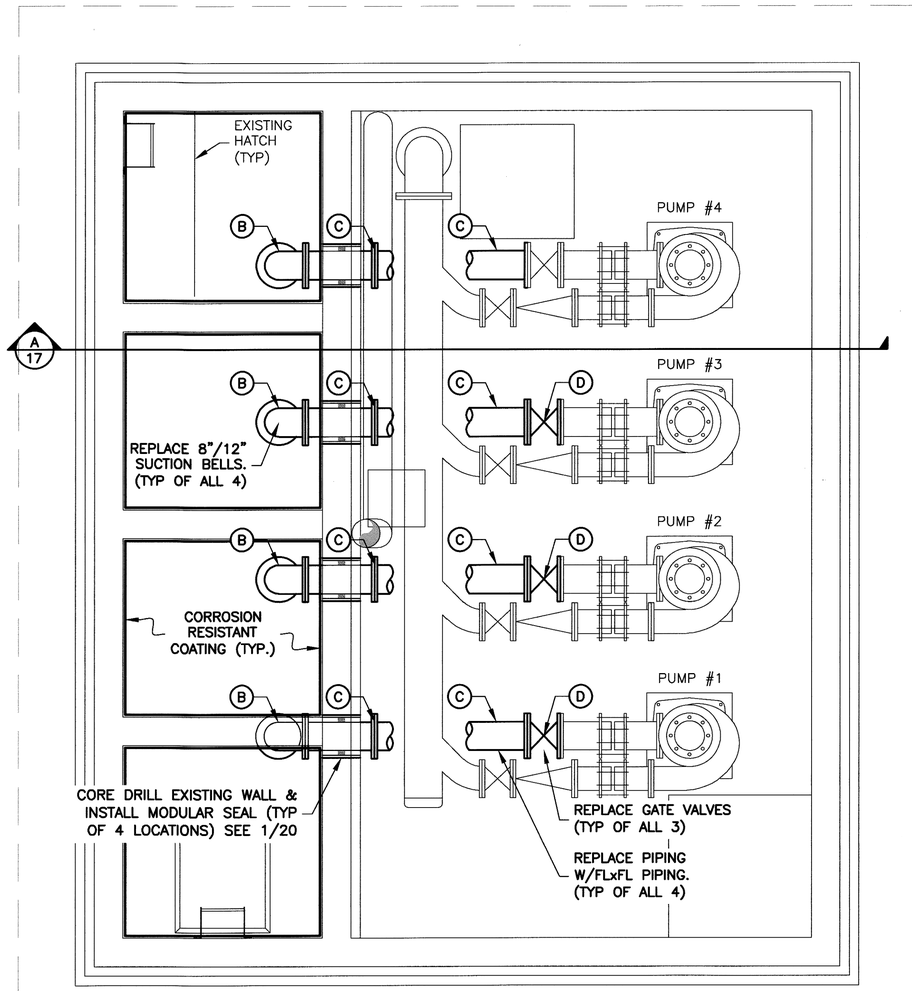
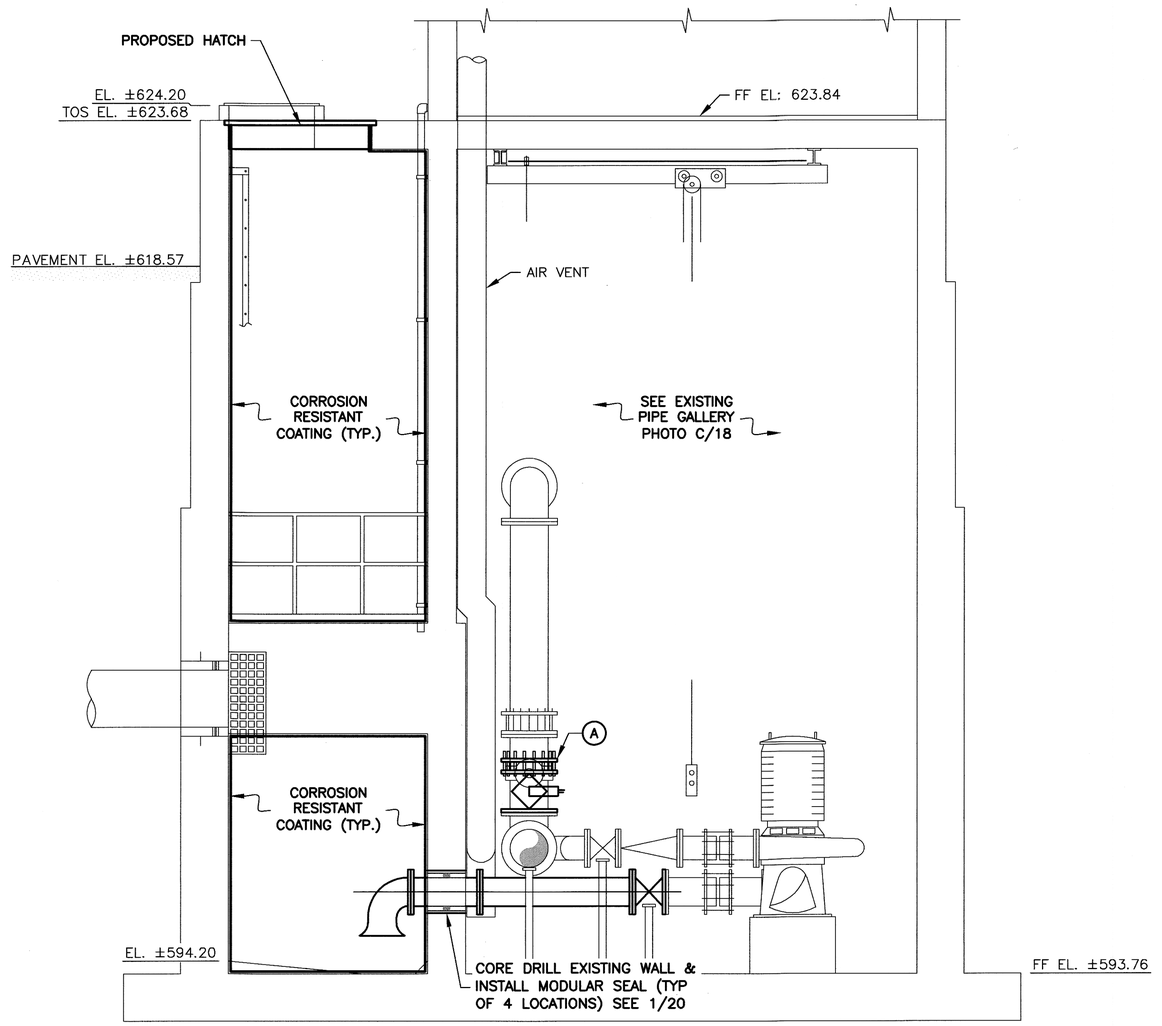


1/17 PLAN @ LIFT STATION
SCALE: 3/8" = 1'-0"



A/17 SECTION @ LIFT STATION
SCALE: 3/8" = 1'-0"

PIPING SCHEDULE

	DESCRIPTION
(A)	16" PLUG VALVE W/FLANGED COUPLING ADAPTOR
(B)	12" FLANGED BELL
(C)	12" FLANGE BY FLANGE SPOOL
(D)	12" PLUG VALVE W/MANUAL CHAIN WHEEL

REVISION	BY	DATE

BAR IS ONE INCH ON ORIGINAL DRAWING 0 —— 1" IF NOT ONE INCH ON THIS SHEET, ADJUST SCALES ACCORDINGLY

FRANCIS HILLS RELIEF SEWER & VENSEL CREEK LIFT STATION IMPROVEMENTS
TMUA PROJECT NO. ES 2019-01

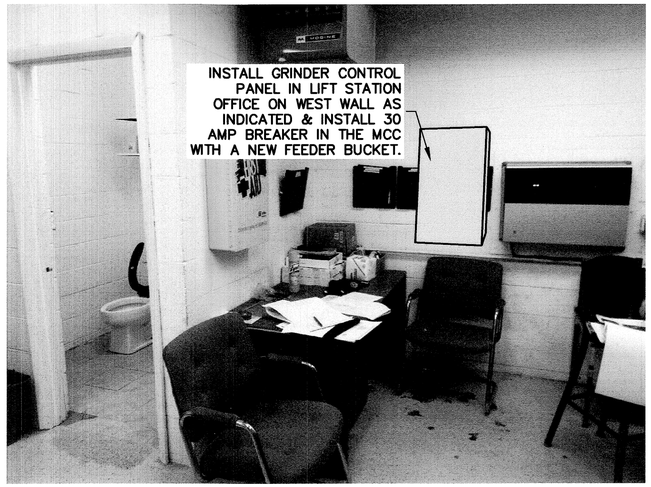
VENSEL CREEK LIFT STATION
PLAN & SECTION

ENGINEERING SERVICES DEPARTMENT
CITY OF TULSA, OKLAHOMA
ENGINEERING SERVICES DEPARTMENT

PLANS AND ESTIMATES PREPARED BY: HOLLOWAY, UPDIKE + BELLEN, Inc.
909-A S. 6TH ST., BROKEN ARROW, OKLAHOMA 74012
(918)258-1777, FAX (918)258-1784

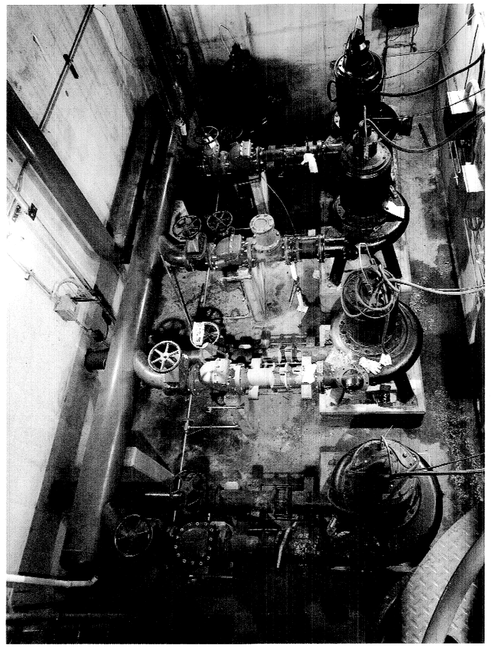
PLAN SCALE: 3/8"=1'-0"	DRAWN	JME		APPROVED:
	DESIGNED	LST		
	SURVEY			
PROFILE SCALE:	PROJ. MGR.	KBV	9/2020	
HORIZONTAL:	LEAD ENGR.	ADT	9/20	
	FIELD MGR.	JMM	9/20	
VERTICAL:	RECOMMENDED:	HAS	9-20	
	DESIGN MANAGER			CITY ENGINEER
HUB PROJECT NO: 19TMUACITYLS				DATE: 08/13/2020
ATLAS PAGE NO: 1277				SHEET 17 OF 21 SHEETS

REGISTERED PROFESSIONAL ENGINEER
LOYD STEPHEN TOLAR
20679
9-3-20
OKLAHOMA

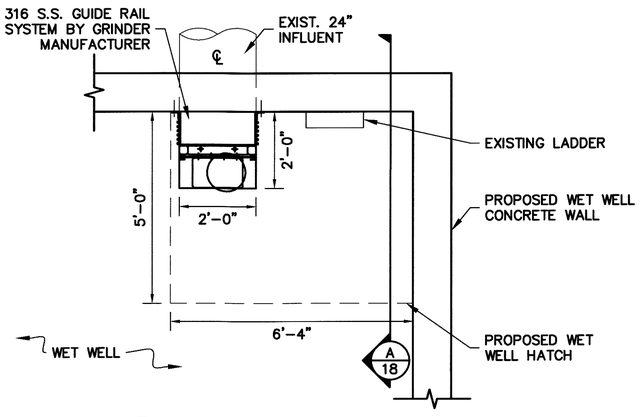


B / 18 PHOTO @ VENSEL CREEK LS GRINDER CONTROL PANEL
NTS

C / 18 PHOTO @ EXISTING BASKET & RAILS
NTS



D / 18 PHOTO @ EXISTING VENSEL CREEK PIPE GALLERY
NTS



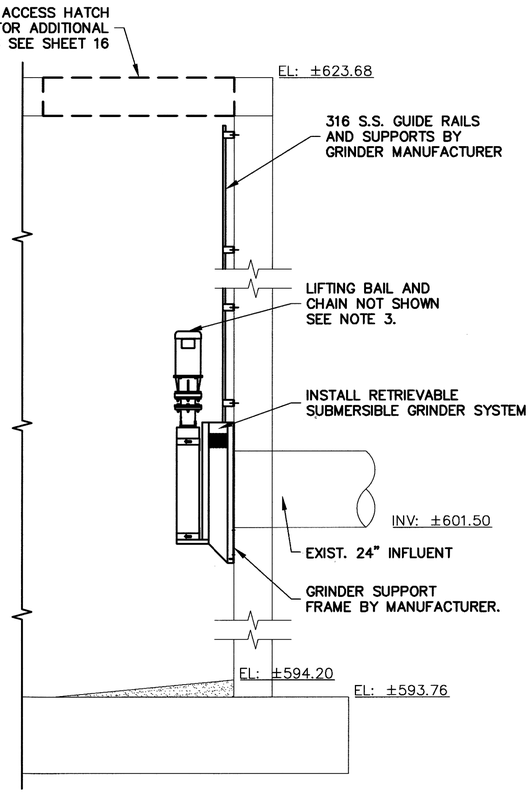
1 / 18 PLAN AT GRINDER

SCALE: 1/2" = 1'-0"

* CONTRACTOR SHALL PROVIDE SPARE BASKET SCREEN SEE NOTES

NOTES:

1. CONTRACTOR SHALL FABRICATE AND SUPPLY A NEW 316 S.S. BASKET AND SCREEN BUILT TO BE INSTALLED IN THE PROPOSED GRINDER'S GUIDE RAILS. THE SCREEN IS INTENDED TO BE USED IN PLACE OF THE GRINDER WHEN IT IS NECESSARY TO REMOVE THE GRINDER FOR MAINTENANCE THE SCREEN SHALL BE SIMILAR IN CONSTRUCTION TO THE EXISTING SCREEN USING ½" ROD AND ¼" ANGLE FOR CONSTRUCTION. SCREEN OPENINGS SHALL BE A MAXIMUM OF 3" BY 3". MODIFICATIONS TO THE EXISTING SCREEN WILL BE ACCEPTABLE WITH APPROVAL BY OWNER AND ENGINEER.
2. THE GRINDER SHALL BE RETRIEVABLE THROUGH THE HATCH FOR REMOVAL WITH A MINIMUM OF 3" CLEARANCE.
3. GUIDE RAILING & SUPPORT FRAME INSTALLATION IS REQUIRED FOR GRINDER.



A / 18 SECTION AT GRINDER

SCALE: 1/2" = 1'-0"

ADDITIVE ALTERNATE #1
GRINDER & ODOR CONTROL SYSTEM

REVISION	BY	DATE

BAR IS ONE INCH ON ORIGINAL DRAWING 0 —— 1" IF NOT ONE INCH ON THIS SHEET, ADJUST SCALES ACCORDINGLY

FRANCIS HILLS RELIEF SEWER & VENSEL CREEK LIFT STATION IMPROVEMENTS
TMUA PROJECT NO. ES 2019-01

VENSEL CREEK LIFT STATION
GRINDER PLAN & SECTION

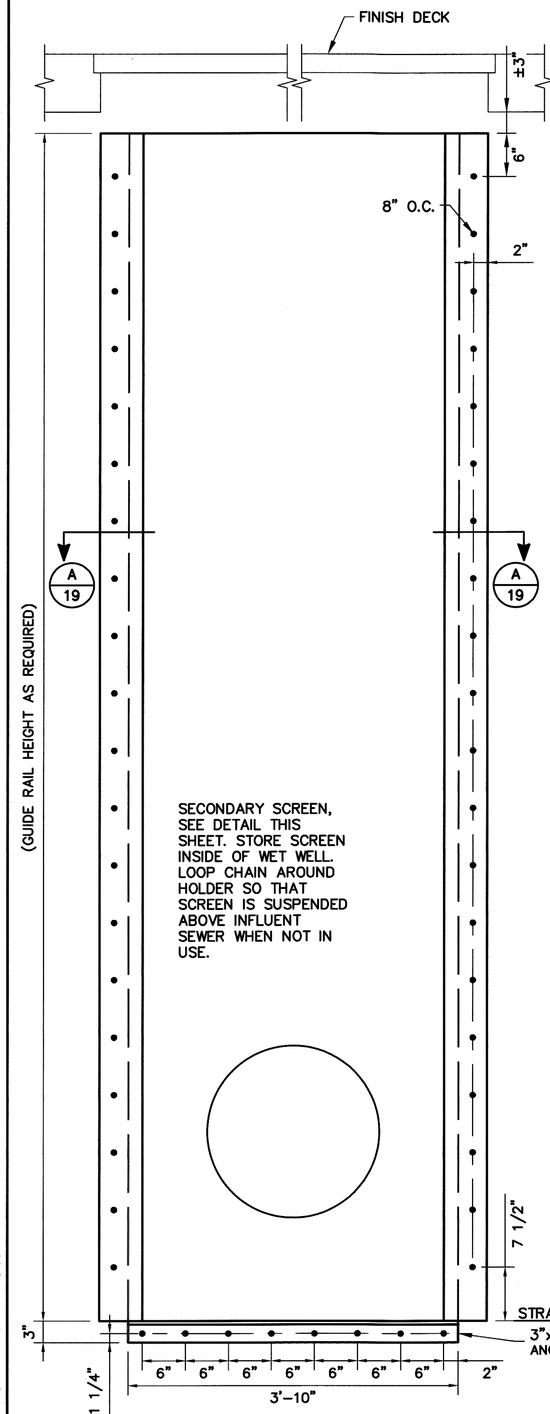
ENGINEERING SERVICES DEPARTMENT
CITY OF TULSA, OKLAHOMA
ENGINEERING SERVICES DEPARTMENT

PLANS AND ESTIMATES PREPARED BY: HOLLOWAY, UPDIKE + BELLEN, Inc. ENGINEERS, 906-A S. 8TH ST., BROKEN ARROW, OKLAHOMA 74012, (918)251-1077, FAX (918)251-7764

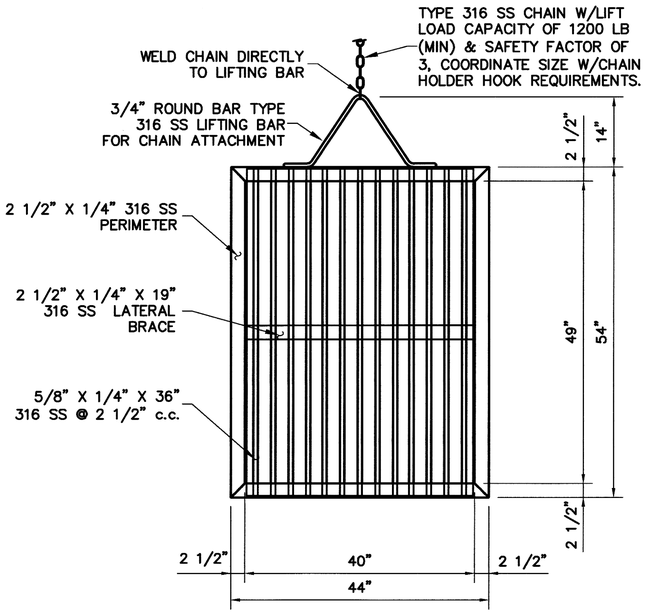
PLAN SCALE: 1"=X'	DRAWN	JME		APPROVED:
	DESIGNED	LST		
	SURVEY			
PROFILE SCALE:	PROJ. MGR.	RBH	9/2020	
HORIZONTAL: 1"=X'	LEAD ENGR.	AOS	9/20	
	FIELD MGR.	GWL	9/20	
VERTICAL: 1"=X'	RECOMMENDED: DESIGN MANAGER	HAS	9.20	CITY ENGINEER
HUB PROJECT NO:	19TMUACITYLS			DATE: 08/13/2020
ATLAS PAGE NO:				SHEET 18 OF 21 SHEETS

REGISTERED PROFESSIONAL ENGINEER — LOYD STEPHEN TOLAR — 20678 — OKLAHOMA

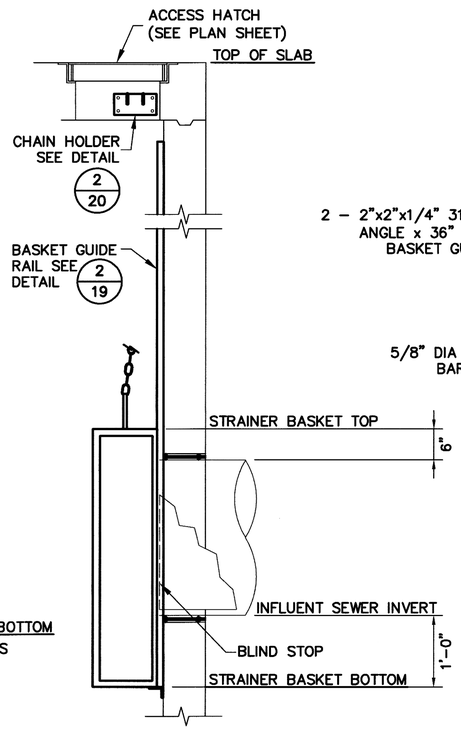
Z:\Projects\320\PLN\MultiTIES 2019 Citywide LS\Design\Production Plans\Grinder Rmks.dwg, 8/13/2020 1:39:53 PM



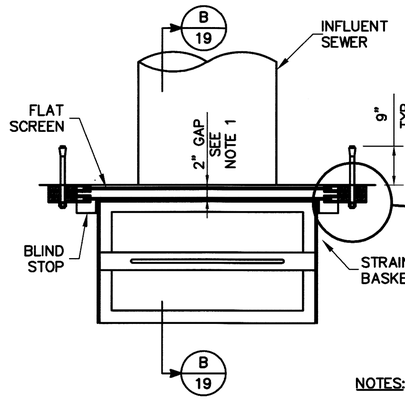
2 / 19 BASKET GUIDE RAIL & BLIND STOP
NTS



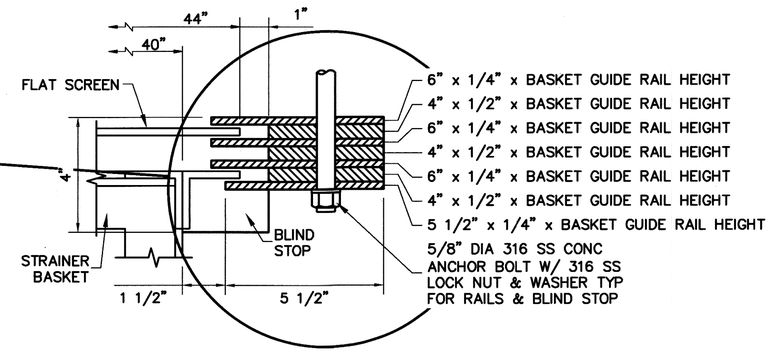
3 / 19 FRONT VIEW FLAT SCREEN
NTS



B / 19 SOUTH WALL OF WET WELL
NTS

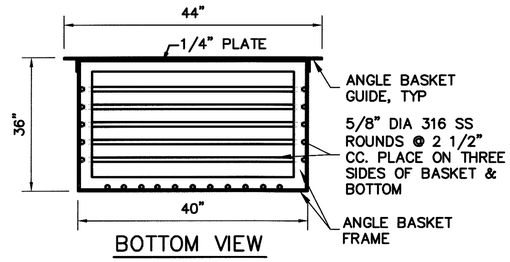


A / 19 SECTION
NTS

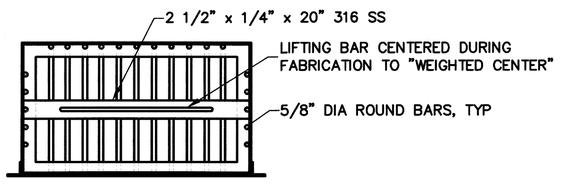


NOTES:

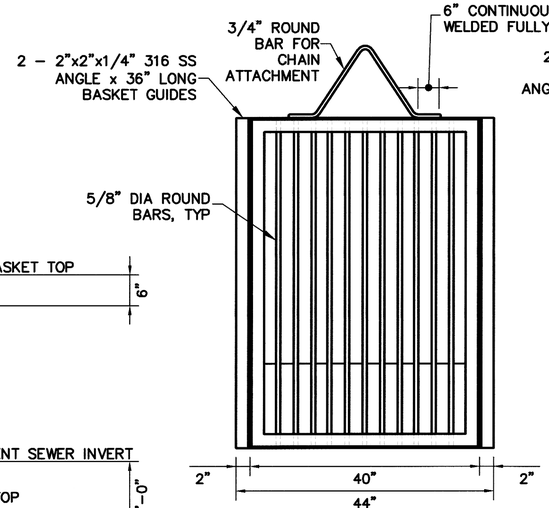
1. AFTER INSTALLATION OF STRAINER BASKET, FLAT SCREEN AND GUIDE FRAME IS COMPLETE, VERIFY THAT SCREEN CAN BE LOWERED OVER INFLUENT SEWER WITHOUT OBSTRUCTION (GAP SHOULD NOT BE MORE THAN 2 1/4").
2. PRIOR TO CITY ACCEPTANCE, CONTRACTOR SHALL VERIFY STRAINER BASKET CAN BE REMOVED, WITH SECONDARY FLAT SCREEN IN PLACE. STRAINER BASKET MUST RAISE PAST SECONDARY SCREEN.
3. THE DRAWINGS OF THE BASKET AND FLAT SCREEN ARE REPRESENTATIVE ONLY AND ARE NOT TO SCALE. CONSTRUCT STRAINER IN ACCORDANCE WITH DIMENSIONS AND SPACING SHOWN ON PLAN SHEETS.



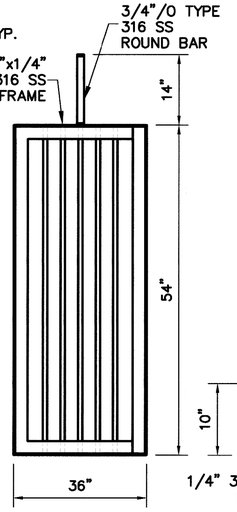
BOTTOM VIEW



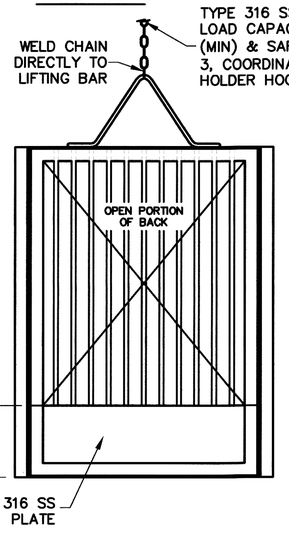
TOP VIEW



FRONT



SIDE



BACK

1 / 19 STRAINER BASKET
NTS

ADDITIVE ALTERNATE #1
GRINDER & ODOR CONTROL SYSTEM

REVISION	BY	DATE

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FRANCIS HILLS RELIEF SEWER & VENSEL CREEK LIFT STATION IMPROVEMENTS
TMUA PROJECT NO. ES 2019-01

VENSEL CREEK LIFT STATION
BASKET SCREEN

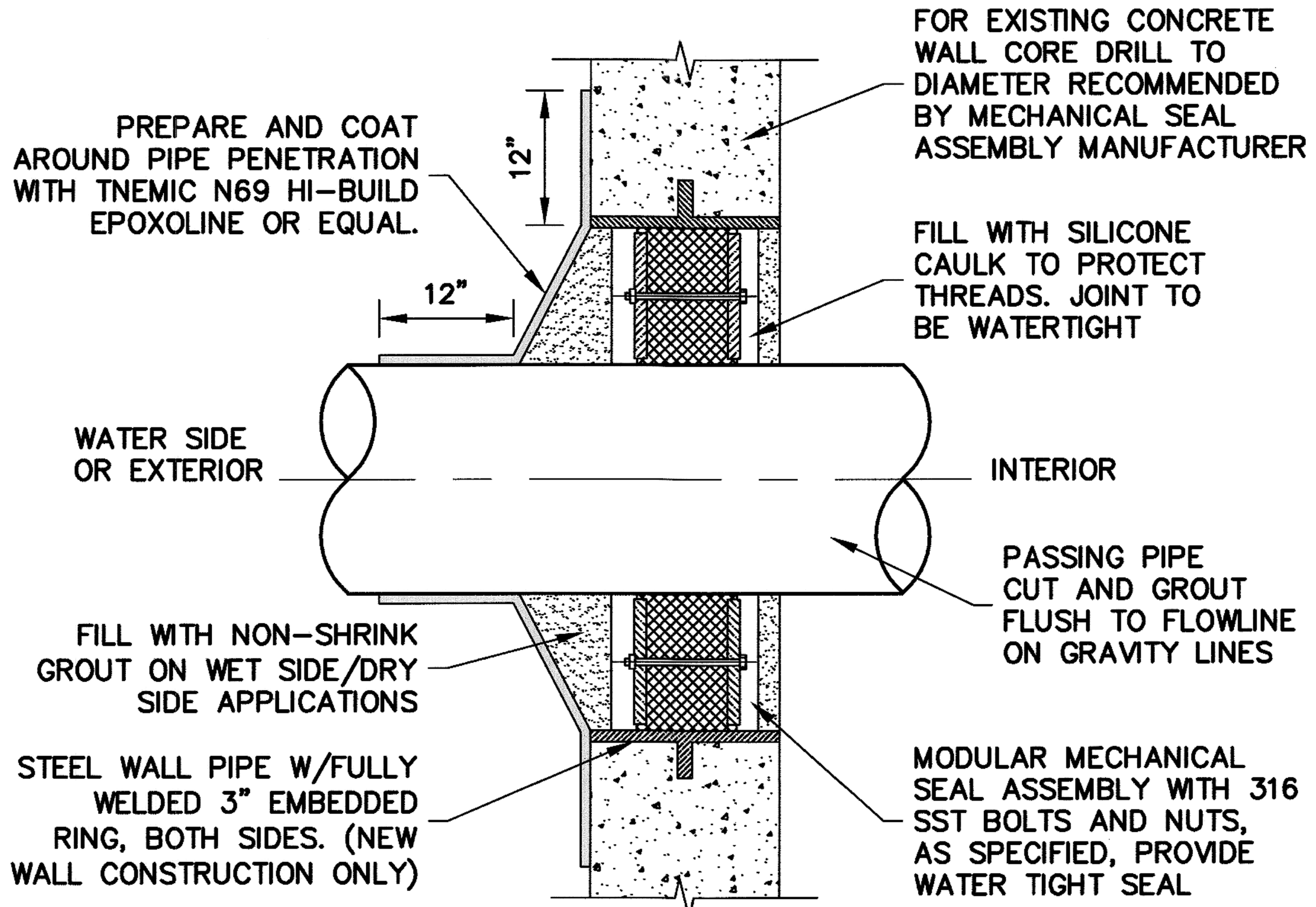
ENGINEERING SERVICES DEPARTMENT
CITY OF TULSA, OKLAHOMA
ENGINEERING SERVICES DEPARTMENT

PLANS AND ESTIMATES PREPARED BY: HOLLOWAY, UPDIKE + BELLEN, Inc.
908-A 8TH ST., BROKEN ARROW, OKLAHOMA 74012
(918)258-0707, FAX (918)258-0764

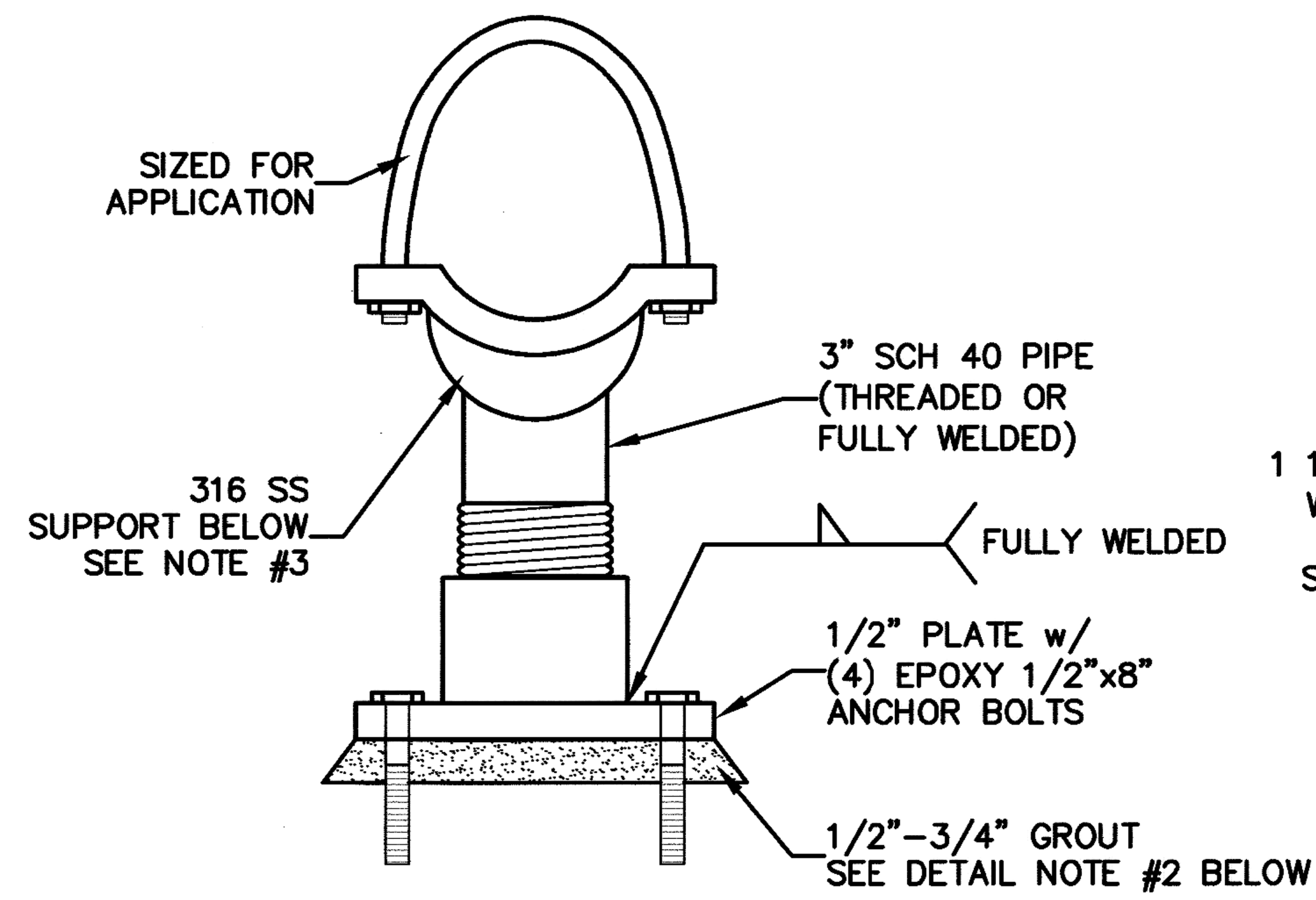
PLAN SCALE:	DRAWN	JME	APPROVED:
	DESIGNED	LST	
	SURVEY		
PROFILE SCALE:	PROJ. MGR.	RBV	9/2020
HORIZONTAL:	LEAD ENGR.	AJS	5/20
	FIELD MGR.	JME	9/20
VERTICAL:	RECOMMENDED: DESIGN MANAGER	HMS	9-20 CITY ENGINEER

HUB PROJECT NO: 19TMUACITYLS
DATE: 08/03/2020
ATLAS PAGE NO:
SHEET 19 OF 21 SHEETS

REGISTERED PROFESSIONAL ENGINEER LOYD STEPHEN TOLAR 20670 OKLAHOMA



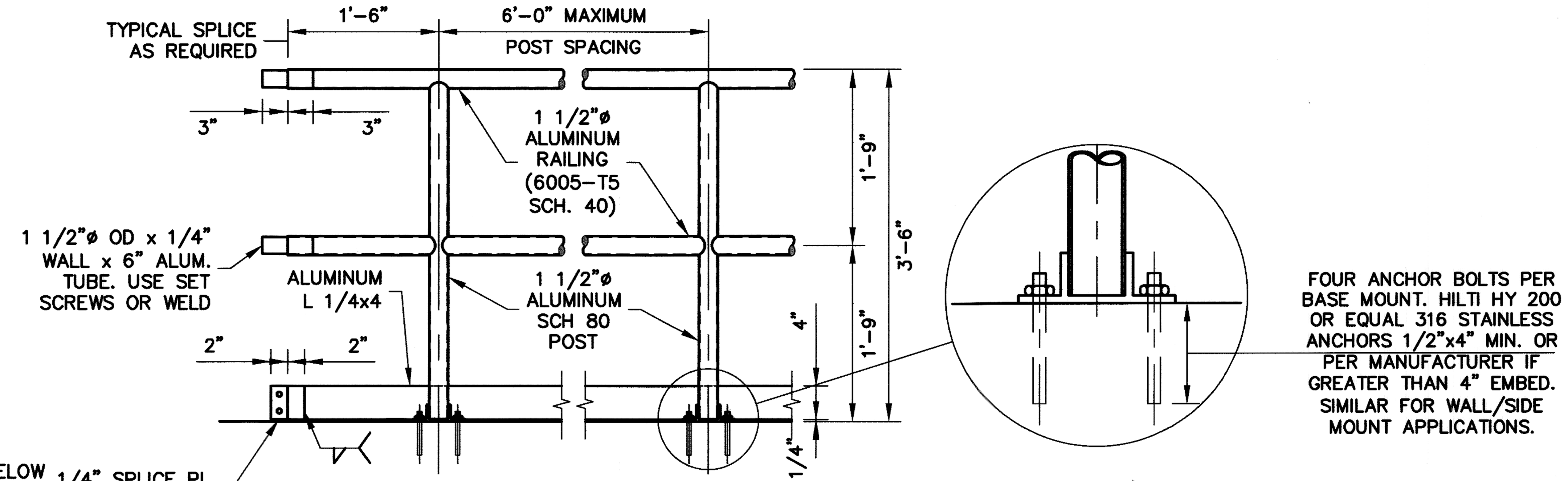
1/20 WALL PENETRATION SEAL
SCALE: NTS



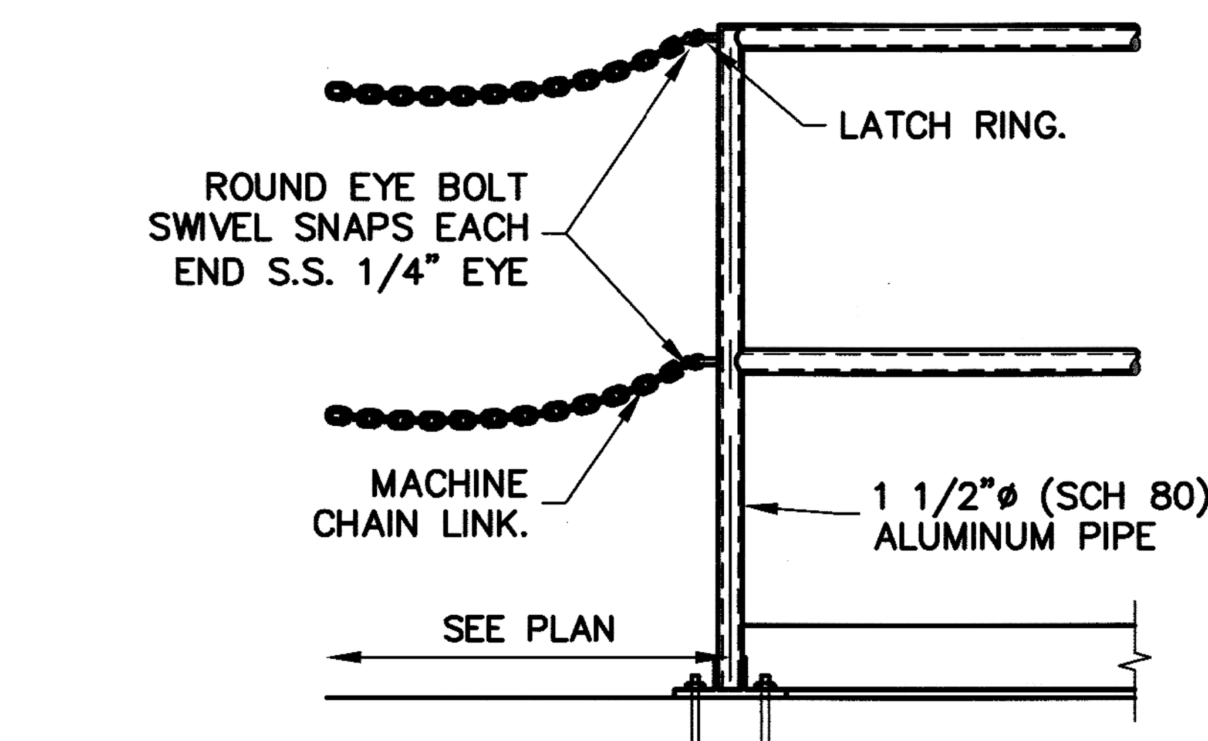
DETAIL NOTES:

1. ALL COMPONENTS AND FASTENERS SHALL BE 316 SS.
2. GROUT BASE AS REQUIRED FOR APPLICATION AT SURFACE CONDITIONS OR MAINTENANCE AS REQUIRED.
3. SADDLE LOAD RATING 3200 LBS.
4. DETAIL SHOW AS FLOOR OR TOP MOUNT. CEILING OR WALL APPLICATION WOULD BE SIMILAR.

4/20 PIPE STANCHION DETAIL
NTS

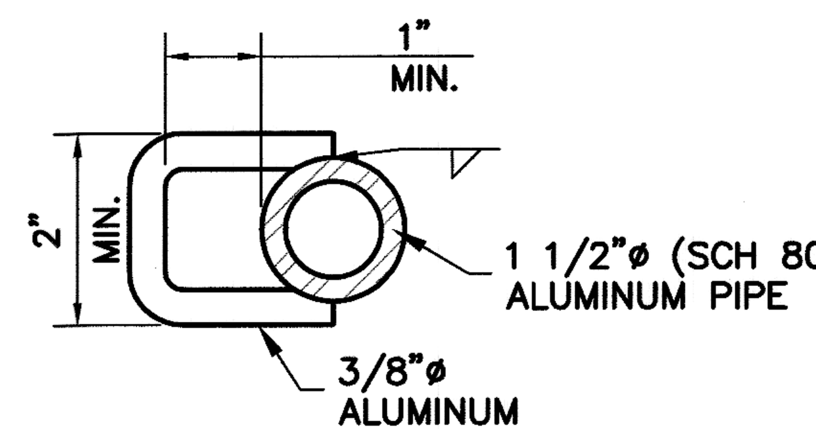


5/20 HANDRAIL DETAIL
SCALE: 1" = 1'-0"

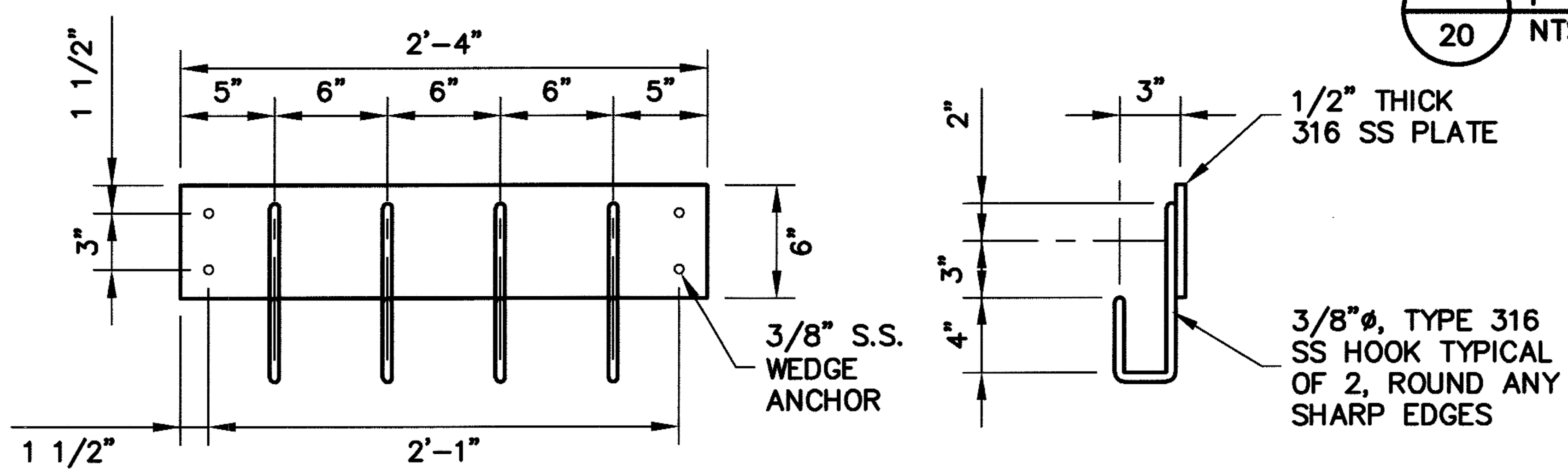


DETAIL NOTES:
1. 3'-0" MAX POST SPACING. INSTALL SLEEVED POST AS REQUIRED FOR FULL OPENING SHOWN ON PLAN SHEETS.

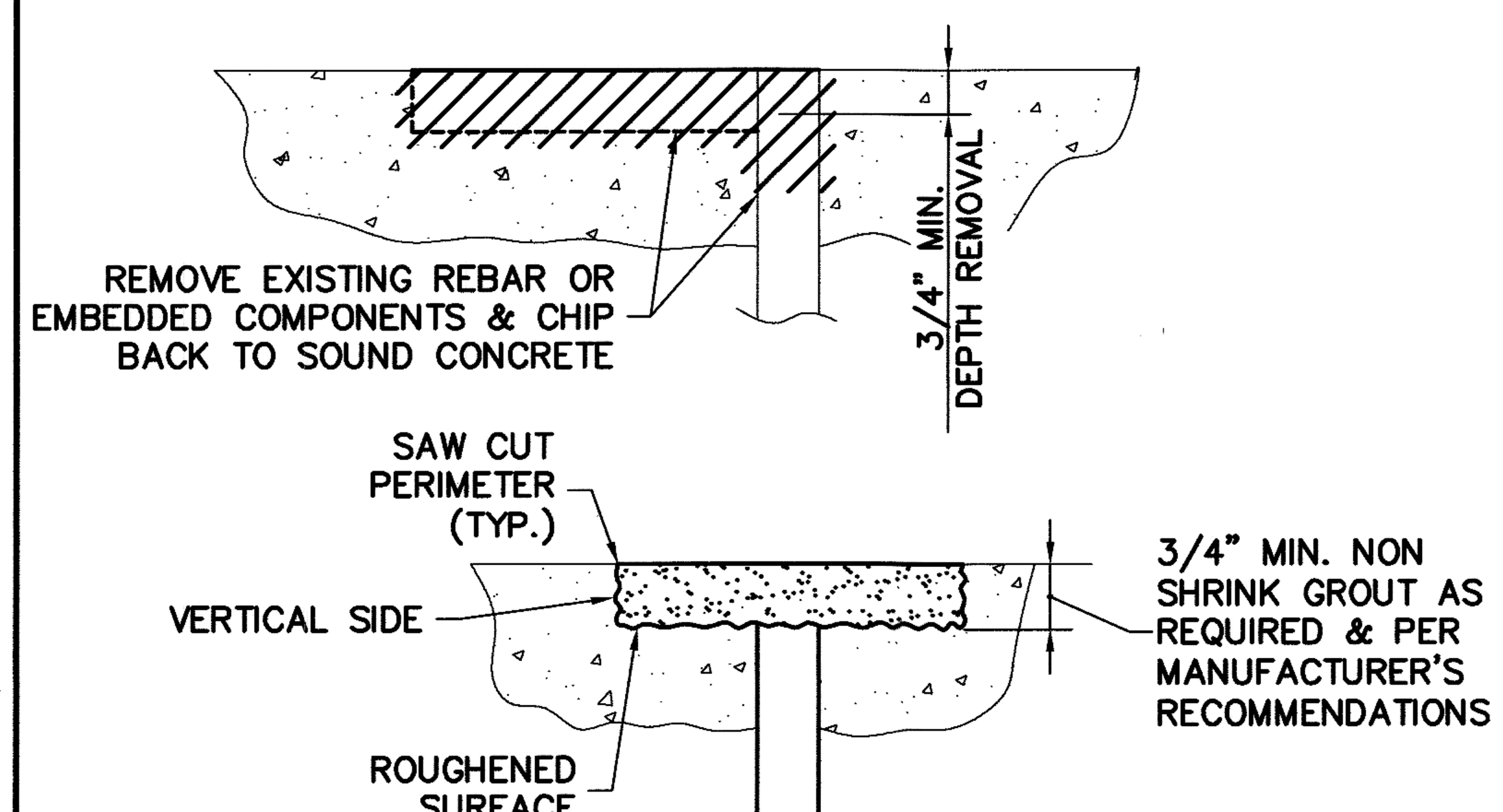
6/20 REMOVABLE CHAIN ACCESS DETAIL
SCALE: 1" = 1'-0"



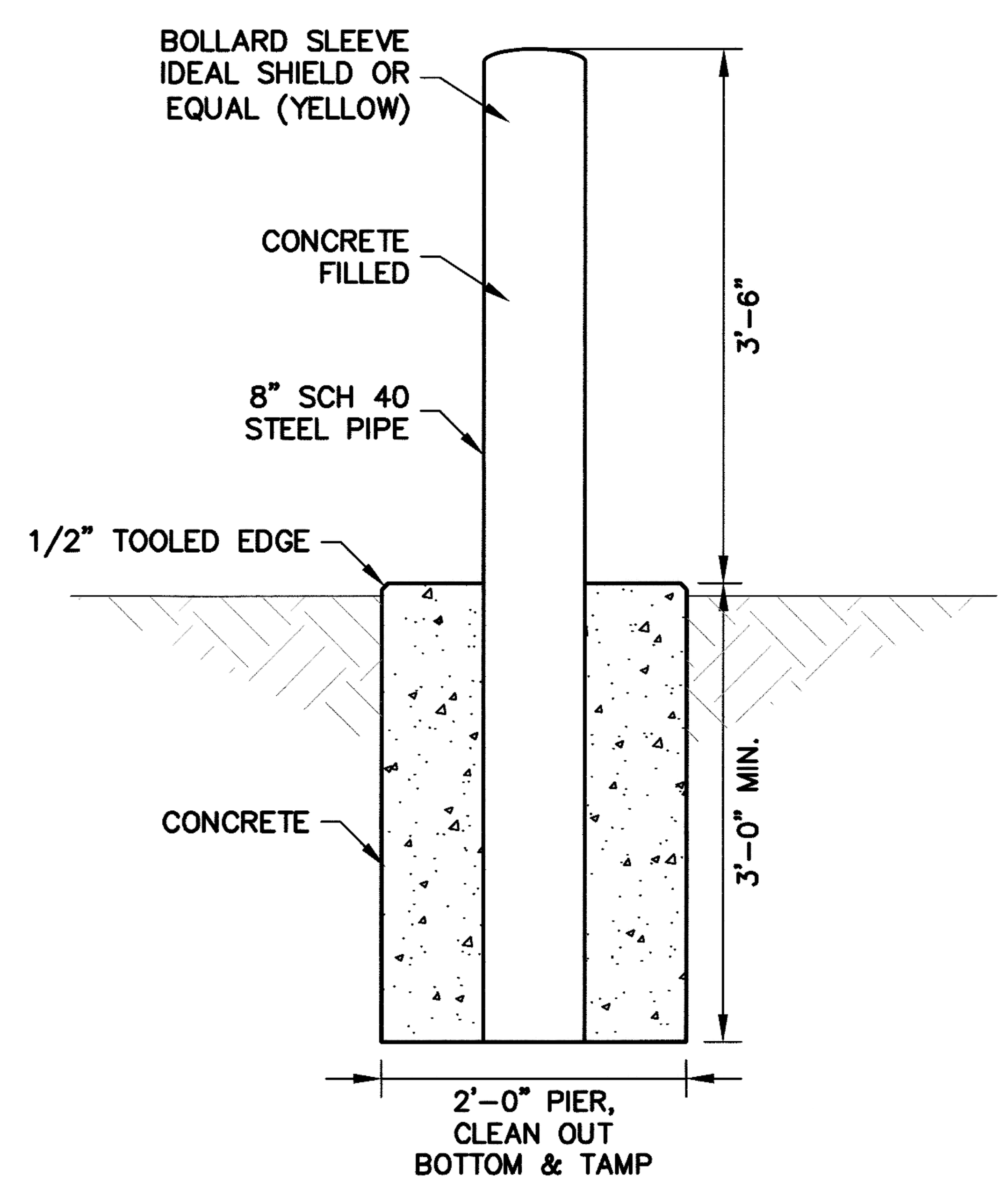
7/20 LATCH RING DETAIL
SCALE: 6" = 1'-0"



2/20 CHAIN/CABLE HOLDER ASSY. FOR PUMPS
SCALE: 1-1/2" = 1'-0"
DETAIL NOTES:
ONE(1) 4-HOOK AT GRINDER



REBAR & EMBEDDED ITEM
3/20 CONCRETE REPAIR DETAIL
NTS



8/20 BOLLARD DETAIL
SCALE: 1" = 1'-0"

REVISION	BY	DATE

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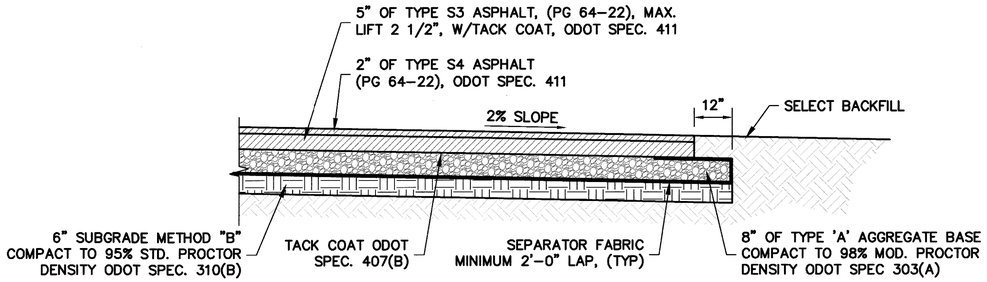
FRANCIS HILLS RELIEF SEWER & VENSEL CREEK LIFT STATION IMPROVEMENTS
TMUA PROJECT NO. ES 2019-01

MISCELLANEOUS DETAILS

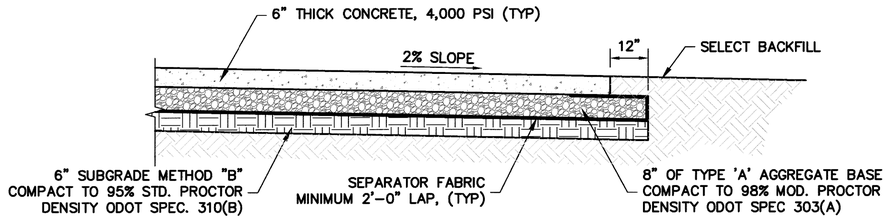
ENGINEERING SERVICES DEPARTMENT
CITY OF TULSA, OKLAHOMA
ENGINEERING SERVICES DEPARTMENT

PLANS AND ESTIMATES PREPARED BY: HOLLOWAY, UPDIKE + BELLEN, Inc.

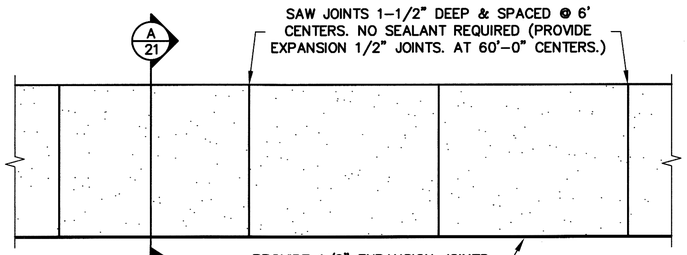
PLAN SCALE:	DRAWN	JME	APPROVED:
	DESIGNED	LST	
	SURVEY		
PROFILE SCALE:	PROJ. MGR.	9/2020	
HORIZONTAL:	LEAD ENGR.	9/20	
	FIELD MGR.	9/20	
VERTICAL:	RECOMMENDED	9-20	
	DESIGN MANAGER		CITY ENGINEER
HUB PROJECT NO:	19TMUACITYLS		DATE: 08/13/2020
ATLAS PAGE NO:			SHEET 20 OF 21 SHEETS



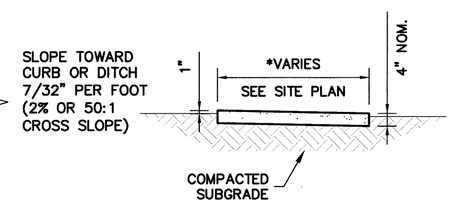
1/21 TYPICAL SECTION @ ASPHALT ACCESS ROAD/PARKING
SCALE: 1/2" = 1'-0"



2/21 TYPICAL SECTION @ CONCRETE ACCESS ROAD/PARKING
SCALE: 1/2" = 1'-0"



3/21 PLAN @ SIDEWALK/MOW STRIP
SCALE: 1/2" = 1'-0"



A/21 SECTION @ SIDEWALK/MOW STRIP
SCALE: 1/2" = 1'-0"

REVISION	BY	DATE

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FRANCIS HILLS RELIEF SEWER & VENSEL CREEK LIFT STATION IMPROVEMENTS TMUA PROJECT NO. ES 2019-01

MISCELLANEOUS DETAILS

ENGINEERING SERVICES DEPARTMENT
CITY OF TULSA, OKLAHOMA
ENGINEERING SERVICES DEPARTMENT

PLANS AND ESTIMATES PREPARED BY: HOLLOWAY, UPDIKE + BELLEN, Inc.
808-A S. 9TH ST., BROKEN ARROW, OKLAHOMA 74012
(918)251-4707, FAX (918)251-4764

PLAN SCALE:	DRAWN	JME		APPROVED:
	DESIGNED	LST		
	SURVEY			
PROFILE SCALE:	PROJ. MGR.			
HORIZONTAL:	LEAD ENGR.			
	FIELD MGR.			
VERTICAL:	RECOMMENDED			CITY ENGINEER
	DESIGN MANAGER			

HUB PROJECT NO: 19TMUACITYLS
ATLAS PAGE NO:
DATE: 08/13/2020
SHEET 21 OF 21 SHEETS

REGISTERED PROFESSIONAL ENGINEER — LOYD STEPHEN TOLAR — 20670 — OKLAHOMA

POWER, LIGHTING & SYSTEM LEGEND

- UNDER CABINET LIGHT FIXTURE
- 1x4 FLUORESCENT LIGHT
- 2x4 FLUORESCENT LIGHT
- EL — FLUORESCENT LIGHT WITH EMERGENCY LIGHT (EL) BATTERY 1400 LUMENS MINIMUM FOR 2 LAMPS
- 2x2 FLUORESCENT LIGHT
- RECESSED LIGHT, UNLESS OTHERWISE SHOWN
- WALL MOUNTED LIGHT–MOUNTING HEIGHT AS INDICATED
- LED EXIT LIGHT, CEILING MOUNTED OR AS INDICATED, DARKENED AREA INDICATES FACE, ARROWS INDICATE DIRECTION OF EGRESS
- EMERGENCY EXIT LIGHT, WALL MOUNT 7'–6" A.F.F. OR AS NOTED
- 4 FT. STRIP FLUORESCENT LIGHT
- S — LIGHT SWITCH, MTD. 4'–0" A.F.F.
- S_2 — LIGHT SWITCH, 2 POLE, MTD 4'–0" A.F.F.
- S_3 — LIGHT SWITCH, 3–WAY, MTD. 4'–0" A.F.F.
- S_4 — LIGHT SWITCH, 4–WAY, MTD. 4'–0" A.F.F.
- S_P — LIGHT SWITCH WITH PILOT LIGHT, MTD. 4'–0" A.F.F.
- 20 AMP DUPLEX RECEPTACLE MTD. HORIZ. 6" ABOVE COUNTER TOP UNLESS OTHERWISE SHOWN
- 20 AMP DUPLEX RECEPTACLE MTD. 18" A.F.F., WITH #12 GROUND WIRE, GFCI INDICATES GROUND FAULT CIRCUIT INTERRUPTER, WP INDICATES WEATHERPROOF WHILE IN USE ENCLOSURE AND COVER
- SINGLE RECEPTACLE, RATINGS AS NOTED
- S_M — HP RATED TOGGLE SWITCH, 1 OR 2 POLES AS REQUIRED W/OVERLOADS
- OR — NON–FUSED DISCONNECT SWITCH, SIZE AS NOTED
- OR — COMBINATION DISCONNECT AND MOTOR STARTER, SIZE AS NOTED. FUSED TYPE SHOWN.
- F OR — FUSED DISCONNECT SWITCH, SIZE AS NOTED
- PUSHBUTTON STATION, NEMA 4X
- ELECTRICAL PANEL, SURFACE MOUNTED, 5'–6" TO TOP OF ENCLOSURE
- ELECTRICAL PANEL, RECESSED MOUNTED, 5'–6" TO TOP OT ENCLOSURE
- EQUIPMENT CABINET SIZE AS NOTED, RECESSED MOUNTED, 5'–6" TO TOP OF ENCLOSURE
- EQUIPMENT CABINET SIZE AS NOTED, SURFACE MOUNTED, 5'–6" TO TOP OF ENCLOSURE
- L–1 — HOME RUN TO PANEL, RECEPTACLES AND EQUIPMENT SHALL HAVE GREEN GROUND WIRE. NUMBER OF ARROWS INDICATES NUMBER OF PHASE CONDUCTORS, LETTER(S) INDICATE NAME OF PANEL, NUMBER(S) INDICATE CIRCUIT NUMBERS
- BRANCH CIRCUIT WITH PHASE, NEUTRAL, SWITCHED PHASE AND EQUIPMENT GROUNDING CONDUCTORS
- W — TELEPHONE OR DATA OUTLET, SINGLE GANG BOX MTD. 18" A.F.F. WITH 3/4"C STUB TO ABOVE LAY–IN CEILING. "W" INDICATES 4'–6" MTD. HEIGHT FOR WALL PHONE.

- 3/4" PLYWOOD TELEPHONE BACKBOARD, SIZE AS NOTED, MTD. 5'–6" TO TOP
- J — JUNCTION BOX 42 CUBIC INCH MINIMUM CAPACITY
- SH — SMOKE DETECTOR, WALL MTD.
- S — SMOKE DETECTOR, CEILING MTD.
- F — FIRE ALARM PULL STATION MTD. 4'–0" A.F.F.
- F — FIRE ALARM PULL STATION MTD. 4'–0" A.F.F. AND HORN MTD. 7'–0" A.F.F.
- D — SMOKE DETECTOR, HVAC DUCT MTD.
- C — FIRE ALARM CHIME 7'–0" A.F.F.
- FS — SPRINKLER FLOW SWITCH
- FLOOR TELEPHONE OUTLET, CAST JUNCTION–BOX
- WALL TELEPHONE/DATA OUTLET
- S — DOOR SWITCH MOUNTED IN DOOR JAMB
- DOOR BUTTON WEATHER PROOF, 50" A.F.F.
- B — DOOR BUZZER MTD 7'–0" A.F.F.
- H OR MH — H–1 / MH–1 — HANDHOLE OR MANHOLE, IDENTIFIER SHOWN, REFER TO HANDHOLE OR MANHOLE SCHEDULE FOR SIZE
- CIRCUIT BREAKER, TRIP RATING SHOWN, 3–POLE UNLESS NOTED
- * — FUSE, CURRENT LIMITING, RATING AS SHOWN
- * — TRANSFORMER, RATINGS AS SHOWN
- M — 10 HP — ELECTRIC MOTOR, HORSEPOWER SHOWN
- * — MOTOR STARTER, SIZE AS SHOWN OR REQUIRED. FVNR UNLESS NOTED
- VARIABLE FREQUENCY DRIVE
- 4–4" — DUCT BANK, IDENTIFIER SHOWN. REFER TO DUCT BANK SCHEDULE FOR SIZE AND CONFIGURATION.
- 3/4" x 10' COPPER CLAD GROUND ROD
- SA — SURGE ARRESTOR
- G — * kW — GENERATOR
- ATS/BP/IS 3P400 — ATS
- WEATHERHEAD
- CABLE CONNECTION

LINE TYPES

- FURNISH + INSTALL
- EXISTING

2(3#8 + 1#8 + 1#10EG) 3/4" GRS

- CONDUIT TYPE (SEE ABBREVIATIONS) REFER TO SPECIFICATIONS IF NOT SHOWN
- CONDUIT SIZE
- GROUNDING (GROUND) CONDUCTOR, NUMBER AND SIZE
- GROUNDED (NEUTRAL) CONDUCTOR, NUMBER AND SIZE
- PHASE (HOT) CONDUCTOR, NUMBER AND SIZE
- NUMBER OF SETS

ABBREVIATIONS

A	AMP
ACU	AIR CONDITIONING UNIT
AFF	ABOVE FINISHED FLOOR
AIC	AMPS INTERRUPTING CAPACITY
AM	AMP–METER
ANN	ANNUNCIATOR
AP	AERIAL PRIMARY
AS	AERIAL SECONDARY
AUX	AUXILIARY
BFI	BLOWN FUSE INDICATOR
BKR	BREAKER
C	CONDUIT
CGRS	PVC COATED GALVANIZED RIGID STEEL
CKT	CIRCUIT
COM	COMMON
CONT	CONTINUOUS
CP	CONTROL PANEL
CPT	CONTROL POWER TRANSFORMER
CR	CONTROL RELAY
CS	CORD SET
CU	COEFFICIENT OF UTILIZATION
DEB	DIRECT EARTH BURIED
EC	EMPTY OR EMBEDDED CONDUIT
EF	EXHAUST FAN
EG	EQUIPMENT GROUND
EL	ELEVATION
EMT	ELECTRICAL METALLIC TUBING
ETM	ELASPED TIME METER
FA	FIRE ALARM
FAP	FIRE ALARM PANEL
FC	FAN COIL
FLR	FLOOR
FOC	FIBER OPTIC CABLE
FS	FLOAT SWITCH
FT	FEET
FVNR	FULL VOLTAGE NON–REVERSING STARTER
FVR	FULL VOLTAGE REVERSING STARTER
GFCI	GROUND FAULT CIRCUIT INTERRUPTER
GND	GROUND
GRS	GALVANIZED RIGID STEEL
HOA	HAND–OFF–AUTO
HP	HORSEPOWER OR HEAT PUMP
HR	HOUR
JB	JUNCTION BOX
kVA	KILOVOLT–AMPERE
kVAR	KILOVOLT–AMPERE, REACTIVE
kW	KILOWATT
LA	LIGHTNING ARRESTOR
L.O.	LUGS ONLY
LV	LOW VOLTAGE
MCB	MAIN CIRCUIT BREAKER
MCC	MOTOR CONTROL CENTER
MCP	MOTOR CIRCUIT PROTECTOR
MFR	MANUFACTURER
MIN	MINIMUM
MS	MOTOR STARTER
MTD	MOUNTED
NFDS	NON–FUSED DISCONNECT SWITCH
NTS	NOT TO SCALE
OC	ON CENTER
OH	OVERHEAD
OL	OVERLOAD
PB	PUSH BUTTON
PEC	PHOTO ELECTRIC CELL
PF	POWER FACTOR
PL	PILOT LIGHT
PMR	PHASE MONITOR RELAY
PNL	PANEL
PTT	PUSH–TO–TEST
PVC	SCHEDULE 40 POLYVINYL CONDUIT
RECPT	RECEPTACLE
RM	ROOM
RVAT	REDUCED VOLTAGE AUTO–TRANSFORMER STARTER
S	SECOND
SA	SURGE ARRESTER
SDBC	SOFT DRAWN BARE COPPER
SE	SERVICE ENTRANCE
SHT	SHEET
SN	SOLID NEUTRAL
SS	STAINLESS STEEL
STA	STATION
SW	SWITCH
TC	TIME CLOCK
TEL	TELEPHONE
TD	TIME DELAY
TDD	TIME DELAY ON DE–ENERGIZATION
TDE	TIME DELAY ON ENERGIZATION
TYP	TYPICAL
TVSS	TRANSIENT VOLTAGE SURGE SUPPRESSOR
UG	UNDER GROUND
UH	UNIT HEATER
UP	UNDERGROUND PRIMARY
US	UNDERGROUND SECONDARY
VA	VOLT–AMP
VFD	VARIABLE FREQUENCY DRIVE
VM	VOLT–METER
W	WATT OR WIRE
WH	WEATHER HEAD
WM	WATT METER
WP	WEATHERPROOF
W/	WITH
XMFR	TRANSFORMER

CONTROL SCHEMATIC LEGEND

- WIRING WITHIN PANEL
- WIRING TO FIELD DEVICE
- PUSHBUTTON SWITCH, NORMALLY OPEN
- PUSHBUTTON SWITCH, NORMALLY CLOSED
- SELECTOR SWITCH, NUMBER OF POSITIONS AND CONTACTS AS SHOWN
- RELAY CONTACT, NORMALLY OPEN
- RELAY CONTACT, NORMALLY CLOSED
- TIME DELAY CONTACT, CLOSE ON ENERGIZATION
- TIME DELAY CONTACT, OPEN ON ENERGIZATION
- TIME DELAY CONTACT, OPEN ON DE–ENERGIZATION
- TIME DELAY CONTACT, CLOSE ON DE–ENERGIZATION
- LEVEL SWITCH
- PRESSURE SWITCH
- LIMIT SWITCH CONTACT, NORMALLY OPEN
- LIMIT SWITCH CONTACT, NORMALLY CLOSED
- LIMIT SWITCH CONTACT, HELD OPEN
- LIMIT SWITCH CONTACT, HELD CLOSED
- RELAY COIL, "TR" INDICATES "TIMING RELAY"
- PILOT LIGHT; "A" INDICATES "AMBER LENS" "G" INDICATES "GREEN LENS" "R" INDICATES "RED LENS"
- SOLENOID
- ETM — ELAPSED TIME METER
- TERMINAL BLOCK
- ELECTRICAL CONNECTION
- FUSE, AMPERE RATING AS SHOWN OR REQUIRED "BFI" INDICATES "BLOWN FUSE INDICATOR" TYPE
- GROUND CONNECTION TO ENCLOSURE GROUND BAR

GENERAL NOTES:

1. SOME SYMBOLS OR ABBREVIATIONS MAY APPEAR ON THIS SHEET AND NOT BE UTILIZED ON THE PROJECT.

BROWN ENGINEERS
17200 Chenal Pkwy.
Suite 300 PMB 324
Little Rock, AR 72223
Phone 501-448-0100
www.brownengineers.net

REGISTERED PROFESSIONAL ENGINEER — BRADLEY W. HUBBARD — 20995 — 2-13-2020 — OKLAHOMA

REVISION	BY	DATE

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FRANCIS HILLS RELIEF SEWER & VENSEL CREEK LIFT STATION IMPROVEMENTS
TMUA PROJECT NO. ES 2019–01

ELECTRICAL LEGEND AND ABBREVIATIONS

ENGINEERING SERVICES DEPARTMENT
CITY OF TULSA, OKLAHOMA
ENGINEERING SERVICES DEPARTMENT

PLANS AND ESTIMATES PREPARED BY: HOLLOWAY, UPDIKE + BELLEN, Inc. 909-A S. 6TH ST., BROKEN ARROW, OKLAHOMA 74012 (918)307-1717, FAX (918)328-0764

PLAN SCALE: AS SHOWN	DRAWN	CD	APPROVED:
	DESIGNED	BB	
	SURVEY		
PROFILE SCALE:	PROJ. MGR.	BWH	9/2020
HORIZONTAL:	LEAD ENGR.	ADT	9/20
	FIELD MGR.	BWH	9/20
VERTICAL:	RECOMMENDED: DESIGN MANAGER	HBS	9-20
			CITY ENGINEER

HUB PROJECT NO: 19TMUACITYLS — DATE: JANUARY/2020
ATLAS PAGE NO: — SHEET E1 OF 2 SHEETS

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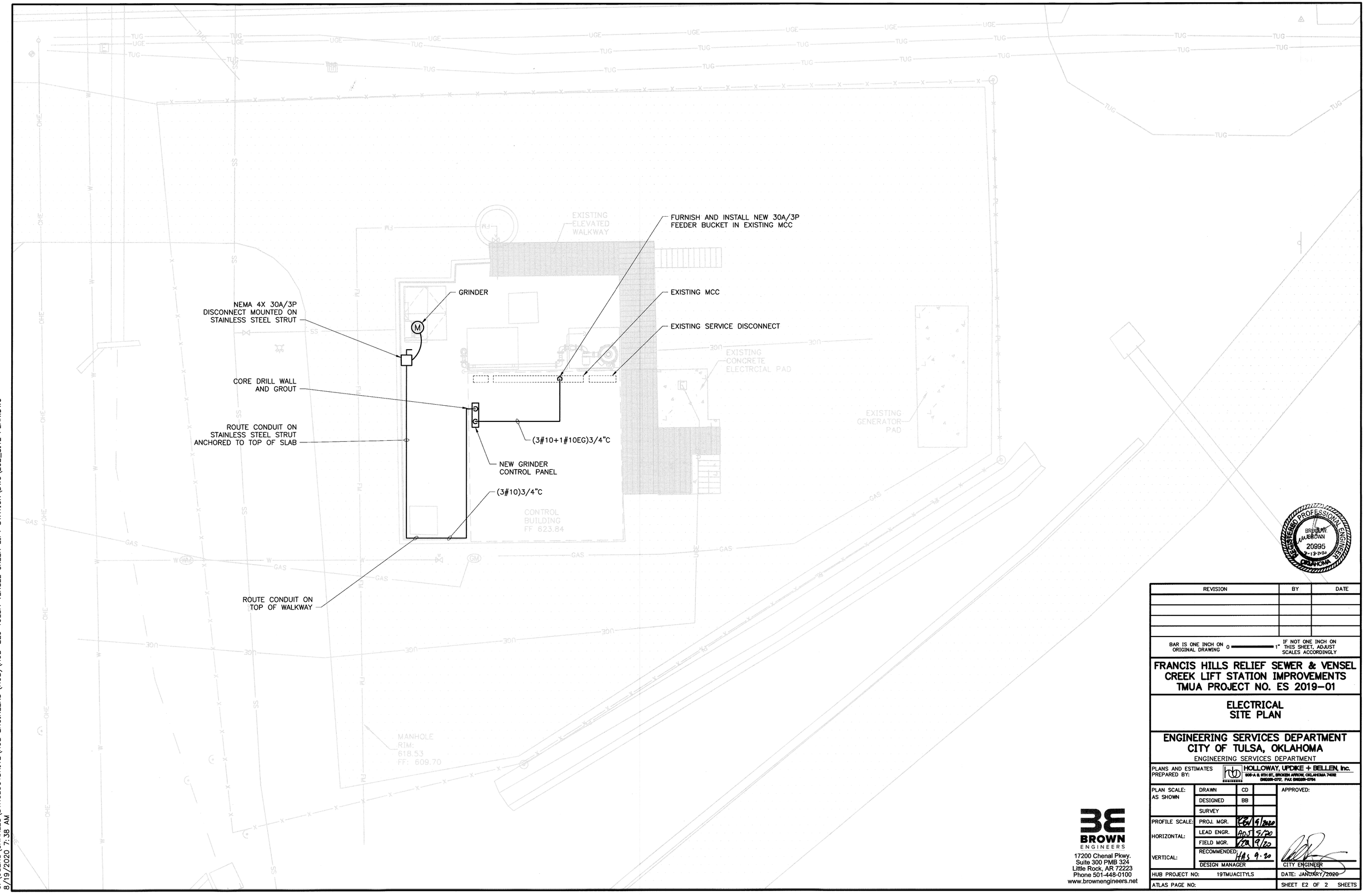

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8/19/2020 7:38 AM

REGISTERED PROFESSIONAL ENGINEER
BRADLEY W. BROWN
20995
8-13-2020
OKLAHOMA

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ELECTRICAL SITE PLAN

ENGINEERING SERVICES DEPARTMENT
CITY OF TULSA, OKLAHOMA
ENGINEERING SERVICES DEPARTMENT

PLANS AND ESTIMATES PREPARED BY: HOLLOWAY, UPDIKE + BELLEN, Inc.
909-A S. 6TH ST., BROKEN ARROW, OKLAHOMA 74012
(918)259-0777, FAX (918)259-0784

PLAN SCALE: AS SHOWN	DRAWN	CD		APPROVED:
	DESIGNED	BB		
	SURVEY			
PROFILE SCALE:	PROJ. MGR.		8/19/2020	
HORIZONTAL:	LEAD ENGR.		8/20	
	FIELD MGR.		9/20	
VERTICAL:	RECOMMENDED: DESIGN MANAGER	HAS	9-20	CITY ENGINEER

HUB PROJECT NO: 19TMUACITYLS — DATE: JANUARY 2020

ATLAS PAGE NO: — SHEET E2 OF 2 SHEETS

BROWN ENGINEERS
17200 Chenal Pkwy.
Suite 300 PMB 324
Little Rock, AR 72223
Phone 501-448-0100
www.brownengineers.net