Board of Adjustment

Staff Report
BOA-23849

Hearing Date: February 25, 2025
Prepared by: Erin Roark
eroark@cityoftulsa.org
918-596-7618

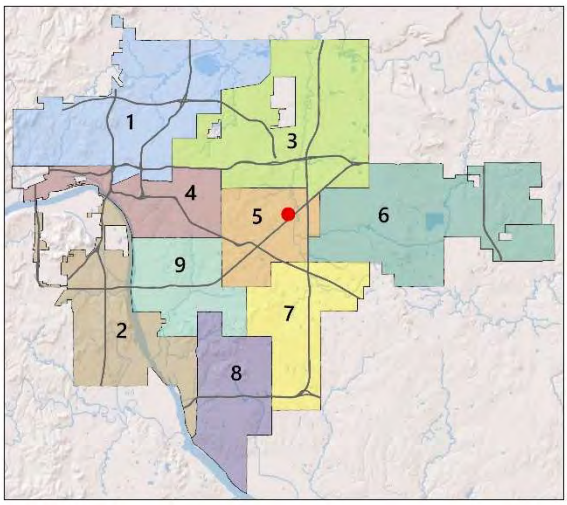
Owner and Applicant Information
Applicant: Richard Lee

Property Owner: Tulsa Rain Control, LLC

Property Location
2150 South 92nd East Avenue

Tract Size: ±0.96 acres

Location within the City of Tulsa
(shown with City Council districts)



Elected Representatives
City Council: District 5, Karen Gilbert
County Commission: District 2, Lonnie Sims

Public Notice Required
Newspaper Notice – min. 10 days in advance
Mailed Notice to 300' radius – min. 10 days in advance

Request Summary
Special Exception to increase the permitted fence height of 4 feet within the street setback (Section 45.080-A).

Zoning
Zoning District: CG

Zoning Overlays: N/A

Comprehensive Plan Considerations

Land Use
Land Use Plan: Multiple Use

Small Area Plans: N/A

Development Era: Late Automobile Era

Transportation
Major Street & Highway Plan: N/A

planitulsa Street Type: N/A

Transit: N/A

Existing Bike/Ped Facilities: N/A

Planned Bike/Ped Facilities: Sidewalks

Environment
Flood Area: N/A

Tree Canopy Coverage: 10-19%

Parks & Open Space: N/A

Staff Analysis

The applicant is requesting a special exception to increase the permitted fence height of 4 feet within the street setback (Section 45.080-A). The proposed fence would run along the perimeter of the property and would be constructed from corrugated metal on the north and west lot lines and iron pickets on the east and south lot lines.

Section 45.080 Fences and Walls

45.080-A Fences and walls within required building setbacks may not exceed 8 feet in height, except that in required street setbacks fences and walls may not exceed 4 feet in height. However, in R zoned districts, fences up to 8 feet in height are permitted in side street setbacks of detached houses or duplexes located on corner lots and in street setbacks abutting the rear lot line of houses or duplexes located on double frontage lots. The board of adjustment is authorized to modify these fence and wall regulations in accordance with the special exception procedures of Section 70.120.

Relevant Case History

- None found

Comprehensive Plan Considerations

Land Use Plan

The property is designated as Multiple Use. Multiple Use areas are mostly commercial or retail uses, which include restaurants, shops, services, and smaller format employment uses. This land use designation is most common in areas of the city from earlier development patterns, with Local Centers being more commonplace in newer parts of the city. For single properties that are commercial but surrounded by Neighborhood, Multiple Use is the preferred designation.

Surrounding Properties:

Location	*Existing Zoning/Overlay*	*Existing Land Use Designation*	*Existing Use*
North	RS-3	Multiple Use	Religious Assembly
East	CS	Multiple Use	Self-Storage
South	CS	Multiple Use	Commercial Retail
West	RS-3	Multiple Use	Residential, Religious Assembly

Small Area Plans

The subject property is not within a small area plan.

Development Era

The subject property is in an area developed during the Late Automobile Era (1950s-present), which has grown since the mainstreaming of automobile-centric lifestyles, with a high degree of separation between residential and nonresidential uses, and low levels of street connectivity. In these areas, transportation is nearly exclusively concentrated on the mile-by-mile arterial grid, and major streets are often both transportation corridors and destination corridors, which can lead to traffic congestion. Nonresidential uses are predominantly located at the intersections of major arterial streets. Priorities in these areas include commercial revitalization, placemaking, community gathering opportunities, conservation of natural areas, a high degree of privacy, one-stop shopping, and commuting routes.

Transportation

Major Street & Highway Plan: N/A

Comprehensive Plan Street Designation: N/A

Transit: N/A

Existing Bike/Ped Facilities: N/A

Planned Bike/Ped Facilities: Sidewalks are recommended along street frontages.

Arterial Traffic per Lane: N/A

Environmental Considerations

Flood Area: N/A

Tree Canopy Coverage: Tree canopy on the subject property is 14%. Preserving the limited existing canopy should be encouraged, as well as measures to increase the canopy through landscaping. Street-lining trees in particular should be encouraged to spread the benefit of the tree canopy to the pedestrian realm.

Parks & Open Space: N/A

Sample Motion

I move to *approve or deny* a special exception to increase the permitted fence height within the street setback (Section 45.080-A), *from 4 feet to 6 feet*,

- per the conceptual plan(s) shown on page(s) _____ of the agenda packet.
- subject to the following conditions (including time limitation, if any): _____.

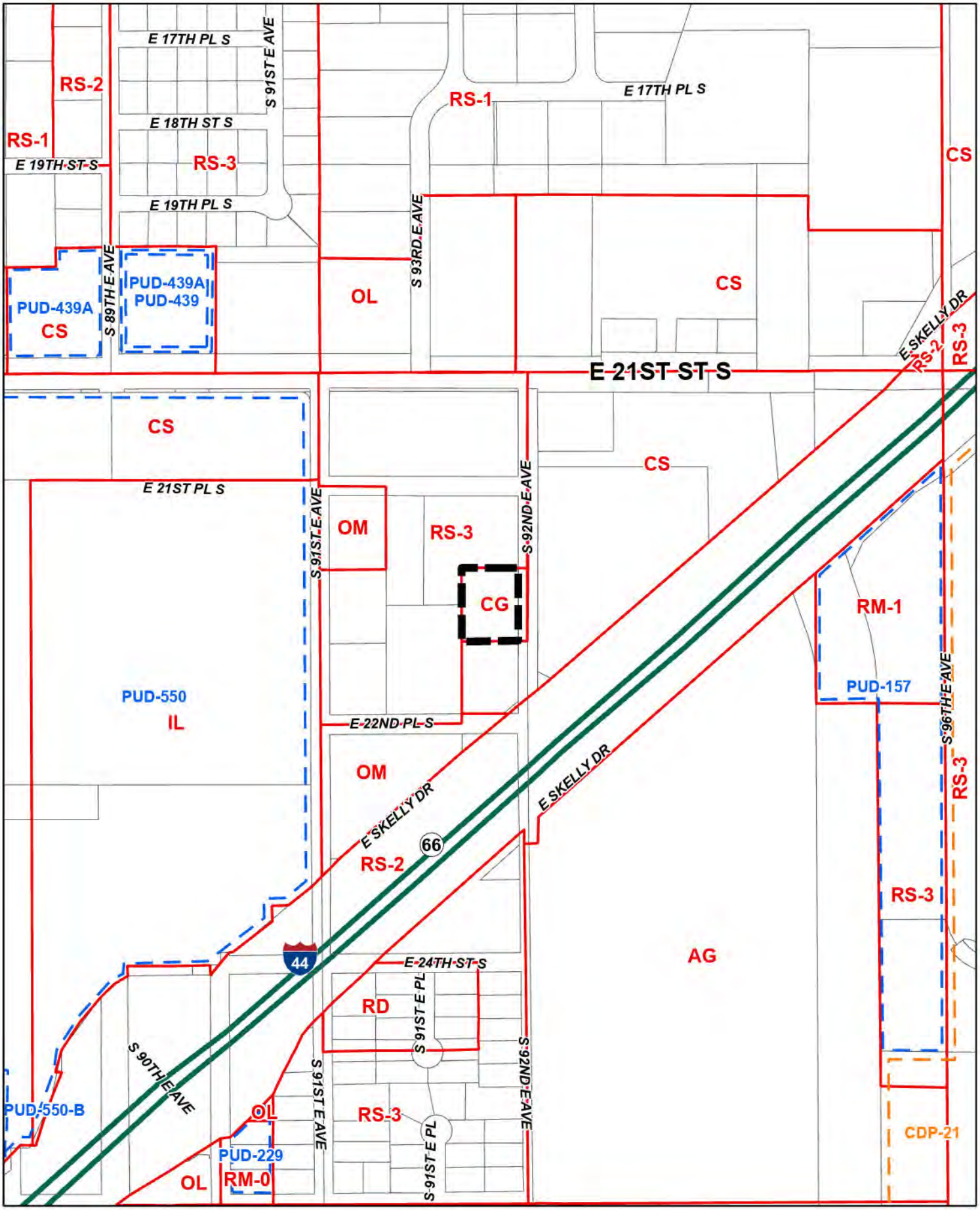
The Board finds that the requested Special Exception will be in harmony with the spirit and intent of the Code and will not be injurious to the neighborhood or otherwise detrimental to the public welfare.

Property Description

LT 2 BLK 2, MEMORIAL ACRES ADDN, City of Tulsa, Tulsa County, State of Oklahoma

Exhibits

Case map
Aerial (small scale)
Aerial (large scale)
Tulsa Comprehensive Plan Land Use Map


E 17TH PL S
S 91ST E AVE
RS-2
RS-1
E 18TH ST S
RS-3
E 19TH ST S
E 19TH PL S
S 89TH E AVE
PUD-439A
CS
PUD-439A
PUD-439
OL
S 93RD E AVE
CS
E 21ST ST S
E SKELLY DR
RS-3
CS
E 21ST PL S
S 91ST E AVE
OM
RS-3
S 92ND E AVE
CG
PUD-550
IL
E 22ND PL S
OM
E SKELLY DR
66
RS-2
44
E 24TH ST S
RD
S 91ST E PL
S 90TH E AVE
S 91ST E AVE
S 92ND E AVE
PUD-550-B
OL
RS-3
S 91ST E PL
PUD-229
OL
RM-0
AG
RM-1
PUD-157
S 96TH E AVE
RS-3
RS-3
CDP-21
Feet
0
200
400
Subject Tract
BOA-23849
19-13 13
N

Feet
0 200 400

Subject Tract

BOA-23849

19-13 13

Note: Graphic overlays may not precisely align with physical features on the ground.

Aerial Photo Date: 2024

N

Feet
0 50 100

Subject Tract

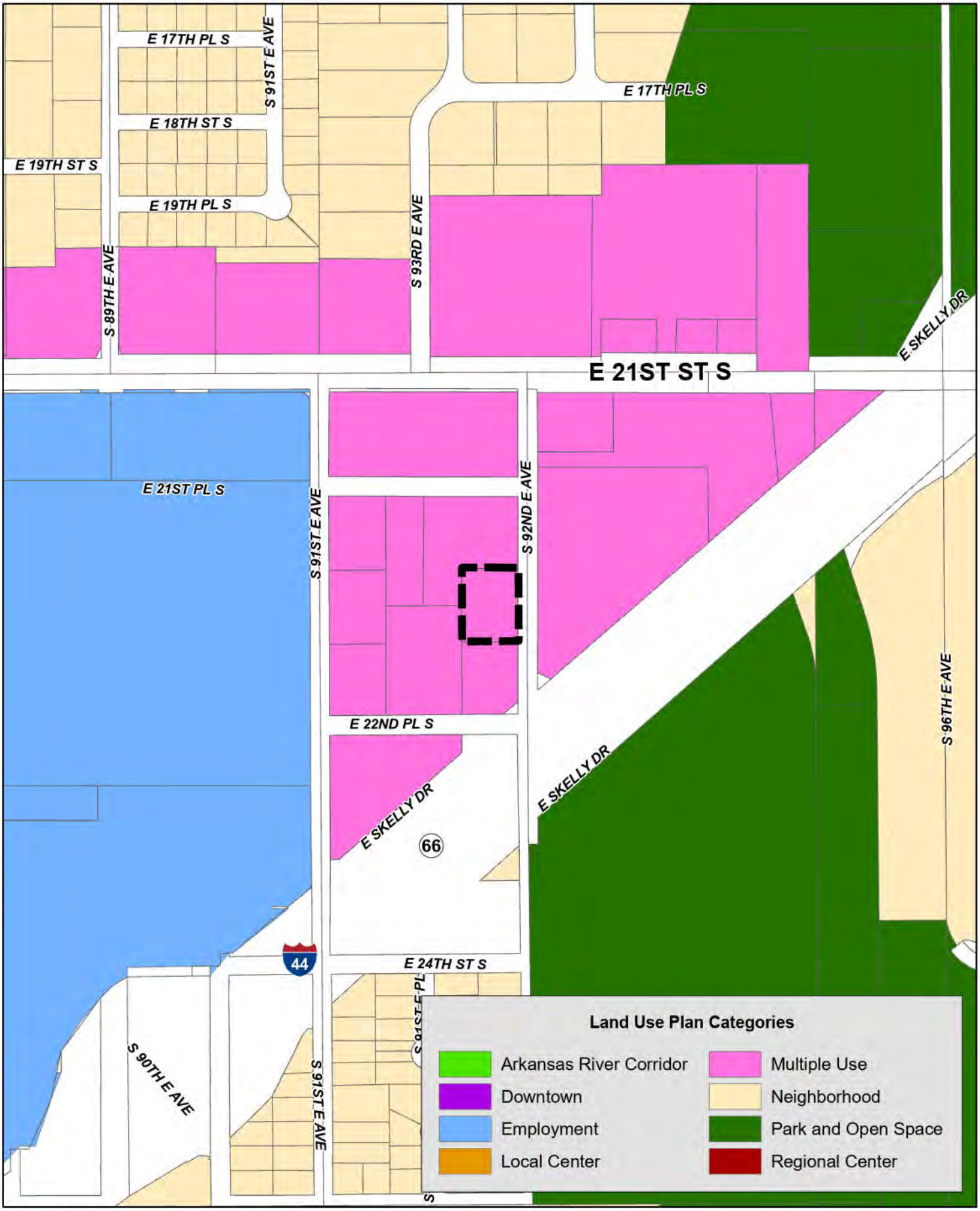
BOA-23849

19-13 13

Note: Graphic overlays may not precisely align with physical features on the ground.

Aerial Photo Date: 2024

N



Feet
0 200 400

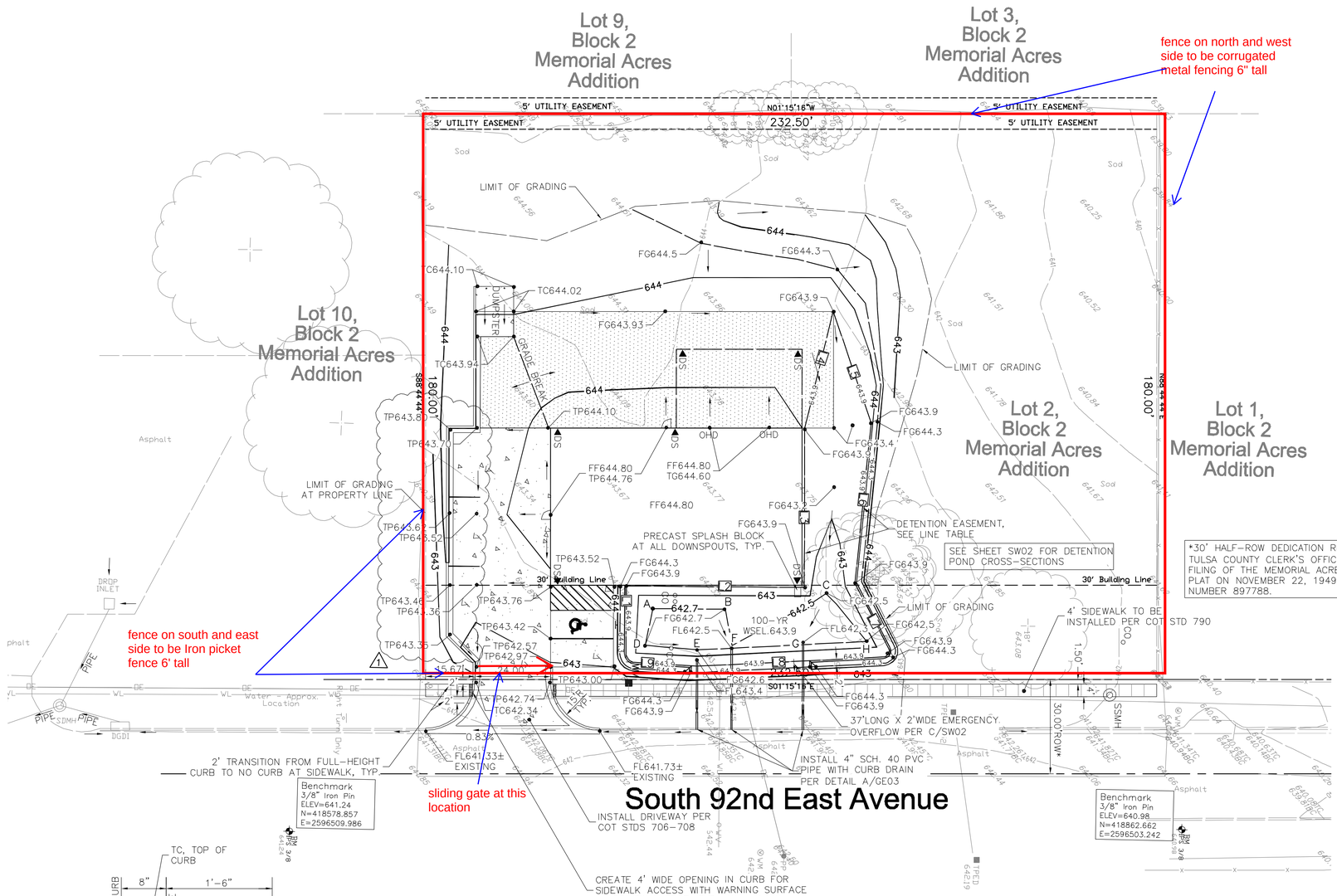
Subject Tract

BOA-23849

19-13 13

N

Red line indicates where we would like to put the fence on the east side of the property which is 15 feet from the back of the curb this would be in line with the fence just north of the property in question and also would be the same distance off of the curb as the fence that is across the street



GENERAL NOTES

1. CONTRACTOR SHALL OBTAIN EARTH CHANGE PERMIT FROM THE CITY OF TULSA.
2. PRIOR TO EARTH DISTURBANCE, CONTRACTOR SHALL IMPLEMENT TEMPORARY EROSION CONTROLS ON SHEET GE02.
3. ALL DISTURBED UNPAVED SURFACES SHALL BE FINISHED WITH LANDSCAPING OR SOD OR SEED, IN ACCORDANCE WITH THE APPROVED ALTERNATE LANDSCAPING PLAN AND THE CITY OF TULSA ZONING CODE SECTION 65.
4. EARTHWORK OPERATIONS SHALL CONFORM TO THE RECOMMENDATIONS IN THE GEOTECHNICAL REPORT FOR THIS PROJECT.

ACCESSIBILITY NOTES

1. THE CONSTRUCTION SHALL COMPLY WITH FEDERAL ACCESSIBILITY REQUIREMENTS AS PUBLISHED IN ANSI 117.1-2003, "ACCESSIBLE AND USABLE BUILDINGS AND FACILITIES."
2. ALL SURFACES ALONG ACCESSIBLE AND USABLE ROUTES AND FOR HANDICAP RAMPS SHALL BE STABLE, FIRM, SLIP RESISTANT, AND SHALL COMPLY WITH UNIFORM FEDERAL ACCESSIBILITY STANDARDS.
3. FOR ACCESSIBLE ROUTES (EXCEPT CURB RAMPS): LONGITUDINAL SLOPES SHALL BE NO STEEPER THAN 1:20 (= 5%) AND CROSS SLOPES SHALL BE NO STEEPER THAN 1:50 (= 2%). AT HANDICAP PARKING SPACES, ACCESS AISLES, AND PASSENGER LOADING ZONES, THE SLOPE IN ALL DIRECTIONS SHALL BE NO STEEPER THAN 1:50 (= 2%). AT CURB RAMPS, THE SLOPE SHALL BE NO STEEPER THAN 1:12 (= 8.33%).
4. WHERE ACCESSIBLE ROUTES ENTER VEHICULAR TRAVEL AREAS, A DETECTABLE WARNING SURFACE, 36" WIDE SHALL BE INSTALLED. THE DETECTABLE WARNING SURFACE SHALL CONSIST OF RAISED TRUNCATED DOMES AND SHALL CONTRAST VISUALLY WITH ADJACENT SURFACES, EITHER LIGHT-ON-DARK, OR DARK-ON-LIGHT.

COT TRAFFIC NOTES

1. TRAFFIC SIGNS NOTE: THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE REPLACEMENT OF ALL EXISTING TRAFFIC SIGNS AND MARKINGS REMOVED OR DAMAGED AS PART OF THIS PROJECT. ALL SIGNS AND POLES PROVIDED SHALL BE NEW AND UNDAMAGED AND SHALL MEET THE REQUIREMENTS OF COT SPECIFICATION #608 TRAFFIC SIGNS. ALL TRAFFIC MATERIAL REMOVED SHALL BE HANDLED PER COT SPECIFICATIONS #625 REMOVAL OF TRAFFIC ITEMS.
2. TRAFFIC CONTROL NOTE: TRAFFIC CONTROL SHALL CONFORM TO THE MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES (MUTCD) CURRENT EDITION. IT IS THE CONTRACTOR'S RESPONSIBILITY TO ENSURE PROPER TRAFFIC CONTROL IS IN PLACE FOR EACH PHASE OF CONSTRUCTION. THE CONTRACTOR IS ALSO RESPONSIBLE FOR PROPERLY MAINTAINING TRAFFIC CONTROL DEVICES THROUGHOUT THE DURATION OF THE WORK. THE CONTRACTOR IS RESPONSIBLE FOR PROVIDING TRAFFIC CONTROL PLANS TO THE CITY AND DEPARTMENT OF TRANSPORTATION AS REQUIRED.

POND BOTTOM COORDINATES

POINT	NORTHING	EASTING	ELEVATION
A	418692.87	2596436.60	642.7
B	418715.97	2596436.31	642.7
C	418747.87	2596430.65	642.5
D	418690.66	2596448.47	642.7
E	418707.27	2596449.47	642.6
F	418718.34	2596447.83	642.5
G	418740.71	2596447.06	642.3
H	418761.15	2596445.60	642.5

L# DETENTION EASEMENT LINE TABLE L#

THE METES AND BOUNDS BELOW ARE IDENTICAL TO THE DETENTION EASEMENT BEING RECORDED IN TULSA COUNTY, DOCUMENT NUMBER INDICATED ON THE COVER SHEET FOR THIS PROJECT, GE01.

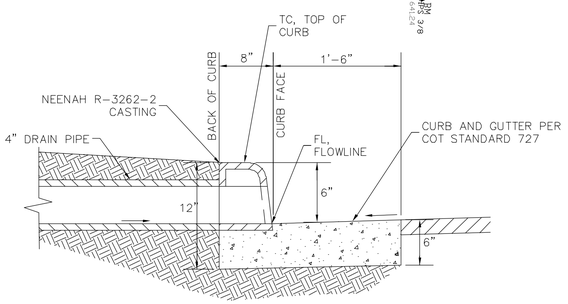
LINE#	LENGTH	DIRECTION
L1	24.14'	S89°07'35"W
L2	56.56'	N00°48'16"W
L3	50.54'	S88°52'26"W
L4	38.48'	N77°36'27"W
L5	37.62'	N70°05'10"E
L6	51.20'	S85°33'13"E
L7	26.25'	N51°28'52"E
L8	62.36'	S04°06'23"E
L9	22.65'	S02°17'39"W

IMPERVIOUS AREA

INCREASED IMPERVIOUS AREA = 10,754 SQ.FT.

FLOOD ZONE

ACCORDING TO APPLICABLE FEMA FIRM PANEL NO. 40143C0263L, EFFECTIVE 10/16/2012, THIS SITE IS IN AN UNSHADED FLOOD ZONE X, WHICH INDICATES AN AREA OF MINIMAL FLOOD HAZARD.



NOTES:

1. NEATLY SAWCUT, REMOVE AND REPLACE A 5' LENGTH OF CURB AND GUTTER.
2. INSTALL THREE ½"ø X 12" DOWELS INTO ABUTTING CURBS-TWO DOWELS IN THE CURB PAN, AND ONE IN THE CENTER OF THE CURB.
3. INSTALL THE NEENAH CASTING AT THE CENTER OF THE 5' CURB CUT.
4. MAKE WATERTIGHT CONNECTION BETWEEN THE DRAIN PIPE AND THE NEENAH CASTING.
5. AN EQUIVALENT CASTING OTHER THAN NEENAH MAY BE USED WITH PRIOR APPROVAL.

A CURB DRAIN

NTS

20 0 20 40 60

Scale 1" = 20'

LEGEND

PROPOSED STORM SEWER	
LIMIT OF GRADING	
EXISTING CONTOUR	500
PROPOSED CONTOUR	500
PROPOSED EASEMENT	
EXIST UNDERGROUND ELECTRIC	UE
EXIST OVERHEAD ELECTRIC	OE
EXIST CURB AND GUTTER	
PROPOSED CURB AND GUTTER	
PROPOSED STRIPING	
FINISHED GROUND ELEVATION	FG600.1
TOP OF CURB ELEVATION	TC600.10
TOP OF PAVEMENT ELEVATION	TP600.10
FLOWLINE ELEVATION	FL600.10

SIDEWALK FEE-IN-LIEU NOTE

EITHER THE SIDEWALK WILL BE INSTALLED AS SHOWN ON THESE PLANS, OR A FEE-IN-LIEU OF SIDEWALKS WILL BE PAID BY THE OWNER/DEVELOPER. WHEN THE RECORD DRAWINGS ARE PREPARED, THEY WILL CLEARLY NOTE THE DATE THE FEE-IN-LIEU WAS APPROVED AND WILL INCLUDE THE RECEIPT NUMBER FOR THE PAYMENT.

APPROVED FOR IDP PERMIT ONLY

MICHAEL LING, P.E. DATE
INFRASTRUCTURE DEVELOPMENT MANAGER
CITY OF TULSA

REGISTERED PROFESSIONAL ENGINEER
JOE P. KELLEY
7/5/2024
21438
OKLAHOMA

BEFORE YOU DIG CALL OKIE

REVISION	BY	DATE
1 REV PER CITY PERMITING	JK	8.6.24

TULSA RAIN CONTROL
2150 S. 92ND EAST AVE.
GRADING AND PAVING PLAN

IDP NO. 181538-2024

CITY OF TULSA, OKLAHOMA

PLANS AND ESTIMATES PREPARED BY:
JC Engineering, PC 10035 N. 177th East Ave. • Owasso, OK 74055
918-798-5979 • joe@j-c-engineering.com
Oklahoma CA No. 5686 • Expires June 30, 2025

ATLAS PAGE NO: 130 DATE: JULY 05, 2024

IDP DWG NO: 181538-2024-GE03 SHEET 5 OF 8 SHEETS

CONSTRUCTION PLANS FOR
TULSA RAIN CONTROL
IDP NO. 181538-2024
2150 S. 92ND EAST AVE.
TULSA, OKLAHOMA 74129

INFORMATION

OWNER:
TULSA RAIN CONTROL LLC
CONTACT: CARLOS HINOJOSA
9415 E. 140TH ST.
BIXBY, OK 74008
918-896-8050
CARLOS@TULSARAINCONTROL.COM

SHEET INDEX:

COVER SHEET	GE01
CIVIL NOTES-FOR INFORMATION ONLY	C100
TOPOGRAPHIC SURVEY-FOR INFORMATION ONLY	C200
DEMOLITION AND EROSION CONTROL PLAN	GE02
GRADING AND PAVING PLAN	GE03
EXISTING DRAINAGE PLAN	SW01
DEVELOPED DRAINAGE PLAN	SW02
SANITARY SEWER PLAN & PROFILE	SS01

IDP DESCRIPTION:
- STORMWATER DETENTION
- PUBLIC R/W PAVING AT ENTRY
- PUBLIC SANITARY SEWER
- SIDEWALKS

CITY OF TULSA STANDARD DRAWINGS:
#126 – STANDARD SILT FENCE AND CONSTRUCTION ENTRANCE
#351 – BEDDING DETAIL FLEXIBLE SANITARY SEWER PIPE
#358 – PRE-CAST SANITARY SEWER MANHOLES
#361 – IN-LINE TEES FOR SERVICE CONNECTION
#366 – STANDARD DETAIL FOR MANHOLE STEP LOCATION AND INVERT DETAILS
#405 – RUBBER SEAL AT MANHOLE
#701 – RESIDENTIAL CONCRETE DRIVEWAY CONCRETE STREET
#706 – COMMERCIAL DRIVEWAY
#707 – COMMERCIAL DRIVEWAY
#708 – COMMERCIAL ASPHALT DRIVEWAY
#727 – CONCRETE PAVEMENT STANDARD DETAILS FOR RESIDENTIAL STREETS AND COLLECTOR STREETS
#730 – STANDARD ASPHALT PAVEMENT CUT AND REPAIR
#731 – STANDARD CONCRETE PAVEMENT CUT AND REPAIR
#790 – STANDARD SIDEWALK RAMP

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

LEGAL DESCRIPTION
LOT 2, BLOCK 2, MEMORIAL ACRES ADDITION TO THE CITY OF TULSA.

BASIS OF BEARING:
THE BASIS OF BEARING SHOWN HEREON BEING THE EAST LINE OF THE SUBJECT LOT WITHIN SECTION 13 T-19-N R-13-E, BEING A BEARING OF SOUTH 1°15'16" EAST.

ENGINEER'S STATEMENT:
ENTIRE PROJECT IS WITHIN THE CORPORATE LIMITS OF THE CITY OF TULSA. THIS PROJECT COMPLIES WITH ALL OKLAHOMA DEPARTMENT OF ENVIRONMENTAL QUALITY (ODEQ) REQUIREMENTS. BY MY SIGNATURE ON THESE CONSTRUCTION DOCUMENTS, I HEREBY CERTIFY THAT I AM FAMILIAR WITH THE ADOPTED ORDINANCES AND REGULATIONS OF THE CITY OF TULSA GOVERNING THE WORK IN THE IDP DESCRIPTION; THAT THESE PLANS HAVE BEEN PREPARED UNDER MY DIRECT SUPERVISION; THE ABOVE AND FOREGOING PLANS COMPLY WITH ALL GOVERNING ORDINANCES AND THE ADOPTED STANDARDS OF THE CITY OF TULSA TO THE BEST OF MY KNOWLEDGE AND BELIEF.

Joe Kelley
JOE P. KELLEY, P.E. #21438

IMPERVIOUS AREA

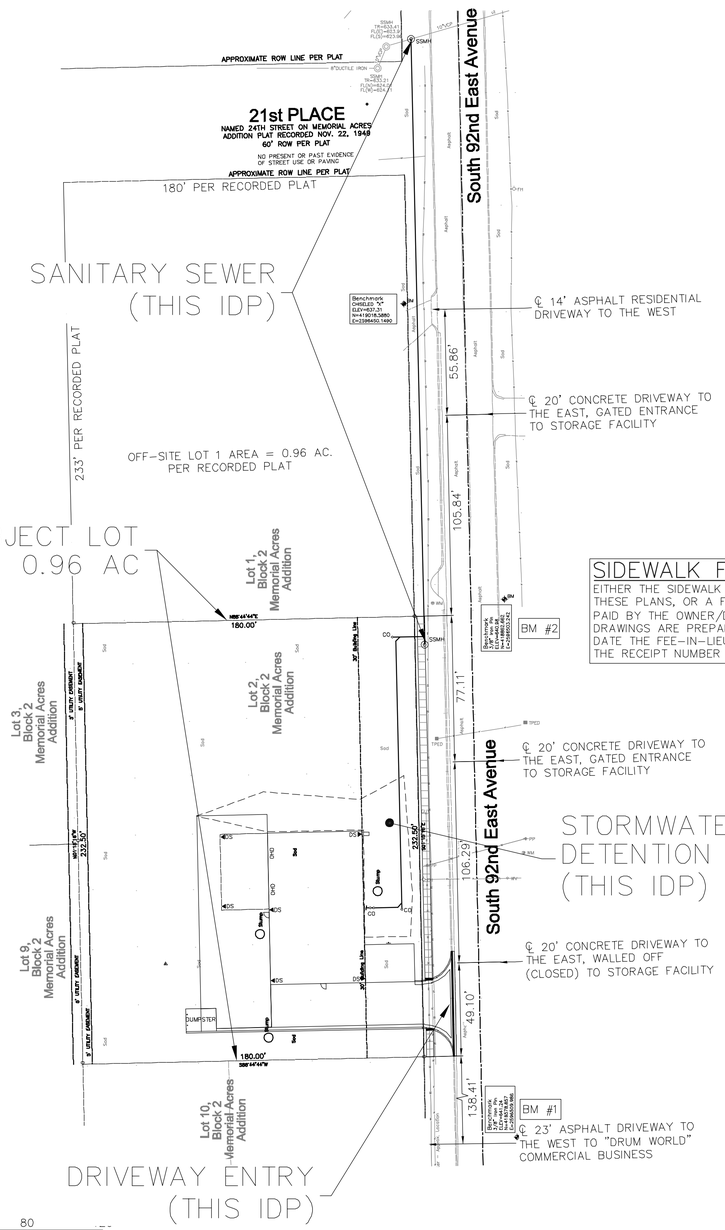
EXISTING IMPERVIOUS	= 0 SF
EXISTING PERVIOUS	= 0 SF
PROPOSED IMPERVIOUS	= 10,754 SF
PROPOSED PERVIOUS	= 31,096 SF
LOT SIZE	= 41,850 SF

ORDINANCE FLOW
Q = (A/1000) X (3.2019-(0.8656 X LOG_{10}(A/1000))
WHERE A = 1.92 AC.
Q = 0.0107 MGD = 0.017 CFS

FLOODPLAIN
PER FEMA FIRM PANEL 40143-C0263L, EFFECTIVE DATE 10/16/2012, THIS SITE IS IN A FEMA FLOOD ZONE X, "AREA OF MINIMAL FLOODING"--NOT IN THE 100-YEAR FLOODPLAIN.
COT PANEL 38

DRAINAGE EASEMENTS TO BE GRANTED
- DETENTION EASEMENT (GE03) DEDICATED VIA SEPARATE INSTRUMENT, DOC#_____

TRAFFIC CONTROL & STREET CLOSURES
TRAFFIC ACCESS ON ALL STREETS SHALL BE MAINTAINED AT ALL TIMES. CONTRACTOR MUST MAINTAIN PROPER CONSTRUCTION SIGNAGE AND TRAFFIC CONTROL IN ACCORDANCE WITH THE MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES.



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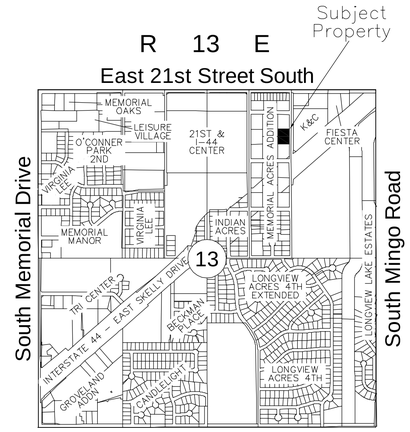


TULSA COUNTY
LOCATION MAP
NTS

ADS BENCHMARK:
ADS 2016-16
ALUMINUM CAP
ELEV=694.183 (NAVD 1983)
N=419339.375
E=2591777.612

LOCAL BENCHMARKS:

BM #1	BM #2
3/8" IRON PIN	3/8" IRON PIN
ELEV=641.24	ELEV=640.98
N=418578.857	N=418862.662
E=2596509.986	E=2596503.242

LEGEND

	EXISTING	PROPOSED
RIGHT-OF-WAY		
LOT LINE		
BUILDING		
CURB AND GUTTER		
SLOPED AREA	TOP / TOE	
FLOW DIRECTION		
SANITARY SEWER	8"SS	SS
MANHOLE	MH	MH
SANITARY CLEANOUT	CO	CO
WATER	W	W
FIRE HYDRANT	FH	FH
WATER VALVE	WV	WV
WATER METER	WM	WM
STORM SEWER	ST	
STORM INLET	SGDI	SGDI
TELEPHONE	T	T
COMMUNICATIONS	C	C
GAS	G	G
GAS METER		GM
OVERHEAD ELECTRIC	OE	OE
UNDERGROUND ELECTRIC	UE	UE
TRANSFORMER		
LIGHT POLE	LP	LP
INDEX CONTOUR (5')	500	695
INTERMEDIATE CONTOUR (1')	501	696
SPOT ELEVATION	698.14	TP700.88
SILT FENCE		SF
ANALYSIS POINT		A.P.7
DRAINAGE BASIN BOUNDARY		
FLOW PATH		FP

APPROVED FOR IDP PERMIT ONLY
Date: 2024.07.10 15:27:26-05'00'
MICHAEL LING, P.E. DATE
INFRASTRUCTURE DEVELOPMENT MANAGER
CITY OF TULSA

REGISTERED PROFESSIONAL ENGINEER
JOE P. KELLEY
7/5/2024
21438
OKLAHOMA
Joe Kelley

BEFORE YOU DIG CALL OKIE 811

REVISION	BY	DATE

TULSA RAIN CONTROL
2150 S. 92ND EAST AVE.
COVER SHEET

IDP NO. 181538-2024

CITY OF TULSA, OKLAHOMA

PLANS AND ESTIMATES PREPARED BY:
JC Engineering, PC 10035 N. 177th East Ave. • Owasso, OK 74055
918-798-5979 • joe@j-c-engineering.com
Oklahoma CA No. 5686 • Expires June 30, 2025

ATLAS PAGE NO:	130	DATE:	JULY 05, 2024
IDP DWG NO:	181538-2024-GE01	SHEET	1 OF 8 SHEETS

GENERAL NOTES

1. THE IMPROVEMENTS, AS SHOWN ON THESE PLANS, SHALL BE CONSTRUCTED IN ACCORDANCE WITH THE CITY OF TULSA STANDARD SPECIFICATIONS AND STANDARD DETAILS, AND THE OKLAHOMA DEPARTMENT OF TRANSPORTATION STANDARD SPECIFICATIONS FOR HIGHWAY CONSTRUCTION, 2009.
2. STANDARD DRAWINGS REFER TO THE STANDARD DRAWINGS OF THE CITY OF TULSA UNLESS NOTED OTHERWISE.
3. THE CONTRACTOR AGREES THAT IT SHALL ASSUME THE SOLE AND COMPLETE RESPONSIBILITY FOR THE JOB SITE CONDITIONS DURING THE COURSE OF CONSTRUCTION OF THE PROJECT, INCLUDING SAFETY OF ALL PERSONS AND PROPERTY, THAT THIS REQUIREMENT SHALL APPLY CONTINUOUSLY AND NOT BE LIMITED TO NORMAL WORKING HOURS, AND THE CONTRACTOR SHALL DEFEND, INDEMNIFY AND HOLD THE OWNER, THE CITY, AND THE ENGINEER HARMLESS FROM ANY AND ALL LIABILITY, REAL OR ALLEGED, IN CONNECTION WITH THE PERFORMANCE OF THE WORK ON THIS PROJECT, EXCEPTING FOR LIABILITY ARISING FROM THE SOLE NEGLIGENCE OF THE OWNER, CITY, OR ENGINEER.
4. NO CHANGES SHALL BE MADE TO THESE PLANS WITHOUT THE WRITTEN APPROVAL OF THE OWNER AND THE ENGINEER. THE ENGINEER SHALL NOT BE RESPONSIBLE FOR CONSTRUCTION METHODS OR TECHNIQUES OR FOR THE PROSECUTION OF THE WORK AS SHOWN ON THESE PLANS. THE ENGINEER SHALL NOT BE RESPONSIBLE FOR THE ACTS OR OMISSIONS OF THE CONTRACTOR, SUBCONTRACTORS, OR OTHER PERSONS PERFORMING ANY OF THE WORK OR FOR THE FAILURE OF ANY OF THEM TO CARRY OUT THE WORK IN ACCORDANCE WITH CONTRACT DOCUMENTS.
5. IF A TRAFFIC CONTROL PLAN IS NOT PROVIDED WITH THIS PLAN SET, IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO PROVIDE ONE IF REQUIRED BY GOVERNING AUTHORITIES.
6. THE CONTRACTOR SHALL DESIGNATE AT LEAST ONE EMERGENCY CONTACT PERSON, AND SHALL PROVIDE TELEPHONE NUMBERS WHERE THIS PERSON CAN BE CONTACTED AT ANY TIME. THIS INFORMATION SHALL BE PROVIDED TO THE OWNER, THE ENGINEER, AND THE CITY OF TULSA WHEN PERFORMING WORK IN THE RIGHT-OF-WAY.
7. THE CONTRACTOR IS RESPONSIBLE FOR OBTAINING ALL REQUIRED CONSTRUCTION PERMITS, INCLUDING EARTH CHANGE PERMIT, PRIOR TO START OF CONSTRUCTION.
8. ALL WORK ON THIS PROJECT SHALL BE PERFORMED IN ACCORDANCE WITH APPLICABLE FEDERAL, STATE, AND LOCAL LAWS, RULES AND REGULATIONS CONCERNING CONSTRUCTION SAFETY AND HEALTH.
9. THE CONTRACTOR SHALL NOT INSTALL ITEMS AS SHOWN ON THESE PLANS WHEN IT IS APPARENT THAT FIELD CONDITIONS ARE DIFFERENT THAN SHOWN IN THE DESIGN. SUCH CONDITIONS SHALL BE BROUGHT TO THE ATTENTION OF THE ENGINEER. IN THE EVENT THE CONTRACTOR DOES NOT NOTIFY THE ENGINEER, THE CONTRACTOR ASSUMES FULL RESPONSIBILITY AND EXPENSE FOR ANY REVISIONS NECESSARY.
10. EXISTING SITE IMPROVEMENTS WHICH ARE DAMAGED OR DISPLACED BY THE CONTRACTOR SHALL BE REMOVED AND REPLACED BY THE CONTRACTOR AT THE CONTRACTOR'S OWN EXPENSE. REPAIRS SHALL BE APPROVED BY THE OWNER PRIOR TO CONSTRUCTION OF THE REPAIRS. FINAL PAYMENT SHALL NOT BE MADE BY THE OWNER UNTIL AFTER THE REPAIRS MEET WITH THE OWNER'S APPROVAL.
11. EXISTING FENCING THAT IS NOT DESIGNATED FOR REMOVAL SHALL NOT BE DISTURBED. ANY FENCING THAT IS DESIGNATED FOR REMOVAL OR ALTERED BY THE CONTRACTOR SHALL BE RESTORED TO ITS ORIGINAL CONDITION AT THE CONTRACTOR'S EXPENSE. IF THE CONTRACTOR WOULD LIKE TO REMOVE FENCING TO FACILITATE CONSTRUCTION OPERATIONS, THIS MAY BE DONE WITH THE OWNER'S PERMISSION, AND THE CONTRACTOR SHALL RESTORE THE FENCE TO ITS ORIGINAL CONDITION PRIOR TO THE CLOSE OF THE PROJECT. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE SECURITY OF THE SITE UNTIL THE FENCE IS REPLACED.
12. ALL STATIONING REFERS TO THE CENTERLINE OF THE RIGHT-OF-WAY UNLESS NOTED OTHERWISE. STATIONING OF CHANNELS OR PIPES IN DRAINAGE EASEMENTS REFERS TO THE CENTERLINE OF CHANNEL OR PIPE, UNLESS NOTED OTHERWISE.
13. UNLESS NOTED OTHERWISE, ALL ITEMS CALLED OUT FOR REMOVAL SHALL BE DISPOSED OFF-SITE BY THE CONTRACTOR.
14. THE CONTRACTOR SHALL USE THE AREA DESIGNATED ON THE PLANS FOR STAGING OF MATERIALS AND EQUIPMENT. IF NO STAGING AREA IS DESIGNATED ON THE PLANS, THE CONTRACTOR MAY CREATE ONE ON-SITE, TO BE SIZED AND LOCATED AS APPROVED BY THE OWNER. THE CONTRACTOR SHALL BEAR ALL RESPONSIBILITY FOR THE SECURITY OF MATERIALS AND EQUIPMENT IN THE STAGING AREA, AND PRIOR TO FINAL PROJECT ACCEPTANCE, SHALL BE RESPONSIBLE FOR RETURNING THE STAGING AREA TO CONDITIONS EQUAL TO OR BETTER THAN PRE-PROJECT CONDITIONS.

GRADING

1. IF EARTHWORK QUANTITIES ARE SHOWN ON THESE PLANS, THEY ARE FOR INFORMATION ONLY. THE CONTRACTOR SHALL COMPUTE ITS OWN QUANTITIES FOR BIDDING AND NEGOTIATION PURPOSES. OTHERWISE, PAYMENT FOR EARTHWORK SHALL BE BASED ON THE ENGINEER'S ESTIMATED QUANTITIES.
2. WHERE CONCRETE BLOCK OR REINFORCED CONCRETE WALLS ARE INSTALLED, WEEP HOLES SHALL BE PROVIDED IN THE PORTION OF THE WALL THAT IS RETAINING DIRT OF 6" OR MORE IN DEPTH, TO RELIEVE THE HYDROSTATIC PRESSURE FROM THE UPPER DIRT MASS. IN LIEU OF WEEP HOLES IN THE CONCRETE BLOCK WALLS, THE MORTAR MAY BE ELIMINATED FROM EVERY THIRD VERTICAL JOINT.
3. WHERE CONCRETE BLOCK WALLS ARE INSTALLED ADJACENT TO STREETS OR DRAINAGE WAYS, HOLES FOR THE CONVEYANCE OF SURFACE RUNOFF THROUGH THE WALL SHALL BE PROVIDED AT LOW POINTS AND AT APPROXIMATELY 20' INTERVALS. THESE HOLES MAY BE FORMED BY TURNING ONE BLOCK CROSSWAYS IN THE LOCATION NORMALLY OCCUPIED BY ONE BLOCK.

ROADS

1. ALL UNDERGROUND UTILITIES SHALL BE INSTALLED PRIOR TO SURFACING OF THE STREETS AND PAVED PARKING LOTS. ALL WATER VALVE BOXES AND ELECTRICAL, TELEPHONE, TELEVISION AND SEWER MANHOLES SHALL BE ADJUSTED TO GRADE AND CONCRETE COLLARS INSTALLED AROUND THEM AS REQUIRED PRIOR TO THE COMPLETION OF THE PROJECT.
2. ALL SIGNS, BARRICADES, CHANNELIZATION DEVICES, PAVEMENT MARKINGS, SIGN FRAMES AND ERECTION OF SUCH DEVICES SHALL CONFORM TO THE REQUIREMENTS OF THE "MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES FOR STREETS AND HIGHWAYS," LATEST EDITION. ALL ADVANCE WARNING SIGNS SHALL BE EQUIPPED WITH TYPE A FLASHING WARNING LIGHTS. ALL CHANNELIZATION DEVICES SHALL BE EQUIPPED WITH TYPE C STEADY BURN WARNING LIGHTS.
3. WHEN ABUTTING NEW PAVEMENT TO EXISTING, CUT BACK EXISITNG PAVEMENT TO A NEAT, STRAIGHT LINE AS REQUIRED TO REMOVE ANY BROKEN OR CRACKED PAVEMENT, APPLY TACK COAT, AND MATCH NEW PAVEMENT TO EXISTING.

SOILS

1. EARTHWORK PREPARATION AND EXECUTION SHALL BE PERFORMED IN ACCORDANCE WITH THE RECOMMENDATIONS OF THE GEOTECHNICAL CONSULTANT.
2. UNLESS OTHERWISE SPECIFIED, SUBGRADE SOILS AND STRUCTURAL FILL MATERIALS SHALL BE COMPACTED TO THE FOLLOWING PERCENTAGES OF MAXIMUM DENSITY:

MATERIAL	COMPACTION (%)
STRUCTURAL FILL FOR THE BUILDING	95
SUB-BASE UNDER AREAS TO BE PAVED	95
BACKFILL BELOW STRUCTURAL FILL OR AREAS TO BE PAVED	95
BACKFILL BELOW UNPAVED, NON-BUILDING AREAS	90
ROAD PAVEMENT SUBGRADE	95
SIDEWALK SUBGRADE	90
CURB AND GUTTER SUBGRADE	95

ACCESSIBLE FACILITIES

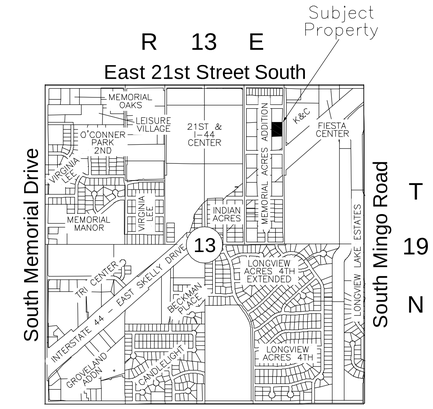
1. THE SITE SHALL COMPLY WITH FEDERAL ACCESSIBILITY REQUIREMENTS AS PUBLISHED IN ANSI 117.1-2003, "ACCESSIBLE AND USABLE BUILDINGS AND FACILITIES."
2. ALL SURFACES ALONG ACCESSIBLE AND USABLE ROUTES AND FOR HANDICAP RAMPS SHALL BE STABLE, FIRM, SLIP RESISTANT, AND SHALL COMPLY WITH UNIFORM FEDERAL ACCESSIBILITY STANDARDS.
3. FOR ACCESSIBLE ROUTES (EXCEPT CURB RAMPS): LONGITUDINAL SLOPES SHALL BE NO STEEPER THAN 1:20 (= 5%) AND CROSS SLOPES SHALL BE NO STEEPER THAN 1:50 (= 2%). AT HANDICAP PARKING SPACES, ACCESS AISLES, AND PASSENGER LOADING ZONES, THE SLOPE IN ALL DIRECTIONS SHALL BE NO STEEPER THAN 1:50 (= 2%). AT CURB RAMPS, THE SLOPE SHALL BE NO STEEPER THAN 1:12 (= 8.33%).
4. WHERE ACCESSIBLE ROUTES ENTER VEHICULAR TRAVEL AREAS, A DETECTABLE WARNING SURFACE, 36" WIDE SHALL BE INSTALLED. THE DETECTABLE WARNING SURFACE SHALL CONSIST OF RAISED TRUNCATED DOMES AND SHALL CONTRAST VISUALLY WITH ADJACENT SURFACES, EITHER LIGHT-ON-DARK, OR DARK-ON-LIGHT.

UTILITIES

1. THE EXISTENCE AND LOCATION OF ANY UNDERGROUND UTILITY PIPES OR STRUCTURES SHOWN ON THESE DRAWINGS HAVE BEEN OBTAINED BY A SEARCH OF THE AVAILABLE RECORDS. EXCEPT WHERE NOTED, NO UNDERGROUND UTILITIES WERE EXCAVATED AND THEIR EXACT LOCATIONS CONFIRMED DURING THE COURSE OF DESIGN. TO THE BEST OF THE ENGINEER'S KNOWLEDGE, THERE ARE NO EXISTING UTILITIES EXCEPT AS SHOWN ON THESE DRAWINGS. HOWEVER, THE CONTRACTOR SHALL CONTACT OKIE ONE-CALL UTILITY LOCATING SERVICE (1-800-522-OKIE) AT LEAST 48 HOURS IN ADVANCE OF THE WORK, AND SHALL MAKE EVERY EFFORT TO DISCOVER ALL UNDERGROUND UTILITY LINES, PIPELINES, AND STRUCTURES IN OR NEAR THE WORK AREA PRIOR TO COMMENCING WORK. THE ENGINEER ASSUMES NO RESPONSIBILITY FOR THE ACCURACY OF UTILITY LOCATIONS AND THE EXISTENCE OR NON-EXISTENCE OF UTILITY LINES.
2. THE CONTRACTOR SHALL TAKE DUE PRECAUTIONARY MEASURES TO PROTECT UTILITY LINES SHOWN, AND ALL OTHER LINES NOT OF RECORD OR NOT SHOWN BY VERIFICATION OF LINE LOCATION IN THE FIELD PRIOR TO BEGINNING THE WORK. THE CONTRACTOR SHALL VERIFY THE HORIZONTAL AND VERTICAL LOCATION OF ALL UTILITY CONNECTION POINTS PRIOR TO STARTING THE WORK AND SHALL IMMEDIATELY REPORT TO THE ENGINEER ANY DISCREPANCIES FROM THE PLAN INFORMATION SO THE DESIGN MAY BE ALTERED AS NECESSARY BEFORE PROCEEDING FURTHER.
3. THE CONTRACTOR SHALL NOTIFY THE CITY OF TULSA AT LEAST 48 HOURS PRIOR TO BEGINNING CONSTRUCTION ON PUBLIC WATER LINES.
4. SEWER LINE DISTANCES SHOWN IN PROFILE ARE MEASURED IN A HORIZONTAL LINE ALONG THE PIPE, BETWEEN CENTERS OF MANHOLES.
5. PUBLIC WATER LINES SHALL BE INSTALLED WITH A MINIMUM OF 3' OF COVER FROM THE TOP OF PIPE TO FINISHED GRADE.
6. SEWER AND WATER MAINS SHALL BE PLACED IN SEPARATE TRENCHES A MINIMUM OF 10' APART HORIZONTALLY. AT ALL CROSSINGS OF WATER AND SEWER LINES, A 24" VERTICAL SEPARATION SHALL BE MAINTAINED. WHERE THIS IS NOT POSSIBLE, THE SEWER PIPE SHALL BE INSTALLED WITH THE 20'-STICK OF PIPE CENTERED ON THE WATERLINE, OR CONSTRUCTED OF PRESSURE PIPE, OR CONCRETE-ENCASED.
7. ONLY WATER SYSTEM PERSONNEL MAY OPERATE PUBLIC WATER SYSTEM VALVES AND FIRE HYDRANTS, UNLESS SPECIFIC PRIOR WRITTEN PERMISSION IS GRANTED BY WATER SYSTEM STAFF FOR THE CONTRACTOR TO OPERATE THE SAME. THIS INCLUDES NEW WATERLINES AND EXTENSIONS TO THE PUBLIC WATER SYSTEM WHICH HAVE NOT BEEN ACCEPTED BUT ARE CONNECTED TO THE EXISTING WATER SYSTEM.
8. THE CONTRACTOR SHALL COORDINATE WATER SHUT-OFFS WITH CITY WATER PERSONNEL AT LEAST 48 HOURS PRIOR TO THE SHUT-OFF. PUBLIC VALVES SHALL BE OPERATED BY CITY OF TULSA PERSONNEL ONLY. THE SHUT-OFF MAY BE DONE AT NIGHT OR ON WEEKENDS TO ACCOMMODATE WATER USERS.
9. PUBLIC WATER MAINS SHALL BE CONSTRUCTED OF 150-PSI AWWA C-900 PVC PIPE OR AWWA C-151 DUCTILE IRON PIPE WITH AWWA C-110 DUCTILE IRON FITTINGS.
10. ALL BENDS, VALVES, TEES, FIRE HYDRANTS, AND CAPS SHALL BE STABILIZED AGAINST WATER HAMMER BY INSTALLING BLOCKING OR RESTRAINING ALL PIPE JOINTS WITHIN A GIVEN DISTANCE OF THE JUNCTURE AS RECOMMENDED BY THE MANUFACTURER (EBAA IRON OR APPROVED EQUIVALENT).
11. THE PUBLIC SEWER LINE EXTENSION ONTO THIS SITE SHALL BE CONSTRUCTED UNDER A SEPARATE PERMIT AND CONTRACT PERFORMED IN COMPLIANCE WITH THE CITY OF TULSA IDP PROCESS.

ABBREVIATIONS

ATU	AEROBIC TREATMENT UNIT
AC	ASPHALT CONCRETE
BK	BOOK
BLDG	BUILDING
BM	BENCH MARK
BVC	BEGIN VERTICAL CURVE
C	COMMUNICATIONS
CATV	CABLE TELEVISION
C&G	CURB & GUTTER
CL	CENTER LINE
CMP	CORRUGATED METAL PIPE
CO	CLEAN OUT
CONC	CONCRETE
CY	CUBIC YARD
DGDI	DOUBLE GRATE DROP INLET
DIA	DIAMETER
DIP	DUCTILE IRON PIPE
DO	DOOR OPENING
DS	DOWN SPOUT
E	ELECTRIC
EA	EACH
EL, ELEV	ELEVATION
ESMT	EASEMENT
EP	EDGE OF PAVEMENT
EVC	END VERTICAL CURVE
EW	EACH WAY
EX, EXIST	EXISTING
FF	FINISHED FLOOR
FG	FINISHED GROUND (DIRT,GRASS,
FH	FIRE HYDRANT OR GRAVEL)
FL	FLOW LINE
FP	FINISHED PAD
FUT	FUTURE
G	GAS
GM	GAS METER
GV	GAS VALVE, GATE VALVE
GT	GREASE TRAP
HC	HANDICAP
HORIZ	HORIZONTAL
HB	HOSE BIB
INT	INTERSECTION
INV	INVERT
IP	IRON PIN, IRON PIPE
LF	LINEAR FEET
LH	LAMP HOLE
LONG	LONGITUDINAL
LP	LIGHT POLE
LT	LEFT
MH	MANHOLE
OC	ON CENTER
OE	OVERHEAD ELECTRIC
PB	PULL BOX
PC	POINT OF CURVATURE
PCC	POINT OF COMPOUND CURVATURE, PORTLAND CEMENT CONCRETE
PFPI	PRIVATELY FUNDED PUBLIC INFRATRUCTURE
PI	POINT OF INTERSECTION
PL	PROPERTY LINE
PP	POWER POLE
PRC	POINT OF REVERSE CURVATURE
PT	POINT OF TANGENCY, POINT
PVC	POINT OF VERTICAL CURVATURE
PVI	POINT OF VERTICAL INTERSECTION
R, RAD	RADIUS
RCP	REINFORCED CONCRETE PIPE
RD	ROOF DRAIN
RT	RIGHT
R/W, ROW	RIGHT OF WAY
S	SLOPE
SA	SANITARY SEWER
SP	SPRINKLER
SF	SQUARE FEET
SGDI	SINGLE GRATE DROP INLET
ST, SD	STORM DRAIN, STORM SEWER
STA	STATION
STD	STANDARD
SW	SIDEWALK
SY	SQUARE YARDS
T	TANGENT
TA	TOP OF ASPHALT
TAC	TOP OF ASPHALT CURB
TC	TOP OFCONCRETE,TOP OF CURB
TEL	TELEPHONE
TG	TOP OF GRATE
TP	TOP OF PAVEMENT
TR	TOP OF RIM ELEVATION
TS	TOP OF SIDEWALK
TW	TOP OF WALL
TYP	TYPICAL
UE	UNDERGROUND EASEMENT
VC	VERTICAL CURVE
W	WATER
WH	WATER HYDRANT
WM	WATER METER
WS EL	WATER SURFACE ELEVATION
WV	WATER VALVE



TULSA COUNTY

LOCATION MAP

LEGEND

	EXISTING	PROPOSED
RIGHT-OF-WAY		
LOT LINE		
BUILDING		
CURB AND GUTTER		
SLOPED AREA	TOP TOE	
FLOW DIRECTION		
SANITARY SEWER	8"SA	SA
MANHOLE	MH	MH
SANITARY CLEANOUT	CO	CO
WATER	W	W
FIRE HYDRANT	FH	FH
WATER VALVE	WV	WV
WATER METER	WM	WM
STORM SEWER	ST	
STORM INLET	SGDI	SGDI
TELEPHONE	T	T
COMMUNICATIONS	C	C
GAS	G	G
GAS METER		GM
OVERHEAD ELECTRIC	OE	OE
UNDERGROUND ELECTRIC	UE	UE
TRANSFORMER		
LIGHT POLE	LP	LP
INDEX CONTOUR (5')	500	695
INTERMEDIATE CONTOUR (1')	501	696
SPOT ELEVATION	698.14	TP700.88
SILT FENCE		SF

SHEET INDEX – NOT IDP

C100	CIVIL NOTES
C200	TOPOGRAPHIC SURVEY
C400	SITE PLAN
C600	UTILITY PLAN
C700	CIVIL DETAILS

SHEET INDEX – IDP

GE01	COVER SHEET
C100	CIVIL NOTES--FOR INFORMATION ONLY
C200	TOPOGRAPHIC SURVEY--FOR INFORMATION ONLY
GE02	DEMOLITION AND EROSION CONTROL PLAN
GE03	GRADING PLAN
SW01	EXISTING DRAINAGE PLAN
SW02	DEVELOPED DRAINAGE PLAN
SS01	SANITARY SEWER PLAN & PROFILE

IDP NOTICE:

ALL WORK IN THE RIGHT-OF-WAY AND ALL DETENTION POND WORK SHALL BE PERFORMED UNDER AN IDP CONTRACT AND A SEPARATE IDP PLAN SET APPROVED BY THE CITY OF TULSA.

BEFORE YOU DIG OKLAHOMA CALL OKIE

IDP NO. 181538-2024
FOR INFORMATION ONLY

JC Engineering, PC
10035 N. 177th E. Ave. • Owasso, OK 74055-7841
(918)798-5979 • www.j-c-engineering.com
Oklahoma CA No. 5686 Expires June 30, 2025

PROFESSIONAL ENGINEER — JOE P. KELLEY — 7/11/2024 — 21438 — OKLAHOMA

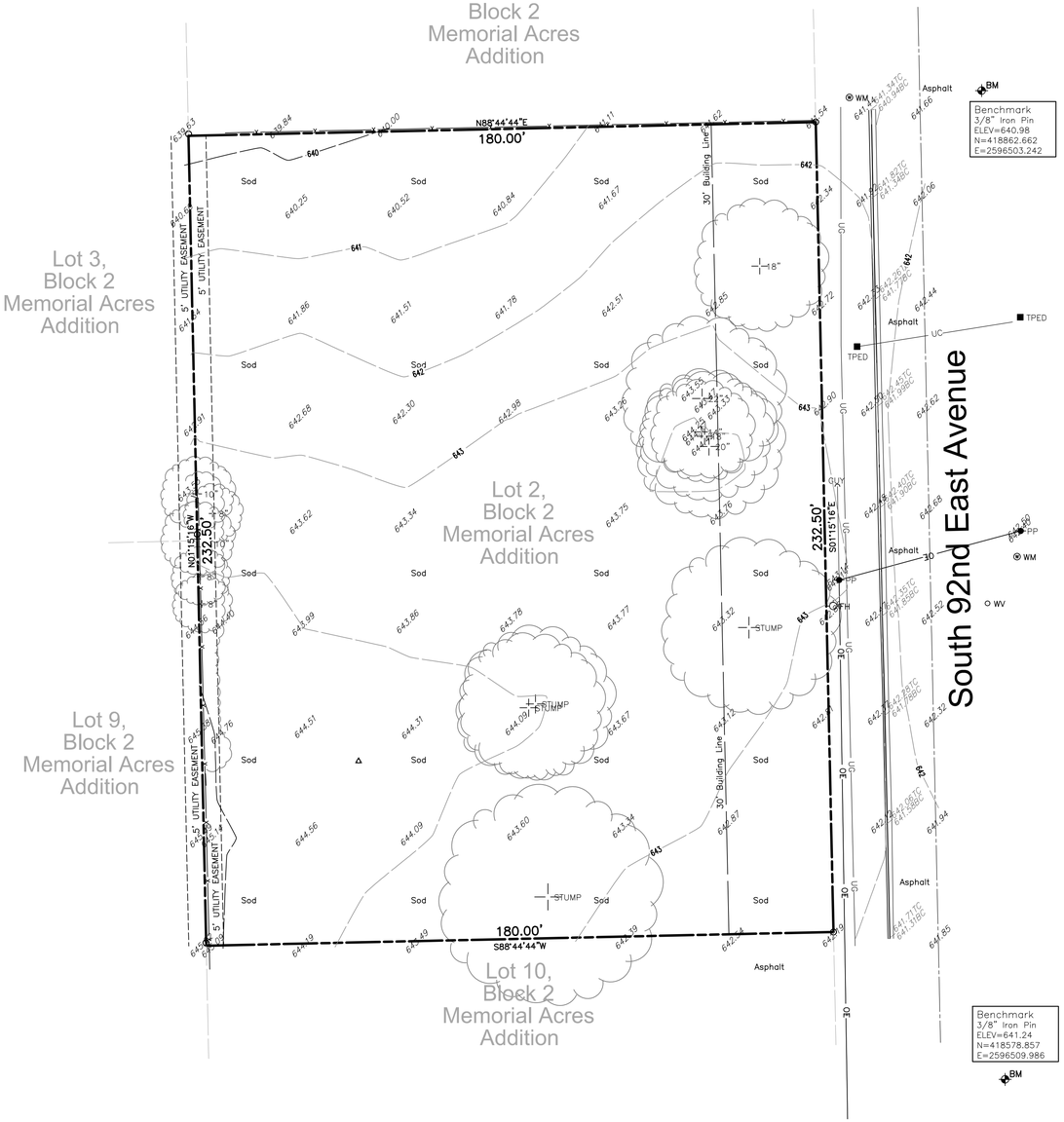
REVISIONS			
NO.	DATE	BY	DESCRIPTION

APPROVALS		
DATE	SIGNATURE	DEPT.

PROJECT: TULSA RAIN CONTROL 2150 S. 92ND EAST AVE.
CLIENT: STEELCON CONSTRUCTION LLC

SHEET TITLE: CIVIL NOTES

SHEET NO. C100



Benchmark Notes

Benchmark	Benchmark
3/8" Iron Pin	3/8" Iron Pin
ELEV=640.98	ELEV=641.24
N=418862.662	N=418578.857
E=2596503.242	E=2596509.986

Legend

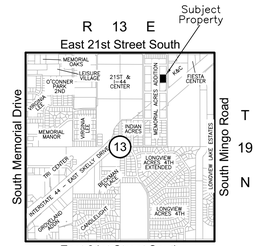
BC	BOTTOM OF CURB
GUY	GUY WIRE
OE	OVERHEAD ELECTRIC
OT	OVERHEAD TELEPHONE
PP	POWER POLE
TC	TOP OF CURB
TPED	TELEPHONE PEDESTAL
UC	UNDERGROUND CABLE
UG	UNDERGROUND GAS
WM	WATER METER
WV	WATER VALVE

BM =BENCHMARK

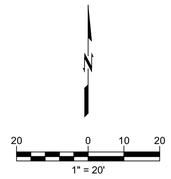
Know what's below. Call before you dig.

CAUTION
NOTICE TO CONTRACTOR

THE CONTRACTOR IS SPECIFICALLY CAUTIONED THE LOCATION AND ELEVATION OF EXISTING UTILITIES AS SHOWN ON THESE PLANS ARE BASED ON RECORDS OF THE VARIOUS UTILITY COMPANIES AND MEASUREMENTS TAKEN IN THE FIELD. THE INFORMATION IS NOT TO BE RELIED ON AS BEING EXACT OR COMPLETE. THE CONTRACTOR MUST CALL THE LOCAL UTILITY LOCATION CENTER AT LEAST 72 HOURS BEFORE ANY EXCAVATION TO REQUEST EXACT FIELD LOCATIONS OF THE UTILITIES.



Location Map
Scale: 1"=2000'



Legal Description

LOT TWO (2), BLOCK TWO (2), MEMORIAL ACRES ADDITION, CITY OF TULSA, TULSA COUNTY, ACCORDING TO THE RECORDED PLAT THEREOF.

Notes

1. ABSTRACT OF TITLE OR ATTORNEY'S TITLE OPINION NOT AVAILABLE TO SURVEYOR AT DATE OF SURVEY.
2. THIS FIRM WAS NOT CONTRACTED TO RESEARCH EASEMENTS OR ENCUMBRANCES OF RECORD. NO ATTEMPT TO RESEARCH THE COUNTY RECORDS OR OTHER RECORD OFFICES WAS PERFORMED BY THIS FIRM, THEREFORE EASEMENTS MAY AFFECT THE SUBJECT TRACT THAT ARE NOT REFLECTED BY THIS PLAT.
3. ALL UNDERGROUND UTILITIES MAY NOT BE SHOWN. (CALL "OKIE" BEFORE DIGGING!!)
4. THE VERTICAL DATUM FOR THIS SURVEY IS BASED ON GPS DATA (NAVD88).
5. THE HORIZONTAL DATUM FOR THIS SURVEY IS BASED THE OKLAHOMA STATE PLANE COORDINATE SYSTEM NAD83.
6. THE BASIS OF BEARINGS ARE BASED ON THE OKLAHOMA STATE PLANE COORDINATE SYSTEM NAD83.

Topographic Survey
of
Section 13, T-19-N, R-13-E
2150 S. 92nd E. Avenue
LOT 2, BLOCK 2, MEMORIAL ACRES ADDITION
Tulsa County, Oklahoma

Surveyor's Certification

WE, WALLACE DESIGN COLLECTIVE, HEREBY CERTIFY THAT THE TOPOGRAPHICAL INFORMATION HEREON REPRESENTS A SURVEY PERFORMED UNDER OUR DIRECT SUPERVISION AND IS TRUE AND CORRECT TO THE BEST OF OUR KNOWLEDGE.

THIS TOPO SURVEY MEETS THE MINIMUM TECHNICAL STANDARDS, AS ADOPTED BY THE BOARD OF REGISTRATION FOR PROFESSIONAL ENGINEERS AND LAND SURVEYORS FOR THE STATE OF OKLAHOMA.

WITNESS MY HAND AND SEAL THIS 8TH DAY OF AUGUST, 2023.

REGISTERED PROFESSIONAL LAND SURVEYOR — CLIFF BENNETT 1815 — OKLAHOMA

BY: Cliff Bennett
CLIFF BENNETT
REGISTERED PROFESSIONAL LAND SURVEYOR
OKLAHOMA NO. 1815

IDP NO. 181538-2024
FOR INFORMATION ONLY

FILE:	1913.13	SURVEY BY:	GQJ	DATE:	03/19/15
ORDER:	2340525	DRAWN BY:	ABS	SCALE:	1"=20'
BOOK:		CHECKED BY:	CDB	SHEET	1 OF 1

wallace design collective
wallace design collective, pc
structural · civil · landscape · survey
123 north martin luther king jr. blvd.
tulsa, oklahoma 74103
918.584.5858
oklahoma ca1460
exp: 6-30-25

REGISTERED PROFESSIONAL LAND SURVEYOR — CLIFF BENNETT 1815 — OKLAHOMA

Tulsa Rain Control

2150 S. 92nd E. Avenue

REV	DESCRIPTION	DATE
1	REV1DESC	REV1DATE
2	REV2DESC	REV2DATE
3	REV3DESC	REV3DATE
4	REV4DESC	REV4DATE
5	REV5DESC	REV5DATE

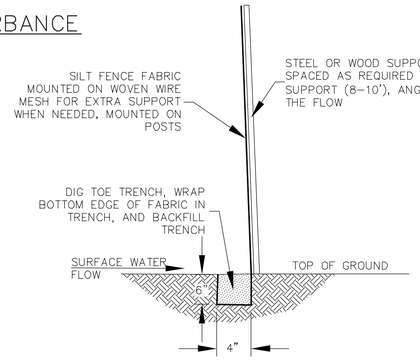
DATE 08/08/23
PROJECT NO. 2340525
SHEET NAME
TOPOGRAPHIC SURVEY
SHEET NO.
C200
8.13

EROSION CONTROL/ENVIRONMENTAL PROTECTION/ STORMWATER POLLUTION PREVENTION PLAN

1. EROSION CONTROL MEASURES ARE INDICATED ON THE SITE EROSION CONTROL PLAN. THE EROSION CONTROL PLAN IS A GRAPHIC PLAN INCLUDED IN THE PLAN SHEETS THAT ILLUSTRATES THE EROSION CONTROL MEASURES OUTLINED IN THE STORMWATER POLLUTION PREVENTION PLAN (SWP3).
2. ON PROJECTS IN WHICH MORE THAN ONE ACRE OF GROUND WILL BE DISTURBED AT ONE TIME DURING THE COURSE OF CONSTRUCTION. THE SWP3 WILL BE PROVIDED BY THE ENGINEER AND SHALL BE STRICTLY FOLLOWED BY THE CONTRACTOR. THE SWP3 IS A BOUND 8-1/2 X 11 BOOKLET SEPARATE FROM THE BOUND PLAN SET. ON PROJECTS WITH AN SWP3, THE OWNER WILL FILE AN "NOI" SEPARATELY WITH THE OKLAHOMA DEPARTMENT OF ENVIRONMENTAL QUALITY (ODEQ). AFTER ALL THE EROSION CONTROL MEASURES IDENTIFIED IN THE SP3 HAVE BEEN LAWFULLY REMOVED (WHICH USUALLY COINCIDES WITH THE END OF CONSTRUCTION), THE CONTRACTOR SHALL NOTIFY THE ENGINEER SO THE "NOT" MAY BE SUBMITTED TO THE ODEQ.
3. THE CONTRACTOR SHALL CONFORM TO ALL CITY, COUNTY, STATE AND FEDERAL DUST AND EROSION CONTROL REGULATIONS. THE CONTRACTOR SHALL APPLY FOR AND OBTAIN ANY NECESSARY DUST OR EROSION CONTROL PERMITS FROM REGULATORY AGENCIES.
4. THE CONTRACTOR SHALL CONTAIN OR REMOVE ANY EXCAVATED MATERIAL TO KEEP IT FROM WASHING OFF THE PROJECT SITE.
5. THE CONTRACTOR SHALL ENSURE THAT NO SOIL ERODES FROM THE SITE ONTO OTHER PROPERTY BY CONSTRUCTING TEMPORARY EROSION CONTROL BERMS OR INSTALLING SILT FENCES AT THE PROPERTY LINES AS INDICATED ON THE DEMOLITION PLAN. THE CONTRACTOR SHALL PERIODICALLY INSPECT BERMS AND SILT FENCES AND REPAIR THEM AS NEEDED, AND REMOVE ACCUMULATIONS OF SEDIMENT.
6. THE CONTRACTOR SHALL MITIGATE EROSION OF TEMPORARY OR PERMANENT DIRT SWALES BY INSTALLING SILT FENCES IN THE SWALES PERPENDICULAR TO THE DIRECTION OF FLOW, AND AT APPROPRIATE INTERVALS.
7. THE CONTRACTOR SHALL PERIODICALLY WET EXPOSED SOIL AS NECESSARY TO KEEP IT FROM BLOWING. WATERING, AS REQUIRED FOR CONSTRUCTION AND DUST CONTROL, SHALL BE CONSIDERED INCIDENTAL TO CONSTRUCTION AND NO SEPARATE PAYMENT SHALL BE MADE THEREFOR. CONSTRUCTION AREAS SHALL BE WATERED FOR DUST CONTROL IN COMPLIANCE WITH GOVERNMENT ORDINANCES. THE CONTRACTOR SHALL BE RESPONSIBLE FOR LOCATING AND SUPPLYING WATER AS REQUIRED.
8. ANY AREAS DISTURBED BY CONSTRUCTION AND NOT COVERED BY LANDSCAPING OR A PAVED SURFACE SHALL BE RE-VEGETATED WITH SEEDING OR SOLID SLAB SOD APPROPRIATE TO THE LOCATION. THIS SHALL NOT INCLUDE RESIDENTIAL LOTS WHICH ARE TO BE OCCUPIED WITHIN TWELVE MONTHS.
9. THE CONTRACTOR SHALL PROPERLY HANDLE AND DISPOSE OF ALL ASPHALT AND CONCRETE REMOVED FROM THE SITE IN ACCORDANCE WITH ODEQ REGULATIONS.
10. ALL WASTE PRODUCTS FROM THE CONSTRUCTION SITE, INCLUDING ITEMS DESIGNATED FOR REMOVAL, CONSTRUCTION WASTE, CONSTRUCTION EQUIPMENT WASTE PRODUCTS (OIL, GAS, TIRES, ETC.), GARBAGE, GRUBBING, EXCESS CUT MATERIAL, VEGETATIVE DEBRIS, ETC. SHALL BE APPROPRIATELY DISPOSED OF OFF-SITE AT NO ADDITIONAL COST TO THE OWNER. IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO OBTAIN PERMITS REQUIRED FOR HAUL OR DISPOSAL OF WASTE PRODUCTS, AND TO ENSURE THAT THE WASTE DISPOSAL SITE COMPLIES WITH GOVERNMENT REGULATIONS REGARDING THE ENVIRONMENT, ENDANGERED SPECIES, AND ARCHAEOLOGICAL RESOURCES.
11. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE CLEANUP AND REPORTING OF SPILLS OF HAZARDOUS MATERIALS ASSOCIATED WITH THE CONSTRUCTION SITE. HAZARDOUS MATERIALS INCLUDE GASOLINE, DIESEL FUEL, MOTOR OIL, SOLVENTS, CHEMICALS, PAINTS, ETC. WHICH MAY BE A THREAT TO THE ENVIRONMENT. THE CONTRACTOR SHALL REPORT THE DISCOVERY OF PAST OR PRESENT SPILLS TO THE ODEQ BY CALLING THE SPILL REPORTING HOTLINE AT 1-800-522-0206.
12. THE CONTRACTOR SHALL COMPLY WITH ALL APPLICABLE REGULATIONS CONCERNING SURFACE AND UNDERGROUND WATER. CONTACT WITH SURFACE WATER BY CONSTRUCTION EQUIPMENT AND PERSONNEL SHALL BE MINIMIZED. EQUIPMENT MAINTENANCE AND REFUELING OPERATIONS SHALL BE PERFORMED IN AN ENVIRONMENTALLY SAFE MANNER IN COMPLIANCE WITH GOVERNMENT REGULATIONS.
13. THE CONTRACTOR SHALL COMPLY WITH ALL APPLICABLE REGULATIONS CONCERNING CONSTRUCTION NOISE, LIGHTING, AND HOURS OF OPERATION.
14. WHERE STORM INLETS OR WATERWAYS--EITHER WET OR DRY--ARE SUSCEPTIBLE TO INFLOW OF SILT OR DEBRIS FROM CONSTRUCTION ACTIVITIES, APPROPRIATE MEASURES SHALL BE TAKEN TO PREVENT THE SILT OR DEBRIS INFLOW.
15. IF AN SWP3 IS PROVIDED AS PART OF THIS PROJECT, THE CONTRACTOR SHALL MAINTAIN THE WORKING COPY OF THE SWP3 ON-SITE AT ALL TIMES, AND SHALL KEEP IT UP TO DATE IN ACCORDANCE WITH THE DIRECTIONS CONTAINED THEREIN. THE SWP3 SHALL BE MADE AVAILABLE TO GOVERNMENT PERSONNEL WHO MAY VISIT THE SITE FOR INSPECTIONS.
16. BECAUSE THIS PROJECT DOES NOT DISTURB ONE ACRE OR MORE OF GROUND SURFACE, NEITHER AN NOI NOR AN SWP3 WILL BE PREPARED AND SUBMITTED TO ODEQ.

AREA OF DISTURBANCE

0.5 ACRES

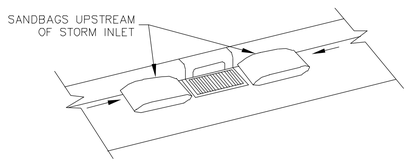


NOTES:

1. INSPECT FENCES AFTER RAIN EVENTS AND AT LEAST ONCE A WEEK. REPAIR AS NEEDED.
2. AN SWP3 MUST BE MAINTAINED FOR THE PROJECT DURATION. RECORD SILT FENCE MAINTENANCE ACTIVITIES IN THE SWP3.
3. REMOVE EXCESS SEDIMENT TRAPPED ON THE UPSTREAM SIDE OF THE FENCE AND DISPOSE OF PROPERLY.

(A) SILT FENCE

NTS

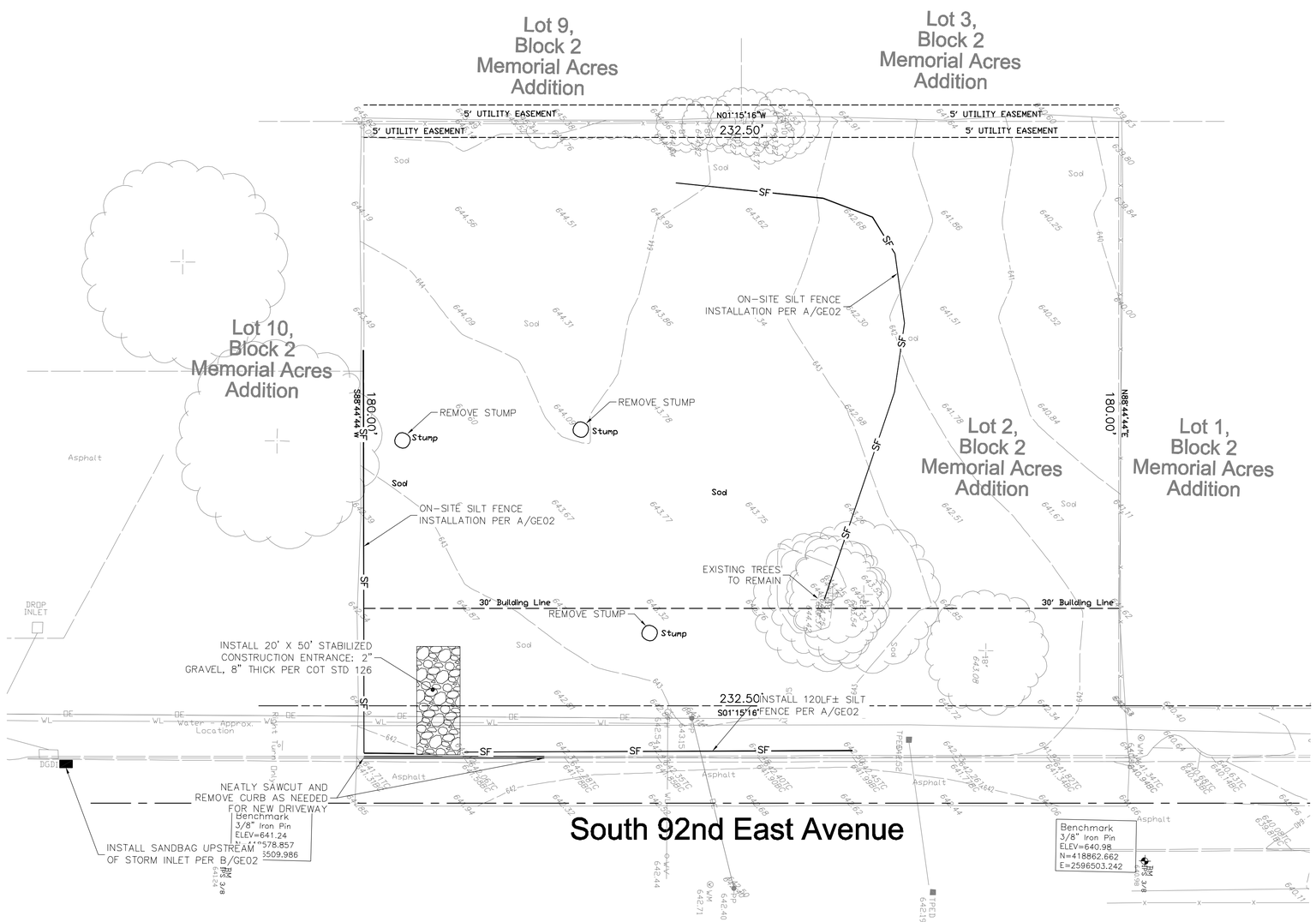


NOTES:

1. PLACE SANDBAGS IN GUTTER UPSTREAM OF STORM INLET.
2. AFTER STORM EVENTS AND WHEN SEDIMENT BUILDS UP BEHIND THE SANDBAGS, REMOVE THE SEDIMENT.
3. ARRANGE SANDBAGS TO NOT IMPEDE TRAFFIC.

(B) SANDBAG INLET PROTECTION

NTS



20 0 20 40 60

Scale 1" = 20'

APPROVED FOR IDP PERMIT ONLY
Date: 2024.07.10 15:28:03-05'00'
MICHAEL LING, P.E. DATE
INFRASTRUCTURE DEVELOPMENT MANAGER
CITY OF TULSA

REGISTERED PROFESSIONAL ENGINEER JOE P. KELLEY 7/5/2024 21438 OKLAHOMA

BEFORE YOU DIG OKIE CALL CALL OKIE

REVISION	BY	DATE

TULSA RAIN CONTROL
2150 S. 92ND EAST AVE.
DEMOLITION & EROSION CONTROL PLAN

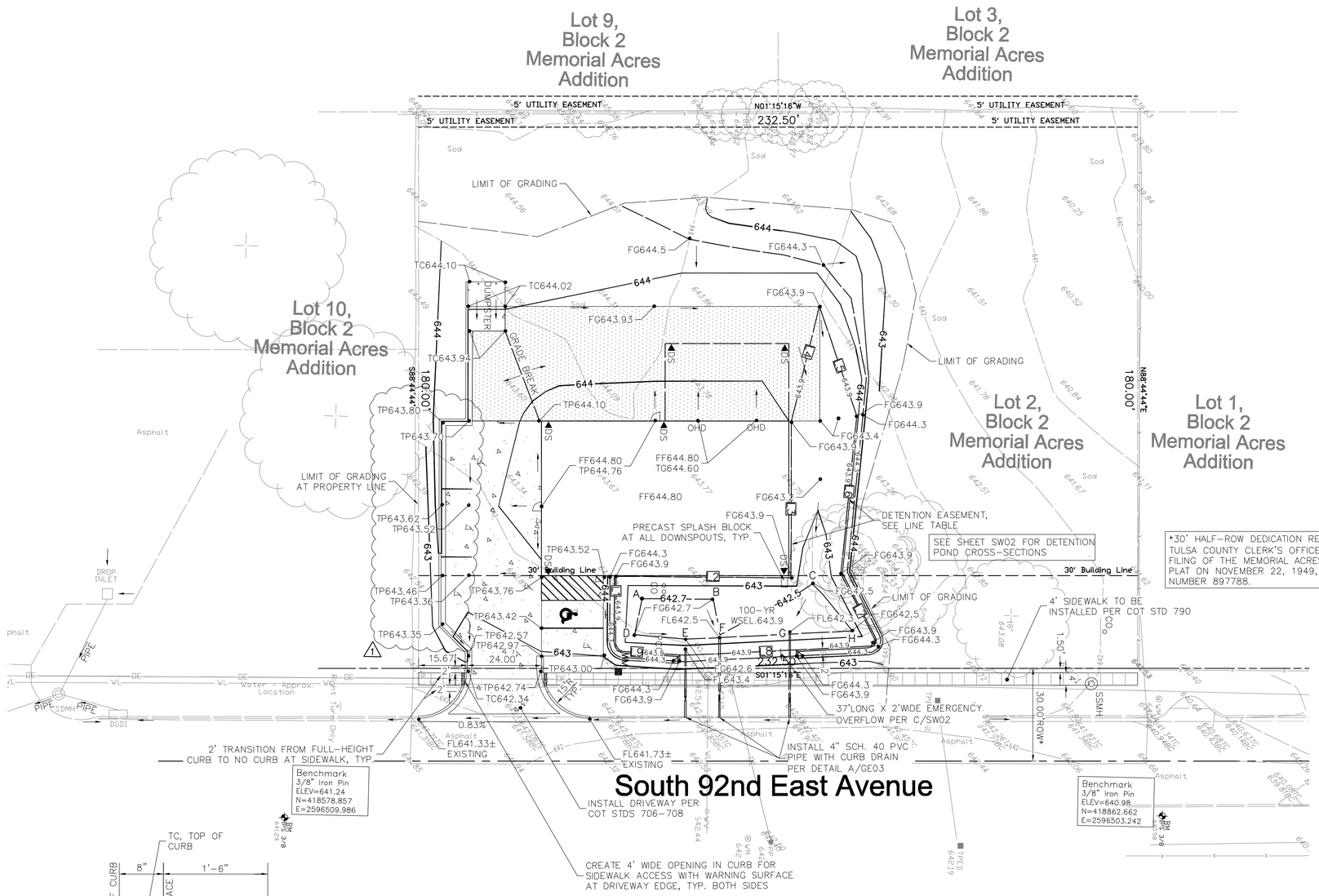
IDP NO. 181538-2024

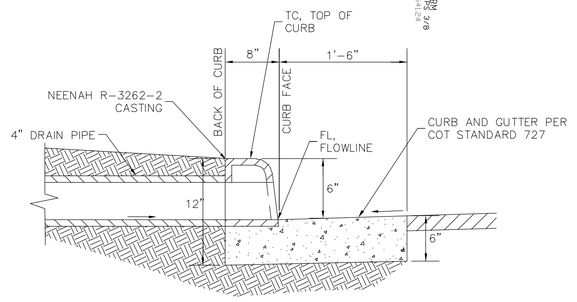
CITY OF TULSA, OKLAHOMA

PLANS AND ESTIMATES PREPARED BY:
JC Engineering, PC 10035 N. 177th East Ave. • Owasso, OK 74055
918-798-5979 • joe@jc-c-engineering.com
Oklahoma CA No. 5686 • Expires June 30, 2025

ATLAS PAGE NO: 130 DATE: JULY 05, 2024

IDP DWG NO: 181538-2024-GE02 SHEET 4 OF 8 SHEETS





NOTES:

1. NEATLY SAWCUT, REMOVE AND REPLACE A 5' LENGTH OF CURB AND GUTTER.
2. INSTALL THREE ⅝"ø X 12" DOWELS INTO ABUTTING CURBS-TWO DOWELS IN THE CURB PAN, AND ONE IN THE CENTER OF THE CURB.
3. INSTALL THE NEENAH CASTING AT THE CENTER OF THE 5' CURB CUT.
4. MAKE WATERTIGHT CONNECTION BETWEEN THE DRAIN PIPE AND THE NEENAH CASTING.
5. AN EQUIVALENT CASTING OTHER THAN NEENAH MAY BE USED WITH PRIOR APPROVAL.

(A) CURB DRAIN

NTS

LEGEND

PROPOSED STORM SEWER	
LIMIT OF GRADING	
EXISTING CONTOUR	500
PROPOSED CONTOUR	500
PROPOSED EASEMENT	
EXIST UNDERGROUND ELECTRIC	UE
EXIST OVERHEAD ELECTRIC	OE
EXIST CURB AND GUTTER	
PROPOSED CURB AND GUTTER	
PROPOSED STRIPING	
FINISHED GROUND ELEVATION	FG600.1
TOP OF CURB ELEVATION	TC600.10
TOP OF PAVEMENT ELEVATION	TP600.10
FLOWLINE ELEVATION	FL600.10

SIDEWALK FEE-IN-LIEU NOTE

EITHER THE SIDEWALK WILL BE INSTALLED AS SHOWN ON THESE PLANS, OR A FEE-IN-LIEU OF SIDEWALKS WILL BE PAID BY THE OWNER/DEVELOPER. WHEN THE RECORD DRAWINGS ARE PREPARED, THEY WILL CLEARLY NOTE THE DATE THE FEE-IN-LIEU WAS APPROVED AND WILL INCLUDE THE RECEIPT NUMBER FOR THE PAYMENT.

+30' HALF-ROW DEDICATION RECORDED IN TULSA COUNTY CLERK'S OFFICE WITH THE FILING OF THE MEMORIAL ACRES ADDITION PLAT ON NOVEMBER 22, 1949, DOC. NUMBER 897788.

GENERAL NOTES

1. CONTRACTOR SHALL OBTAIN EARTH CHANGE PERMIT FROM THE CITY OF TULSA.
2. PRIOR TO EARTH DISTURBANCE, CONTRACTOR SHALL IMPLEMENT TEMPORARY EROSION CONTROLS ON SHEET GE02.
3. ALL DISTURBED UNPAVED SURFACES SHALL BE FINISHED WITH LANDSCAPING OR SOD OR SEED, IN ACCORDANCE WITH THE APPROVED ALTERNATE LANDSCAPING PLAN AND THE CITY OF TULSA ZONING CODE SECTION 65.
4. EARTHWORK OPERATIONS SHALL CONFORM TO THE RECOMMENDATIONS IN THE GEOTECHNICAL REPORT FOR THIS PROJECT.

ACCESSIBILITY NOTES

1. THE CONSTRUCTION SHALL COMPLY WITH FEDERAL ACCESSIBILITY REQUIREMENTS AS PUBLISHED IN ANSI 117.1-2003, "ACCESSIBLE AND USABLE BUILDINGS AND FACILITIES."
2. ALL SURFACES ALONG ACCESSIBLE AND USABLE ROUTES AND FOR HANDICAP RAMPS SHALL BE STABLE, FIRM, SLIP RESISTANT, AND SHALL COMPLY WITH UNIFORM FEDERAL ACCESSIBILITY STANDARDS.
3. FOR ACCESSIBLE ROUTES (EXCEPT CURB RAMPS): LONGITUDINAL SLOPES SHALL BE NO STEEPER THAN 1:20 (= 5%) AND CROSS SLOPES SHALL BE NO STEEPER THAN 1:50 (= 2%). AT HANDICAP PARKING SPACES, ACCESS AISLES, AND PASSENGER LOADING ZONES, THE SLOPE IN ALL DIRECTIONS SHALL BE NO STEEPER THAN 1:50 (= 2%). AT CURB RAMPS, THE SLOPE SHALL BE NO STEEPER THAN 1:12 (= 8.33%).
4. WHERE ACCESSIBLE ROUTES ENTER VEHICULAR TRAVEL AREAS, A DETECTABLE WARNING SURFACE, 36" WIDE SHALL BE INSTALLED. THE DETECTABLE WARNING SURFACE SHALL CONSIST OF RAISED TRUNCATED DOMES AND SHALL CONTRAST VISUALLY WITH ADJACENT SURFACES, EITHER LIGHT-ON-DARK, OR DARK-ON-LIGHT.

COT TRAFFIC NOTES

1. TRAFFIC SIGNS NOTE: THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE REPLACEMENT OF ALL EXISTING TRAFFIC SIGNS AND MARKINGS REMOVED OR DAMAGED AS PART OF THIS PROJECT. ALL SIGNS AND POLES PROVIDED SHALL BE NEW AND UNDAMAGED AND SHALL MEET THE REQUIREMENTS OF COT SPECIFICATION #608 TRAFFIC SIGNS. ALL TRAFFIC MATERIAL REMOVED SHALL BE HANDLED PER COT SPECIFICATIONS #625 REMOVAL OF TRAFFIC ITEMS.
2. TRAFFIC CONTROL NOTE: TRAFFIC CONTROL SHALL CONFORM TO THE MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES (MUTCD) CURRENT EDITION. IT IS THE CONTRACTOR'S RESPONSIBILITY TO ENSURE PROPER TRAFFIC CONTROL IS IN PLACE FOR EACH PHASE OF CONSTRUCTION. THE CONTRACTOR IS ALSO RESPONSIBLE FOR PROPERLY MAINTAINING TRAFFIC CONTROL DEVICES THROUGHOUT THE DURATION OF THE WORK. THE CONTRACTOR IS RESPONSIBLE FOR PROVIDING TRAFFIC CONTROL PLANS TO THE CITY AND DEPARTMENT OF TRANSPORTATION AS REQUIRED.

POND BOTTOM COORDINATES

POINT	NORTHING	EASTING	ELEVATION
A	418692.87	2596436.60	642.7
B	418715.97	2596436.31	642.7
C	418747.87	2596430.65	642.5
D	418690.66	2596448.47	642.7
E	418707.27	2596449.47	642.6
F	418718.34	2596447.83	642.5
G	418740.71	2596447.06	642.3
H	418761.15	2596445.60	642.5

L# DETENTION EASEMENT LINE TABLE L#

THE METES AND BOUNDS BELOW ARE IDENTICAL TO THE DETENTION EASEMENT BEING RECORDED IN TULSA COUNTY, DOCUMENT NUMBER INDICATED ON THE COVER SHEET FOR THIS PROJECT, GE01.

LINE#	LENGTH	DIRECTION
L1	24.14'	S89°07'35"W
L2	56.56'	N00°48'16"W
L3	50.54'	S88°52'26"W
L4	38.48'	N77°36'27"W
L5	37.62'	N70°05'10"E
L6	51.20'	S85°33'13"E
L7	26.25'	N51°28'52"E
L8	62.36'	S04°06'23"E
L9	22.65'	S02°17'39"W

IMPERVIOUS AREA

INCREASED IMPERVIOUS AREA = 10,754 SQ.FT.

FLOOD ZONE

ACCORDING TO APPLICABLE FEMA FIRM PANEL NO. 40143C0263L, EFFECTIVE 10/16/2012, THIS SITE IS IN AN UNSHADED FLOOD ZONE X, WHICH INDICATES AN AREA OF MINIMAL FLOOD HAZARD.

APPROVED FOR IDP PERMIT ONLY

MICHAEL LING, P.E. DATE
INFRASTRUCTURE DEVELOPMENT MANAGER
CITY OF TULSA

REGISTERED PROFESSIONAL ENGINEER
JOE P. KELLEY
7/5/2024
21438
OKLAHOMA

BEFORE YOU DIG CALL 811 CALL OKIE

REVISION	BY	DATE
⚠1 REV PER CITY PERMITING	JK	8.6.24

TULSA RAIN CONTROL
2150 S. 92ND EAST AVE.
GRADING AND PAVING PLAN

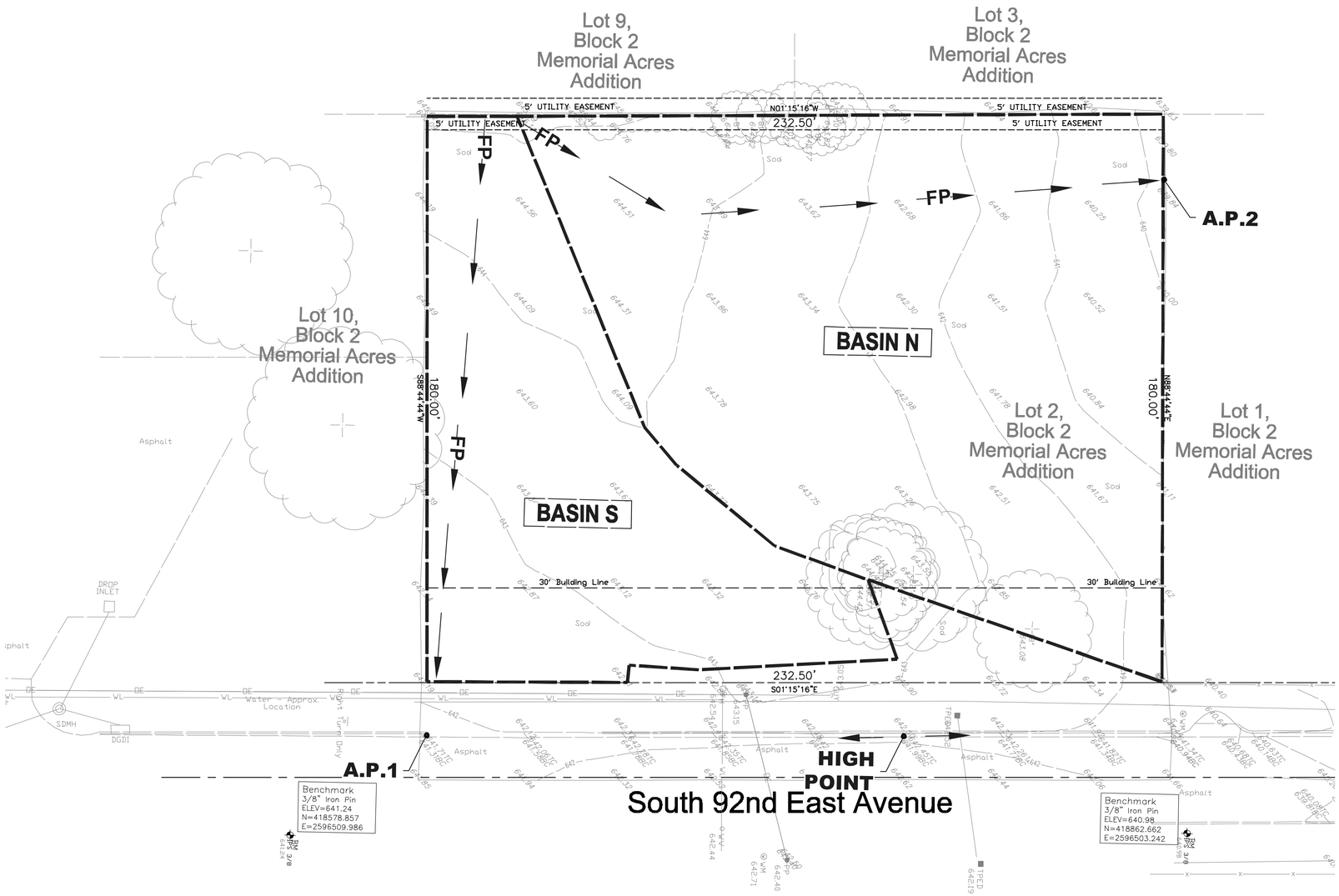
IDP NO. 181538-2024

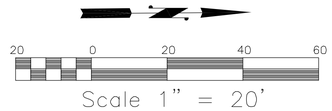
CITY OF TULSA, OKLAHOMA

PLANS AND ESTIMATES PREPARED BY:
JC Engineering, PC 10035 N. 177th East Ave. • Owasso, OK 74055
918-798-5979 • joe@j-c-engineering.com
Oklahoma CA No. 5686 • Expires June 30, 2025

ATLAS PAGE NO: 130 DATE: JULY 05, 2024

IDP DWG NO: 181538-2024-GE03 SHEET 5 OF 8 SHEETS





LEGEND

EXISTING STORM MANHOLE
EXISTING SANITARY MANHOLE
EXISTING CONTOUR
DRAINAGE BASIN BOUNDARY
DRAINAGE BASIN DESIGNATION
FLOW PATH
ANALYSIS POINT

STMH (MH)
SSMH (S)
500
BASIN E-1
FP
A.P.7

DRAINAGE BASIN SUMMARY CHART

DRAINAGE AREA DESIGN BASIN	BASIN AREA (ACRES)	'C' FACTOR	TCN FACTOR (FOR HEC-HMS CALC)	TIME OF CONCENTRA-TION Tc (MINUTES)	LAG TIME Tlag (MIN.) FOR HEC-HMS CALC	I100 (IN/HR) Note 1	Q100 (CFS)	I50 (IN/HR) Note 1	Q50 (CFS)	I10 (IN/HR) Note 1	Q10 (CFS)	I5 (IN/HR) Note 1	Q5 (CFS)	I2 (IN/HR) Note 1	Q2 (CFS)	COMMENTS
******* Existing *******																
Ex-Basin N	0.604	0.30	77.0	2.5	1.5	11.2	2.03	10.2	1.65	7.8	1.41	7.0	1.27	5.7	1.03	discharge to A.P.2
Ex-Basin S	0.318	0.30	77.0	3.9	2.3	10.6	1.01	9.6	0.92	7.4	0.71	6.4	0.61	5.2	0.50	discharge to A.P.1
TOTAL	0.922						3.04		2.77		2.12		1.88		1.53	total discharge
******* Developed *******																
Dev-Basin N	0.434	0.30	77.0	2.5	1.5	11.2	1.46	10.2	1.33	7.8	1.02	7.0	0.91	5.7	0.74	discharge to A.P.2
Dev-Basin S-1	0.163	0.59	87.2	1.9	1.1	11.9	1.15	10.7	1.03	8.2	0.79	7.2	0.69	5.8	0.56	
Dev-Basin S-2	0.325	0.61	87.8	2.8	1.7	11.2	2.22	10.2	2.02	7.8	1.54	7.0	1.39	5.7	1.13	without detention
Dev-Basin S	0.488						3.37		3.05		2.34		2.08		1.69	discharge to A.P.1 w/out det.
TOTAL DEV	0.922						4.83		4.38		3.35		2.99		2.43	total discharge without detention

Notes:
1. Rainfall intensities taken from TP-40 and Hydro-35 IDF graph.
2. The peak flow rates as computed by the rational equation will be used for computing the required pipe and street flows.
3. On this project, these Rational Equation Calcs are only informational because there is detention ponding, so the HEC-HMS results will be used.

APPROVED FOR IDP PERMIT ONLY
Date: 2024.07.10 15:25:53-05'00'
MICHAEL LING, P.E. DATE
INFRASTRUCTURE DEVELOPMENT MANAGER
CITY OF TULSA

REGISTERED PROFESSIONAL ENGINEER
JOE P. KELLEY
7/5/2024
21438
OKLAHOMA

BEFORE YOU DIG OKIE CALL OKIE

REVISION	BY	DATE

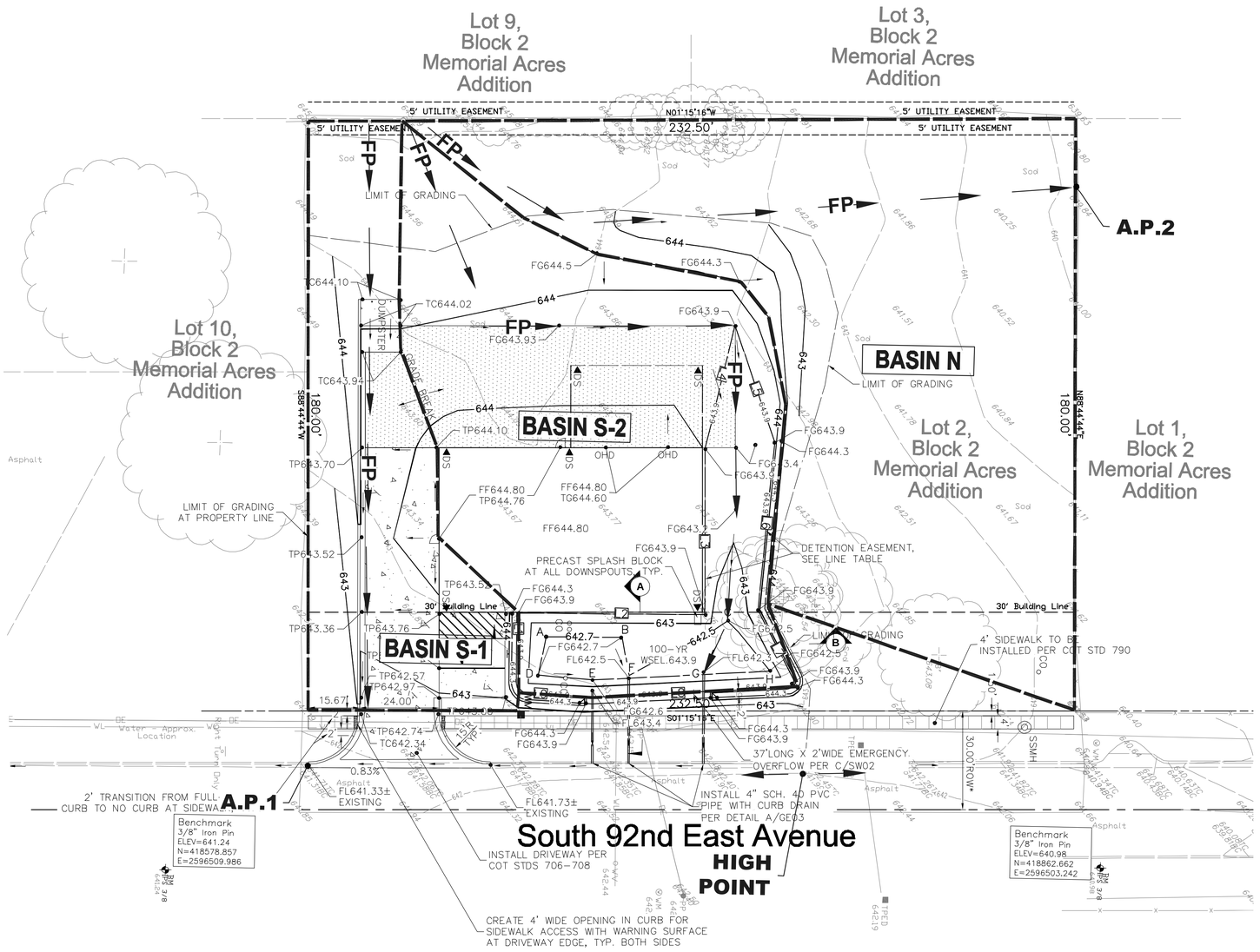
TULSA RAIN CONTROL
2150 S. 92ND EAST AVE.
EXISTING DRAINAGE PLAN

IDP NO. 181538-2024

CITY OF TULSA, OKLAHOMA

PLANS AND ESTIMATES PREPARED BY:
JC Engineering, PC 10035 N. 177th East Ave. • Owasso, OK 74055
918-798-5979 • joe@j-c-engineering.com
Oklahoma CA No. 5686 • Expires June 30, 2025

ATLAS PAGE NO: 130 DATE: JULY 05, 2024
IDP DWG NO: 181538-2024-SW01 SHEET 6 OF 8 SHEETS



RUNOFF COMPARISON SUMMARY AT ANALYSIS POINTS

STORM FREQUENCY (YR)	EXISTING PEAK DISCHARGE (CFS)		PROPOSED PEAK DISCHARGE (CFS)		Δ PEAK DISCHARGE (CFS)	
	A.P.1	A.P.2	A.P.1	A.P.2	A.P.1	A.P.2
2	1.0	1.9	1.0	1.4	0.0	-0.5
5	1.4	2.6	1.3	1.9	-0.1	-0.7
10	1.7	3.3	1.6	2.3	-0.1	-1.0
50	2.6	5.1	2.3	3.6	-0.3	-1.5
100	3.1	6.0	2.6	4.3	-0.5	-1.7

Notes:
1. Peak rates of flow computed using HEC-HMS because there is detention ponding on this project.

DRAINAGE BASIN SUMMARY CHART

DRAINAGE AREA / BASIN	BASIN AREA (ACRES)	"C" FACTOR	"CN" FACTOR (FOR HEC-HMS CALC)	TIME OF CONCENTRA- TION Tc (MINUTES)	LAG TIME Tlag (MIN.) FOR HEC-HMS CALC	I100 (IN/HR) Note 1	Q100 (CFS)	I50 (IN/HR) Note 1	Q50 (CFS)	I10 (IN/HR) Note 1	Q10 (CFS)	I5 (IN/HR) Note 1	Q5 (CFS)	I2 (IN/HR) Note 1	Q2 (CFS)	COMMENTS
****** Existing	*******															
Ex-Basin N	0.604	0.30	77.0	2.5	1.5	11.2	2.03	10.2	1.85	7.8	1.41	7.0	1.27	5.7	1.03	discharge to A.P.2
Ex-Basin S	0.318	0.30	77.0	3.9	2.3	10.6	1.01	9.6	0.92	7.4	0.71	6.4	0.61	5.2	0.50	discharge to A.P.1
TOTAL	0.922						3.04		2.77		2.12		1.88		1.53	total discharge
******* Developed	*******															
Dev-Basin N	0.434	0.30	77.0	2.5	1.5	11.2	1.46	10.2	1.33	7.8	1.02	7.0	0.91	5.7	0.74	discharge to A.P.2
Dev-Basin S-1	0.163	0.59	87.2	1.9	1.1	11.9	1.15	10.7	1.03	8.2	0.79	7.2	0.69	5.8	0.56	
Dev-Basin S-2	0.325	0.61	87.8	2.8	1.7	11.2	2.22	10.2	2.02	7.8	1.54	7.0	1.39	5.7	1.13	without detention
Dev-Basin S	0.468						3.37		3.05		2.34		2.08		1.69	discharge to A.P.1 w/out det.
TOTAL DEV	0.922						4.83		4.38		3.35		2.99		2.43	total discharge without detention

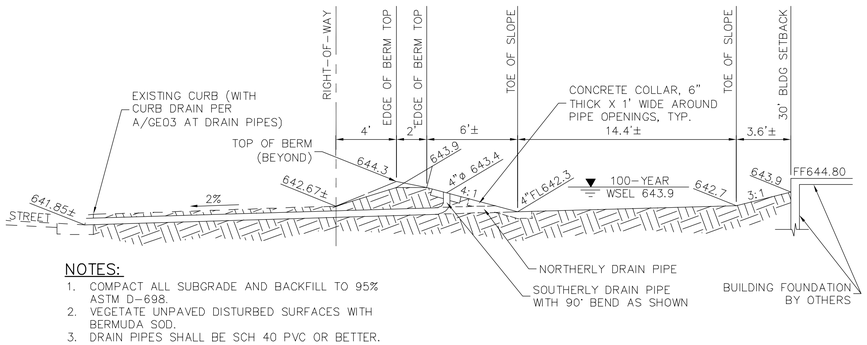
Notes:
1. Rainfall intensities taken from TP-40 and Hydro-35 IDF graph.
2. The peak flow rates as computed by the rational equation will be used for computing the required pipe and street flows.
3. On this project, these Rational Equation Calcs are only informational because there is detention ponding, so the HEC-HMS results will be used.

DETENTION POND SUMMARY

Storm Frequency/ Pond Characteristic	Detention Pond		
	W.S.Elev.	Q_{in} (cfs)	Q_{out} (cfs)
100-year	643.9	3.6	1.1
50-year	643.7	3.1	1.0
10-year	643.4	2.1	0.7
5-year	643.3	1.8	0.6
2-year	643.1	1.4	0.5
Pond Bottom Elevation	642.3		
Low 4" Pipe Outlet	642.3		
Middle 4" Pipe Outlet	642.9		
High 4" Pipe Outlet	643.4		
Top of Berm Elevation	643.9		

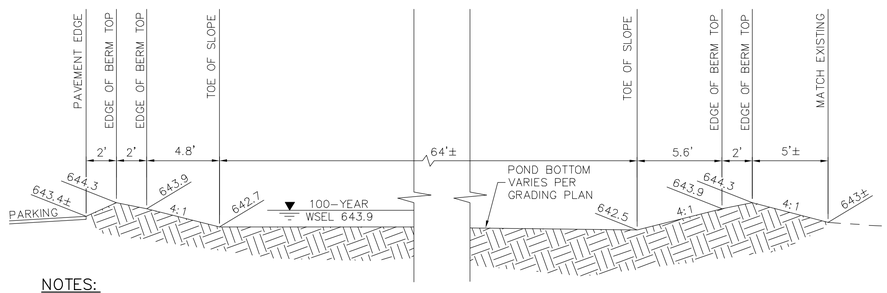
LEGEND

EXISTING STORM MANHOLE (STMH)
EXISTING SANITARY MANHOLE (SSMH)
EXISTING CONTOUR 500
DRAINAGE BASIN BOUNDARY
DRAINAGE BASIN DESIGNATION BASIN E-1
FLOW PATH FP
ANALYSIS POINT A.P.7



NOTES:
1. COMPACT ALL SUBGRADE AND BACKFILL TO 95% ASTM D-698.
2. VEGETATE UNPAVED DISTURBED SURFACES WITH BERMUDA SOD.
3. DRAIN PIPES SHALL BE SCH 40 PVC OR BETTER.

(A) DETENTION POND SECTION: EAST-WEST
NTS



NOTES:
1. COMPACT ALL SUBGRADE AND BACKFILL TO 95% ASTM D-698.
2. VEGETATE UNPAVED DISTURBED SURFACES WITH BERMUDA SOD.
3. DRAIN PIPES SHALL BE SCH 40 PVC OR BETTER.

(B) DETENTION POND SECTION: NORTH-SOUTH
NTS

BEFORE YOU DIG CALL 811 CALL OKIE

APPROVED FOR IDP PERMIT ONLY
Date: 2024.07.10 15:26:14-05'00'
MICHAEL LING, P.E. DATE
INFRASTRUCTURE DEVELOPMENT MANAGER
CITY OF TULSA

REGISTERED PROFESSIONAL ENGINEER JOE P. KELLEY 7/5/2024 21438 OKLAHOMA

REVISION	BY	DATE

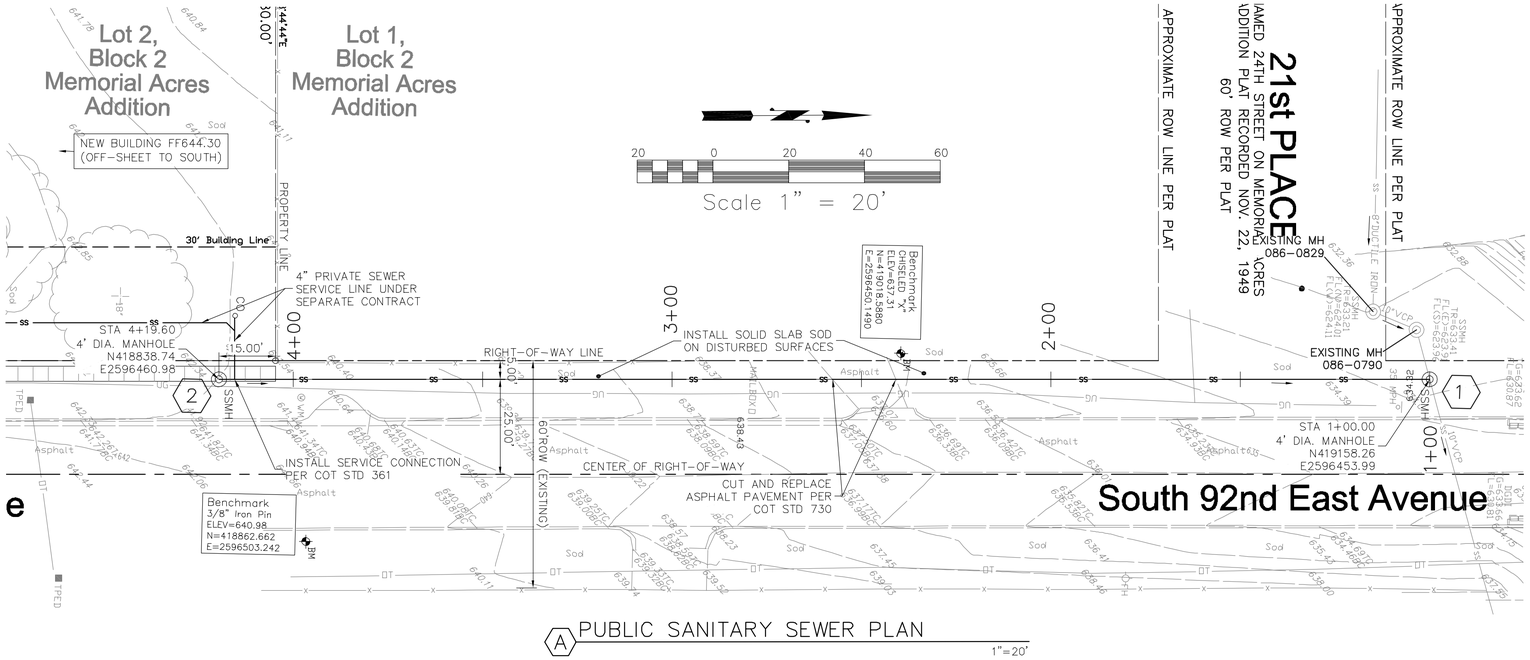
TULSA RAIN CONTROL
2150 S. 92ND EAST AVE.
DEVELOPED DRAINAGE PLAN

IDP NO. 181538-2024

CITY OF TULSA, OKLAHOMA

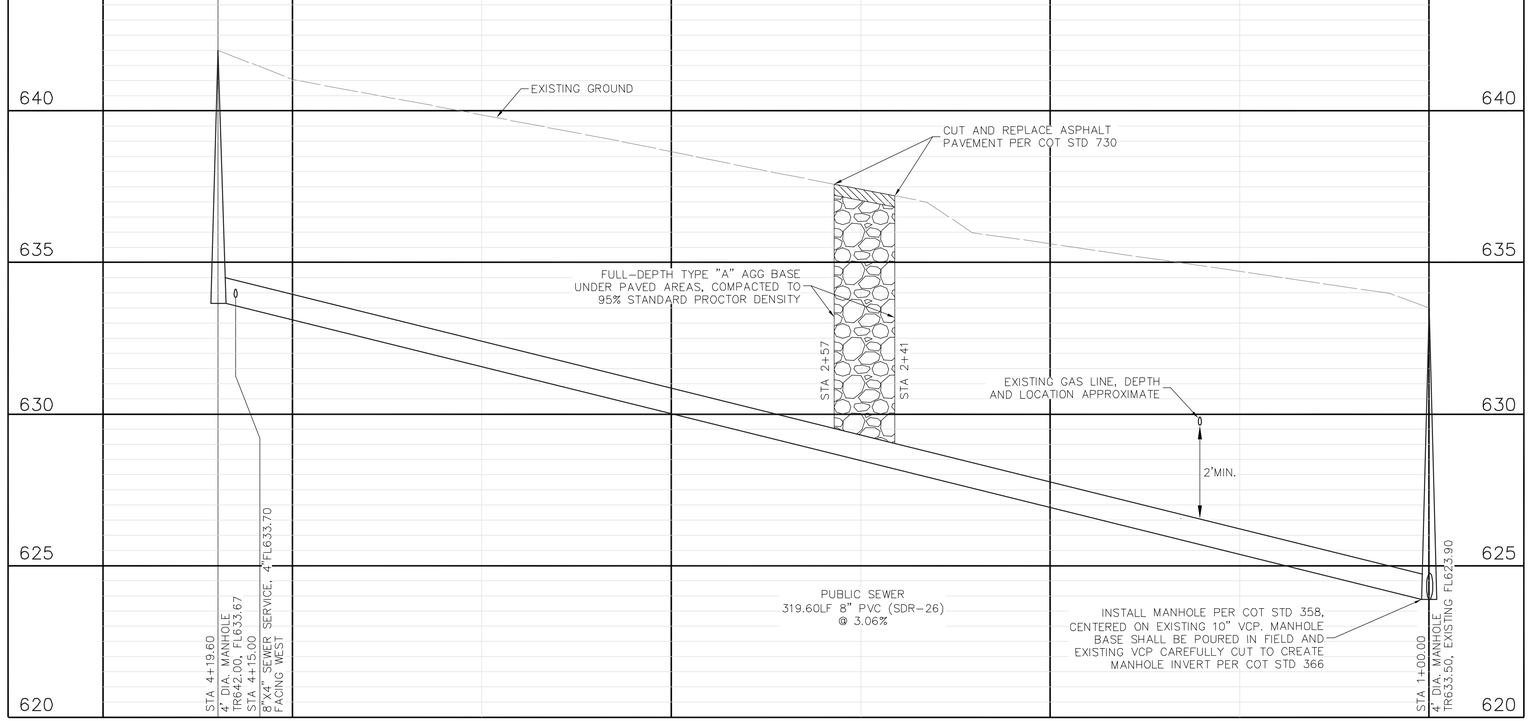
PLANS AND ESTIMATES PREPARED BY:
JC Engineering, PC 10035 N. 177th East Ave. • Owasso, OK 74055
918-798-5979 • joe@jc-engineering.com
Oklahoma CA No. 5686 • Expires June 30, 2025

ATLAS PAGE NO: 130 | DATE: JULY 05, 2024
IDP DWG NO: 181538-2024-SW02 | SHEET 7 OF 8 SHEETS



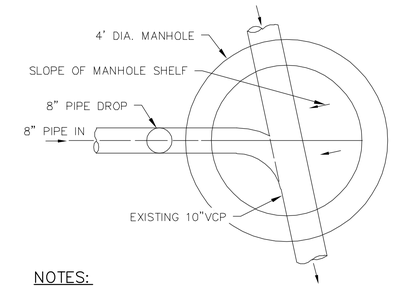
A PUBLIC SANITARY SEWER PLAN

1"=20'



SCALE: H: 1"=20'
V: 1"=5'

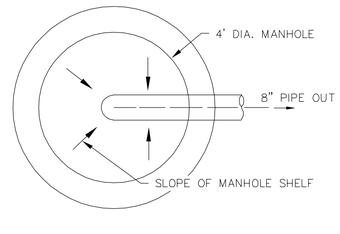
B PUBLIC SANITARY SEWER PROFILE



NOTES:
1. INSTALL MANHOLE INVERT AND STEPS PER COT STD NO. 366.
2. PRE-CAST MANHOLE PER COT STD NO. 358.

1 MANHOLE PLAN 1

1"=2'



NOTES:
1. INSTALL MANHOLE INVERT AND STEPS PER COT STD NO. 366.
2. PRE-CAST MANHOLE PER COT STD NO. 358.

2 MANHOLE PLAN 2

1"=2'

SANITARY SEWER QUANTITIES

COT SPEC NO.	ITEM DESCRIPTION	UNITS	QUANTITY
302	EXCAVATION AND BACKFILL, UNCLASSIFIED	CY	340
302	TYPE "A" AGGREGATE BASE BACKFILL	CY	17
307	PIPE, 8" PVC (SDR-26)	LF	320
313	SEWER SERVICE	EA	1
314	4' I.D. MANHOLE	EA	2
315	CONNECTION	EA	1
325	SODDING	SF	3050
327	TRAFFIC CONTROL DURING CONSTRUCTION	LS	1
329	PAVEMENT REMOVAL AND REPLACEMENT	SY	17
330	EROSION CONTROL IN RIGHT-OF-WAY	LS	1

INCIDENTAL ITEMS:

THE COSTS ASSOCIATED WITH THE INSTALLATION OF THESE ITEMS SHALL BE INCIDENTAL TO THE COST OF THE INSTALLATION OF THE PAY ITEMS, AND NO SEPARATE PAYMENT WILL BE MADE THEREFOR: DETECTABLE MARKING TAPE, PIPE AND MANHOLE FLUSHING AND TESTING, CONSTRUCTION STAKING, DENSITY TESTING, FENCE REMOVAL AND REPLACEMENT, TREE AND SHRUB REMOVAL AND REPLACEMENT

CONSTRUCTION NOTES

1. MANHOLES SHALL BE INSTALLED PER COT STD #358.
2. ALL CONSTRUCTION TO BE IN STRICT ACCORDANCE WITH CURRENT CITY OF TULSA STANDARDS AND SPECIFICATIONS.
3. TRAFFIC CONTROL DURING CONSTRUCTION SHALL BE ESTABLISHED WITH PRIOR CITY OF TULSA APPROVAL WHEN PERFORMING WORK IN THE RIGHT-OF-WAY.
4. CONTRACTOR SHALL VACUUM TEST ALL MANHOLES ACCORDING TO CURRENT CITY OF TULSA STANDARDS AND SPECIFICATIONS. EXISTING MANHOLES SHALL BE VACUUM TESTED PRIOR TO ANY MODIFICATIONS AND AFTER WORK IS COMPLETE.
5. SERVICE TEES SHALL BE CONSTRUCTED AS PART OF IDP. SERVICE CONNECTIONS TO BUILDINGS SHALL BE DONE SEPARATELY AS A SEWER TAP PERMIT.
6. BACKFLOW PREVENTER MUST BE INSTALLED IF BUILDING SITE IS BELOW THE UPSTREAM/DOWNSTREAM MANHOLE RIM +1'.
7. WATER AND SANITARY SEWER SEPARATION (OUTSIDE TO OUTSIDE OF PIPES) TO BE MINIMUM TWO (2) FEET VERTICAL AND 10' HORIZONTAL PER ODEQ REGULATIONS. WHEN WATER AND SEWER SEPARATION CANNOT BE MAINTAINED, THE SANITARY SEWER SHALL BE DESIGNED AND CONSTRUCTED EQUAL TO WATER PIPE. SANITARY SEWER MUST BE INSTALLED AND TESTED FOR PRESSURE AND LEAKAGE IN ACCORDANCE WITH COT STANDARD SPECIFICATION PART 203 AND ODEQ STANDARD 252:626-19-2(e).

BACKFLOW PREVENTER TABLE

MANHOLE NO.	LOT/BLOCK#	PAD FFE	U/S TR	D/S TR	BACKFLOW PREVENTER REQUIRED?
2	2/2	644.30	N/A	642.00	N

ORDINANCE FLOW

Q = (A/1000) X (3.2019-(0.8656 X LOG_{10} (A/1000))
WHERE A = 1.92 AC.
Q = 0.0107 MGD = 0.017 CFS

NOTE: ORDINANCE FLOW AREA SHOWN ON COVER SHEET GE01.

APPROVED FOR IDP PERMIT ONLY
Date: 2024.07.10 15:26:35-05'00'
MICHAEL LING, P.E. DATE
INFRASTRUCTURE DEVELOPMENT MANAGER
CITY OF TULSA

REGISTERED PROFESSIONAL ENGINEER
JOE P. KELLEY
7/5/2024
21438
OKLAHOMA

BEFORE YOU DIG CALL OKIE

REVISION	BY	DATE

TULSA RAIN CONTROL
2150 S. 92ND EAST AVE.
SEWER PLAN & PROFILE

IDP NO. 181538-2024

CITY OF TULSA, OKLAHOMA

PLANS AND ESTIMATES PREPARED BY:
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Oklahoma CA No. 5686 • Expires June 30, 2025

ATLAS PAGE NO: 130 DATE: JULY 05, 2024
IDP DWG NO: 181538-2024-SS01 SHEET 8 OF 8 SHEETS