

SYMBOL LEGEND

●	CONTROL POINT
⊕	SURVEYED BENCHMARK
⊕	AIR RELEASE VALVE
⊕	ELECTRIC CONTROL BOX
⊕	MONITORING WELL
⊕	ELECTRIC METER
⊕	FIRE HYDRANT
⊕	FLAG POLE
⊕	GATE POST
⊕	GUARD RAIL POST
⊕	GUY ANCHOR
⊕	GUY POLE
⊕	LIGHT POLE
⊕	MAIL BOX
⊕	POWER POLE/TELEPHONE POLE
⊕	MANHOLE SANITARY, STORM
⊕	SIGN
⊕	SPIGOT
⊕	SANITARY SEWER CLEAN OUT
⊕	SANITARY SEWER LAMPHOLE
⊕	WATER VALVE
⊕	WATER METER
⊕	TELEPHONE BOX
⊕	TELEPHONE RISER
⊕	GAS METER
⊕	GAS VALVE
⊕	BUSH/HEDGE
⊕	SMALL CONIFEROUS TREE
⊕	LARGE CONIFEROUS TREE
⊕	SMALL DECIDUOUS TREE
⊕	LARGE DECIDUOUS TREE
---	Fence Line (All Types)
---	Overhead Electric
---	Underground Electric
---	Overhead Telephone
---	Underground Telephone
---	Underground Cable Television
---	Natural Gas Line
---	Fiber Optic Cable
---	Water Line
---	Existing Storm Sewer
---	Sanitary Sewer Line
---	Proposed C.R.L.
---	Floodplain Boundary

DRAWING REFERENCE LEGEND

X	REFERS TO A PROFILE OR ELEVATION
7	PROFILE NUMBER
8	SHEET NUMBER ON WHICH IT IS LOCATED
1	DETAIL DESCRIPTION
SCALE: 1"=XX'	

DATUM INFORMATION

HORIZONTAL DATUM

VERTICAL DATUM

NOTE:

ALL CONSTRUCTION TO BE IN STRICT ACCORDANCE WITH CURRENT CITY OF TULSA ENGINEERING SERVICES DEPARTMENT, STANDARDS AND SPECIFICATIONS.

THIS PROJECT COMPLIES WITH ALL OKLAHOMA DEPARTMENT OF ENVIRONMENTAL QUALITY (ODEQ) REQUIREMENTS.

2009 OKLAHOMA DEPARTMENT OF TRANSPORTATION STANDARD SPECIFICATIONS FOR HIGHWAY CONSTRUCTION SHALL GOVERN. CITY OF TULSA ENGINEERING SERVICES DEPARTMENT CURRENT STANDARDS WILL BE USED AS APPLICABLE.

ENTIRE PROJECT IS WITHIN CORPORATE LIMITS OF CITY OF TULSA (COT)

UTILITY COORDINATION BOX

	NUMBER	NOTIFIED
WATER DESIGN	918-596-9580	
WASTEWATER DESIGN	918-596-9564	
TRANSPORTATION DESIGN	918-596-9636	
UTILITY COORDINATION - CHRIS KOVAC	918-596-9649	
STORMWATER DESIGN	918-596-9498	
PSO - ADAM FIELDS	877-250-6257	
ONG - JONATHAN MEADOWS	918-831-8215	
AT&T - AL NICHOLS	918-596-4237	
COX COMMUNICATION - BRANDON WADE	918-286-4716	
MTTA - ERIC SMITH	918-830-0024	

CONSTRUCTION PLANS FOR

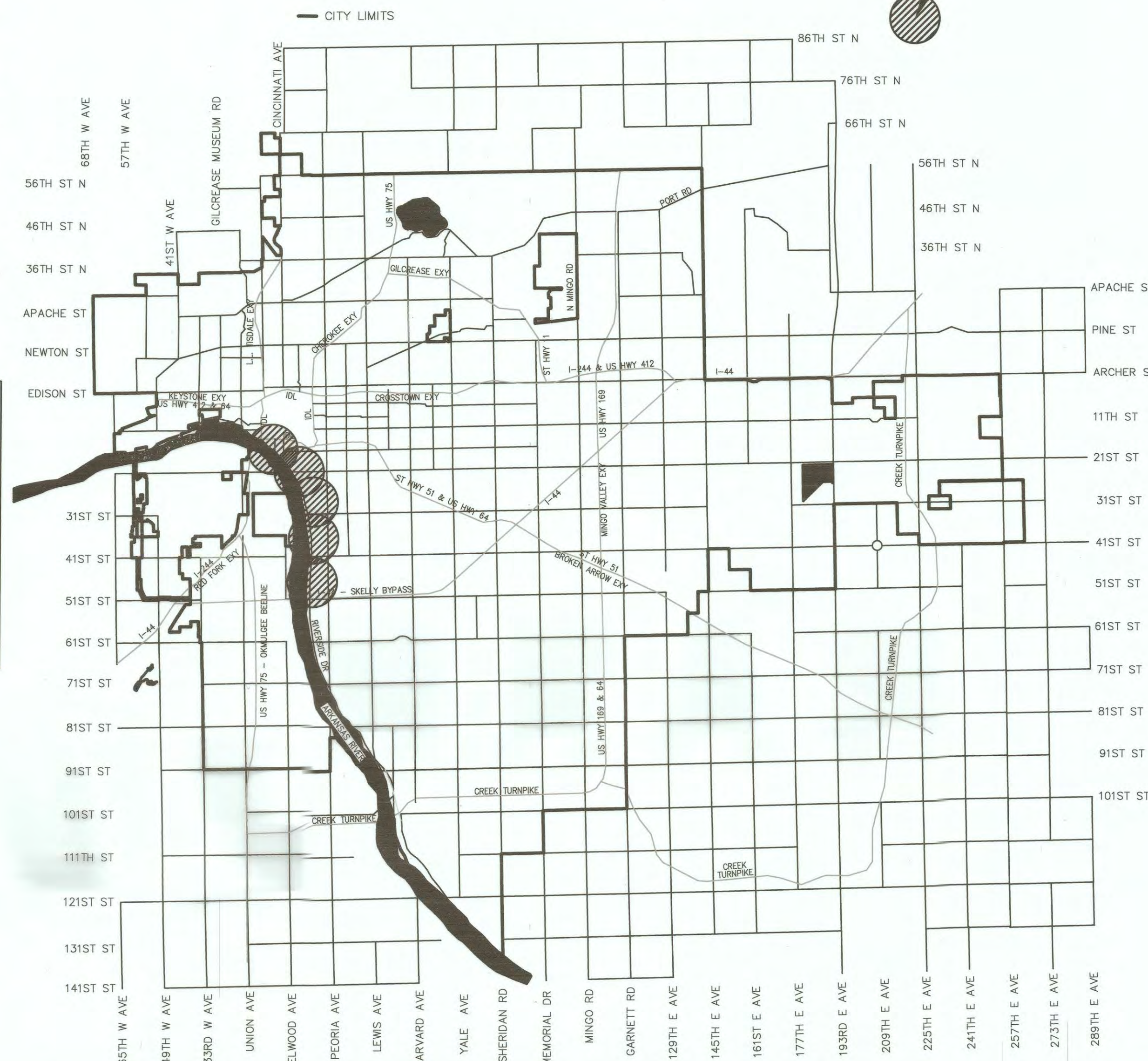
FEMA FLOOD DAMAGE PROJECT

PROJECT NO. 173120-T021-126333

FEMA PROJECT NO. 126333 2031F00005.STRMSEWER.FLOOD.5618

CITY OF TULSA, OKLAHOMA ENGINEERING SERVICES DEPARTMENT

PROJECT SITES



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1 - COVER SHEET	29 - SITE 397
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APPLICABLE STANDARDS:

CITY OF TULSA:
SEE SHEET 2

ODOT:
SEE SHEET 2

APPROVED BY

[Signature]
CITY ENGINEER

01.25.21
DATE

ADVERTISEMENT DATE

Prepared By:
MESHEK & ASSOCIATES, L.L.C.

[Signature]
RYAN PIERCE, P.E. #27211
MESHEK & ASSOCIATES, L.L.C.



12/16/2020
DATE



MESHEK & ASSOCIATES, L.L.C.
C.A. 1487 EXPIRES 6/30/21
1437 S. BOULDER AVE, STE. 1550
TULSA, OK 74119
(PH) 918-392-5620
(FAX) 918-392-5621

SHEET 1 OF 50 SHEETS

M:\City_of_Tulsa\17TUL03_On-Call_Stormwater_Services_2017\TO-21_FEMA_Flood_Damage_Design_Working\126333\Damage_331100.dwg
PRINT DATE: 12/18/2020

GENERAL (G1 - G10) (11/14/2018)

- G-1: LOCATIONS TO BE DETERMINED IN THE FIELD AND WORK TO BE PERFORMED AT THE DIRECTION OF THE FIELD ENGINEER. QUANTITY IS ESTIMATED AND MAY BE OMITTED IN ITS ENTIRETY.
- G-2: MAXIMUM OVERALL DOLLAR AMOUNT AND SCHEDULE OF PAYMENTS SHALL BE IN ACCORDANCE SECTION 641 OF THE OKLAHOMA DEPARTMENT OF TRANSPORTATION STANDARD SPECIFICATIONS, CURRENT EDITION. EXCLUDES MOBILIZATION FOR WATERLINE WORK.
- G-3: CONSTRUCTION STAKING SHALL INCLUDE SURVEYING AND THE FURNISHING, PLACING, AND MAINTAINING OF THE CONSTRUCTION LAYOUT STAKES NECESSARY FOR THE PROPER COMPLETION AND INSPECTION OF THE ENTIRE PROJECT.
- G-4: THE COST TO REPLACE REMOVED OR DAMAGED SECTION CORNERS AND ALL OTHER PERMANENT RIGHT OF WAY MARKERS SHALL BE INCLUDED IN THE PRICE BID FOR THIS ITEM. NO ADDITIONAL PAYMENT WILL BE MADE.
- G-5: CONTRACTOR SHALL REPAIR ANY IRRIGATION SYSTEMS DAMAGED OR REQUIRING RELOCATION DURING THE CONSTRUCTION OF THE PROJECT TO THE SATISFACTION OF THE PROPERTY OWNER AND CITY ARBORIST. COST SHALL BE INCLUDED IN THE PRICE BID.

PAY ITEM NOTES (11/14/2018)

EARTHWORK / EROSION CONTROL / SITE PREPARATION (E1 - E11)

- E-2: ALL EXISTING DRAINAGE STRUCTURES SHALL BE CLEANED AND CLEARED OF ALL SEDIMENTATION AND DEBRIS TO THE RIGHT OF WAY. COST OF CLEARING SHALL BE INCLUDED IN THE PRICE BID.
- E-3: THE CONTRACTOR SHALL BE PAID FOR UNCLASSIFIED EXCAVATION ON THE BASIS OF PLAN QUANTITY. ANY ADDITIONAL EXCAVATION REQUIRED OR OVERRUN OF PLAN QUANTITY WILL BE PAID FOR ON THE BASIS OF UNIT PRICE BID FOR THE ITEM. CONTRACTOR SHALL BE RESPONSIBLE FOR PROVIDING ADEQUATE SURVEY TO VERIFY ANY ADDITIONAL QUANTITIES.
- E-4: UNCLASSIFIED EXCAVATION INCLUDES REMOVAL OF AGGREGATE BASE AND MODIFIED SUBGRADE UNDER EXISTING PAVEMENT TO BE REPAIRED.
- E-5: THIS QUANTITY INCLUDES AN ADDITIONAL 10% ABOVE PLAN QUANTITY FOR UNDERCUTTING OF UNSUITABLE SUBGRADE MATERIAL OR ADDITIONAL PATCHING AS DIRECTED BY THE ENGINEER.
- E-6: THE CONTRACTOR SHALL BE RESPONSIBLE FOR CONTROL AND MAINTENANCE OF THE STORM WATER DRAINAGE FROM THE CONSTRUCTION SITE. STORM WATER PONDING ON THE CONSTRUCTION SITE THAT IS THE RESULT OF CONSTRUCTION WILL NOT BE ALLOWED. ALL COST ASSOCIATED WITH STORM WATER MANAGEMENT, AS WELL AS REMOVAL OF ALL SILT AND DEBRIS FROM ALL DRAINAGE STRUCTURES, STORM SEWER PIPES AND APPURTENANCES WITHIN THE PROJECT LIMITS AT END OF PROJECT, SHALL BE INCLUDED IN THE UNIT PRICE BID FOR THIS ITEM.
- E-7: EROSION PROTECTION SHALL BE PLACED AS FOLLOWS:
A) AROUND INLETS TO PREVENT INFLOW OF ERODED MATERIAL INTO STORM SEWER SYSTEM;
B) IN LOCATIONS THROUGHOUT PROJECT SITE, AS DETERMINED BY THE ENGINEER, TO PREVENT WASH OF ERODED MATERIAL ONTO ADJACENT PROPERTY;
C) FOR ENTIRE DURATION OF PROJECT, WITH MAINTENANCE AND REPLACEMENTS, AS DIRECTED BY THE ENGINEER;
D) WITH PERIODIC REMOVAL OF SEDIMENT IN ACCORDANCE WITH STORMWATER MANAGEMENT PLAN.
ALL COST FOR ITEMS A-D ABOVE SHALL BE INCLUDED IN UNIT PRICE BID FOR THIS ITEM.
- E-8: PRICE BID SHALL INCLUDE MAINTENANCE, SEDIMENT REMOVAL, DISPOSAL, AND REMOVAL OF FILTERS AT PROJECT COMPLETION.
- E-10: ESTIMATED QUANTITY IS BASED ON SODDING OF ALL DISTURBED AREAS OUTSIDE THE FINAL PAVING LIMITS AND WITHIN THE FINAL GRADING LIMITS AS INDICATED BY THE TOP-OF-CUT/TOE-OF-SLOPE LINE ON THE PLANS (EXCLUDING SURFACES OF STRUCTURES, FIXTURES AND APPURTENANCES). SOD SHALL BE OF LIKE-KIND TO EXISTING SOD. PRICE BID INCLUDES PLACEMENT AND COMPACTION OF SUITABLE BACKFILL. ANY EXISTING GRASSED AREAS BEYOND THE ABOVE STATED LIMITS THAT ARE DAMAGED AS A RESULT OF CONSTRUCTION OPERATIONS SHALL BE RESODDED TO THE SATISFACTION OF THE ENGINEER AT THE CONTRACTOR'S SOLE EXPENSE.
- E-11: COST OF WATERING AND FERTILIZING SHALL BE INCLUDED. FERTILIZERS SHALL BE 10-20-10 AND SHALL BE APPLIED AT THE RATE OF 1.5 LBS PER 10 SQ YDS. FERTILIZER SHALL BE APPLIED PER SECTION 230.04H OF ODOT STANDARD SPECIFICATIONS. WATERING SHALL BE APPLIED AS NECESSARY UNTIL VEGETATION IS ESTABLISHED OR UNTIL THE WORK IS ACCEPTED AS COMPLETE.

SURFACING / STRUCTURES (S1 - S21)

- S-1: TYPE A AGGREGATE BASE WAS ESTIMATED TO BE USED AS THE BASE MATERIAL FOR 90% OF THE PATCHING. QUICK SET FLOWABLE FILL WAS ESTIMATED TO BE USED AS THE BASE MATERIAL FOR 10% OF THE PATCHING. ACTUAL QUANTITIES TO BE DETERMINED BY THE ENGINEER.
- S-2: INCLUDES COMPACTION OF AGGREGATE TO 98% AASHTO T180 MODIFIED PROCTOR.
- S-3: SEPARATOR FABRIC SHALL BE USED AT ALL PAVEMENT PATCHES AND RECONSTRUCTION SECTIONS. THE SEPARATOR FABRIC SHALL BE CUT AND OVERLAPPED A MINIMUM OF 2 FT AT ALL EDGES OF THE REPAIR.
- S-4: FABRIC REINFORCEMENT SHALL BE USED ON OVERLAY AREAS. THE COST OF BITUMINOUS BINDER FOR FABRIC REINFORCEMENT SHALL BE INCLUDED IN THE UNIT COST OF THIS PAY ITEM. THE BITUMINOUS BINDER SHALL MEET ODOT STANDARD SPECIFICATIONS AND THE RECOMMENDATIONS OF THE FABRIC REINFORCEMENT MANUFACTURER.
- S-5: THE COST OF TACK COAT, EDGE JOINT SEAL MATERIAL AND SCREENINGS FOR BLOTTING, AND ALL LABOR ASSOCIATED WITH THESE ITEMS, SHALL BE INCLUDED IN ASPHALT CONCRETE.
- S-6: ESTIMATED AT 112 LBS PER SQ YD PER 1 INCH THICK.
- S-7: ODOT PAY FACTOR FOR AVERAGE LOT DENSITY SHALL NOT BE USED FOR THIS PROJECT. FAILURE TO REACH AVERAGE LOT DENSITY OF 92%-97% WILL RESULT IN REJECTION OF WORK.
- S-8: A HIGHER GRADE OF ASPHALT BINDER THAN IS INDICATED ON THE PLANS MAY BE USED, BUT AT NO ADDITIONAL COST TO THE CITY.

BINDER GRADE	MESALs	ADT ¹	NOTES
PG 64--22 OK	3	<5,000	USE WHEN MORE THAN 4--6 INCHES BELOW THE SURFACE. ALSO USE FOR SHOULDERS, DRIVEWAYS, BELOW PCC, AND TEMPORARY CONSTRUCTION
PG 70--28 OK	10	<10,000	USE ONLY IN THE TOP 4--6 INCHES FOR DRIVING LANES
PG 76--28 OK	≥10	≥10,000	USE ONLY IN THE TOP 4--6 INCHES FOR DRIVING LANES
PG 76--28 E	—	—	CONTACT ODOT MATERIALS DIVISION FOR RECOMMENDED USE.
1. USE ADT ONLY WHEN ESAL COMPUTATIONAL DATA IS NOT AVAILABLE. CALCULATE THE DESIGN ESALs BASED ON 20 YEARS.			
2. PG 70--28 OK OR PG 76--28 OK MAY BE DESIRABLE IN HIGH VOLUME AREAS WHERE SLOW, STANDING, OR TURNING TRAFFIC OCCURS, SUCH AS URBAN INTERSECTIONS OR OFF-RAMPS. OFF RAMPS SHOULD AT LEAST USE THE SAME BINDER AS THE MAINLINE.			

- S-11: CONCRETE PAVEMENT SHALL BE COMPLETE IN PLACE. NO PARTIAL OR FINAL PAYMENT SHALL BE MADE UNTIL PAVEMENT HAS BEEN SAWED AND SEALED. ANY SECTIONS OF PAVEMENT WITH UNAPPROVED DEVIATIONS FROM THE JOINT LAYOUT PROVIDED IN THE PLANS MAY BE REJECTED AT THE DISCRETION OF THE ENGINEER.
- S-12: THE USE OF FLY-ASH IN CONCRETE IS PROHIBITED.
- S-13: INCLUDES ALL COST OF SAWED JOINTS AND SEALING OF ALL JOINTS INCLUDING LONGITUDINAL JOINTS.

- S-15: THIS ITEM SHALL BE MEASURED AS THE ACTUAL AMOUNT OF CURB AND/OR GUTTER INSTALLED. NO PAYMENT WILL BE MADE FOR CURB AND/OR GUTTER THROUGH DRIVEWAYS AND INLETS.
- S-19: STANDARD BEDDING MATERIAL TO BE TYPE A AGGREGATE BASE COMPACTED TO 95% STANDARD PROCTOR DENSITY (AASHTO T-99). TYPE A AGGREGATE BASE IN THE ROADWAY SHALL BE COMPACTED TO 98% MODIFIED PROCTOR (AASHTO T-180).
- S-20: QUANTITY SHALL BE MEASURED AND PAID FOR AS FOLLOWS:

A. FOR ANY CAST-IN-PLACE OR PRECAST REINFORCED CONCRETE BOX (RCB) LARGER THAN 4' BY 4', USE NEAT LINES THAT ARE 4" BELOW THE BOTTOM OF THE RCB AND 4'-0" BEYOND THE OUTSIDE WALL.

B. UNDER ROADWAY PAY QUANTITY SHALL BE PAID FOR FROM THE BOTTOM OF TRENCH, AS DESCRIBED, TO THE BOTTOM OF ROADWAY AGGREGATE BASE.
- S-21: THIS PAY ITEM INCLUDES THE FOLLOWING:

A. SAW CUTTING
B. REMOVAL OF THE EXISTING CONCRETE AND/OR ASPHALTIC CONCRETE ROADWAY (SY)
C. TYPE S4 ASPHALTIC CONCRETE, H.E.S. CONCRETE, AND REINFORCING STEEL COMPLETE AND IN PLACE PER DETAIL
D. SEALING OF EDGES AND TACK COAT

DOES NOT INCLUDE THE FOLLOWING:

- A. UNCLASSIFIED EXCAVATION
B. SUBGRADE METHOD B (SY)
C. SEPARATOR FABRIC (SY)
D. AGGREGATE BASE (TYPE A)
E. ASPHALT CONCRETE LEVELING OR SURFACE COURSE

REMOVAL / ADJUSTMENT (R1 - R6)

- R-1: WASTE MATERIAL TO BECOME THE PROPERTY OF THE CONTRACTOR AND SHALL BE REMOVED FROM THE SITE IN A MANNER APPROVED BY THE ENGINEER.
- R-2: ALL SAW CUTTING AND REMOVAL SHALL BE INCLUDED IN THE COST OF THE ITEM TO BE ADJUSTED, REMOVED, REPAIRED, OR REPLACED.
- R-3: PAY ITEM INCLUDES REMOVAL OF ALL STRUCTURES AND OBSTRUCTIONS WITHIN PROJECT LIMITS NOT SPECIFIED BY OTHER ITEMS OF WORK.
- R-4: INCLUDES SAWING NOT INCLUDED IN OTHER ITEMS OF WORK.
- R-5: ITEMS TO BE REMOVED MAY OR MAY NOT BE PRESENT IN ANY SPECIFIED CONDITION.
- R-6: SHALL INCLUDE ALL COSTS ASSOCIATED WITH PLUGGING/ PATCHING HOLES IN EXISTING STRUCTURES TO REMAIN.

DRAINAGE (D1 - D15)

- D-1: THIS ITEM SHALL INCLUDE THE COST OF NEW MANHOLE FRAME AND COVER PER CITY OF TULSA STD NOS.752, 753, 754, 761, 762, 769A, 769B AND 775.
- D-2: THE TOTAL COST FOR RUBBERIZED ASPHALT AND/OR SILICONE AT MANHOLES, VALVE BOXES, INLETS, AND INLET APRONS, SHALL BE INCLUDED.
- D-3: NO MASONRY STRUCTURES SHALL BE CONSTRUCTED WITHIN THE RIGHT OF WAY.
- D-7: INCLUDES THE COST REQUIRED TO MAKE CONNECTION AND REMOVAL OF EXISTING INLETS. THE COST OF PC CONCRETE CURB AND GUTTER THROUGH THE INLET, 5' EACH SIDE OF THE INLET, AND THE PC CONCRETE INLET APRON SHALL BE INCLUDED. GRATE AND FLOWLINE ELEVATIONS SHALL MATCH EXISTING CONDITIONS UNLESS OTHERWISE NOTED IN THE PLANS.
- D-8: QUICKSET FLOWABLE FILL SHALL BE USED TO BACKFILL AROUND STREET CURB INLETS AND REINFORCED CONCRETE PIPE, AS NEEDED, AT THE DIRECTION OF THE ENGINEER.
- D-9: ALL INLETS, COMPLETE IN PLACE, SHALL BE CAST IN PLACE CONCRETE OR PRECAST CONCRETE. THIS PAY ITEM INCLUDES ANY INLET FRAME(S), GRATE(S), HOOD(S) AND CONCRETE REQUIRED FOR COMPLETE INSTALLATION OF STRUCTURE PER THE CONSTRUCTION DOCUMENTS.
- D-10: ADDITIONAL DEPTH QUANTITIES SHALL BE MEASURED AND PAID FOR ALL INLETS EXCEEDING STANDARD DEPTH. STANDARD DEPTHS ARE AS FOLLOWS:

A) CAST IRON CURB INLET: 3.71 VF, MEASURED FROM CENTER ELEVATION OF LOWEST CAST IRON CURB TO FLOWLINE OF OUTLET PIPE.
B) RECESSED CURB INLET: 3.00 VF, MEASURED FROM TOP OF SLAB TO FLOWLINE OF OUTLET PIPE.
C) STANDARD DROP INLET: SEE STANDARD DETAILS 770, 771, 772 AND 773 - VARIES BASED ON PIPE SIZE, MEASURED FROM LOWEST ELEVATION OF INFLOW APRON TO FLOWLINE OF OUTLET PIPE.
- D-12: REINFORCED CONCRETE PIPE TO BE CLASS III. ALL REINFORCED CONCRETE PIPE AND MANHOLES TO BE SUPPLIED WITH AN IMINI-FLEX JOINT GASKET OR APPROVED EQUAL. MASTIC JOINT SEALANT SHALL NOT BE ALLOWED.
- D-13: THIS PAY ITEM SHALL BE COMPLETE IN PLACE AND SHALL INCLUDE ALL PIPE, STANDARD BEDDING MATERIAL AND TRENCH EXCAVATION, JOINT GASKETS AND ALL OTHER INCIDENTALS. NO ADDITIONAL COST WILL BE MADE. PRIOR TO ACCEPTANCE, INTERIOR OF PIPE SHALL BE INSPECTED FOR DEFECTS USING SELF-PROPELLED MOBILE CLOSED-CIRCUIT CAMERA SYSTEM.
- D-14: WHERE CORRUGATED POLYPROPYLENE PIPE CONNECTS TO REINFORCED CONCRETE STRUCTURES, CONTRACTOR SHALL ENSURE CONNECTIONS ARE WATER-TIGHT AND FULLY SEALED AGAINST SOIL INFILTRATION.
- D-15: WHERE QUICKSET FLOWABLE FILL IS USED TO BACKFILL AROUND CORRUGATED POLYPROPYLENE PIPE, THE CONTRACTOR SHALL UTILIZE AN ANCHORING SYSTEM APPROVED BY THE ENGINEER PRIOR TO INSTALLATION. ALL COSTS FOR LABOR, EQUIPMENT AND MATERIALS REQUIRED TO IMPLEMENT APPROVED ANCHORING SYSTEM INCLUDED IN PRICE BID FOR CORRUGATED POLYPROPYLENE PIPE.

TRAFFIC (T1 - T7)

- T-1: ALL TRAFFIC MATERIALS REMOVED SHALL BE HANDLED PER COT SPECIFICATION 625 REMOVAL OF TRAFFIC ITEMS.
- T-2: REFLECTORIZED SHEETING ON SIGNS AND BARRICADES SHALL BE OF A CUBIC PRISMATIC TYPE AND SHALL MEET THE SPECIFICATIONS ESTABLISHED FOR ASTM D 4956-01 TYPE IX RETROREFLECTIVE SHEETING. REFLECTORIZED SHEETING ON DRUMS AND TUBE CHANNELIZERS SHALL BE OF A HIGH-INTENSITY TYPE AND SHALL MEET THE SPECIFICATIONS ESTABLISHED FOR ASTM D 4956-01 TYPE III RETROREFLECTIVE SHEETING.
- T-3: ALL PLASTIC PAVEMENT MARKINGS SHALL BE EITHER:

EXTRUDED-APPLIED THERMOPLASTIC (USE ON ASPHALT PAVEMENT). THERMOPLASTIC PAVEMENT MARKINGS SHALL ONLY BE APPLIED WHEN THE SURFACE TEMPERATURE EXCEEDS 55°F FOR ALL OF THE SIX HOURS PRIOR TO INSTALLATION AND MAXIMUM WIND GUSTS ARE BELOW 15 MPH AT THE TIME OF APPLICATION. PRICE BID TO INCLUDE FLEX TABS OR LIKE KIND FOR POST CONSTRUCTION LANE MARKING/SEPARATION. MECHANICALLY APPLIED PREFORMED PLASTIC TAPE ("COLD TAPE") WILL NOT BE ACCEPTED.
- T-7: PRICE BID FOR THIS ITEM INCLUDES INSTALLATION, MAINTENANCE AND SUBSEQUENT REMOVAL OF PROJECT SIGN.

SPECIAL PAY ITEM NOTES:

- 1: THIS PAY ITEM SHALL INCLUDE THE COST OF REMOVAL OF EQUIVALENT PIPE SIZE DIAMETER AND LINEAL FOOT.

APPLICABLE CITY OF TULSA STANDARD DRAWINGS AND DETAILS REFERENCES:

PAVEMENT CUTS FOR UTILITIES
- STD NO. 713 - STANDARD DETAIL FOR PAVEMENT REMOVAL AND REPLACEMENT
- STD NO. 714 - STANDARD DETAIL FOR PAVEMENT CUTS

ASPHALT PAVEMENT - DETAILS
- STD NO. 730 - STANDARD ASPHALT PAVEMENT CUT AND REPAIR

P.C. CONCRETE PAVEMENT - CURB DETAILS
- STD NO. 727 - CONCRETE PAVEMENT STANDARD DETAILS FOR RESIDENTIAL AND COLLECTOR STREETS

STORM PIPES, DRAINAGE INLETS, GRATES, AND HOODS
- STD NO. 761 - STANDARD PIPE BEDDING DETAIL FOR STORM SEWER
- STD NO. 763 - FRAME AND LID FOR 4' AND 5' I.D. STORMWATER MANHOLE
- STD NO. 764 - FRAME AND LID FOR 6' AND 8' I.D. STORMWATER MANHOLE AND JUNCTION BOXES
- STD NO. 775 - STANDARD PRECAST CONCRETE STORMWATER MANHOLE

APPLICABLE ODOT STANDARDS:

SMD 3-2 - STANDARD MEDIAN DRAINS

ROADWAY BASE BID					
ITEM NO.	SPEC NO.	DESCRIPTION	NOTES	UNIT	QUANTITY
1	202(D)	UNCLASSIFIED BORROW		CY	2611
2	220	SWPPP DOCUMENTATION AND MANAGEMENT	E-6	EA	1
3	221(I)	REMOVAL OF SEDIMENT		CY	11
4	230(A)	SOLID SLAB SODDING	E-10,11	SY	3294
5	326(B)	GEOGRID REINFORCEMENT		SY	1050
6	509(D)	CLASS C CONCRETE	S-12	CY	5
7	601(B)	TYPE I-A PLAIN RIPRAP		CY	207
8	613(A)	15" R.C.PIPE CLASS III (COMPLETE IN PLACE)	D-8,12,13 1	LF	200
9	613(A)	18" R.C.PIPE CLASS III (COMPLETE IN PLACE)	D-8,12,13 1	LF	135
10	613(A)	21" R.C.PIPE CLASS III (COMPLETE IN PLACE)	D-8,12,13 1	LF	20
11	613(A)	24" R.C.PIPE CLASS III (COMPLETE IN PLACE)	D-8,12,13 1	LF	60
12	613(A)	30" R.C.PIPE CLASS III (COMPLETE IN PLACE)	D-8,12,13 1	LF	138
13	613(A)	42" R.C.PIPE CLASS III (COMPLETE IN PLACE)	D-8,12,13 1	LF	6
14	613(B)	18" CORR. GALV. STEEL PIPE (COMPLETE IN PLACE)	D-8,12,13 1	LF	28
15	613 (L)	15" PREFAB. CULVERT END SECTION, OROUND		EA	3
16	613 (L)	18" PREFAB. CULVERT END SECTION, ROUND		EA	2
17	613 (L)	30" PREFAB. CULVERT END SECTION, ROUND (REMOVE AND REPLACE)		EA	1
18	613(L)	42" PREFAB. CULVERT END SECTION, ROUND (REMOVE AND REPLACE)		EA	2
19	880(I)	CONSTRUCTION TRAFFIC CONTROL		EA	1
20	SPECIAL	TYPE I PCC PATCH (ARTERIAL)	S-21	SY	108
21	SPECIAL	TYPE I APC PATCH (NON-ARTERIAL)	S-21	SY	95



GENERAL CONSTRUCTION NOTES & PAY ITEMS	
PROJECT #126333	
FEMA DAMAGE SITES	
CITY OF TULSA, OKLAHOMA ENGINEERING SERVICES DEPARTMENT	
PLANS AND ESTIMATES PREPARED BY: Meshek & Associates, L.L.C. 1437 S. Boulder Avenue, Suite 1550 Tulsa, OK 74119 (918)392-5620	

REVISION	BY	DATE	PLAN SCALE	DRAWN	ASB	05/20	APPROVED:
				DESIGNED	RJP	05/20	
			N/A	SURVEY	N/A	N/A	CITY ENGINEER DATE: 1-28-21 SHEET 2 OF 80 SHEETS
			PROFILE SCALE	PROJ. MGR.	07/16/21	07/21/21	
			HORIZONTAL:	LEAD ENGR.	07/16/21	07/21/21	
			VERTICAL:	FIELD MGR.	07/16/21	07/21/21	
				RECOMMENDED	07/16/21	07/21/21	
				DESIGN MANAGER	07/16/21	07/21/21	
			FILE:	DRAWING:			
			ATLAS PAGE NO.	516, 34, 61, 96, 139, 190, 249			

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PRINT DATE: 12/17/2020

SITE 169 - PAY QUANTITIES					
ROADWAY 0100					
ITEM	DESCRIPTION		NOTES	UNIT	QUANTITY
202(D)	0184	UNCLASSIFIED BORROW		CY	4.00
230(A)	2806	SOLID SLAB SODDING	E-10,11	SY	7.00

SITE 352 - PAY QUANTITIES					
ROADWAY 0100					
ITEM	DESCRIPTION		NOTES	UNIT	QUANTITY
202(D)	0184	UNCLASSIFIED BORROW		CY	133.00
230(A)	2806	SOLID SLAB SODDING	E-10,11	SY	200.00

SITE 379 - PAY QUANTITIES					
ROADWAY 0100					
ITEM	DESCRIPTION		NOTES	UNIT	QUANTITY
202(D)	0184	UNCLASSIFIED BORROW		CY	37.00
230(A)	2806	SOLID SLAB SODDING		SY	42.00

SITE 360 - PAY QUANTITIES					
ROADWAY 0100					
ITEM	DESCRIPTION		NOTES	UNIT	QUANTITY
202(D)	0184	UNCLASSIFIED BORROW		CY	93.00
230(A)	2806	SOLID SLAB SODDING	E-10,11	SY	139.00
326(B)	0100	GEOGRID REINFORCEMENT		SY	25.00
601(B)	0536	TYPE I-A PLAIN RIPRAP		CY	5.00

SITE 172 - PAY QUANTITIES					
ROADWAY 0100					
ITEM	DESCRIPTION		NOTES	UNIT	QUANTITY
202(D)	0184	UNCLASSIFIED BORROW		CY	622.00
230(A)	2806	SOLID SLAB SODDING	E-10,11	SY	467.00
326(B)	0100	GEOGRID REINFORCEMENT		SY	450.00
601(B)	0536	TYPE I-A PLAIN RIPRAP		CY	75.00
613(L)	5732	30" PREFAB. CULVERT END SECTION, ROUND (REMOVE AND REPLACE)		EA	1.00

SITE 173 - PAY QUANTITIES					
ROADWAY 0100					
ITEM	DESCRIPTION		NOTES	UNIT	QUANTITY
509(D)	0325	CLASS C CONCRETE	S-12	CY	1.00

SITE 188 - PAY QUANTITIES					
ROADWAY 0100					
ITEM	DESCRIPTION		NOTES	UNIT	QUANTITY
509(D)	0325	CLASS C CONCRETE	S-12	CY	4.00

SITE 414- PAY QUANTITIES					
ROADWAY 0100					
ITEM	DESCRIPTION		NOTES	UNIT	QUANTITY
230(A)	2806	SOLID SLAB SODDING	E-10,11	SY	12.00
613(A)	0491	15" R.C.PE PIPE CLASS III (COMPLETE IN PLACE)	D-8,12,13 1	LF	25.00
613(L)	5724	15" PREFAB. CULVERT END SECTION		EA	1.00

SITE 423 - PAY QUANTITIES					
ROADWAY 0100					
ITEM	DESCRIPTION		NOTES	UNIT	QUANTITY
230(A)	2806	SOLID SLAB SODDING	E-10,11	SY	13.00
613(A)	0493	30" R.C.PE PIPE CLASS III (COMPLETE IN PLACE)	D-8,12,13 1	LF	50.00
SPECIAL	TYPE I APC PATCH (NON-ARTERIAL)		S-21	SY	8.00

SITE 424 - PAY QUANTITIES					
ROADWAY 0100					
ITEM	DESCRIPTION		NOTES	UNIT	QUANTITY
230(A)	2806	SOLID SLAB SODDING	E-10,11	SY	7.00
613(A)	0493	30" R.C.PE PIPE CLASS III (COMPLETE IN PLACE)	D-8,12,13 1	LF	30.00
SPECIAL	TYPE I APC PATCH (NON-ARTERIAL)		S-21	SY	9.00

SITE 177 - PAY QUANTITIES					
ROADWAY 0100					
ITEM	DESCRIPTION		NOTES	UNIT	QUANTITY
202(D)	0184	UNCLASSIFIED BORROW		CY	9.00
601(B)	0536	TYPE I-A PLAIN RIPRAP		CY	4.00
613(L)	5726	18" PREFAB. CULVERT END SECTION, ROUND		EA	1.00

SITE 198 - PAY QUANTITIES					
ROADWAY 0100					
ITEM	DESCRIPTION		NOTES	UNIT	QUANTITY
202(D)	0184	UNCLASSIFIED BORROW		CY	50.00
230(A)	2806	SOLID SLAB SODDING	E-10,11	SY	50.00
601(B)	0536	TYPE 1-A PLAIN RIP RAP		CY	33.00
221(I)	0525	REMOVAL OF SEDIMENT		CY	1.00

SITE 369 - PAY QUANTITIES					
ROADWAY 0100					
ITEM	DESCRIPTION		NOTES	UNIT	QUANTITY
202(D)	0184	UNCLASSIFIED BORROW		CY	28.00
230(A)	2806	SOLID SLAB SODDING		SY	139.00

SITE 372 - PAY QUANTITIES					
ROADWAY 0100					
ITEM	DESCRIPTION		NOTES	UNIT	QUANTITY
202(D)	0184	UNCLASSIFIED BORROW		CY	34.00
230(A)	2806	SOLID SLAB SODDING	E-10,11	SY	34.00
326(B)	0100	GEOGRID REINFORCEMENT		SY	25.00
601(B)	0536	TYPE I-A RIPRAP		CY	5.00

SITE 377 - PAY QUANTITIES					
ROADWAY 0100					
ITEM	DESCRIPTION		NOTES	UNIT	QUANTITY
202(D)	0184	UNCLASSIFIED BORROW		CY	93.00
230(A)	2806	SOLID SLAB SODDING	E-10,11	SY	56.00

SITE 405 - PAY QUANTITIES					
ROADWAY 0100					
ITEM	DESCRIPTION		NOTES	UNIT	QUANTITY
202(D)	0184	UNCLASSIFIED BORROW		CY	15.00
230(A)	2806	SOLID SLAB SODDING	E-10,11	SY	14.00
613(A)	0493	30" R.C.PE PIPE CLASS III (COMPLETE IN PLACE)	D-8,12,13 1	LF	52.00
SPECIAL	TYPE I APC PATCH (NON-ARTERIAL)		S-21	SY	16.00

SITE 182 - PAY QUANTITIES					
ROADWAY 0100					
ITEM	DESCRIPTION		NOTES	UNIT	QUANTITY
202(D)	0184	UNCLASSIFIED BORROW		CY	26.00
230(A)	2806	SOLID SLAB SODDING	E-10,11	SY	39.00
601(B)	0536	TYPE 1-A PLAIN RIP RAP		CY	3.00
613(L)	5738	42" PREFAB. CULVERT END SECTION, ROUND		EA	1.00

SITE 204 - PAY QUANTITIES					
ROADWAY 0100					
ITEM	DESCRIPTION		NOTES	UNIT	QUANTITY
202(D)	0184	UNCLASSIFIED BORROW		CY	1.00
230(A)	2806	SOLID SLAB SODDING	E-10,11	SY	11.00
601(B)	0536	TYPE 1-A PLAIN RIP RAP		CY	2.00
613(A)	0403	15" R.C.PE PIPE CLASS III (COMPLETE IN PLACE)	D-8,12,13 1	LF	50.00
SPECIAL	TYPE I APC PATCH (NON-ARTERIAL)		S-21	SY	12.00

SITE 205 - PAY QUANTITIES					
ROADWAY 0100					
ITEM	DESCRIPTION		NOTES	UNIT	QUANTITY
230(A)	2806	SOLID SLAB SODDING	E-10,11	SY	3.00
613(A)	0403	15" R.C.PE PIPE CLASS III (COMPLETE IN PLACE)	D-8,12,13 1	LF	25.00
SPECIAL	TYPE I APC PATCH (NON-ARTERIAL)		S-21	SY	16.00

SITE 233 - PAY QUANTITIES					
ROADWAY 0100					
ITEM	DESCRIPTION		NOTES	UNIT	QUANTITY
221(I)	0525	REMOVAL OF SEDIMENT		CY	2.00

SITE 391 - PAY QUANTITIES					
ROADWAY 0100					
ITEM	DESCRIPTION		NOTES	UNIT	QUANTITY
230(A)	2806	SOLID SLAB SODDING	E-10,11	SY	5.00
613(A)	0496	42" R.C.PE PIPE CLASS III (COMPLETE IN PLACE)	D-8,12,13 1	LF	6.00
613(L)	5738	42" PREFAB. CULVERT END SECTION, ROUND		EA	1.00

SITE 397 - PAY QUANTITIES					
ROADWAY 0100					
ITEM	DESCRIPTION		NOTES	UNIT	QUANTITY
221(I)	0525	REMOVAL OF SEDIMENT		CY	4.00

SITE 185 - PAY QUANTITIES					
ROADWAY 0100					
ITEM	DESCRIPTION		NOTES	UNIT	QUANTITY
202(D)	0184	UNCLASSIFIED BORROW		CY	519.00

SITE 234 - PAY QUANTITIES					
ROADWAY 0100					
ITEM	DESCRIPTION		NOTES	UNIT	QUANTITY
230(A)	2806	SOLID SLAB SODDING	E-10,11	SY	10.00
613(A)	0496	15" R.C.PE PIPE CLASS III (COMPLETE IN PLACE)	D-8,12,13 1	LF	20.00
613(L)	5724	15" PREFAB. CULVERT END SECTION, ROUND		EA	1.00

SITE 416 - PAY QUANTITIES					
ROADWAY 0100					
ITEM	DESCRIPTION		NOTES	UNIT	QUANTITY
230(A)	2806	SOLID SLAB SODDING	E-10,11	SY	72.00
326(B)	0100	GEOGRID REINFORCEMENT		SY	50.00
601(B)	0536	TYPE I-A PLAIN RIPRAP		CY	9.00
613(A)	0496	15" R.C.PE PIPE CLASS III (COMPLETE IN PLACE)	D-8,12,13 1	LF	55.00
613(L)	5724	15" PREFAB. CULVERT END SECTION, ROUND		EA	1.00
SPECIAL	TYPE I APC PATCH (NON-ARTERIAL)		S-21	SY	6.00

SITE 186 - PAY QUANTITIES					
ROADWAY 0100					
ITEM	DESCRIPTION		NOTES	UNIT	QUANTITY
221(I)	0525	REMOVAL OF SEDIMENT		CY	3.00

SITE 199 - PAY QUANTITIES					
ROADWAY 0100					
ITEM	DESCRIPTION		NOTES	UNIT	QUANTITY
202(D)	0184	UNCLASSIFIED BORROW		CY	6.00
230(A)	2806	SOLID SLAB SODDING	E-10,11	SY	9.00

SITE 227 - PAY QUANTITIES					
ROADWAY 0100					
ITEM	DESCRIPTION		NOTES	UNIT	QUANTITY
202(D)	0184	UNCLASSIFIED BORROW		CY	519.00
230(A)	2806	SOLID SLAB SODDING	E-10,11	SY	778.00

SITE 407 - PAY QUANTITIES					
ROADWAY 0100					
ITEM	DESCRIPTION		NOTES	UNIT	QUANTITY
230(A)	2806	SOLID SLAB SODDING	E-10,11	SY	11.00
613(A)	0496	15" R.C.PE PIPE CLASS III (COMPLETE IN PLACE)	D-8,12,13 1	LF	50.00
SPECIAL	TYPE I APC PATCH (NON-ARTERIAL)		S-21	SY	15.00

SITE 412 - PAY QUANTITIES					
ROADWAY 0100					
ITEM	DESCRIPTION		NOTES	UNIT	QUANTITY
230(A)	2806	SOLID SLAB SODDING	E-10,11	SY	450.00
326(B)	0100	GEOGRID REINFORCEMENT		SY	450.00
601(B)	0536	TYPE I-A PLAIN RIPRAP		CY	47.00
613(A)	0492	24" R.C.PE PIPE CLASS III (COMPLETE IN PLACE)	D-8,12,13 1	LF	60.00
SPECIAL	TYPE I PCC PATCH (ARTERIAL)		S-21	SY	61.00

SITE 422 - PAY QUANTITIES					
ROADWAY 0100					
ITEM	DESCRIPTION		NOTES	UNIT	QUANTITY
230(A)	2806	SOLID SLAB SODDING	E-10,11	SY	3.00
613(A)	0496	18" R.C.PE PIPE CLASS III (COMPLETE IN PLACE)	D-8,12,13 1	LF	6.00

SITE 223 - PAY QUANTITIES					
ROADWAY 0100					
ITEM	DESCRIPTION		NOTES	UNIT	QUANTITY
221(I)	0525	REMOVAL OF SEDIMENT		CY	1.00

STORM WATER MANAGEMENT PLAN

SITE DESCRIPTION

PROJECT LIMITS: DAMAGE INVENTORY #331100 SITES ALONG THE EAST SIDE OF THE ARKANSAS RIVER INCLUDING: SITE 169, SITE 352, SITE 360, AND SITE 379. ALL APPROXIMATELY LOCATED IN THE SE/4 OF SECTION 12 OF OK T19N R 12 E. WITHIN THE CITY LIMITS OF TULSA, OKLAHOMA.

PROJECT DESCRIPTION:
SITE 169: EROSION CONTROL
SITE 352: EROSION CONTROL
SITE 360: EROSION CONTROL
SITE 379: EROSION CONTROL

SUGGESTED SEQUENCE OF EROSION CONTROL ACTIVITIES:
1. TEMPORARY EROSION CONTROL.
2. PERMANENT EROSION CONTROL.

SOIL TYPE: VERY FINE SANDY LOAM, SILT LOAM, STRATIFIED LOAMY FINE SAND, SILTY CLAY LOAM, VARIABLE

TOTAL AREA OF THE CONSTRUCTION SITE: LESS THAN 1 ACRE COMBINED

ESTIMATED AREA TO BE DISTURBED: LESS THAN 1 ACRE COMBINED

OFFSITE AREA TO BE DISTURBED: (FOR CONTRACTOR USE)

TOTAL IMPERVIOUS AREA PRE-CONSTRUCTION: X.XX ACRES

TOTAL IMPERVIOUS AREA POST-CONSTRUCTION: X.XX ACRES

POST-CONSTRUCTION RUNOFF COEFFICIENT OF THE SITE: X.X

LATITUDE & LONGITUDE OF CENTER OF PROJECT: N36° 08' 01.7", W95° 59' 30.5" N36° 08' 12.8", W95° 59' 38.8" N36° 08' 11.0", W95° 59' 38.0" N36° 08' 02.0", W95° 59' 30.5"

PROJECT WILL DISCHARGE TO:

NAME OF RECEIVING WATERS: ARKANSAS RIVER

SENSITIVE WATERS OR WATERSHEDS: YES NO X

303 IMPAIRED WATERS: YES X NO

IF YES, LIST IMPAIRMENT: CADMIUM

YES NO X

LOCATED IN A TMDL: YES NO X

LAKE THUNDERBIRD TMDL: YES X NO

MS4 ENTITY

IF YES, LOCATION: TULSA COUNTY

NOTE: THIS SHEET SHOULD BE USED IN CONJUNCTION WITH A DRAINAGE MAP THAT ILLUSTRATES THE DRAINAGE PATTERNS/PATHWAYS AND RECEIVING WATERS FOR THIS PROJECT. THIS SHEET SHOULD ALSO BE USED WITH THE EROSION CONTROL SUMMARIES, PAY ITEMS, & NOTES.

EROSION AND SEDIMENT CONTROLS

SOIL STABILIZATION PRACTICES:

- X 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 14 DAYS. METHODS USED WILL BE AS SHOWN ON PLANS, OR AS DIRECTED BY THE ENGINEER.

STRUCTURAL PRACTICES:

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

OFFSITE VEHICLE TRACKING:

- X HAUL ROADS DAMPENED FOR DUST CONTROL
- X LOADED HAUL TRUCKS TO BE COVERED WITH TARPAULIN
- X EXCESS DIRT ON ROAD REMOVED DAILY

NOTES:

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 INCH 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 STORM WATER POLLUTION PREVENTION PLAN (SWPPP) 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) FORM AND PERMIT CERTIFICATE 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. ALL CONTRACTOR OFF-SITE OPERATIONS ASSOCIATED WITH THE PROJECT MUST BE DOCUMENTED IN THE SWPPP, I.E., BORROW PITS, WORK ROADS, DISPOSAL SITES, ASPHALT/CONCRETE PLANTS, ETC. THE BASIC GOAL OF STORM WATER 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 STORM WATER POLLUTION.

THE FOLLOWING SECTIONS OF THE 2009 ODOT STANDARD SPECIFICATIONS SHOULD BE NOTED:

- 103.05 BONDING REQUIREMENTS
- 104.10 FINAL CLEANING UP
- 104.12 CONTRACTOR'S RESPONSIBILITY FOR WORK
- 104.13 ENVIRONMENTAL PROTECTION
- 106.08 STORAGE AND HANDLING OF MATERIAL
- 107.01 LAWS, RULES AND REGULATIONS TO BE OBSERVED
- 107.20 STORM WATER MANAGEMENT
- 220 MANAGEMENT OF EROSION, SEDIMENTATION AND STORM WATER POLLUTION PREVENTION AND CONTROL
- 221 TEMPORARY SEDIMENT CONTROL

IN ADDITION:

"ODEQ GENERAL PERMIT (OKR10) FOR STORM WATER DISCHARGES FROM CONSTRUCTION ACTIVITIES WITHIN THE STATE OF OKLAHOMA." ODEQ, WATER QUALITY DIVISION, SEPTEMBER 13, 2017.



REVISION	BY	DATE	PLAN SCALE	DRAWN	ASB	05/20	APPROVED:
			N/A	DESIGNED	RJP	05/20	
				SURVEY	N/A	N/A	
			PROFILE SCALE	PROJ. MGR.	1/21	9/21	
			HORIZONTAL:	LEAD ENGR.	1/21	1/21	
			N/A	FIELD MGR.	1/21	1/21	
			VERTICAL:	RECOMMENDED	1/21	1/21	
			N/A	DESIGN MANAGER	1/21	1/21	
			FILE:	DRAWING:			
			ATLAS PAGE NO.	15,16			

STORM WATER MANAGEMENT PLAN

PROJECT #173120-T021-126333

DAMAGE #331100

CITY OF TULSA, OKLAHOMA
ENGINEERING SERVICES DEPARTMENT

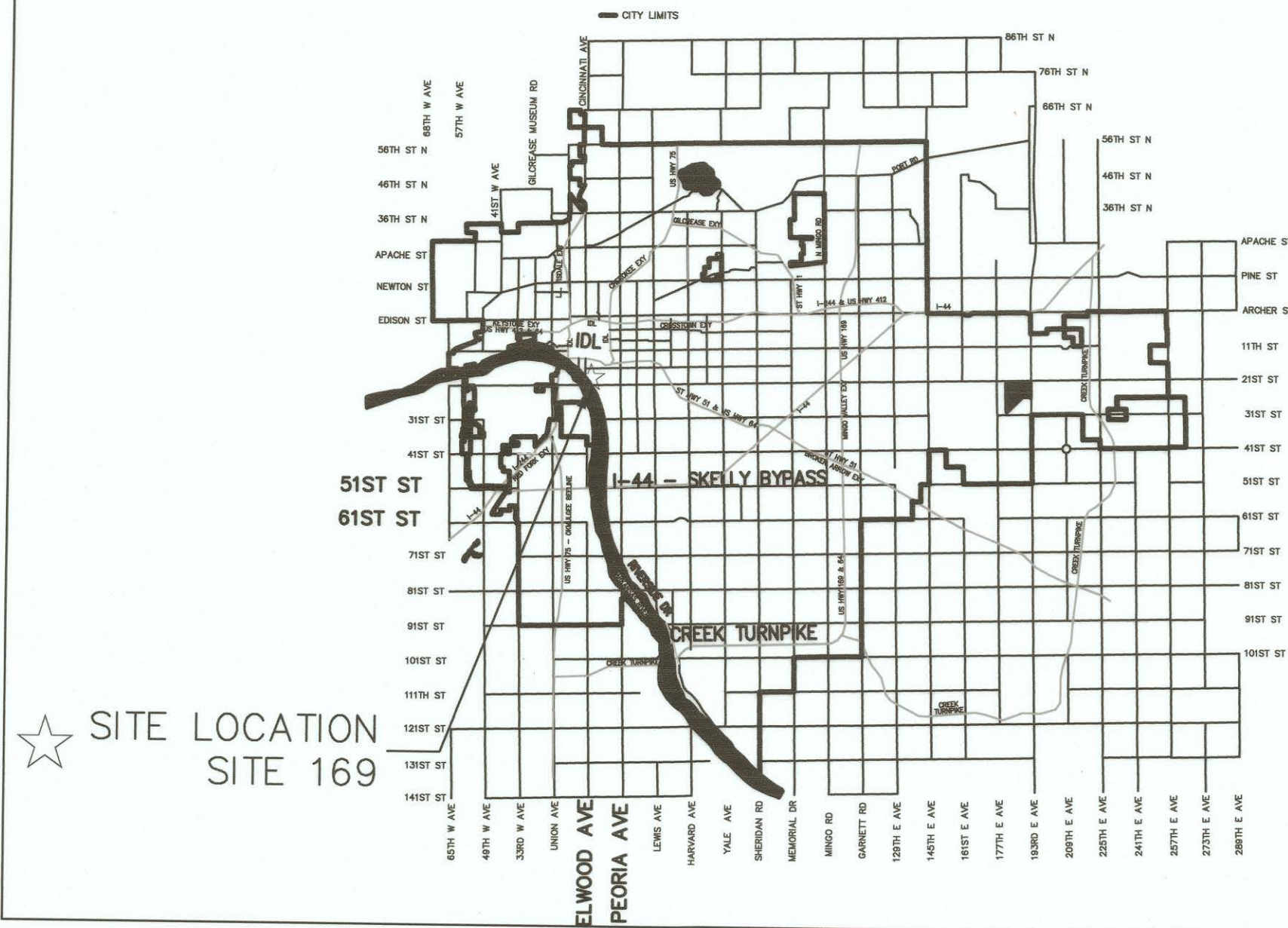
PLANS AND ESTIMATES PREPARED BY:
Meshek & Associates, L.L.C.
1437 S. Boulder Avenue, Suite 1550 Tulsa, OK 74119 (918)392-5620

CITY ENGINEER
DATE: 1-20-21
SHEET 4 OF 50 SHEETS

PRINT DATE: 12/17/2020 MA: City of Tulsa 0171003 On-Call Stormwater Services 2017 TO 21 FEMA Flood Damage Design 126333 DAMAGE_331100.dwg

LOCATION MAP

CITY OF TULSA, OKLAHOMA



CONSTRUCTION NOTES:

SITE 169 (36.13380, -95.99180)

BACKFILL, 4 CY OF UNCLASSIFIED FILL, 14 FT LONG, X 4 FT WIDE X 2 FT DEEP, SURFACE WATER FLOODING ERODED SOIL AROUND PIPE.

PROJECT NOTES:

1. SITE ESTIMATES FOR WORK TO BE COMPLETED WERE GENERATED USING RS MEANS.
2. ALL BORROW OR FILL MATERIAL MUST COME FROM PRE-EXISTING STOCKPILES, MATERIAL RECLAIMED FROM MAINTAINED ROADSIDE DITCHES (PROVIDED THE DESIGNED WIDTH OR DEPTH OF THE DITCH IS NOT INCREASED), OR COMMERCIALLY PROCURED MATERIAL FROM A SOURCE EXISTING PRIOR TO THE EVENT. FOR ANY FEMA-FUNDED PROJECT REQUIRING THE USE OF A NON-COMMERCIAL SOURCE OR A COMMERCIAL SOURCE THAT WAS NOT PERMITTED TO OPERATE PRIOR TO THE EVENT (E.G. A NEW PIT, AGRICULTURAL FIELDS, ROAD ROWS, ETC.) IN WHOLE OR IN PART, REGARDLESS OF COST, THE APPLICANT MUST NOTIFY FEMA AND THE RECIPIENT PRIOR TO EXTRACTING MATERIAL. FEMA MUST REVIEW THE SOURCE FOR PRESERVATION LAWS AND EXECUTIVE ORDERS PRIOR TO A SUBRECIPIENT OR THEIR CONTRACTOR COMMENCING BORROW EXTRACTION. CONSULTATION AND REGULATORY PERMITTING MAY BE REQUIRED. NONCOMPLIANCE WITH THIS REQUIREMENT MAY JEOPARDIZE RECEIPT OF FEDERAL FUNDING. DOCUMENTATION OF BORROW SOURCES UTILIZED IS REQUIRED AT CLOSEOUT.
3. ALL EXCAVATION DIMENSIONS ARE SHOWN IN THE DDD.

SITE 169 - PAY QUANTITIES					
ROADWAY 0100					
ITEM		DESCRIPTION	NOTES	UNIT	QUANTITY
202(D)	0184	UNCLASSIFIED BORROW		CY	4.00
230(A)	2806	SOLID SLAB SODDING	E-10,11	SY	7.00

SITE PHOTO



SITE PHOTO



LEGEND

FEMA SITE AREA



FEMA SITE 169

PROJECT #173120-T021-126333

DAMAGE # 331100

CITY OF TULSA, OKLAHOMA
ENGINEERING SERVICES DEPARTMENT

PLANS AND ESTIMATES PREPARED BY:

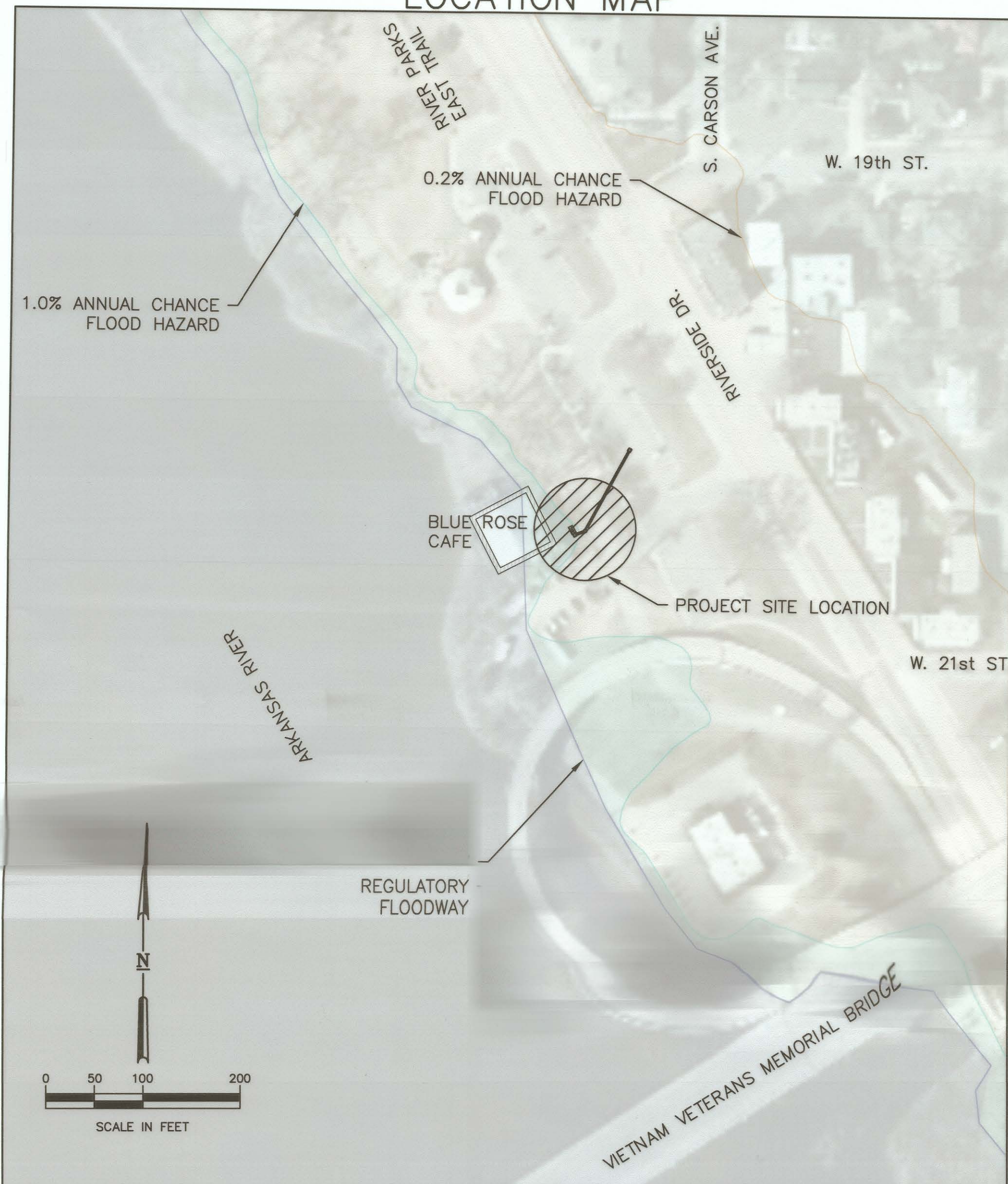
Meshek & Associates, L.L.C.

1437 S. Boulder Avenue, Suite 1550 Tulsa, OK 74119 (918)392-5620

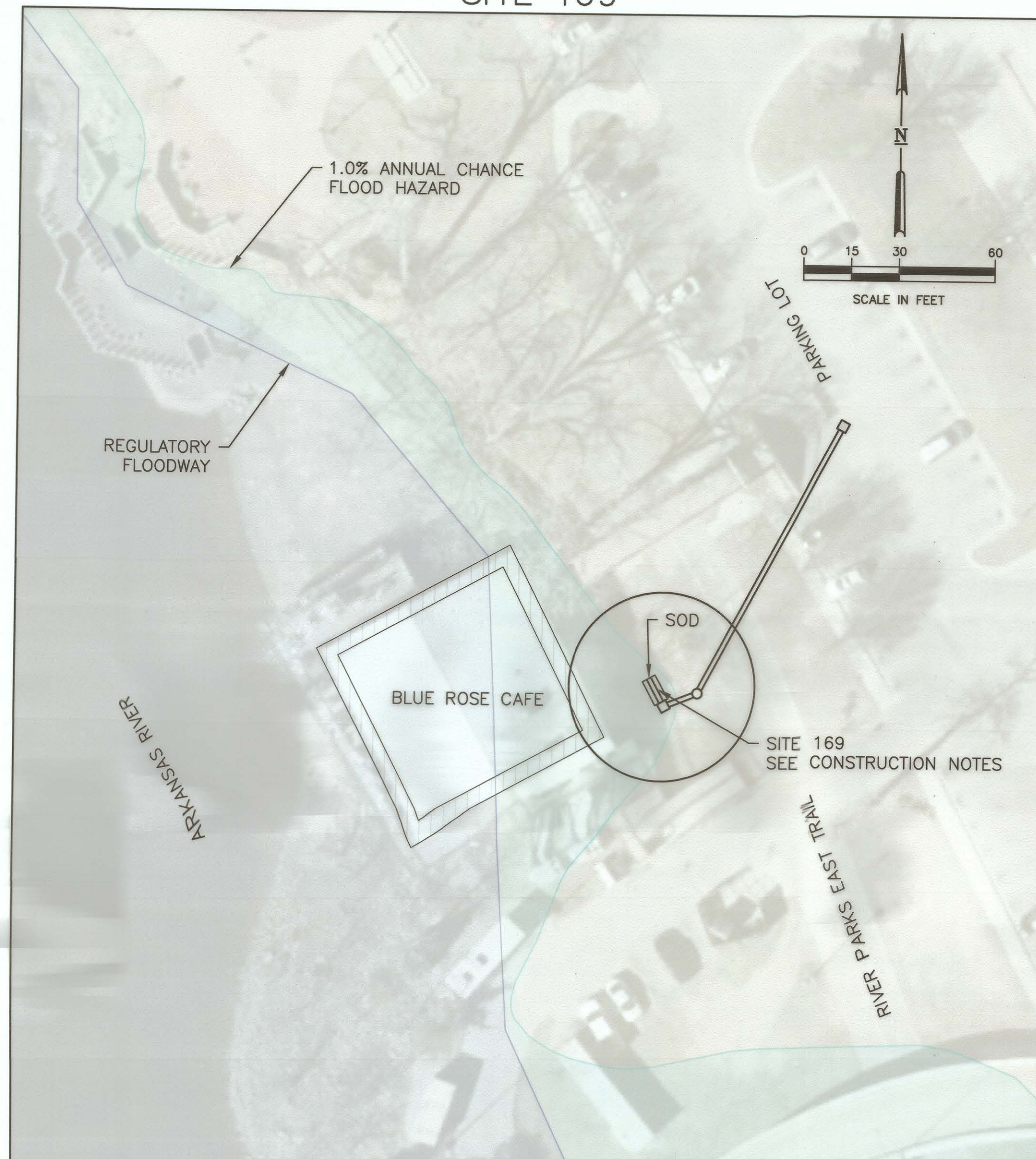
REVISION	BY	DATE	PLAN SCALE	DRAWN	ASB	05/20	APPROVED:
			DESIGNED	RJP	05/20		
			SURVEY	N/A	N/A		
			PROJ. MGR.	LAG	1/21		
			LEAD ENGR.	BOG	1/21		
			FIELD MGR.	BOG	1/21		
			RECOMMENDED	HAS	1/21		
			DESIGN MANAGER				
			FILE:	DRAWING:			
			ATLAS PAGE NO. 15				

CITY ENGINEER
DATE: 1-08-21
SHEET 5 OF 50 SHEETS

LOCATION MAP

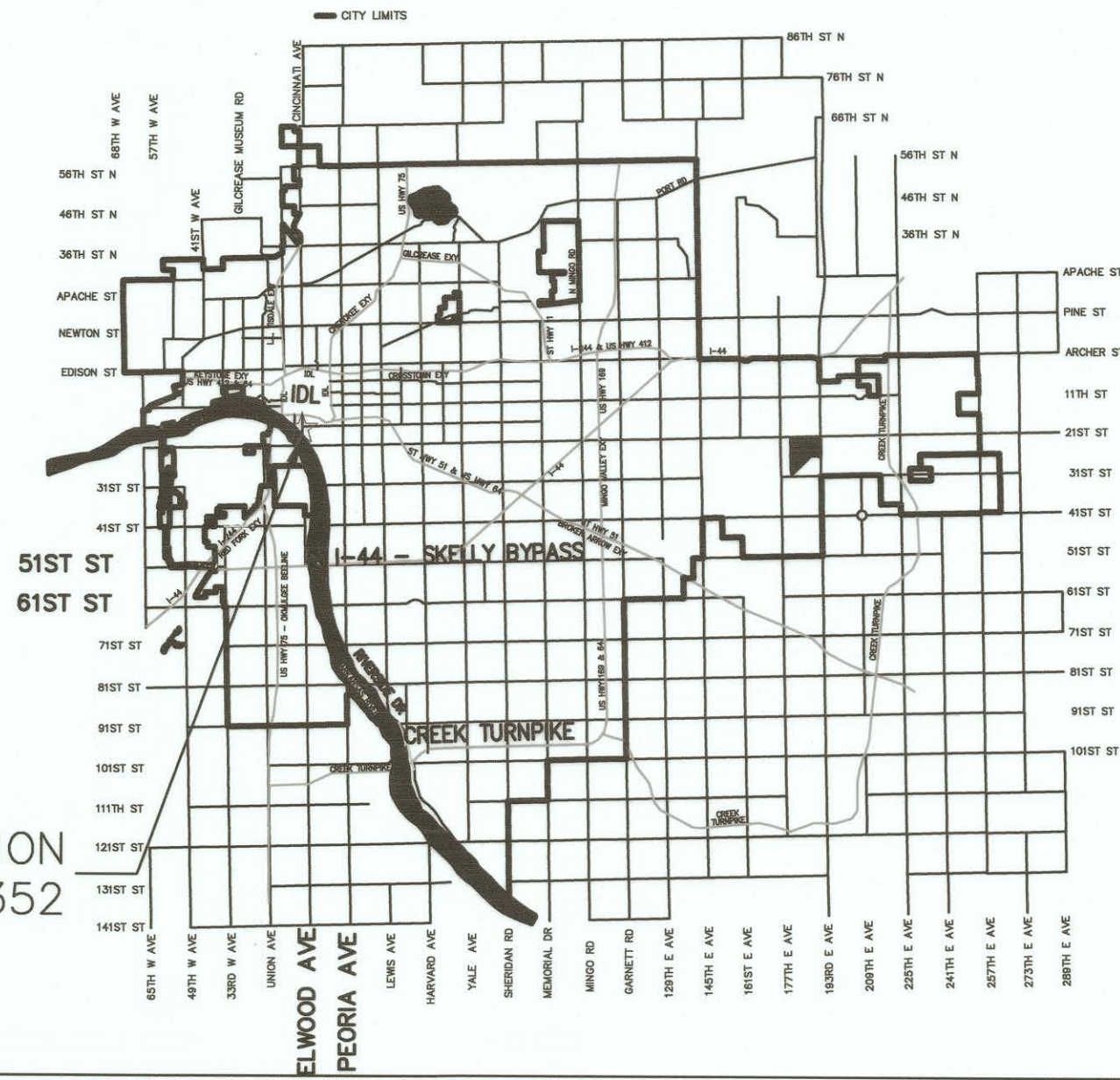


SITE 169



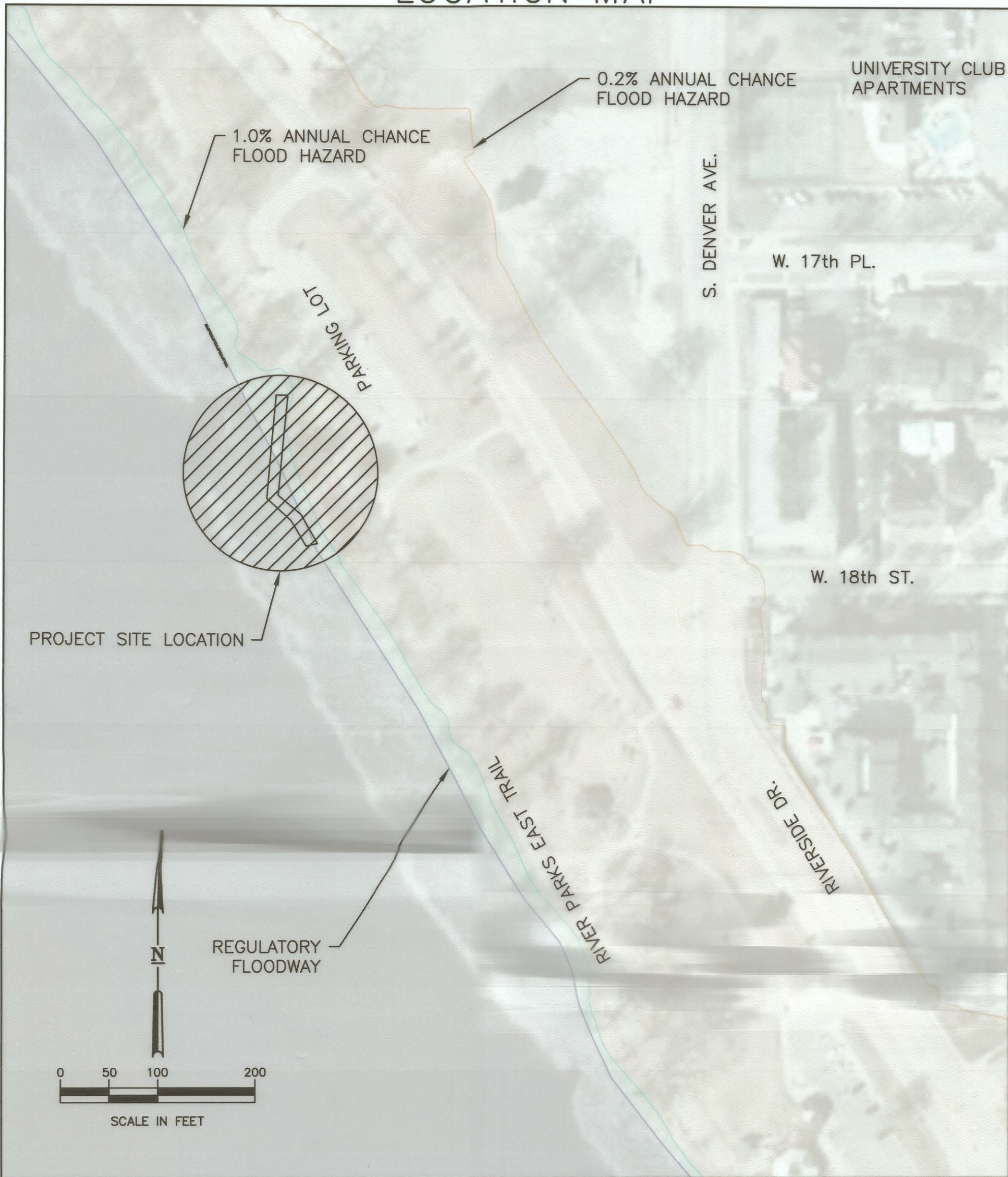
PRINT DATE: 12/17/2020 M:\City of Tulsa\17TUL03 On-Call Stormwater Services 2017\TO-21_FEMA_Flood Damage\Design\Working\126333 DAMAGE_331100.dwg

CITY OF TULSA, OKLAHOMA

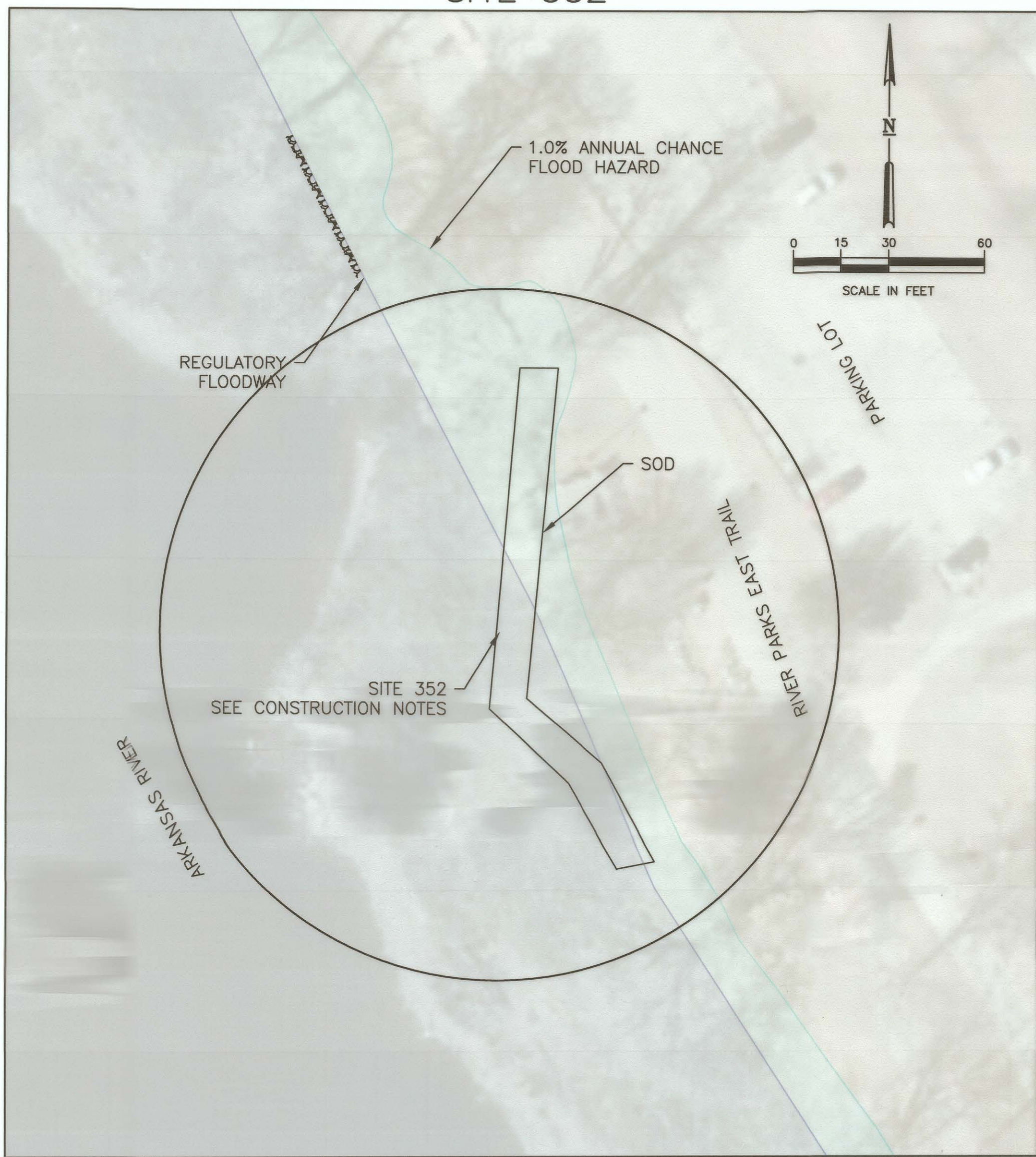


★ SITE LOCATION
SITE 352

LOCATION MAP



SITE 352



CONSTRUCTION NOTES:

SITE 352 (36.13640, -95.99390)

BACKFILL, 133 CY OF UNCLASSIFIED FILL, 150 FT LONG X 12 FT WIDE X 2 FT DEEP, SURFACE WATER FLOODING ERODED SOIL ALONG BANK.

SITE 352 - PAY QUANTITIES					
ROADWAY 0100					
ITEM		DESCRIPTION	NOTES	UNIT	QUANTITY
202(D)	0184	UNCLASSIFIED BORROW		CY	133.00
230(A)	2806	SOLID SLAB SODDING	E-10,11	SY	200.00

PROJECT NOTES:

1. SITE ESTIMATES FOR WORK TO BE COMPLETED WERE GENERATED USING RS MEANS.
2. ALL BORROW OR FILL MATERIAL MUST COME FROM PRE-EXISTING STOCKPILES, MATERIAL RECLAIMED FROM MAINTAINED ROADSIDE DITCHES (PROVIDED THE DESIGNED WIDTH OR DEPTH OF THE DITCH IS NOT INCREASED), OR COMMERCIALLY PROCURED MATERIAL FROM A SOURCE EXISTING PRIOR TO THE EVENT. FOR ANY FEMA-FUNDED PROJECT REQUIRING THE USE OF A NON-COMMERCIAL SOURCE OR A COMMERCIAL SOURCE THAT WAS NOT PERMITTED TO OPERATE PRIOR TO THE EVENT (E.G. A NEW PIT, AGRICULTURAL FIELDS, ROAD ROWS, ETC.) IN WHOLE OR IN PART, REGARDLESS OF COST, THE APPLICANT MUST NOTIFY FEMA AND THE RECIPIENT PRIOR TO EXTRACTING MATERIAL. FEMA MUST REVIEW THE SOURCE FOR PRESERVATION LAWS AND EXECUTIVE ORDERS PRIOR TO A SUBRECIPIENT OR THEIR CONTRACTOR COMMENCING BORROW EXTRACTION. CONSULTATION AND REGULATORY PERMITTING MAY BE REQUIRED. NONCOMPLIANCE WITH THIS REQUIREMENT MAY JEOPARDIZE RECEIPT OF FEDERAL FUNDING. DOCUMENTATION OF BORROW SOURCES UTILIZED IS REQUIRED AT CLOSEOUT.
3. ALL EXCAVATION DIMENSIONS ARE SHOWN IN THE DDD.

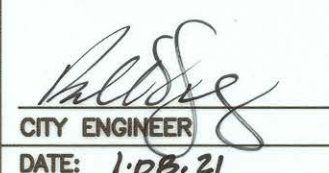
SITE PHOTO



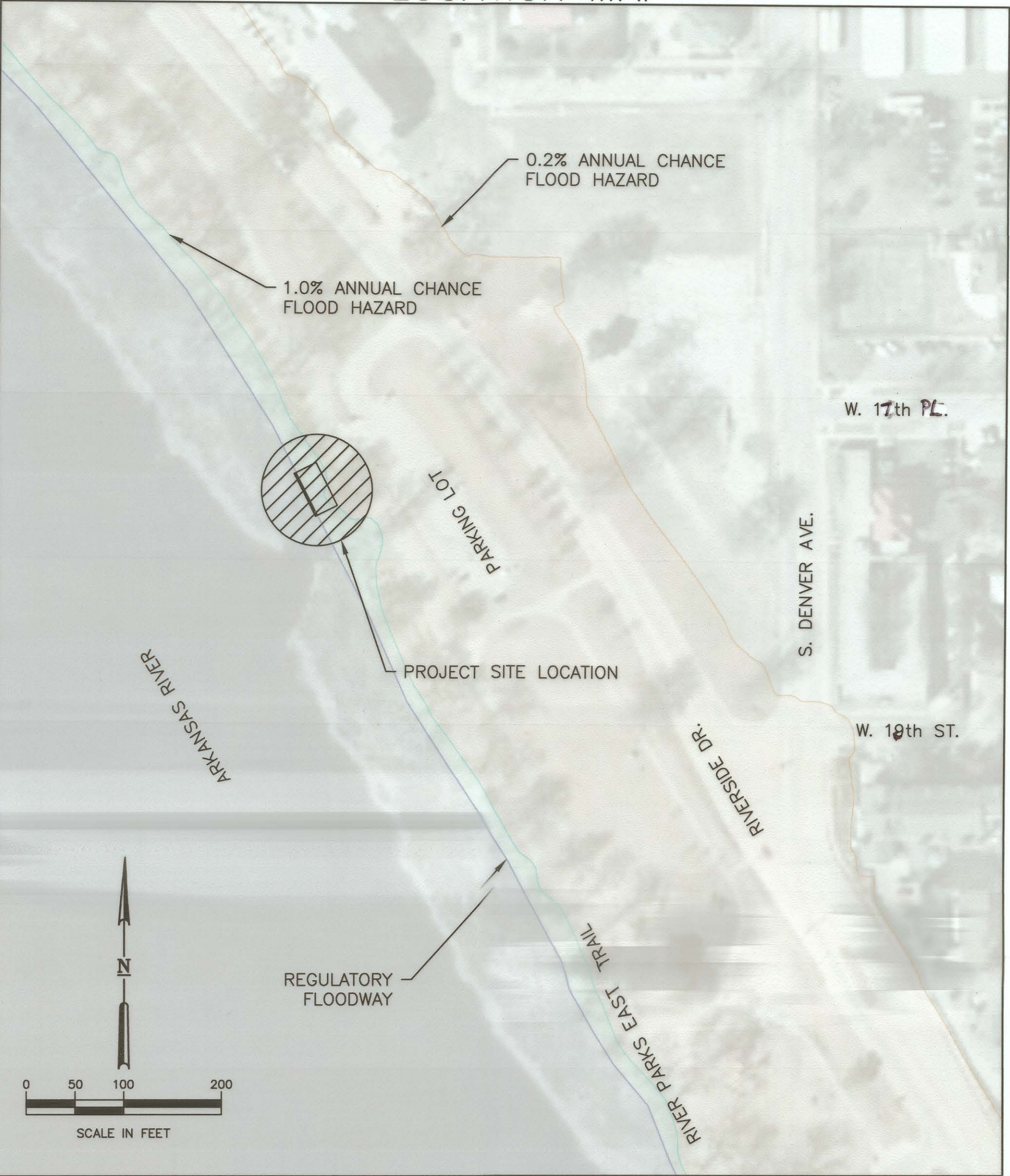
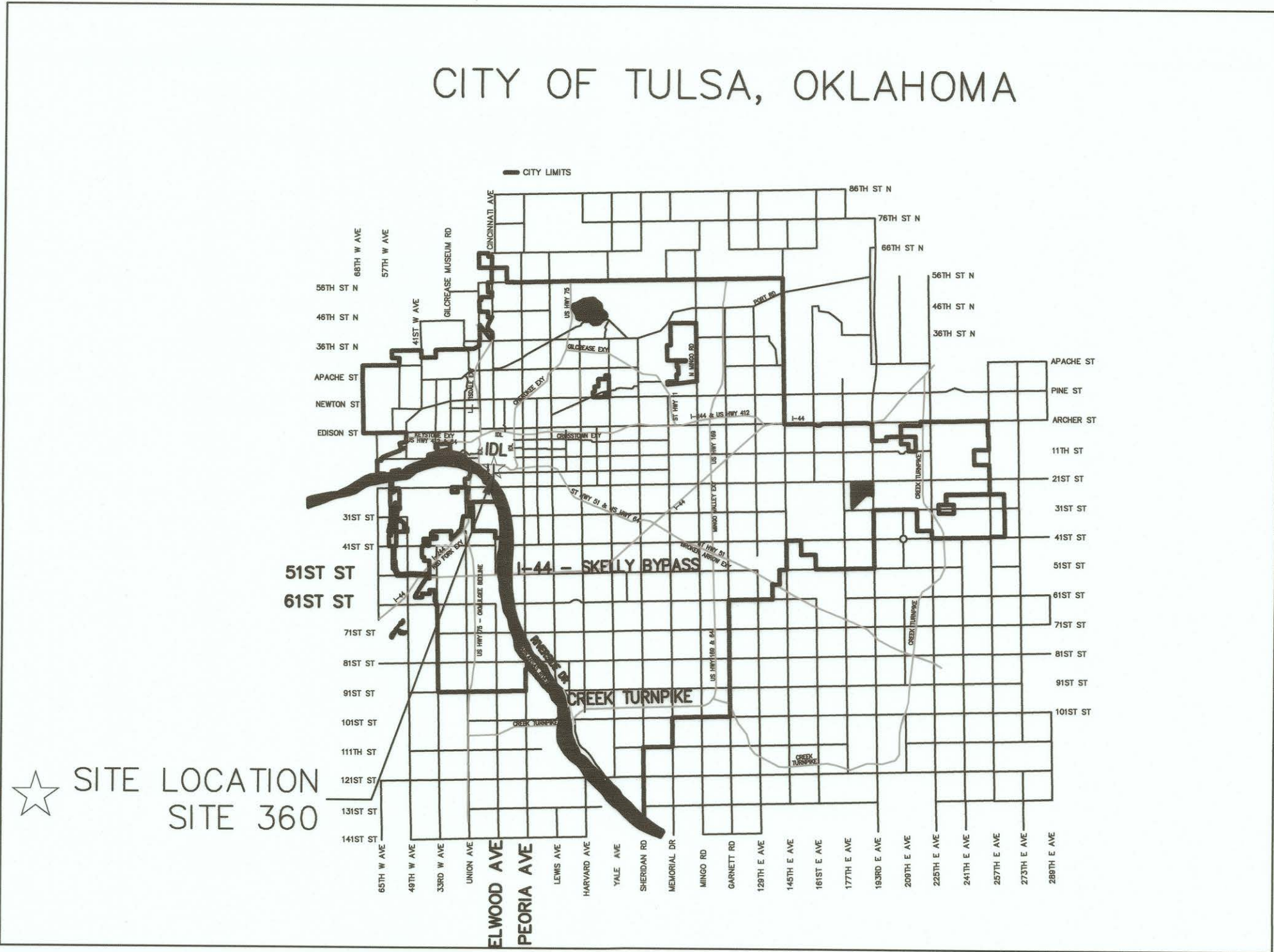
LEGEND

▨ FEMA SITE AREA



FEMA SITE 352			
PROJECT #173120-T021-126333			
DAMAGE # 331100			
CITY OF TULSA, OKLAHOMA ENGINEERING SERVICES DEPARTMENT			
PLANS AND ESTIMATES PREPARED BY: Meshek & Associates, L.L.C. 1437 S. Boulder Avenue, Suite 1550 Tulsa, OK 74119 (918)392-5620			
REVISION	BY	DATE	APPROVED:
PLAN SCALE	DRAWN	ASB 05/20	 CITY ENGINEER DATE: 1-08-21 SHEET 6 OF 50 SHEETS
DESIGNED	RJP	05/20	
SURVEY	N/A	N/A	
PROJ. MGR.	ASB	1/21	
HORIZONTAL:	LEAD ENGR.	002 1/21	
FIELD MGR.	RECOMMENDED	204 1/21	
VERTICAL:	DESIGN MANAGER	485 1-21	
N/A	FILE:		
ATLAS PAGE NO. 16	DRAWING:		

PRINT DATE: 12/17/2020 M:\City of Tulsa\171003 On-Call Stormwater Services_2017\TO_21_FEMA_Flood_Damage\Design\Working\126333\Damage_331100.dwg



CONSTRUCTION NOTES:

SITE 360 (36.13690, -95.99410)

BACKFILL, 93 CY OF UNCLASSIFIED FILL, 50 FT LONG
X 25 FT WIDE X 2 FT DEEP,
SURFACE WATER FLOODING ERODED SOIL AROUND
PIPE.

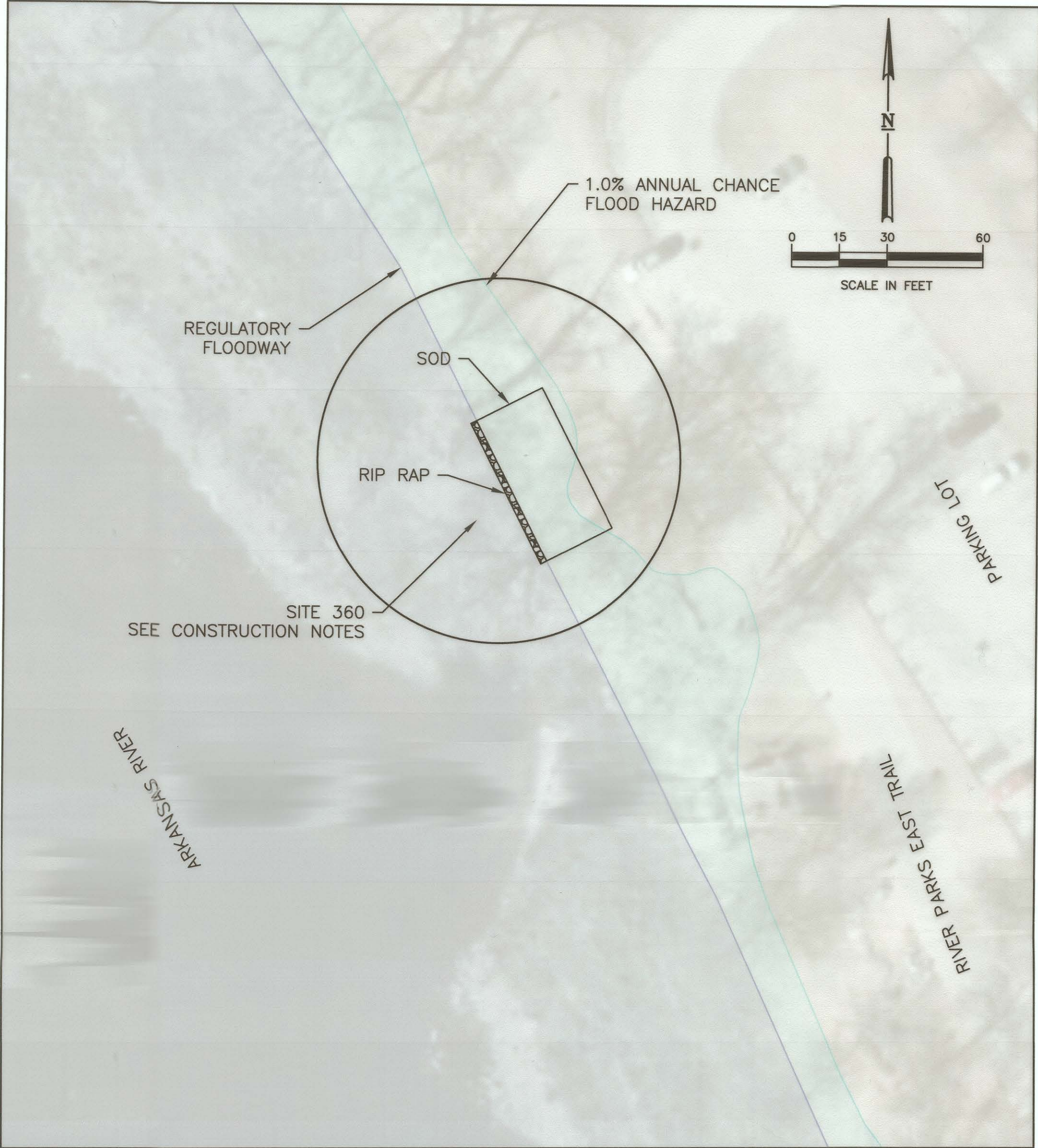
SITE 360 - (36.13690, -95.99410)

HAZARD MITIGATION PROPOSAL (HMP) SCOPE OF WORK:

- * ADDING 4.24 CY RIP RAP TO MITIGATE DAMAGE FROM RAPIDLY FLOWING FLOOD WATERS.
- * ADDING 25 SY GEOSYNTHETIC FABRIC TO PREVENT EROSION CAUSED BY RAPIDLY FLOWING FLOOD WATERS.

SITE 360 - PAY QUANTITIES					
ROADWAY 0100					
ITEM		DESCRIPTION	NOTES	UNIT	QUANTITY
202(D)	0184	UNCLASSIFIED BORROW		CY	93.00
230(A)	2806	SOLID SLAB SODDING	E-10,11	SY	139.00
326(B)	0100	GEOGRID REINFORCEMENT		SY	25.00
601(B)	0536	TYPE I-A PLAIN RIPRAP		CY	5.00

SITE 360

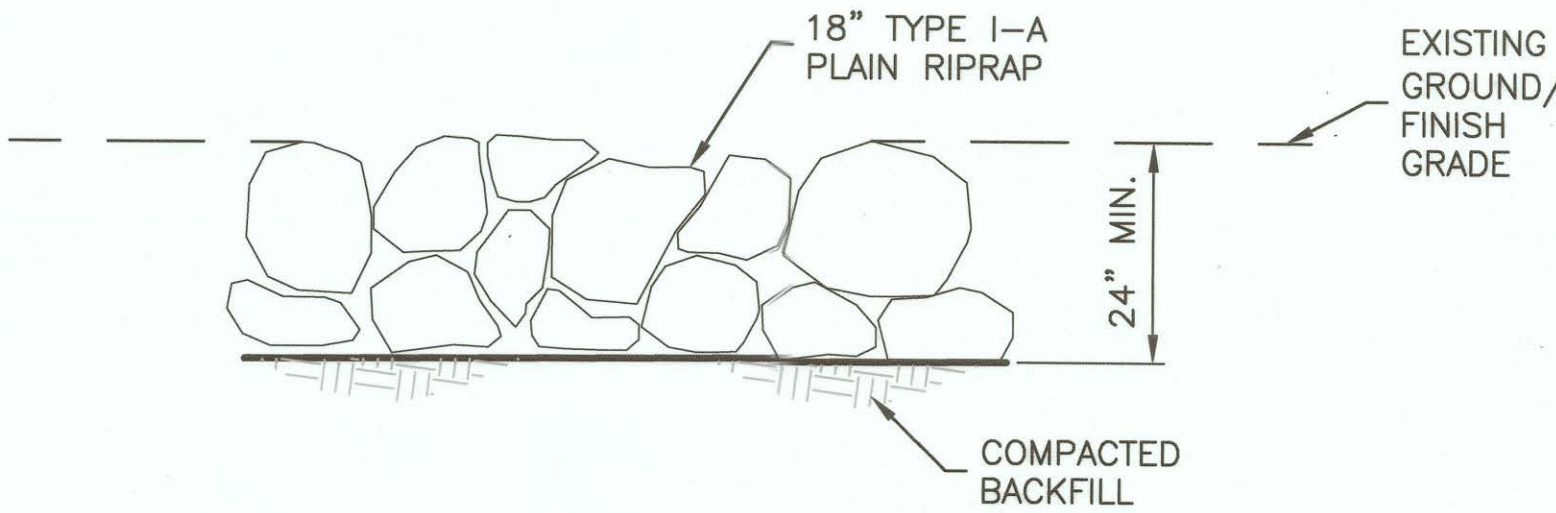


PROJECT NOTES:

1. SITE ESTIMATES FOR WORK TO BE COMPLETED WERE GENERATED USING RS MEANS.
2. ALL BORROW OR FILL MATERIAL MUST COME FROM PRE-EXISTING STOCKPILES, MATERIAL RECLAIMED FROM MAINTAINED ROADSIDE DITCHES (PROVIDED THE DESIGNED WIDTH OR DEPTH OF THE DITCH IS NOT INCREASED), OR COMMERCIALLY PROCURED MATERIAL FROM A SOURCE EXISTING PRIOR TO THE EVENT. FOR ANY FEMA-FUNDED PROJECT REQUIRING THE USE OF A NON-COMMERCIAL SOURCE OR A COMMERCIAL SOURCE THAT WAS NOT PERMITTED TO OPERATE PRIOR TO THE EVENT (E.G. A NEW PIT, AGRICULTURAL FIELDS, ROAD ROWS, ETC.) IN WHOLE OR IN PART, REGARDLESS OF COST, THE APPLICANT MUST NOTIFY FEMA AND THE RECIPIENT PRIOR TO EXTRACTING MATERIAL. FEMA MUST REVIEW THE SOURCE FOR PRESERVATION LAWS AND EXECUTIVE ORDERS PRIOR TO A SUBRECIPIENT OR THEIR CONTRACTOR COMMENCING BORROW EXTRACTION. CONSULTATION AND REGULATORY PERMITTING MAY BE REQUIRED. NONCOMPLIANCE WITH THIS REQUIREMENT MAY JEOPARDIZE RECEIPT OF FEDERAL FUNDING. DOCUMENTATION OF BORROW SOURCES UTILIZED IS REQUIRED AT CLOSEOUT.
3. ALL EXCAVATION DIMENSIONS ARE SHOWN IN THE DDD.

HMP SCOPE NOTE:

1. THE MITIGATION PROPOSAL ESTIMATES WERE GENERATED USING RS MEANS.



1 RIPRAP INSTALLATION
SCALE: NONE

SITE PHOTO



LEGEND

██ FEMA SITE AREA



REVISION				BY	DATE

PLAN SCALE	DRAWN	ASB	05/20
1" = ##'	DESIGNED	RJP	05/20
	SURVEY	N/A	N/A
PROFILE SCALE	PROJ. MGR.	CH	1/21
HORIZONTAL:	LEAD ENGR.	BOC	1/21
N/A	FIELD MGR.	BOC	1/21
VERTICAL:	RECOMMENDED	HA	1/21
N/A	DESIGN MANAGER		
FILE:	DRAWING:		
ATLAS PAGE NO. 16			

APPROVED:	

CITY ENGINEER	
DATE: 1.26.21	
SHEET 7 OF 30 SHEETS	

FEMA SITE 360

PROJECT #173120-T021-126333

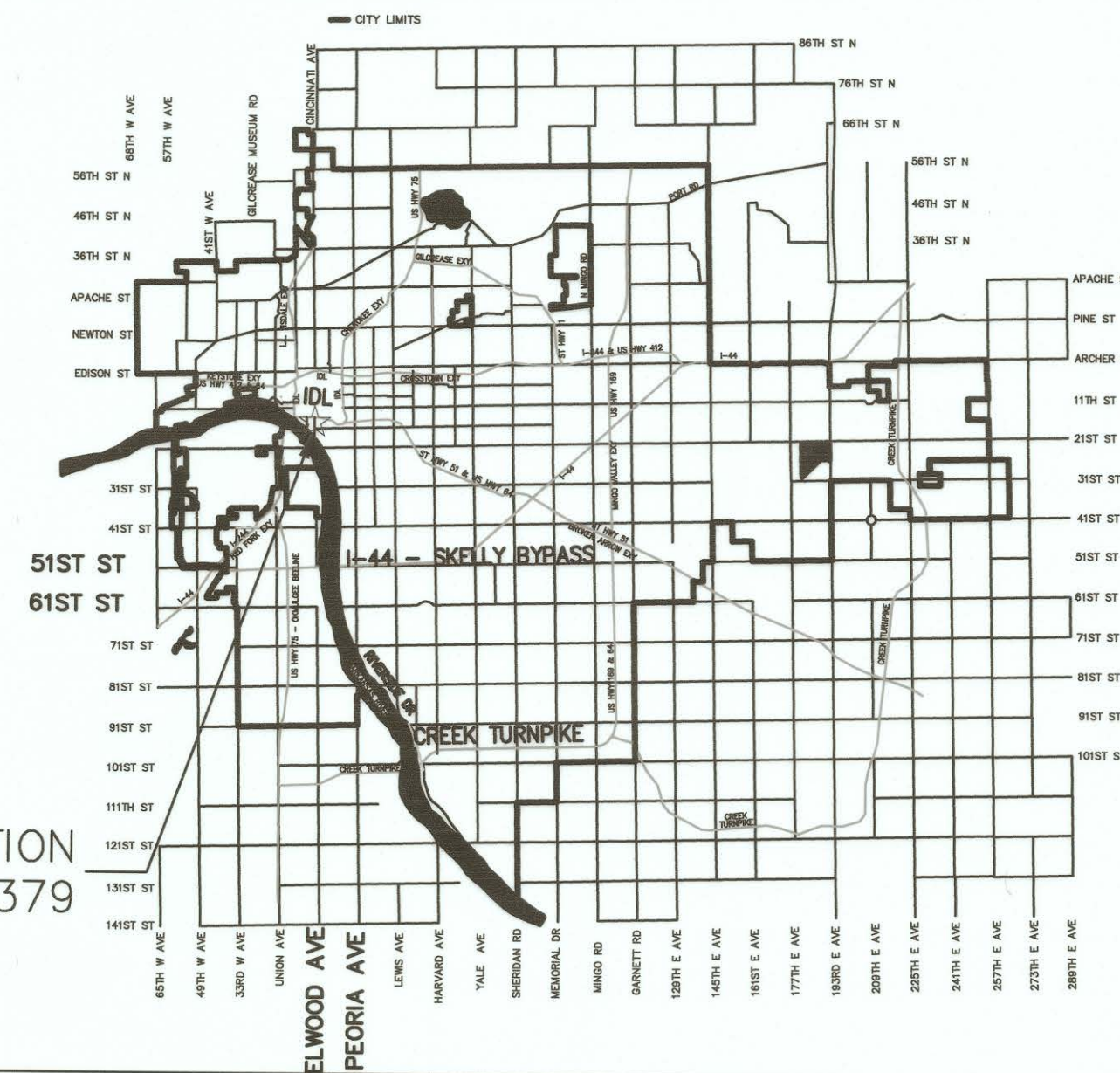
DAMAGE # 331100

CITY OF TULSA, OKLAHOMA
ENGINEERING SERVICES DEPARTMENT

PLANS AND ESTIMATES PREPARED BY:
Meshek & Associates, L.L.C.
1437 S. Boulder Avenue, Suite 1550 Tulsa, OK 74119 (918)392-5620

PRINT DATE: 12/17/2020 MA City of Tulsa\1710103 On Coll Stormwater Services 2017\TO_21_FEMA_Flood Damage\Design\126333\ DAMAGE_331100.dwg

CITY OF TULSA, OKLAHOMA



☆ SITE LOCATION
SITE 379

CONSTRUCTION NOTES:

SITE 379 (36.13390, -95.99180)

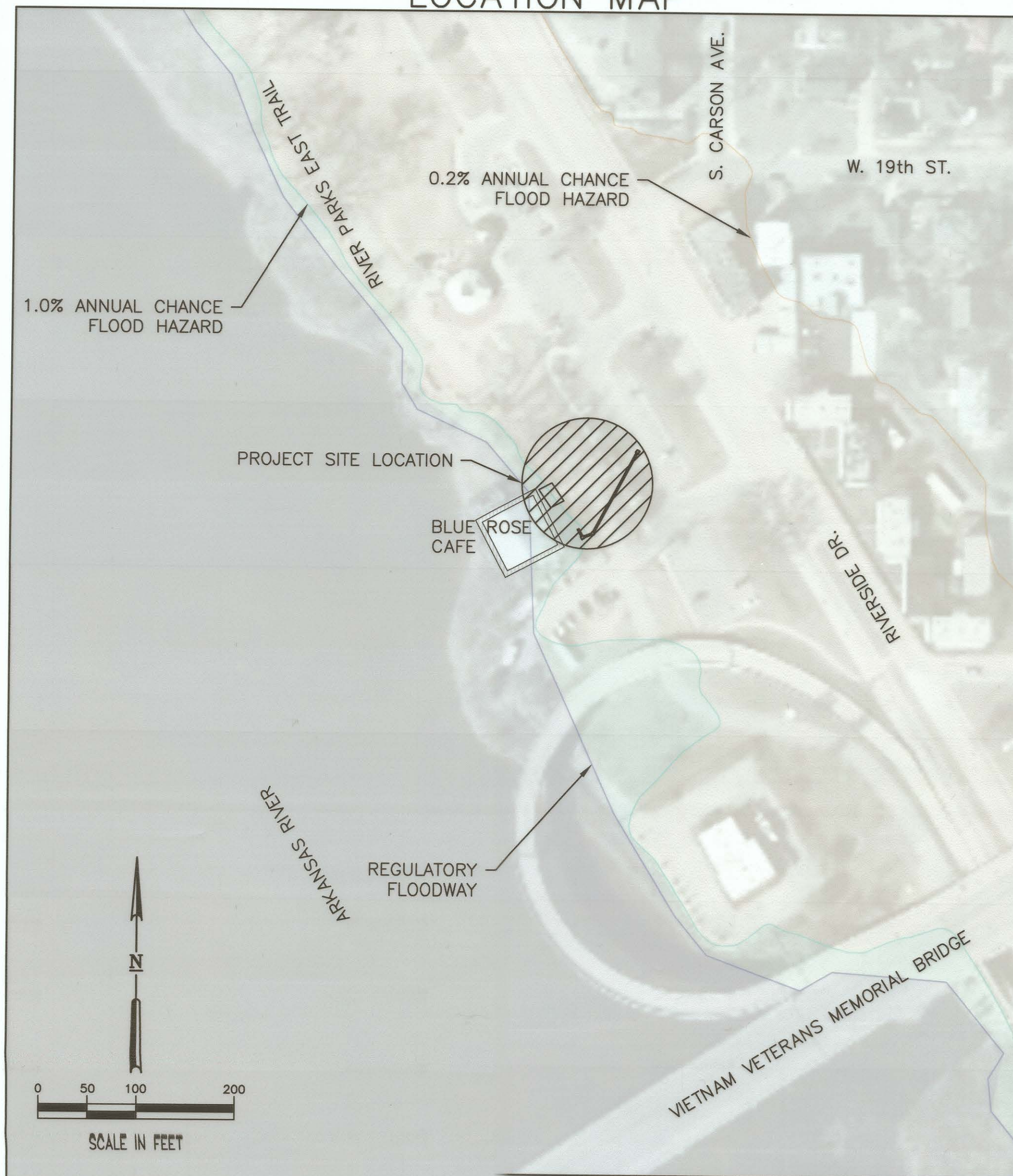
BACKFILL, 37 CY OF UNCLASSIFIED FILL,
22 FT LONG X 15 FT WIDE X 3 FT DEEP,
SURFACE WATER FLOODING ERODED SOIL
AROUND PIPE.

SITE 379 - PAY QUANTITIES					
ROADWAY 0100					
ITEM		DESCRIPTION	NOTES	UNIT	QUANTITY
202(D)	0184	UNCLASSIFIED BORROW		CY	37.0
230(A)	2806	SOLID SLAB SODDING	E-10,11	SY	37.0

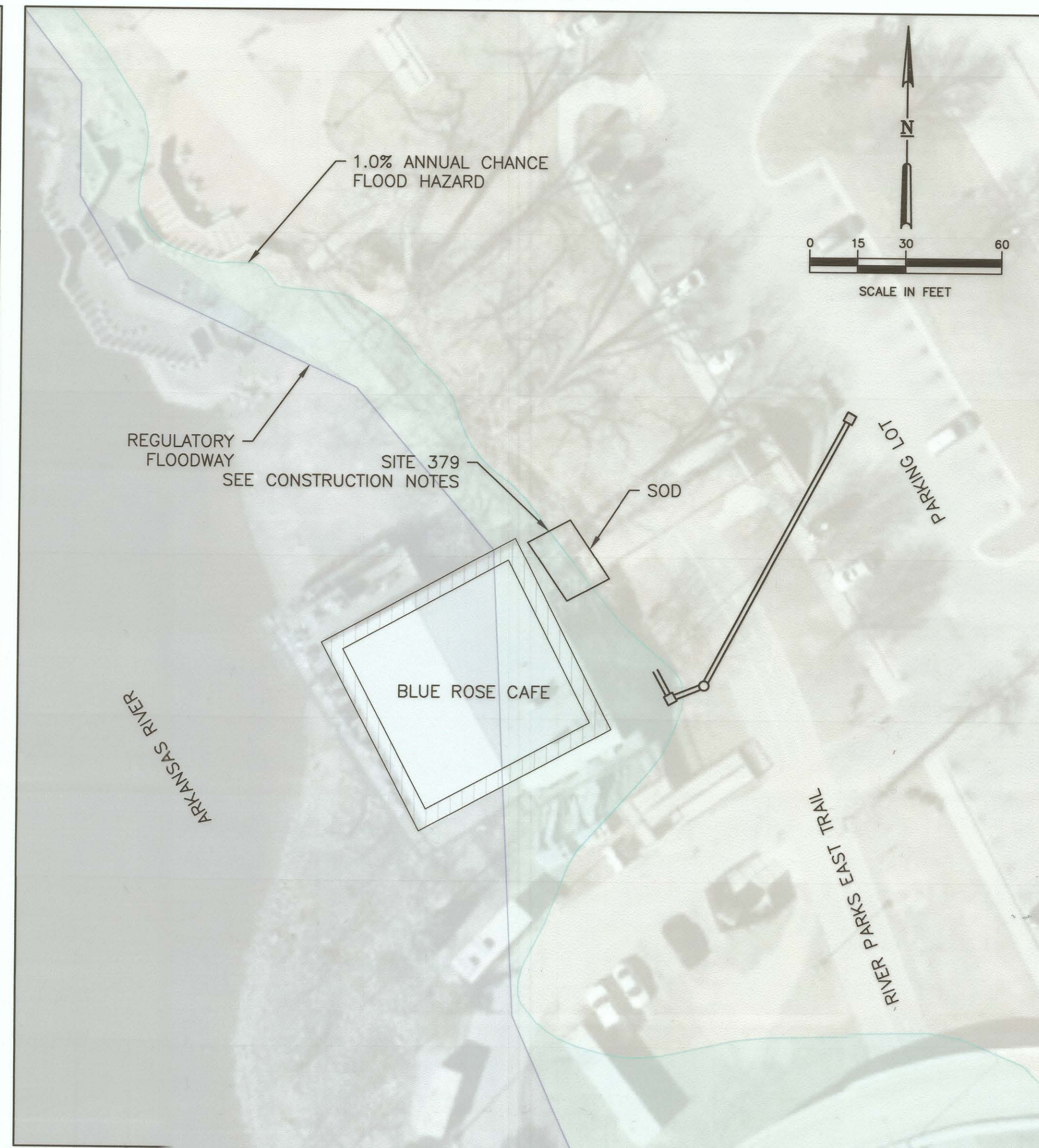
PROJECT NOTES:

- SITE ESTIMATES FOR WORK TO BE COMPLETED WERE GENERATED USING RS MEANS.
- ALL BORROW OR FILL MATERIAL MUST COME FROM PRE-EXISTING STOCKPILES, MATERIAL RECLAIMED FROM MAINTAINED ROADSIDE DITCHES (PROVIDED THE DESIGNED WIDTH OR DEPTH OF THE DITCH IS NOT INCREASED), OR COMMERCIALLY PROCURED MATERIAL FROM A SOURCE EXISTING PRIOR TO THE EVENT. FOR ANY FEMA-FUNDED PROJECT REQUIRING THE USE OF A NON-COMMERCIAL SOURCE OR A COMMERCIAL SOURCE THAT WAS NOT PERMITTED TO OPERATE PRIOR TO THE EVENT (E.G. A NEW PIT, AGRICULTURAL FIELDS, ROAD ROWS, ETC.) IN WHOLE OR IN PART, REGARDLESS OF COST, THE APPLICANT MUST NOTIFY FEMA AND THE RECIPIENT PRIOR TO EXTRACTING MATERIAL. FEMA MUST REVIEW THE SOURCE FOR PRESERVATION LAWS AND EXECUTIVE ORDERS PRIOR TO A SUBRECIPIENT OR THEIR CONTRACTOR COMMENCING BORROW EXTRACTION. CONSULTATION AND REGULATORY PERMITTING MAY BE REQUIRED. NONCOMPLIANCE WITH THIS REQUIREMENT MAY JEOPARDIZE RECEIPT OF FEDERAL FUNDING. DOCUMENTATION OF BORROW SOURCES UTILIZED IS REQUIRED AT CLOSEOUT.
- ALL EXCAVATION DIMENSIONS ARE SHOWN IN THE DDD.

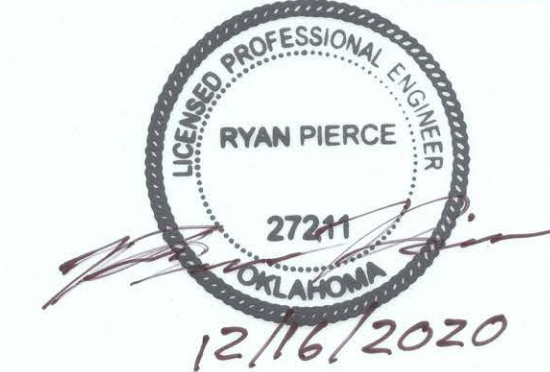
LOCATION MAP



SITE 379

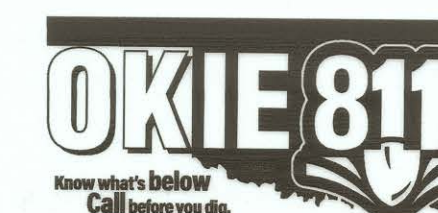


SITE PHOTO



LEGEND

▨ FEMA SITE AREA



FEMA SITE 379

PROJECT #173120-T021-126333

DAMAGE # 331100

CITY OF TULSA, OKLAHOMA
ENGINEERING SERVICES DEPARTMENT

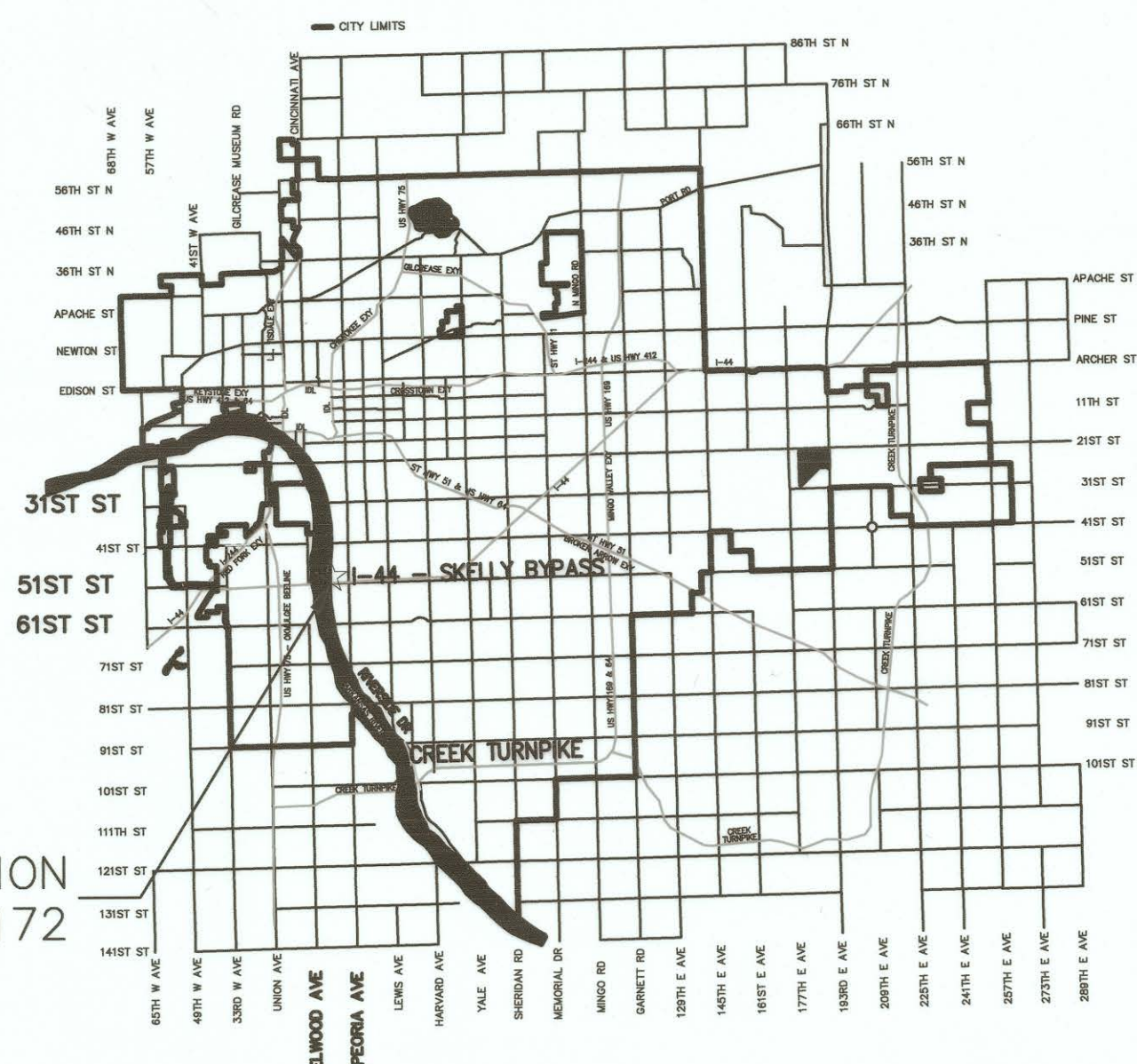
PLANS AND ESTIMATES PREPARED BY:
Meshek & Associates, L.L.C.
1437 S. Boulder Avenue, Suite 1550 Tulsa, OK 74119 (918)392-5620

REVISION	BY	DATE	PLAN SCALE	DRAWN	ASB	05/20	APPROVED:
			1" = 10'	DESIGNED	RJP	05/20	
				SURVEY	N/A	N/A	
			PROFILE SCALE	PROJ. MGR.	AG	1/21	
			HORIZONTAL:	LEAD ENGR.	AG	1/21	
			N/A	FIELD MGR.	AG	1/21	
			VERTICAL:	RECOMMENDED	AG	1/21	
			N/A	DESIGN MANAGER	AG	1/21	
			FILE:	DRAWING:			
			ATLAS PAGE NO. 15				

CITY ENGINEER
DATE: 1-08-21
SHEET 8 OF 50 SHEETS

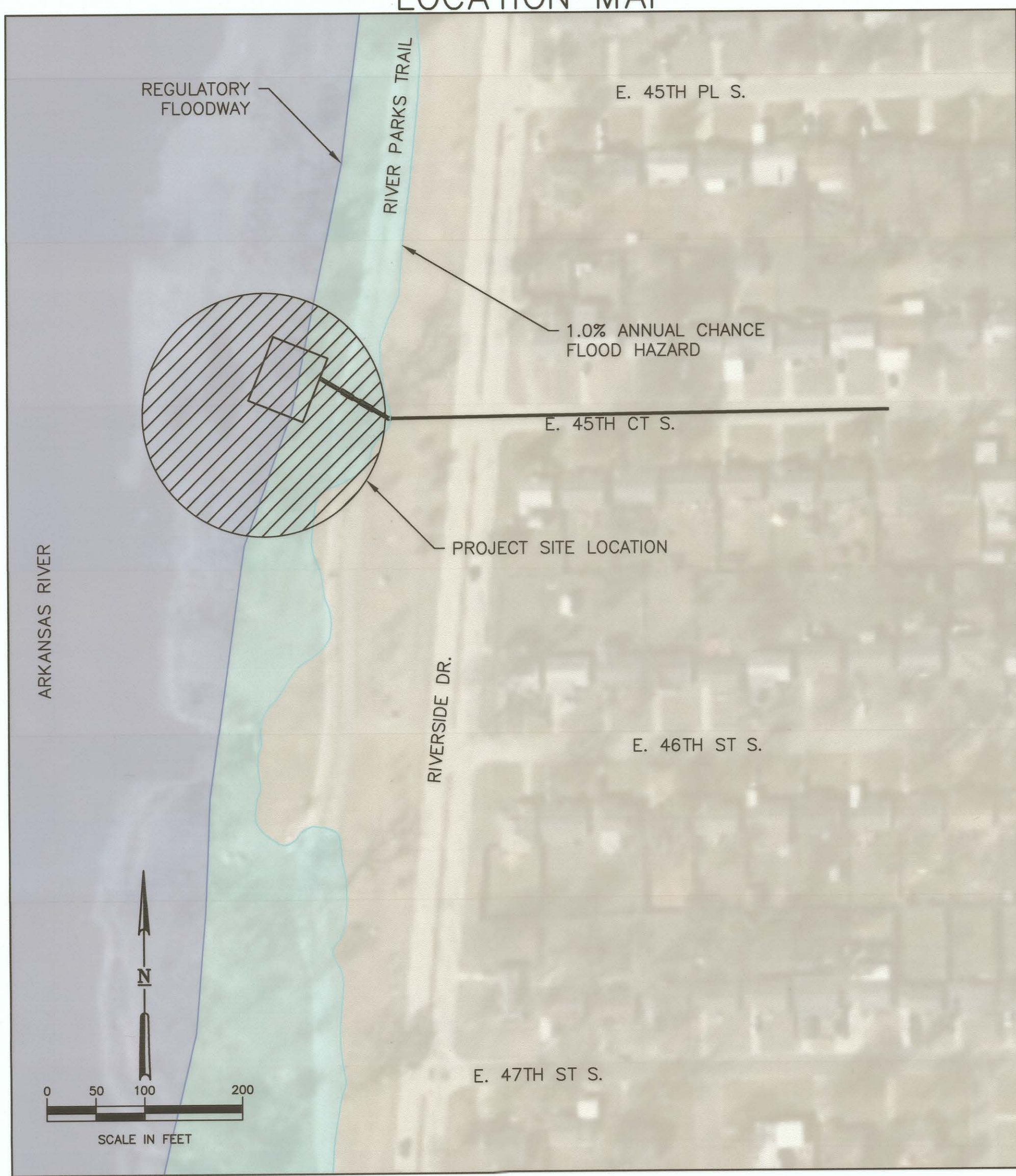
PRINT DATE: 12/17/2020 M:\City of Tulsa\17TUL03 On Call Stormwater Services_2017\TO_21_FEMA_Flood_Damage\Design\Working\126333 DAMAGE_331103.dwg

CITY OF TULSA, OKLAHOMA



★ SITE LOCATION
SITE 172

LOCATION MAP



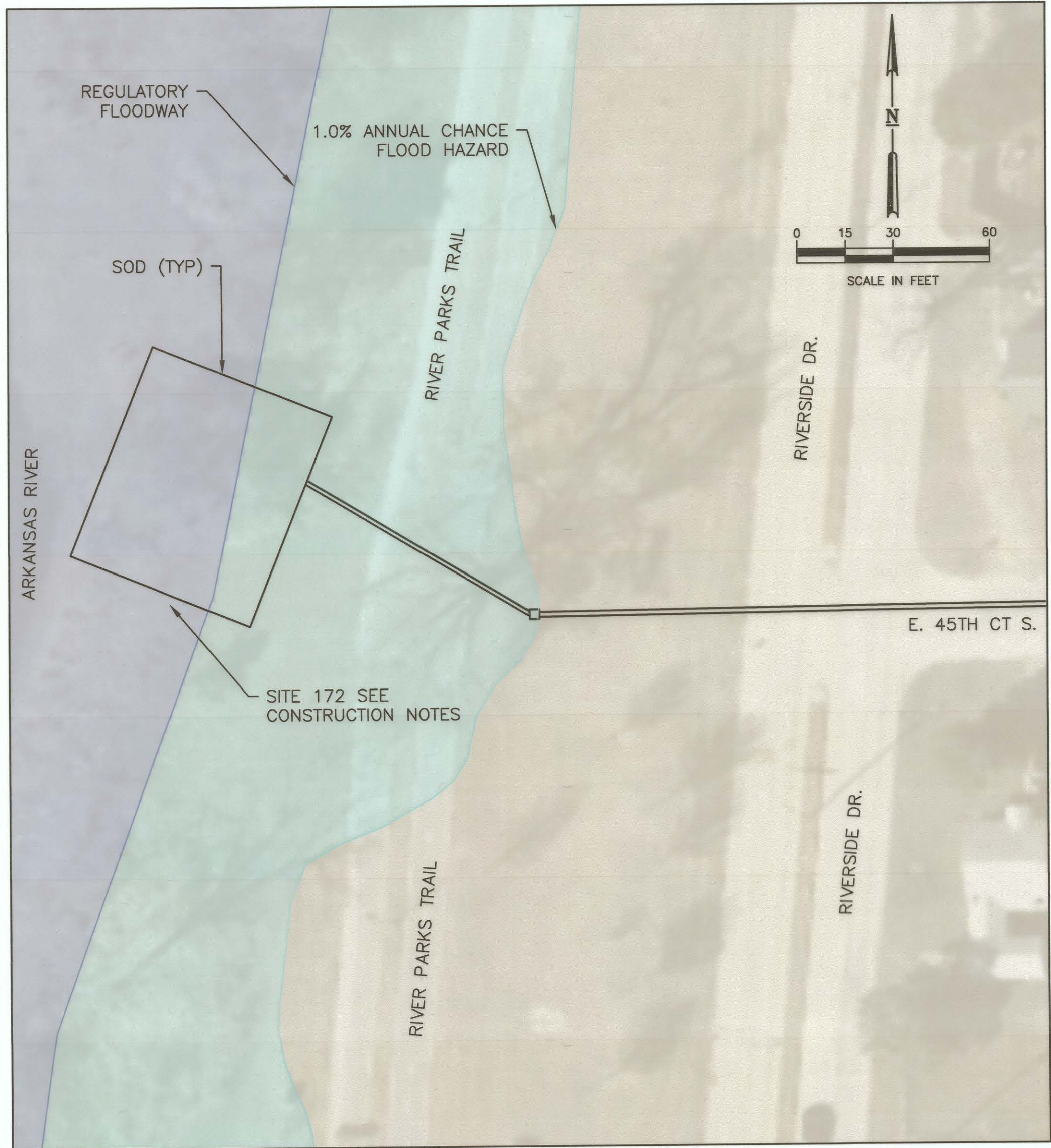
CONSTRUCTION NOTES: SITE 172 (36.09760, -95.98490)

BACKFILL, 622 CY OF UNCLASSIFIED FILL, 70 FT LONG, X 60 FT WIDE X 4 FT DEEP, SURFACE WATER FLOODING ERODED SOIL.

STORM DRAIN, CULVERT END SECTION (CONCRETE), 6 FT LONG X 30 IN IN DIAMETER, SURFACE WATER FLOODING DETACHED PIPE EXTENSION.

SITE 172 - PAY QUANTITIES					
ROADWAY 0100					
ITEM		DESCRIPTION	NOTES	UNIT	QUANTITY
202(D)	0184	UNCLASSIFIED BORROW		CY	622.00
230(A)	2806	SOLID SLAB SODDING	E-10,11	SY	467.00
326(B)	0100	GEOGRID REINFORCEMENT		SY	450.00
601(B)	0536	TYPE I-A PLAIN RIPRAP		CY	75.00
613(L)	5732	30" PREFAB. CULVERT END SECTION, ROUND (REMOVE AND REPLACE)		EA	1.00

SITE 172



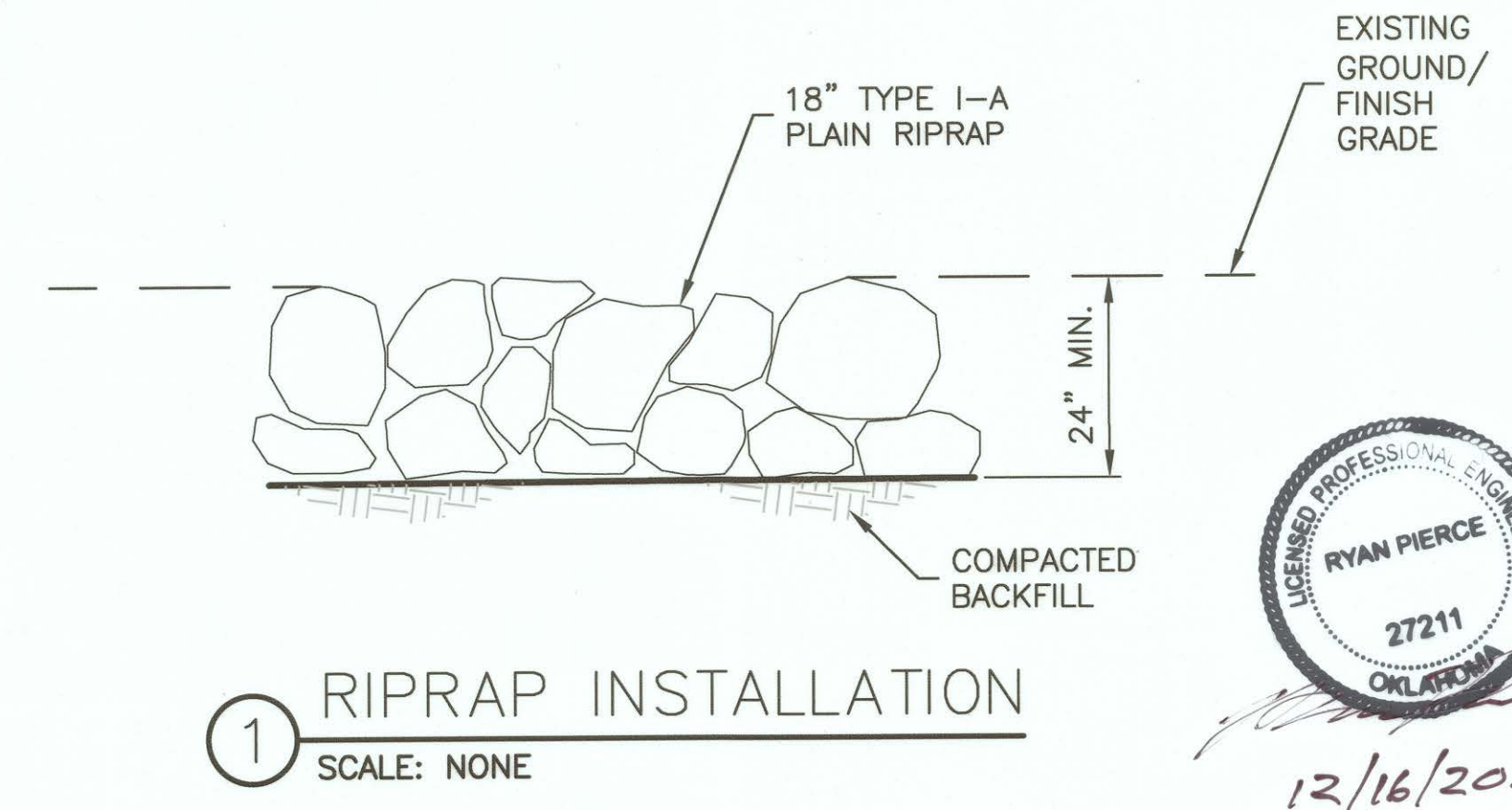
SITE 172 - (36.09760, -95.98490)

HAZARD MITIGATION PROPOSAL (HMP) SCOPE OF WORK:

- * ADDING 74.15 CY RIP RAP TO MITIGATE DAMAGE FROM RAPIDLY FLOWING FLOOD WATERS.
- * ADDING 450 SY GEOSYNTHETIC FABRIC TO PREVENT EROSION CAUSED BY RAPIDLY FLOWING FLOOD WATERS.

HMP SCOPE NOTE:

1. THE MITIGATION PROPOSAL ESTIMATES WERE GENERATED USING RS MEANS.



1 RIPRAP INSTALLATION SCALE: NONE

SITE PHOTO



SITE PHOTO



LEGEND

▨ FEMA SITE AREA



FEMA SITE 172

PROJECT #173120-T021-126333

DAMAGE # 331103

CITY OF TULSA, OKLAHOMA
ENGINEERING SERVICES DEPARTMENT

PLANS AND ESTIMATES PREPARED BY:
Meshek & Associates, L.L.C.
1437 S. Boulder Avenue, Suite 1550 Tulsa, OK 74119 (918)392-5620

REVISION	BY	DATE	PLAN SCALE	DRAWN	ASB	05/20	APPROVED:
			1" = ##'	DESIGNED	RJP	05/20	
				SURVEY	N/A	N/A	
			PROFILE SCALE	PROJ. MGR.	CAB	1/21	
				LEAD ENGR.	BOC	1/21	
			HORIZONTAL:	FIELD MGR.	BOC	1/21	
			N/A	RECOMMENDED	HAS	1-21	
			VERTICAL:	DESIGN MANAGER			
			N/A	FILE:			
				DRAWING:			
				ATLAS PAGE NO.	F10		

CITY ENGINEER
DATE: 1.08.21
SHEET 10 OF 50 SHEETS

STORM DRAIN, 1 CY OF CONCRETE APRON, 9
FT LONG X 5 FT WIDE X 6IN DEEP, SURFACE
WATER FLOODING CRACKED APRON.

SITE 173 - PAY QUANTITIES					
ROADWAY 0100					
ITEM		DESCRIPTION	NOTES	UNIT	QUANTITY
509(D)	0325	CLASS C CONCRETE	S-12	CY	1.0

A photograph showing a person standing on a large, flat rock in a river. The person is holding a long pole. The river is surrounded by dense vegetation and trees. The water is calm, reflecting the surrounding greenery. The scene is set in a natural, wooded area.

I-44 EAST BOUND

1.0% ANNUAL CHANCE FLOOD HAZARD

0.2% ANNUAL CHANCE FLOOD HAZARD

REGULATORY FLOODWAY

SITE 173 SEE CONSTRUCTION NOTES

RIVER PARKS TRAIL

RIVER PARKS TRAIL

RIVERSIDE PKWY

0 15 30 60

SCALE IN FEET

N

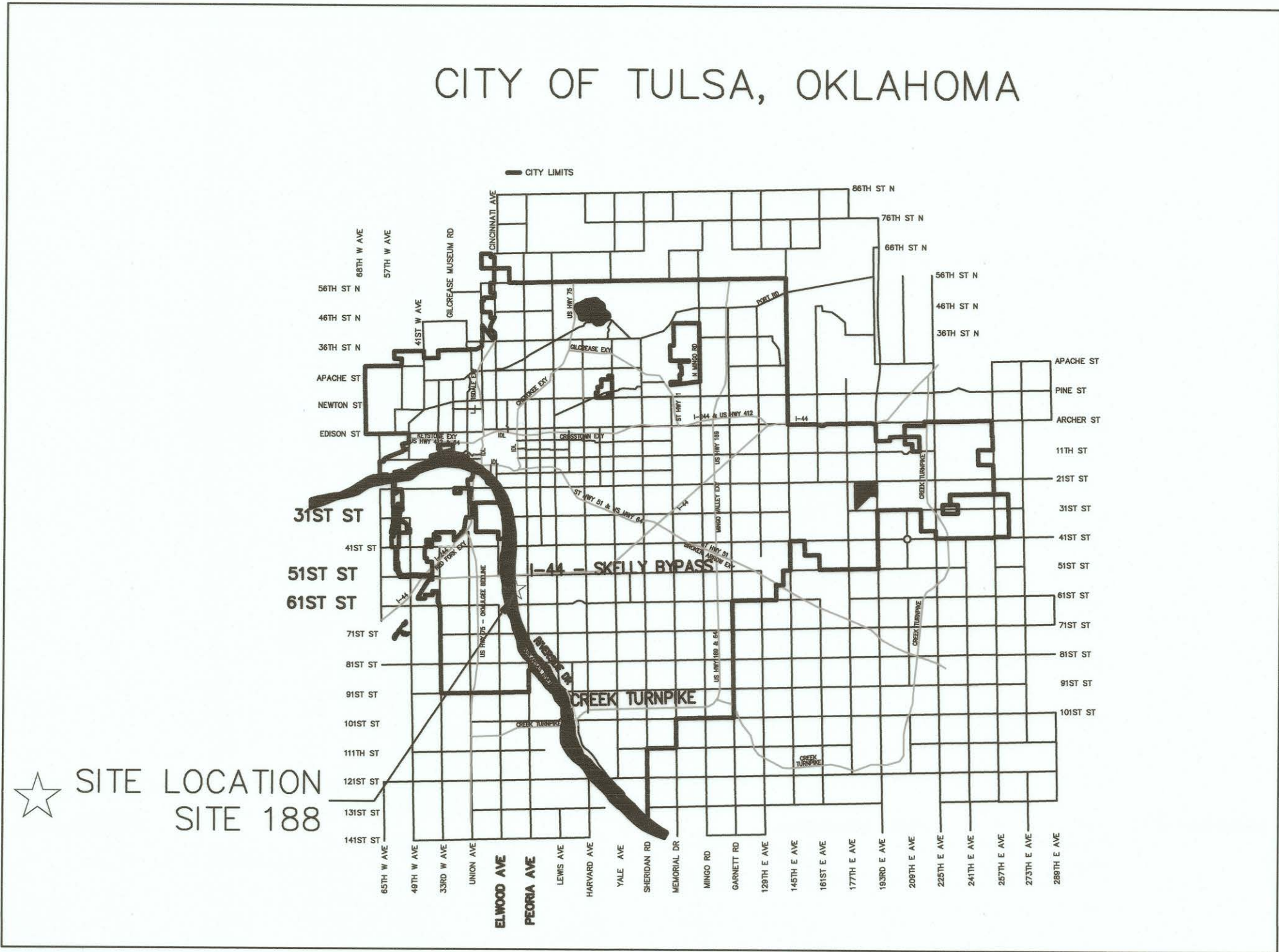


12/16/2020

 FEMA SITE AREA

			1437 S. Boulder Avenue, Suite 1550 Tulsa, OK 74119 (918)392-5620		
REVISION	BY	DATE	PLAN SCALE	DRAWN	ASB 05/20
			1" = 11'	DESIGNED	RJP 05/20
				SURVEY	N/A N/A
			PROFILE SCALE	PROJ. MGR.	1/21
			HORIZONTAL:	LEAD ENGR.	1/21
			N/A	FIELD MGR.	1/21
			VERTICAL:	RECOMMENDED	1/21
			N/A	DESIGN MANAGER	1/21
			FILE:	DRAWING:	
			ATLAS PAGE NO. 316		
					APPROVED:
					CITY ENGINEER
					DATE: 1.08.21
					SHEET 11 OF 50 SHEETS

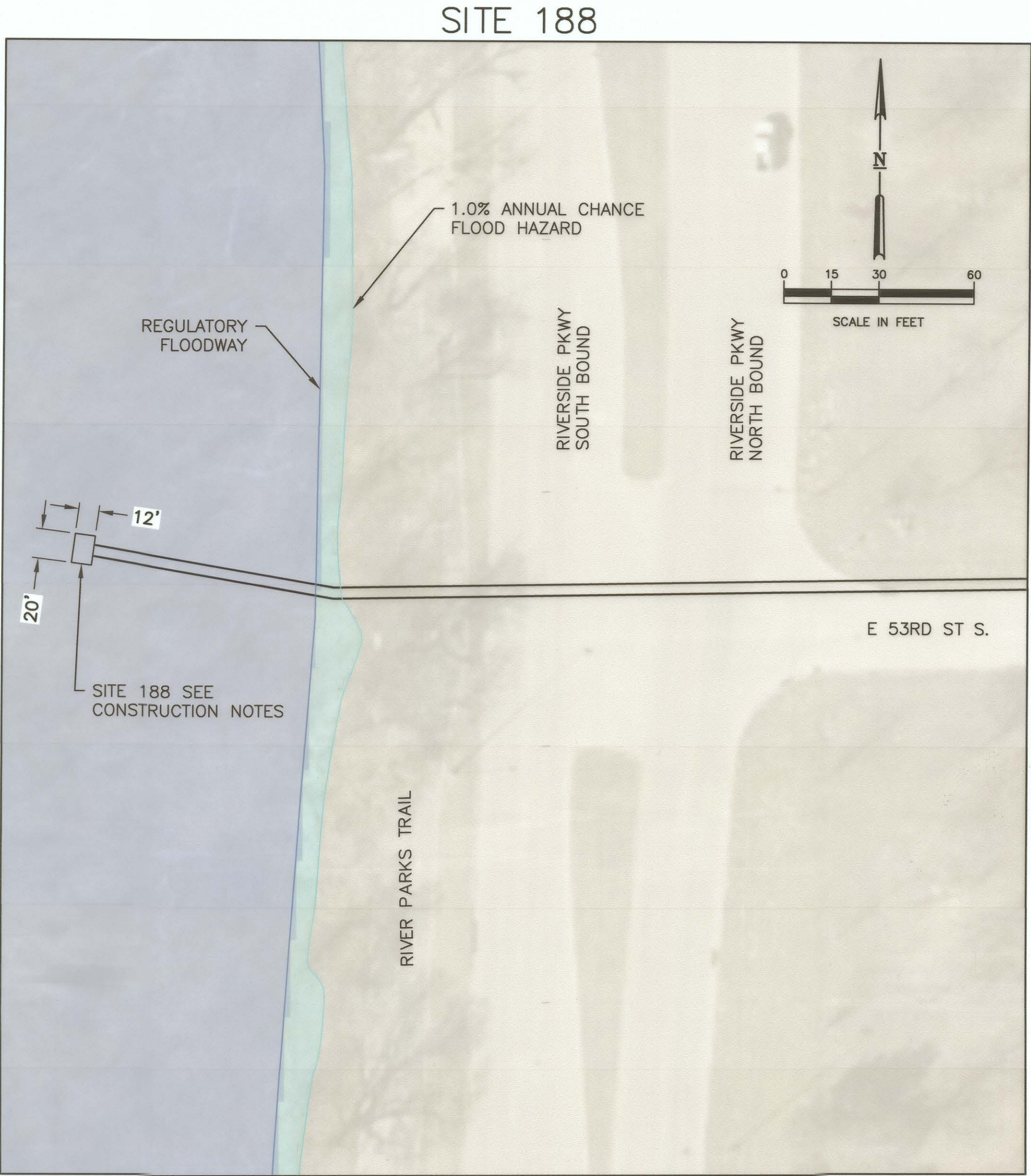
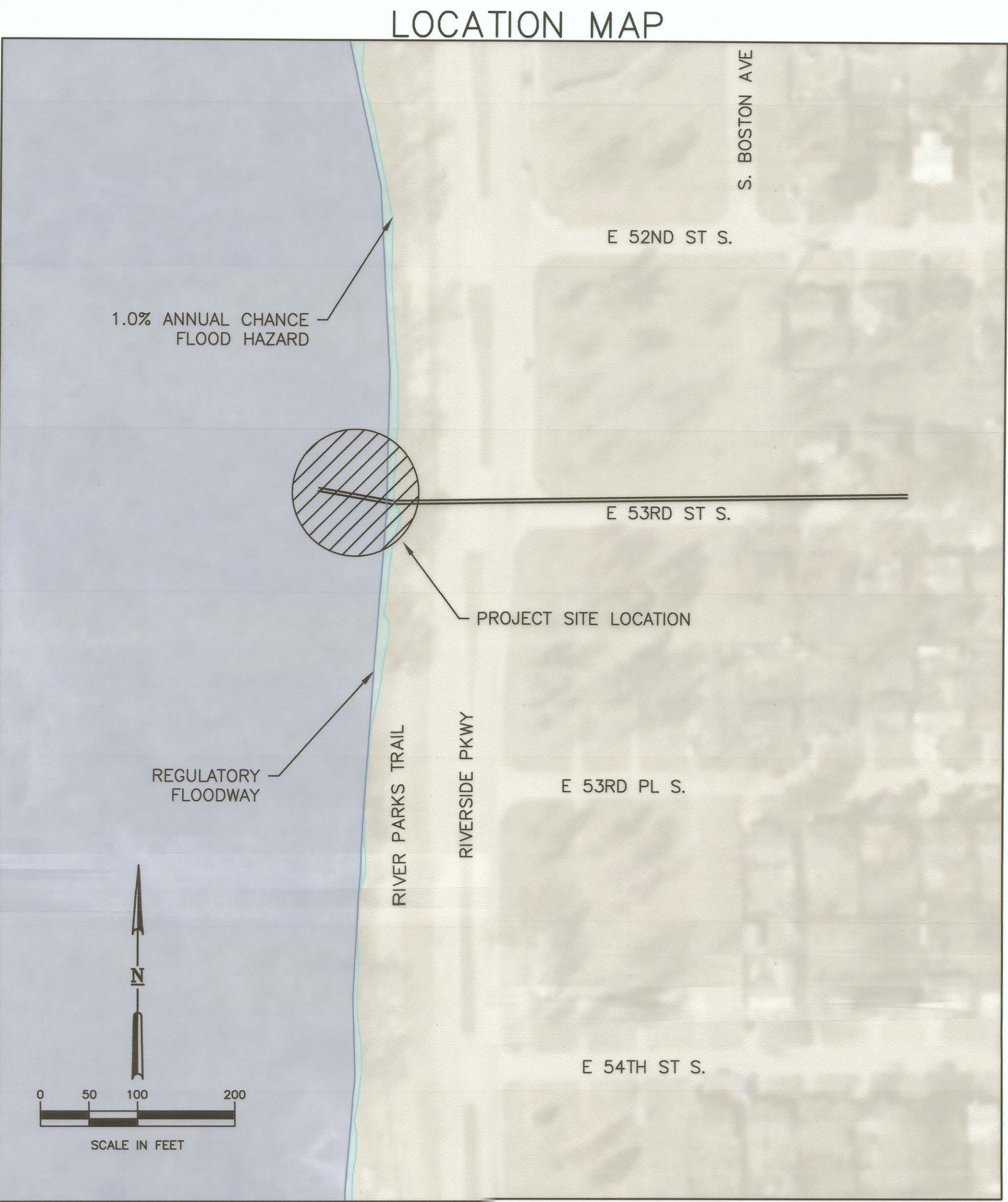
PRINT DATE: 12/17/2020 M:\City of Tulsa\47710.03 On Call Stormwater Services 2017\TO_21_FEMA_Flood Damage\Design\Working\126333\ DAMAGE_331103.dwg



CONSTRUCTION NOTES:
SITE 188 (36.08720, -95.98480)

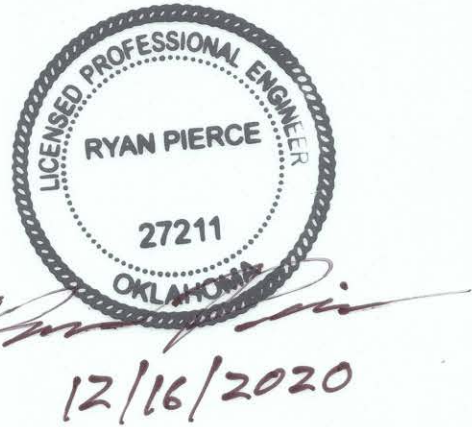
STORM DRAIN, 4 CY OF CONCRETE APRON,
20 FT LONG X 12 FT WIDE X 6IN DEEP,
SURFACE WATER FLOODING CRACKED APRON.

SITE 188 - PAY QUANTITIES					
ROADWAY 0100					
ITEM		DESCRIPTION	NOTES	UNIT	QUANTITY
509(D)	0325	CLASS C CONCRETE	S-12	CY	4.00



LEGEND

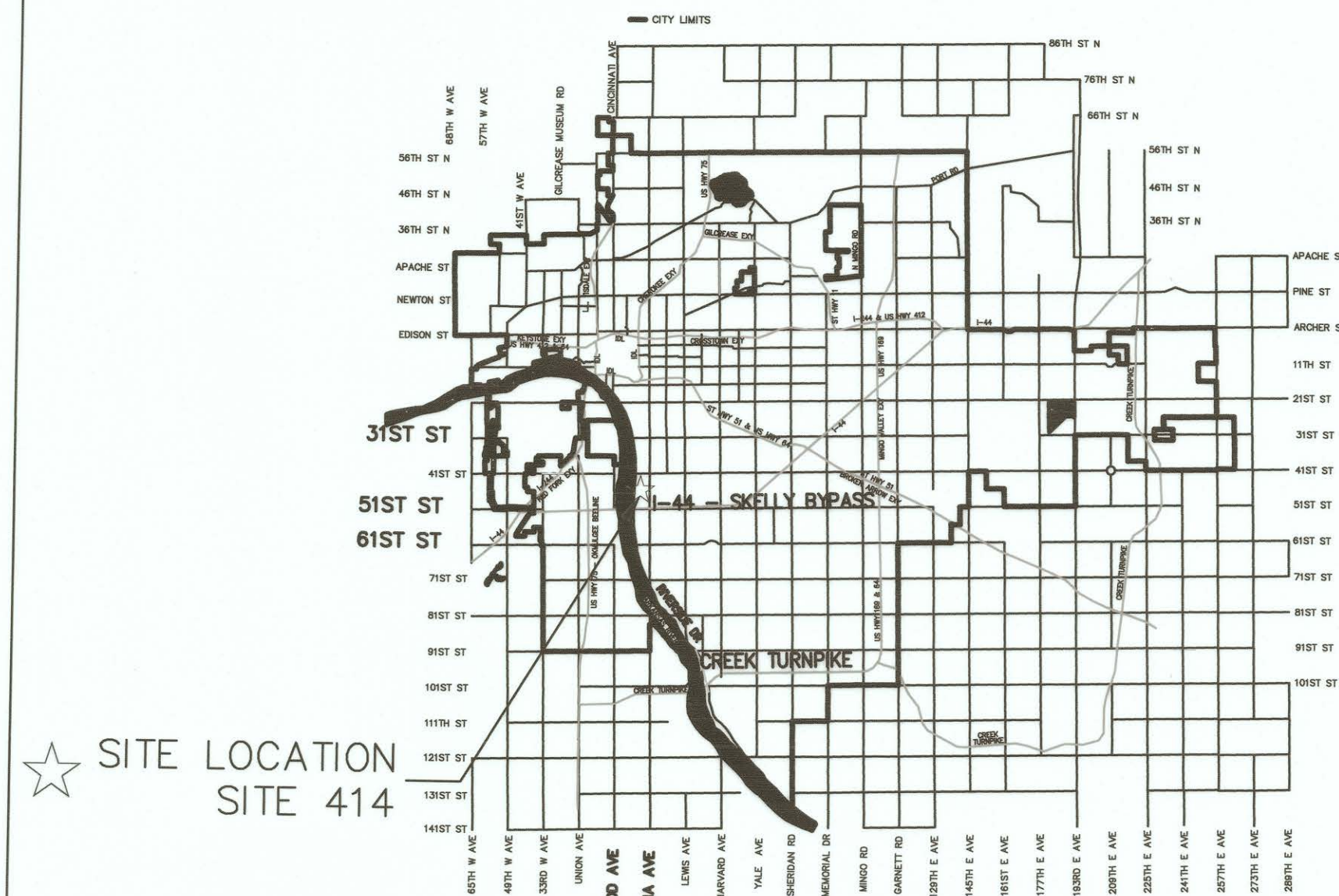
▨ FEMA SITE AREA



FEMA SITE 188				
PROJECT #173120-T021-126333				
DAMAGE # 331103				
CITY OF TULSA, OKLAHOMA ENGINEERING SERVICES DEPARTMENT				
PLANS AND ESTIMATES PREPARED BY: Meshek & Associates, L.L.C. 1437 S. Boulder Avenue, Suite 1550 Tulsa, OK 74119 (918)392-5620				
REVISION	BY	DATE	PLAN SCALE	APPROVED:
			DRAWN ASB 05/20	
			DESIGNED RJP 05/20	
			SURVEY N/A N/A	
			PROJ. MGR. CAG 1/21	
			LEAD ENGR. BOE 1/21	
			HORIZONTAL: N/A	CITY ENGINEER
			FIELD MGR. BOE 1/21	
			RECOMMENDED HAS 1/21	
			VERTICAL: N/A	DATE: 1-08-21
			DESIGN MANAGER	
			FILE: DRAWING:	SHEET 12 OF 50 SHEETS
			ATLAS PAGE NO. 316	

PRINT DATE: 12/17/2020 M:\City of Tulsa\17TUL03 On-Cell Stormwater Services 2017 TO 21 FEMA Flood Damage Design Working\126333 DAMAGE_331103.dwg

CITY OF TULSA, OKLAHOMA



CONSTRUCTION NOTES:
SITE 414 (36.09710, -95.98450)

STORM DRAIN, RCP, 25 FT LONG X 15IN IN DIAMETER, SURFACE WATER FLOODING CAUSED PIPE SEPARATIONS.

SITE 414- PAY QUANTITIES					
ROADWAY 0100					
ITEM		DESCRIPTION	NOTES	UNIT	QUANTITY
230(A)	2806	SOLID SLAB SODDING	E-10,11	SY	12.00
613(A)	0491	15" R.C. PIPE CLASS III (COMPLETE IN PLACE)	D-8,12,13 1	LF	25.00
613(L)	5724	15" PRE FAB. CULVERT END SECTION, ROUND		EA	1.00

LOCATION MAP



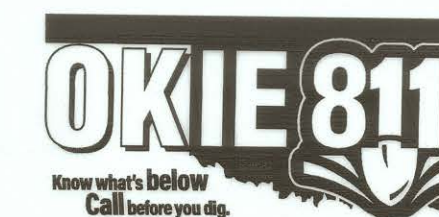
SITE 414



12/16/2020

LEGEND

███ FEMA SITE AREA



FEMA SITE 414

PROJECT #173120-TO21-126333

DAMAGE # 331103

CITY OF TULSA, OKLAHOMA
ENGINEERING SERVICES DEPARTMENT

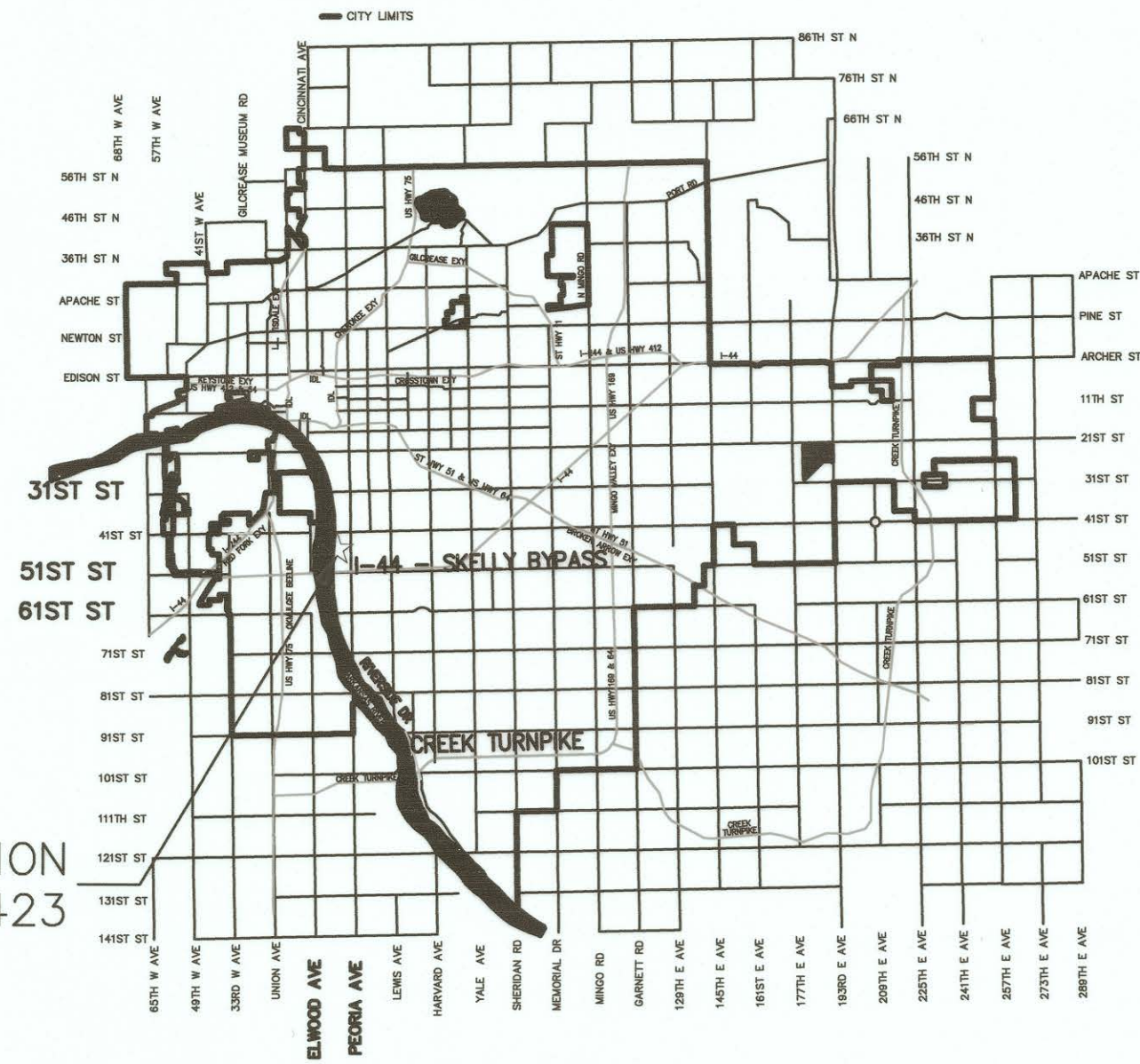
PLANS AND ESTIMATES PREPARED BY:
Meshek & Associates, L.L.C.
1437 S. Boulder Avenue, Suite 1550 Tulsa, OK 74119 (918)392-5620

REVISION	BY	DATE	PLAN SCALE	DRAWN	ASB	05/20	APPROVED:
			1" = 8'	DESIGNED	RJP	05/20	
				SURVEY	N/A	N/A	
			PROFILE SCALE	PROJ. MGR.	AG	1/21	
			HORIZONTAL:	LEAD ENGR.	AG	1/21	
			N/A	FIELD MGR.	AG	1/21	
			VERTICAL:	RECOMMENDED	HAS	1/21	
			N/A	DESIGN MANAGER			
			FILE:	DRAWING:			
			ATLAS PAGE NO.	190			

CITY ENGINEER
DATE: 1.08.21
SHEET 13 OF 50 SHEETS

PRINT DATE: 12/17/2020 M:\City of Tulsa\177103-03-On-Call Stormwater Services_2017\TO_21_FEMA_Flood Damage\Design\Working\126333\Damage_331103.dwg

CITY OF TULSA, OKLAHOMA



★ SITE LOCATION
SITE 423

CONSTRUCTION NOTES:
SITE 423 (36.09760, -95.98485 TO 36.09749, -95.98318)

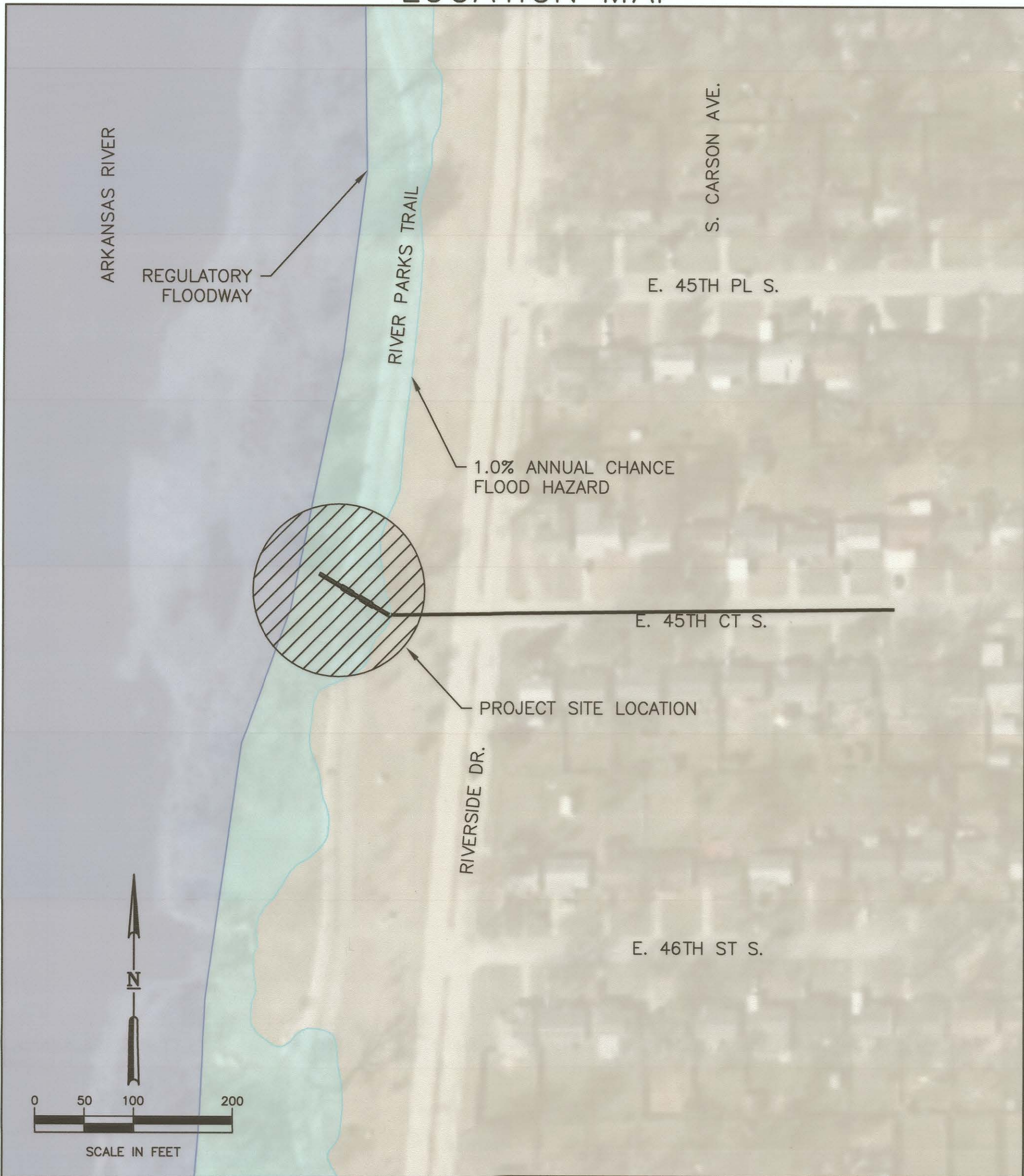
STORM DRAIN, RCP, 50FT LONG X 30IN IN DIAMETER,
SURFACE WATER FLOODING CAUSED PIPE SEPARATIONS.



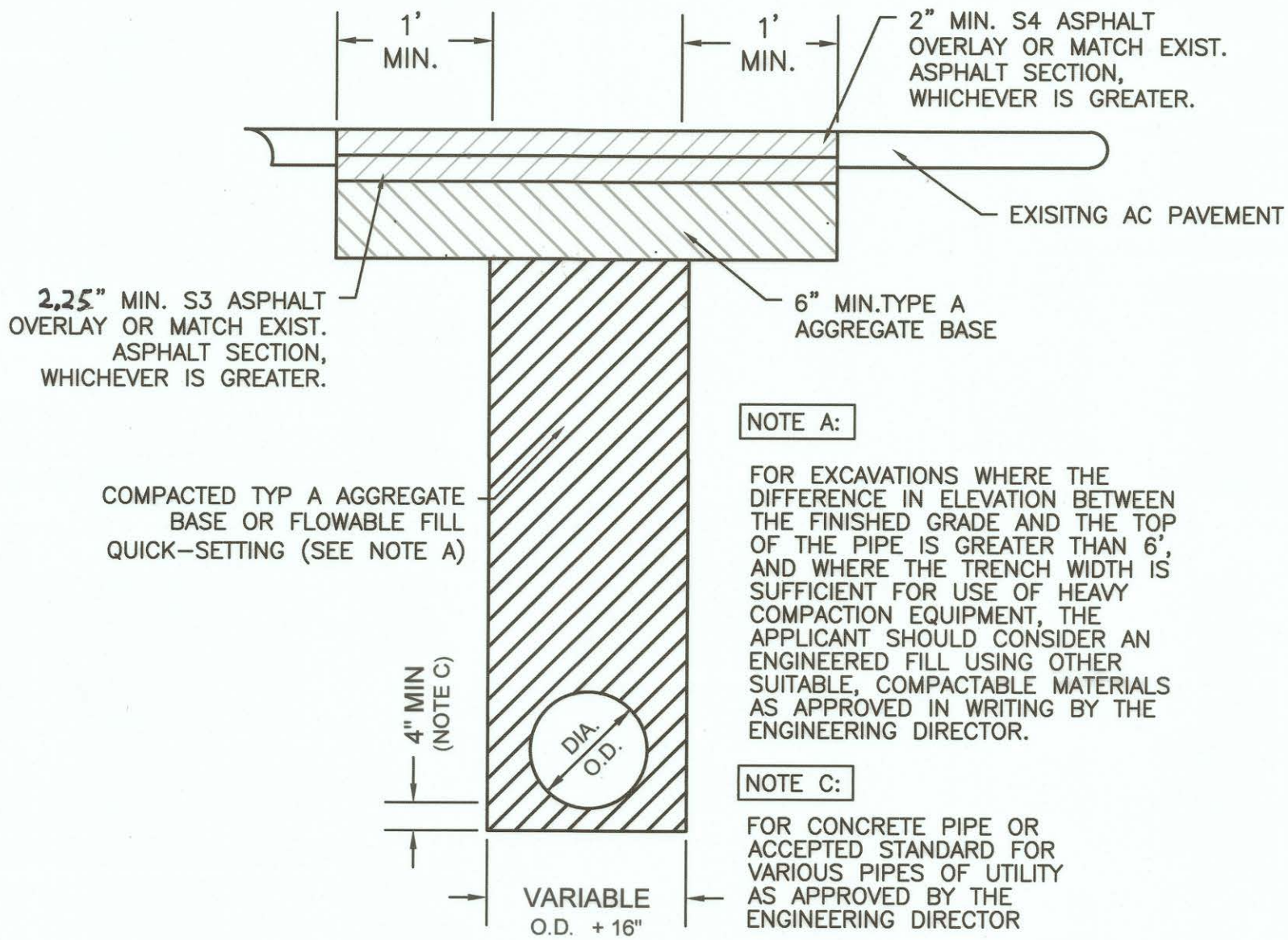
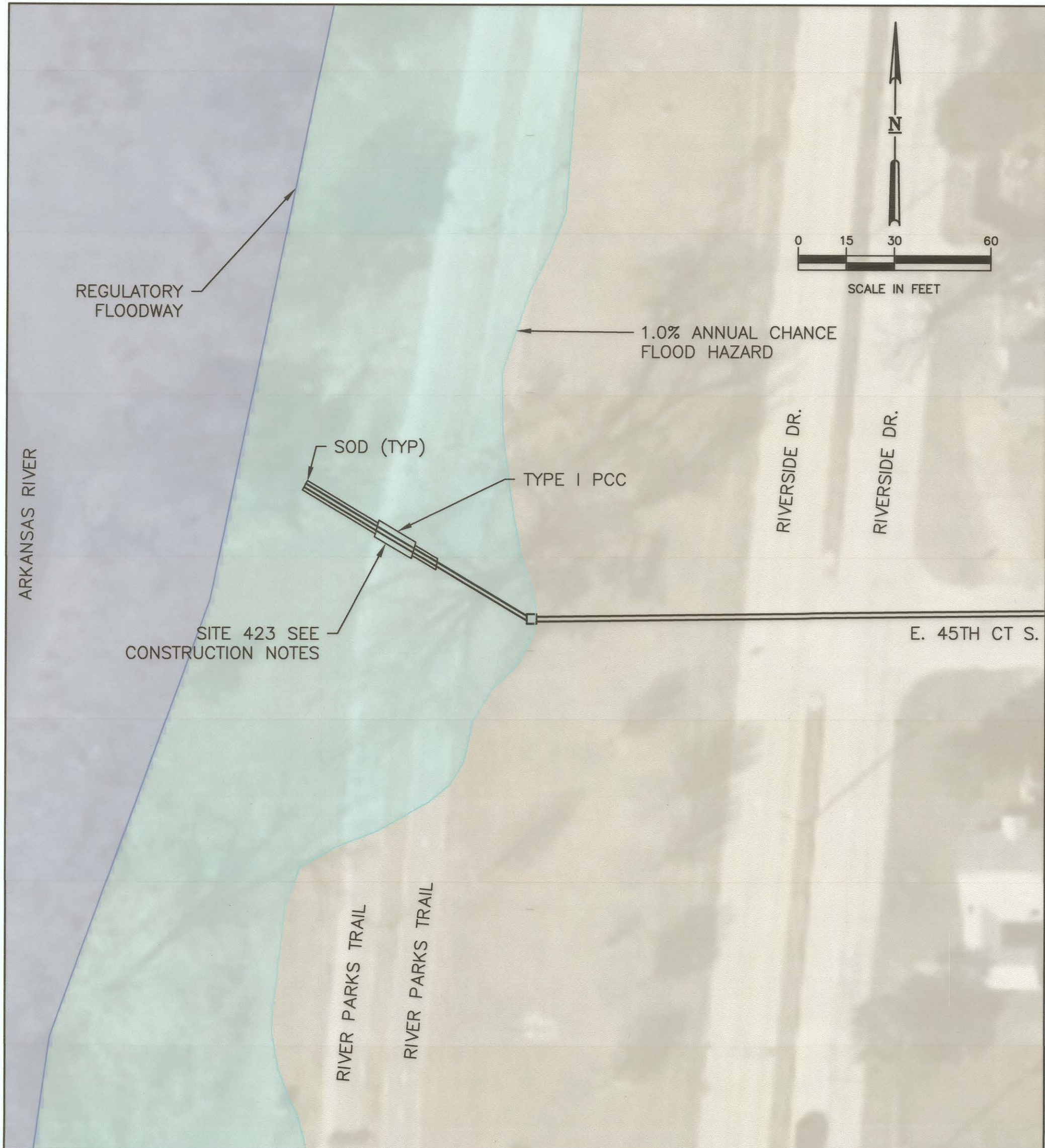
12/16/2020

SITE 423 - PAY QUANTITIES					
ROADWAY 0100					
ITEM		DESCRIPTION		UNIT	QUANTITY
230(A)	2806	SOLID SLAB SODDING	E-10,11	SY	13.00
613(A)	0493	30" R.C. PIPE CLASS III (COMPLETE IN PLACE)	D-8,12,13 1	LF	50.00
SPECIAL		TYPE I APC PATCH (NON-ARTERIAL)	S-21	SY	8.00

LOCATION MAP



SITE 423



1 TYPE I APC CUT AND REPAIR (NON-ARTERIAL)
SCALE: NONE

LEGEND

▨ FEMA SITE AREA



FEMA SITE 423

PROJECT #173120-T021-126333

DAMAGE # 331103

CITY OF TULSA, OKLAHOMA
ENGINEERING SERVICES DEPARTMENT

PLANS AND ESTIMATES PREPARED BY:
Meshek & Associates, L.L.C.
1437 S. Boulder Avenue, Suite 1550 Tulsa, OK 74119 (918)392-5620

REVISION	BY	DATE	PLAN SCALE	DRAWN	ASB	05/20	APPROVED:
			1" = 10'	DESIGNED	RJP	05/20	
				SURVEY	N/A	N/A	
			PROFILE SCALE	PROJ. MGR.	CAG	1/21	
			HORIZONTAL:	LEAD ENGR.	BOB	1/21	
			N/A	FIELD MGR.	BOB	1/21	
			VERTICAL:	RECOMMENDED	ASB	1-21	
			N/A	DESIGN MANAGER			
			FILE:	DRAWING:			
			ATLAS PAGE NO. 190				

CITY ENGINEER
DATE: 1-20-21
SHEET 14 OF 50 SHEETS

PRINT DATE: 12/17/2020 M:\City_of_Tulsa\17TUL03_On_Call_Stormwater_Services_2017\TO_21_FEMA_Flood_Damage\Design\126333\Damage_331103.dwg



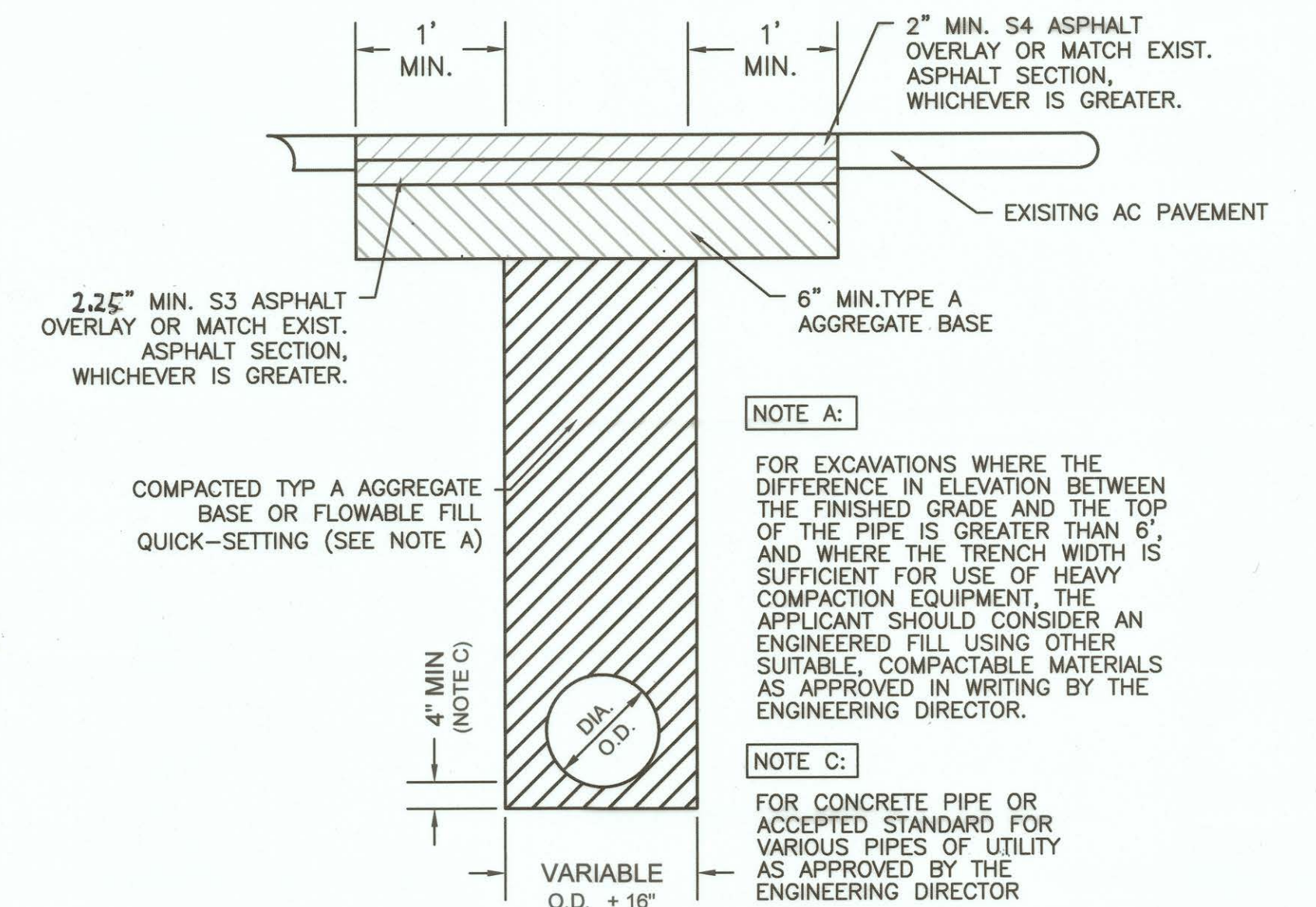
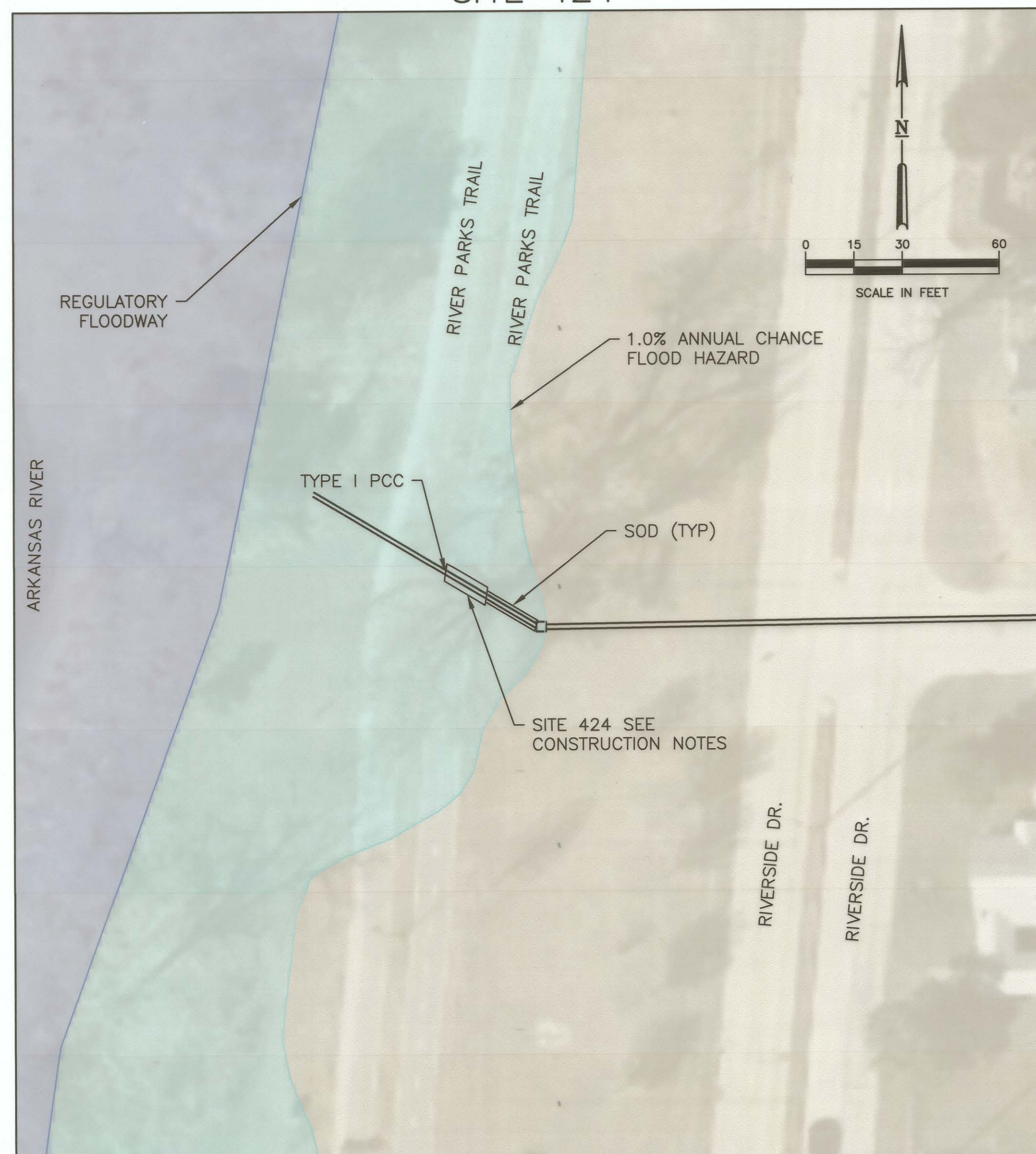
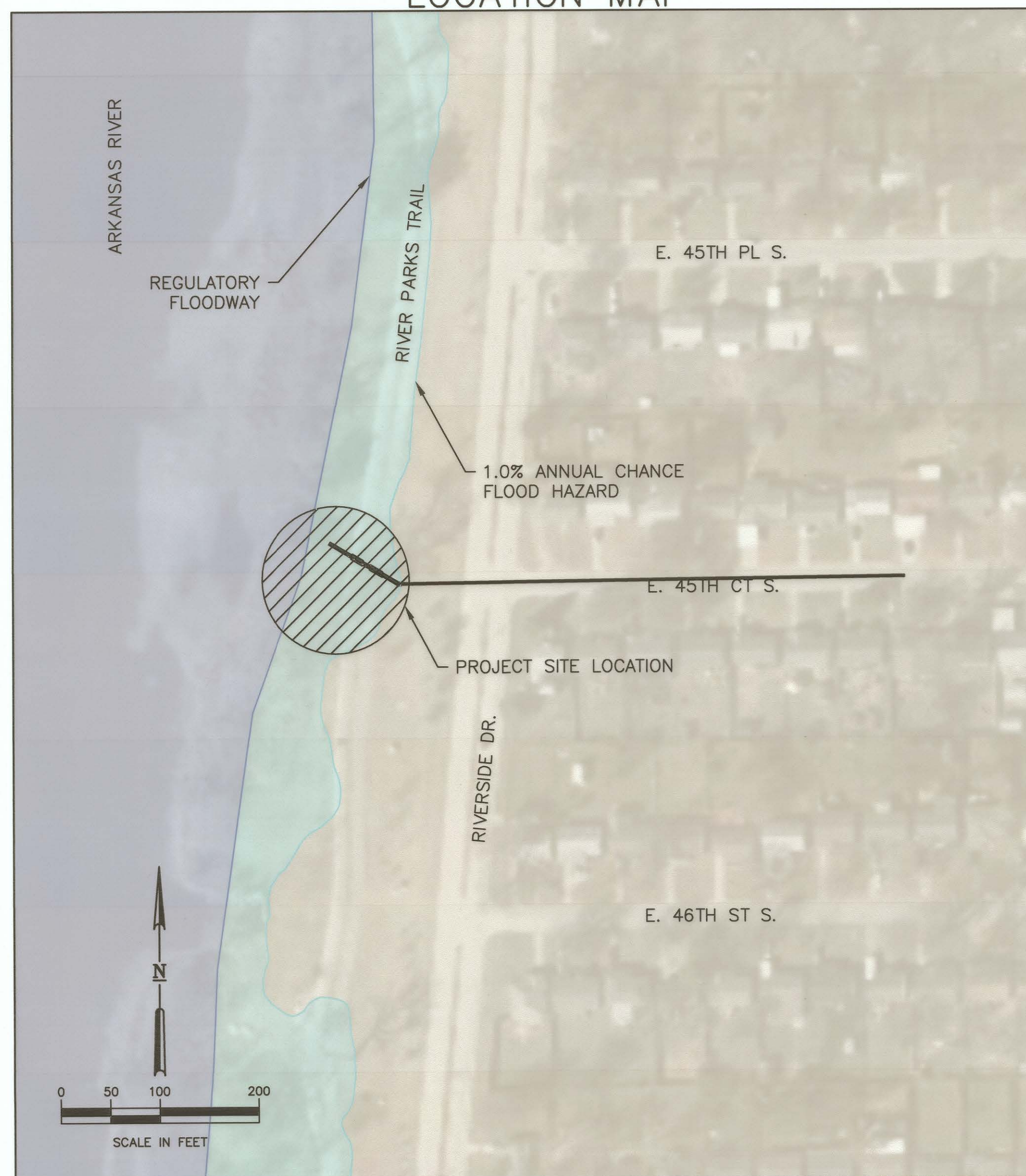
STORM DRAIN, RCP, 30FT LONG X 30IN IN DIAMETER,
SURFACE WATER FLOODING CAUSED PIPE SEPARATIONS.

SITE 424 - PAY QUANTITIES					
ROADWAY 0100					
ITEM		DESCRIPTION	NOTES	UNIT	QUANTITY
230(A)	2806	SOLID SLAB SODDING	E-10,11	SY	7.00
613(A)	0493	30" R.C.PIPE CLASS III (COMPLETE IN PLACE)	D-8,12,13 1	LF	30.00
SPECIAL		TYPE I APC PATCH (NON-ARTERIAL)	S-21	SY	9.00



12/16/2020

SITE 424



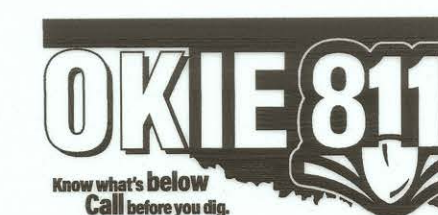
① TYPE I APC CUT AND REPAIR (NON-ARTERIAL)

SCALE: NONE

LEGEND



FEMA SITE AREA



REVISION		BY	DATE	1457 S. Boulder Avenue, Suite 1000 Tulsa, OK 74119 (918)552-5025 PLAN SCALE 1" = 100' PROFILE SCALE HORIZONTAL: N/A VERTICAL: N/A FILE: ATLAS NO. 190	APPROVED: DRAWN DESIGNED SURVEY PROJ. MGR. LEAD ENGR. FIELD MGR. RECOMMENDED DESIGN MANAGER DATE: 1-08-21 CITY ENGINEER SHEET 15 OF 50 SHEETS
				ASB 05/20 RJP 05/20 N/A N/A CAG 1/21 BOC 1/21 BOC 1/21 HAS 1/21	

STORM WATER MANAGEMENT PLAN

SITE DESCRIPTION

EROSION AND SEDIMENT CONTROLS

PROJECT LIMITS: DAMAGE INVENTORY #331108 SITES ALONG THE EAST SIDE OF THE ARKANSAS RIVER INCLUDING: SITE 177, SITE 198, SITE 369, SITE 372, SITE 377 AND SITE 405. ALL APPROXIMATELY LOCATED IN THE S/2 OF SECTION 13 AND N/2 OF SECTION 24 OF OK T19N R 12 E. WITHIN THE CITY LIMITS OF TULSA, OKLAHOMA.

PROJECT DESCRIPTION: SITE 177: EROSION CONTROL AND CULVERT END SECTION (REMOVE AND REPLACE) SITE 198: EROSION CONTROL SITE 369: EROSION CONTROL SITE 377: EROSION CONTROL SITE 372: EROSION CONTROL SITE 405: EROSION CONTROL & REPLACE PIPE

SUGGESTED SEQUENCE OF EROSION CONTROL ACTIVITIES: 1. TEMPORARY EROSION CONTROL. 2. PERMANENT EROSION CONTROL.

SOIL TYPE: VERY FINE SANDY LOAM, SILT LOAM, STRATIFIED LOAMY FINE SAND, SILTY CLAY LOAM, VARIABLE

TOTAL AREA OF THE CONSTRUCTION SITE: LESS THAN 1 ACRE COMBINED

ESTIMATED AREA TO BE DISTURBED: LESS THAN 1 ACRE COMBINED

OFFSITE AREA TO BE DISTURBED: (FOR CONTRACTOR USE)

TOTAL IMPERVIOUS AREA PRE-CONSTRUCTION: 0.012 ACRES

TOTAL IMPERVIOUS AREA POST-CONSTRUCTION: 0.012 ACRES

POST-CONSTRUCTION RUNOFF COEFFICIENT OF THE SITE: X.X

LATITUDE & LONGITUDE OF CENTER OF PROJECT: N36° 07' 24.2", W95° 59' 12.5" N36° 07' 51.6", W95° 59' 21.1" N36° 06' 45.4", W95° 59' 04.6" N36° 07' 38.6", W95° 59' 15.4" N36° 07' 36.1", W95° 59' 14.6" N36° 06' 46.8", W95° 59' 04.2"

PROJECT WILL DISCHARGE TO:

NAME OF RECEIVING WATERS: ARKANSAS RIVER

SENSITIVE WATERS OR WATERSHEDS: YES NO X

303 IMPAIRED WATERS: YES X NO

IF YES, LIST IMPAIRMENT: CADMIUM

LOCATED IN A TMDL: YES NO X

LAKE THUNDERBIRD TMDL: YES NO X

MS4 ENTITY YES X NO

IF YES, LOCATION: TULSA COUNTY

NOTE: THIS SHEET SHOULD BE USED IN CONJUNCTION WITH A DRAINAGE MAP THAT ILLUSTRATES THE DRAINAGE PATTERNS/PATHWAYS AND RECEIVING WATERS FOR THIS PROJECT. THIS SHEET SHOULD ALSO BE USED WITH THE EROSION CONTROL SUMMARIES, PAY ITEMS, & NOTES.

SOIL STABILIZATION PRACTICES:

- X 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 14 DAYS. METHODS USED WILL BE AS SHOWN ON PLANS, OR AS DIRECTED BY THE ENGINEER.

STRUCTURAL PRACTICES:

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

OFFSITE VEHICLE TRACKING:

- X HAUL ROADS DAMPENED FOR DUST CONTROL
- X LOADED HAUL TRUCKS TO BE COVERED WITH TARPULIN
- X EXCESS DIRT ON ROAD REMOVED DAILY

NOTES:

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 INCH 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 STORM WATER POLLUTION PREVENTION PLAN (SWPPP) 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) FORM AND PERMIT CERTIFICATE 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. ALL CONTRACTOR OFF-SITE OPERATIONS ASSOCIATED WITH THE PROJECT MUST BE DOCUMENTED IN THE SWPPP, I.E., BORROW PITS, WORK ROADS, DISPOSAL SITES, ASPHALT/CONCRETE PLANTS, ETC. THE BASIC GOAL OF STORM WATER 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 STORM WATER POLLUTION.

THE FOLLOWING SECTIONS OF THE 2009 ODOT STANDARD SPECIFICATIONS SHOULD BE NOTED:

- 103.05 BONDING REQUIREMENTS
- 104.10 FINAL CLEANING UP
- 104.12 CONTRACTOR'S RESPONSIBILITY FOR WORK
- 104.13 ENVIRONMENTAL PROTECTION
- 106.08 STORAGE AND HANDLING OF MATERIAL
- 107.01 LAWS, RULES AND REGULATIONS TO BE OBSERVED
- 107.20 STORM WATER MANAGEMENT
- 220 MANAGEMENT OF EROSION, SEDIMENTATION AND STORM WATER POLLUTION PREVENTION AND CONTROL
- 221 TEMPORARY SEDIMENT CONTROL

IN ADDITION:

"ODEQ GENERAL PERMIT (OKR10) FOR STORM WATER DISCHARGES FROM CONSTRUCTION ACTIVITIES WITHIN THE STATE OF OKLAHOMA." ODEQ, WATER QUALITY DIVISION, SEPTEMBER 13, 2017.



REVISION	BY	DATE

PLAN SCALE	DRAWN	ASB	05/20
N/A	DESIGNED	RJP	05/20
	SURVEY	N/A	N/A
PROFILE SCALE	PROJ. MGR.	1/16	1/21
HORIZONTAL:	LEAD ENGR.	1/16	1/21
N/A	FIELD MGR.	1/16	1/21
VERTICAL:	RECOMMENDED	1/16	1/21
N/A	DESIGN MANAGER	1/16	1/21
FILE:	DRAWING:		
ATLAS PAGE NO. 34,616			

APPROVED:
CITY ENGINEER
DATE: 1.08.21
SHEET 16 OF 50 SHEETS

STORM WATER MANAGEMENT PLAN

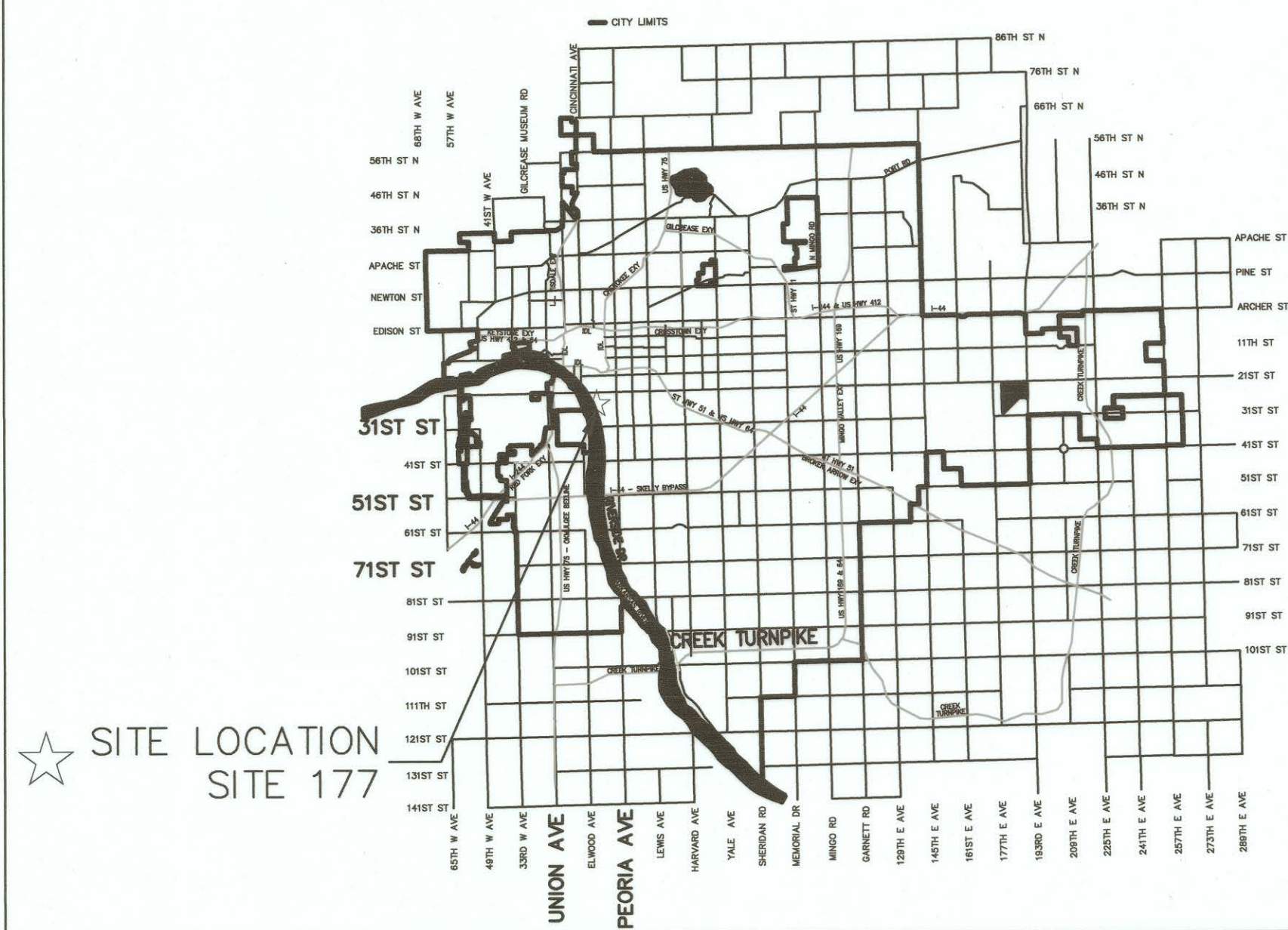
PROJECT #173120-T021-126333

DAMAGE #331108

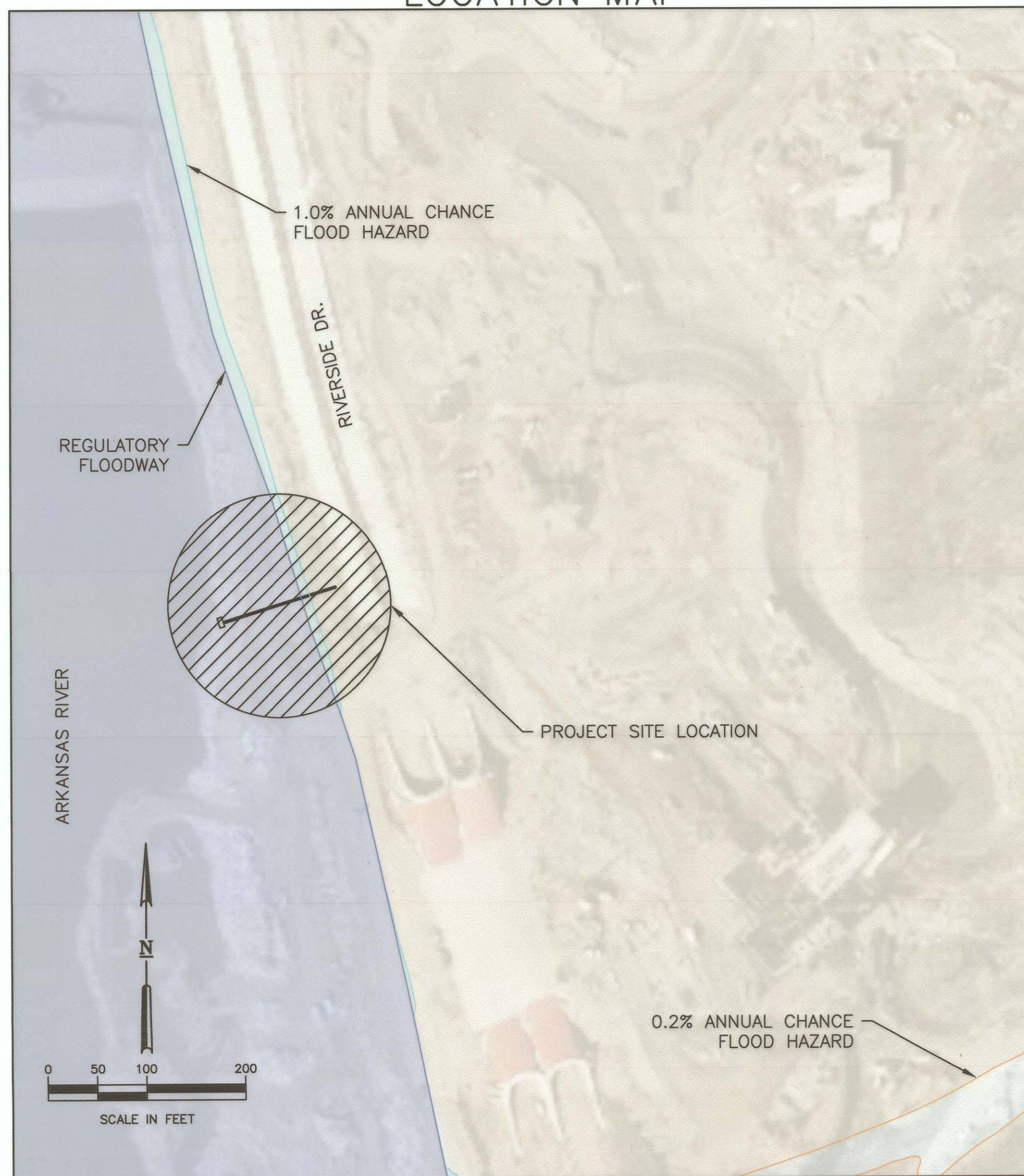
CITY OF TULSA, OKLAHOMA
ENGINEERING SERVICES DEPARTMENT

PLANS AND ESTIMATES PREPARED BY:
Meshek & Associates, L.L.C.
1437 S. Boulder Avenue, Suite 1550 Tulsa, OK 74119 (918)392-5620

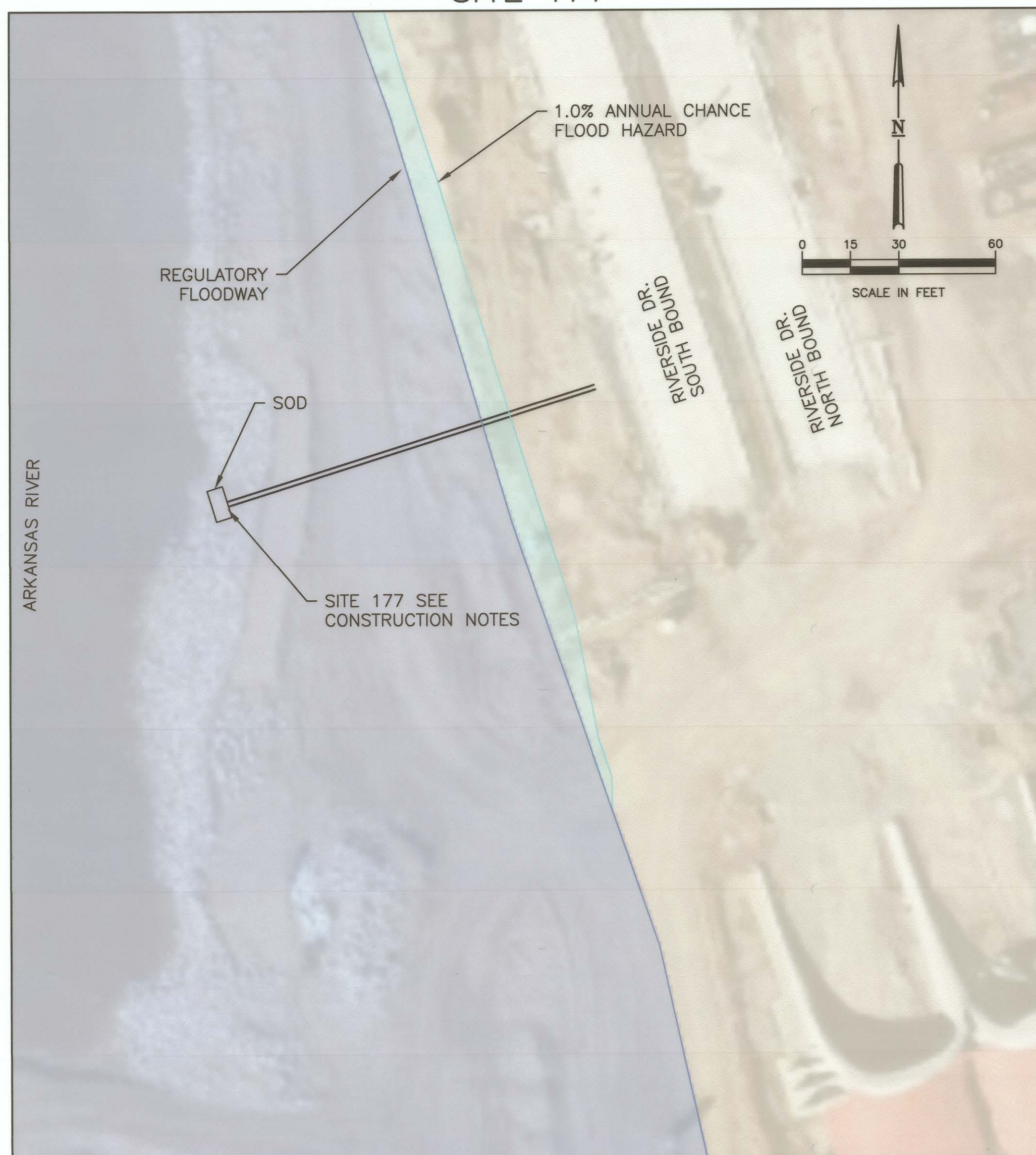
CITY OF TULSA, OKLAHOMA



LOCATION MAP



SITE 177



SITE PHOTO



SITE PHOTO



CONSTRUCTION NOTES:

SITE 177 (36.12340, -95.98680)

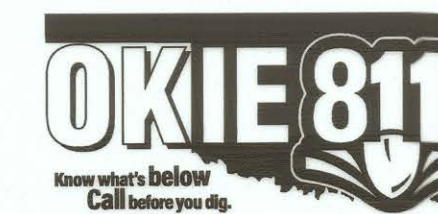
CULVERT, 18 IN DIAMETER PREFABRICATED CURLVERT
END SECTION, 6 FT LONG, PIPE UNDERMINED/
BROKEN FROM SOIL LOSS.

BACKFILL, 9 CY OF UNCLASSIFIED FILL, 10FT LONG X 5FT WIDE X 5FT DEEP, SURFACE WATER FLOODING ERODED SOIL ON BANK.

SITE 177 - PAY QUANTITIES

SITE 177 - PAY QUANTITIES					
ROADWAY 0100					
ITEM		DESCRIPTION	NOTES	UNIT	QUANTITY
202(D)	0184	UNCLASSIFIED BORROW		CY	9.0
601(B)	0536	TYPE 1-A PLAIN RIPRAP		CY	4.0
613(L)	5726	18" PREFAB. CULVERT END SECTION, ROUND		EA	1.0

LEGEND



FEMA SITE 177

PROJECT #173120-T021-126333

DAMAGE # 331108

CITY OF TULSA, OKLAHOMA
ENGINEERING SERVICES DEPARTMENT

PLANS AND ESTIMATES PREPARED BY:
Meshek & Associates, L.L.C.
1437 S. Boulder Avenue, Suite 1550 Tulsa, OK 74119 (918)392-5

REVISION	BY	DATE	PLAN SCALE	DRAWN	ASB	05/20	APPROVED:  CITY ENGINEER DATE: 1-08-21 SHEET 17 OF 50 SHEETS
			1" = ##'	DESIGNED	RJP	05/20	
				SURVEY	N/A	N/A	
			PROFILE SCALE	PROJ. MGR.	ASB	1/21	
			HORIZONTAL:	LEAD ENGR.	ASB	1/21	
			N/A	FIELD MGR.	ASB	1/21	
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			ATLAS PAGE NO.	61			

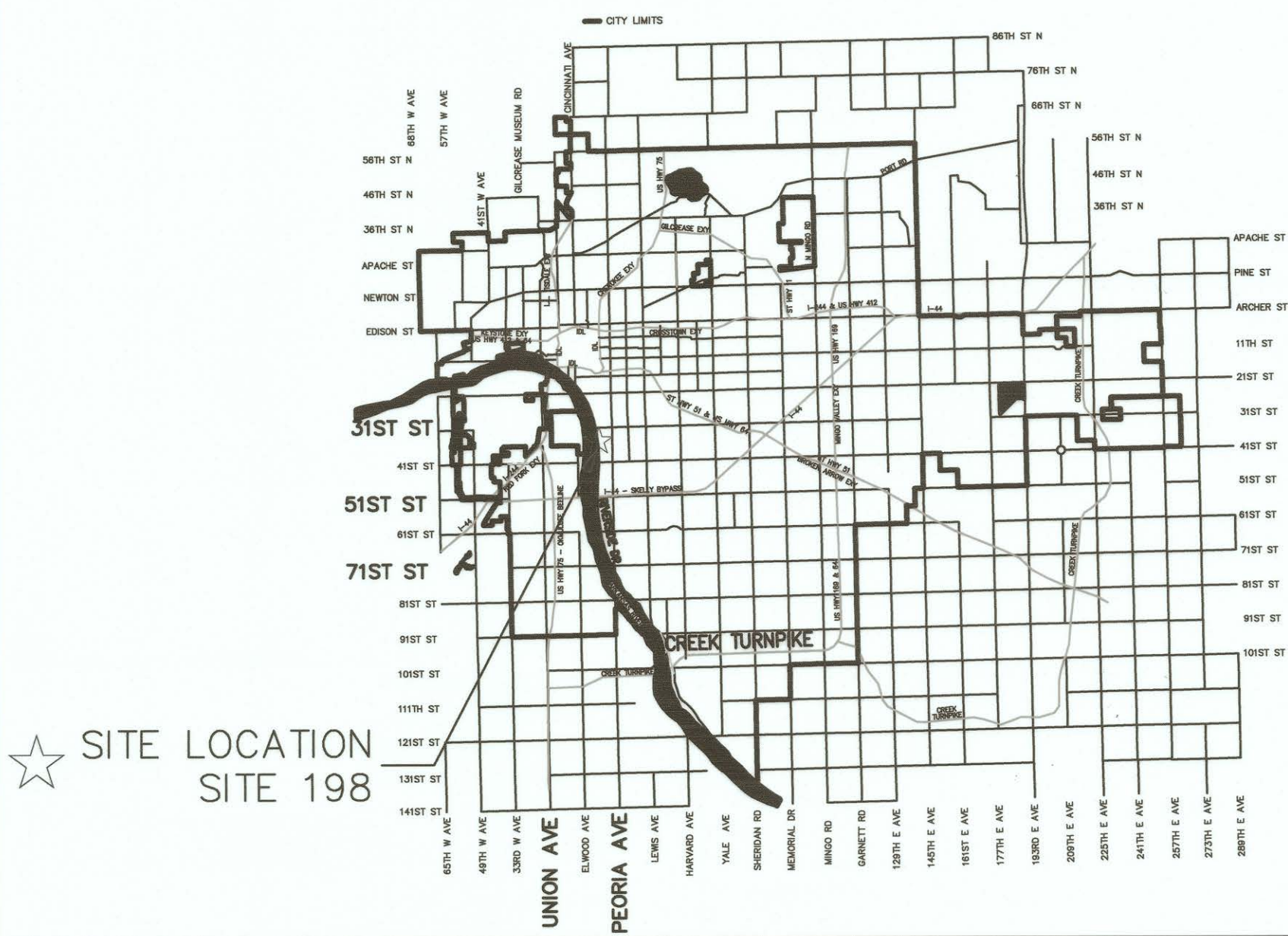
CITY ENGINEER

DATE: 1.08.21

SHEET 17 OF 50 SHEETS

PRINT DATE: 12/17/2020 M:\City of Tulsa\17TUL03 On Call Stormwater Services 2017\TO 21 FEMA Flood Damage\Design Working\126333\Damage_331108.dwg

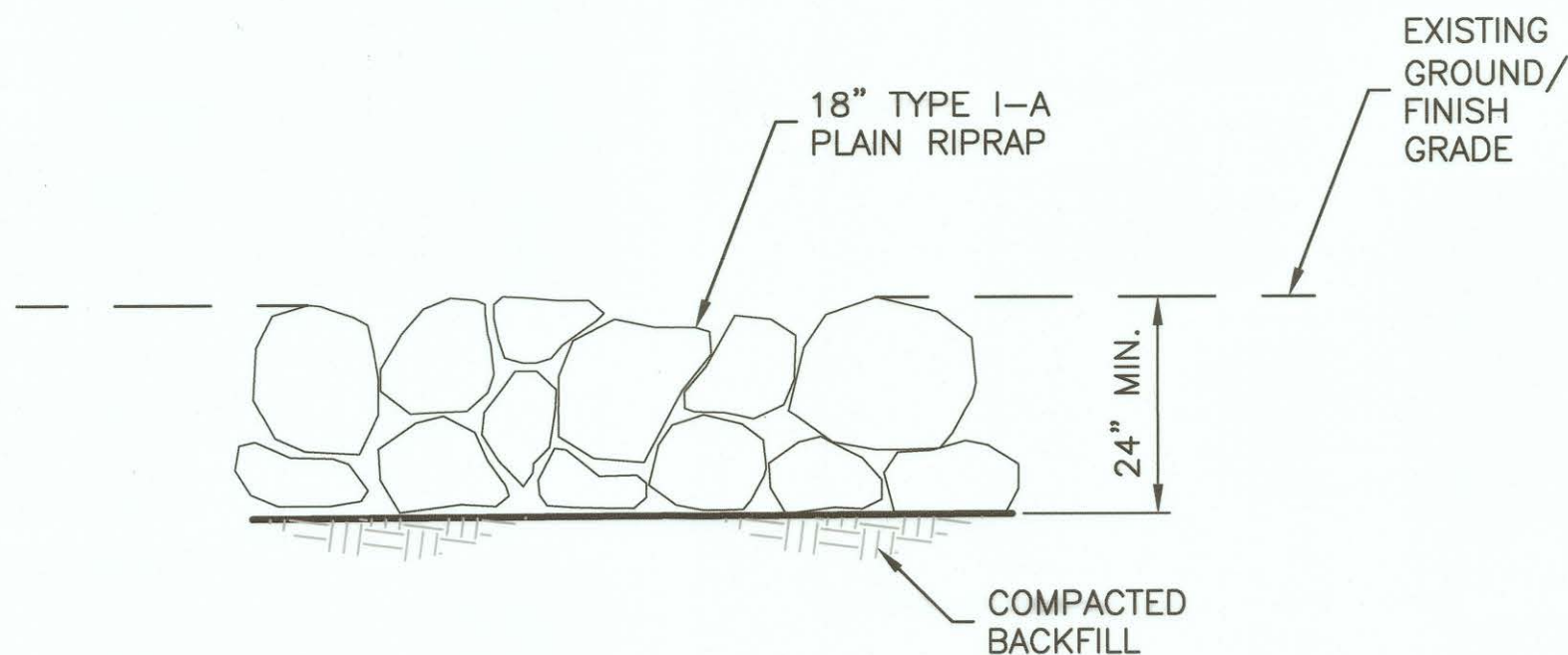
CITY OF TULSA, OKLAHOMA



CONSTRUCTION NOTES:
SITE 198 (36.11260, -95.98460)

BACKFILL, 50 CY OF UNCLASSIFIED FILL, 30 FT LONG X 15 FT WIDE X 3 FT DEEP, SURFACE WATER FLOODING ERODED SOIL.

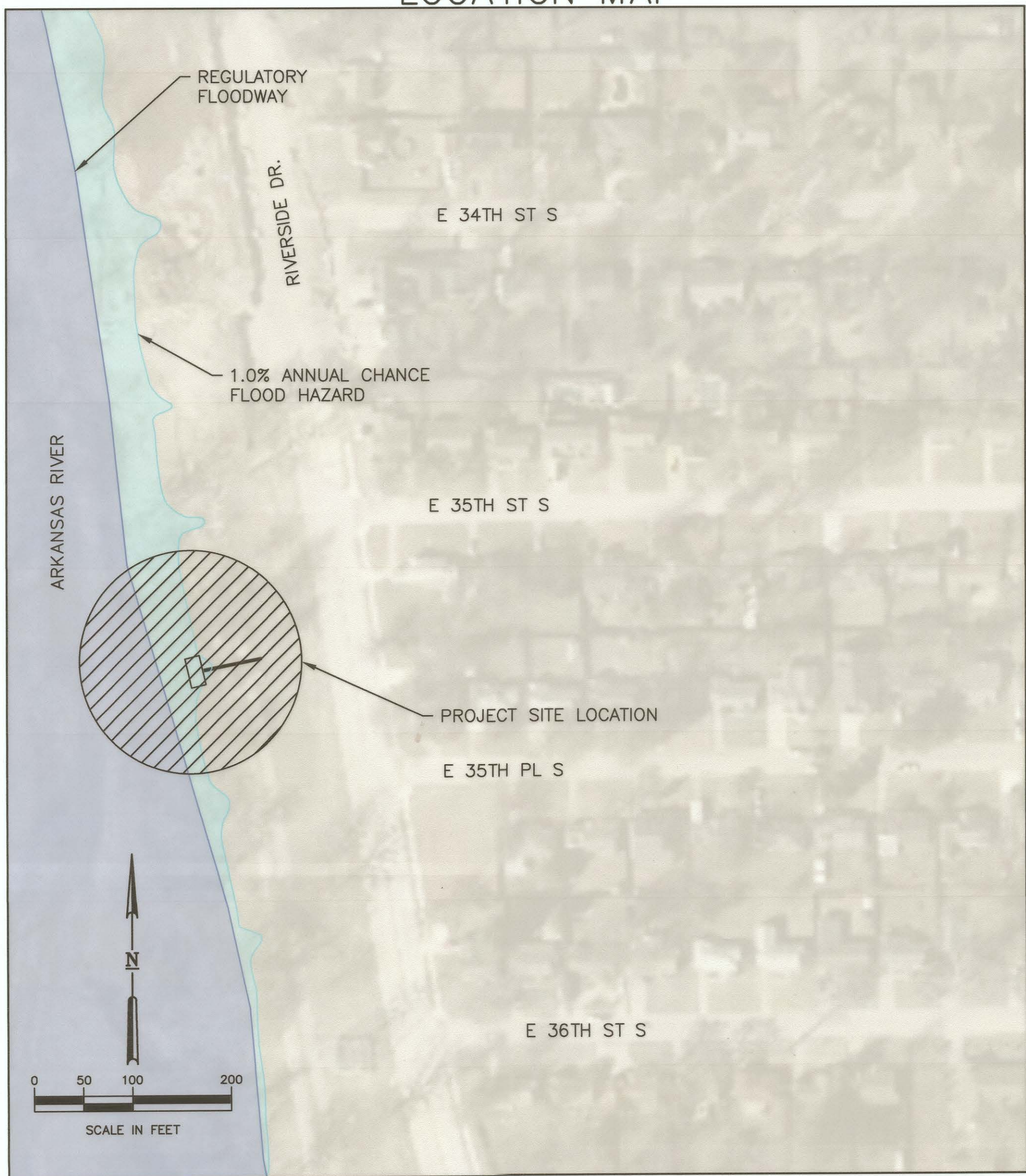
STONE, 33 CY OF RIP-RAP, 30 FT LONG X 15 FT WIDE X 2 FT DEEP, SURFACE WATER FLOODING DISPLACED STONE.



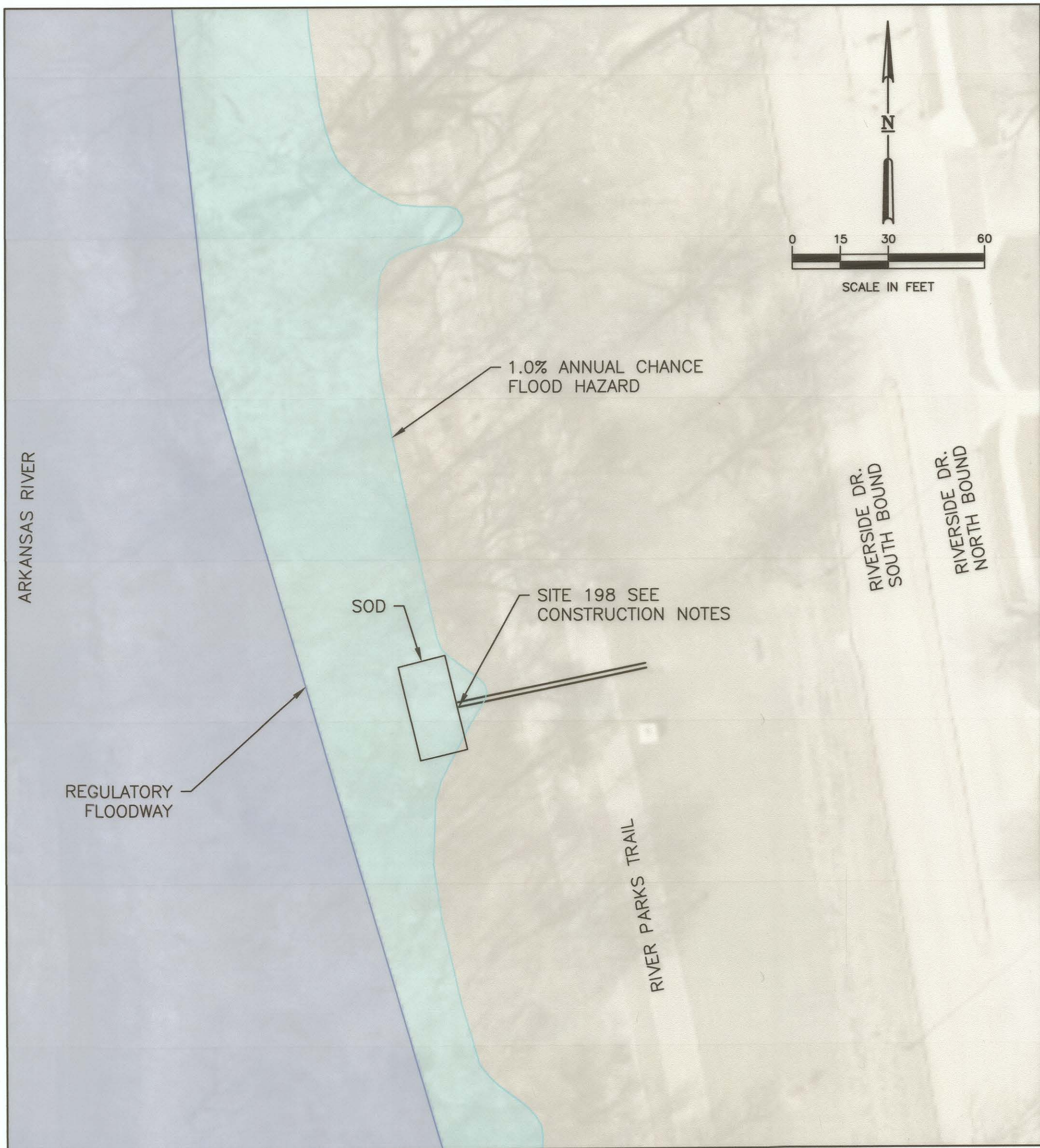
1 RIPRAP INSTALLATION
SCALE: NONE

SITE 198 - PAY QUANTITIES					
ROADWAY 0100					
ITEM		DESCRIPTION	NOTES	UNIT	QUANTITY
202(D)	0184	UNCLASSIFIED BORROW		CY	50.00
230(A)	2806	SOLID SLAB SODDING	E-10,11	SY	50.00
601(B)	0536	TYPE 1-A PLAIN RIP RAP		CY	33.00
221(C)	0525	REMOVAL OF SEDIMENT		CY	1.00

LOCATION MAP



SITE 198



SITE PHOTO



12/16/2020

LEGEND

/// FEMA SITE AREA



FEMA SITE 198

PROJECT #173120-T021-126333

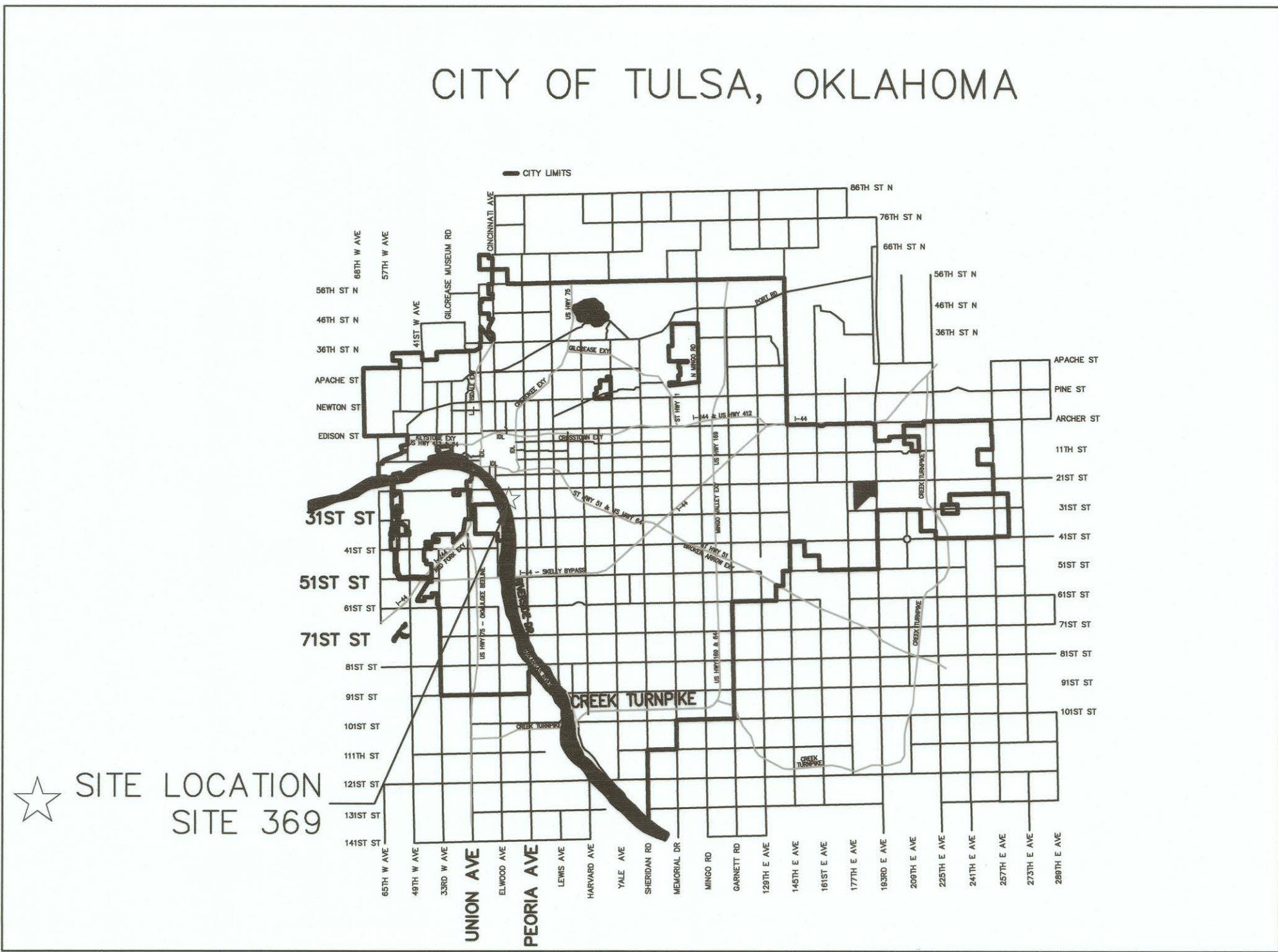
DAMAGE # 331108

CITY OF TULSA, OKLAHOMA
ENGINEERING SERVICES DEPARTMENT

PLANS AND ESTIMATES PREPARED BY:
Meshek & Associates, L.L.C.
1437 S. Boulder Avenue, Suite 1550 Tulsa, OK 74119 (918)392-5620

REVISION	BY	DATE	PLAN SCALE	DRAWN	ASB	05/20	APPROVED:
			1" = ##'	DESIGNED	RJP	05/20	
				SURVEY	N/A	N/A	
			PROFILE SCALE	PROJ. MGR.	1/16	1/21	
			HORIZONTAL:	LEAD ENGR.	1/16	1/21	
			N/A	FIELD MGR.	1/16	1/21	
			VERTICAL:	RECOMMENDED	1/16	1/21	
			N/A	DESIGN MANAGER			
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PRINT DATE: 12/17/2020 MA: City of Tulsa\17TUL03_On-Call_Stormwater_Services_2017\TO_21_FEMA_Flood_Damage_Design\Working\126333\ DAMAGE_331108.dwg



CONSTRUCTION NOTES:
SITE 369 (36.12670, -95.98740)

BACKFILL, 28 CY OF UNCLASSIFIED FILL, 50 FT LONG X 25 FT WIDE X 2 FT DEEP, SURFACE WATER FLOODING ERODED SOIL ON BANK.

SITE 369 - PAY QUANTITIES					
ROADWAY 0100					
ITEM		DESCRIPTION	NOTES	UNIT	QUANTITY
202(D)	0184	UNCLASSIFIED BORROW		CY	28.00
230(A)	2806	SOLID SLAB SODDING	E-10,11	SY	139.00



LEGEND

██ FEMA SITE AREA



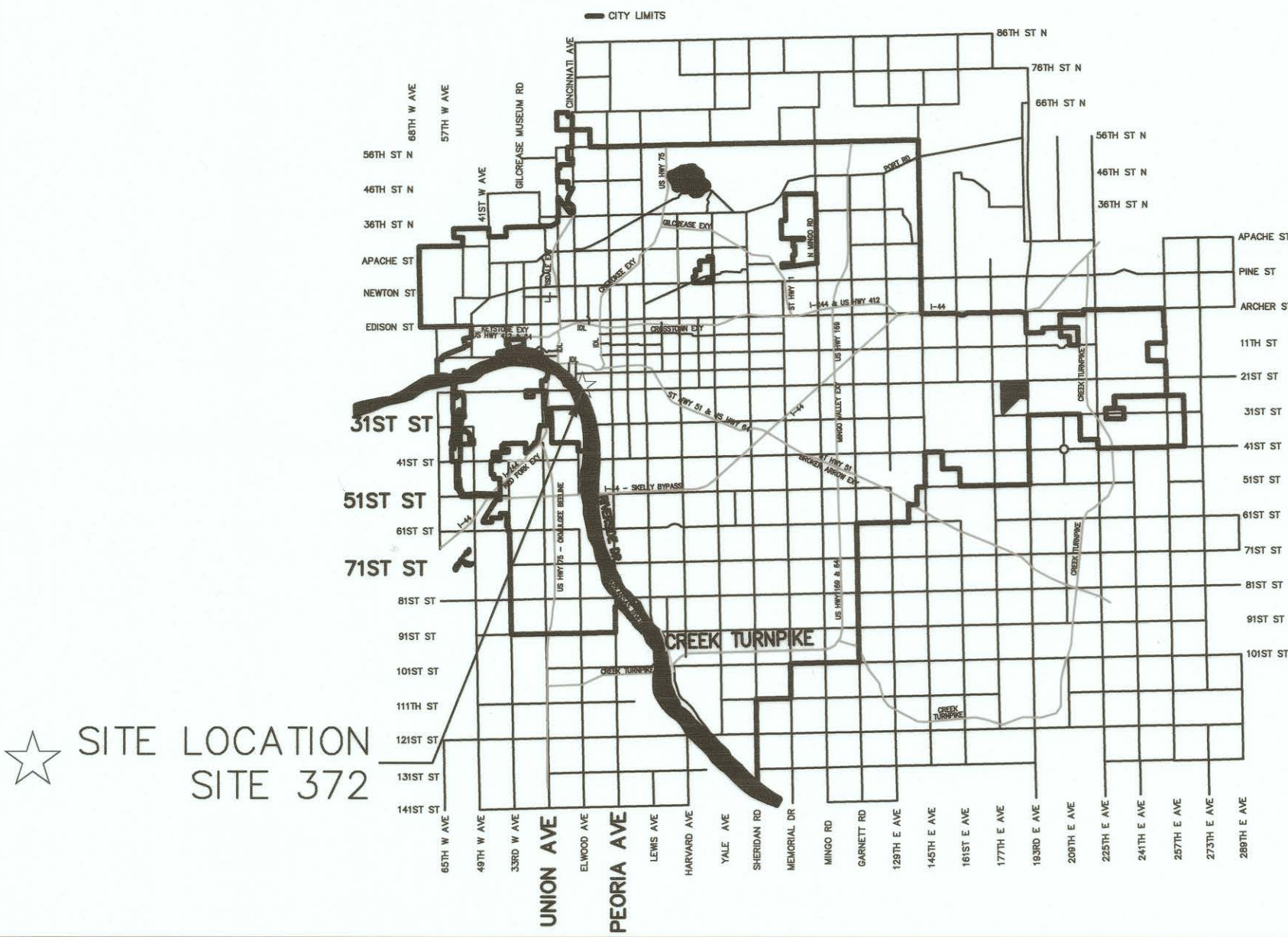
REVISION		BY	DATE

PLAN SCALE	DRAWN	ASB	05/20
1" = ##'	DESIGNED	RJP	05/20
	SURVEY	N/A	N/A
PROFILE SCALE	PROJ. MGR.	CH	1/21
HORIZONTAL:	LEAD ENGR.	BOC	1/21
N/A	FIELD MGR.	BM	1/21
VERTICAL:	RECOMMENDED	HAS	1/21
N/A	DESIGN MANAGER		
FILE:	DRAWING:		
ATLAS PAGE NO. 34			

FEMA SITE 369	
PROJECT #173120-T021-126333	
DAMAGE # 331108	
CITY OF TULSA, OKLAHOMA ENGINEERING SERVICES DEPARTMENT	
PLANS AND ESTIMATES PREPARED BY: Meshek & Associates, L.L.C. 1437 S. Boulder Avenue, Suite 1550 Tulsa, OK 74119 (918)392-5620	
APPROVED:	
CITY ENGINEER	
DATE: 1-08-21	
SHEET 19 OF 50 SHEETS	

PRINT DATE: 12/17/2020 M:\City of Tulsa\17TUL03 On Call Stormwater Services-2017\TO_21_FEMA Flood Damage\Design\Working\126333\Damage_331108.dwg

CITY OF TULSA, OKLAHOMA



CONSTRUCTION NOTES:
SITE 372 (36.13100, -95.98920)

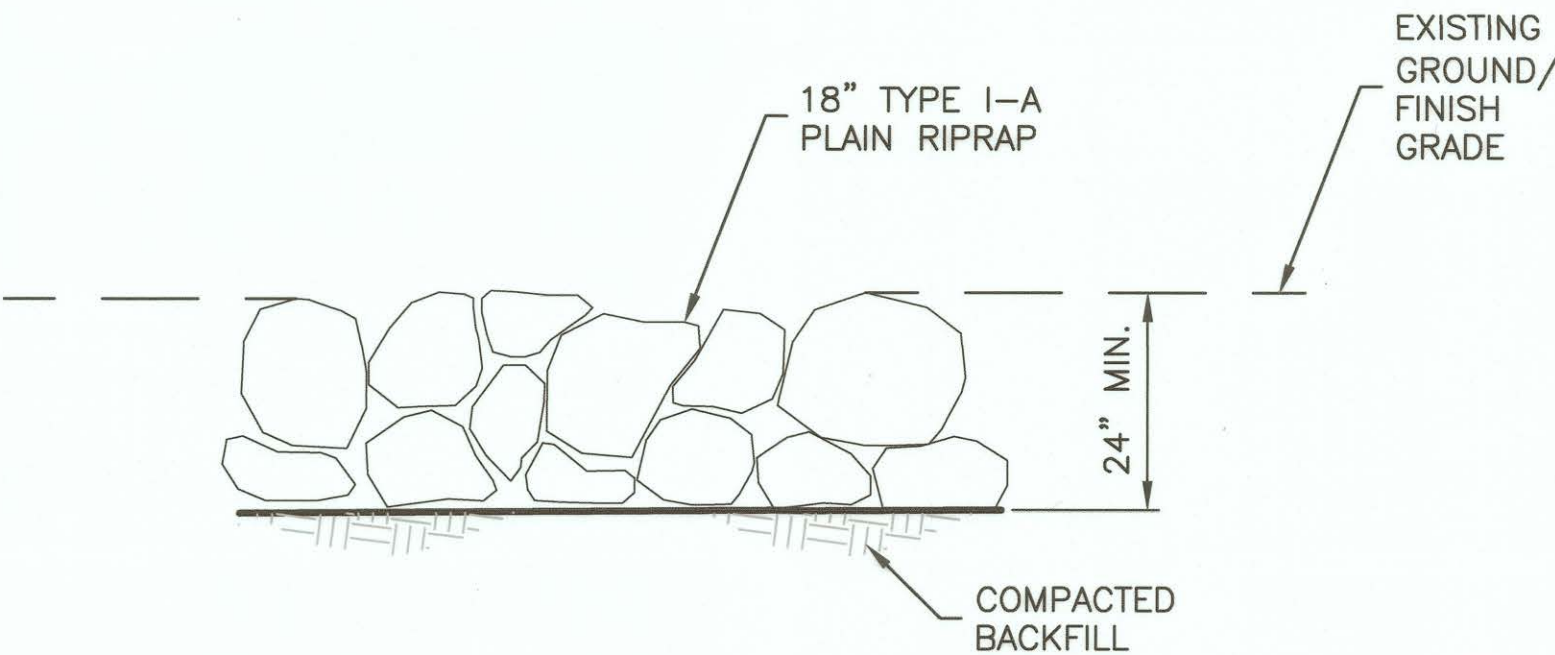
BACKFILL, 34 CY OF UNCLASSIFIED FILL, 50 FT LONG X 6 FT WIDE X 3 FT DEEP, SURFACE WATER FLOODING ERODED SOIL ON BANK.

SITE 372 - PAY QUANTITIES					
ROADWAY 0100					
ITEM		DESCRIPTION	NOTES	UNIT	QUANTITY
202(D)	0184	UNCLASSIFIED BORROW		CY	34.00
230(A)	2806	SOLID SLAB SODDING	E-10,11	SY	34.00
326(B)	0100	GEOGRID REINFORCEMENT		SY	25.00
601(B)	0536	TYPE I-A RIPRAP		CY	5.00

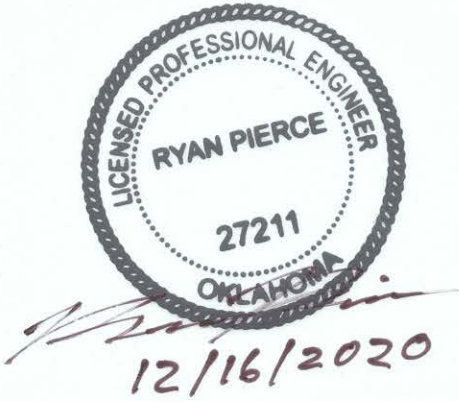
SITE 372 - (36.13100, -95.98920)

HAZARD MITIGATION PROPOSAL (HMP) SCOPE OF WORK:

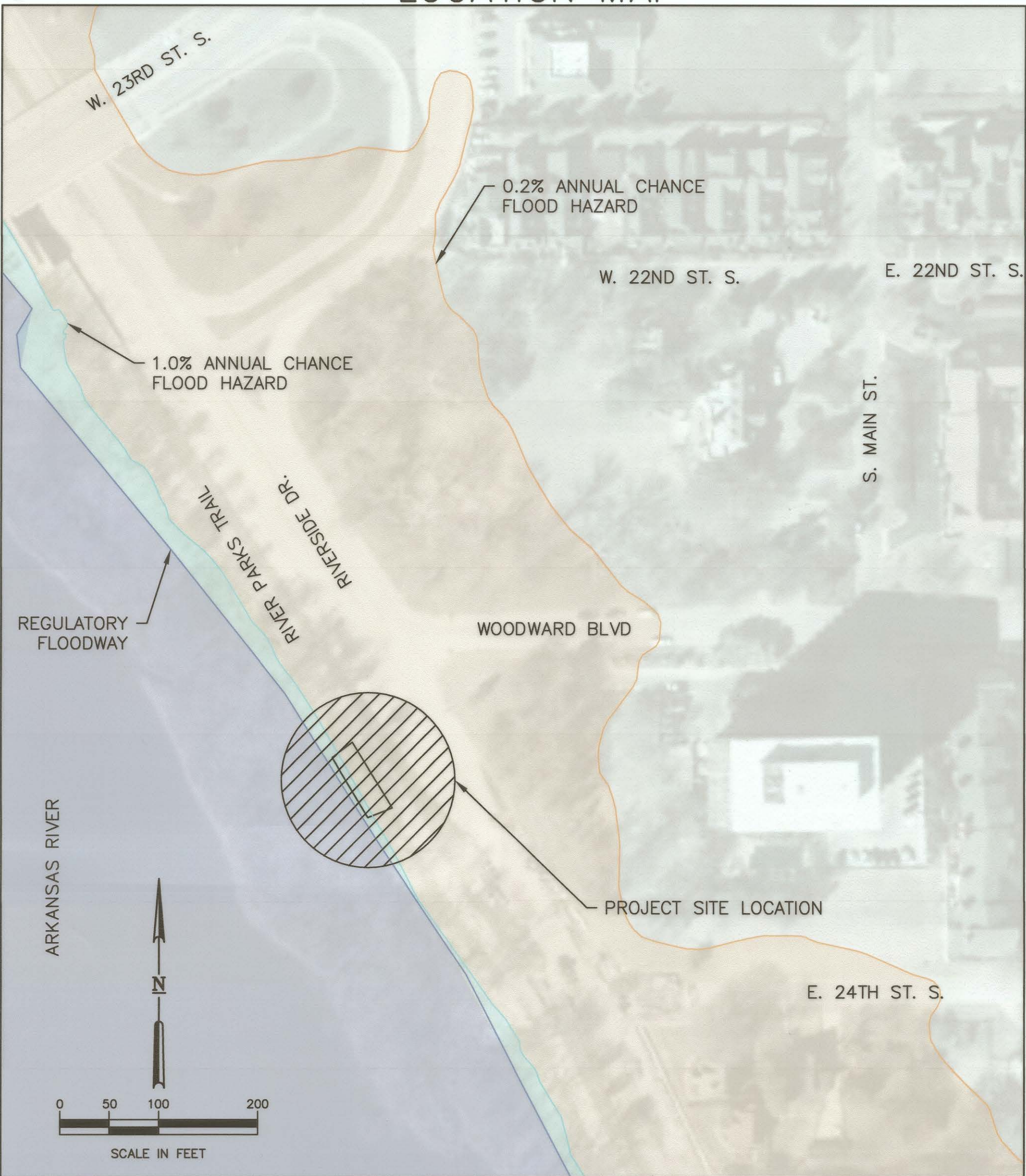
- * ADDING 4.24 CY RIP RAP TO MITIGATE DAMAGE FROM RAPIDLY FLOWING FLOOD WATERS.
- * ADDING 25 SY GEOSYNTHETIC FABRIC TO PREVENT EROSION CAUSED BY RAPIDLY FLOWING FLOOD WATERS.



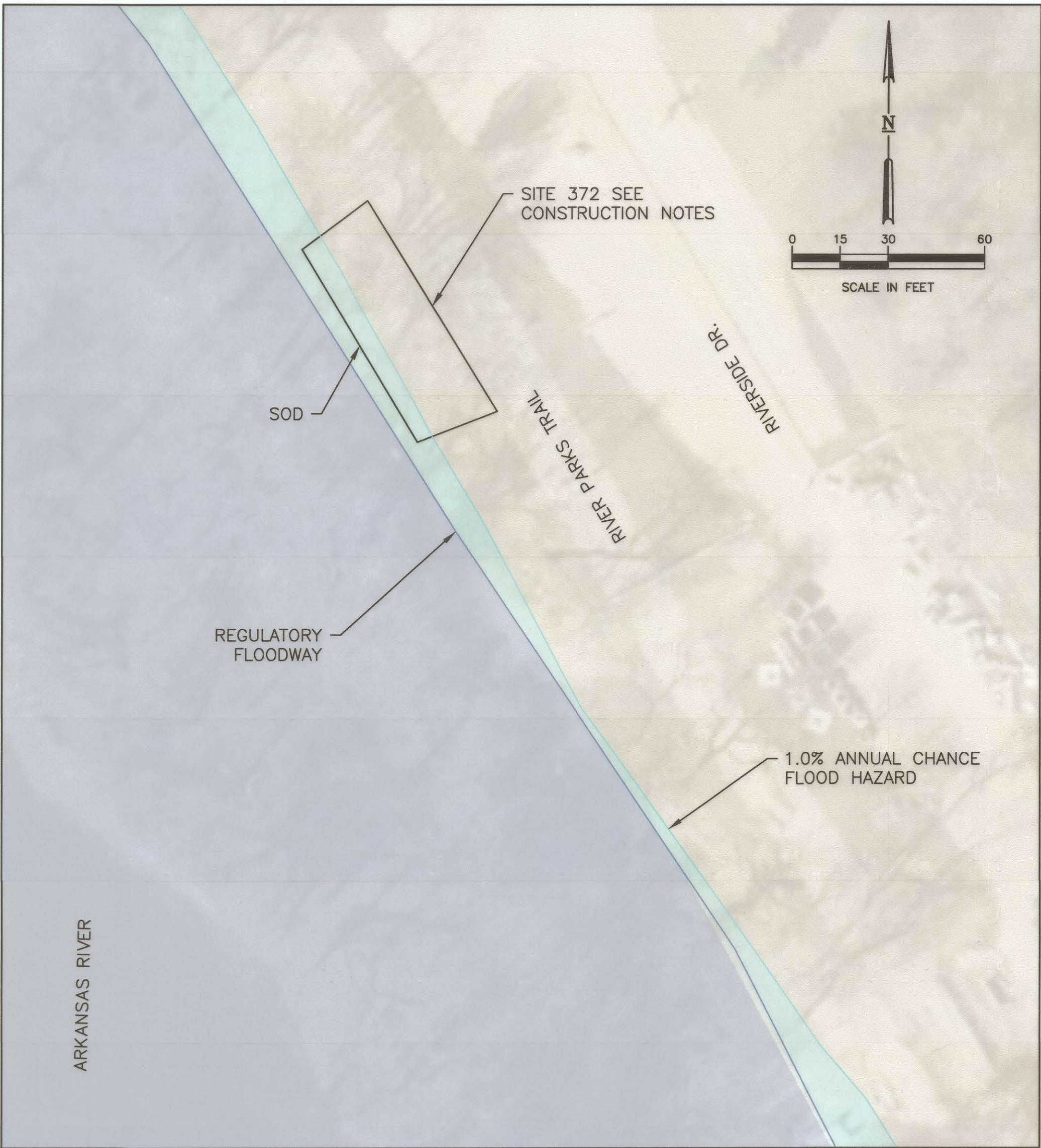
1 RIPRAP INSTALLATION
SCALE: NONE



LOCATION MAP



SITE 372



SITE PHOTO



SITE PHOTO



LEGEND

/// FEMA SITE AREA



FEMA SITE 372

PROJECT #126333

DAMAGE # 331108

CITY OF TULSA, OKLAHOMA
ENGINEERING SERVICES DEPARTMENT

PLANS AND ESTIMATES PREPARED BY:

Meshek & Associates, L.L.C.

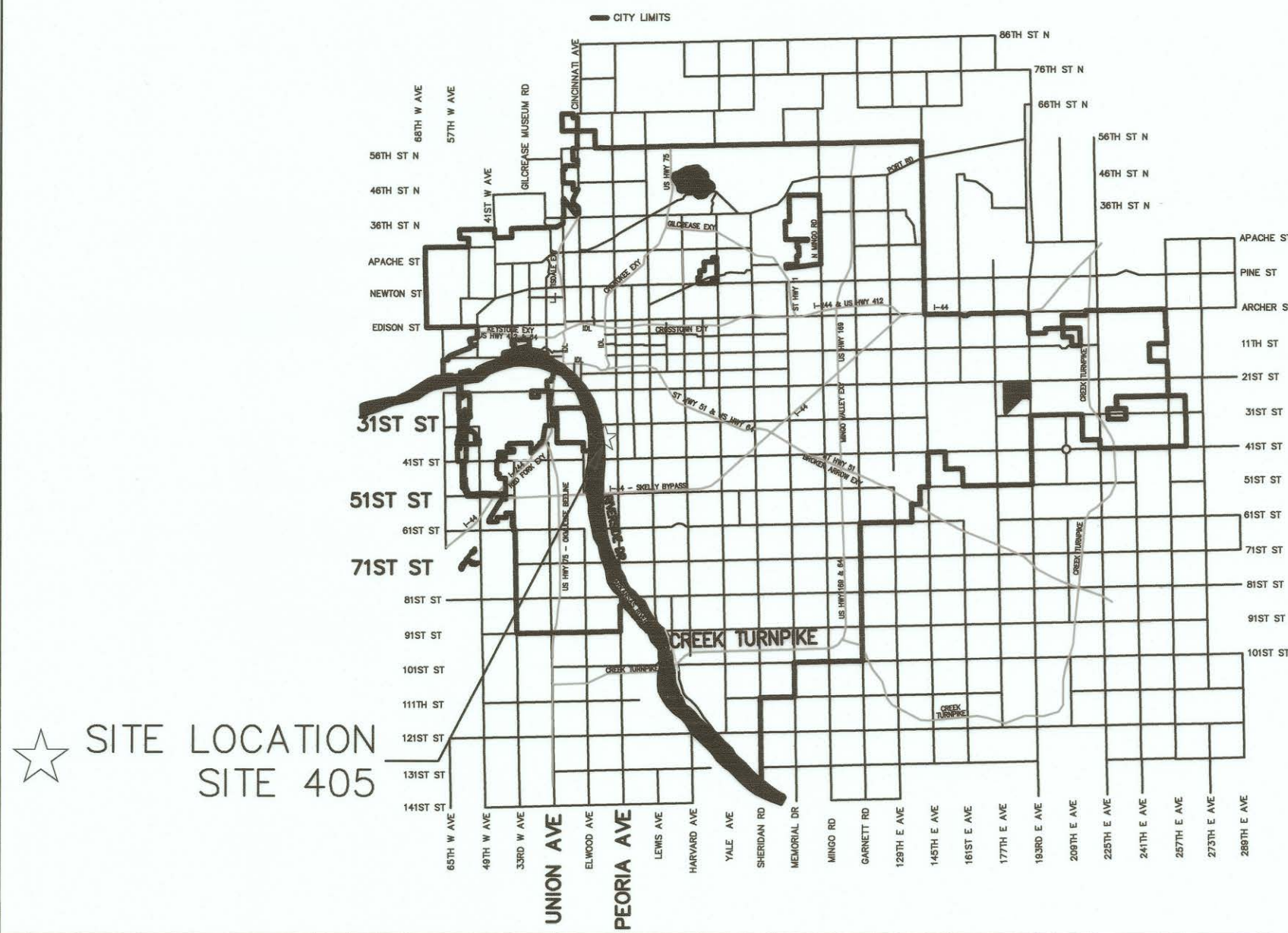
1437 S. Boulder Avenue, Suite 1550 Tulsa, OK 74119 (918)392-5620

REVISION	BY	DATE	PLAN SCALE	DRAWN	ASB	05/20	APPROVED:
			1" = 10'	DESIGNED	RJP	05/20	
				SURVEY	N/A	N/A	
			PROFILE SCALE	PROJ. MGR.	016	1/21	
			HORIZONTAL:	LEAD ENGR.	004	1/21	
			N/A	FIELD MGR.	004	1/21	
			VERTICAL:	RECOMMENDED	Has	1.21	
			N/A	DESIGN MANAGER			
			FILE:	DRAWING:			
			ATLAS PAGE NO. 34				

CITY ENGINEER
DATE: 1.00.21
SHEET 20 OF 50 SHEETS

PRINT DATE: 12/17/2020 M:\City of Tulsa\17TUL03 On-Call Stormwater Services-2017\TO-21-FEMA_Flood_Damage\Design\Working\126333\ DAMAGE_331108.dwg

CITY OF TULSA, OKLAHOMA



CONSTRUCTION NOTES:
SITE 405 (36.11300, -95.98450)

BACKFILL, 15 CY OF UNCLASSIFIED FILL, 20 FT LONG X 10 FT WIDE X 2 FT DEEP, SURFACE WATER FLOODING ERODED SOIL OF PIPE OUTLET.

STORM DRAIN, 1 EACH OF CONCRETE OUTFALL, 52 FT LONG X 30 IN IN DIAMETER, SURFACE WATER FLOODING COLLAPSED SECTION OF PIPE.

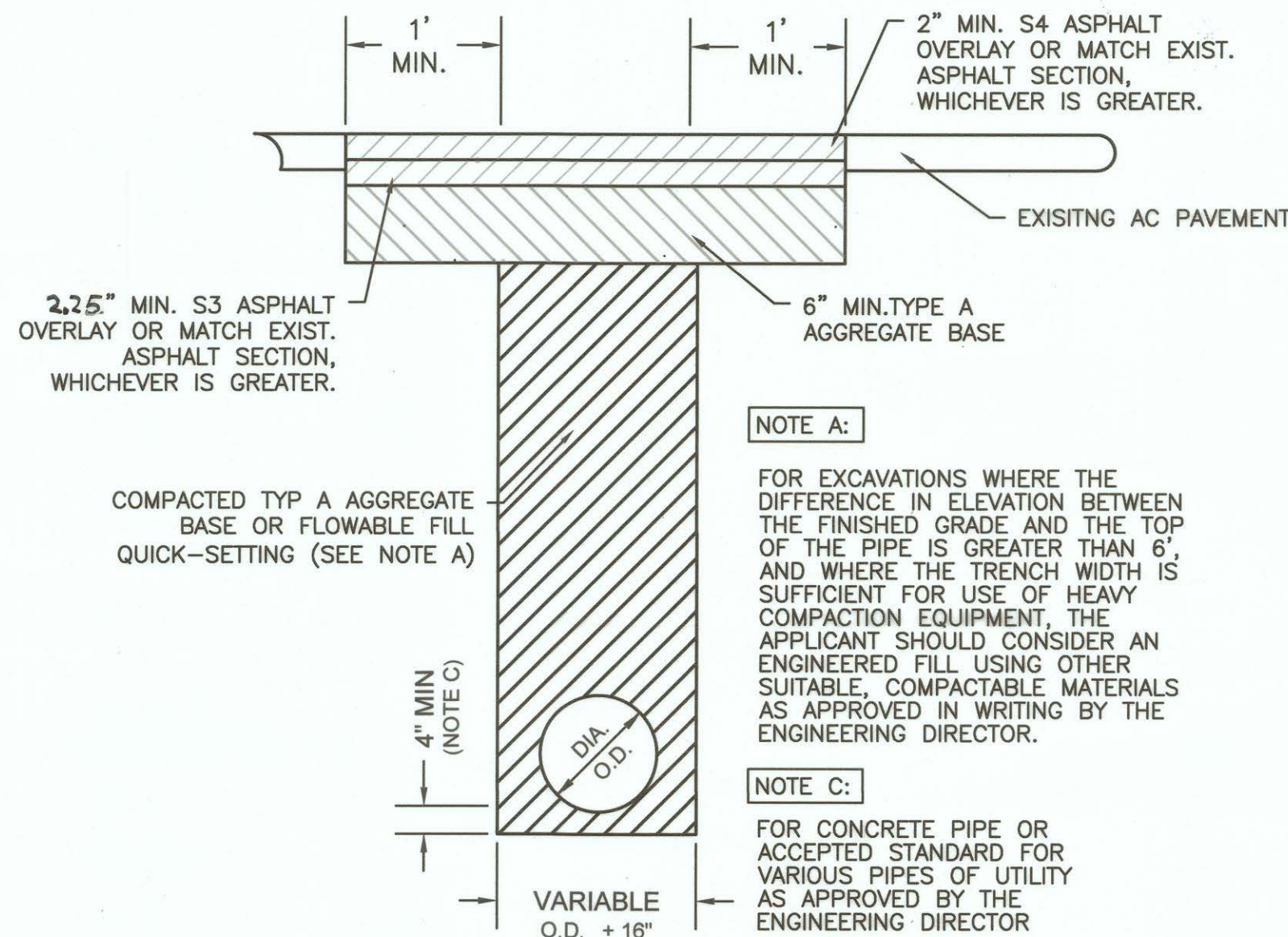
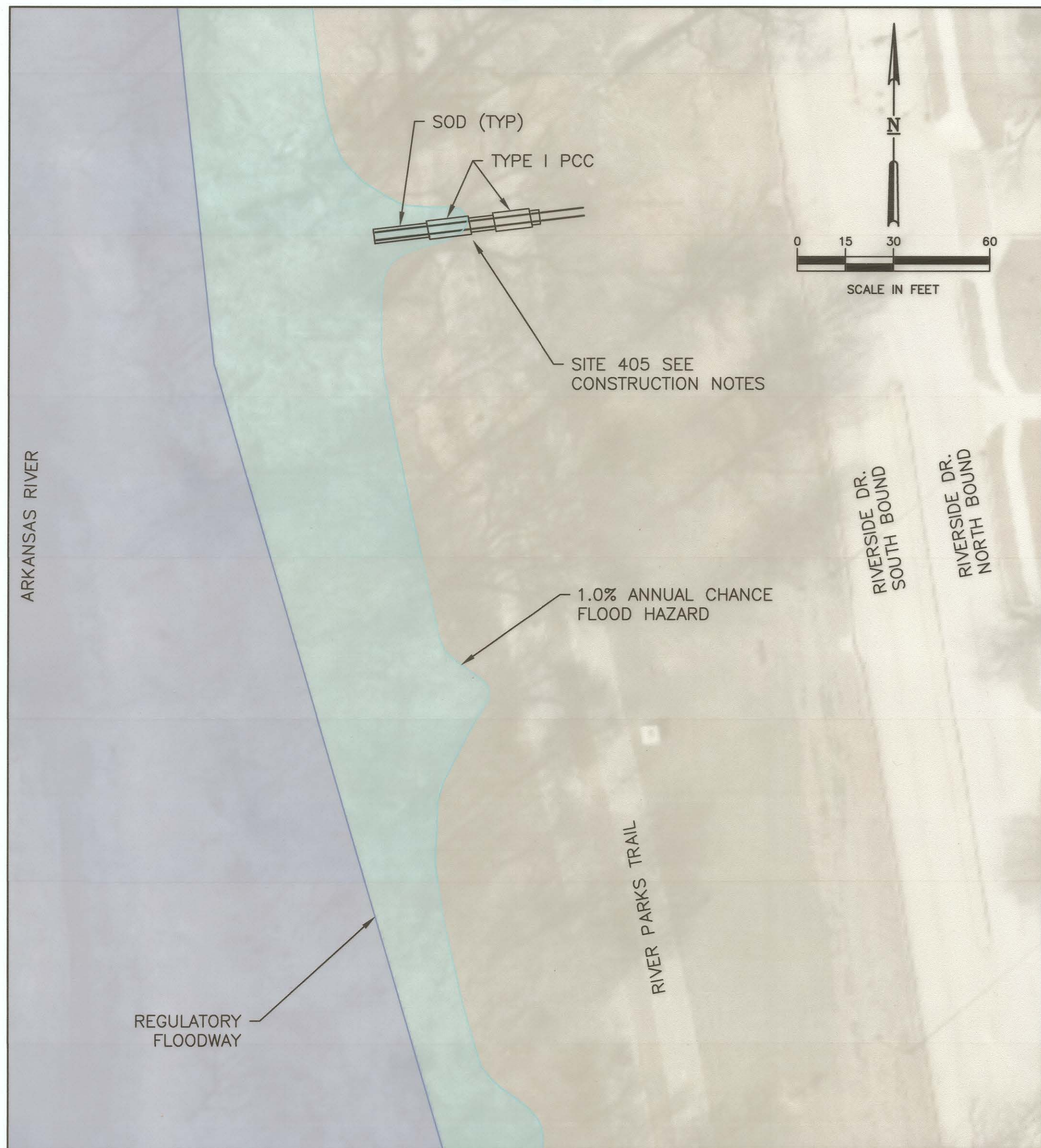
SITE 405 - PAY QUANTITIES					
ROADWAY 0100					
ITEM		DESCRIPTION	NOTES	UNIT	QUANTITY
202(D)	0184	UNCLASSIFIED BORROW		CY	15.00
230(A)	2806	SOLID SLAB SODDING	E-10,11	SY	14.00
613(A)	0493	30" R.C.PIPE CLASS III (COMPLETE IN PLACE)	D-8,12,13 1	LF	52.00
SPECIAL		TYPE I APC PATCH (NON-ARTERIAL)	S-21	SY	16.00



LOCATION MAP



SITE 405



1 TYPE I APC CUT AND REPAIR (NON-ARTERIAL)
SCALE: NONE

LEGEND



FEMA SITE 405

PROJECT #173120-T021-126333

DAMAGE # 331108

CITY OF TULSA, OKLAHOMA
ENGINEERING SERVICES DEPARTMENT

PLANS AND ESTIMATES PREPARED BY:
Meshek & Associates, L.L.C.
1437 S. Boulder Avenue, Suite 1550 Tulsa, OK 74119 (918)392-5620

REVISION	BY	DATE	PLAN SCALE	DRAWN	ASB	05/20	APPROVED:
			1" = 10'	DESIGNED	RJP	05/20	
				SURVEY	N/A	N/A	
			PROFILE SCALE	PROJ. MGR.	05/21	05/21	
			HORIZONTAL:	LEAD ENGR.	05/21	05/21	
			N/A	FIELD MGR.	05/21	05/21	
			VERTICAL:	RECOMMENDED	05/21	05/21	
			N/A	DESIGN MANAGER			
			FILE:	DRAWING:			
			ATLAS PAGE NO. 96				

CITY ENGINEER
DATE: 1-08-21
SHEET 22 OF 50 SHEETS

PRINT DATE: 12/17/2020 M:\City_of_Tulsa\17TUL03_On_Call_Stormwater_Services_2017\TO_21_FEMA_Flood_Damage_Design\Working\126333\ DAMAGE_331100.dwg

STORM WATER MANAGEMENT PLAN

SITE DESCRIPTION

EROSION AND SEDIMENT CONTROLS

PROJECT LIMITS: DAMAGE INVENTORY #331113 SITES ALONG THE EAST SIDE OF THE ARKANSAS RIVER INCLUDING: SITE 182, SITE 204, SITE 205, SITE 233, SITE 391 AND SITE 397. ALL APPROXIMATELY LOCATED IN THE SE/4 OF SECTION 25 OF OK T19N R 12 E. WITHIN THE CITY LIMITS OF TULSA, OKLAHOMA.

PROJECT DESCRIPTION: SITE 397: REMOVAL OF SEDIMENT
SITE 182: EROSION CONTROL AND CULVERT END SECTION (REMOVE AND REPLACE)
SITE 204: EROSION CONTROL AND CULVERT END SECTION (REMOVE AND REPLACE)
SITE 205: REPLACE PIPE
SITE 233: REMOVAL OF SEDIMENT
SITE 391: REPLACE PIPE AND CULVERT END SECTION

SUGGESTED SEQUENCE OF EROSION CONTROL ACTIVITIES:
1. TEMPORARY EROSION CONTROL.
2. PERMANENT EROSION CONTROL.

SOIL TYPE: VERY FINE SANDY LOAM, SILT LOAM, STRATIFIED LOAMY FINE SAND, SILTY CLAY LOAM, VARIABLE

TOTAL AREA OF THE CONSTRUCTION SITE: LESS THAN 1 ACRE COMBINED

ESTIMATED AREA TO BE DISTURBED: LESS THAN 1 ACRE COMBINED

OFFSITE AREA TO BE DISTURBED: (FOR CONTRACTOR USE)

TOTAL IMPERVIOUS AREA PRE-CONSTRUCTION: 0.009 ACRES

TOTAL IMPERVIOUS AREA POST-CONSTRUCTION: 0.009 ACRES

POST-CONSTRUCTION RUNOFF COEFFICIENT OF THE SITE: X.X

LATITUDE & LONGITUDE OF CENTER OF PROJECT: N36° 05' 44.2", W95° 59' 06.0" N36° 05' 46.0", W95° 59' 06.0" N36° 05' 42.0", W95° 59' 05.6" N36° 05' 44.2", W95° 59' 05.6" N36° 05' 39.5", W95° 59' 05.6" N36° 05' 44.5", W95° 59' 03.1"

PROJECT WILL DISCHARGE TO:

NAME OF RECEIVING WATERS: ARKANSAS RIVER

SENSITIVE WATERS OR WATERSHEDS: YES ☐ NO ☒

303 IMPAIRED WATERS: YES ☒ NO ☐

IF YES, LIST IMPAIRMENT: CADMIUM

LOCATED IN A TMDL: YES ☐ NO ☒

LAKE THUNDERBIRD TMDL: YES ☐ NO ☒

MS4 ENTITY YES ☒ NO ☐

IF YES, LOCATION: TULSA COUNTY

NOTE:
THIS SHEET SHOULD BE USED IN CONJUNCTION WITH A DRAINAGE MAP THAT ILLUSTRATES THE DRAINAGE PATTERNS/PATHWAYS AND RECEIVING WATERS FOR THIS PROJECT. THIS SHEET SHOULD ALSO BE USED WITH THE EROSION CONTROL SUMMARIES, PAY ITEMS, & NOTES.

SOIL STABILIZATION PRACTICES:

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

NOTE: TEMPORARY EROSION CONTROL METHODS MUST BE USED ON ALL DISTURBED AREAS WHERE CONSTRUCTION ACTIVITIES HAVE CEASED FOR OVER 14 DAYS. METHODS USED WILL BE AS SHOWN ON PLANS, OR AS DIRECTED BY THE ENGINEER.

STRUCTURAL PRACTICES:

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

OFFSITE VEHICLE TRACKING:

- ☒ HAUL ROADS DAMPENED FOR DUST CONTROL
- ☒ LOADED HAUL TRUCKS TO BE COVERED WITH TARPULIN
- ☒ EXCESS DIRT ON ROAD REMOVED DAILY

NOTES:

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 INCH 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 STORM WATER POLLUTION PREVENTION PLAN (SWPPP) 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) FORM AND PERMIT CERTIFICATE 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. ALL CONTRACTOR OFF-SITE OPERATIONS ASSOCIATED WITH THE PROJECT MUST BE DOCUMENTED IN THE SWPPP, I.E., BORROW PITS, WORK ROADS, DISPOSAL SITES, ASPHALT/CONCRETE PLANTS, ETC. THE BASIC GOAL OF STORM WATER 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 STORM WATER POLLUTION.

THE FOLLOWING SECTIONS OF THE 2009 ODOT STANDARD SPECIFICATIONS SHOULD BE NOTED:

- 103.05 BONDING REQUIREMENTS
- 104.10 FINAL CLEANING UP
- 104.12 CONTRACTOR'S RESPONSIBILITY FOR WORK
- 104.13 ENVIRONMENTAL PROTECTION
- 106.08 STORAGE AND HANDLING OF MATERIAL
- 107.01 LAWS, RULES AND REGULATIONS TO BE OBSERVED
- 107.20 STORM WATER MANAGEMENT
 - 220 MANAGEMENT OF EROSION, SEDIMENTATION AND STORM WATER POLLUTION PREVENTION AND CONTROL
 - 221 TEMPORARY SEDIMENT CONTROL

IN ADDITION:
"ODEQ GENERAL PERMIT (OKR10) FOR STORM WATER DISCHARGES FROM CONSTRUCTION ACTIVITIES WITHIN THE STATE OF OKLAHOMA." ODEQ, WATER QUALITY DIVISION, SEPTEMBER 13, 2017.



REVISION	BY	DATE

PLAN SCALE	DRAWN	ASB	05/20
N/A	DESIGNED	RJP	05/20
	SURVEY	N/A	N/A
PROFILE SCALE	PROJ. MGR.	UAS	1/21
HORIZONTAL:	LEAD ENGR.	BOC	1/21
N/A	FIELD MGR.	BOC	1/21
	RECOMMENDED	UAS	1-21
VERTICAL:	DESIGN MANAGER		
N/A	DRAWING:		
FILE:			
ATLAS PAGE NO.	249		

APPROVED:	
CITY ENGINEER	
DATE:	1-20-21
SHEET	23 OF 50 SHEETS

STORM WATER MANAGEMENT PLAN

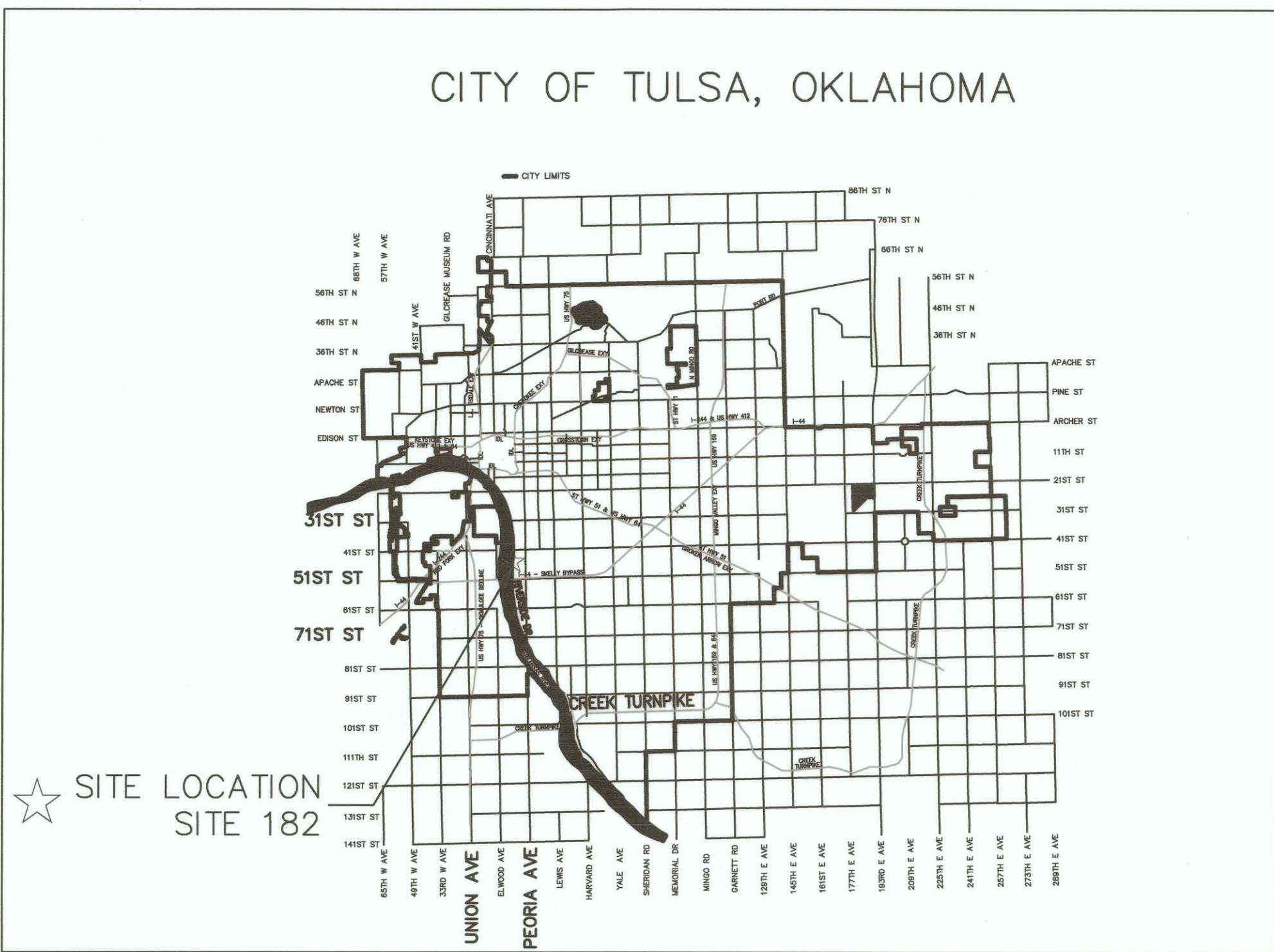
PROJECT #173120-T021-126333

DAMAGE #331113

CITY OF TULSA, OKLAHOMA
ENGINEERING SERVICES DEPARTMENT

PLANS AND ESTIMATES PREPARED BY:
Meshek & Associates, L.L.C.
1437 S. Boulder Avenue, Suite 1550 Tulsa, OK 74119 (918)392-5620

PRINT DATE: 12/17/2020 M:\City of Tulsa\17JUL03 On Call Stormwater Services-2017\TO-21-FEMA Flood Damage\Design\Working\126333\Damage_331113.dwg

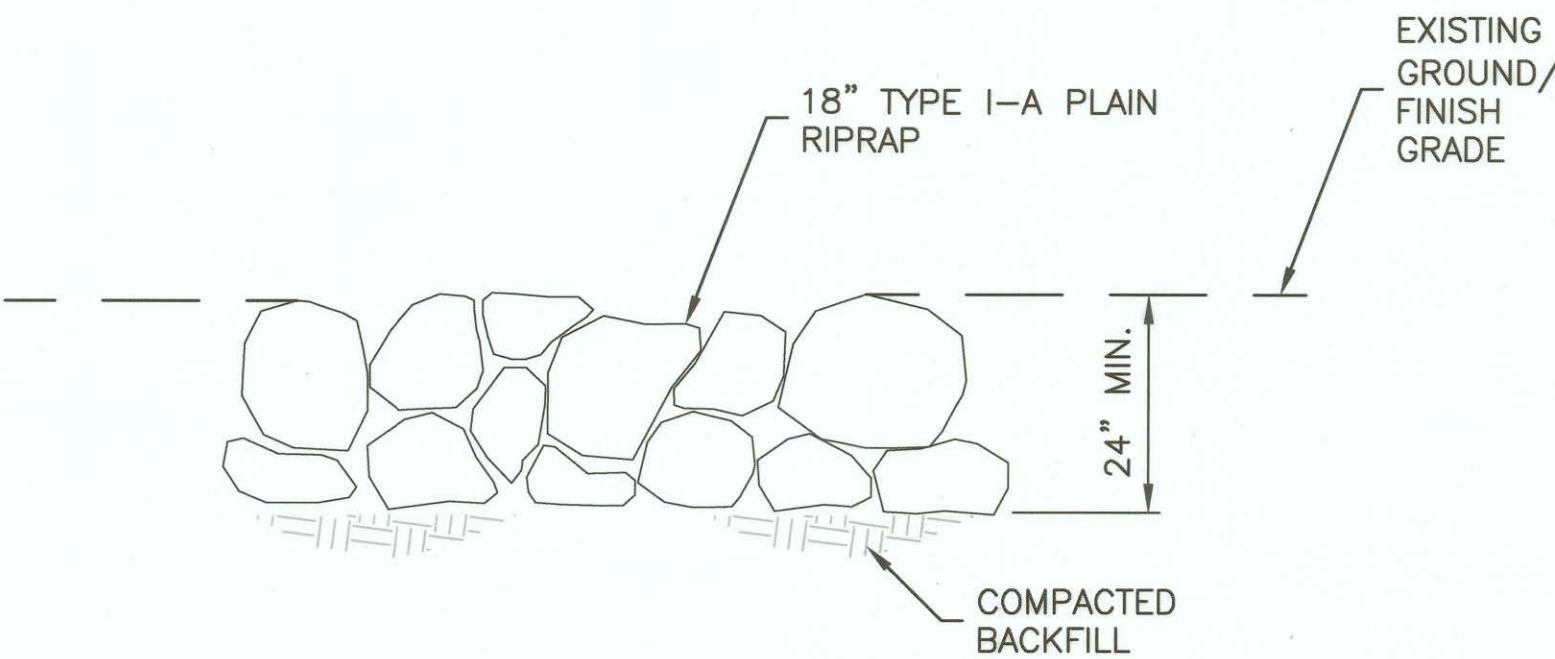


CONSTRUCTION NOTES:
SITE 182 (36.09560, -95.98500)

CULVERT, 1 EACH OF RCP END SECTION, 8 FT LONG X 42 IN WIDE, SURFACE WATER FLOODING CAUSED PIPE SEPARATION.

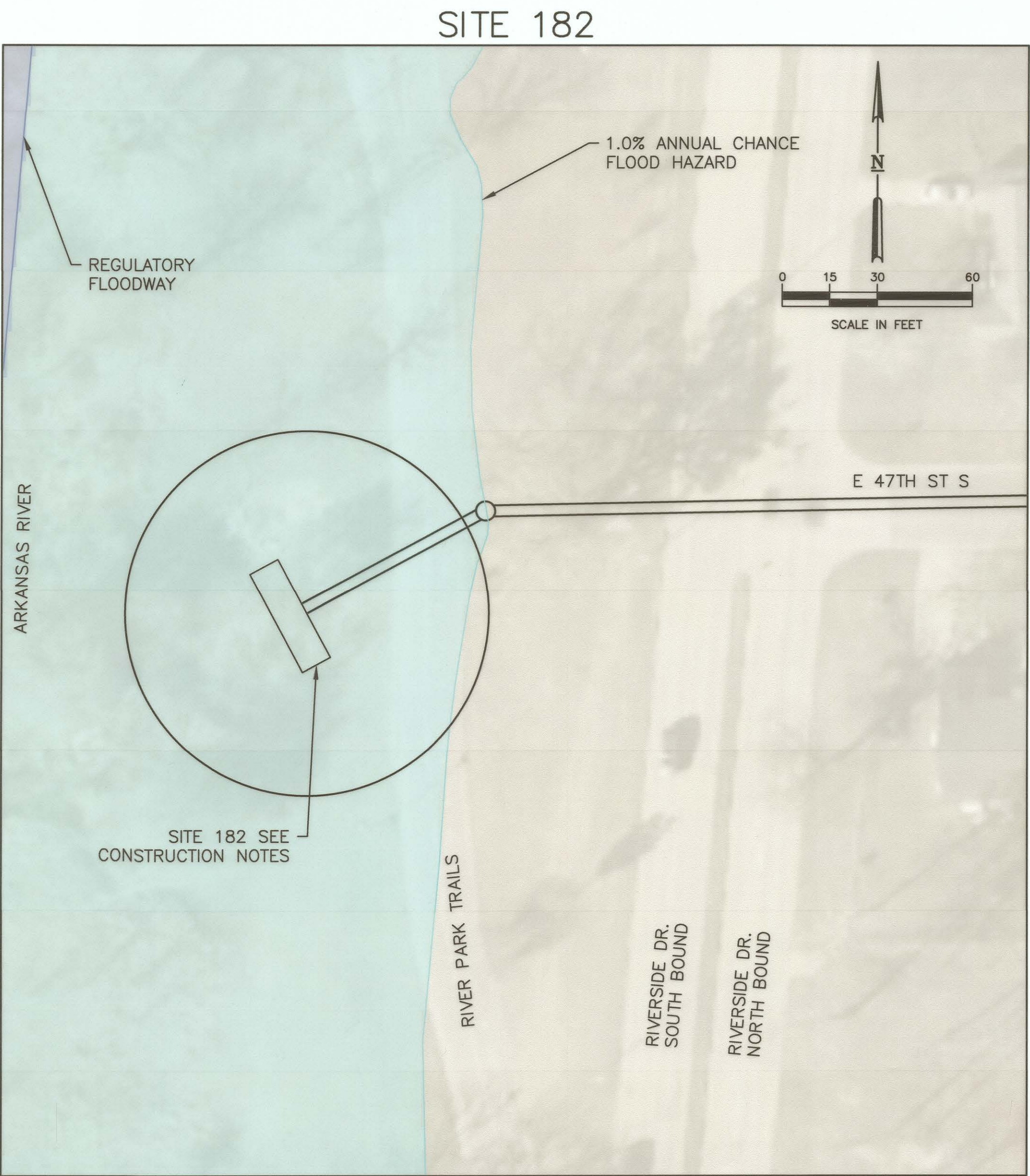
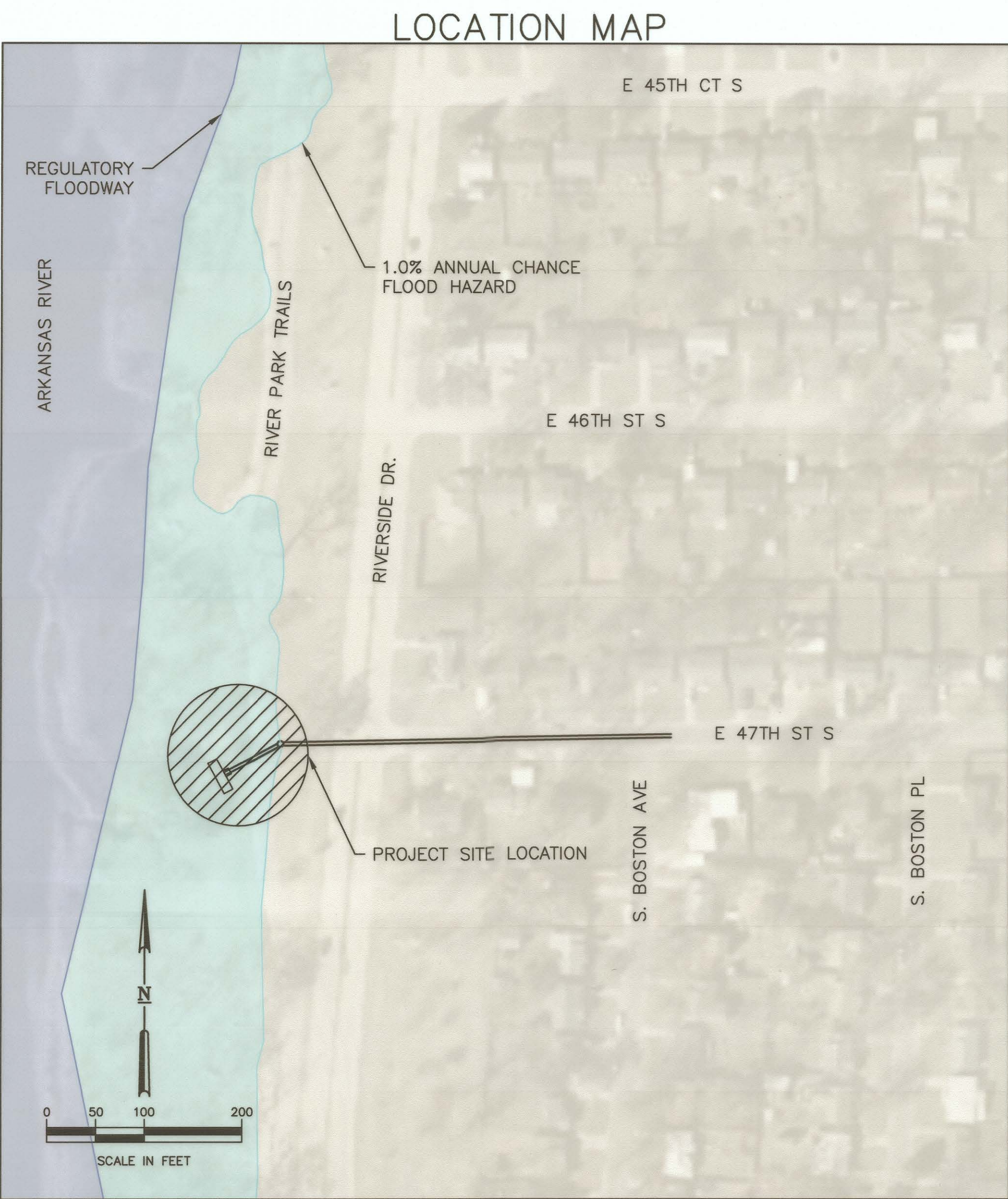
BACKFILL, 26 CY OF UNCLASSIFIED FILL, 35 FT LONG X 10 FT WIDE X 2 FT DEEP, SURFACE WATER FLOODING ERODED SOIL.

STONE, 3 CY OF RIP-RAP, 7 FT LONG X 6 FT WIDE X 2 FT DEEP, SURFACE WATER FLOODING DISPLACED STONE.



1 RIPRAP INSTALLATION
SCALE: NONE

SITE 182 - PAY QUANTITIES					
ROADWAY 0100					
ITEM		DESCRIPTION	NOTES	UNIT	QUANTITY
202(D)	0184	UNCLASSIFIED BORROW		CY	26.00
230(A)	2806	SOLID SLAB SODDING	E-10,11	SY	34.00
601(B)	0536	TYPE 1-A PLAIN RIP RAP		CY	3.00
613(L)	5738	42" PREFAB. CULVERT END SECTION, ROUND		EA	1.00



LEGEND
FEMA SITE AREA



REVISION	BY	DATE	PLAN SCALE	DRAWN	ASB	05/20	APPROVED:
			1" = 8'	DESIGNED	RJP	05/20	
				SURVEY	N/A	N/A	
			PROFILE SCALE	PROJ. MGR.	0/16	1/21	
			HORIZONTAL:	LEAD ENGR.	0/16	1/21	
			N/A	FIELD MGR.	0/16	1/21	
			VERTICAL:	RECOMMENDED	0/16	1/21	
			N/A	DESIGN MANAGER	0/16	1/21	
			FILE:	DRAWING:			
			ATLAS PAGE NO. 249				



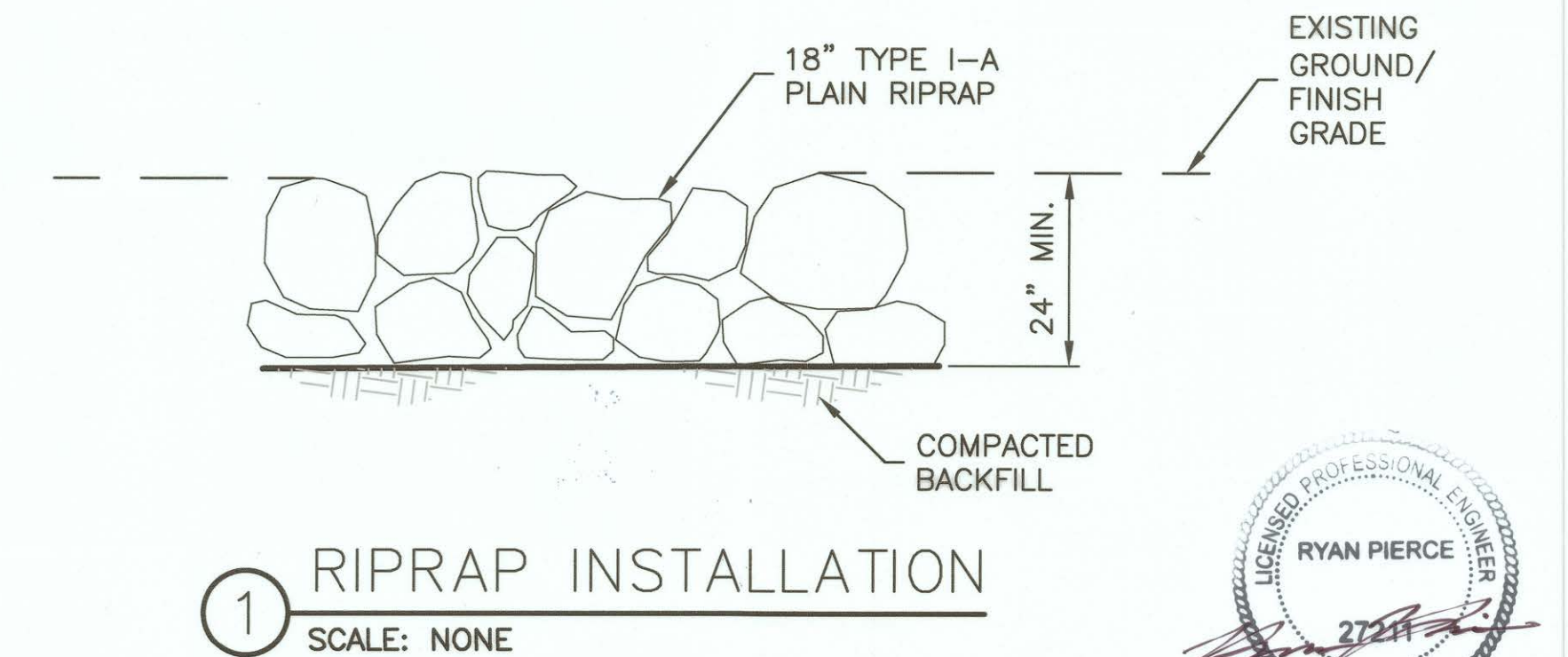
FEMA SITE 182	
PROJECT #173120-T021-126333	
DAMAGE # 331113	
CITY OF TULSA, OKLAHOMA ENGINEERING SERVICES DEPARTMENT	
PLANS AND ESTIMATES PREPARED BY: Meshek & Associates, L.L.C. 1437 S. Boulder Avenue, Suite 1550 Tulsa, OK 74119 (918)392-5620	
DATE: 1-26-21	SHEET 24 OF 50 SHEETS

[illegible]

CULVERT, 1 EACH OF RCP, 50 FT LONG X 15IN IN DIAMETER,
SURFACE WATER FLOODING CAUSED PIPE SEPARATION.

STONE, 2 CY OF RIP-RAP, 5 FT LONG X 5 FT WIDE X 2 FT
DEEP, SURFACE WATER FLOODING DISPLACED STONE.

SITE 204 - PAY QUANTITIES					
ROADWAY 0100					
ITEM		DESCRIPTION	NOTES	UNIT	QUANTITY
202(D)	0184	UNCLASSIFIED BORROW		CY	1.00
230(A)	2806	SOLID SLAB SODDING	E-10,11	SY	11.00
601(B)	0536	TYPE 1-A PLAIN RIP RAP		CY	2.00
613(A)	0403	15" R.C.PIPES CLASS III (COMPLETE IN PLACE)	D-8,12,13 1	LF	50.00
SPECIAL		TYPE 1-A RIP PATCH (NON-ARTERIAL)	S-21	SY	12.00



ARKANSAS RIVER

REGULATORY FLOODWAY

RIVER PARK TRAILS

RIVERSIDE DR.

E 46TH ST S

E 47TH ST S

S. BOSTON AVE

S. BOSTON PL

1.0% ANNUAL CHANCE FLOOD HAZARD

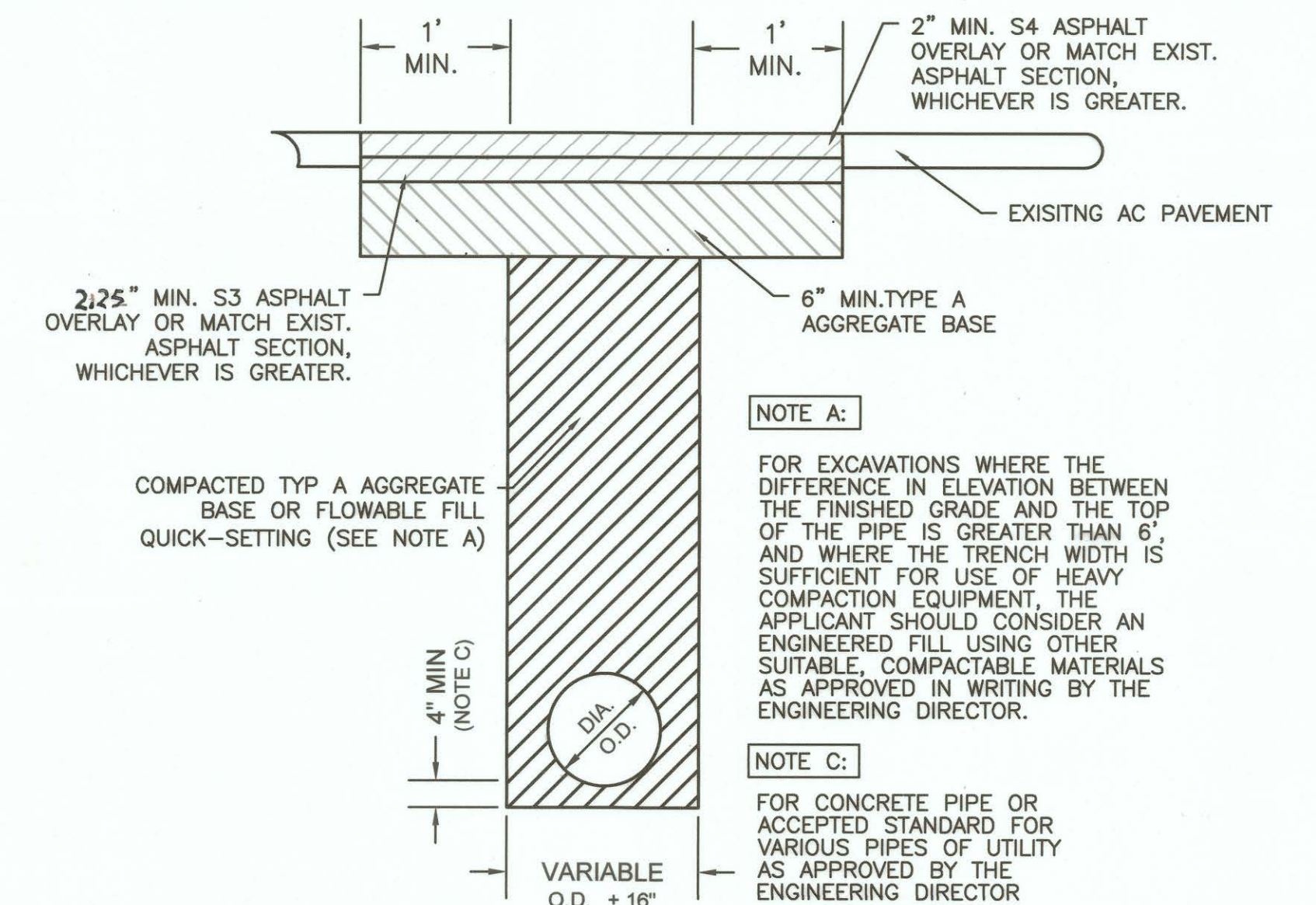
PROJECT SITE LOCATION

0 100 200 300

SCALE IN FEET

N

The site plan shows Riverside Drive running horizontally across the middle. To the left is the Arkansas River, and to the right is River Park Trails. A regulatory floodway is indicated by a dashed line. A 1.0% annual chance flood hazard is shown in a light blue area. A circular inset provides a detailed view of the proposed improvements, showing a section of the road with Type I PCC and SOD (Typ) materials. A north arrow and a scale bar (0 to 60 feet) are located in the upper right corner. A label 'SITE 204 SEE CONSTRUCTION NOTES' points to a specific location on the road. The plan also shows the south and north bounds of Riverside Drive.



LEGEND

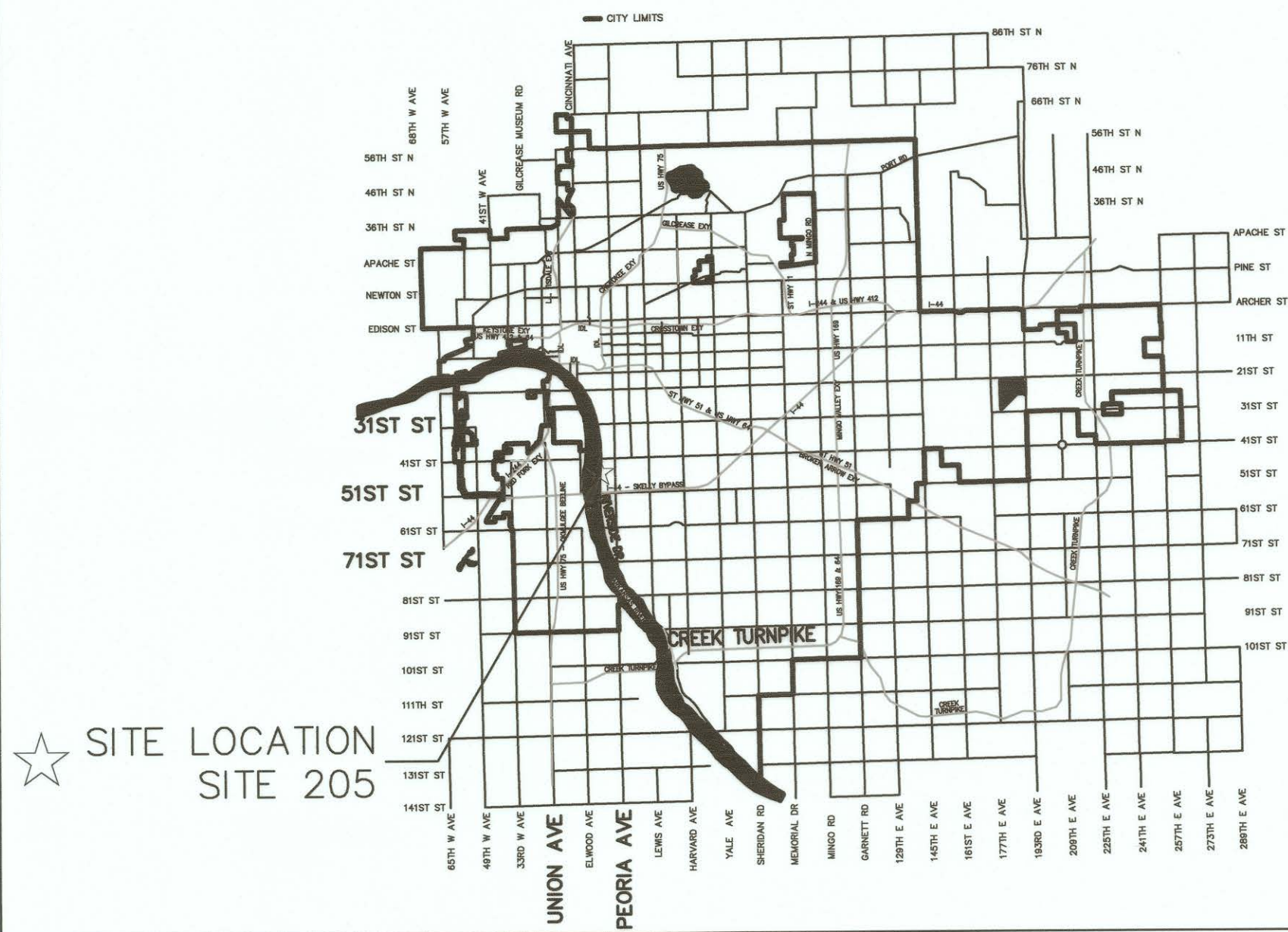
 FEMA SITE AREA



REVISION		BY	DATE	1437 S. Boulder Avenue, Suite 1550 Tulsa, OK 74119 (918)392-3620		
	PLAN SCALE			DRAWN	ASB	05/20
				DESIGNED	RJP	05/20
	1" = ##'			SURVEY	N/A	N/A
	PROFILE SCALE			PROJ. MGR.	1/21	1/21
	HORIZONTAL:			LEAD ENGR.	1/21	1/21
	N/A			FIELD MGR.	1/21	1/21
	VERTICAL:			RECOMMENDED	1/21	1/21
	N/A			DESIGN MANAGER	1/21	1/21
	FILE:			DRAWING:		
	ATLAS PAGE NO.		249			
				APPROVED:		
				CITY ENGINEER		
				DATE:		1-08-21
				SHEET		25 OF 50 SHEETS

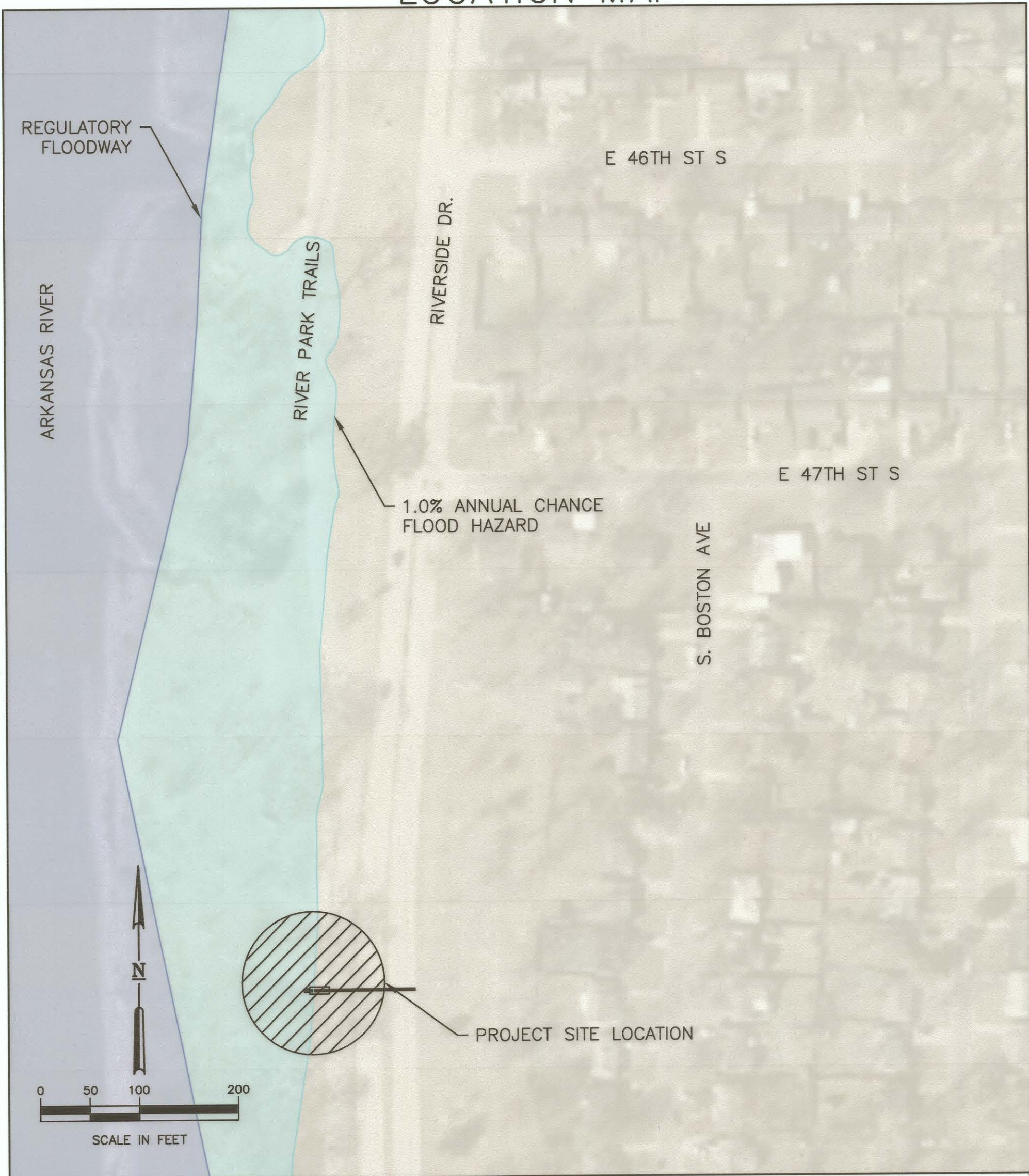
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CITY OF TULSA, OKLAHOMA

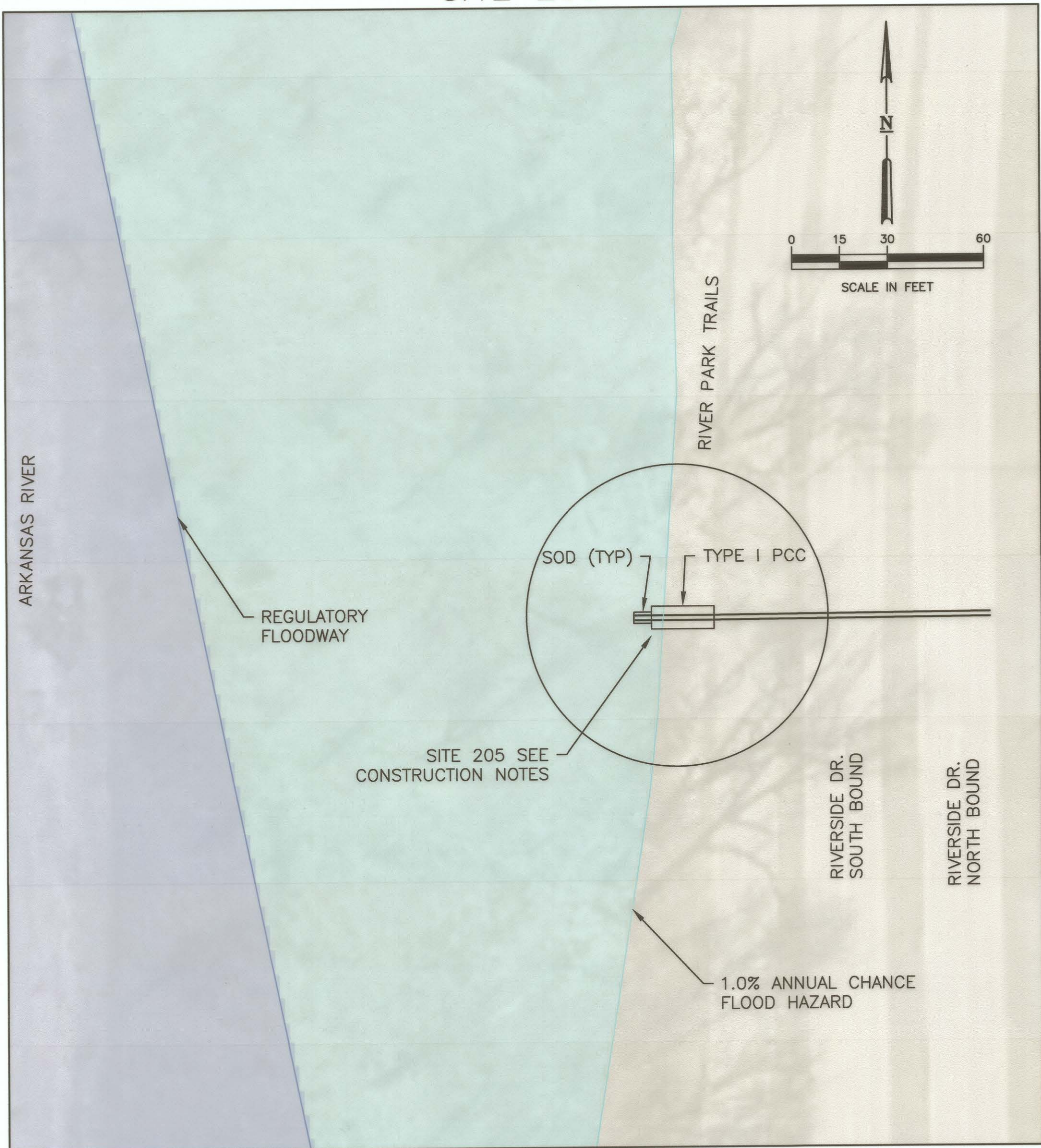


★ SITE LOCATION
SITE 205

LOCATION MAP



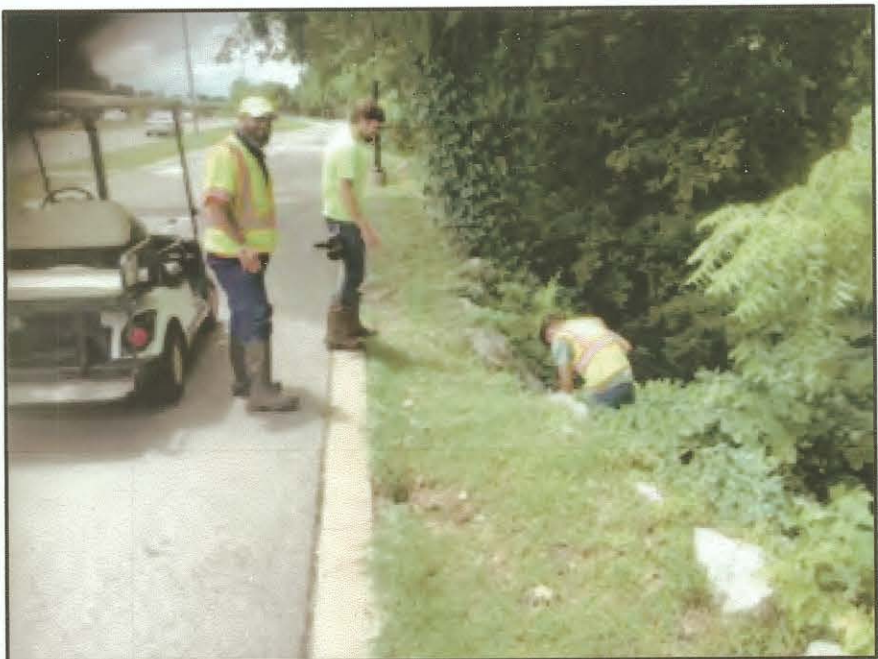
SITE 205



SITE PHOTO



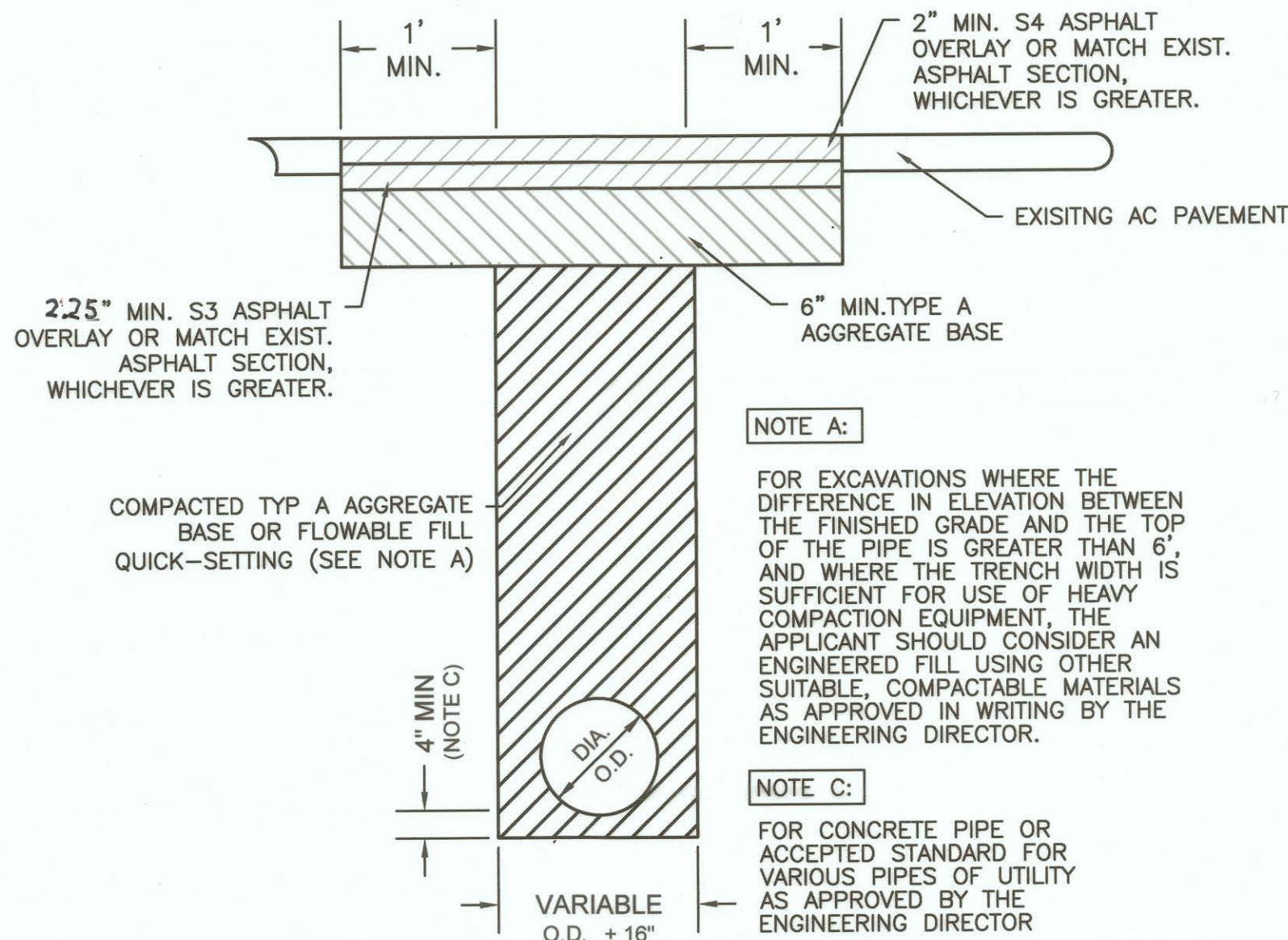
SITE PHOTO



CONSTRUCTION NOTES:
SITE 205 (36.09430, -95.98490)

CULVERT, 1 EACH OF RCP, 25 FT LONG X
15IN IN DIAMETER, SURFACE WATER
FLOODING CAUSED PIPE SEPARATION.

SITE 205 - PAY QUANTITIES					
ROADWAY 0100					
ITEM		DESCRIPTION	NOTES	UNIT	QUANTITY
230)(A)	2806	SOLID SLAB SODDING	E-10,11	SY	3.00
613(A)	0403	15" R.C.PIPE CLASS III (COMPLETE IN PLACE)	D-8,12,13 1	LF	25.00
SPECIAL		TYPE I APC PATCH (NON-ARTERIAL)	S-21	SY	16.00



① TYPE I APC CUT AND REPAIR (NON-ARTERIAL)
SCALE: NONE

LEGEND

███ FEMA SITE AREA



FEMA SITE 205

PROJECT #173120-T021-126333

DAMAGE # 331113

CITY OF TULSA, OKLAHOMA
ENGINEERING SERVICES DEPARTMENT

PLANS AND ESTIMATES PREPARED BY:
Meshek & Associates, L.L.C.
1437 S. Boulder Avenue, Suite 1550 Tulsa, OK 74119 (918)392-5620

REVISION	BY	DATE	PLAN SCALE	DRAWN	ASB	05/20	APPROVED:
			1" = ##'	DESIGNED	RJP	05/20	
				SURVEY	N/A	N/A	
			PROFILE SCALE:	PROJ. MGR.	1/16/21		
			HORIZONTAL:	LEAD ENGR.	06/11/21		
			N/A	FIELD MGR.	06/11/21		
			VERTICAL:	RECOMMENDED	HAS 1-21		
			N/A	DESIGN MANAGER			
			FILE:	DRAWING:			
			ATLAS PAGE NO. 249				

CITY ENGINEER
DATE: 1-28-21
SHEET 26 OF 50 SHEETS



CITY OF TULSA, OKLAHOMA

CONSTRUCTION NOTES:

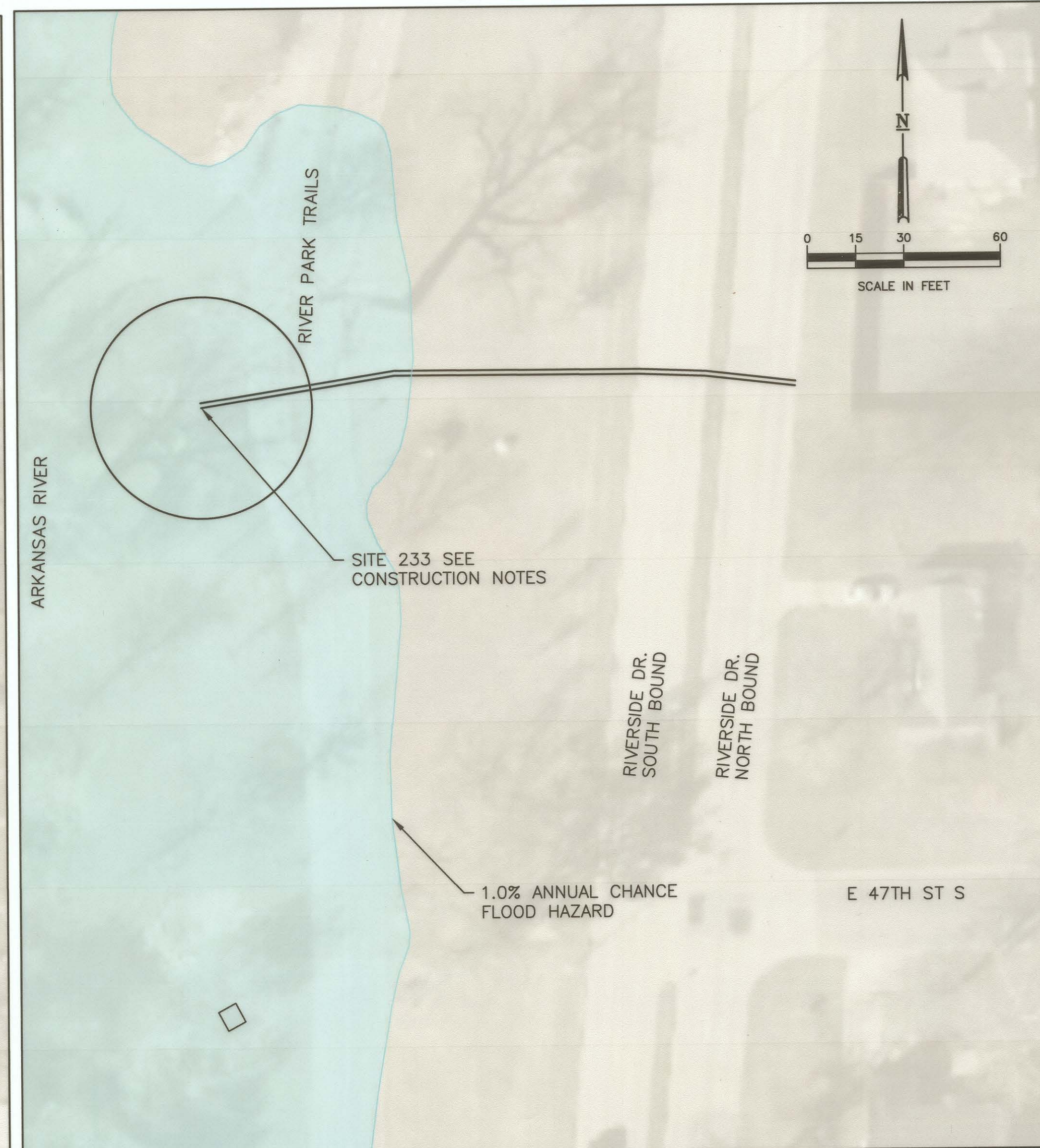
SITE 233 (36.09610, -95.98500)

CULVERT, 2 CY OF SEDIMENT REMOVAL INSIDE RCP
(DEBRIS IN PIPE - NO PIPE DAMAGE), 60 FT LONG
X 1 FT WIDE X 1 FT DEEP, SURFACE WATER
FLOODING DEPOSITED DEBRIS IN PIPE.

SITE 233 - PAY QUANTITIES					
ROADWAY 0100					
ITEM		DESCRIPTION	NOTES	UNIT	QUANTITY
221(I)	0525	REMOVAL OF SEDIMENT		CY	2.00

SCOPE NOTE:

1. EXTRACTED SILT THAT CANNOT BE REUSED ON SITE WILL BE DISPOSED AT THE C & D LANDFILL LOCATED AT 13012 OK HWY 266, TULSA, OK 74146, WITH THE GPS COORDINATE 36.219536, -95.830182 (SOLID WASTE PERMIT NO. 3572042). IF THE SILT DESTINATION CHANGES, THE APPLICANT MUST NOTIFY FEMA AND THE RECIPIENT PRIOR TO DELIVERING TO THE NEW LOCATION.



SITE PHOTO



SITE PHOTO



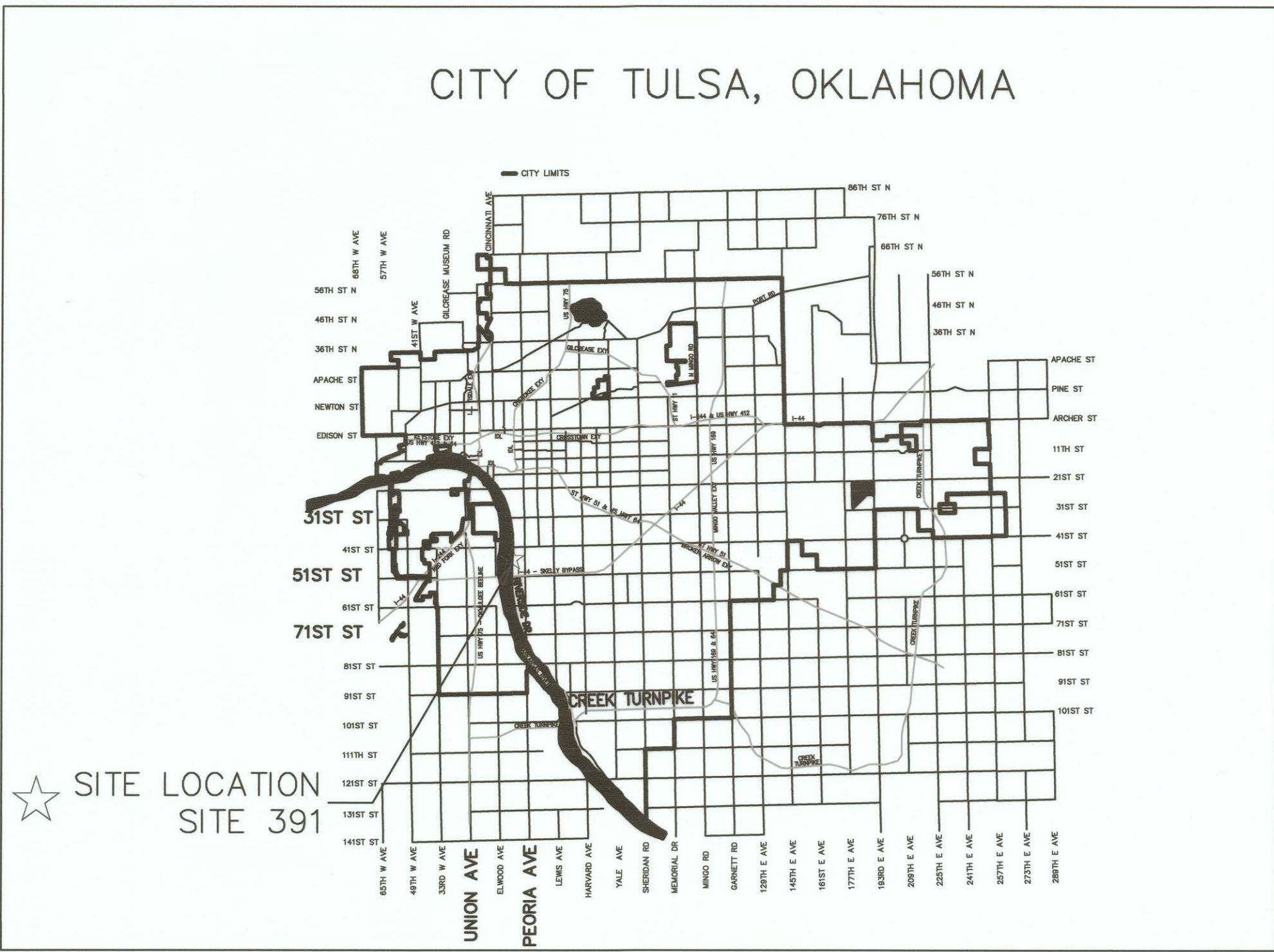
LEGEND



FEMA SITE AREA

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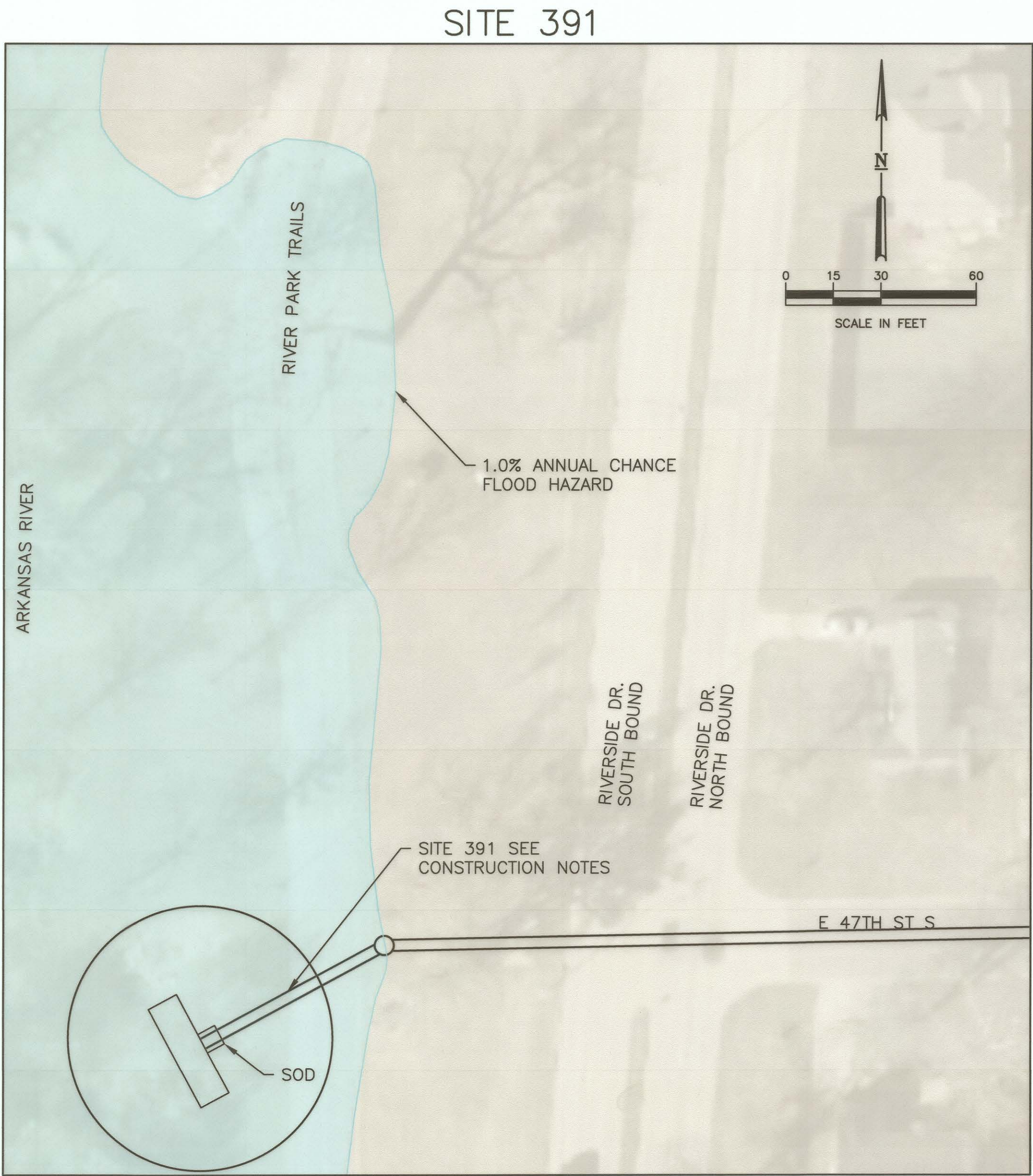
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CONSTRUCTION NOTES:
SITE 391 (36.09560, -95.98490)

CULVERT, 1 EACH OF RCP END SECTION, 6 FT LONG X 42IN IN DIAMETER,
SURFACE WATER FLOODING CAUSED PIPE SEPARATION.

SITE 391 - PAY QUANTITIES					
ROADWAY 0100					
ITEM		DESCRIPTION	NOTES	UNIT	QUANTITY
230(A)	2806	SOLID SLAB SODDING	E-10,11	SY	5.00
613(A)	0496	42" R.C.Pipe CLASS III (COMPLETE IN PLACE)	D-8,12,13 1	LF	6.00
613(L)	5738	42" PREFAB. CULVERT END SECTION, ROUND		EA	1.00



LEGEND

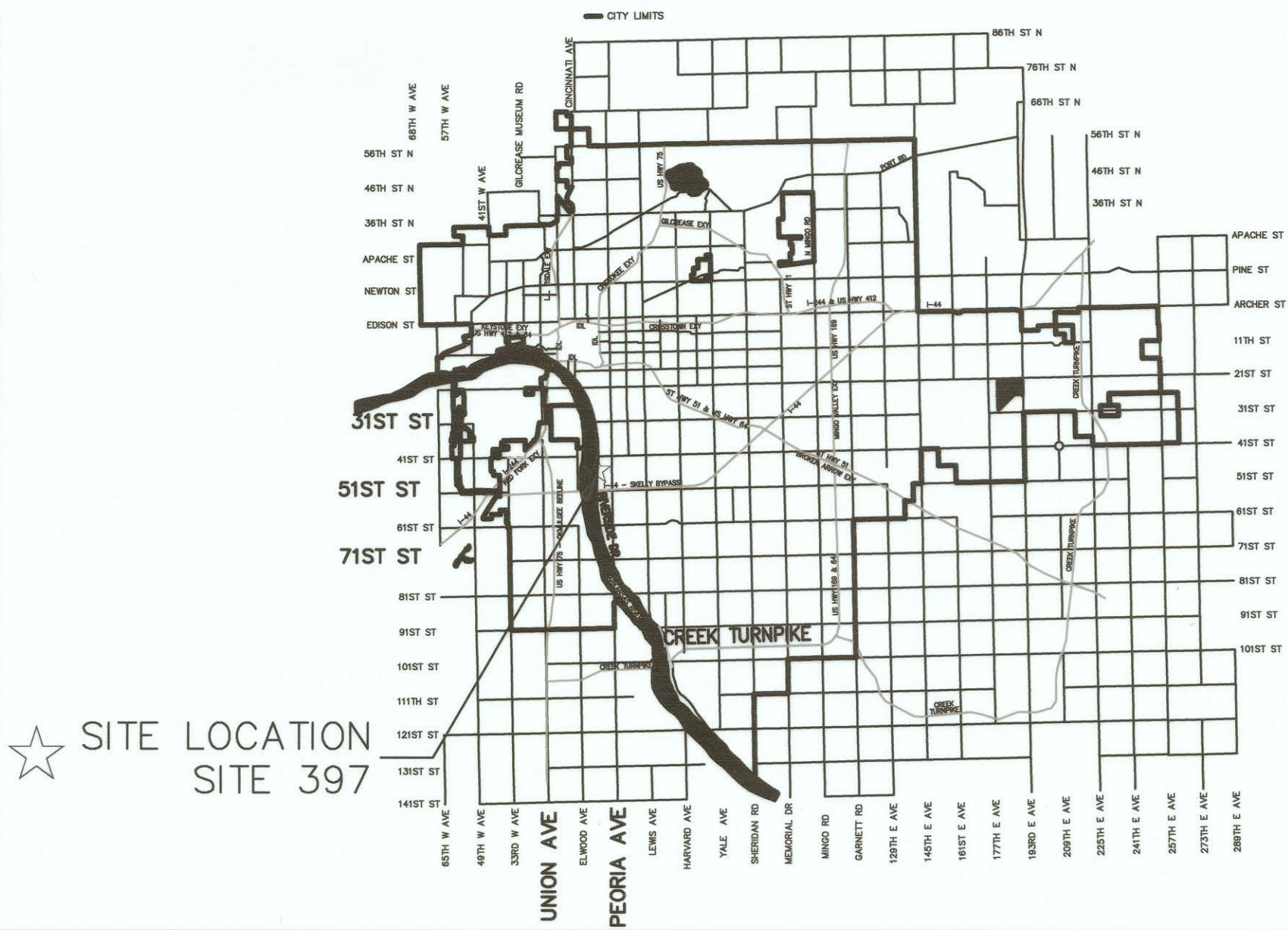
███ FEMA SITE AREA



FEMA SITE 391									
PROJECT #173120-T021-126333									
DAMAGE # 331113									
CITY OF TULSA, OKLAHOMA ENGINEERING SERVICES DEPARTMENT									
PLANS AND ESTIMATES PREPARED BY: Meshek & Associates, L.L.C. 1437 S. Boulder Avenue, Suite 1550 Tulsa, OK 74119 (918)392-5620									
REVISION		BY		DATE		PLAN SCALE		DRAWN	
						1" = 80'		ASB	
						DESIGNED		RJP	
						SURVEY		N/A	
						PROFILE SCALE		PROJ. MGR.	
						HORIZONTAL:		LEAD ENGR.	
						VERTICAL:		RECOMMENDED	
						FILE:		DESIGN MANAGER	
						DRAWING:		DATE: 1-20-21	
						ATLAS PAGE NO. 249		SHEET 28 OF 50 SHEETS	

PRINT DATE: 12/17/2020 M:\City of Tulsa\17JUL03 On Call Stormwater Services-2017\TO_21_FEMA Flood Damage\Design\Working\126333\Damage_331113.dwg

CITY OF TULSA, OKLAHOMA



CONSTRUCTION NOTES:

SITE 397 (36.09570, -95.98420)

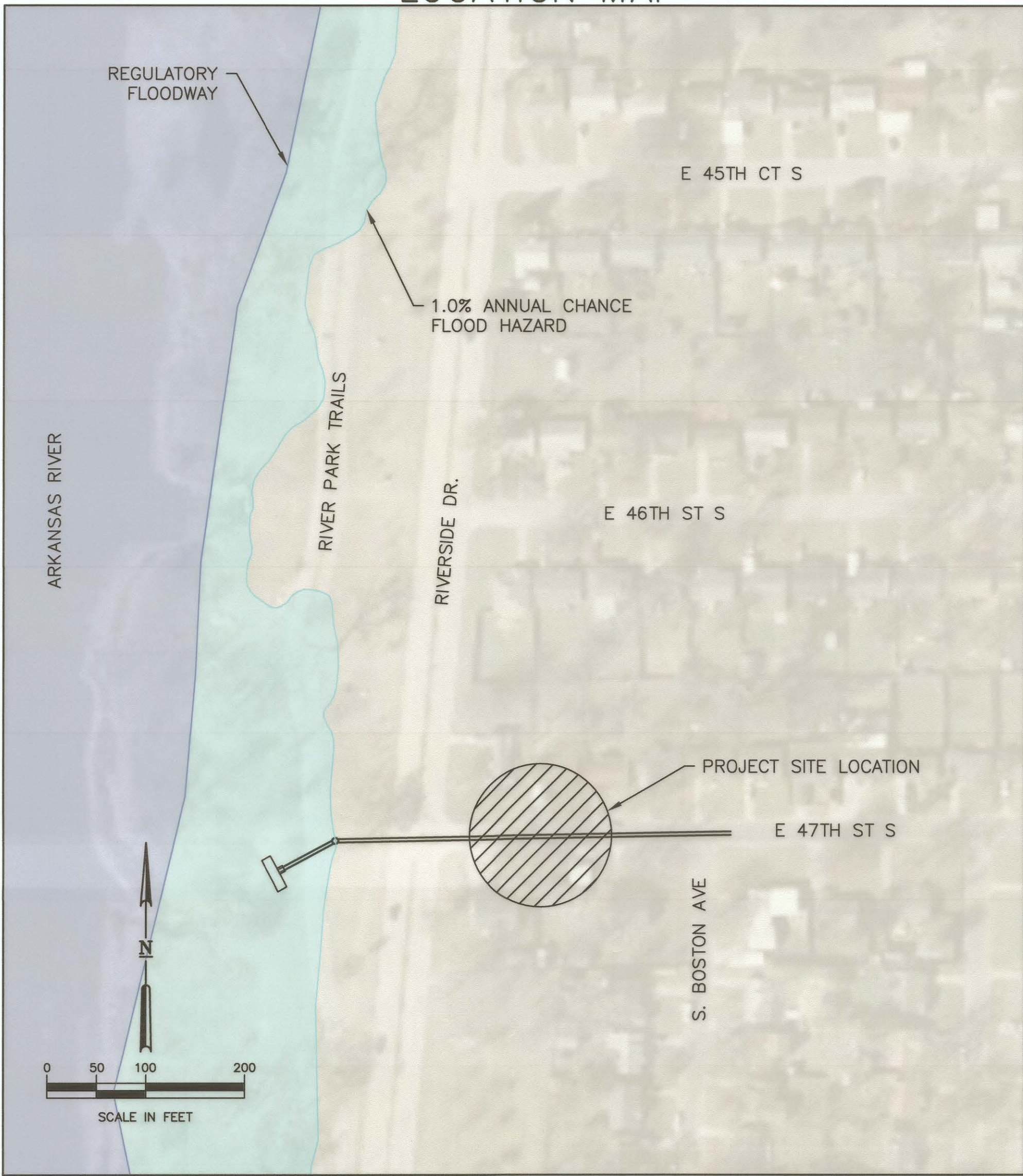
CULVERT, 4 CY OF SEDIMENT REMOVAL INSIDE RCP, 100 FT LONG X 2 FT WIDE X 6 IN DEEP, SURFACE WATER FLOODING DEPOSITED DEBRIS IN PIPE.

SITE 397 - PAY QUANTITIES					
ROADWAY 0100					
ITEM		DESCRIPTION	NOTES	UNIT	QUANTITY
221(l)	0525	REMOVAL OF SEDIMENT		CY	4.00

SCOPE NOTE:

1. EXTRACTED SILT THAT CANNOT BE REUSED ON SITE WILL BE DISPOSED AT THE C & D LANDFILL LOCATED AT 13012 OK HWY 266, TULSA, OK 74146, WITH THE GPS COORDINATE 36.219536,-95.830182 (SOLID WASTE PERMIT NO. 3572042). IF THE SILT DESTINATION CHANGES, THE APPLICANT MUST NOTIFY FEMA AND THE RECIPIENT PRIOR TO DELIVERING TO THE NEW LOCATION.

LOCATION MAP



SITE 397



LEGEND

██████ FEMA SITE AREA



FEMA SITE 397			
PROJECT #173120-T021-126333			
DAMAGE # 331113			
CITY OF TULSA, OKLAHOMA ENGINEERING SERVICES DEPARTMENT			
PLANS AND ESTIMATES PREPARED BY: Meshek & Associates, L.L.C. 1437 S. Boulder Avenue, Suite 1550 Tulsa, OK 74119 (918)392-5620			
REVISION	BY	DATE	APPROVED:
PLAN SCALE	DRAWN	ASB 05/20	 CITY ENGINEER DATE: 1-08-21 SHEET 29 OF 50 SHEETS
1" = ##'	DESIGNED	RJP 05/20	
PROFILE SCALE	SURVEY	N/A N/A	
HORIZONTAL:	PROJ. MGR.	1/16 1/21	
N/A	LEAD ENGR.	BOB 1/21	
VERTICAL:	FIELD MGR.	BOB 1/21	
N/A	RECOMMENDED	HAS 1-21	
FILE:	DESIGN MANAGER		
ATLAS PAGE NO. 249	DRAWING:		

STORM WATER MANAGEMENT PLAN

SITE DESCRIPTION

EROSION AND SEDIMENT CONTROLS

PROJECT LIMITS: DAMAGE INVENTORY #331114 SITES ALONG THE EAST SIDE OF THE ARKANSAS RIVER INCLUDING: SITE 185, SITE 234, AND SITE 416. ALL APPROXIMATELY LOCATED IN THE SE/4 OF SECTION 24 OF OK T19N R 12 E. WITHIN THE CITY LIMITS OF TULSA, OKLAHOMA.

PROJECT DESCRIPTION: SITE 185: EROSION CONTROL
SITE 234: REPLACE PIPE
SITE 416: EROSION CONTROL, REPLACE PIPE AND CULVERT END SECTION

SUGGESTED SEQUENCE OF EROSION CONTROL ACTIVITIES:
1. TEMPORARY EROSION CONTROL.
2. PERMANENT EROSION CONTROL.

SOIL TYPE: VERY FINE SANDY LOAM, SILT LOAM, STRATIFIED
LOAMY FINE SAND, SILTY CLAY LOAM, VARIABLE

TOTAL AREA OF THE CONSTRUCTION SITE: LESS THAN 1 ACRE COMBINED

ESTIMATED AREA TO BE DISTURBED: LESS THAN 1 ACRE COMBINED

OFFSITE AREA TO BE DISTURBED: (FOR CONTRACTOR USE)

TOTAL IMPERVIOUS AREA PRE-CONSTRUCTION: 0.002 ACRES

TOTAL IMPERVIOUS AREA POST-CONSTRUCTION: 0.002 ACRES

POST-CONSTRUCTION RUNOFF COEFFICIENT OF THE SITE: X.X

LATITUDE & LONGITUDE OF CENTER OF PROJECT: N36° 05' 29.4", W95° 59' 06.0"
N36° 05' 31.6", W95° 59' 06.0"
N36° 05' 34.8", W95° 59' 06.0"

PROJECT WILL DISCHARGE TO:

NAME OF RECEIVING WATERS: ARKANSAS RIVER

SENSITIVE WATERS OR WATERSHEDS: YES NO X

303 IMPAIRED WATERS: YES X NO

IF YES, LIST IMPAIRMENT: CADMIUM

LOCATED IN A TMDL: YES NO X

LAKE THUNDERBIRD TMDL: YES NO X

MS4 ENTITY YES X NO

IF YES, LOCATION: TULSA COUNTY

NOTE:
THIS SHEET SHOULD BE USED IN CONJUNCTION WITH A DRAINAGE MAP THAT ILLUSTRATES THE DRAINAGE PATTERNS/PATHWAYS AND RECEIVING WATERS FOR THIS PROJECT. THIS SHEET SHOULD ALSO BE USED WITH THE EROSION CONTROL SUMMARIES, PAY ITEMS, & NOTES.

SOIL STABILIZATION PRACTICES:

- X 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 14 DAYS. METHODS USED WILL BE AS SHOWN ON PLANS, OR AS DIRECTED BY THE ENGINEER.

STRUCTURAL PRACTICES:

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

OFFSITE VEHICLE TRACKING:

- X HAUL ROADS DAMPENED FOR DUST CONTROL
- X LOADED HAUL TRUCKS TO BE COVERED WITH TARPULIN
- X EXCESS DIRT ON ROAD REMOVED DAILY

NOTES:

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 INCH 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 STORM WATER POLLUTION PREVENTION PLAN (SWPPP) 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) FORM AND PERMIT CERTIFICATE 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. ALL CONTRACTOR OFF-SITE OPERATIONS ASSOCIATED WITH THE PROJECT MUST BE DOCUMENTED IN THE SWPPP, I.E., BORROW PITS, WORK ROADS, DISPOSAL SITES, ASPHALT/CONCRETE PLANTS, ETC. THE BASIC GOAL OF STORM WATER 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 STORM WATER POLLUTION.

- THE FOLLOWING SECTIONS OF THE 2009 ODOT STANDARD SPECIFICATIONS SHOULD BE NOTED:
- 103.05 BONDING REQUIREMENTS
 - 104.10 FINAL CLEANING UP
 - 104.12 CONTRACTOR'S RESPONSIBILITY FOR WORK
 - 104.13 ENVIRONMENTAL PROTECTION
 - 106.08 STORAGE AND HANDLING OF MATERIAL
 - 107.01 LAWS, RULES AND REGULATIONS TO BE OBSERVED
 - 107.20 STORM WATER MANAGEMENT
 - 220 MANAGEMENT OF EROSION, SEDIMENTATION AND STORM WATER POLLUTION PREVENTION AND CONTROL
 - 221 TEMPORARY SEDIMENT CONTROL

IN ADDITION:
"ODEQ GENERAL PERMIT (OKR10) FOR STORM WATER DISCHARGES FROM CONSTRUCTION ACTIVITIES WITHIN THE STATE OF OKLAHOMA." ODEQ, WATER QUALITY DIVISION, SEPTEMBER 13, 2017.



REVISION	BY	DATE	PLAN SCALE	DRAWN	ASB	05/20	APPROVED:
			N/A	DESIGNED	RJP	05/20	
				SURVEY	N/A	N/A	
			PROFILE SCALE	PROJ. MGR.	LAK	1/21	
			HORIZONTAL:	LEAD ENGR.	Has	1/21	
			N/A	FIELD MGR.	Has	1/21	
			VERTICAL:	RECOMMENDED	Has	1/21	
			N/A	DESIGN MANAGER			
			FILE:	DRAWING:			
			ATLAS PAGE NO.	249			

STORM WATER MANAGEMENT PLAN

PROJECT #173120-T021-126333

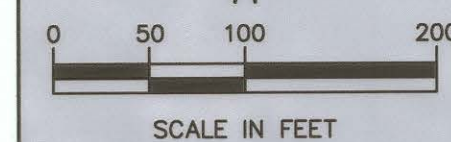
DAMAGE #331114

CITY OF TULSA, OKLAHOMA
ENGINEERING SERVICES DEPARTMENT

PLANS AND ESTIMATES PREPARED BY:
Meshek & Associates, L.L.C.
1437 S. Boulder Avenue, Suite 1550 Tulsa, OK 74119 (918)392-5620

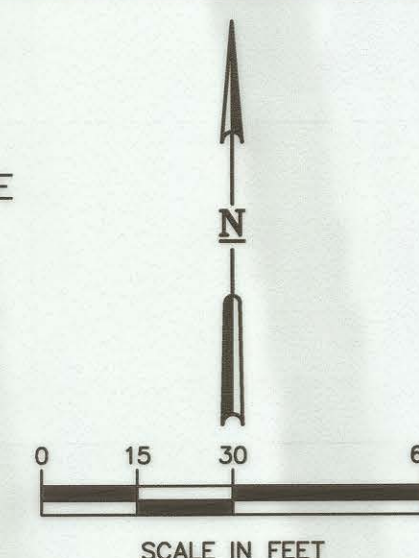
APPROVED:

CITY ENGINEER
DATE: 1-08-21
SHEET 30 OF 50 SHEETS



BACKFILL, 519 CY OF UNCLASSIFIED FILL,
70 FT LONG, 50 FT WIDE, 4 FT DEEP,
SURFACE WATER FLOODING ERODED SOIL.

SITE 185 - PAY QUANTITIES					
ROADWAY 0100					
ITEM		DESCRIPTION	NOTES	UNIT	QUANTITY
202(D)	0184	UNCLASSIFIED BORROW		CY	519.0

 FEMA SITE AREA[illegible]

FEMA SITE 185

PROJECT #173120-T021-126333

DAMAGE # 331114

CITY OF TULSA, OKLAHOMA
ENGINEERING SERVICES DEPARTMENT

PLANS AND ESTIMATES PREPARED BY:
Meshek & Associates, L.L.C.
4437 S. Boulder Avenue, Suite 1550 Tulsa, OK 74110 (918)392-1111

1437 S. Boulder Avenue, Suite 1550 Tulsa, OK 74119 (918)392-5620

E	PLAN SCALE 1" = ##'	DRAWN	ASB	05/20	APPROVED:	
		DESIGNED	RJP	05/20		
		SURVEY	N/A	N/A		

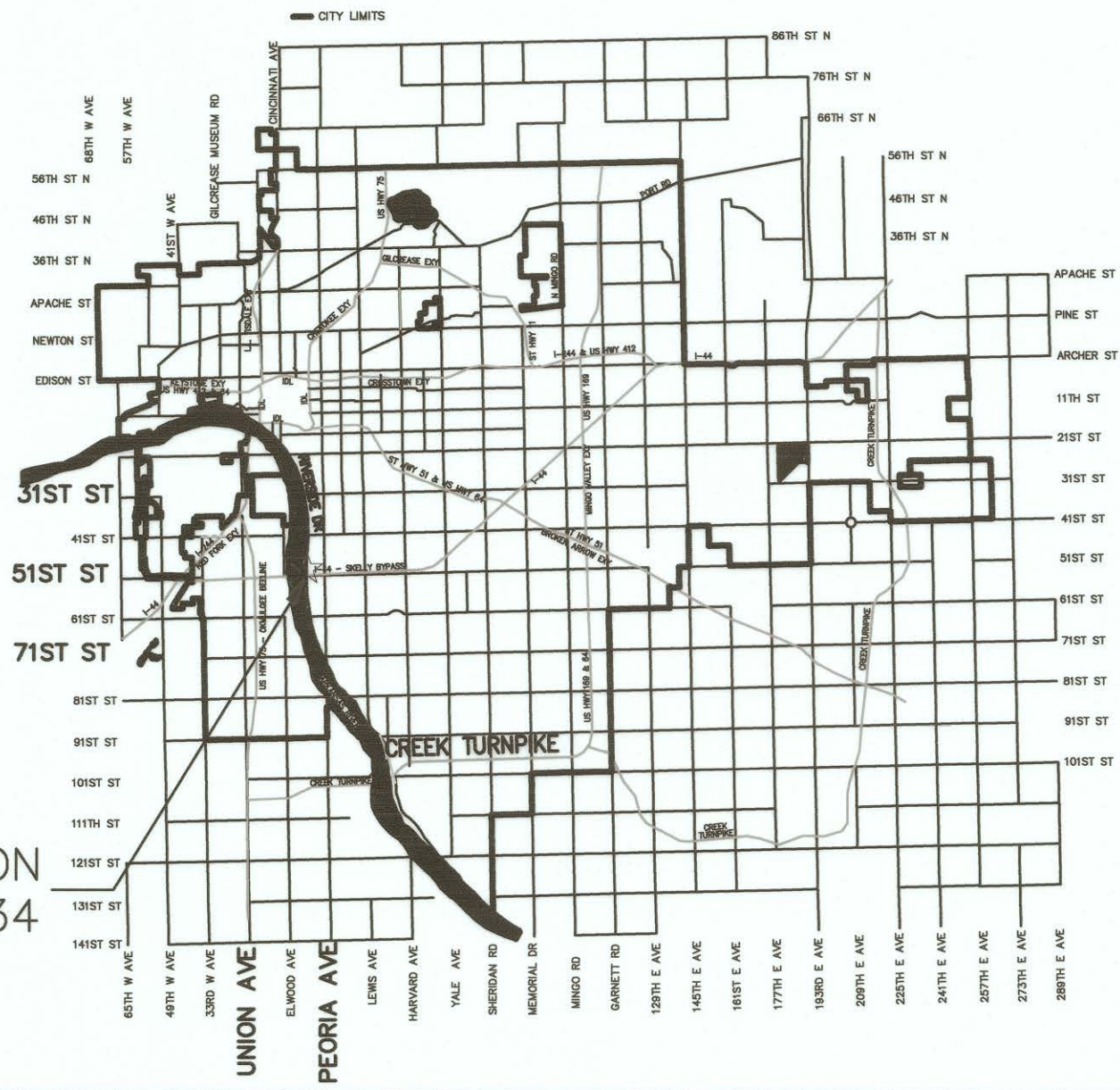
PROFILE SCALE	PROJ. MGR.	1/21
HORIZONTAL:	LEAD ENGR.	1/21
N/A	FIELD MGR.	1/21

VERTICAL:	FIELD NO. <u>2201172</u>	
N/A	RECOMMENDED <u>HAS 1-21</u>	
FILE:	DESIGN MANAGER	CITY ENGINEER
	DRAWING:	DATE: <u>1-22-21</u>

FILE:	DRAWING:	DATE: 1-08-21
ATLAS PAGE NO. 249	SHEET 31 OF 50 SHEETS	

PRINT DATE: 12/17/2020 M:\City of Tulsa\171UL03 On Call Stormwater Services_2017\TO_21_FEMA Flood Damage\Design\Working\126333\ DAMAGE_331114.dwg

CITY OF TULSA, OKLAHOMA



☆ SITE LOCATION
SITE 234

CONSTRUCTION NOTES:
SITE 234 (36.09210, -95.98500)

CULVERT, 1 EACH OF RCP, 20 FT LONG,
15IN IN DIAMETER, SURFACE WATER
FLOODING CAUSED PIPE SEPARATIONS.

SITE PHOTO



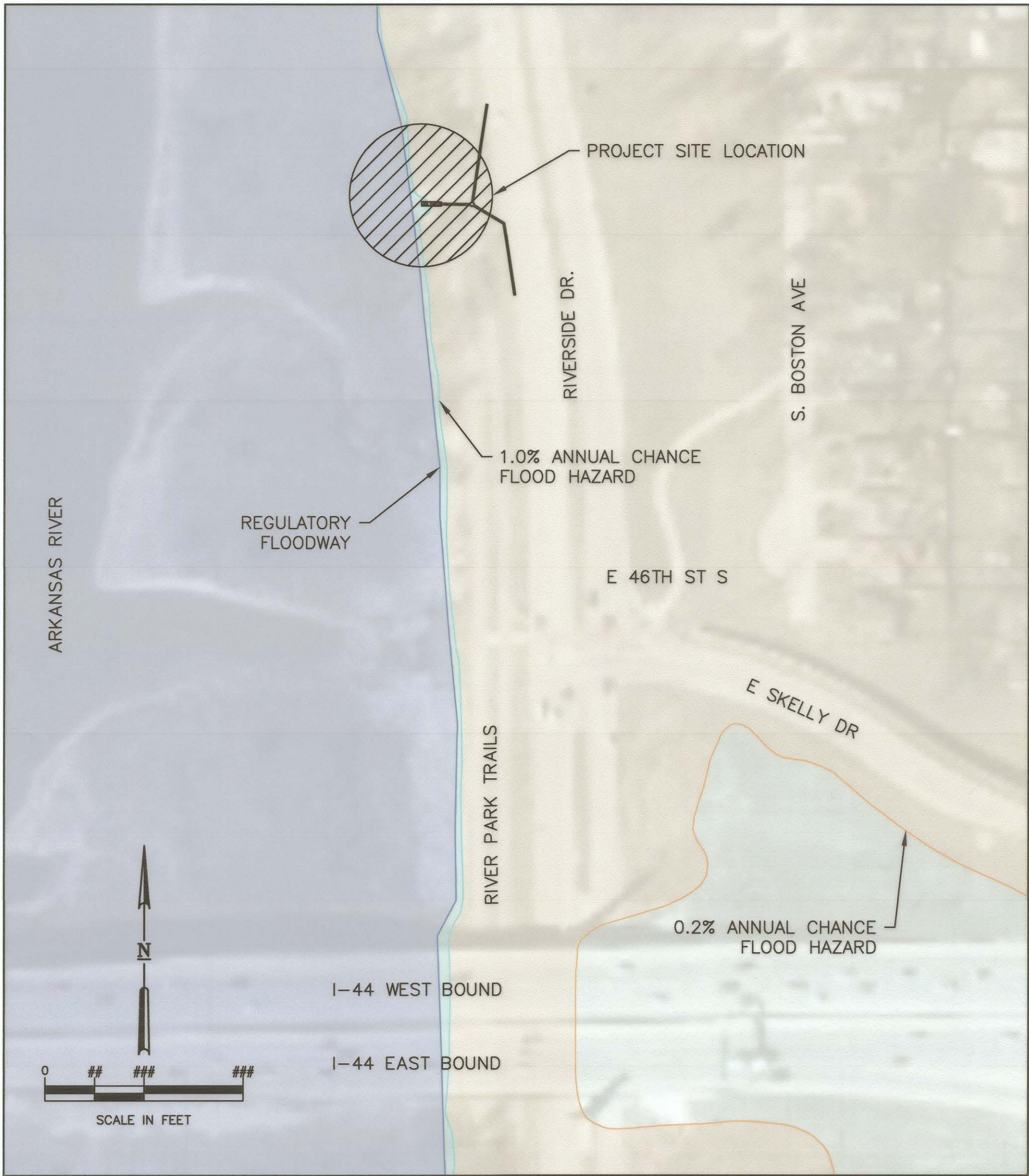
SITE PHOTO



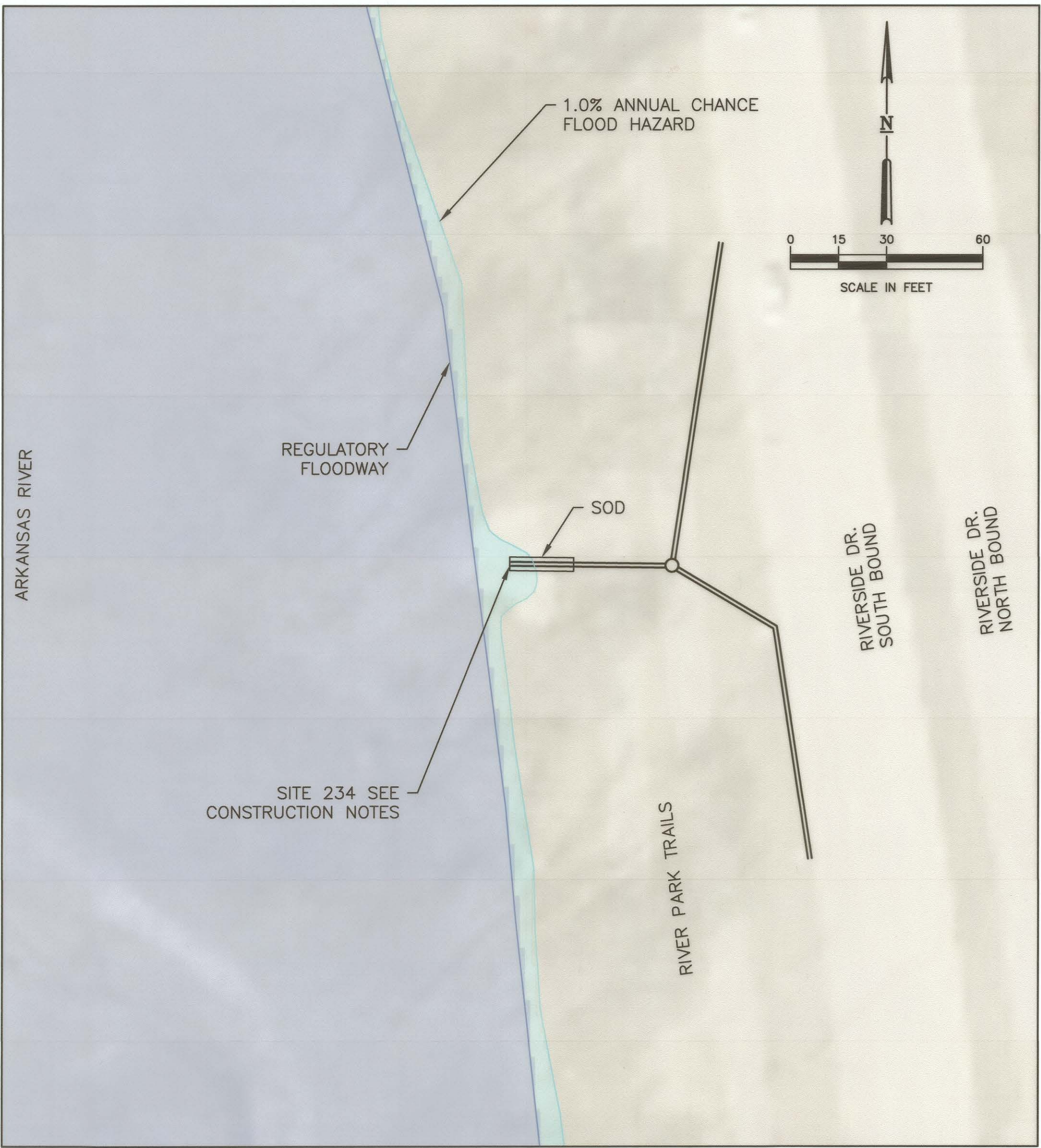
SITE 234 - PAY QUANTITIES

ROADWAY 0100					
ITEM		DESCRIPTION	NOTES	UNIT	QUANTITY
230(A)	2806	SOLID SLAB SODDING	E-10,11	SY	10.00
613(A)	0496	15" R.C.P.I.P.E CLASS III (COMPLETE IN PLACE)	D-8,12,13 1	LF	20.00
613(L)	5724	15" PREFAB. CULVERT END SECTION, ROUND		EA	1.00

LOCATION MAP



SITE 234



LEGEND

███ FEMA SITE AREA



FEMA SITE 234

PROJECT #173120-T021-126333

DAMAGE # 331114

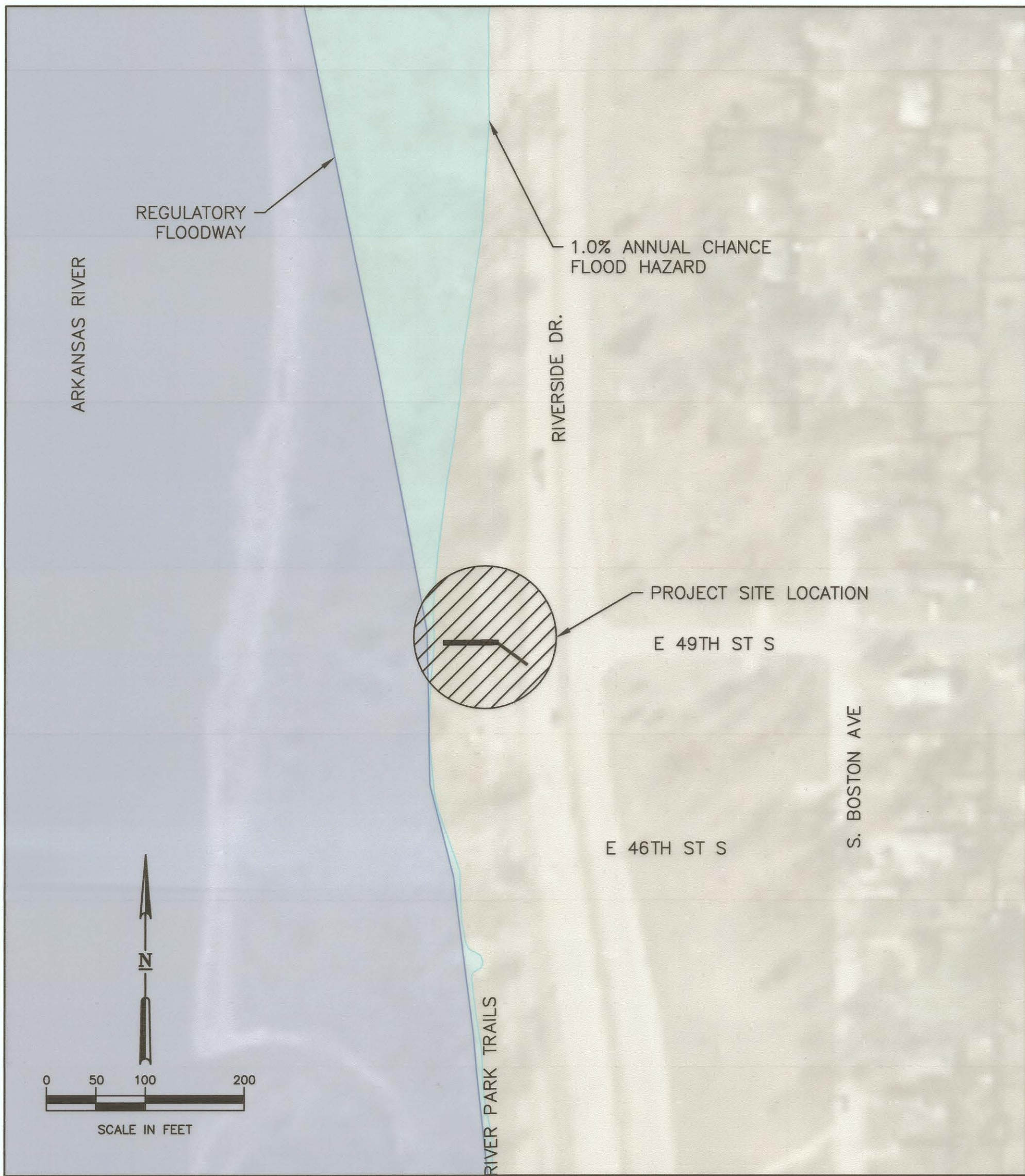
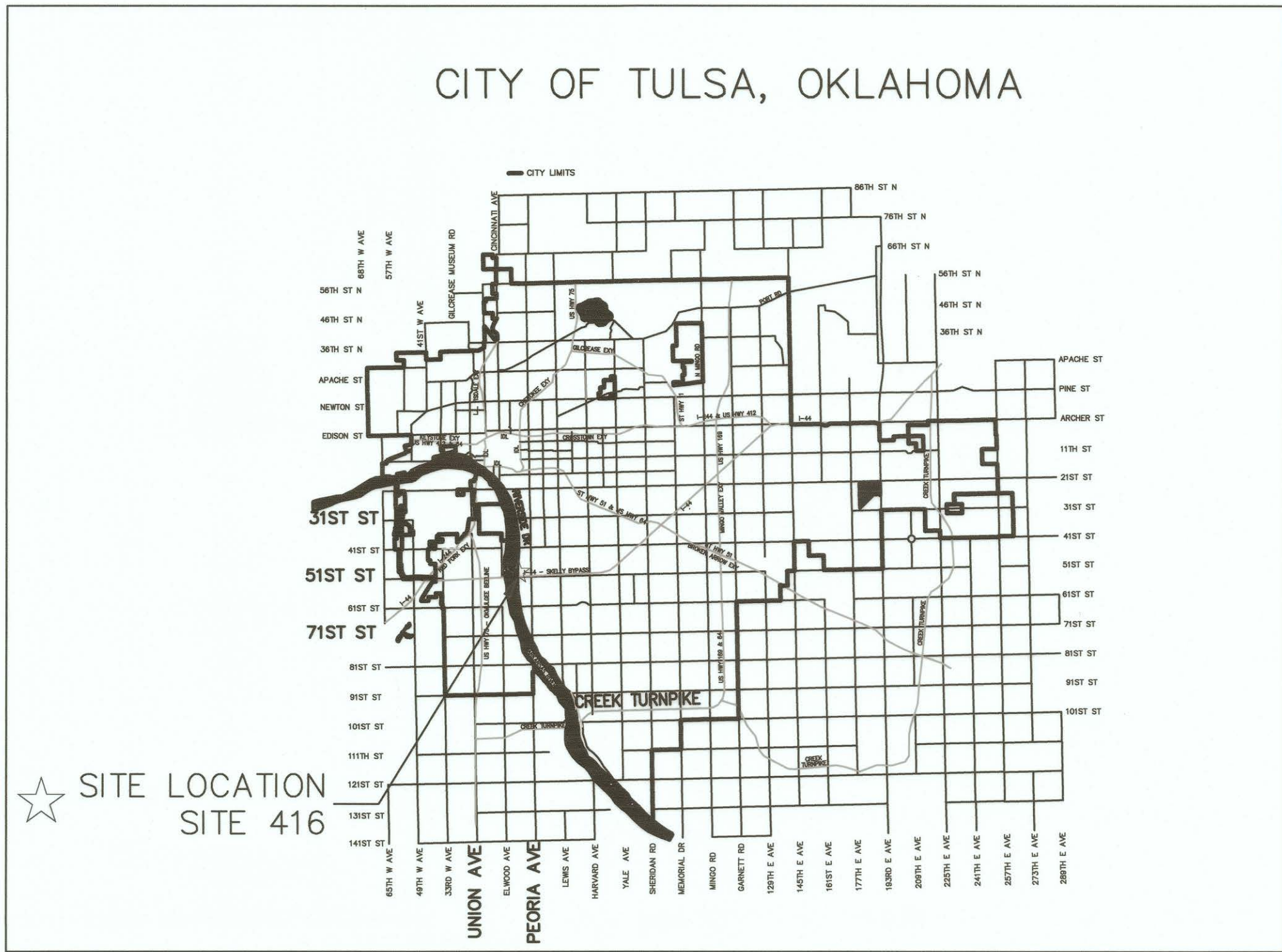
CITY OF TULSA, OKLAHOMA
ENGINEERING SERVICES DEPARTMENT

PLANS AND ESTIMATES PREPARED BY:
Meshek & Associates, L.L.C.
1437 S. Boulder Avenue, Suite 1550 Tulsa, OK 74119 (918)392-5620

REVISION	BY	DATE	PLAN SCALE	DRAWN	ASB	05/20	APPROVED:
			1" = ##'	DESIGNED	RJP	05/20	
				SURVEY	N/A	N/A	
			PROFILE SCALE	PROJ. MGR.	Chg	1/21	
			HORIZONTAL:	LEAD ENGR.	Chg	1/21	
			N/A	FIELD MGR.	Chg	1/21	
			VERTICAL:	RECOMMENDED	HAS	1/21	
			N/A	DESIGN MANAGER			
			FILE:	DRAWING:			
			ATLAS PAGE NO. 249				

CITY ENGINEER
DATE: 1-08-21
SHEET 32 OF 50 SHEETS

PRINT DATE: 12/17/2020 M:\City of Tulsa\17TUL03 On-Call Stormwater Services 2017\TO 21-FEMA Flood Damage Design Working\126333\Damage_331114.dwg



SITE 416 - (36.09301, -95.98501)

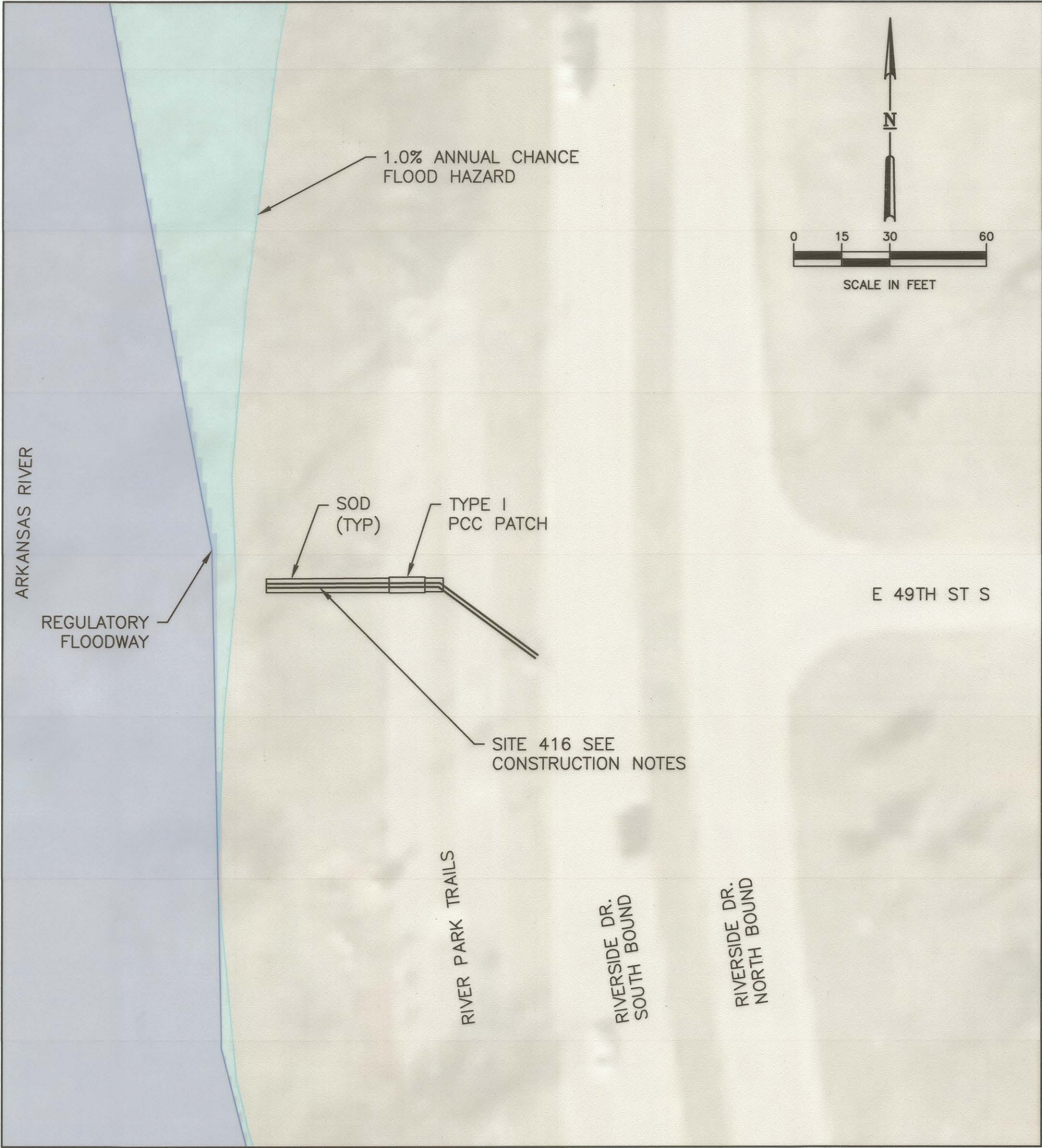
HAZARD MITIGATION PROPOSAL (HMP) SCOPE OF WORK:

- * ADDING 8.47 CY RIP RAP TO MITIGATE DAMAGE FROM RAPIDLY FLOWING FLOOD WATERS.
- * ADDING 50 SY GEOSYNTHETIC FABRIC TO PREVENT EROSION CAUSED BY RAPIDLY FLOWING FLOOD WATERS.
- * ADDING 1 EACH 15-IN DIAMETER, 6-FT LONG PREFABRICATED CONCRETE END SECTION.

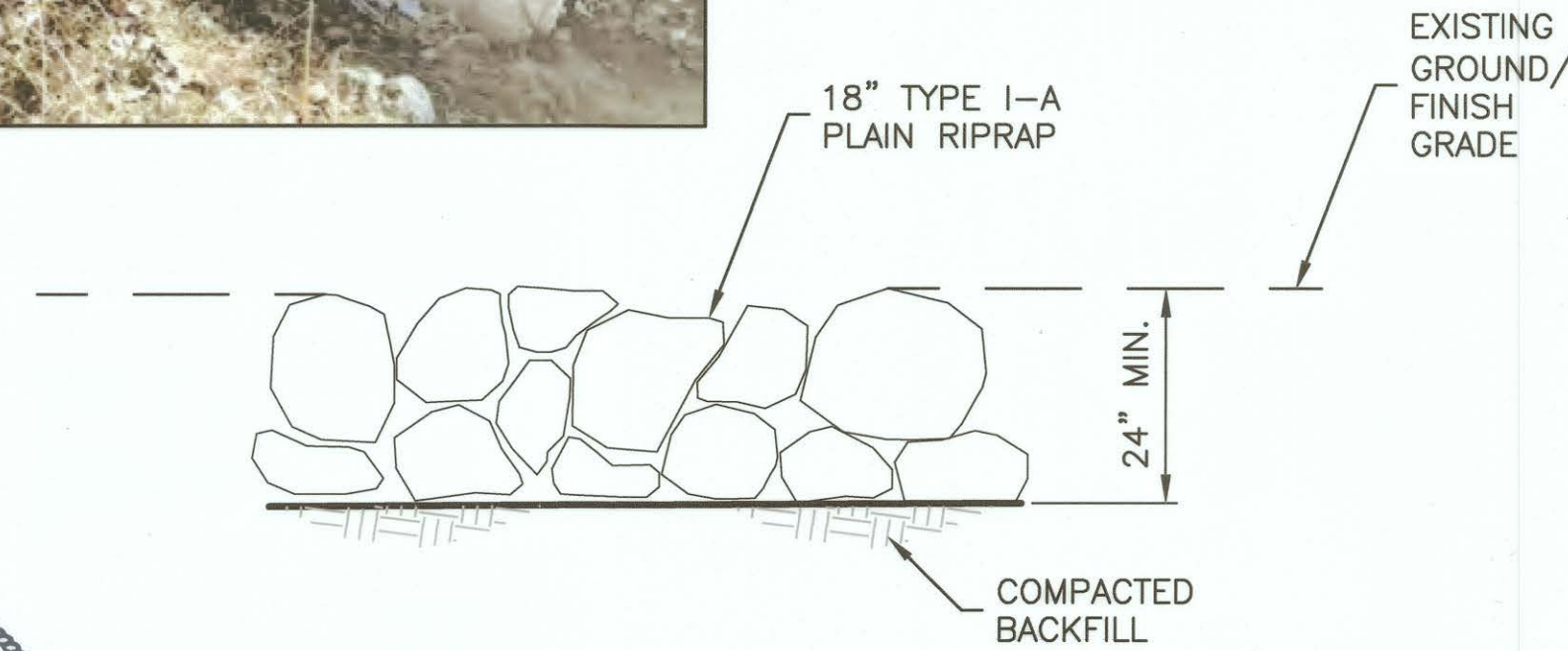
CONSTRUCTION NOTES:
SITE 416 (36.09301, -95.98501)

CULVERT, 1 EACH OF RCP, 55 FT LONG, 15IN IN DIAMETER, SURFACE WATER FLOODING CAUSED PIPE SEPARATIONS.

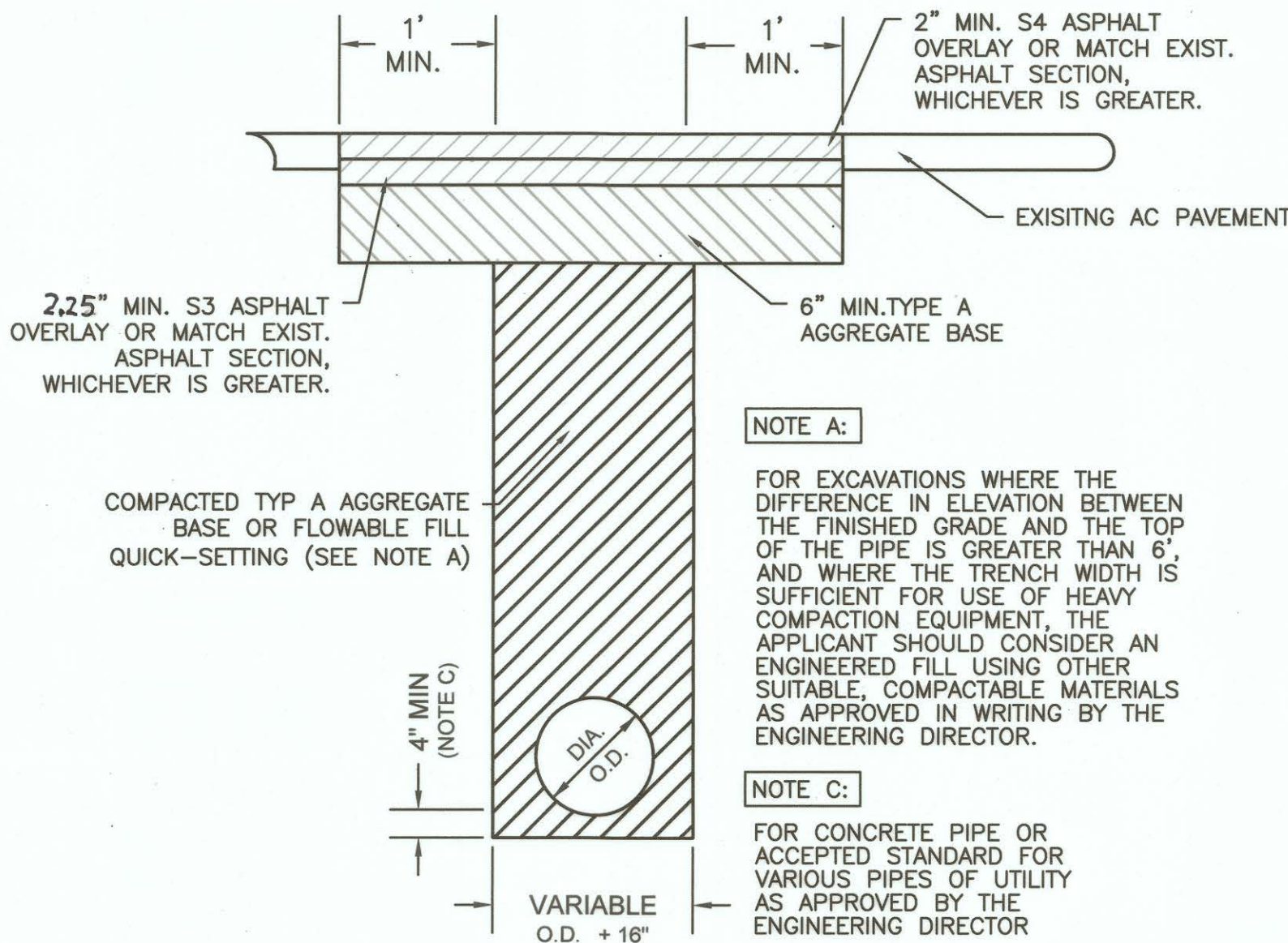
SITE 416 - PAY QUANTITIES					
ROADWAY 0100					
ITEM		DESCRIPTION		UNIT	QUANTITY
230(A)	2806	SOLID SLAB SODDING	E-10,11	SY	72.00
326(B)	0100	GEOGRID REINFORCEMENT		SY	50.00
601(B)	0536	TYPE I-A PLAIN RIPRAP		CY	9.00
613(A)	0496	15" R.C.Pipe CLASS III (COMPLETE IN PLACE)	D-8,12,13 1	LF	55.00
613(L)	5724	15" PREFAB. CULVERT END SECTION, ROUND		EA	1.00
SPECIAL		TYPE I APC PATCH (NON-ARTERIAL)	S-21	SY	6.00



SITE PHOTO



1 RIPRAP INSTALLATION
SCALE: NONE



2 TYPE I APC CUT AND REPAIR (NON-ARTERIAL)
SCALE: NONE

LEGEND

██ FEMA SITE AREA



REVISION				BY	DATE

PLAN SCALE	DRAWN	ASB	05/20
1" = 8'	DESIGNED	RJP	05/20
	SURVEY	N/A	N/A
PROFILE SCALE	PROJ. MGR.	01/16	1/21
HORIZONTAL:	LEAD ENGR.	01/16	1/21
N/A	FIELD MGR.	01/16	1/21
VERTICAL:	RECOMMENDED	01/16	1/21
N/A	DESIGN MANAGER		
FILE:	DRAWING:		
ATLAS PAGE NO. 249			

APPROVED:	
CITY ENGINEER	
DATE: 1-08-21	
SHEET 33 OF 50 SHEETS	

FEMA SITE 416	
PROJECT #173120-T021-126333	
DAMAGE # 331114	
CITY OF TULSA, OKLAHOMA ENGINEERING SERVICES DEPARTMENT	
PLANS AND ESTIMATES PREPARED BY: Meshek & Associates, L.L.C. 1437 S. Boulder Avenue, Suite 1550 Tulsa, OK 74119 (918)392-5620	

STORM WATER MANAGEMENT PLAN

SITE DESCRIPTION

EROSION AND SEDIMENT CONTROLS

PROJECT LIMITS: DAMAGE INVENTORY #331117 SITES ALONG THE EAST SIDE OF THE ARKANSAS RIVER INCLUDING: SITE 186, SITE 199, SITE 227, SITE 407, SITE 412, AND SITE 422. ALL APPROXIMATELY LOCATED IN THE SE/4 OF SECTION 24 AND NE/4 OF SECTION 25 OF OK T19N R 12 E. WITHIN THE CITY LIMITS OF TULSA, OKLAHOMA.

PROJECT DESCRIPTION: SITE 422: REPLACE PIPE
SITE 186: REMOVAL OF SEDIMENT
SITE 199: EROSION CONTROL
SITE 227: EROSION CONTROL
SITE 407: REPLACE PIPE
SITE 412: EROSION CONTROL AND REPLACE PIPE

SUGGESTED SEQUENCE OF EROSION CONTROL ACTIVITIES:
1. TEMPORARY EROSION CONTROL.
2. PERMANENT EROSION CONTROL.

SOIL TYPE: VERY FINE SANDY LOAM, SILT LOAM, STRATIFIED LOAMY FINE SAND, SILTY CLAY LOAM, VARIABLE

TOTAL AREA OF THE CONSTRUCTION SITE: LESS THAN 1 ACRE COMBINED

ESTIMATED AREA TO BE DISTURBED: LESS THAN 1 ACRE COMBINED

OFFSITE AREA TO BE DISTURBED: (FOR CONTRACTOR USE)

TOTAL IMPERVIOUS AREA PRE-CONSTRUCTION: 0.018 ACRES

TOTAL IMPERVIOUS AREA POST-CONSTRUCTION: 0.018 ACRES

POST-CONSTRUCTION RUNOFF COEFFICIENT OF THE SITE: X.X

LATITUDE & LONGITUDE OF CENTER OF PROJECT: N36° 05' 57.7", W95° 59' 04.0" N36° 05' 52.8", W95° 59' 04.2" N36° 06' 13.0", W95° 59' 04.9" N36° 06' 18.4", W95° 59' 00.2" N36° 06' 03.2", W95° 59' 04.6" N36° 05' 55.7", W95° 59' 04.0"

PROJECT WILL DISCHARGE TO:

NAME OF RECEIVING WATERS: ARKANSAS RIVER

SENSITIVE WATERS OR WATERSHEDS: YES NO X

303 IMPAIRED WATERS: YES X NO

IF YES, LIST IMPAIRMENT: CADMIUM

LOCATED IN A TMDL: YES NO X

LAKE THUNDERBIRD TMDL: YES NO X

MS4 ENTITY YES X NO

IF YES, LOCATION: TULSA COUNTY

NOTE: THIS SHEET SHOULD BE USED IN CONJUNCTION WITH A DRAINAGE MAP THAT ILLUSTRATES THE DRAINAGE PATTERNS/PATHWAYS AND RECEIVING WATERS FOR THIS PROJECT. THIS SHEET SHOULD ALSO BE USED WITH THE EROSION CONTROL SUMMARIES, PAY ITEMS, & NOTES.

SOIL STABILIZATION PRACTICES:

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- SOIL RETENTION BLANKET
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NOTE: TEMPORARY EROSION CONTROL METHODS MUST BE USED ON ALL DISTURBED AREAS WHERE CONSTRUCTION ACTIVITIES HAVE CEASED FOR OVER 14 DAYS. METHODS USED WILL BE AS SHOWN ON PLANS, OR AS DIRECTED BY THE ENGINEER.

STRUCTURAL PRACTICES:

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

OFFSITE VEHICLE TRACKING:

- X HAUL ROADS DAMPENED FOR DUST CONTROL
- X LOADED HAUL TRUCKS TO BE COVERED WITH TARPULIN
- X EXCESS DIRT ON ROAD REMOVED DAILY

NOTES:

THE CONTRACTOR SHALL ALSO BE RESPONSIBLE FOR THE FOLLOWING:

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GENERAL NOTES:

A STORM WATER POLLUTION PREVENTION PLAN (SWPPP) 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) FORM AND PERMIT CERTIFICATE 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. ALL CONTRACTOR OFF-SITE OPERATIONS ASSOCIATED WITH THE PROJECT MUST BE DOCUMENTED IN THE SWPPP, I.E., BORROW PITS, WORK ROADS, DISPOSAL SITES, ASPHALT/CONCRETE PLANTS, ETC. THE BASIC GOAL OF STORM WATER 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 STORM WATER POLLUTION.

THE FOLLOWING SECTIONS OF THE 2009 ODOT STANDARD SPECIFICATIONS SHOULD BE NOTED:

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- 104.10 FINAL CLEANING UP
- 104.12 CONTRACTOR'S RESPONSIBILITY FOR WORK
- 104.13 ENVIRONMENTAL PROTECTION
- 106.08 STORAGE AND HANDLING OF MATERIAL
- 107.01 LAWS, RULES AND REGULATIONS TO BE OBSERVED
- 107.20 STORM WATER MANAGEMENT
- 220 MANAGEMENT OF EROSION, SEDIMENTATION AND STORM WATER POLLUTION PREVENTION AND CONTROL
- 221 TEMPORARY SEDIMENT CONTROL

IN ADDITION:

"ODEQ GENERAL PERMIT (OKR10) FOR STORM WATER DISCHARGES FROM CONSTRUCTION ACTIVITIES WITHIN THE STATE OF OKLAHOMA." ODEQ, WATER QUALITY DIVISION, SEPTEMBER 13, 2017.



REVISION	BY	DATE

PLAN SCALE	DRAWN	ASB	05/20
N/A	DESIGNED	RJP	05/20
	SURVEY	N/A	N/A
PROFILE SCALE	PROJ. MGR.	1/16	1/21
HORIZONTAL:	LEAD ENGR.	1/16	1/21
N/A	FIELD MGR.	1/16	1/21
VERTICAL:	RECOMMENDED	1/16	1/21
N/A	DESIGN MANAGER		
FILE:	DRAWING:		
ATLAS PAGE NO.	133	190	

APPROVED:	
CITY ENGINEER	
DATE:	1-08-21
SHEET	34 OF 50 SHEETS

STORM WATER MANAGEMENT PLAN

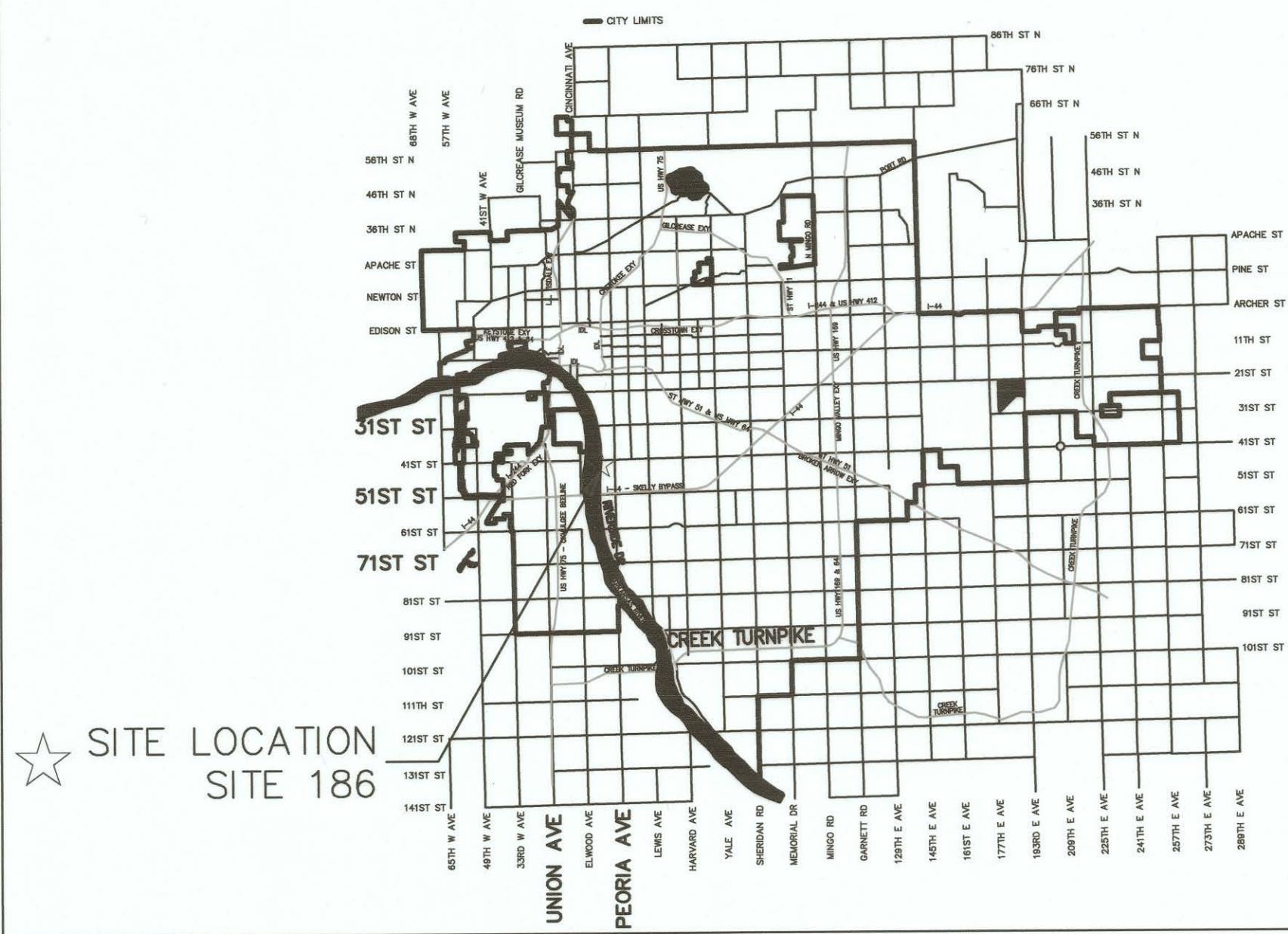
PROJECT #173120-T021-126333

DAMAGE #331117

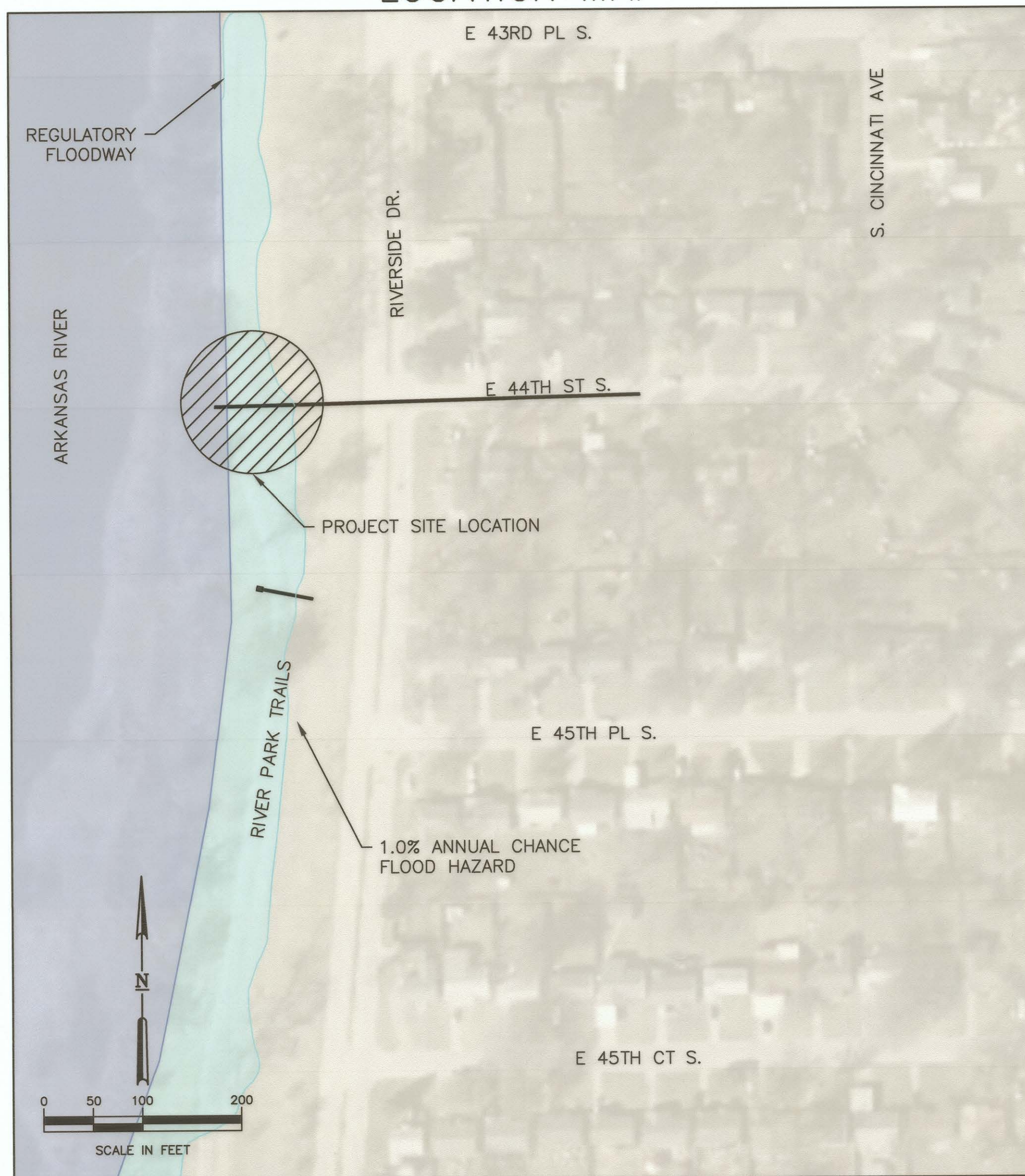
CITY OF TULSA, OKLAHOMA
ENGINEERING SERVICES DEPARTMENT

PLANS AND ESTIMATES PREPARED BY:
Meshek & Associates, L.L.C.
1437 S. Boulder Avenue, Suite 1550 Tulsa, OK 74119 (918)392-5620

CITY OF TULSA, OKLAHOMA



LOCATION MAP

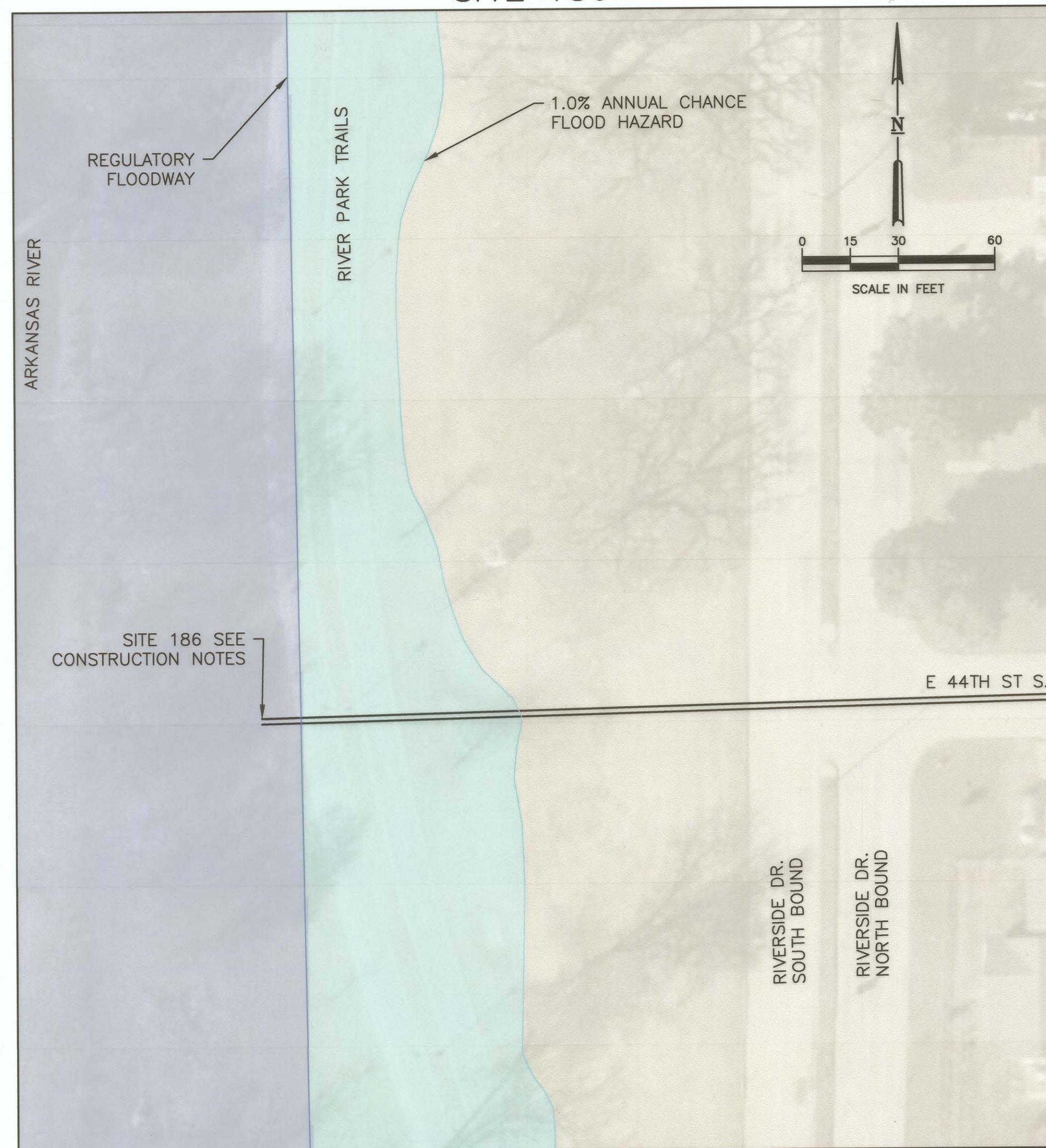


CONSTRUCTION NOTES:
SITE 186 (36.09935, -95.98444)

STORM DRAIN, 3 CY OF SEDIMENT REMOVAL FROM
INSIDE RCP (SILT IN PIPE), 60 FT LONG X 20 IN
WIDE X 10 IN DEEP, SURFACE WATER FLOODING
DEPOSITED SAND/SILT IN PIPE (CLEAN OUT ONLY).

SITE 186 - PAY QUANTITIES					
ROADWAY 0100					
ITEM		DESCRIPTION	NOTES	UNIT	QUANTITY
221(I)	0525	REMOVAL OF SEDIMENT		CY	3.00

SITE 186



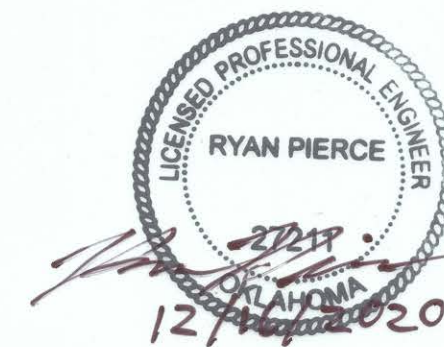
SCOPE NOTE:

1. EXTRACTED SILT THAT CANNOT BE REUSED ON SITE WILL BE DISPOSED AT THE C & D LANDFILL LOCATED AT 13012 OK HWY 266, TULSA, OK 74146, WITH THE GPS COORDINATE 36.219536,-95.830182 (SOLID WASTE PERMIT NO. 3572042). IF THE SILT DESTINATION CHANGES, THE APPLICANT MUST NOTIFY FEMA AND THE RECIPIENT PRIOR TO DELIVERING TO THE NEW LOCATION.

SITE PHOTO



SITE PHOTO



LEGEND



FEMA SITE AREA



FEMA SITE 186

PROJECT #173120-T021-126333

DAMAGE # 331117

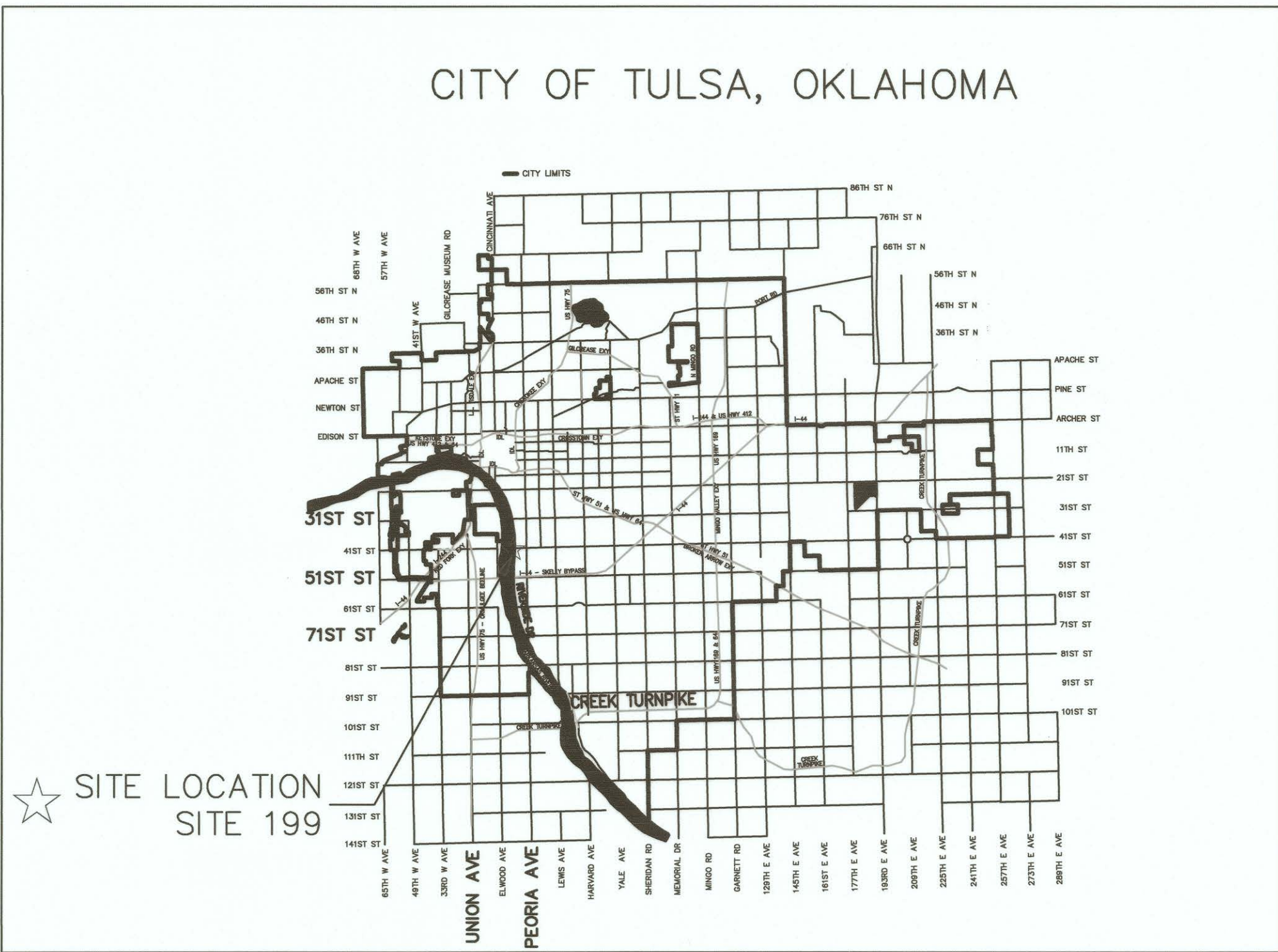
CITY OF TULSA, OKLAHOMA
ENGINEERING SERVICES DEPARTMENT

PLANS AND ESTIMATES PREPARED BY:
Meshek & Associates, L.L.C.
1437 S. Boulder Avenue, Suite 1550 Tulsa, OK 74119 (918)392-5620

REVISION	BY	DATE	PLAN SCALE	DRAWN	ASB	05/20	APPROVED:
			1" = ##'	DESIGNED	RJP	05/20	
				SURVEY	N/A	N/A	
			PROFILE SCALE	PROJ. MGR.	AAB	1/21	
			HORIZONTAL:	LEAD ENGR.	BAC	1/21	
			N/A	FIELD MGR.	LOW	1/21	
			VERTICAL:	RECOMMENDED	HAS	1-21	
			N/A	DESIGN MANAGER			CITY ENGINEER
			FILE:	DRAWING:			DATE: 1-08-21
			ATLAS PAGE NO.	190			SHEET 35 OF 50 SHEETS

CITY ENGINEER
DATE: 1-08-21
SHEET 35 OF 50 SHEETS

PRINT DATE: 12/17/2020 M:\City of Tulsa\17TUL03 On-Call Stormwater Services_2017\TO_21_FEMA Flood Damage\Design\Working\126333\Damage_331117.dwg



CONSTRUCTION NOTES:
SITE 199 (36.10360, -95.98470)

BACKFILL, 6 CY OF UNCLASSIFIED FILL, 15
FT LONG X 5 FT WIDE X 2 FT DEEP,
SURFACE WATER FLOODING ERODED SOIL.

SITE 199 - PAY QUANTITIES					
ROADWAY 0100					
ITEM		DESCRIPTION	NOTES	UNIT	QUANTITY
202(D)	0184	UNCLASSIFIED BORROW		CY	6.00
230(A)	2806	SOLID SLAB SODDING	E-10,11	SY	9.00

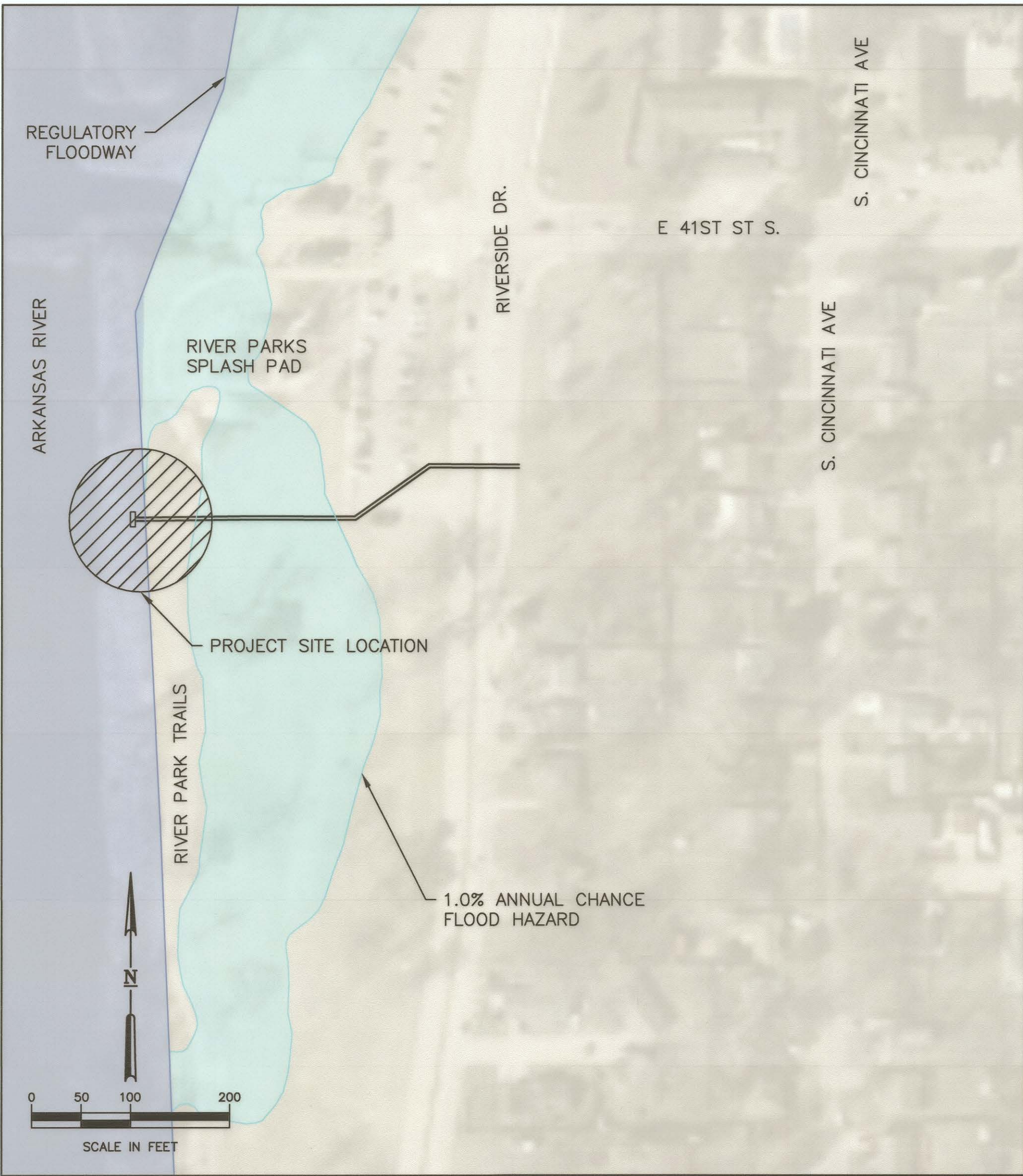
SITE PHOTO



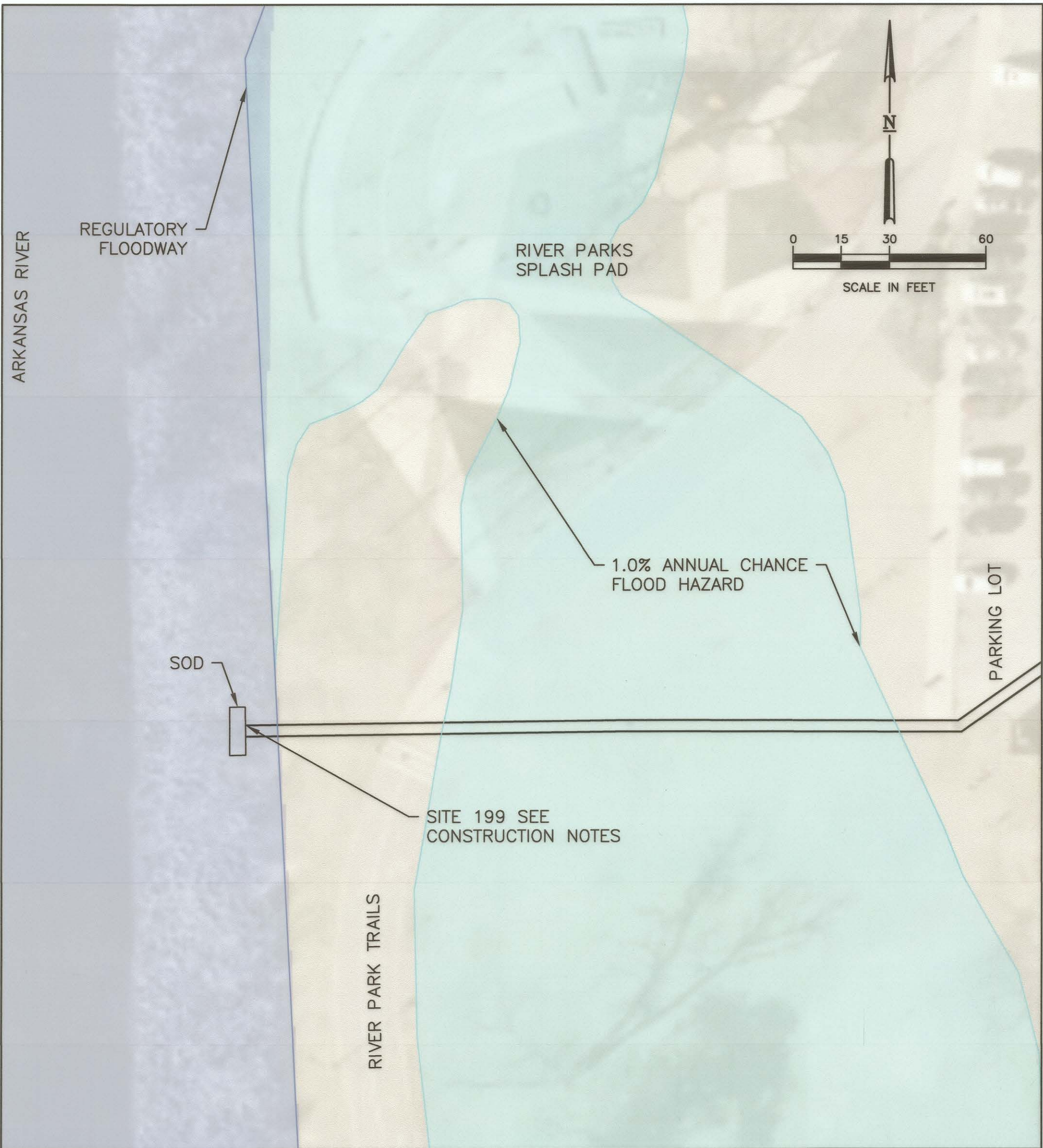
SITE PHOTO



LOCATION MAP



SITE 199



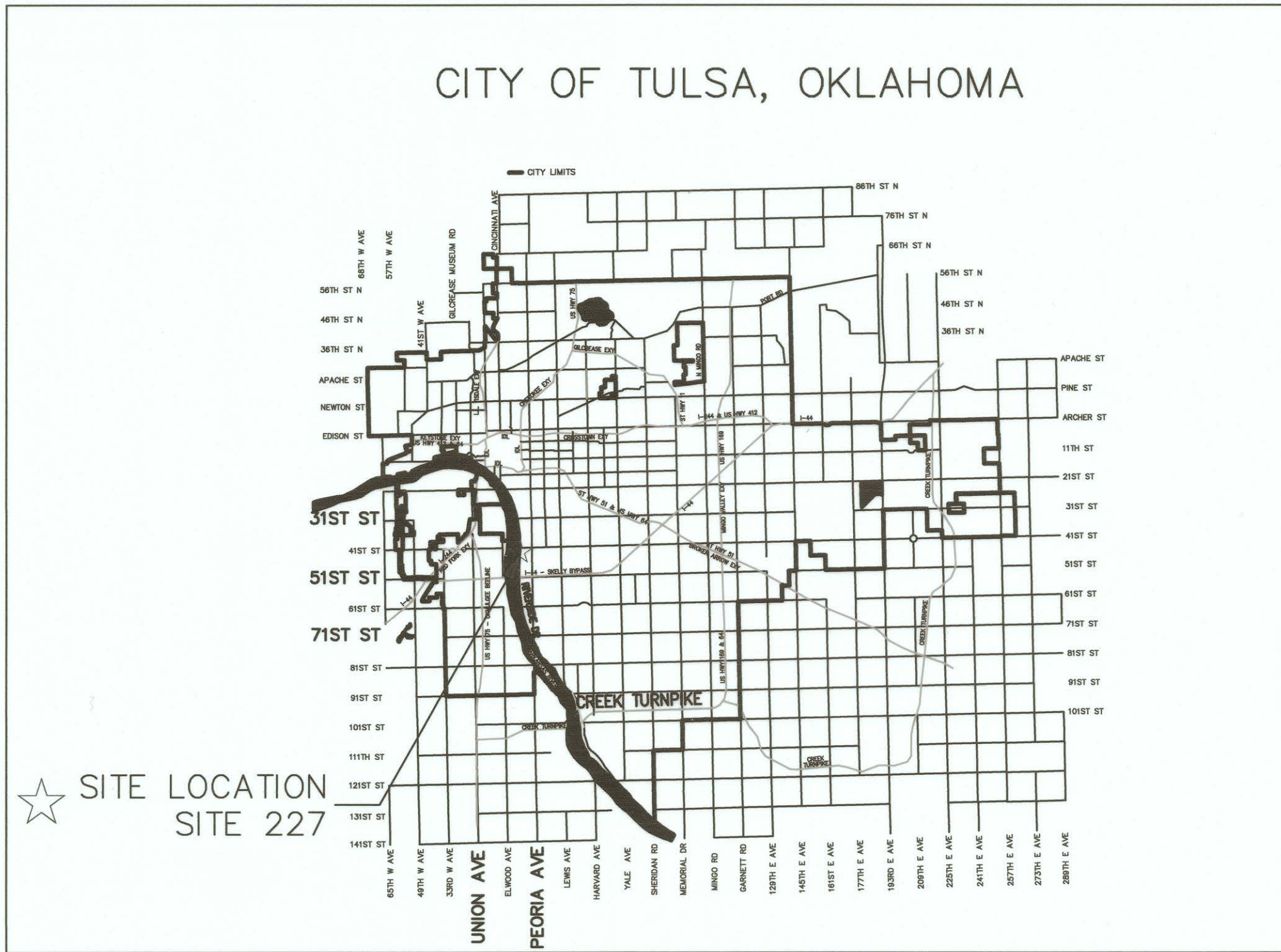
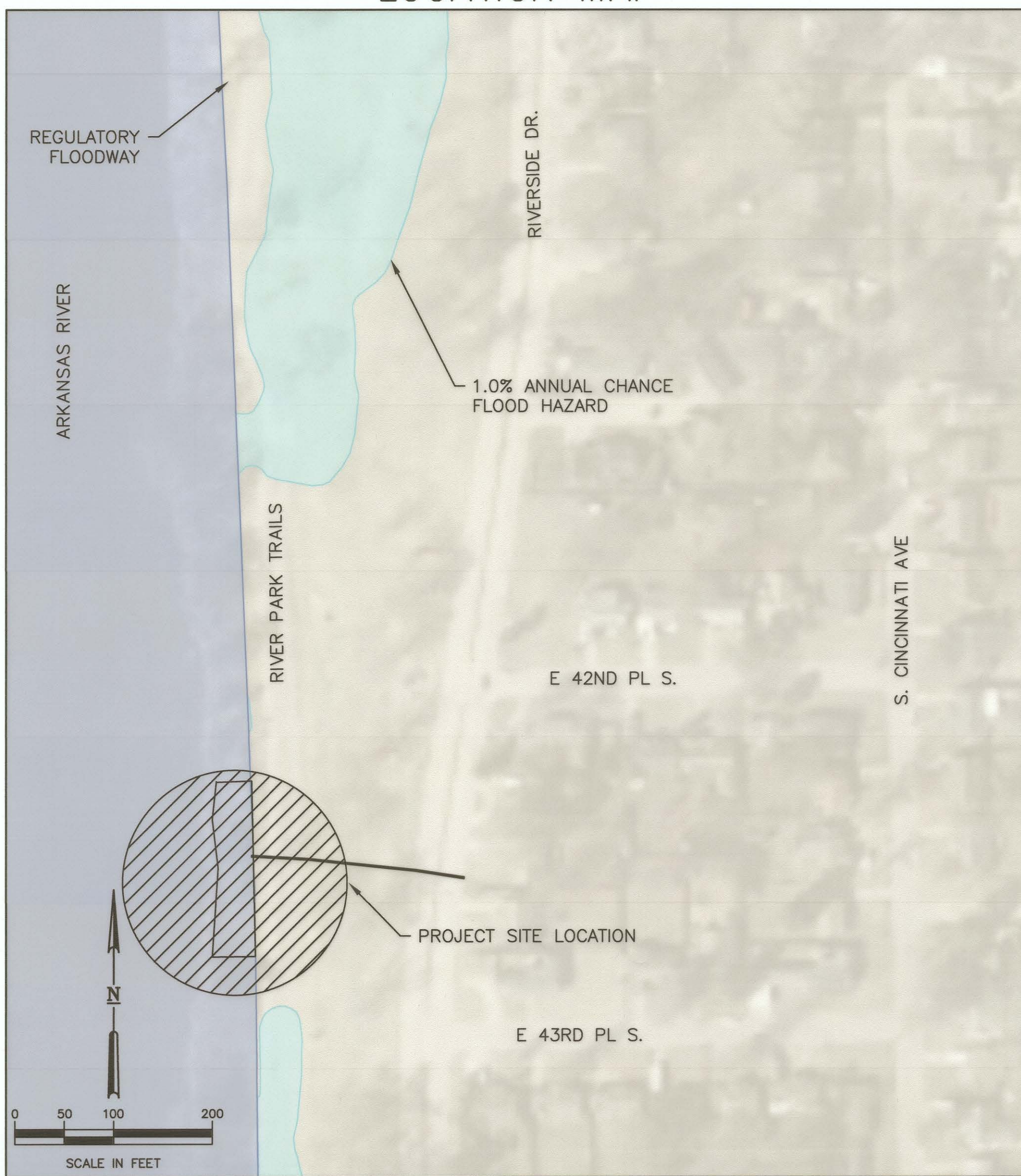
LEGEND

REGULATORY FLOODWAY
RIVER PARK TRAILS
RIVER PARKS SPLASH PAD
PARKING LOT
SOD
SITE 199 SEE CONSTRUCTION NOTES
1.0% ANNUAL CHANCE FLOOD HAZARD

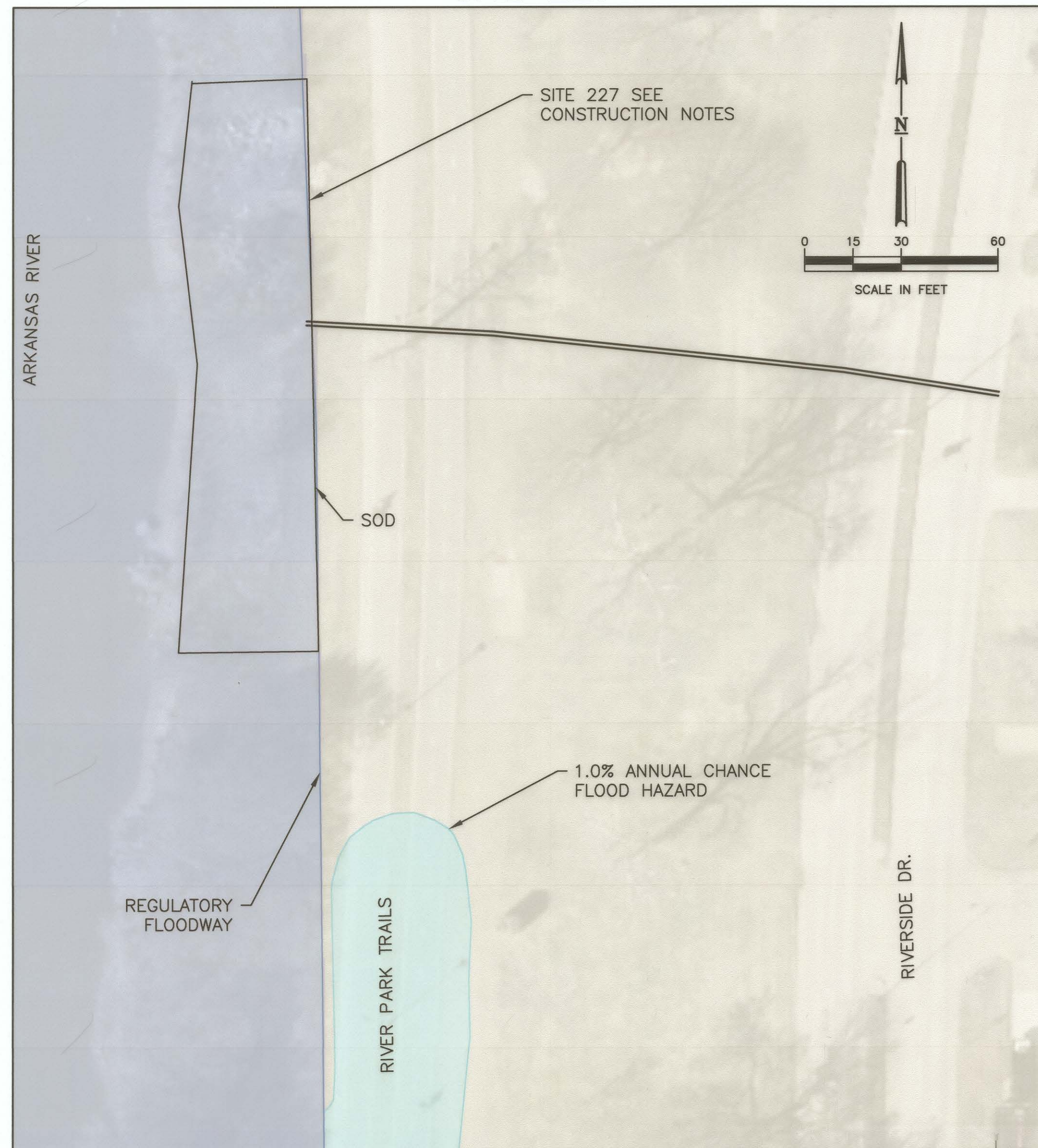


FEMA SITE 199						
PROJECT #173120-T021-126333						
DAMAGE # 331117						
CITY OF TULSA, OKLAHOMA ENGINEERING SERVICES DEPARTMENT						
PLANS AND ESTIMATES PREPARED BY: Meshek & Associates, L.L.C. 1437 S. Boulder Avenue, Suite 1550 Tulsa, OK 74119 (918)392-5620						
PLAN SCALE	DRAWN	ASB	05/20	APPROVED:		
1" = ##'	DESIGNED	RJP	05/20			
	SURVEY	N/A	N/A			
PROFILE SCALE	PROJ. MGR.	1/16	1/21			
HORIZONTAL:	LEAD ENGR.	1/16	1/21			
VERTICAL:	RECOMMENDED	1/16	1/21			
N/A	DRAWING:	DESIGN MANAGER		CITY ENGINEER		
FILE:				DATE: 1-28-21		
ATLAS PAGE NO. 190				SHEET 36 OF 50 SHEETS		

DATE: 1-08-21
SHEET 36 OF 50 SHEETS



SITE 227



CONSTRUCTION NOTES:
SITE 227 (36.10090, -95.98460)

BACKFILL, 519 CY OF UNCLASSIFIED FILL, 200 FT LONG X 35 FT WIDE X 2 FT DEEP, SURFACE WATER FLOODING ERODED SOIL ON BANK.

SITE 227 - PAY QUANTITIES					
ROADWAY 0100					
ITEM		DESCRIPTION	NOTES	UNIT	QUANTITY
202(D)	0184	UNCLASSIFIED BORROW		CY	519.00
230(A)	2806	SOLID SLAB SODDING	E-10,11	SY	778.00

SITE PHOTO



SITE PHOTO



LEGEND



FEMA SITE 227

PROJECT #173120-T021-126333

DAMAGE # 331117

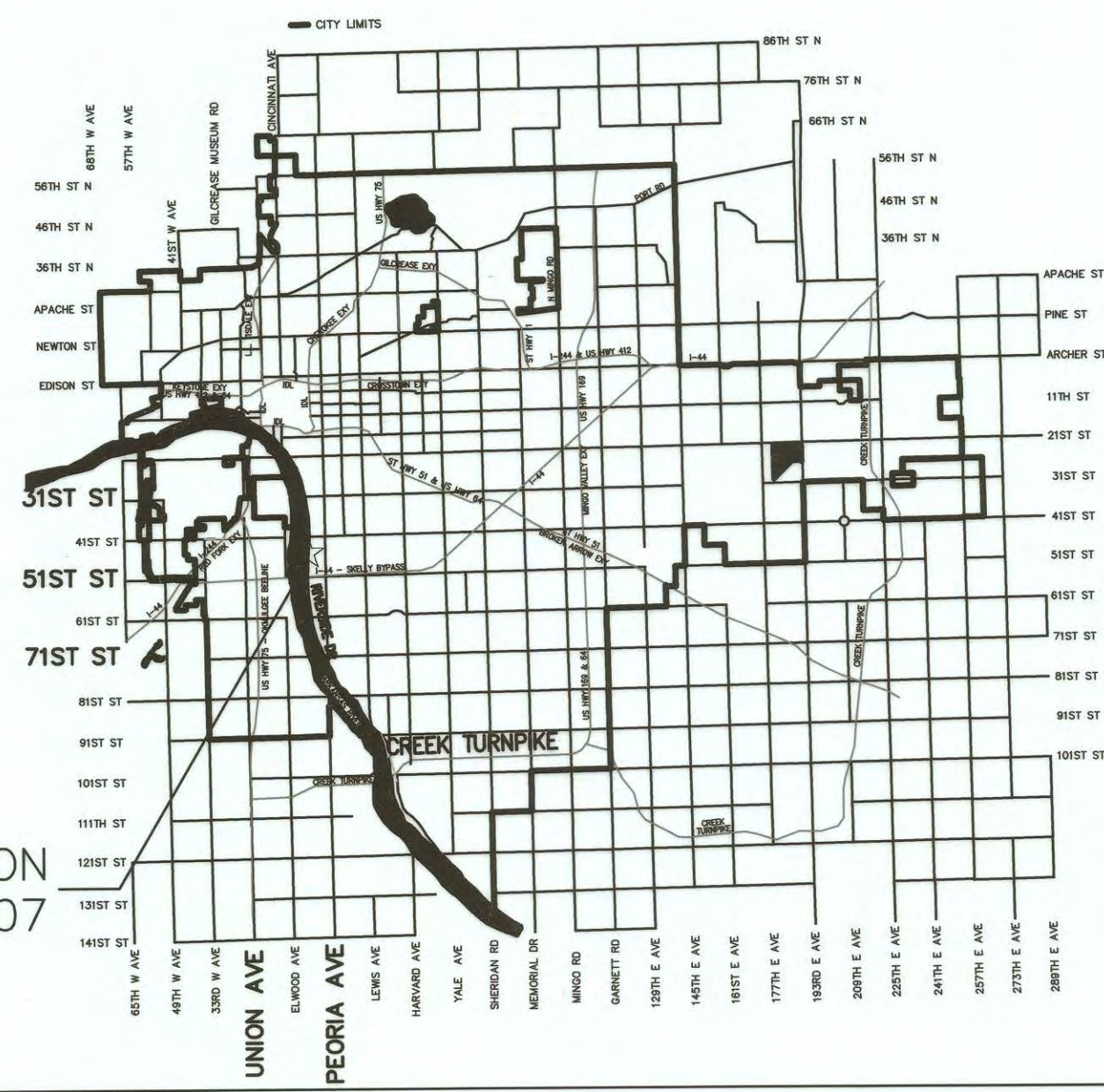
CITY OF TULSA, OKLAHOMA
ENGINEERING SERVICES DEPARTMENT

PLANS AND ESTIMATES PREPARED BY:
Meshek & Associates, L.L.C.
1437 S. Boulder Avenue, Suite 1550 Tulsa, OK 74119 (918)392-5620

REVISION	BY	DATE	PLAN SCALE	DRAWN	ASB	05/20	APPROVED:  CITY ENGINEER
			1" = 100'	DESIGNED	RJP	05/20	
				SURVEY	N/A	N/A	
			PROFILE SCALE	PROJ. MGR.	CH	1/21	
			HORIZONTAL:	LEAD ENGR.	CH	1/21	
			N/A	FIELD MGR.	CH	1/21	
			VERTICAL:	RECOMMENDED	HAS	1-21	
			N/A	DESIGN MANAGER			
			FILE:	DRAWING:			
			ATLAS PAGE NO.:	190			
DATE: 1-08-21							SHEET 37 OF 50 SHEETS

PRINT DATE: 01/14/2021 M:\City of Tulsa\17JUL03_On-Call Stormwater Services_2017\TO-21_FEMA Flood Damage Design\Working\126333\Damage_331117.dwg

CITY OF TULSA, OKLAHOMA



☆ SITE LOCATION
SITE 407

LOCATION MAP



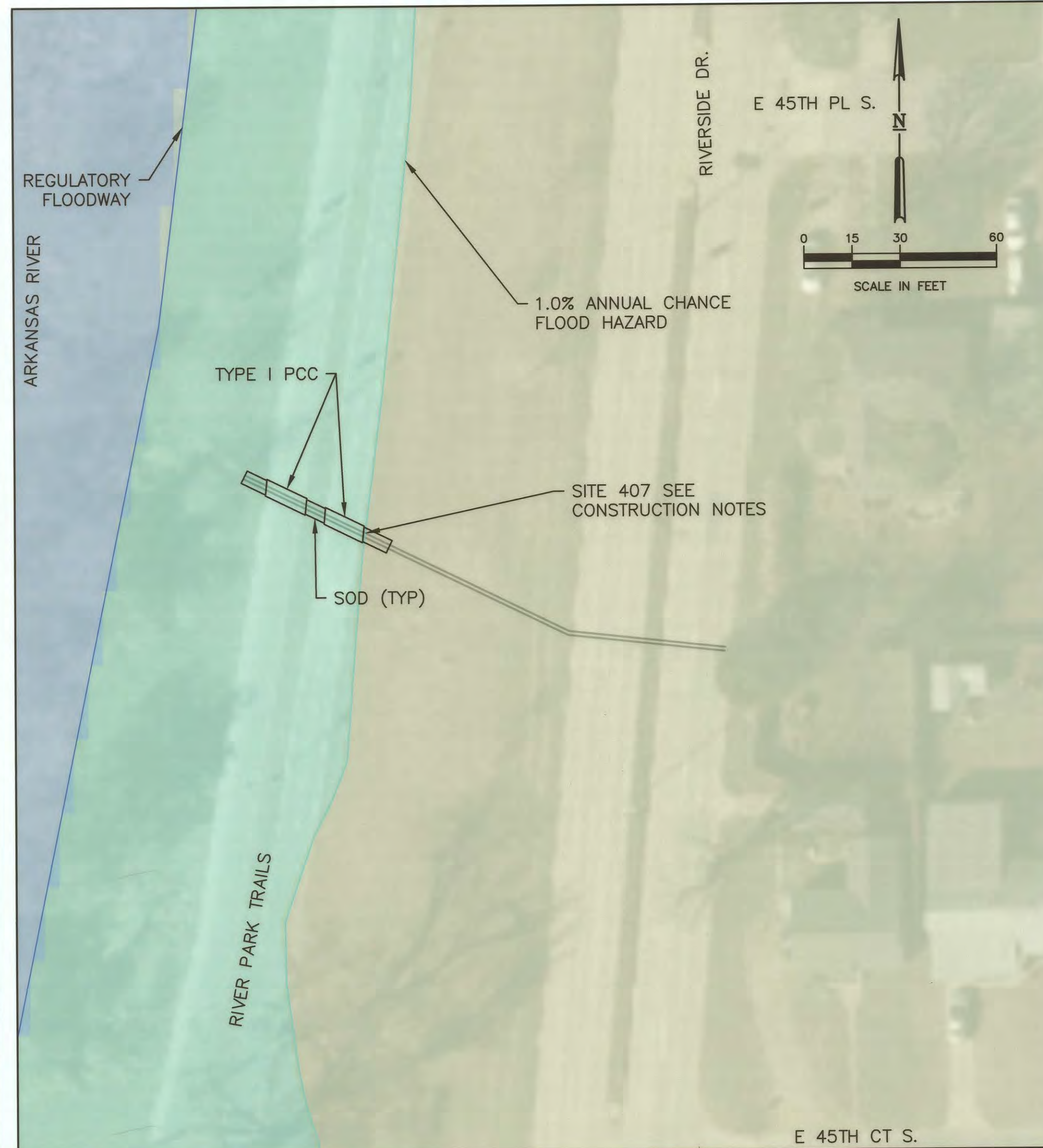
CONSTRUCTION NOTES:

SITE 407 (36.098086, -95.98450)

STORM DRAIN, RCP, 50 FT LONG X 15IN IN DIAMETER, SURFACE WATER FLOODING CAUSED SEPARATION TO PIPE SEALS.

SITE 407 - PAY QUANTITIES					
ROADWAY 0100					
ITEM		DESCRIPTION	NOTES	UNIT	QUANTITY
230(A)	2806	SOLID SLAB SODDING	E-10,11	SY	11.00
613(A)	0496	15" R.C.Pipe CLASS III (COMPLETE IN PLACE)	D-8,12,13 1	LF	50.00
SPECIAL		TYPE I APC PATCH (NON-ARTERIAL)	S-21	SY	15.00

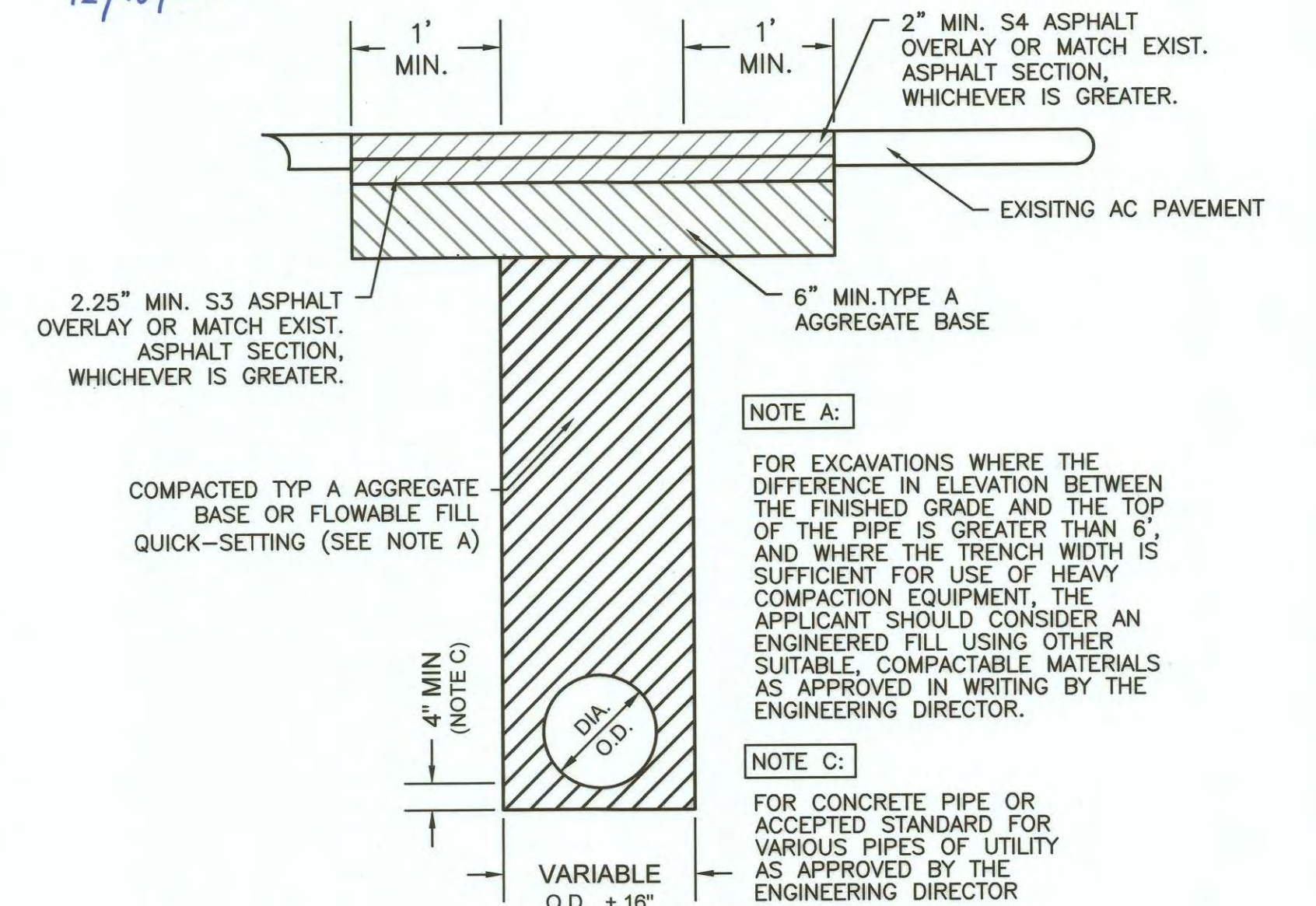
SITE 407



SITE PHOTO



12/16/2020



1 TYPE I APC CUT AND REPAIR (NON-ARTERIAL)

SCALE: NONE

LEGEND

██ FEMA SITE AREA



FEMA SITE 407

PROJECT #173120-T021-126333

DAMAGE # 331117

CITY OF TULSA, OKLAHOMA
ENGINEERING SERVICES DEPARTMENT

PLANS AND ESTIMATES PREPARED BY:

Meshek & Associates, L.L.C.

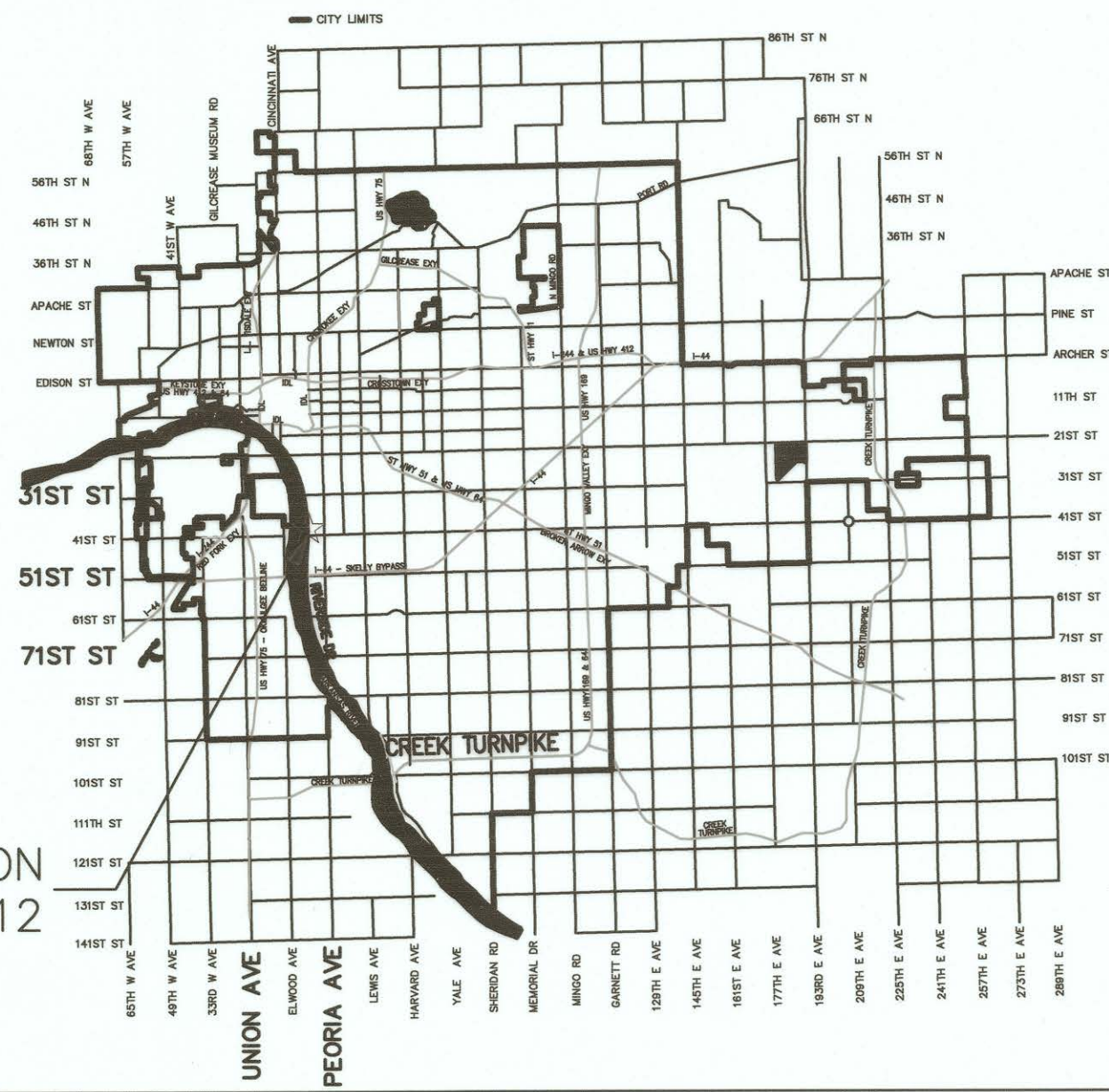
1437 S. Boulder Avenue, Suite 1550 Tulsa, OK 74119 (918)392-5620

REVISION	BY	DATE	PLAN SCALE	DRAWN	ASB	05/20	APPROVED:
			1" = 10'	DESIGNED	RJP	05/20	
				SURVEY	N/A	N/A	
			PROFILE SCALE	PROJ. MGR.	016	1/21	
				LEAD ENGR.	001	1/21	
				FIELD MGR.			
				RECOMMENDED			
				DESIGN MANAGER			
				FILE:			
				DRAWING:			
				ATLAS PAGE NO.	190		

CITY ENGINEER
DATE: 1-06-21
SHEET 38 OF 50 SHEETS

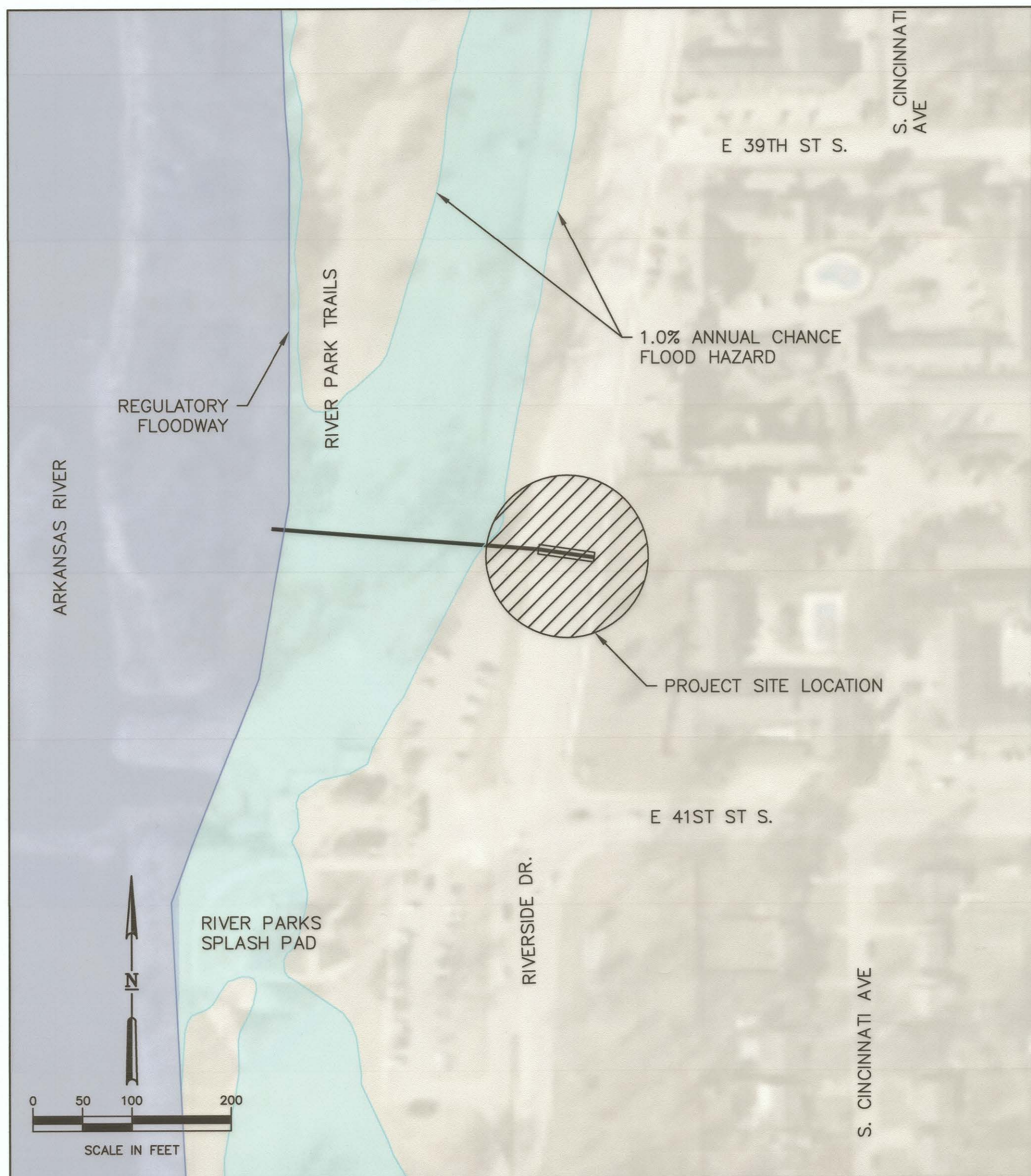
PRINT DATE: 12/17/2020 M:\City of Tulsa\1710103 On-Call Stormwater Services 2017\TO-21_FEMA_Flood Damage Design Working\126333 DAMAGE_331117.dwg

CITY OF TULSA, OKLAHOMA



★ SITE LOCATION
SITE 412

LOCATION MAP



CONSTRUCTION NOTES:
SITE 412 (36.10510, -95.98445)

STORM DRAIN, RCP, 60 FT LONG X 24IN IN DIAMETER,
SURFACE WATER FLOODING CAUSED SEPARATION TO PIPE.

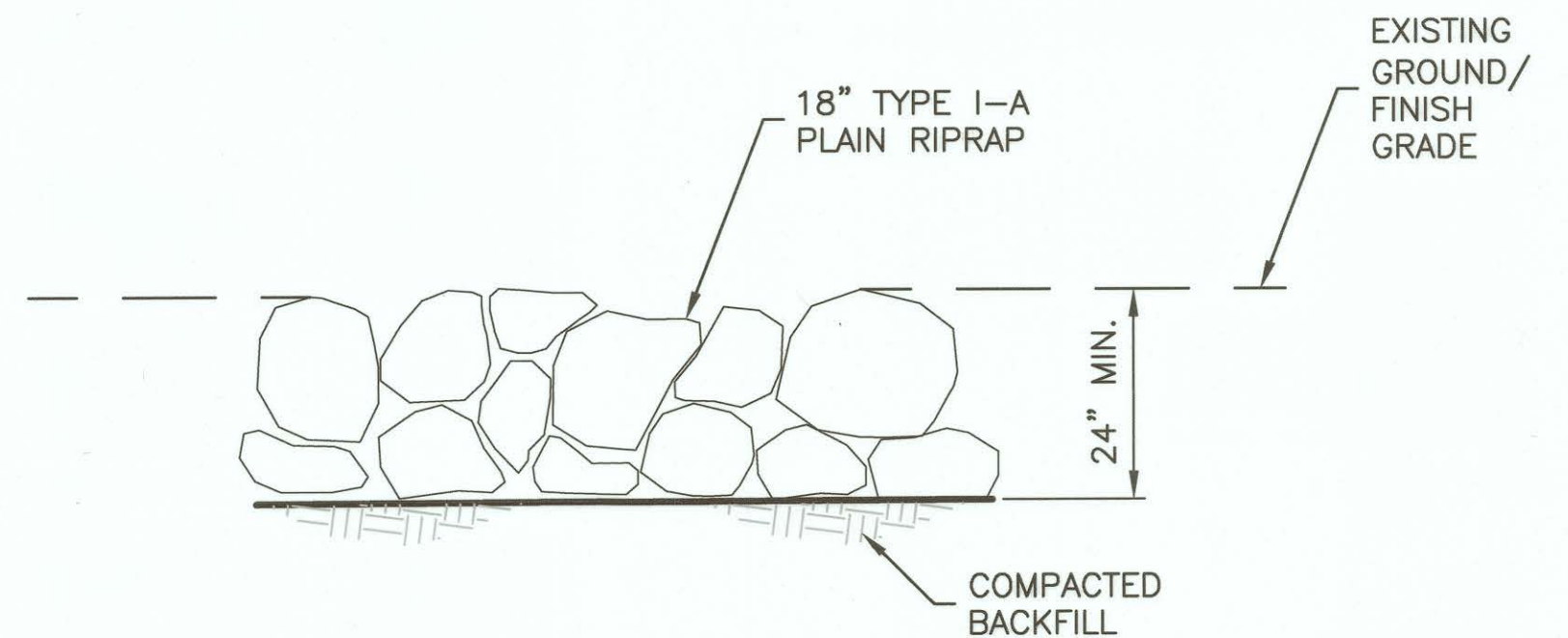
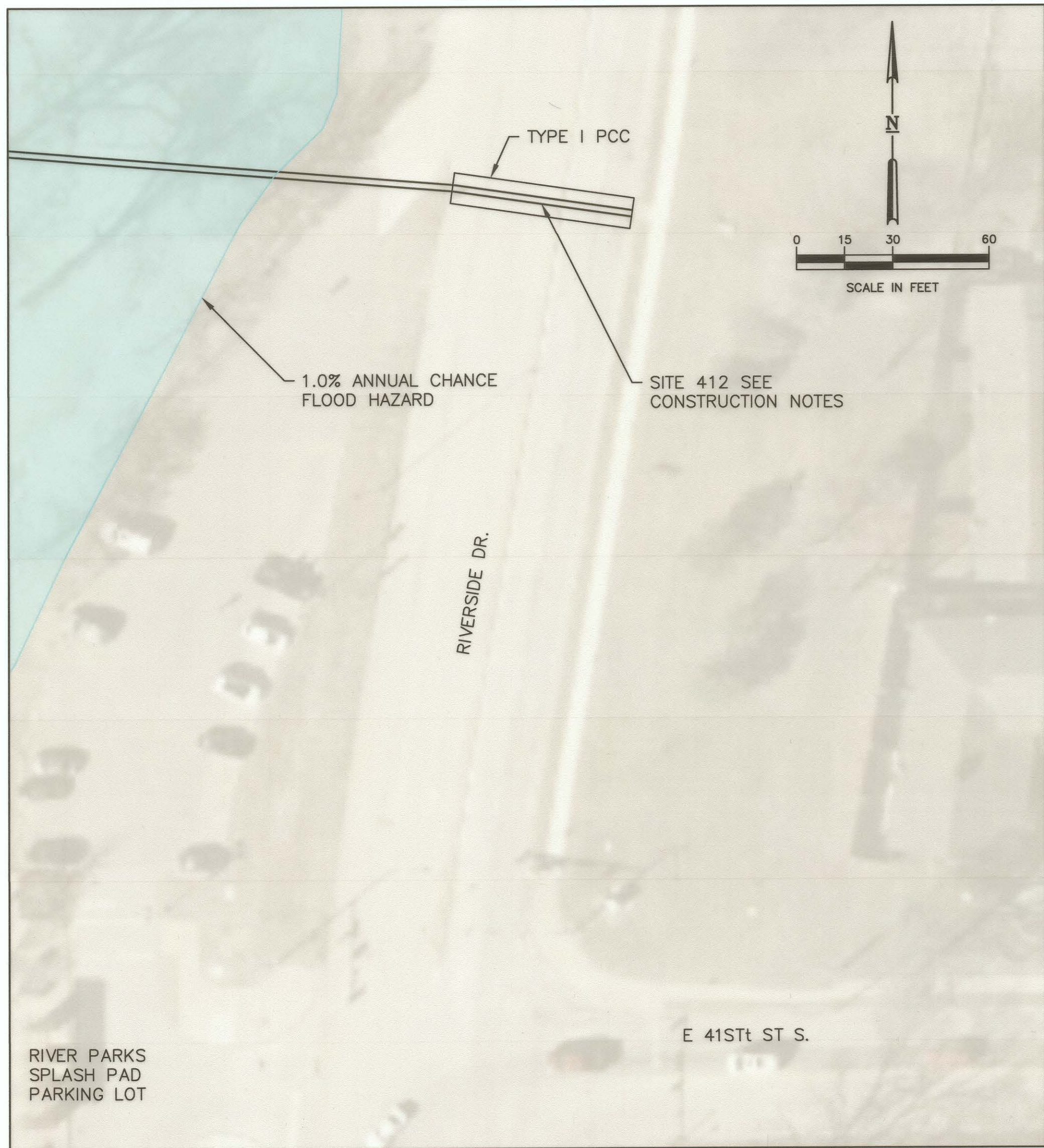
SITE 412 - (36.01510, -95.98340)

HAZARD MITIGATION PROPOSAL (HMP) SCOPE OF WORK:

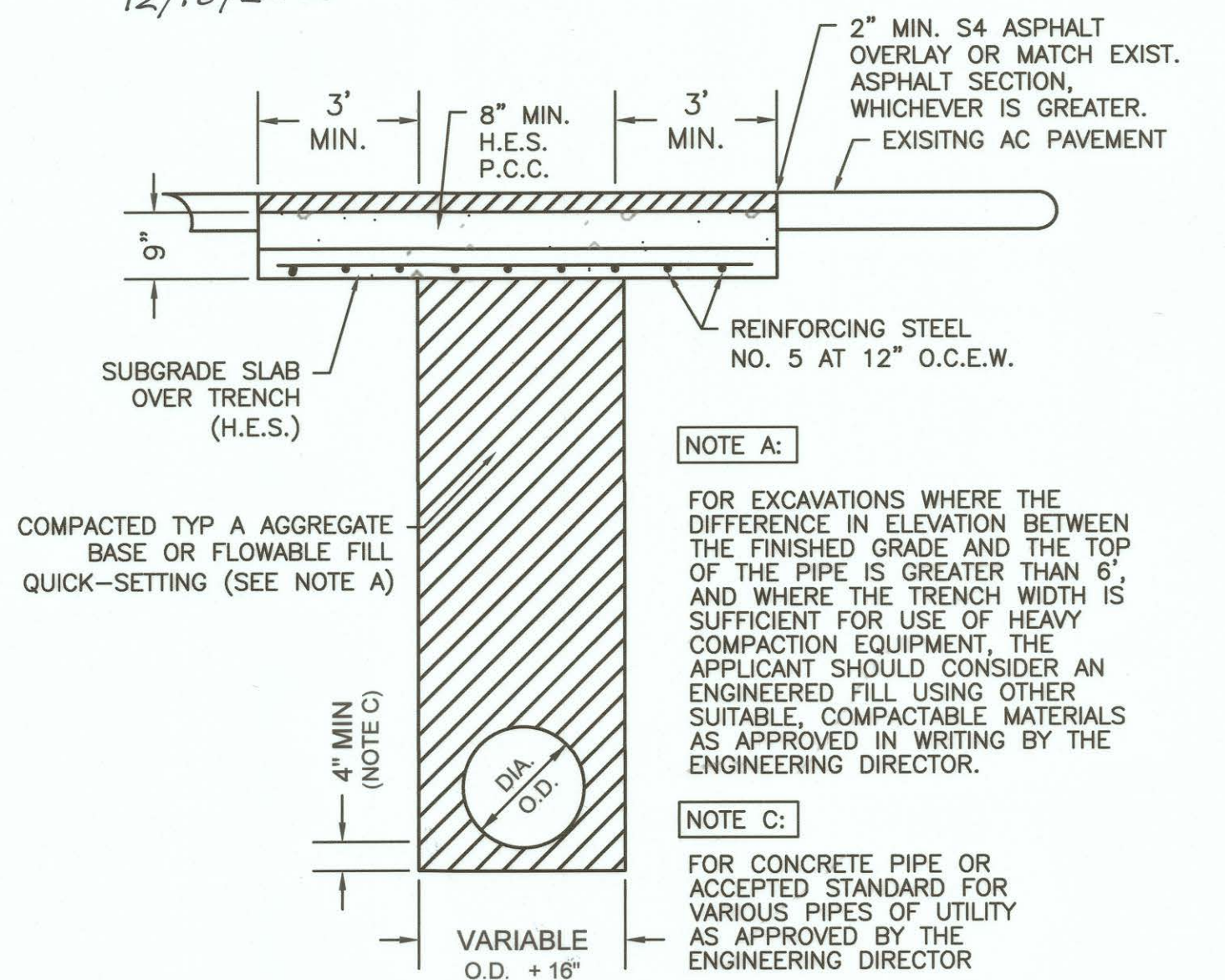
- * ADDING 46.61 CY RIP RAP TO MITIGATE DAMAGE FROM RAPIDLY FLOWING FLOOD WATERS.
- * ADDING 450 SY GEOSYNTHETIC FABRIC TO PREVENT EROSION CAUSED BY RAPIDLY FLOWING FLOOD WATERS.

SITE 412 - PAY QUANTITIES					
ROADWAY 0100					
ITEM		DESCRIPTION	NOTES	UNIT	QUANTITY
230(A)	2806	SOLID SLAB SODDING	E-10,11	SY	450.00
326(B)	0100	GEGRID REINFORCEMENT		SY	450.00
601(B)	0536	TYPE I-A PLAIN RIPRAP		CY	47.00
613(A)	0492	24" R.C. PIPE CLASS III (COMPLETE IN PLACE)	D-8,12,13 1	LF	60.00
SPECIAL		TYPE I PCC PATCH (ARTERIAL)	S-21	SY	61.00

SITE 412



1 RIPRAP INSTALLATION
SCALE: NONE



1 TYPE I PCC CUT AND REPAIR (ARTERIAL)
SCALE: NONE

LEGEND
FEMA SITE AREA



REVISION				BY	DATE

PLAN SCALE	DRAWN	ASB	05/20	APPROVED:
1" = 10'	DESIGNED	RJP	05/20	
	SURVEY	N/A	N/A	
PROFILE SCALE	PROJ. MGR.	1/16	1/11	CITY ENGINEER
HORIZONTAL:	LEAD ENGR.	1/16	1/11	
N/A	FIELD MGR.	1/16	1/11	
	RECOMMENDED	1/16	1/11	
VERTICAL:	DESIGN MANAGER			DATE: 1-08-21
N/A				
FILE:	DRAWING:			
ATLAS PAGE NO. 139				

FEMA SITE 412

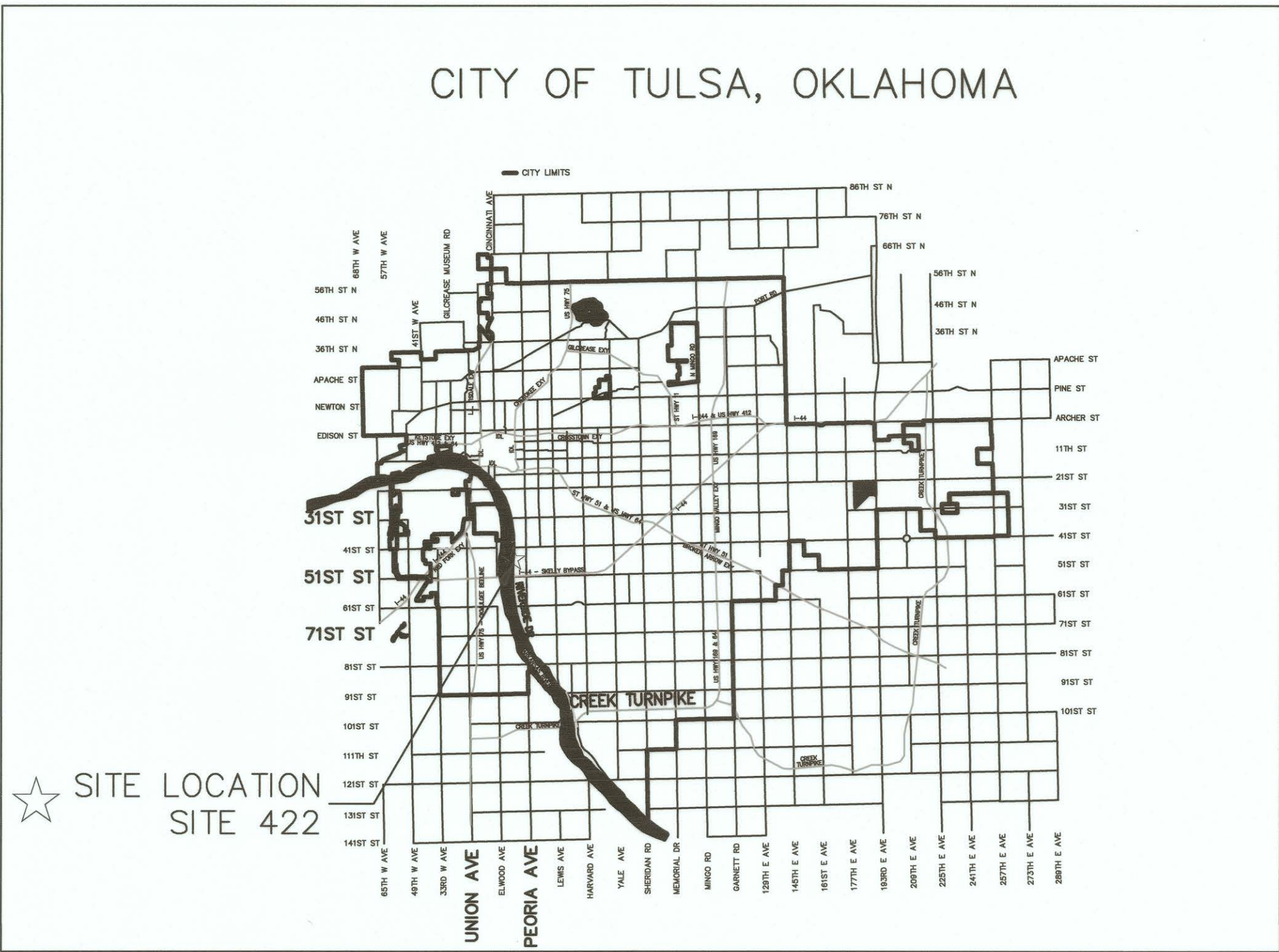
PROJECT #173120-T021-126333

DAMAGE # 331117

CITY OF TULSA, OKLAHOMA
ENGINEERING SERVICES DEPARTMENT

PLANS AND ESTIMATES PREPARED BY:
Meshek & Associates, L.L.C.
1437 S. Boulder Avenue, Suite 1550 Tulsa, OK 74119 (918)392-5620

PRINT DATE: 12/17/2020 M:\City of Tulsa\171003 On-Call Stormwater Services-2017\TO_21_FEWA_Flood_Damage\Design\Working\126333\Damage_331117.dwg



CONSTRUCTION NOTES:
SITE 422 (36.09880, -95.98445)

STORM DRAIN, RCP, 6 FT LONG X 18IN IN DIAMETER, SURFACE WATER
FLOODING CAUSED SEPARATION PIPE JOINT SEALS.

SITE 422 - PAY QUANTITIES					
ROADWAY 0100					
ITEM		DESCRIPTION	NOTES	UNIT	QUANTITY
230(A)	2806	SOLID SLAB SODDING	E-10,11	SY	3.00
613(A)	0496	18" R.C.PIPE CLASS III (COMPLETE IN PLACE)	D-8,12,13 1	LF	6.00

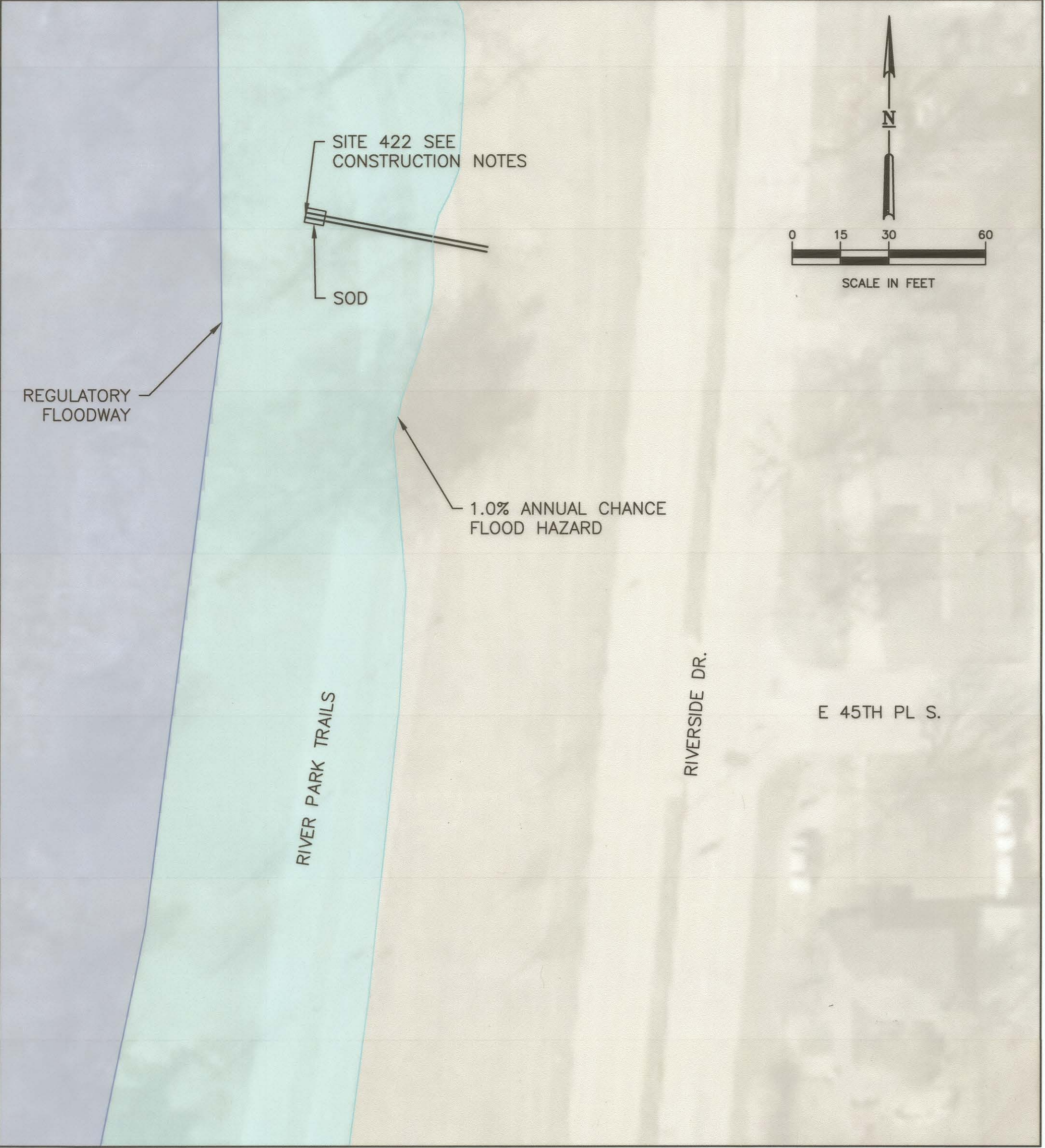
SITE PHOTO



LOCATION MAP



SITE 422



LEGEND

███ FEMA SITE AREA



FEMA SITE 422

PROJECT #173120-T021-126333

DAMAGE # 331117

CITY OF TULSA, OKLAHOMA
ENGINEERING SERVICES DEPARTMENT

PLANS AND ESTIMATES PREPARED BY:
Meshek & Associates, L.L.C.
1437 S. Boulder Avenue, Suite 1550 Tulsa, OK 74119 (918)392-5620

REVISION	BY	DATE	PLAN SCALE	DRAWN	ASB	05/20	APPROVED:
			1" = 100'	DESIGNED	RJP	05/20	
				SURVEY	N/A	N/A	
			PROFILE SCALE	PROJ. MGR.	JG	1/21	
			HORIZONTAL:	LEAD ENGR.	BOC	1/21	
			N/A	FIELD MGR.	BOC	1/21	
			VERTICAL:	RECOMMENDED	ASB	1/21	
			N/A	DESIGN MANAGER			
			FILE:	DRAWING:			
			ATLAS PAGE NO. 190				

CITY ENGINEER
DATE: 1/26/21
SHEET 40 OF 50 SHEETS

STORM WATER MANAGEMENT PLAN

SITE DESCRIPTION

PROJECT LIMITS: DAMAGE INVENTORY #331153 SITES ALONG THE EAST SIDE OF THE
ARKANSAS RIVER INCLUDING: SITE 223, SITE 226, SITE 319, SITE 343, SITE 381, SITE 396, SITE
401, SITE 413, AND SITE 415. ALL APPROXIMATELY LOCATED IN THE E/2 OF SECTION 24 OF
OK T19N R 12 E. WITHIN THE CITY LIMITS OF TULSA, OKLAHOMA.

PROJECT DESCRIPTION: _____ SITE 413: REPLACE PIPE
SITE 223: EROSION CONTROL _____ SITE 415: REPLACE PIPE
SITE 226: EROSION CONTROL AND REPLACE PIPE
SITE 319: EROSION CONTROL AND CULVERT END SECTION (REMOVE AND REPLACE)
SITE 343: EROSION CONTROL
SITE 381: REPLACE PIPE
SITE 396: REPLACE PIPE
SITE 401: EROSION CONTROL AND REPLACE PIPE

SUGGESTED SEQUENCE OF EROSION CONTROL ACTIVITIES:

1. TEMPORARY EROSION CONTROL.
2. PERMANENT EROSION CONTROL.

SOIL TYPE: _____
VERY FINE SANDY LOAM, SILT LOAM, STRATIFIED
LOAMY FINE SAND, SILTY CLAY LOAM, VARIABLE

TOTAL AREA OF THE
CONSTRUCTION SITE: _____
LESS THAN 1 ACRE COMBINED

ESTIMATED AREA TO BE DISTURBED: _____
LESS THAN 1 ACRE COMBINED

OFFSITE AREA TO BE DISTURBED:
(FOR CONTRACTOR USE)

TOTAL IMPERVIOUS AREA
PRE-CONSTRUCTION: _____
0.012 ACRES

TOTAL IMPERVIOUS AREA
POST-CONSTRUCTION: _____
0.012 ACRES

POST-CONSTRUCTION RUNOFF
COEFFICIENT OF THE SITE: _____
X.X

LATITUDE & LONGITUDE
OF CENTER OF PROJECT: _____
N36° 06' 42.8", W95° 59' 02.8" N36° 06' 41.7", W95° 59' 02.4"
N36° 06' 29.2", W95° 59' 03.5" N36° 06' 38.2", W95° 59' 02.8"
N36° 06' 23.4", W95° 59' 03.1" N36° 06' 45.4", W95° 59' 03.5"
N36° 06' 34.2", W95° 59' 03.8" N36° 06' 24.8", W95° 59' 01.3"

PROJECT WILL DISCHARGE TO:

NAME OF RECEIVING WATERS: _____
ARKANSAS RIVER

SENSITIVE WATERS OR WATERSHEDS: YES ☐ NO ☒

303 IMPAIRED WATERS: YES ☒ NO ☐

IF YES, LIST IMPAIRMENT: _____
CADMIUM

LOCATED IN A TMDL: YES ☐ NO ☒

LAKE THUNDERBIRD TMDL: YES ☐ NO ☒

MS4 ENTITY YES ☒ NO ☐

IF YES, LOCATION: _____
TULSA COUNTY

NOTE:

THIS SHEET SHOULD BE USED IN CONJUNCTION WITH A DRAINAGE MAP THAT
ILLUSTRATES THE DRAINAGE PATTERNS/PATHWAYS AND RECEIVING WATERS
FOR THIS PROJECT. THIS SHEET SHOULD ALSO BE USED WITH THE EROSION
CONTROL SUMMARIES, PAY ITEMS, & NOTES.

REVISED 08 / 18 / 2017

EROSION AND SEDIMENT CONTROLS

SOIL STABILIZATION PRACTICES:

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

NOTE: TEMPORARY EROSION CONTROL METHODS MUST BE USED ON
ALL DISTURBED AREAS WHERE CONSTRUCTION ACTIVITIES HAVE CEASED
FOR OVER 14 DAYS. METHODS USED WILL BE AS SHOWN ON PLANS,
OR AS DIRECTED BY THE ENGINEER.

STRUCTURAL PRACTICES:

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

OFFSITE VEHICLE TRACKING:

- ☒ HAUL ROADS DAMPENED FOR DUST CONTROL
- ☒ LOADED HAUL TRUCKS TO BE COVERED WITH TARPULIN
- ☒ EXCESS DIRT ON ROAD REMOVED DAILY

NOTES:

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 INCH 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 STORM WATER POLLUTION PREVENTION PLAN (SWPPP) 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) FORM AND PERMIT CERTIFICATE 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. ALL CONTRACTOR OFF-SITE OPERATIONS ASSOCIATED WITH
THE PROJECT MUST BE DOCUMENTED IN THE SWPPP, I.E., BORROW PITS, WORK ROADS, DISPOSAL SITES,
ASPHALT/CONCRETE PLANTS, ETC. THE BASIC GOAL OF STORM WATER 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 STORM WATER POLLUTION.

THE FOLLOWING SECTIONS OF THE 2009 ODOT STANDARD SPECIFICATIONS SHOULD
BE NOTED:

- 103.05 BONDING REQUIREMENTS
- 104.10 FINAL CLEANING UP
- 104.12 CONTRACTOR'S RESPONSIBILITY FOR WORK
- 104.13 ENVIRONMENTAL PROTECTION
- 106.08 STORAGE AND HANDLING OF MATERIAL
- 107.01 LAWS, RULES AND REGULATIONS TO BE OBSERVED
- 107.20 STORM WATER MANAGEMENT
- 220 MANAGEMENT OF EROSION, SEDIMENTATION AND STORM WATER POLLUTION PREVENTION AND CONTROL
- 221 TEMPORARY SEDIMENT CONTROL

IN ADDITION:

"ODEQ GENERAL PERMIT (OKR10) FOR STORM WATER DISCHARGES
FROM CONSTRUCTION ACTIVITIES WITHIN THE STATE OF OKLAHOMA."
ODEQ, WATER QUALITY DIVISION, SEPTEMBER 13, 2017.



REVISION	BY	DATE	PLAN SCALE	DRAWN	ASB	05/20	APPROVED:
			DESIGNED	RJP		05/20	
			SURVEY	N/A		N/A	
			PROFILE SCALE	PROJ. MGR.	1/16	1/21	
			HORIZONTAL:	LEAD ENGR.	9/20/19		
			N/A	FIELD MGR.	2/21/19		
			VERTICAL:	RECOMMENDED	H.S. 1-21		
			N/A	DESIGN MANAGER			
			FILE:	DRAWING:			
			ATLAS PAGE NO.	96	139		

STORM WATER MANAGEMENT PLAN

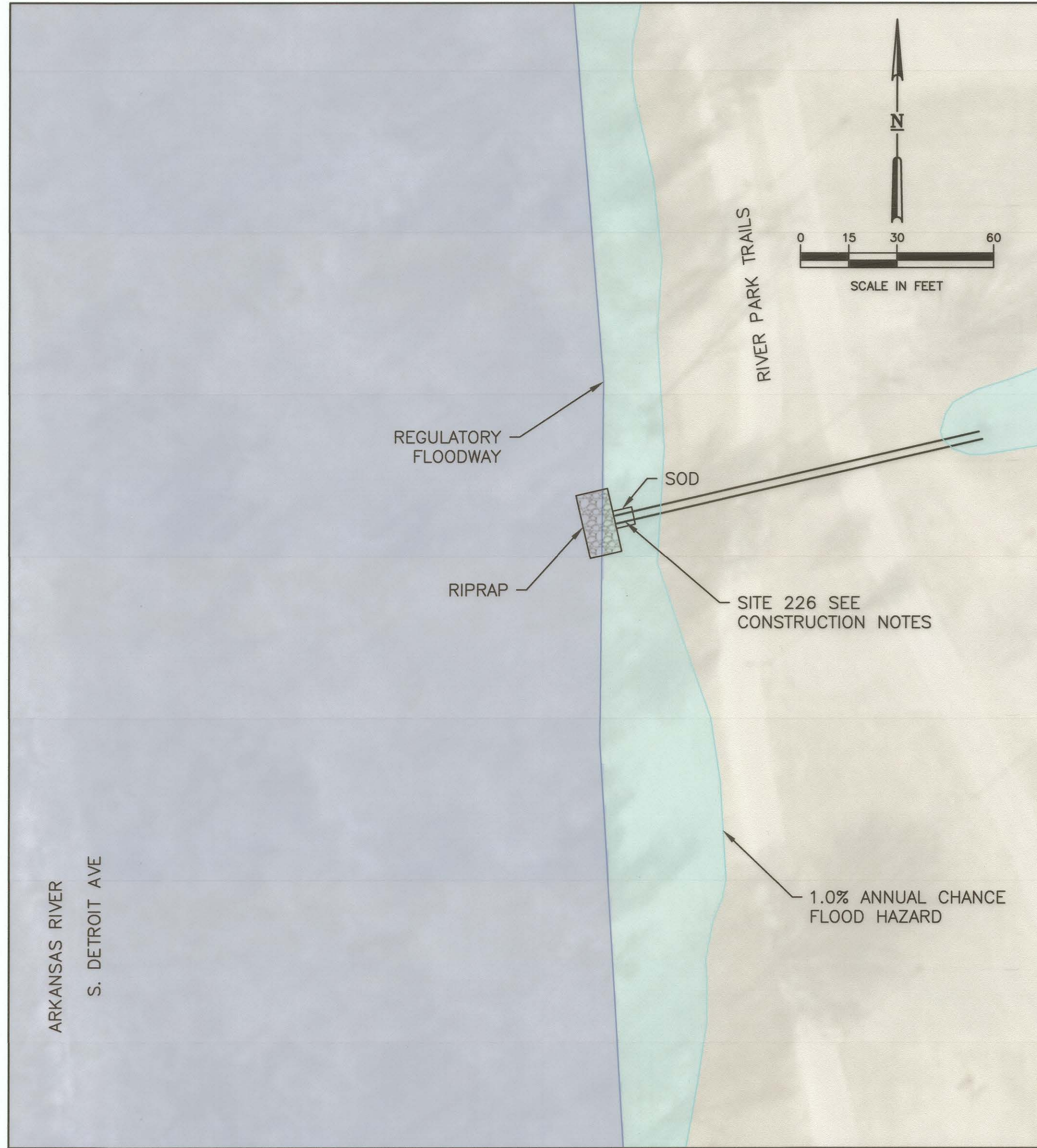
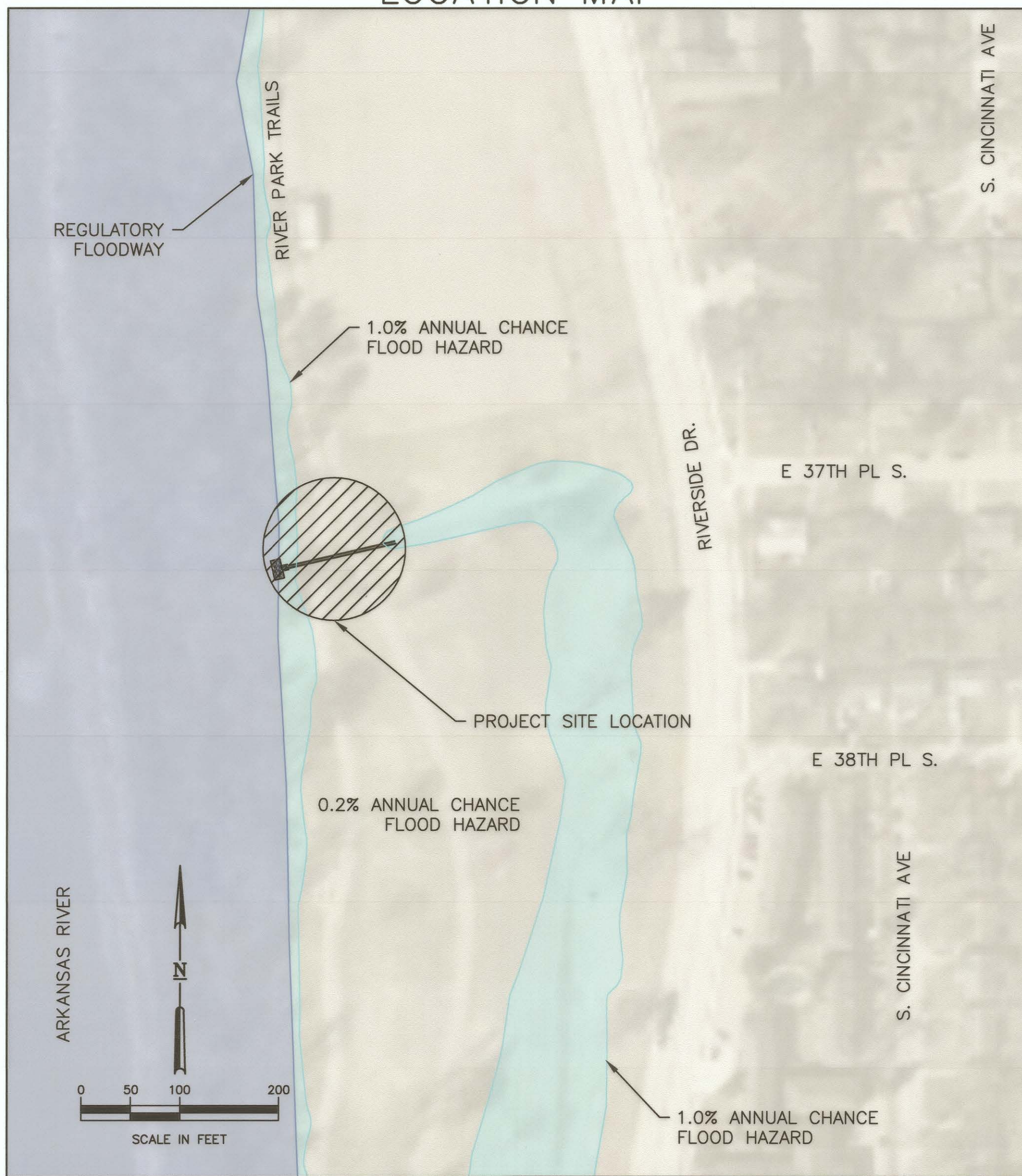
PROJECT #173120-T021-126333

DAMAGE #331153

CITY OF TULSA, OKLAHOMA
ENGINEERING SERVICES DEPARTMENT

PLANS AND ESTIMATES PREPARED BY:
Meshek & Associates, L.L.C.
1437 S. Boulder Avenue, Suite 1550 Tulsa, OK 74119 (918)392-5620

PLAN SCALE	DRAWN	ASB	05/20	APPROVED:
N/A	DESIGNED	RJP	05/20	
PROFILE SCALE	PROJ. MGR.	1/16	1/21	
HORIZONTAL:	LEAD ENGR.	9/20/19		
N/A	FIELD MGR.	2/21/19		
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N/A	DESIGN MANAGER			
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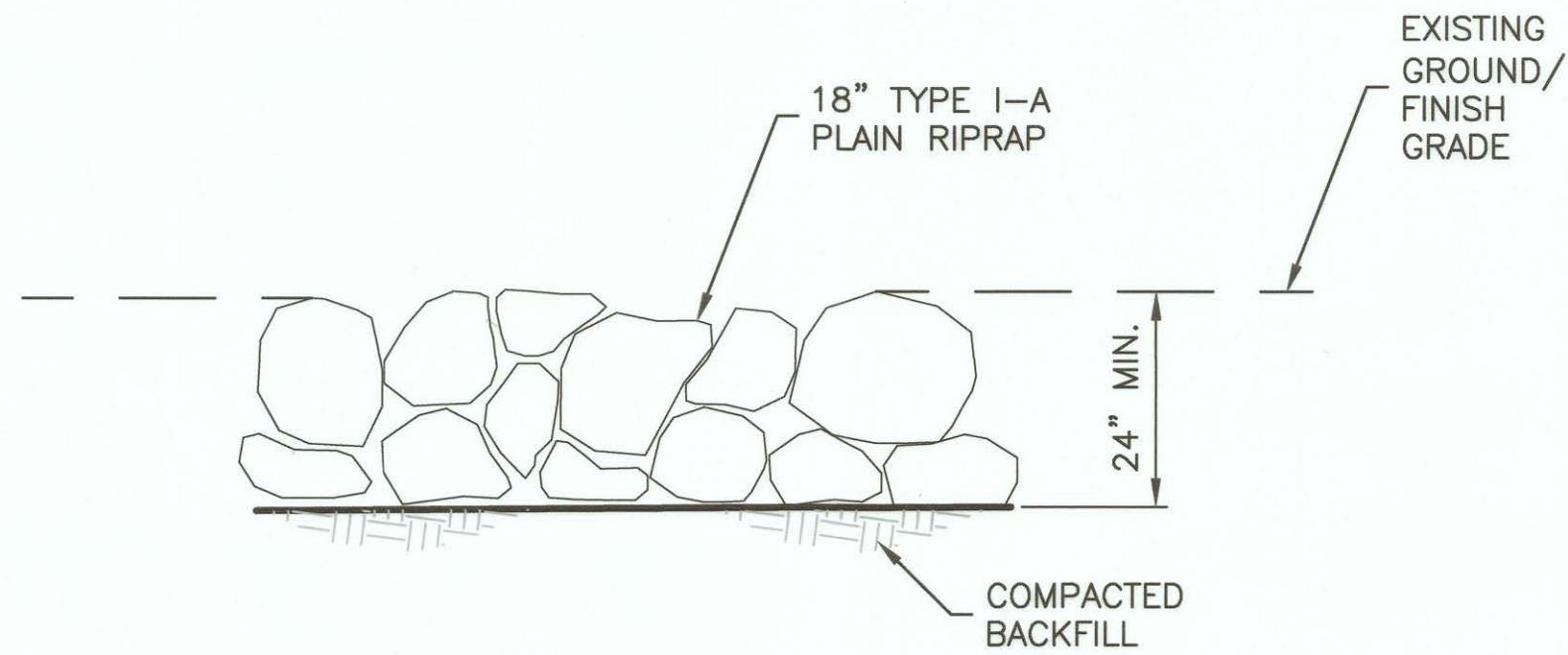


CONSTRUCTION NOTES:
SITE 226 (36.10810, -95.98430)

STORM DRAIN, RCP, 6 FT LONG X 30IN IN
DIAMETER, SURFACE WATER FLOODING
SEPARATED SECTIONS OF PIPE.

STONE, 15 CY OF RIP-RAP (WITH GEOTEXTILE FABRIC), 20 FT LONG X 10 FT WIDE X 2 FT DEEP, SURFACE WATER FLOODING ERODED STONE.

SITE 226 - PAY QUANTITIES					
ROADWAY 0100					
ITEM		DESCRIPTION	NOTES	UNIT	QUANTITY
230(A)	2806	SOLID SLAB SODDING	E-10,11	SY	5.00
601(B)	0536	TYPE 1-A PLAIN RIP RAP		CY	15.00
613(A)	0496	30" R.C.PIPE CLASS III (COMPLETE IN PLACE)	D-8,12,13 1	LF	6.00



1 RIPRAP INSTALLATION

SCALE: NONE

SITE PHOTO



SITE PHOTO

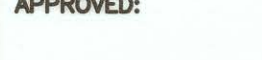


LEGEND



REVISION	BY	DATE	PLAN SCALE	DRAWN	ASB	05/20	APPROVED:
			1" = ##'	DESIGNED	RJP	05/20	
			PROFILE SCALE	SURVEY	N/A	N/A	
			HORIZONTAL: N/A	PROJ. MGR.	C.A.H.	1/21	
			VERTICAL: N/A	LEAD ENGR.	JAC	1/21	
				FIELD MGR.	M.H.	1/21	
				RECOMMENDED	H.A.S.	1/21	
				DESIGN MANAGER			
			FILE:	DRAWING:			
			ATLAS PAGE NO. 1-29				

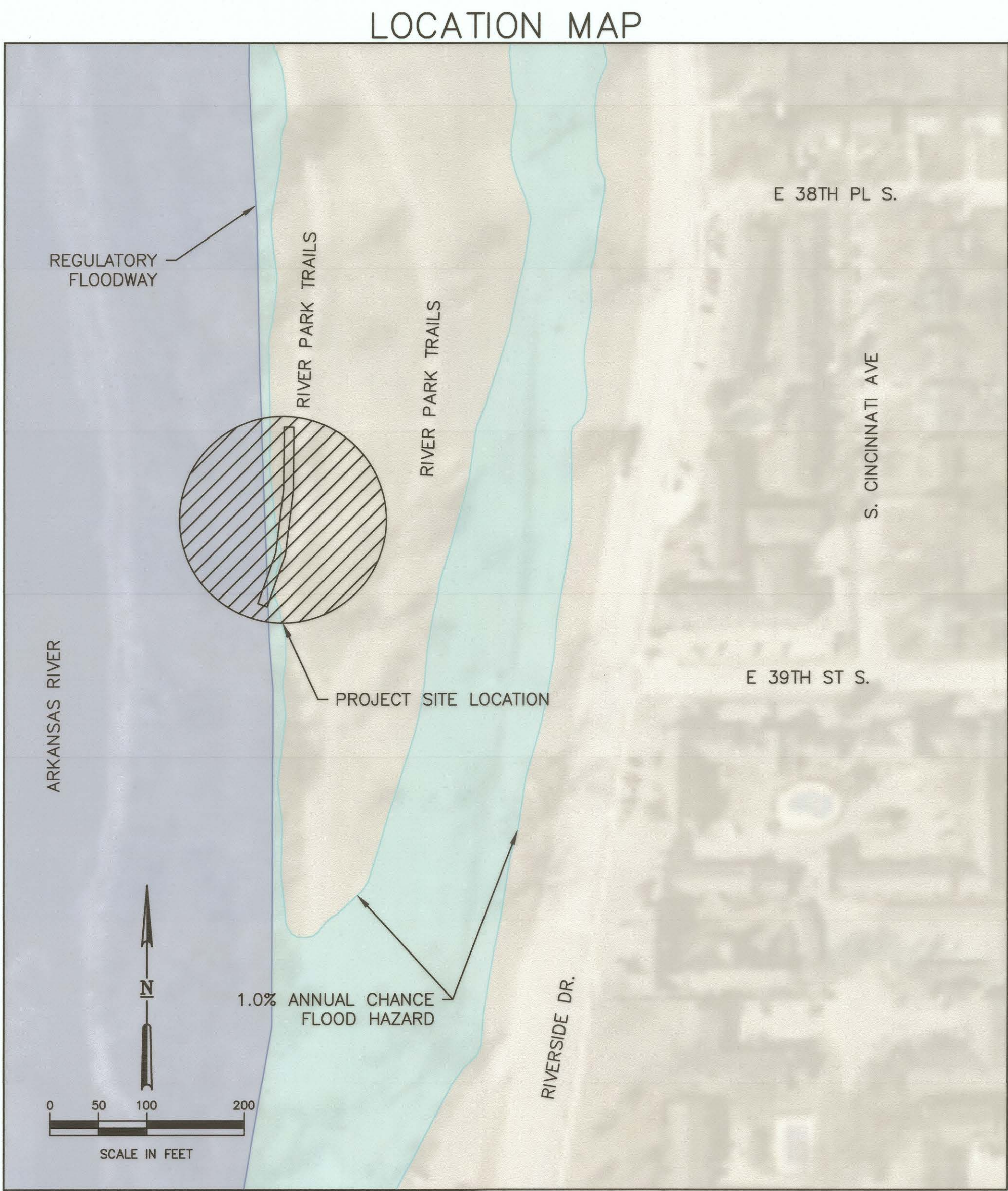
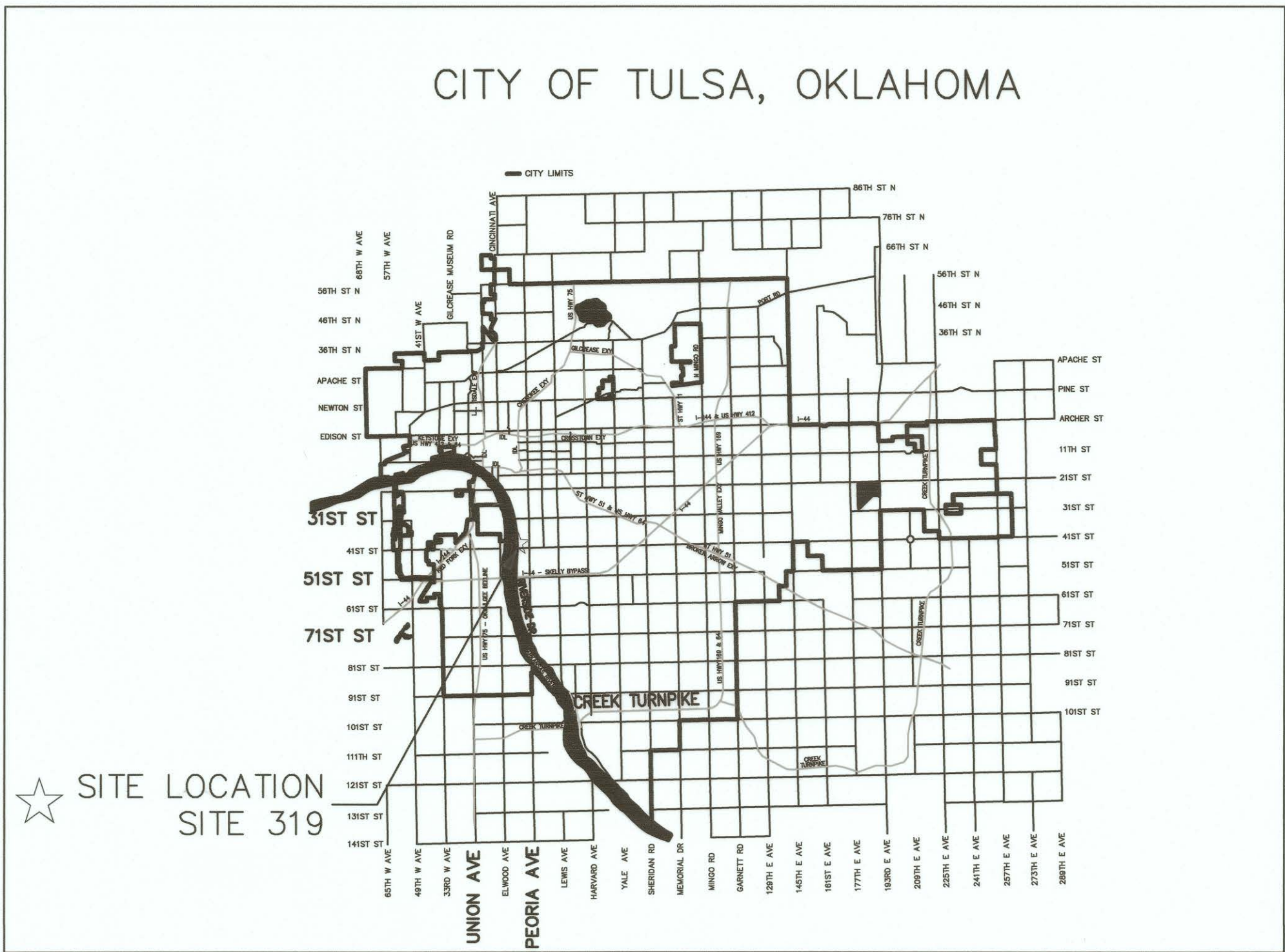
CITY ENGINEER



DATE: 1-28-21

SHEET 43 OF 50 SHEETS

PRINT DATE: 12/17/2020 M:\City of Tulsa\17TUL03 On-Call Stormwater Services_2017\TO_21_FEMA Flood Damage Design\Working\126333\ DAMAGE_331153.dwg

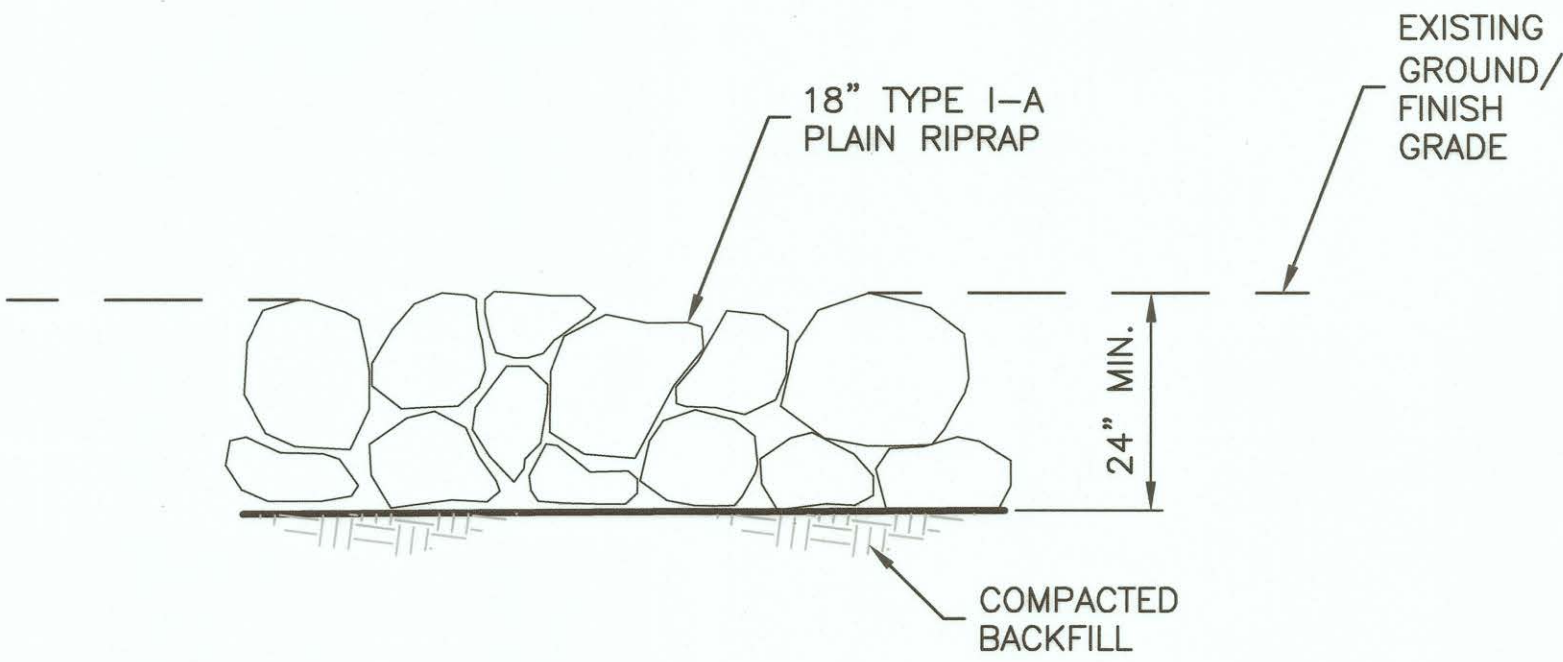


CONSTRUCTION NOTES:
SITE 319 (36.10650, -95.98420)

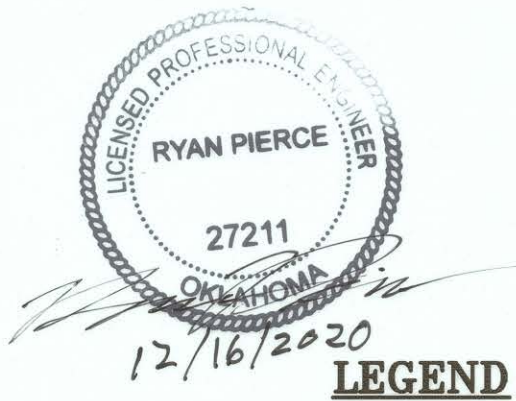
BACKFILL, 141 CY OF UNCLASSIFIED FILL, 190 FT LONG X 10 FT WIDE X 2 FT DEEP, SURFACE WATER FLOODING ERODED SOIL ALONG BANK.

SITE 319 - PAY QUANTITIES					
ROADWAY 0100					
ITEM		DESCRIPTION	NOTES	UNIT	QUANTITY
202(D)	0184	UNCLASSIFIED BORROW		CY	141.00
230(A)	2806	SOLID SLAB SODDING	E-10,11	SY	262.00
326(B)	0100	GEOGRID REINFORCEMENT		SY	50.00
601(B)	0536	TYPE I-A RIPRAP		CY	9.00
613(L)	5726	18" PREFAB. CULVERT END SECTION, ROUND		EA	1.00

- SITE 319 - (36.10650, -95.98420)
- HAZARD MITIGATION PROPOSAL (HMP) SCOPE OF WORK:
- * ADDING 8.47 CY RIP RAP TO MITIGATE DAMAGE FROM RAPIDLY FLOWING FLOOD WATERS.
 - * ADDING 50 SY GEOSYNTHETIC FABRIC TO PREVENT EROSION CAUSED BY RAPIDLY FLOWING FLOOD WATERS.
 - * ADDING 1 EACH 18-IN DIAMETER, 6-FT LONG PREFABRICATED CONCRETE END SECTION.



1 RIPRAP INSTALLATION
SCALE: NONE



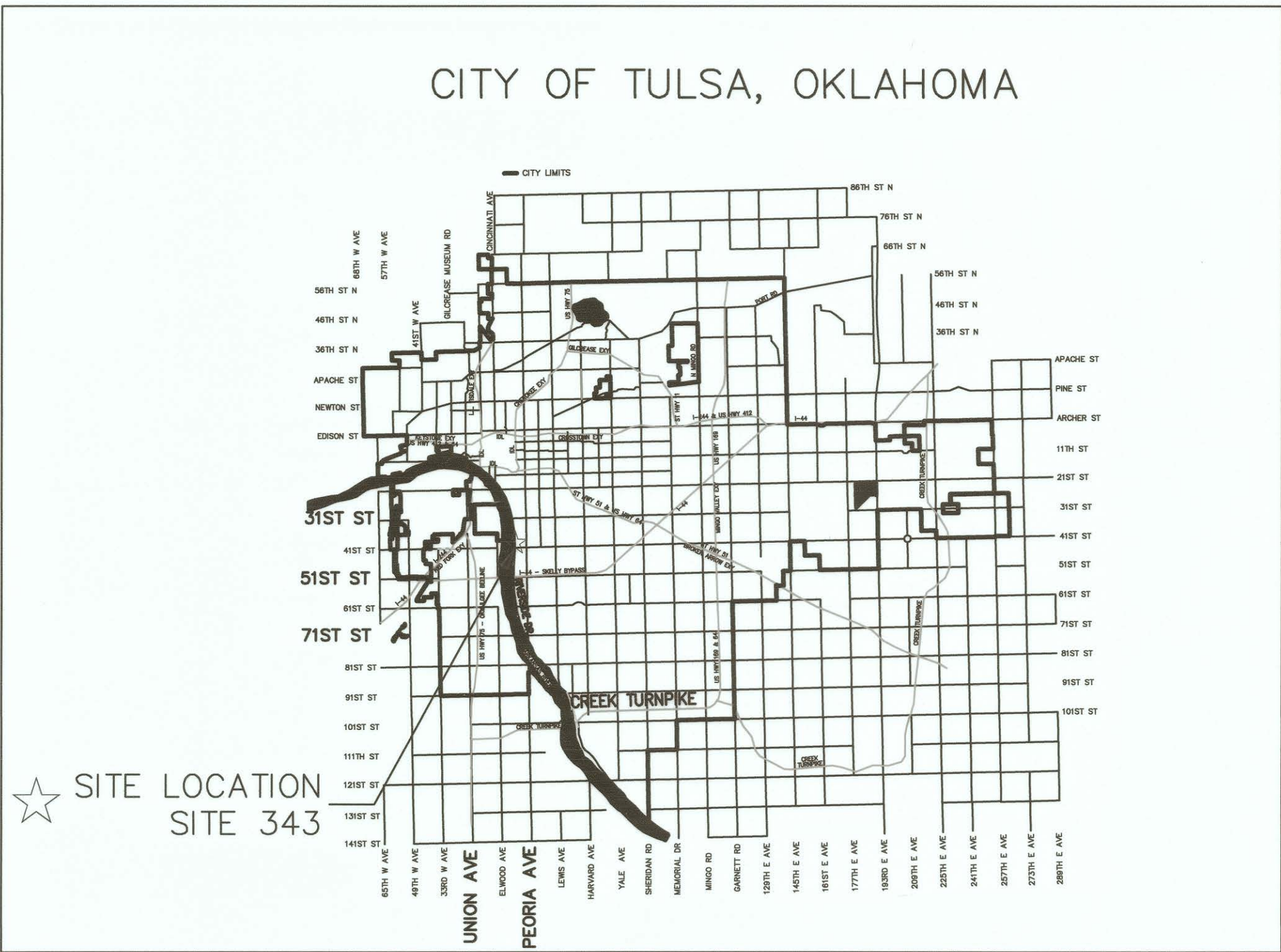
██ FEMA SITE AREA



REVISION				BY	DATE	PLAN SCALE				DRAWN				APPROVED:			
						1" = 10'	DESIGNED	RJP	05/20								
						PROFILE SCALE	PROJ. MGR.	N/A	N/A								
						HORIZONTAL:	LEAD ENGR.	N/A	N/A								
						VERTICAL:	FIELD MGR.	N/A	N/A								
						FILE:	RECOMMENDED	N/A	N/A								
						ATLAS PAGE NO.	DESIGN MANAGER										

FEMA SITE 319			
PROJECT #173120-T021-126333			
DAMAGE # 331153			
CITY OF TULSA, OKLAHOMA ENGINEERING SERVICES DEPARTMENT			
PLANS AND ESTIMATES PREPARED BY: Meshek & Associates, L.L.C. 1437 S. Boulder Avenue, Suite 1550 Tulsa, OK 74119 (918)392-5620			
APPROVED:			
DATE: 1-08-21			
SHEET 44 OF 50 SHEETS			

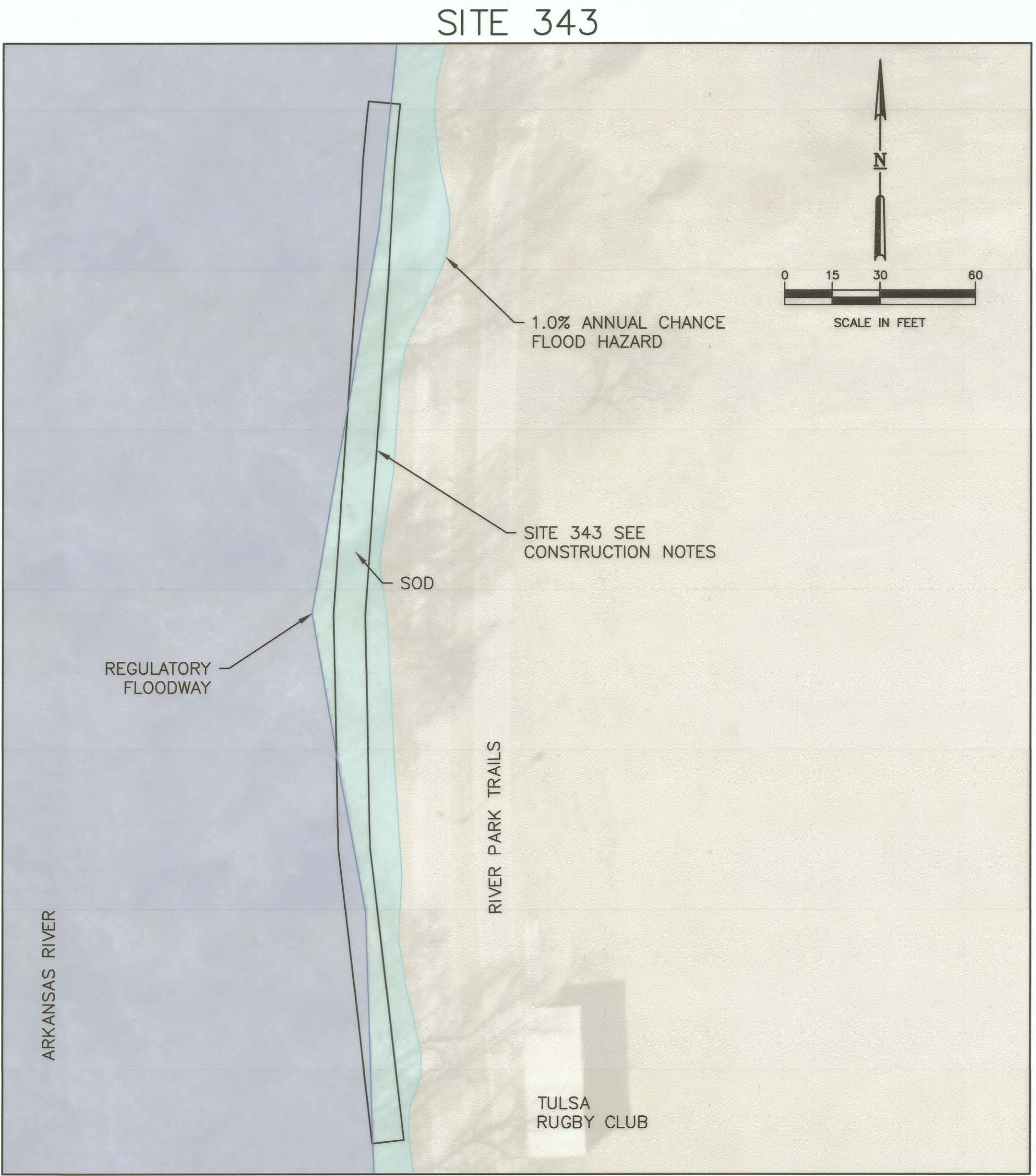
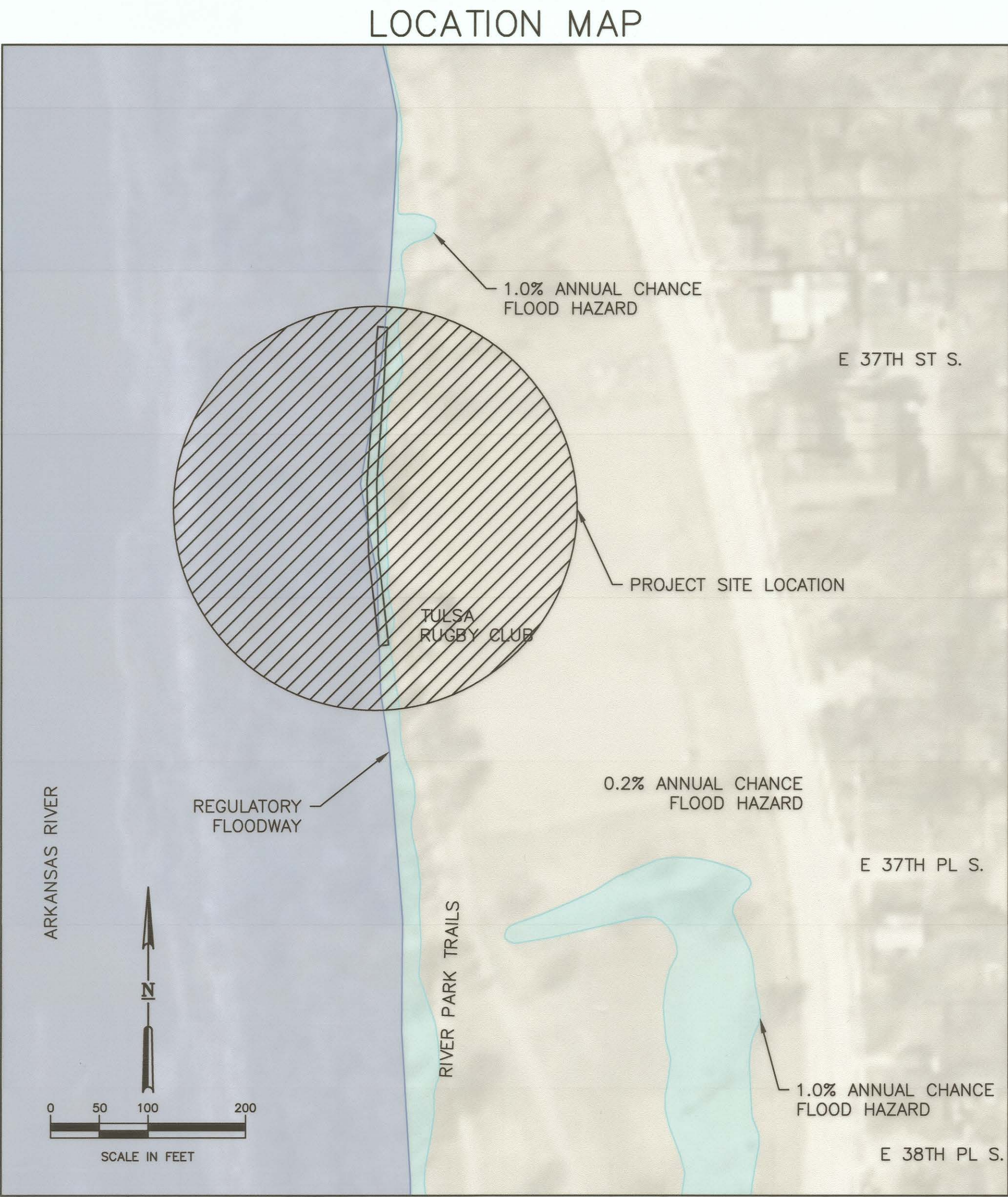
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CONSTRUCTION NOTES:
SITE 343 (36.10950, -95.98440)

BACKFILL, 222 CY OF UNCLASSIFIED FILL, 300
FT LONG X 10 FT WIDE X 2 FT DEEP, SURFACE
WATER FLOODING ERODED SOIL.

SITE 343 - PAY QUANTITIES					
ROADWAY 0100					
ITEM		DESCRIPTION	NOTES	UNIT	QUANTITY
202(D)	0184	UNCLASSIFIED BORROW		CY	222.00
230(A)	2806	SOLID SLAB SODDING	E-10,11	SY	334.00

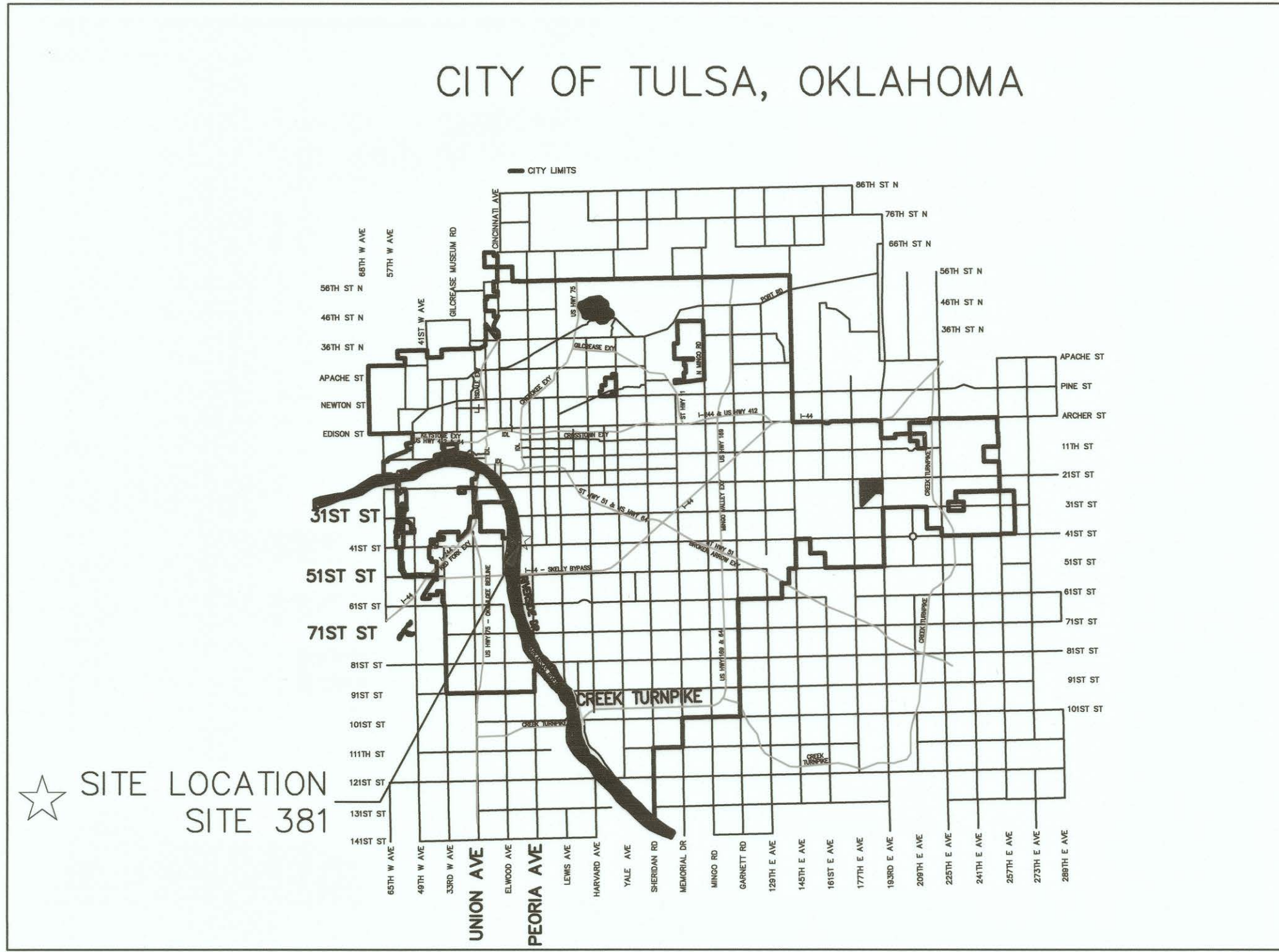
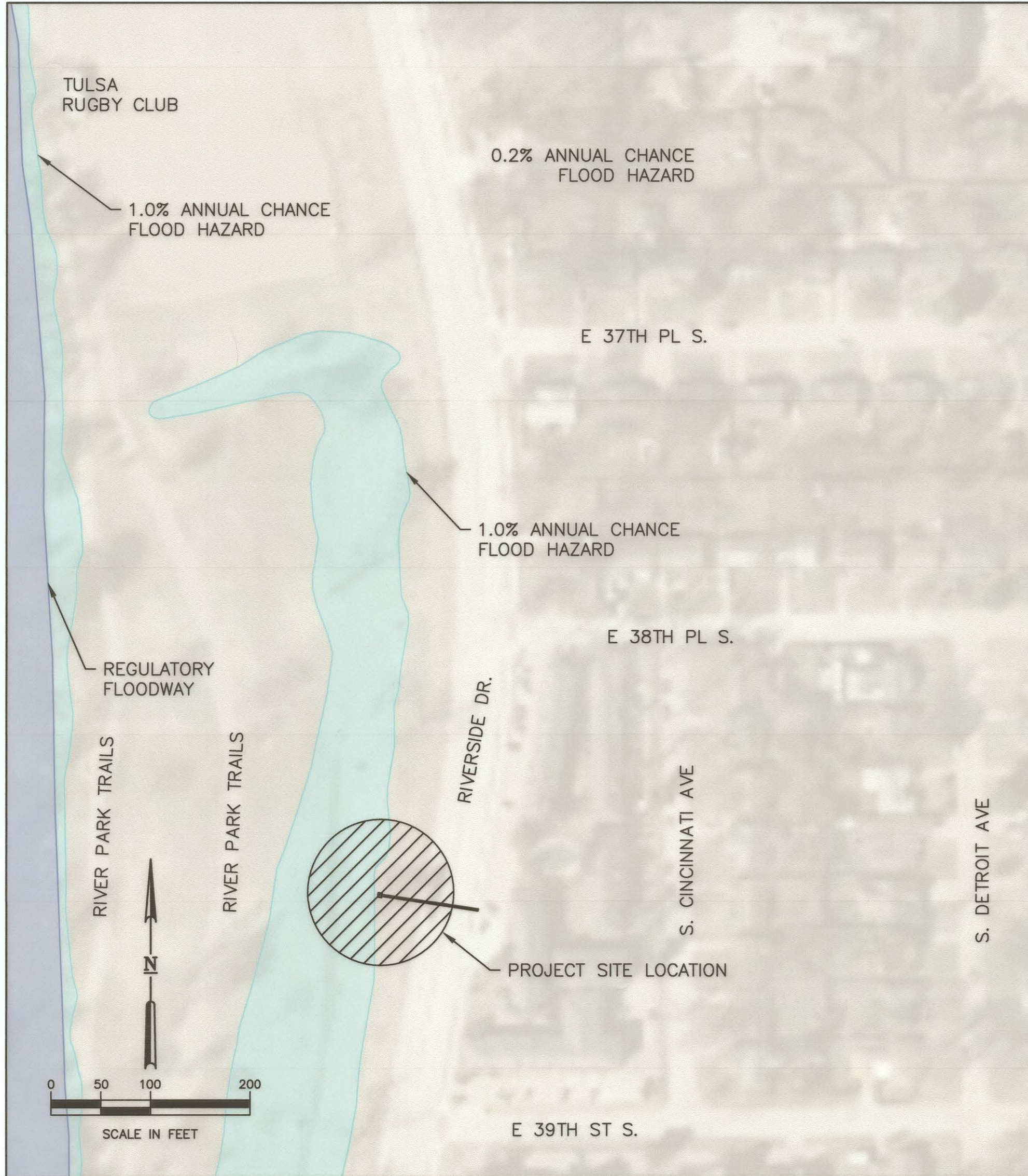


LEGEND

██ FEMA SITE AREA



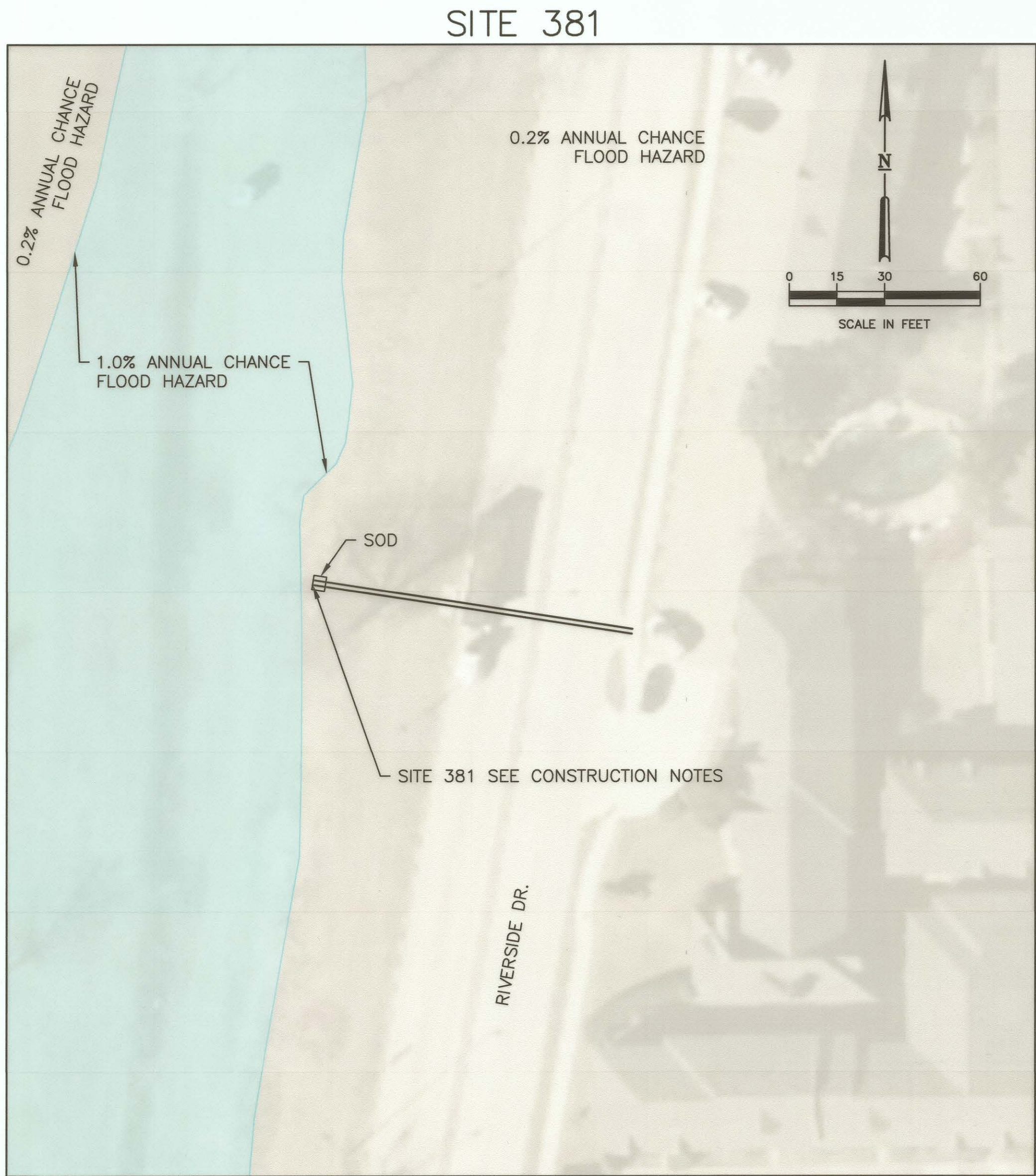
FEMA SITE 343									
PROJECT #173120-T021-126333									
DAMAGE # 331153									
CITY OF TULSA, OKLAHOMA ENGINEERING SERVICES DEPARTMENT									
PLANS AND ESTIMATES PREPARED BY: Meshek & Associates, L.L.C.									
1437 S. Boulder Avenue, Suite 1550 Tulsa, OK 74119 (918)392-5620									
REVISION	BY	DATE	PLAN SCALE	DRAWN	ASB	05/20	DESIGNED	RJP	05/20
			1" = 100'	SURVEY	N/A	N/A	PROJ. MGR.	LTP	11/21
			HORIZONTAL:	LEAD ENGR.	006	11/21	FIELD MGR.	006	11/21
			VERTICAL:	RECOMMENDED	006	11/21	DESIGN MANAGER	006	11/21
			FILE:	DRAWING:					
			ATLAS PAGE NO. 139						
							APPROVED:		
							CITY ENGINEER		
							DATE: 1-08-21		
							SHEET 45 OF 50 SHEETS		



CONSTRUCTION NOTES:
SITE 381 (36.10690, -95.98370)

STORM DRAIN, RCP 4 FT LONG X 18IN IN
DIAMETER, SURFACE WATER FLOODING FORCE
SEPARATED SECTIONS OF PIPE.

SITE 381 - PAY QUANTITIES					
ROADWAY 0100					
ITEM		DESCRIPTION	NOTES	UNIT	QUANTITY
230(A)	2806	SOLID SLAB SODDING	E-10,11	SY	2.00
613(A)	0496	18" R.C.PIPE CLASS III (COMPLETE IN PLACE)	D-8,12,13 1	LF	4.00



LEGEND



REVISION	BY	DATE	PLAN SCALE	DRAWN	ASB	05/20	APPROVED:  CITY ENGINEER
			1" = ##'	DESIGNED	RJP	05/20	
				SURVEY	N/A	N/A	
			PROFILE SCALE	PROJ. MGR.	ASB	1/21	
			HORIZONTAL: N/A	LEAD ENGR.	ASB	1/21	
			VERTICAL: N/A	FIELD MGR.	ASB	1/21	
				RECOMMENDED	ASB	1/21	
				DESIGN MANAGER			
			FILE:	DRAWING:			DATE: 1-28-21
			ATLAS PAGE NO. 76				SHEET 46 OF 50 SHEETS

CITY OF TULSA, OKLAHOMA

— CITY LIMITS

60TH ST N
58TH ST N
56TH ST N
54TH ST N
52TH ST N
50TH ST N
48TH ST N
46TH ST N
44TH ST N
42TH ST N
40TH ST N
38TH ST N
36TH ST N
34TH ST N
32TH ST N
30TH ST N
28TH ST N
26TH ST N
24TH ST N
22TH ST N
20TH ST N
18TH ST N
16TH ST N
14TH ST N
12TH ST N
10TH ST N
8TH ST N
6TH ST N
4TH ST N
2ND ST N
1ST ST N
APACHE ST
PINE ST
ARCHER ST
11TH ST
21ST ST
31ST ST
41ST ST
51ST ST
61ST ST
71ST ST
81ST ST
91ST ST
101ST ST

60TH W AVE
58TH W AVE
56TH W AVE
54TH W AVE
52TH W AVE
50TH W AVE
48TH W AVE
46TH W AVE
44TH W AVE
42TH W AVE
40TH W AVE
38TH W AVE
36TH W AVE
34TH W AVE
32TH W AVE
30TH W AVE
28TH W AVE
26TH W AVE
24TH W AVE
22TH W AVE
20TH W AVE
18TH W AVE
16TH W AVE
14TH W AVE
12TH W AVE
10TH W AVE
8TH W AVE
6TH W AVE
4TH W AVE
2ND W AVE
1ST W AVE
UNION AVE
PEORIA AVE
HAWKINS AVE
YALE AVE
SHERIDAN RD
MUNICIPAL DR
MORRIS RD
GRANETT RD
132ND E AVE
142ND E AVE
152ND E AVE
162ND E AVE
172ND E AVE
182ND E AVE
192ND E AVE
202ND E AVE
212ND E AVE
222ND E AVE
232ND E AVE
242ND E AVE
252ND E AVE
262ND E AVE
272ND E AVE
282ND E AVE

CRICK TURNPIKE

STAR

SITE LOCATION SITE 396

SITE 396 (36.11157, -95.98401)

SITE 396 - PAY QUANTITIES					
ROADWAY 0100					
ITEM		DESCRIPTION	NOTES	UNIT	QUANTITY
613(A)	0496	21" R.C.PIPE CLASS III (COMPLETE IN PLACE)	D-8,12,13 1	LF	20.00
SPECIAL		TYPE I PCC PATCH (ARTERIAL)	S-21	SY	22.00



Map showing the project site location in Little Rock, Arkansas. The map includes the following features:

- Arkansas River:** Located on the left side of the map.
- Regulatory Floodway:** Indicated by a blue line along the riverbank.
- 1.0% Annual Chance Flood Hazard:** Indicated by a light blue shaded area.
- Project Site Location:** Marked by a hatched circle on E 36th St S.
- Streets:** E 35th St S, E 35th Pl S, E 36th St S, E 36th Pl S, and Riverside Dr.
- River Park Trails:** Located south of the project site.
- North Arrow:** Located in the bottom left corner.
- Scale in Feet:** 0, 50, 100, 200.

REGULATORY FLOODWAY

RIVER PARK TRAILS

1.0% ANNUAL CHANCE FLOOD HAZARD

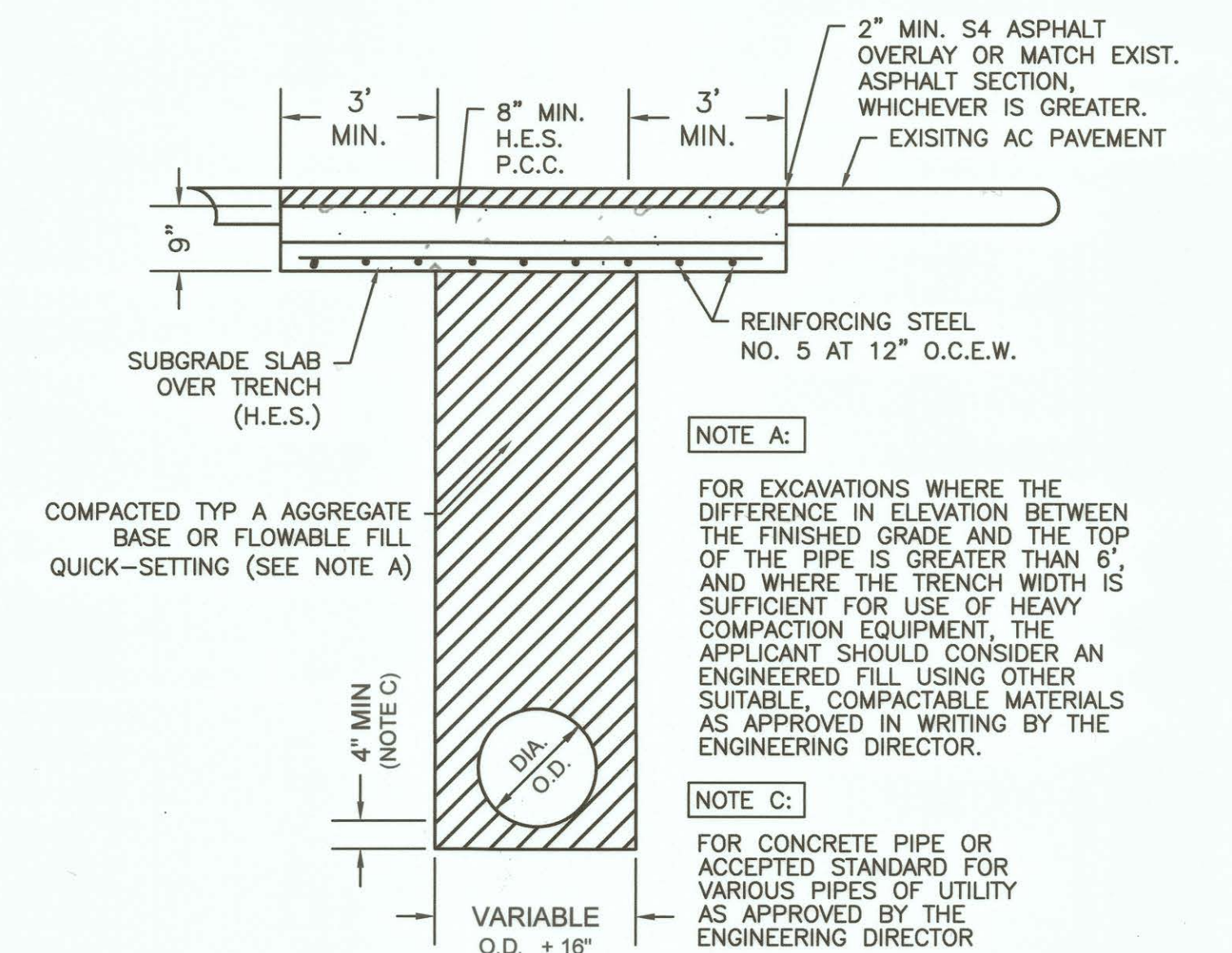
RIVERSIDE DR.

TYPE I PCC

SITE 396 SEE CONSTRUCTION NOTES

0 15 30 60
SCALE IN FEET

N



1 TYPE I PCC CUT AND REPAIR (ARTERIAL)
SCALE: NONE

LEGEND

 FEMA SITE AREA

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

FEMA SITE 396

PROJECT #173120-T021-126333

DAMAGE # 331153

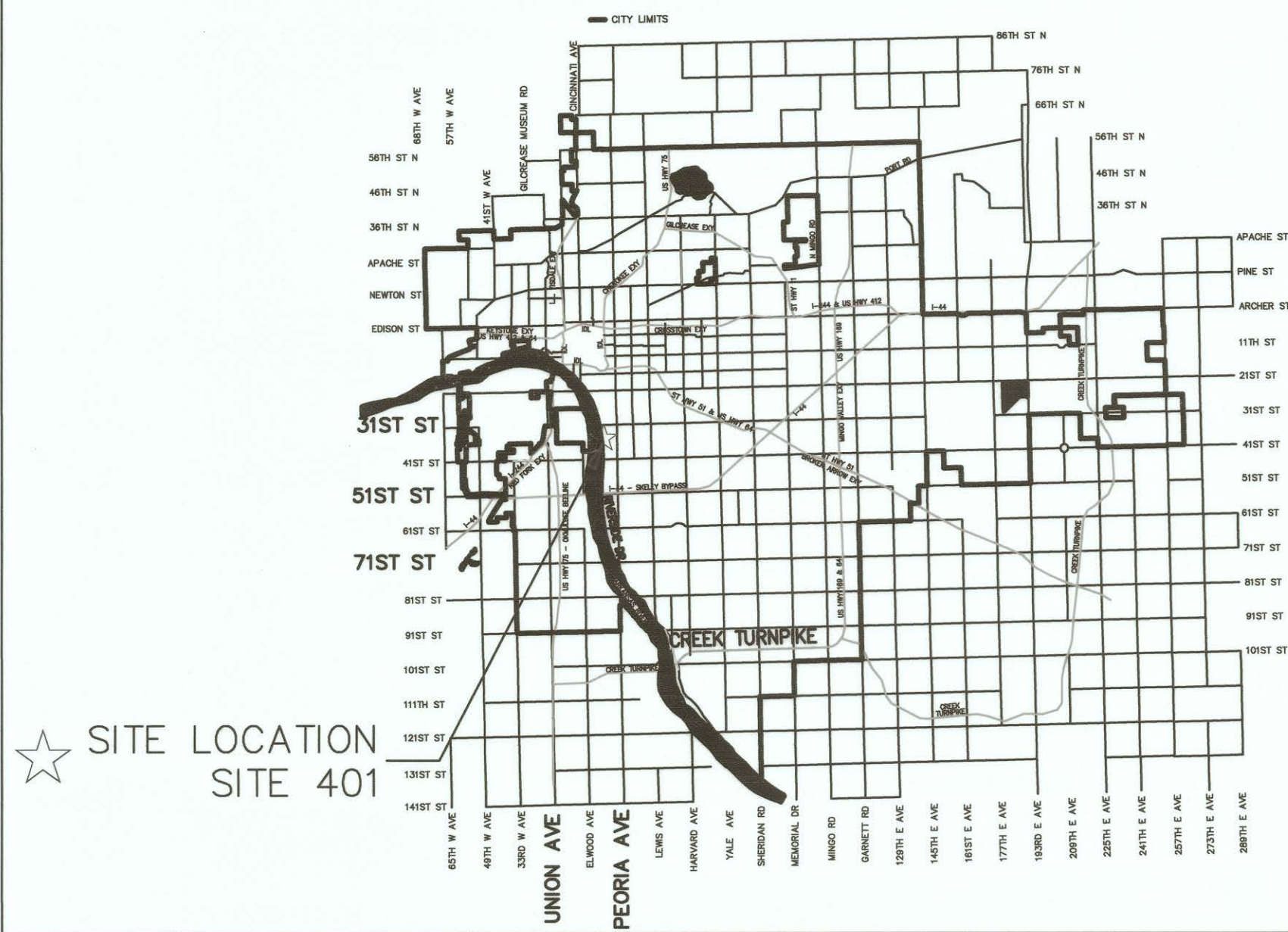
CITY OF TULSA, OKLAHOMA
ENGINEERING SERVICES DEPARTMENT

PLANS AND ESTIMATES PREPARED BY:
Meshek & Associates, L.L.C.
1437 S. Boulder Avenue, Suite 1550 Tulsa, OK 74119 (918)392-5620

[illegible]

PRINT DATE: 12/17/2020 M:\City of Tulsa\1710103 On-Call Stormwater Services\2017\TO-21_FEMA Flood Damage\Design\Working\126333\ DAMAGE_331153.dwg

CITY OF TULSA, OKLAHOMA



CONSTRUCTION NOTES:

SITE 401 (36.11060, -95.98410)

BACKFILL, 59 CY OF UNCLASSIFIED FILL, 80 FT LONG X 10 FT WIDE X 2 FT DEEP, SURFACE WATER FLOODING ERODED SOIL.

STORM DRAIN, CMP 28 FT LONG 18IN IN DIAMETER, SURFACE WATER FLOODING CAUSED SEPARATION TO SECTIONS OF PIPE.

SITE 401 - PAY QUANTITIES

ROADWAY 0100					
ITEM		DESCRIPTION	NOTES	UNIT	QUANTITY
202(D)	0184	UNCLASSIFIED BORROW		CY	59.00
230(A)	2806	SOLID SLAB SODDING	E-10,11	SY	103.00
613(B)	0689	18" CORR. GALV. STEEL PIPE (COMPLETE IN PLACE)	D-8,12,13 1	LF	28.00

SITE PHOTO



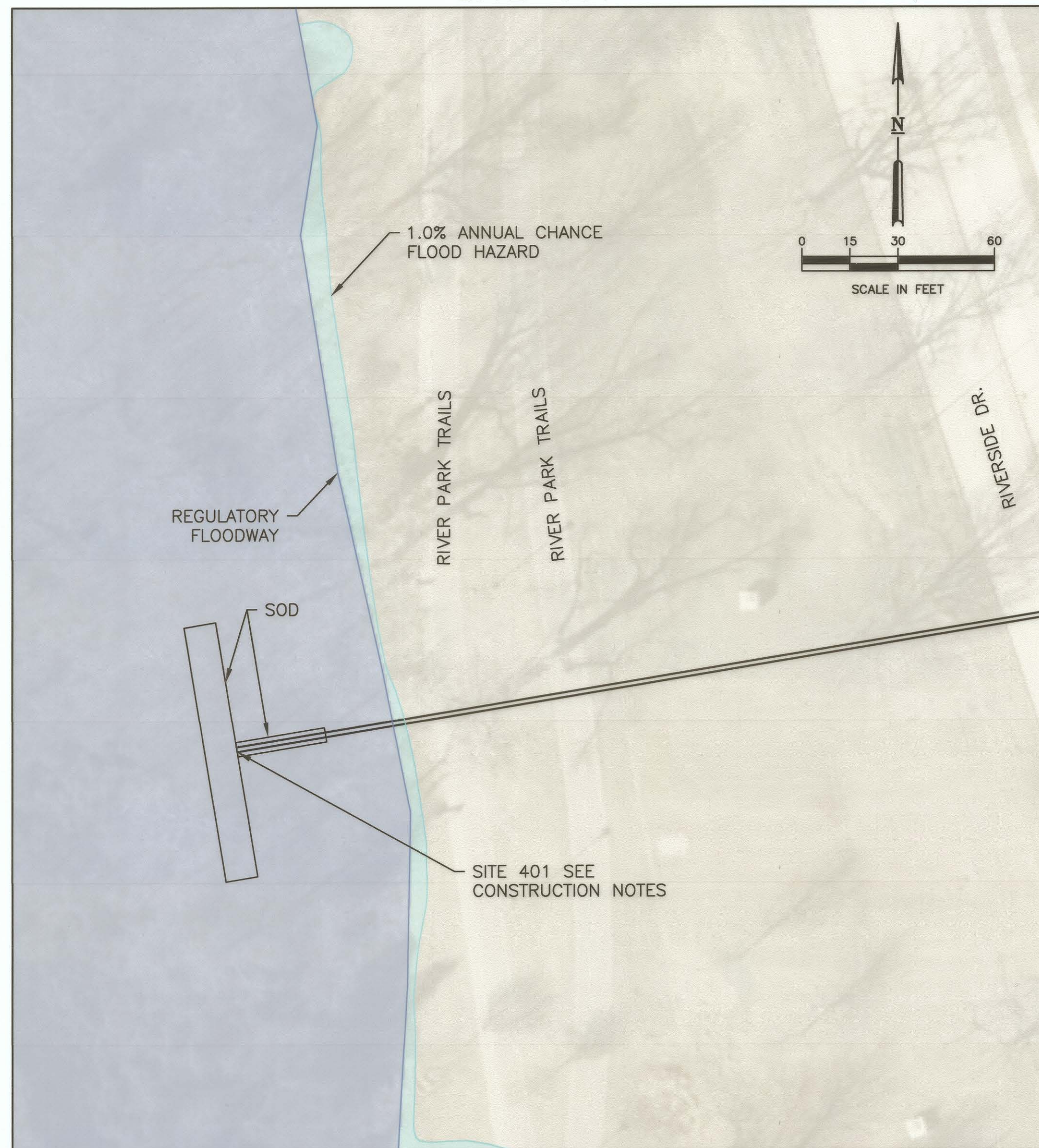
SITE PHOTO



LOCATION MAP



SITE 401



LEGEND

REGULATORY FLOODWAY



FEMA SITE 401

PROJECT #173120-T021-126333

DAMAGE # 331153

CITY OF TULSA, OKLAHOMA
ENGINEERING SERVICES DEPARTMENT

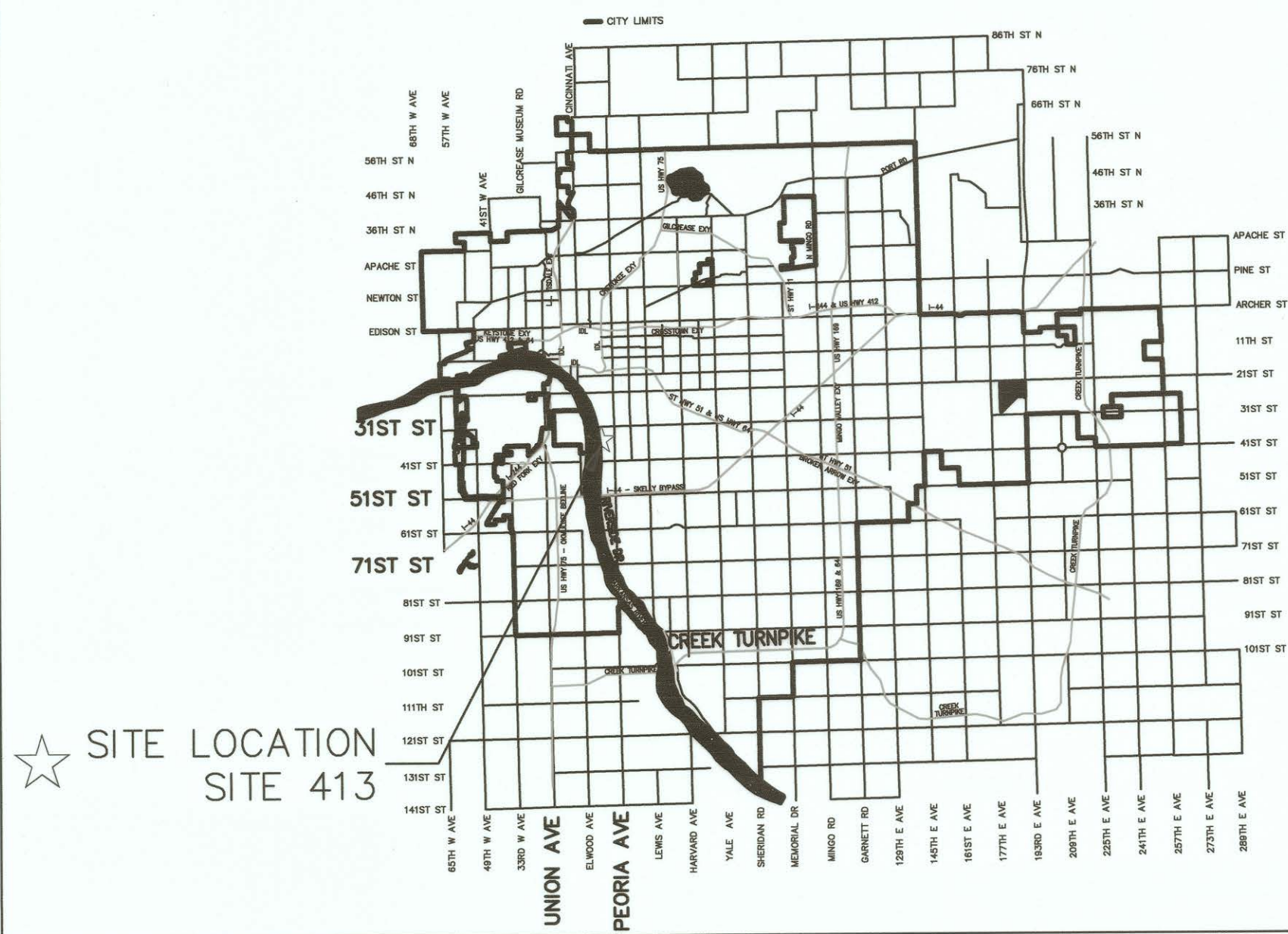
PLANS AND ESTIMATES PREPARED BY:
Meshek & Associates, L.L.C.
1437 S. Boulder Avenue, Suite 1550 Tulsa, OK 74119 (918)392-5620

REVISION	BY	DATE	PLAN SCALE	DRAWN	ASB	05/20	APPROVED:
			1" = 100'	DESIGNED	RJP	05/20	
				SURVEY	N/A	N/A	
			PROFILE SCALE	PROJ. MGR.	JLG	1/21	
			HORIZONTAL:	LEAD ENGR.	DEC	1/21	
			N/A	FIELD MGR.	DEC	1/21	
			VERTICAL:	RECOMMENDED	HAS	1-21	
			N/A	DESIGN MANAGER			
			FILE:	DRAWING:			
			ATLAS PAGE NO.	139			



PRINT DATE: 12/17/2020 M:\City of Tulsa\17JUL03 On-Call Stormwater Services 2017\TO-21_FEMA_Flood Damage Design\Working\126333 DAMAGE_331153.dwg

CITY OF TULSA, OKLAHOMA



★ SITE LOCATION
SITE 413

LOCATION MAP

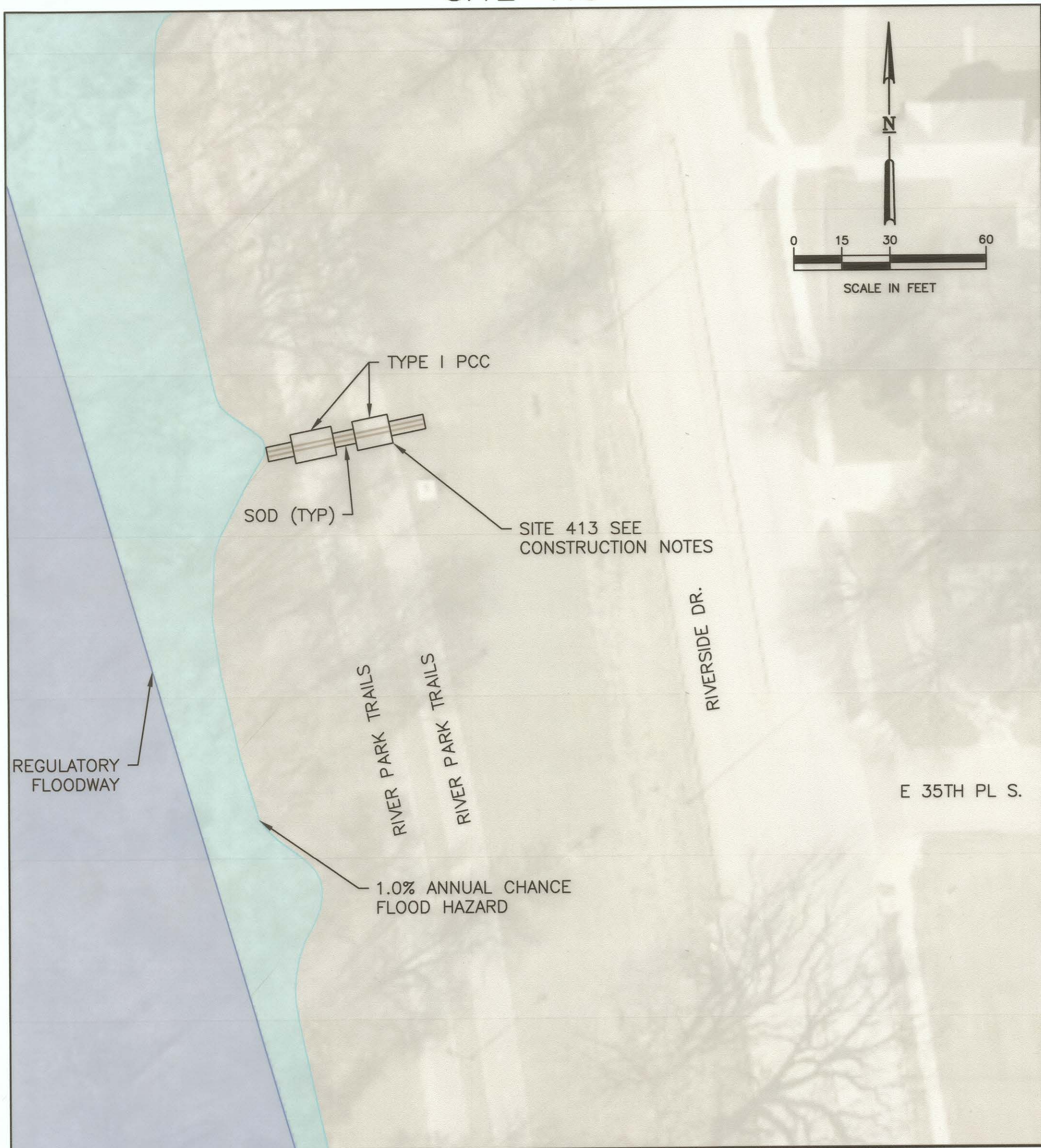


CONSTRUCTION NOTES: SITE 413 (36.11260, -95.98430)

STORM DRAIN, RCP 50 FT LONG 18IN IN
DIAMETER, SURFACE WATER FLOODING CAUSED
SEPARATION TO SECTIONS OF PIPE.

SITE 413 - PAY QUANTITIES					
ROADWAY 0100					
ITEM		DESCRIPTION	NOTES	UNIT	QUANTITY
230(A)	2806	SOLID SLAB SODDING	E-10,11	SY	13.00
613(A)	0496	18" R.C. PIPE CLASS III (COMPLETE IN PLACE)	D-8,12,13 1	LF	50.00
SPECIAL		TYPE I PCC PATCH (ARTERIAL)	S-21	SY	25.00

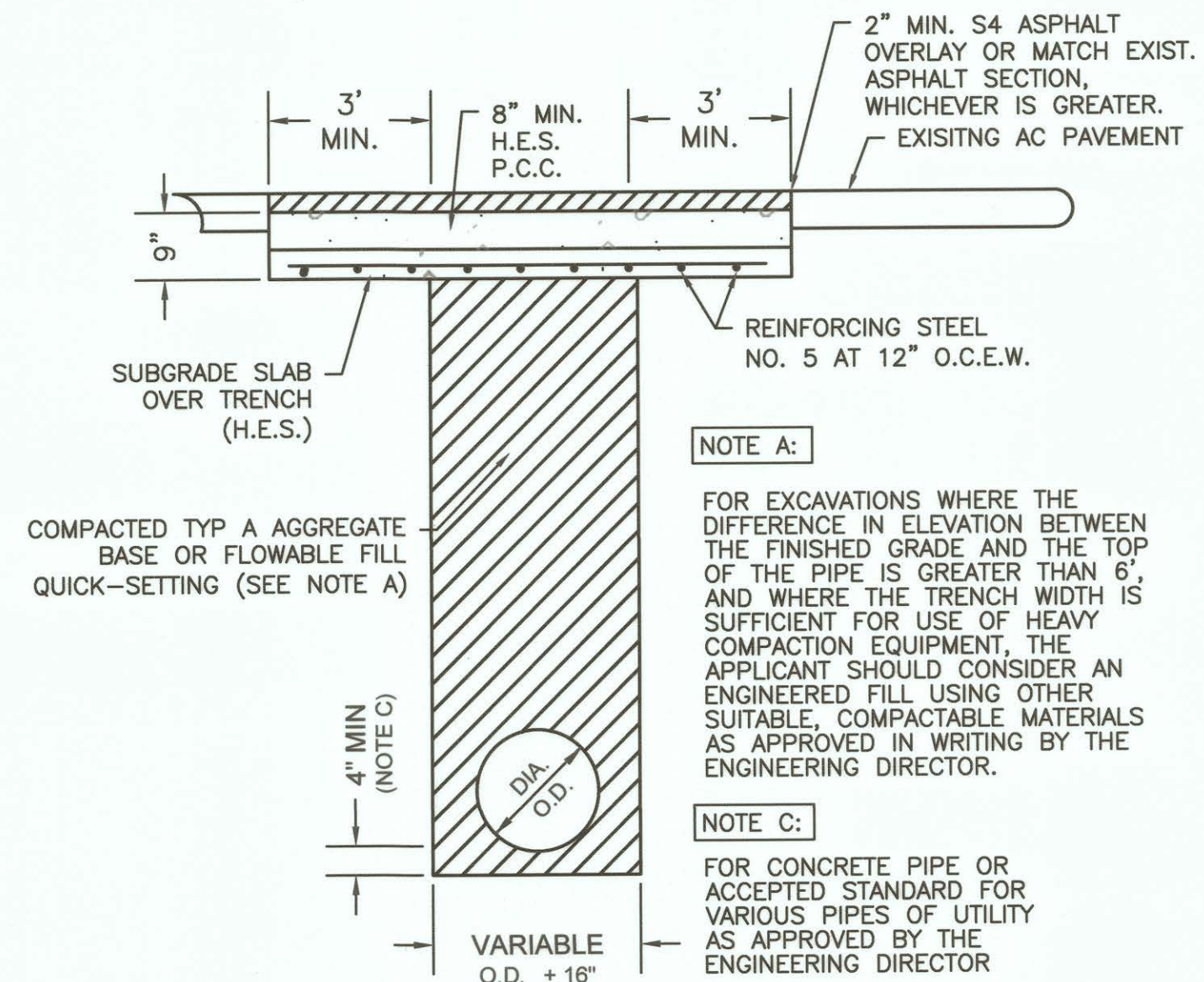
SITE 413



SITE PHOTO



12/16/2020



1 TYPE I PCC CUT AND REPAIR (ARTERIAL) SCALE: NONE

LEGEND

▨ FEMA SITE AREA



FEMA SITE 413

PROJECT #173120-T021-126333

DAMAGE # 331153

CITY OF TULSA, OKLAHOMA
ENGINEERING SERVICES DEPARTMENT

PLANS AND ESTIMATES PREPARED BY:
Meshek & Associates, L.L.C.
1437 S. Boulder Avenue, Suite 1550 Tulsa, OK 74119 (918)392-5620

REVISION	BY	DATE	PLAN SCALE	DRAWN	ASB	05/20	APPROVED:
			1" = 10'	DESIGNED	RJP	05/20	
				SURVEY	N/A	N/A	
			PROFILE SCALE	PROJ. MGR.	JA	1/21	
			HORIZONTAL:	LEAD ENGR.	JA	1/21	
			N/A	FIELD MGR.	JA	1/21	
			VERTICAL:	RECOMMENDED	JA	1:21	
			N/A	DESIGN MANAGER			
			FILE:	DRAWING:			
			ATLAS PAGE NO.	96			

CITY ENGINEER
DATE: 1-09-21
SHEET 49 OF 50 SHEETS