Weaver Consultants Group

October 13, 2023
Project No. 0086-364-11-19

Ms. Anne Marie Smith, P.E.
Engineering Manager
Land Protection Division
Solid Waste Permitting Section
Oklahoma Department of Environmental Quality
707 North Robinson Avenue
Oklahoma City, Oklahoma 73102

Re: Tier III Permit Modification
Landfill Expansion
Muskogee Landfill, Permit No. 3551020
Muskogee County, Oklahoma

Dear Ms. Smith:

On behalf of Waste Management of Oklahoma, Inc., please find enclosed a Tier III Permit Modification to expand the Muskogee Community Recycling and Disposal Facility (RDF). Included is a copy of the application for your review and comment and one USB with a PDF copy of the application for your use. Waste Management of Oklahoma, Inc., is fully committed to operating the Muskogee Community RDF consistent with ODEQ rules for the protection of human health and the environment while providing needed additional landfill capacity for the region.

The "Notice of Application Filed" will be published in the *Muskogee Phoenix* within the next few days. In addition, the notice will also be sent to adjacent property owners and mineral rights owners. This information will be forwarded to ODEQ for inclusion into Appendix B-2 of the attached application.

We appreciate your review of this permit modification and look forward to your comments. In the meantime, if you have any questions, please do not hesitate to call me.

Sincerely,
Weaver Consultants Group, LLC

Jonathan V. Queen, P.E.
Project Director

Johnna P. Ignaski
Project Manager

Attachments: 1 Copy of Tier III Permit Modification
1 USB with PDF Copy of Tier III Permit Modification

cc: Guy R. Campbell, Waste Management of Oklahoma, Inc.

6420 Southwest Boulevard • Suite 206 • Fort Worth, Texas 76109 • 817.735.9770 • wcgrp.com • Offices Nationwide

MUSKOGEE COMMUNITY RECYCLING AND DISPOSAL FACILITY
MUSKOGEE COUNTY, OKLAHOMA
ODEQ PERMIT NO. 3551020

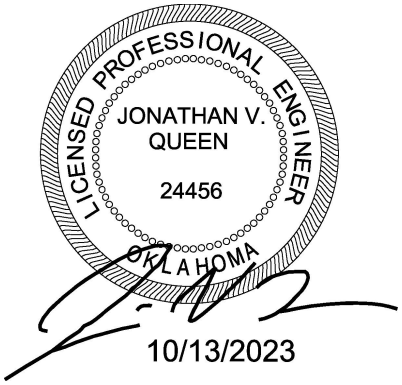
TIER III PERMIT MODIFICATION
LANDFILL EXPANSION

VOLUME 1 OF 4

Prepared for

Waste Management of Oklahoma, Inc.

October 2023



Prepared by

Weaver Consultants Group, LLC
CA 3804 PE 06/30/2025
6420 Southwest Boulevard, Suite 206
Fort Worth, Texas 76109
817-735-9770

WCG Project No. 0086-364-11-19

MUSKOGEE COMMUNITY RECYCLING AND DISPOSAL FACILITY
MUSKOGEE COUNTY, OKLAHOMA
ODEQ PERMIT NO. 3551020

TIER III PERMIT MODIFICATION
LANDFILL EXPANSION

VOLUME 1 OF 4

CONTENTS

TIER III PERMIT APPLICATION FORM

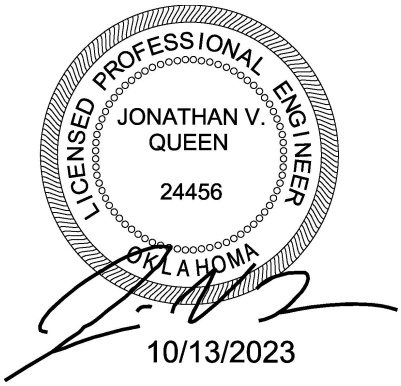
TIER III PERMIT MODIFICATION

APPENDIX A
Waste Management, Inc. Annual and Quarterly Reports

APPENDIX B
Permit, Proof of Publication, Legal Description, and Volume Calculations

APPENDIX C
Temporary Easement for Access

APPENDIX D
Location Restriction Correspondence



APPLICATION TO MODIFY A SOLID WASTE DISPOSAL FACILITY PERMIT

Date: October 13, 2023 County: Muskogee

Send to:

Solid Waste Permitting Unit
Land Protection Division
Dept. of Environmental Quality
707 N. Robinson (PO Box 1677)
Oklahoma City, OK
73101-1677

FOR DEQ USE

DEQ Log No. _____
No. Copies _____

Date Received: _____

Waste Management of Oklahoma, Inc. proposes to modify the permit of
(Applicant's Name)
the Muskogee Community Recycling and Disposal Facility, located at (See attached)
(Facility Name) *(Exact legal description:*

metes & bounds, platted lot, or land survey. Append extra sheets if necessary)

in Muskogee County, Oklahoma. We hereby make application for a modification of existing permit number 3551020 as required by the **Oklahoma Solid Waste Management Act** and the Rules pursuant thereto.

Remarks & brief description of proposed modification:

An expansion of an existing municipal solid waste landfill. The proposed expansion will consist of two separate units. The unit to the east is part of the original landfill and will remain consistent with the 2021 Tier I Modification Configuration. A separate landfill unit consisting of 65.5 acres of waste disposal area will be constructed to the west. The permit boundary will increase from 80.7 acres to 316.8 acres.

Applicant or Authorized Agent:

Signature

Steve Jacobs
Typed Name

Address: 2801 S 54th Street West
City: Muskogee State: OK

Date signed: 10/13/2023
Phone: (918)-682-7284

Preparing Engineer:

Signature

Jonathan V. Queen
Typed Name

Address: 6420 Southwest Boulevard, Suite 206
City: Fort Worth State: TX

Date signed: 10/13/2023
Phone: (817)-735-9770

Facility Address (if any): _____

DEQ USE ONLY

VERIFICATION[1]

STATE OF OKLAHOMA)
) ss
COUNTY OF Muskogee)

Guy R. Campbell, of lawful age, being first duly sworn, upon oath state that I have read the foregoing APPLICATION TO MODIFY A SOLID WASTE DISPOSAL FACILITY PERMIT, that I am familiar with the matters set forth therein, and that the same are true to the best of my information and belief.

Guy R Campbell
Applicant

Subscribed and sworn to before me this 13th day of October, 2023,

by Guy R. Campbell (Applicant or legal representative).

Stacy M. Wilson
Notary Public

My commission expires:

August 11, 2026

STACY M. WILSON
Notary Public, State of Texas
Comm. Expires 08-11-2026
Notary ID 133903285

[1] This Verification is required for a Tier III modification application.

EXHIBIT "A"

W HANCOCK STREET
(49.5' STATUTORY RIGHT-OF-WAY)

S 64TH STREET
(49.5' STATUTORY RIGHT-OF-WAY)

S 54TH STREET W
(49.5' STATUTORY RIGHT-OF-WAY)

TOWNSHIP 15 NORTH
TOWNSHIP 14 NORTH
RANGE 17 EAST
RANGE 18 EAST

(N 88°13'38" E - 2472.45 RECORD)
(BK. 2288, PG. 285)
N88°13'33"E 2472.05'

NW CORNER SECTION 6, T14N, R18E
SET MAG NAIL & WASHER
PER OCCR FILED 8-22-14
BY BRIAN D. BIRD PLS# 1869
& BY UNDERSIGNED

N1/4 CORNER SECTION 6, T14N, R18E
SET MAG NAIL & WASHER PER OCCR
FILED 8-22-14 BY BRIAN D. BIRD
PLS# 1869 & BY UNDERSIGNED
28.46' N OF FENCE

SET 5/8" CAPPED IRON ROD
1.0' W OF FENCE

N88°13'23"E 1322.15'
(N 88°13'28" E, 1322.19' RECORD)
(BK. 2498, PG. 604)

WASTE MANAGEMENT OF OKLAHOMA, INC.
BOOK 4846, PAGE 546
TOTAL AREA=12.1407 ACRES
0.7512 ACRES IN STATUTORY ROW
NET=11.3895 ACRES

S88°13'23"W 1322.17'
(S 88°13'28" W, 1322.19' RECORD)
(BK. 4846, PG. 546)

N88°13'23"E 2644.30'

N88°13'23"E 1322.15'
(WEST - 1320.00 RECORD)
(BK. 2498, PG. 604)

NW CORNER GOV'T LOT 1
SECTION 6, T14N, R18E
SET MAG NAIL & WASHER
35.02' N OF FENCE

SET 5/8" CAPPED IRON ROD
0.93' W OF FENCE

POB
NW CORNER NW 1/4
SECTION 5, T14N, R18E
SET MAG NAIL & WASHER OVER
BRASS DISC FOUND PER OCCR
FILED 12-27-2018 BY DARIN
STRATTON PLS# 1504 &
FILED BY UNDERSIGNED

N: 274,368.12
E: 2,731,426.51

T15N
W HANCOCK STREET
R17E
S 64TH STREET
S 54TH STREET W
6
LOCATION MAP
NOT TO SCALE

0 250 500
(FEET)
1 inch = 500 ft.

GOV'T LOT 4
GOV'T LOT 3
GOV'T LOT 2
GOV'T LOT 1
GOV'T LOT 5
GOV'T LOT 6
GOV'T LOT 7

CITY OF MUSKOGEE, OKLAHOMA
BOOK 1364, PAGE 47

WASTE MANAGEMENT OF OKLAHOMA, INC.
BOOK 2288, PAGE 285-286

TOTAL AREA=224.7503 ACRES
3.6424 ACRES IN STATUTORY ROW
NET=221.1079 ACRES

NW 1/4 SECTION 6
NE 1/4 SECTION 6
SW 1/4 SECTION 6
SE 1/4 SECTION 6
NE 1/4 SW 1/4 SECTION 6
SE 1/4 NW 1/4 SECTION 6
SW 1/4 NE 1/4 SECTION 6
SE 1/4 NE 1/4 SECTION 6
SE 1/4 SW 1/4 SECTION 6

N01°32'06"W 2639.48'
(N 01°32'40" E - 3959.85 RECORD - BK. 2288, PG. 285)

N01°23'16"W 1323.79'

N01°20'15"W 890.00'
N01°20'15"W 1290.00'
N01°20'15"W 550.00'
N01°20'15"W 809.44'

S01°20'07"E 2645.94'
S01°20'07"E 3577.94'
S01°20'07"E 3977.94'
(S 01°29'43" E 3976.00 RECORD)
(BK. 2288, PG. 285)
S01°20'07"E 2664.01'

(S 88°03'38" W RECORD)
(BK. 2498, PG. 603)
S88°17'07"W 55.00'
SET 5/8" CAPPED IRON ROD
25.00'W & ONLINE (CORNER FALLS
IN CONCRETE)

(N 01°25'25" W RECORD)
(BK. 2498, PG. 603)

N88°17'07"E 55.00'
(N 88°13'38" E RECORD)
(BK. 2498, PG. 603)

WASTE MANAGEMENT OF OKLAHOMA, INC.
BOOK 2498, PAGE 604-605

CITY OF MUSKOGEE, OKLAHOMA
BOOK 2498, PAGE 603
(0.72 ACRE EXCEPTION TO
BK. 2498, PG. 603)

E 1/4 SECTION 6, T14N, R18E
5/8" IRON ROD FOUND PER OCCR
FILED 12-27-2018 BY DARIN STRATTON
PLS# 1504 & BY UNDERSIGNED

S01°20'22"E 2652.95'
(BASIS OF BEARINGS)
(NORTHERLY - 2665.74 RECORD)
(BK. 2498, PG. 604)

N88°22'30"E 2644.46'

S88°22'30"W 2462.81'

W1/4 CORNER SECTION 6, T14N, R18E
5/8" IRON ROD FOUND PER OCCR
FILED 8-22-14 BY BRIAN D. BIRD
PLS# 1869 & BY UNDERSIGNED

CENTER OF SECTION 6, T14N, R18E
SET 5/8" CAPPED IRON ROD
CORNER RECORD BY UNDERSIGNED
7.3' W OF FENCE

SW CORNER SW 1/4 NE 1/4 SECTION 6, T14N, R18E
SET 5/8" CAPPED IRON ROD
5.2' W & 1.7' S OF FENCE

S88°22'30"W 1322.23'
(EASTERLY - 1320.00 RECORD)
(BK. 2498, PG. 604)

PT. NE 1/4 OF THE SE 1/4 SECTION 6
CITY OF MUSKOGEE, OKLAHOMA
BK. 2498, PG. 602

N 1/2 NW 1/4 SE 1/4 SECTION 6
CITY OF MUSKOGEE, OKLAHOMA
BOOK 1287, PAGE 531

N 208.75' S1/2 NW 1/4 SE 1/4
CITY OF MUSKOGEE, OKLAHOMA
BOOK 1287, PAGE 531

S 1/2 NW 1/4 SE 1/4 SECTION 6,
LESS N 208.75' THEREOF
CITY OF MUSKOGEE, OKLAHOMA
BOOK 1291, PAGE 502

S 1/2 NW 1/4 NE 1/4 SECTION 6,
CITY OF MUSKOGEE, OKLAHOMA
BOOK 1291, PAGE 502

Pt. NE 1/4 OF THE SE 1/4 SECTION 6
WASTE MANAGEMENT OF OKLAHOMA, INC.
BK. 2498, PG. 606

SW CORNER GOV'T LOT 6
SECTION 6, T14N, R18E
SET 5/8" CAPPED IRON ROD
45.5' N OF E-W FENCELINE

SE CORNER NE 1/4 SW 1/4
SECTION 6, T14N, R18E
SET 5/8" CAPPED IRON ROD
7.1' N OF FENCE
11.6' W OF FENCE

S88°33'57"W 2461.57'
(S 88°36'06" E - 2469.03 RECORD)
(BK. 2288, PG. 285)

45.2'
18.21'

LOT 7 & SE 1/4 SW 1/4 SECTION 6
THE WAYNE RAMEY & LINDA JO RAMEY
FAMILY REVOCABLE LIVING TRUST
BOOK 4409, PAGE 483

S 1/2 SE 1/4 SECTION 6
ROGER VARNELL & JOYCE VARNELL
BOOK 4558, PAGE 313

SW CORNER SECTION 6, T14N, R18E
STONE FOUND PER OCCR FILED
8-22-14 BY BRIAN C. BIRD PLS#
1869 & BY UNDERSIGNED

S1/4 CORNER SECTION 6, T14N, R18E
5/8" CAPPED IRON ROD FOUND
PER OCCR FILED 3-6-06
BY EDWARD SEATON PLS# 1353

SE CORNER SECTION 6, T14N, R18E
OHD STANDARD BRASS CAP NUMBER M-51-202
PER OCCR FILED 12-27-2018
BY DARIN STRATTON PLS# 1504

TOTAL AREA=79.7766 ACRES
EXCLUDES 55'x550' EXCEPTION
2.2445 ACRES IN STATUTORY ROW
NET=77.5321 ACRES

SEE SHEETS 2 & 3 FOR LINE & SYMBOL LEGEND

TOTAL SURVEYED AREA
316.6677 ACRES / 13,794,048 SQ. FT.

TOTAL AREA WITHIN STATUTORY RIGHT-OF-WAY
6.6381 ACRES / 289,156 SQ. FT.

CERTIFICATE OF SURVEY:

THIS PLAT OF SURVEY MEETS THE OKLAHOMA MINIMUM STANDARDS FOR THE PRACTICE OF LAND SURVEYING AS ADOPTED BY THE OKLAHOMA STATE BOARD OF LICENSURE FOR PROFFECIONAL ENGINEERS AND LAND SURVEYORS.

MICHAEL D. BYTNER, PLS #1986
WEAVER CONSULTANTS GROUP, LLC
35 E. WACKER DRIVE, STE 1250
CHICAGO, IL 60601 817-735-9770
OKPELS SURVEY FIRM NO. 3804

LICENSED PROFESSIONAL LAND SURVEYOR
MICHAEL D. BYTNER
1986
OKLAHOMA

EXHIBIT A: PERMIT BOUNDARY EXHIBIT
U.S. GOVERNMENT LOTS 3, 4, 5, 6 , AND PART OF U.S. GOVERNMENT LOTS 1 AND 2, SE1/4 NW1/4, NE1/4 SW1/4, AND PART OF SE1/4 NE1/4, ALL IN SECTION 6, T14N, R18E, IB&M MUSKOGEE COUNTY, STATE OF OKLAHOMA

No.	DATE	REVISION DESCRIPTION

Weaver Consultants Group
WEAVER CONSULTANTS GROUP, LLC
6420 SOUTHWEST BLVD
SUITE 206
FORT WORTH, TX 76109
(817)-735-9770
www.wcgrp.com

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DRAWN BY: TJM
REVIEWED BY: AJW
DATE: 10/13/2023
FILE: 0086-364-11-19
SEE PLOT STAMP

SHEET 1 OF 3

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P:\SBI Survey\Projects\0086-364-11-19 Muskogee, OK Landfill Permit Boundary\2-0 Drawings\2.1 CAD\0086-364-11-19 Muskogee Boundary_20230614.dwg

EXHIBIT "A"

W HANCOCK STREET
(49.5' STATUTORY RIGHT-OF-WAY)

S 64TH STREET
(49.5' STATUTORY RIGHT-OF-WAY)

S 54TH STREET W
(49.5' STATUTORY RIGHT-OF-WAY)

TOWNSHIP 15 NORTH
TOWNSHIP 14 NORTH
RANGE 17 EAST
RANGE 18 EAST

20' RIGHT-OF-WAY EASEMENT
MUSKOGEE COUNTY RURAL
WATER DISTRICT No. 6
BK. 2209, PG. 9

20' RIGHT-OF-WAY EASEMENT
MUSKOGEE COUNTY RURAL
WATER DISTRICT No. 6
BK. 2206, PG. 7

100' ACCESS LICENSE
BK. 2498, PG. 595

OKLAHOMA GAS & ELECTRIC COMPANY
PERMANENT UTILITY EASEMENT
BOOK 4415, PAGE 162-164

OKLAHOMA GAS AND ELECTRIC COMPANY
75' EASEMENT
BK. 1023, PG. 586

OKLAHOMA GAS AND ELECTRIC COMPANY
100' EASEMENT
BK. 1023, PG. 162

OKLAHOMA GAS AND ELECTRIC COMPANY
100' EASEMENT
BK. 1023, PG. 163

RURAL WATER DISTRICT NO. 6
40' RIGHT-OF-WAY EASEMENT
BK. 1285, PG. 284

"BORROW PROPERTY"
OKLAHOMA STATE DEPARTMENT OF HEALTH
DEPARTMENT OF ENVIRONMENTAL QUALITY
TEMPORARY EASEMENT FOR ACCESS
BK. 3263, PG. 381

EASEMENT RECORD NOT FOUND OR PROVIDED TO THE SURVEYOR

GRAND RIVER DAM AUTHORITY
RIGHT-OF-WAY EASEMENT
BK. 3331, PG. 114
(NOT PLOTTABLE)

"PERMIT PROPERTY"
OKLAHOMA STATE DEPARTMENT OF HEALTH
DEPARTMENT OF ENVIRONMENTAL QUALITY
TEMPORARY EASEMENT FOR ACCESS
BK. 3263, PG. 381

CITY OF MUSKOGEE
PERMIT
BK. 1429, PG. 287
(NOT PLOTTABLE)

CANEY RIVER GAS COMPANY
RIGHT-OF-WAY EASEMENT
BK. 163, PG. 440
(NOT PLOTTABLE)

CANEY RIVER GAS COMPANY
RIGHT-OF-WAY EASEMENT
BK. 163, PG. 439
(NOT PLOTTABLE)

CANEY RIVER GAS COMPANY
RIGHT-OF-WAY EASEMENT
BK. 163, PG. 300
(NOT PLOTTABLE)

GREAT LAKES PIPE LINE COMPANY
RIGHT-OF-WAY EASEMENT
BK. 636, PG. 59
(NOT PLOTTABLE)

ARTHUR OIL COMPANY
GAS CONTRACT
BK. 307, PG. 208
(NOT PLOTTABLE)

CANEY RIVER GAS COMPANY
RIGHT-OF-WAY EASEMENT
BK. 163, PG. 188
(NOT PLOTTABLE)

CROWN PETROLEUM CO.
RIGHT-OF-WAY EASEMENT
BK. 275, PG. 612
(NOT PLOTTABLE)

GREAT LAKES PIPE LINE COMPANY
RIGHT-OF-WAY EASEMENT
BK. 639, PG. 386
(NOT PLOTTABLE)

GREAT LAKES PIPE LINE COMPANY
RIGHT-OF-WAY EASEMENT
BK. 636, PG. 53
(NOT PLOTTABLE)

SINCLAIR-CUDAHY PIPE LINE COMPANY
RIGHT-OF-WAY EASEMENT
BK. 337, PG. 259
(NOT PLOTTABLE)

GREAT LAKES PIPE LINE COMPANY
RIGHT-OF-WAY EASEMENT
BK. 688, PG. 261
(NOT PLOTTABLE)

MID-CONTENT PIPE LINE
COMPANY
RIGHT-OF-WAY EASEMENT
BK. 1265, PG. 248
(NOT PLOTTABLE)

GOV'T LOT 4
GOV'T LOT 3
GOV'T LOT 2
GOV'T LOT 1
GOV'T LOT 5
GOV'T LOT 6
GOV'T LOT 7

NW 1/4 SECTION 6
NE 1/4 SECTION 6
SE 1/4 NW 1/4 SECTION 6
SW 1/4 NE 1/4 SECTION 6
SE 1/4 NE 1/4 SECTION 6
NE 1/4 SW 1/4 SECTION 6
SW 1/4 SECTION 6
N 1/2 SE 1/4 SECTION 6
SE 1/4 SW 1/4 SECTION 6
SE 1/4 SECTION 6

6

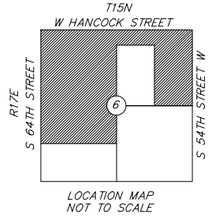
CP# 304
CP# 303
CP# 305
CP# 306
CP# 302
CP# 301
CP# 300
CP# 100

AT-1 AT-2 AT-3 AT-4 AT-5 AT-6 AT-7 AT-8 AT-9 AT-10 AT-11 AT-12

FH
WATER LIFT STATION
GM

20' 100' 75' 40'

0 250 500
(FEET)
1 inch = 500 ft.



LOCATION MAP
NOT TO SCALE

LEGEND

- ..... PROPERTY & PERMIT BOUNDARY LINE
- ..... SECTION LINE
- ..... EASEMENT LINE
- ..... RIGHT-OF-WAY
- OHE ..... OVER HEAD ELECTRIC
- S01°20'22"E 2652.95' ..... MEASURED DIMENSION (BY THIS SURVEY)
- (N 01°25'25" W - 550.00 RECORD) ..... RECORD DIMENSION
- ..... AERIAL TARGET (SEE NOTE 1)
- ..... CONTROL ESTABLISHED BY WCG (SEE NOTE 5)
- BK. ..... BOOK
- PG. ..... PAGE
- FH ..... FIRE HYDRANT
- TPD ..... TELEPHONE PEDESTAL
- GM ..... GAS METER

CERTIFICATE OF SURVEY:

THIS PLAT OF SURVEY MEETS THE OKLAHOMA MINIMUM STANDARDS FOR THE PRACTICE OF LAND SURVEYING AS ADOPTED BY THE OKLAHOMA STATE BOARD OF LICENSURE FOR PROFFECIONAL ENGINEERS AND LAND SURVEYORS.

LICENSED PROFESSIONAL LAND SURVEYOR
MICHAEL D. BYTNER
1986
OKLAHOMA

MICHAEL D. BYTNER, PLS #1986
WEAVER CONSULTANTS GROUP, LLC
35 E. WACKER DRIVE, STE 1250
CHICAGO, IL 60601 817-735-9770
OKPELS SURVEY FIRM NO. 3804

EXHIBIT A: EASEMENT EXHIBIT

U.S. GOVERNMENT LOTS 3, 4, 5, 6 , AND PART OF U.S. GOVERNMENT LOTS 1 AND 2, SE1/4 NW1/4, NE1/4 SW1/4, AND PART OF SE1/4 NE1/4, ALL IN SECTION 6, T14N, R18E, IB&M MUSKOGEE COUNTY, STATE OF OKLAHOMA

No.	DATE	REVISION DESCRIPTION

Weaver Consultants Group
WEAVER CONSULTANTS GROUP, LLC
6420 SOUTHWEST BLVD
SUITE 206
FORT WORTH, TX 76109
(817)-735-9770
www.wcgrp.com

REUSE OF DOCUMENTS
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DRAWN BY: TJM
REVIEWED BY: AJW
DATE: 10/13/2023
FILE: 0086-364-11-19
SEE PLOT STAMP

SHEET 2 OF 3

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P:\SBI Survey\Projects\0086-364-11-19 Muskogee, OK Landfill Permit Boundary\2.0 Drawings\2.1 CAD\0086-364-11-19 Muskogee Boundary_20230614.dwg

LEGAL DESCRIPTION:

A TRACT OF LAND IN U.S. GOVERNMENT LOTS 3, 4, 5, 6, AND PART OF U.S. GOVERNMENT LOTS 1 AND 2, AND THE SOUTHEAST QUARTER OF THE NORTHWEST QUARTER, THE NORTHEAST QUARTER OF THE SOUTHWEST QUARTER, AND PART OF THE SOUTHEAST QUARTER OF THE NORTHEAST QUARTER, ALL IN SECTION 6, TOWNSHIP 14 NORTH, RANGE 18 EAST, IB&M MUSKOGEE COUNTY, STATE OF OKLAHOMA, AND MORE PARTICULARLY DESCRIBED BY METES AND BOUNDS AS FOLLOWS:

BEGINNING AT THE NORTHEAST CORNER OF SAID SECTION 6;

THENCE SOUTH 01°20'22" EAST, ALONG THE EAST LINE OF THE EAST HALF OF THE NORTHEAST QUARTER OF SAID SECTION 6 (ASSUMED FOR THE BASIS OF BEARINGS FOR THIS TRACT), A DISTANCE OF 2652.95 FEET (NORTHERLY, 2665.74 FEET–RECORD BK. 2498, PG. 604) TO THE SOUTHEAST CORNER THEREOF;

THENCE SOUTH 88°22'30" WEST, ALONG THE SOUTH LINE OF SAID EAST HALF OF THE NORTHEAST QUARTER, A DISTANCE OF 1322.23 FEET (EASTERLY, 1320.00 FEET–RECORD BK. 2498, PG. 604) TO THE SOUTHWEST CORNER OF SAID EAST HALF OF THE NORTHEAST QUARTER;

THENCE NORTH 01°20'15" WEST, ALONG THE WEST LINE OF SAID EAST HALF OF THE NORTHEAST QUARTER, A DISTANCE OF 809.44 FEET;

THENCE NORTH 88°17'07" EAST, A DISTANCE OF 55.00 FEET (NORTH 88°13'38" EAST–RECORD BK. 2498, PG. 603);

THENCE NORTH 01°20'15" WEST, A DISTANCE OF 550.00 FEET (NORTH 01°25'25" WEST–RECORD BK. 2498, PG. 603);

THENCE SOUTH 88°17'07" WEST, A DISTANCE OF 55.00 FEET (SOUTH 88°13'38" WEST–RECORD BK. 2498, PG. 603) TO A POINT IN THE WEST LINE OF SAID EAST HALF OF THE NORTHEAST QUARTER AND EAST LINE OF SAID GOVERNMENT LOT 2;

THENCE NORTH 01°20'15" WEST, ALONG SAID WEST LINE OF THE EAST HALF AND EAST LINE OF SAID GOVERNMENT LOT 2, A DISTANCE OF 890.00 FEET TO A POINT 400.00 FEET SOUTH OF THE NORTHEAST CORNER OF SAID LOT 2 (AS MEASURED ALONG THE EAST LINE THEREOF);

THENCE SOUTH 88°13'23" WEST, ALONG A LINE 400.00 FEET SOUTHERLY OF AND PARALLEL WITH THE NORTH LINE OF SAID GOVERNMENT LOT 2, A DISTANCE OF 1322.17 FEET (SOUTH 88°13'28" WEST, 1322.19 FEET–RECORD BK. 4846, PG. 546) TO A POINT IN THE EAST LINE OF SAID GOVERNMENT LOT 3, BEING 400.00 FEET SOUTHERLY OF THE NORTHEAST CORNER OF SAID GOVERNMENT LOT 3 (AS MEASURED ALONG THE EAST LINE THEREOF);

THENCE SOUTH 01°20'07" EAST, ALONG THE EAST LINE OF SAID GOVERNMENT LOT 3, SAID SOUTHEAST QUARTER OF THE NORTHWEST QUARTER, AND SAID NORTHEAST QUARTER OF THE SOUTHWEST QUARTER, A DISTANCE OF 3,577.94 FEET (SOUTH 01°29'43" EAST–RECORD BK. 2288, PG. 285) TO THE SOUTHEAST CORNER OF SAID NORTHEAST QUARTER OF THE SOUTHWEST QUARTER;

THENCE SOUTH 88°33'57" WEST, ALONG THE SOUTH LINE OF SAID NORTHEAST QUARTER OF THE SOUTHWEST QUARTER AND SAID GOVERNMENT LOT 6, A DISTANCE OF 2461.57 FEET (SOUTH 88°36'06" EAST, 2469.03 FEET–RECORD BK. 2288, PG. 285), TO THE WEST LINE OF SAID SECTION 6 AND SOUTHWEST CORNER OF SAID GOVERNMENT LOT 6;

THENCE NORTH 01°23'16" WEST, ALONG THE WEST LINE OF SAID GOVERNMENT LOT 6 AND SAID SECTION 6, A DISTANCE OF 1323.79 FEET (NORTH 01°32'40" EAST,–RECORD BK. 2288, PG. 285) TO THE SOUTHWEST CORNER OF SAID GOVERNMENT LOT 5;

THENCE NORTH 01°32'06" WEST, ALONG THE WEST LINE OF SAID GOVERNMENT LOT 5 AND GOVERNMENT LOT 4 AND SAID SECTION 6, A DISTANCE OF 2639.48 FEET (NORTH 01°32'40" EAST–RECORD BK. 2288, PG. 285) TO THE NORTHWEST CORNER OF SAID GOVERNMENT LOT 4 AND SAID SECTION 6;

THENCE NORTH 88°13'33" EAST, ALONG THE NORTH LINE OF SAID GOVERNMENT LOT 4, SAID GOVERNMENT LOT 3, AND SAID SECTION 6, A DISTANCE OF 2472.05 FEET (NORTH 88°13'38" EAST, 2472.45 FEET–RECORD BK. 2288, PG. 285) TO THE NORTHWEST CORNER OF SAID GOVERNMENT LOT 2;

THENCE NORTH 88°13'23" EAST, ALONG THE NORTH LINE OF SAID GOVERNMENT LOT 2, SAID GOVERNMENT LOT 1, AND SAID SECTION 6, A DISTANCE OF 2644.30 FEET TO THE **POINT OF BEGINNING** AND CONTAINING 13,794,048 SQUARE FEET OR 316.6677 ACRES OF LAND MORE OR LESS.

THIS PROPERTY DESCRIPTION WAS PREPARED ON OCTOBER 10, 2023 BY MICHAEL D. BYTNER, LICENSED PROFESSIONAL LAND SURVEYOR NO. 1986 BASED ON FIELD SURVEYS PERFORMED OCTOBER 19, 2022 AND COMPLETED JUNE 15, 2023.

SURVEY NOTES:

1. BASIS OF BEARINGS: AN ASSUMED MEASURED BEARING OF SOUTH 01°22'11" EAST FOR THE EAST LINE OF THE EAST HALF OF THE NORTHEAST QUARTER OF SECTION 6 WAS HELD AS THE BASIS OF BEARINGS FOR THIS SURVEY, RELATIVE TO LOCAL SITE CONTROL FOR THE MUSKOGEE LANDFILL AS PROVIDED BY WASTE MANAGEMENT OF OKLAHOMA, INC. COORDINATES SHOWN HEREON ARE RELATIVE TO SAID LOCAL SITE CONTROL. ELEVATIONS SHOWN HEREON ARE RELATIVE TO A LOCAL SITE VERTICAL DATUM. (SEE LOCAL SITE CONTROL TABLE BELOW)

2. THIS SURVEY IS THE RESULT OF AN ON THE GROUND SURVEY PERFORMED BY WCG ON OCTOBER 19, 2022 AND CONCLUDING ON JUNE 15, 2023.

3. THIS SURVEY WAS COMPLETED WITH THE BENEFIT OF A TITLE SEARCH PERFORMED BY JENKINS & WALKER ENERGY PARTNERS.

4. ALL SET IRON RODS ARE 5/8" REBAR WITH CAP STAMPED "WEAVER CONSULTANTS GROUP 3804." ALL MAG NAILS SET WITH WASHER ARE STAMPED "W.C.G. FIRM 3804."

5. CONTROL POINTS 100 AND 300–306 SHOWN BELOW SET BY WCG ON OCTOBER 19, 2022.

6. THIS SURVEY WAS PREPARED FOR PERMITTING PURPOSES ONLY.

Local Site Control				
Aerial Target	Northing	Easting	Elevation	Description
AT-1	272111.90	2728827.89	636.97	Red Capped Iron Rod
AT-2	274207.95	2726284.08	629.85	PK Nail
AT-4	274286.05	2728829.98	623.31	PK Nail
AT-5	270433.37	2731400.21	654.94	Iron Rod
AT-7	271757.63	2731442.60	632.04	Iron Rod
AT-8	274365.09	2731391.83	622.03	PK Nail

SITE CONTROL SET BY WCG				
POINT	NORTHIING	EASTING	ELEVATION	DESCRIPTION
100	271496.99	2731428.573	634.83	SET MAG NAIL NEAR SCALE
300	270343.28	2728833.62	638.97	1/2" IR WITH RED CAP "WCG"
301	270232.00	2727003.91	612.73	1/2" IR WITH RED CAP "WCG"
302	271278.11	2726567.96	641.74	1/2" IR WITH RED CAP "WCG"
303	274219.05	2728653.24	626.92	1/2" IR WITH RED CAP "WCG"
304	274142.87	2726349.73	630.25	1/2" IR WITH RED CAP "WCG"
305	274325.27	2731352.46	622.59	1/2" IR WITH RED CAP "WCG"
306	272027.50	2728825.41	637.69	1/2" IR WITH RED CAP "WCG"

CERTIFICATE OF SURVEY:

THIS PLAT OF SURVEY MEETS THE OKLAHOMA MINIMUM STANDARDS FOR THE PRACTICE OF LAND SURVEYING AS ADOPTED BY THE OKLAHOMA STATE BOARD OF LICENSURE FOR PROFFECIONAL ENGINEERS AND LAND SURVEYORS.

LICENSED PROFESSIONAL LAND SURVEYOR
MICHAEL D. BYTNER
1986
OKLAHOMA

MICHAEL D. BYTNER, PLS #1986
WEAVER CONSULTANTS GROUP, LLC
35 E. WACKER DRIVE, STE 1250
CHICAGO, IL 60601 817-735-9770
OKPELS SURVEY FIRM NO. 3804

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EXHIBIT A: METES & BOUNDS DESCRIPTION

U.S. GOVERNMENT LOTS 3, 4, 5, 6, AND PART OF U.S. GOVERNMENT LOTS 1 AND 2, SE1/4 NW1/4, NE1/4 SW1/4, AND PART OF SE1/4 NE1/4, ALL IN SECTION 6, T14N, R18E, IB&M MUSKOGEE COUNTY, STATE OF OKLAHOMA

No.	DATE	REVISION DESCRIPTION

Weaver Consultants Group

WEAVER CONSULTANTS GROUP, LLC
6420 SOUTHWEST BLVD
SUITE 206
FORT WORTH, TX 76109
(817)-735-9770
www.wcgrp.com

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DRAWN BY: TJM
REVIEWED BY: AJW
DATE: 10/13/2023
FILE: 0086-364-11-19
SEE PLOT STAMP

P:\SBI Survey\Projects\0086-364-11-19 Muskogee, OK Landfill Permit Boundary\2.0 Drawings\2.1 CAD\0086-364-11-19 Muskogee Boundary_20230614.dwg

MUSKOGEE COMMUNITY RECYCLING AND DISPOSAL FACILITY
MUSKOGEE COUNTY, OKLAHOMA
ODEQ PERMIT NO. 3551020

TIER III PERMIT MODIFICATION
LANDFILL EXPANSION

Prepared for

Waste Management of Oklahoma, Inc.

October 2023



Prepared by

Weaver Consultants Group, LLC
CA 3804 PE 06/30/2025
6420 Southwest Boulevard, Suite 206
Fort Worth, Texas 76109
817-735-9770

WCG Project No. 0086-364-11-19

CONTENTS

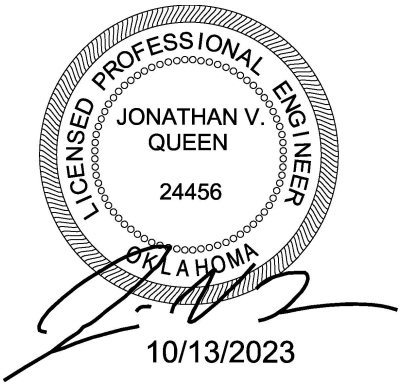
FIGURES **v**

DRAWINGS **vi**

APPENDICIES **viii**

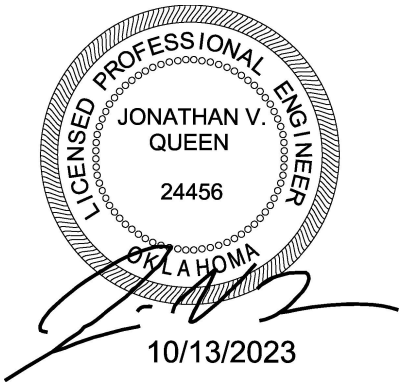
1 GENERAL INFORMATION REQUIREMENTS **1**
- 1.1 Introduction and Project Overview 1
  - 1.1.1 USACE Jurisdictional Water Authorization 2
  - 1.1.2 Other Agencies Coordination 3
- 1.2 Name and Type of Facility 3
- 1.3 Proposed Operational Description 3
- 1.4 Name, Address of Applicant 4
- 1.5 Owner Information and Disclosure 4
- 1.6 Legal Description 4
- 1.7 Location of Facility 5
- 1.8 Right to Use Documentation 5
- 1.9 Land Use of Adjacent Property and General Area 5
- 1.10 Waste Streams 7
- 1.11 Life and Design Capacity of Facility 7
- 1.12 Record Keeping Procedure 9
- 1.13 Access Roads 9
- 1.14 Air Quality Permitting Status 9
- 1.15 Aesthetic Enhancement 9

2 LOCATION STANDARDS **10**
- 2.1 Introduction 10
- 2.2 Scenic Rivers 10
- 2.3 Recreation/Preservation Area 10
- 2.4 Endangered and Threatened Species 11
- 2.5 100-Year Floodplain 11
- 2.6 Public Water Supply 12
  - 2.6.1 Public Water Supply Surface Water Intakes 12
  - 2.6.2 Public Water Supply Well 12
- 2.7 Wetlands 12
- 2.8 Terrace Deposits 13
- 2.9 Karst Terrain 13
- 2.10 Earthquake Epicenter Areas 13
- 2.11 Asbestos Monofills 14



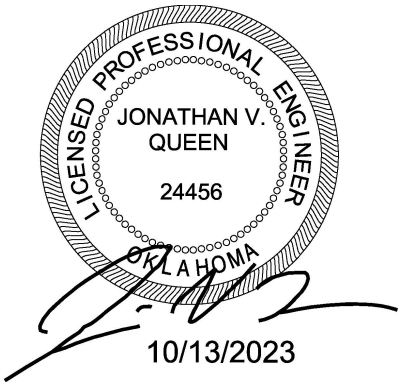
CONTENTS (Continued)

	2.12	Utility/Transmission Lines	14
	2.13	Fault Areas	14
	2.14	Seismic Impact Zones	15
	2.15	Unstable Areas	16
	2.16	Airports	16
3	**SUBSURFACE INVESTIGATION**		**17**
	3.1	Introduction	17
	3.2	Monitoring Wells	17
	3.3	Design and Construction	17
	3.4	Plugging	18
	3.5	Monitoring Program	18
4	**EXPLOSIVE GAS CONTROL**		**19**
	4.1	Methane Monitoring Program	19
	4.2	Landfill Gas Monitoring Probes	19
	4.3	Excessive Gas Procedure	19
	4.4	Landfill Gas Collection and Control System	20
	4.5	LFG Regulatory Compliance	20
5	**STORMWATER MANAGEMENT**		**21**
	5.1	Surface Water Protection	21
	5.2	Run-on Control System	22
	5.3	Run-off Control System	22
	5.4	Stormwater Pollution Prevention Plan	23
6	**LINER AND FINAL COVER SYSTEMS**		**24**
	6.1	Liner Design and Installation	24
	6.2	Liner Installation and Testing	25
	6.3	Final Cover Design	25
7	**LEACHATE COLLECTION/PROTECTIVE COVER SYSTEM**		**26**
	7.1	Leachate Collection/Protective Cover System Design	26
	7.2	Leachate Management	27
	7.3	Performance Evaluations	28
8	**OPERATIONAL PLAN**		**29**
	8.1	Hours of Operation	29



CONTENTS (Continued)

8.2	Public Access Control		29
8.3	Measuring Procedure		30
	8.3.1	General Information	30
	8.3.2	Existing Customers	31
	8.3.3	New Customers	31
	8.3.4	Existing Equipment	31
	8.3.5	New Equipment	31
8.4	Asbestos		32
8.5	Litter Control		32
8.6	Cover Material Requirements		32
8.7	Buffer Zones		32
8.8	Air Criteria		35
8.9	Salvage or Recyclery Operations		36
8.10	Disease Control		36
8.11	Dust Control		36
8.12	Dead Animals, Containers, and Municipal Sewage		36
8.13	Animal Feeding		37
8.14	Discharge		37
8.15	Waste Placement		37
8.16	Accident Prevention and Safety		37
8.17	Recordkeeping and Reporting		38
8.18	Liquid Waste Restriction		38
8.19	Exclusion of Hazardous Waste		39
9	**CLOSURE AND POSTCLOSURE PLAN**		**40**
10	**CLOSURE AND POSTCLOSURE COST ESTIMATES**		**41**



FIGURES

In accordance with OAC 252-515-1-4(b) and 252-515-3-51(e), figures/drawings have been provided in an alternative scale. The alternative scales are clearly identified on each figure/drawing.

Figure 1 General Site Location Map

Figure 2 Topographic Site Location Map

Figure 3 Land Use Map

Figure 4 Flood Insurance Rate Map (FIRM)

Figure 5 Regional Geology Map and Stratigraphic Column

Figure 6 Regional Geologic Cross-Section

Figure 7 USGS Seismic Impact Zone Map

Figure 8 Surface Geologic Map

Figure 9 Groundwater Resource and Recharge Area Map

Figure 10 Public and Private Water Wells

Figure 11 Existing and Proposed Monitoring Well Locations

Figure 12 Existing and Proposed Landfill Gas Probe Locations

DRAWINGS

In accordance with OAC 252-515-1-4(b) and 252-515-3-51(e), figures/drawings have been provided in an alternative scale. The alternative scales are clearly identified on each figure/drawing.

1 Cover Sheet and Site Vicinity Map
2 Location and Boundary Map
3 Existing Ground Contour Map
4 Existing Permitted Drainage Plan
5 Post-Development Drainage Plan
6 Site Plan
7 Excavation Plan
8 Top of Liner Plan
9 Top of Protective Cover Plan
10 Closure Contour and Stormwater Management Plan
11 Cross-Section Location Map – Open Phases
12 Cross-Section Location Map – Closed Phases
13 Cross-Sections A and B
14 Liner and Leachate Collection System Details
15 Liner and Leachate Collection System Details
16 Final Cover Details
17 Drainage Details
18 Drainage Details
19 Drainage Details
20 Drainage Details

Full-size Permit Design Drawings are provided in a separate package.

APPENDICES

VOLUME 1 OF 4

APPENDIX A
Waste Management Annual Reports

APPENDIX B
Permit, Proof of Publication, Legal Description, and Volume Calculations

APPENDIX C
Temporary Easement for Access

APPENDIX D
Location Restriction Correspondence

VOLUME 2 OF 4

APPENDIX E
Subsurface Investigation and Groundwater Study

APPENDIX F
Groundwater Sampling and Analysis Plan

VOLUME 3 OF 4

APPENDIX G
Landfill Gas Management Plan

APPENDIX H
Surface Water Management Plan

APPENDIX I
USACE Information

APPENDIX J
Alternative Final Cover System Design

APPENDICES (Continued)

APPENDIX K
Quality Assurance/Quality Control Plan for Liner and Leachate Collection System Installation and Testing

VOLUME 4 OF 4

APPENDIX L
Leachate Collection System Design

APPENDIX M
Geotechnical Assessment

APPENDIX N
Alternative Liner System Demonstration

APPENDIX O
Waste Exclusion Plan

APPENDIX P
Closure and Postclosure Plan

APPENDIX Q
Closure and Postclosure Cost Estimates

APPENDIX R
Economic Life Estimate

APPENDIX S
Recordkeeping and Reporting Example Forms

APPENDIX T
Copy of Surety Bond

1 GENERAL INFORMATION REQUIREMENTS

1.1 Introduction and Project Overview

The purpose of this Tier III Permit Modification is to expand the existing Muskogee Community Recycling and Disposal Facility (RDF) operation to the west of the currently permitted area. The proposed expansion will consist of two separate units. The unit to the east is part of the original landfill and will remain consistent with the 2021 Tier I Modification configuration. A separate landfill unit will be developed to the west. Figure 1.1 shows the existing permit boundary and the proposed expansion area.

Muskogee Community RDF was originally owned by the City of Muskogee, who operated the site from 1987 to 1992 under the name Tract A of the City of Muskogee Landfill. In 1992, the ownership of Tract A of the City of Muskogee Landfill was transferred to Waste Management of Oklahoma, Inc. (WMO). Upon acquisition of the landfill from the City by WMO, the name was changed to Muskogee Community Landfill & Recycling Center, and then in 1996 was changed by permit modification to its current name of Muskogee Community Recycling and Disposal Facility, referred to in this permit modification as Muskogee Community RDF.

In July 1996, a Subtitle D Modification was submitted to the ODEQ to update the site development and operating plan to comply with the Subtitle D regulations. Another permit modification was submitted in December 2013 to revise the completion plan to incorporate existing in-place final cover. This permit modification also reduced the permitted footprint by 0.03 acres to allow for a 50-foot buffer between the OG&E easement and waste. This permit modification did not change the design capacity of the landfill.

Muskogee Community RDF was permitted to expand to the north in January 2022. This Tier I permit modification increased the permitted footprint by 4.2 acres and revised the completion plan, letdown/swale configuration, and perimeter drainage system, including the replacement of the northern stormwater detention area with a proposed stormwater detention area to the west.

The existing Muskogee Community RDF 60.9 acre disposal area will be expanded by constructing a separate landfill unit on contiguous land west of the existing landfill. The proposed western landfill unit will consist of a 65.5-acre waste disposal area. Therefore, the permitted Muskogee Community RDF waste disposal area will

increase to approximately 126.4 acres. The Muskogee Community RDF permit boundary will increase from 80.5 acres to 316.8 acres. The maximum permitted final cover elevation for the site will be 771.7 ft-msl for the eastern unit and 770 ft-msl for the western unit. The resulting capacity increase is 6.71 million cubic yards.

This Tier III Permit Modification will ensure that this critical service will continue for the landfill's service area. A comparison between the currently permitted completion plan of the site and the proposed completion plan is shown on Figure 1.1. The site's existing permittee and operator is WMO. WMO is a subsidiary of Waste Management, Inc. (refer to Section 1.5 for more information).

Additional local, state, and federal communication and/or permitting for this expansion is summarized in Sections 1.1.1. and 1.1.2, below.

1.1.1 USACE Jurisdictional Water Authorization

The USACE is given the authority under Section 404 of the Clean Water Act to issue permits for all construction activities that affect the nation's waters and wetlands, including dredging or placement of fill material into or adjacent to Waters of the United States (U.S.). The regulatory program that governs these permits is focused on protecting the nation's aquatic resources, while allowing reasonable development. Therefore, as part of the expansion process, a determination of Section 404 Jurisdictional Waters of the United States was performed to delineate the waters of the U.S. and wetlands within the permit boundary.

A determination indicated the presence of jurisdictional waters onsite. WMO evaluated several options to avoid and minimize impacts to the jurisdictional waters. The option selected balances long-term solid waste disposal needs in the City of Muskogee and surrounding areas while minimizing the impact to existing jurisdictional waters. The selected alternative placed an emphasis on (1) benefitting the community and local industry by providing a much-needed basic service in the form of an environmentally safe, solid waste disposal, (2) compatibility with immediately adjacent land uses, with the expanded landfill being located immediately west of the existing landfill, as well as compatibility with nearby land uses that include agricultural, rangeland and low to very low-density rural residential areas, (3) incorporating perimeter drainage features that will collect, convey and control stormwater and sediment on the project site while providing water quality improvements prior to off-site discharge of stormwater to downstream receiving waters, (4) utilizing established roadways and traffic patterns sufficient to handle waste management traffic, and (5) the creation of additional jurisdictional waters through a USACE approved in-lieu fee program such that there will be no net loss of Waters of the US with the project.

Section 404 Individual Permit Request was submitted to the USACE in September 2023. The Jurisdictional Determination Request is included in Appendix I. Any additional USACE submittals will be placed in the Site Operating Record.

1.1.2 Other Agencies Coordination

In addition, numerous agencies have issued approval/coordination letters regarding the landfill expansion, and these approvals are summarized in the following table.

Agency	Coordination Topic
Federal Aviation Administration (FAA)	The FAA web-based circle search for airports (version 2020) identified Muskogee Davis Regional Airport (MKO) as the closest airport to the site. The MKO runway is greater than 5 miles from the site, therefore this location restriction is not applicable.
Oklahoma Biological Survey	According to these state agencies, the proposed landfill expansion poses no danger to endangered or threatened wildlife. Additionally, an on-site habitat assessment was performed and determined no endangered or threatened species are known to exist near the proposed landfill expansion.
Oklahoma Department of Wildlife Conservation	
Oklahoma Scenic River Commission	There are no state-designated scenic river areas located within or near the proposed landfill expansion.
Oklahoma Natural Areas Registry	The Oklahoma Tourism and Recreation Department, Oklahoma Natural Areas Registry and the United States Department of Interior Bureau of Reclamation determined that the proposed expansion is not within ½ mile of any public recreation and natural preservation areas. Additional information specific to county commissioner correspondence is discussed in Appendix D-6.
Oklahoma Tourism and Recreation Department	
United States Department of the Interior Bureau of Reclamation	
County Commissioners	
Oklahoma Water Resource Board (OWRB)	There are no existing or pending surface water permits within one mile of the proposed landfill expansion area.

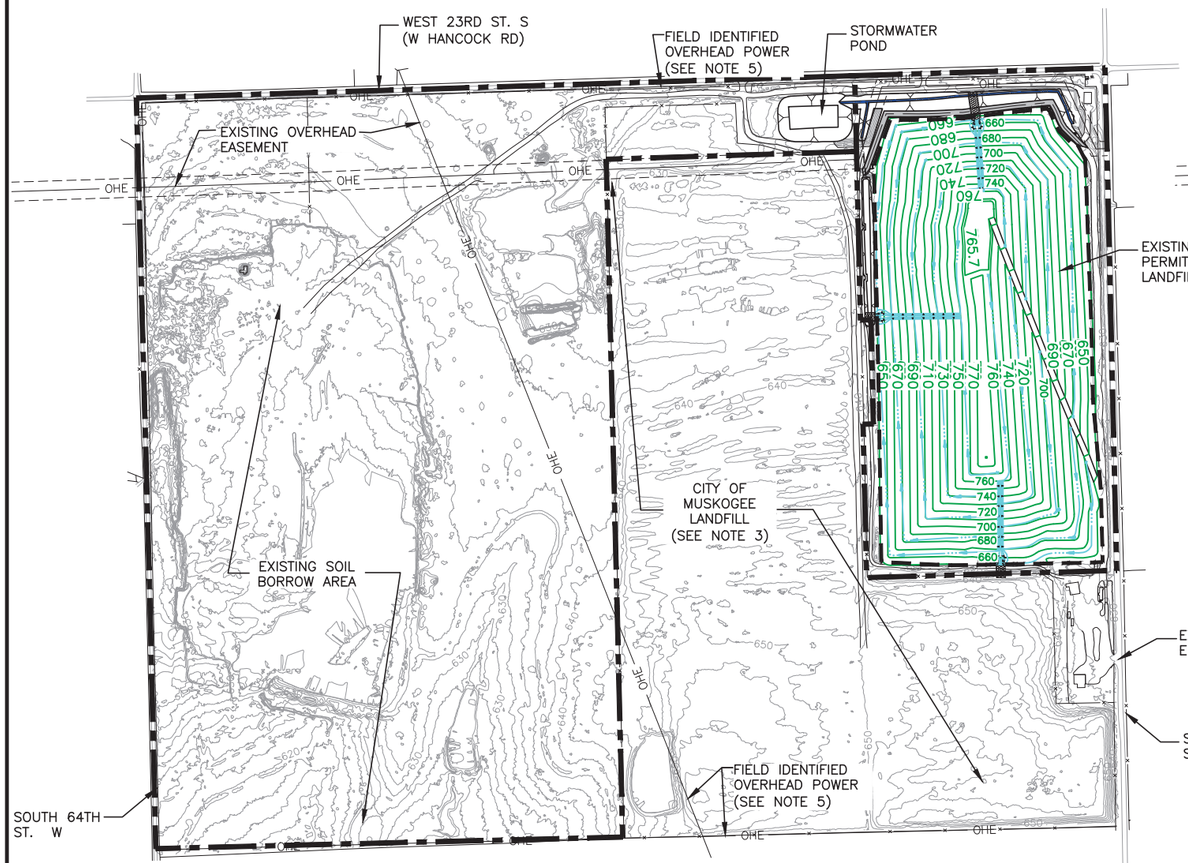
Each of the above approvals is discussed further in Section 2.

1.2 Name and Type of Facility

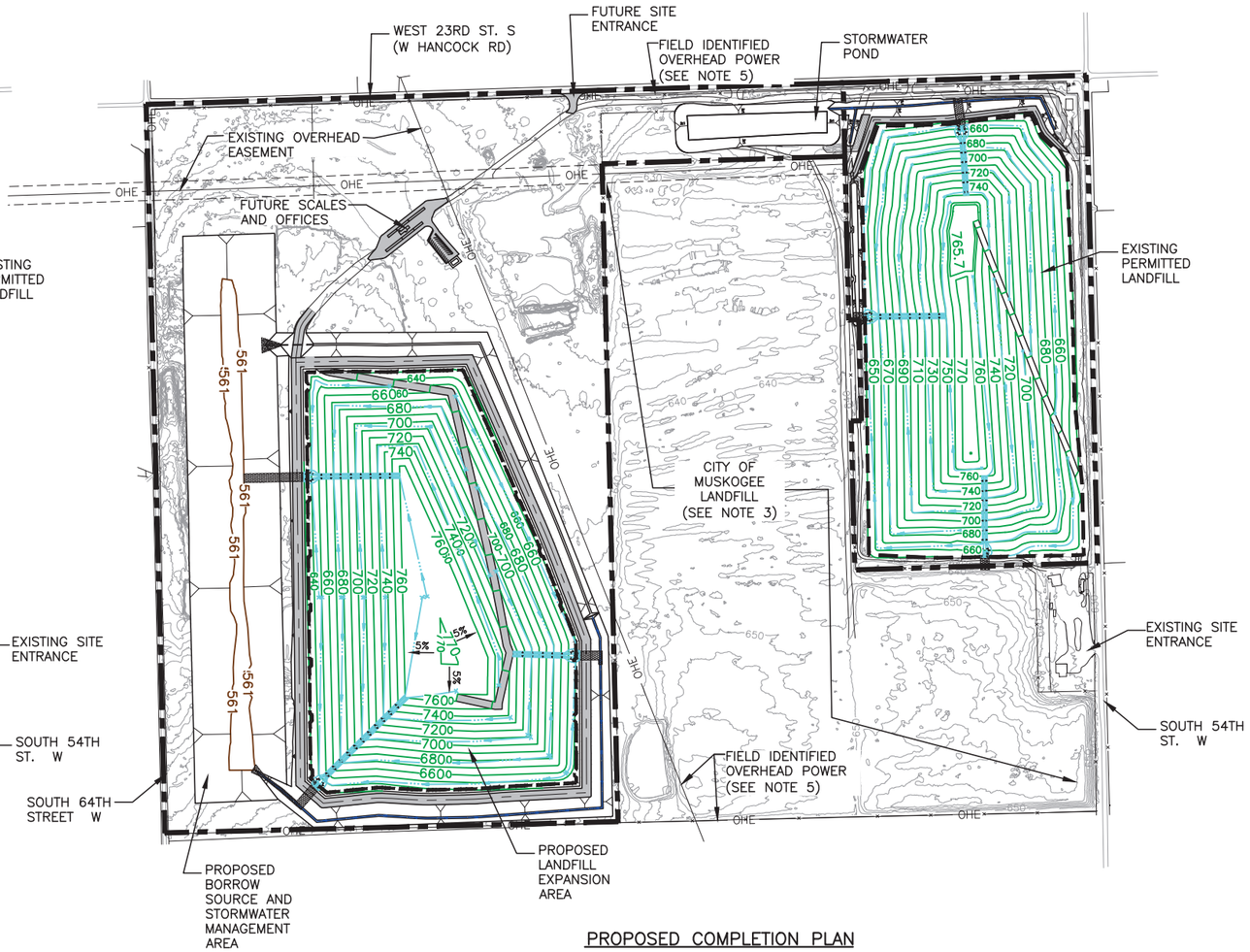
The current permitted name of the facility is Muskogee Community Recycling and Disposal Facility. This landfill is a municipal solid waste facility.

1.3 Proposed Operational Description

The Muskogee Community RDF is an existing municipal solid waste landfill facility (ODEQ Permit Number 3551020). The existing landfill currently provides solid



PERMITTED COMPLETION PLAN



PROPOSED COMPLETION PLAN

LICENSED PROFESSIONAL ENGINEER
JONATHAN V. QUEEN
24456
OKLAHOMA
10/13/2023

N

0 400 800
SCALE IN FEET

LEGEND:

- EXISTING PERMIT BOUNDARY
- PROPOSED PERMIT BOUNDARY
- PERMITTED LIMITS OF WASTE
- PROPOSED LIMITS OF WASTE
- N 273000 — STATE PLANE COORDINATE GRID
- 700 — EXISTING CONTOUR
- 700 — FINAL COVER CONTOUR
- 561 — BORROW AREA CONTOUR
- OHE — EXISTING OVERHEAD EASEMENT

LANDFILL EXPANSION SUMMARY

ITEM	PERMITTED	PROPOSED
PERMIT BOUNDARY	80.7 ACRES	316.8 ACRES
WASTE DISPOSAL AREA	60.9 ACRES	126.4 ACRES
MAXIMUM PERMITTED ELEVATION	771.7 (FT-MSL)	771.7 (FT-MSL)
REMAINING CAPACITY	1,043,280 CY	7,755,280 CY
REMAINING SITE LIFE	4.0 YEARS	24.4 YEARS

NOTES:

1. EXISTING CONTOURS AND ELEVATIONS PROVIDED BY HYDREX ENVIRONMENTAL COMPILED FROM AERIAL PHOTOGRAPHY FLOWN 01-25-2023.
2. THE EXPANSION WILL ADD A SEPARATE UNIT TO THE WEST OF THE EXISTING LANDFILL. NO CHANGES ARE PROPOSED TO THE EASTERN UNIT.
3. THE CITY OF MUSKOGEE LANDFILL IS NOT PART OF THE PROPOSED EXPANSION AND IS SHOWN FOR REFERENCE PURPOSES.
4. PERMIT BOUNDARY AND EXISTING OVERHEAD EASEMENTS WERE REPRODUCED FROM LEGAL DESCRIPTION PREPARED BY WEAVER CONSULTANTS GROUP, SIGNED BY MICHAEL D BYTNER, LLS# 1986.
5. AN EASEMENT RECORD WAS NOT FOUND OR PROVIDED TO THE SURVEYOR. THE OVERHEAD POWER RUNNING ALONG THE NORTHERN AND SOUTHERN PROPERTY LINE AND NORTHWEST/SOUTHEAST ACROSS THE PROPERTY WAS FIELD IDENTIFIED AND SURVEYED.

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- [ ] DRAFT
- [x] FOR PERMITTING PURPOSES ONLY
- [ ] ISSUED FOR CONSTRUCTION

DATE: 10/2023
FILE: 0086-364-11
CAD: FIG 1.1-PROJECT OVERVIEW.DWG
DRAWN BY: RAA
DESIGN BY: JBP
REVIEWED BY: JVQ

Weaver Consultants Group
CA 3804 PE - 06/30/2025

PREPARED FOR
WASTE MANAGEMENT OF OKLAHOMA, INC.

REVISIONS		
NO.	DATE	DESCRIPTION

TIER III PERMIT MODIFICATION
PROJECT OVERVIEW

MUSKOGEE COMMUNITY RDF
OKLAHOMA COUNTY, OKLAHOMA

WWW.WCGRP.COM

FIGURE 1.1

O:\0086\364\EXPANSION 2022\INTRO TEXT\FIG 1.1-PROJECT OVERVIEW.dwg, jpthr, 1:2

waste disposal service for residences and businesses in the City of Muskogee, Muskogee County, and the surrounding areas. With this expansion, the existing landfill permit boundary will expand from approximately 80.5 acres to a proposed 316.8 acres. The waste disposal area will increase from approximately 60.9 acres to 126.4 acres.

1.4 Name, Address of Applicant

Waste Management of Oklahoma, Inc.
(Muskogee Community RDF)
2801 S. 54th Street W
Muskogee, OK 74401
Telephone (Applicant): (405) 417-8124
Telephone (Facility): (918) 682-7284

c/o Mr. Guy R. Campbell, Engineering Manager

1.5 Owner Information and Disclosure

WMO is a subsidiary of Waste Management, Inc. (WM). The company employs more than 42,000 employees worldwide and is the leading provider of comprehensive waste management services in North America. For over 35 years, the landfill has been a part of the community and is one of the main recipients of waste from the residents and businesses in the city and surrounding areas. WM's 2022 annual report is included in Appendix A.

Sheets B-3-2 through B-3-4 in Appendix B shows the property ownership within the 316.8-acre permit boundary. The deeds associated with each tract owned by WMO are included on Sheets B-3-5 through B-3-8. As shown on Sheets B-3-2 through B-3-4, WMO owns each tract within the expansion area.

Sheets B-3-3 in Appendix B show the location and holders of easements located on the site.

1.6 Legal Description

The legal description of the proposed expanded permit boundary is included in Appendix B.

1.7 Location of Facility

The existing Muskogee Community RDF and the proposed landfill expansion areas are located within Section 6 of Township 14 North, Range 18 East in Muskogee County, Oklahoma. The site is south of West 23rd Street S (West Hancock Street), west of South 54th Street W, and east of South 64th Street W outside the Muskogee City Limits. This location is approximately four miles southwest of downtown Muskogee.

1.8 Right to Use Documentation

The executed right to use documents are included in Appendix C. The purpose of this appendix is to provide a temporary easement for access that will allow the ODEQ the right to access the property.

1.9 Land Use of Adjacent Property and General Area

Land use of the adjacent properties is mostly closed trench landfill, undeveloped property, range land, agricultural property, commercial/light industrial, rural residential properties and limited oil production. The locations of residential areas and businesses are presented on Figure 3 – Land Use Map. Water well locations in the vicinity of the facility are presented on Figure 10.

In general, the land use is described below for the surrounding areas:

East – The eastern permit boundary of the Muskogee Community RDF runs down the centerline of a 50-foot-wide (MOL) statutory right-of-way for South 54th Street W, with 25-feet of the ROW being located within the landfill's permit boundary. Land use within the 2-mile radius east of the roadway ROW includes undeveloped brushy rangeland and cultivated farmland and grazing lands, low-density rural residential, farming and ranch buildings, light commercial buildings, an electrical utility easement and overhead transmission lines, an electric utility station, farm ponds and water-filled depressions, and both paved and unpaved roadways. The floodplain and floodway of Coody Creek Tributary A is located on property east of the permit boundary, but does not extend onto or negatively impact the permit property. Four churches are located east of the permit property within the 2-mile radius. No commercial day care centers or schools were identified within the 2-mile radius of the permit property.

West – The western permit boundary of the Muskogee Community RDF runs down the centerline of a 50-foot-wide (MOL) statutory right-of-way for South 64th Street W, with 25-feet of the ROW being located within the landfill's permit boundary. Land use within the 2-mile radius east of the roadway ROW includes undeveloped brushy rangeland and cultivated farmland and grazing lands, low-density rural

residential, farming and ranch buildings, light commercial buildings, an electrical utility easement and overhead transmission lines, an electric utility station, farm ponds and water-filled depressions, and both paved and unpaved roadways. The floodplain and floodway of Pecan Creek Tributary 18 is located on property west of the permit boundary, but does not extend onto or negatively impact the permit property. A church is located immediately west of the northwest corner of the permit property. No commercial day care centers or schools were identified within the 2-mile radius of the permit property.

North – The northern permit boundary of the Muskogee Community RDF runs down the centerline of a 50-foot-wide (MOL) statutory right-of-way for W 23rd Street S (West Hancock Street), with 25-feet of the ROW being located within the landfill's permit boundary. Land use within the 2-mile radius north of the roadway ROW includes undeveloped brushy and heavily wooded rangeland and cultivated farmland and grazing lands, low-density rural residential, farming and ranch buildings, light commercial buildings, an electrical utility easement and overhead transmission lines, farm ponds and water-filled depressions, and both paved and unpaved roadways. No churches were identified located north of the permit property within the 2-mile radius. No commercial day care centers were identified within the 2-mile radius of the permit property. One school was identified as located approximately 1.6 miles north of the permit property.

South – Land use south of the permit boundary includes undeveloped brushy rangeland and cultivated farmland and grazing lands, low-density rural residential, farming and ranch buildings, an electrical utility easement and overhead transmission lines, farm ponds and water-filled depressions, and both paved and unpaved roadways. No churches were identified located south of the permit property within the 2-mile radius. No commercial day care centers or schools were identified within the 2-mile radius of the permit property. A municipal water storage tank was identified located south of the permit property. Potential oil and gas facilities also were identified south of the permit boundary. In addition to the above described land uses south of the permit boundary, the eastern portion of the southern permit boundary abuts the closed City of Muskogee Landfill as shown on Figure 3. This closed landfill is not incorporated into the current permit boundary, but is contiguous to the landfill along numerous boundary lines.

The use of this expansion property as a municipal solid waste landfill represents a compatible land use for the following reasons.

- Landfill operations have occurred on the contiguous property adjacent to the expansion property since 1987. The permit boundary also abuts the closed City of Muskogee Landfill, a compatible land use to the landfill.
- Surrounding land uses are predominantly agricultural, rangeland, and low to very low density rural residential, providing a natural buffer to landfill operations.

1.10 Waste Streams

The facility is classified as a Municipal Solid Waste (MSW) Landfill and follows the guidelines for operations as defined in OAC 252:515. The facility currently receives residential and commercial waste, construction and demolition waste, non-hazardous "other" industrial waste, encapsulated asbestos waste, incinerator ash, vegetative waste, semi-solid waste and sludges. Special waste is handled under the requirements set forth in Appendix O of this permit. This Tier III Permit Modification does not propose to change the types of waste accepted at this facility. No hazardous, radioactive, or Polychlorinated Biphenyl (PCB) waste will be knowingly accepted at this facility.

The major sources of waste come from Muskogee County and the surrounding communities. During the 12-month period between January 22, 2021 and January 24, 2022, Muskogee Community RDF accepted 153,419 tons of waste according to the 2022 Airspace Report prepared by WMO.

1.11 Life and Design Capacity of Facility

A summary of the capacity increase associated with this landfill expansion is listed below:

- Current Design Capacity = 6,600,889 cubic yards
- Proposed Capacity Increase due to Landfill Expansion = 6,707,000 cubic yards
- New Design Capacity = 13,307,889 cubic yards

The expansion of the landfill will increase the remaining airspace as of January 24, 2022 to approximately 7,755,280 cubic yards (cy). The existing permitted area and previous final grading plan has a remaining airspace of 1,048,280 cy (as of January 24, 2022) and the proposed landfill expansion will increase the existing remaining airspace by 6,707,000 cy, for a combined expansion remaining capacity of 7,755,280 cy.

Based on the remaining airspace and volumes calculated for daily cover and intermediate cover, the expanded remaining volume for waste only is estimated as follows:

Remaining Volume (as of January 24, 2022) for Waste Only = Total remaining airspace – Volume of daily and intermediate cover (16% of total remaining airspace)

= 1,048,280 cy – 167,725 cy

= 880,555 cy

Assuming an in-place density of waste/cover soils of 1,388 lb/cy (1,190 lb/cy density of waste only), the above remaining waste volume can be converted to a total remaining volume in tons (as of January 24, 2022).

Total Expansion Remaining Volume (Tons) = (84% of 7,755,280 cy)(1,190 lb/cy * 1/2000 tons/lb)

= 3,874,538 tons

The estimated initial waste stream received for disposal by the landfill (in 2022) is approximately 538 tons per day. The site is open for operation approximately 286 days per year. It is assumed that the incoming waste rate will increase consistent with the growth rate projections for Muskogee County. The growth rate projections were obtained from the Oklahoma Water Resources Board's (OWRB's) "2012 Oklahoma Comprehensive Water Plan." The incoming waste volume is assumed to increase at the same rate as the population projections of Muskogee County after each year of operation.

The waste inflow rate is estimated to increase at the rates shown below:

Projected Use Rate (years 2021-2030) = 3.00% or annualized projected use rate of 0.2962%

Projected Use Rate (years 2031-2040) = 2.52% or annualized projected use rate of 0.2488%

Projected Use Rate (years 2041-2050) = 2.46% or annualized projected use rate of 0.2370%

Using the above growth rates, the estimated waste inflow rate will gradually increase from 153,866 tons per year in 2021 (538 tons per day based on a 286-day operating schedule) to 163,572 estimated tons per year in 2044 (572 tons per day based on a 286-day operating schedule). Over the remaining life of the facility, the expected average daily volume of incoming waste is projected to be approximately 555 tons per day. These projections are based on current market conditions and may vary as market conditions change.

Supporting calculations are provided in Appendix B, Appendix B-4. In summary, the site life is projected to be approximately 24.4 years, which would result in the site's closure during the year 2045.

In addition, an economic "life of site" estimate has been developed consistent with OAC 252:515, Subchapter 27 (for the purposes of this regulation, it is our understanding that "life of site" is defined as the remaining life of the capacity over the currently constructed fill areas). This estimate is included in Appendix R. Consistent with OAC 252:515-27-8(c), the Economic Life of the facility as of December 31, 2022, is approximately 4.0 years.

1.12 Record Keeping Procedure

The facility will follow record keeping procedures set forth in accordance with OAC 252:515-19-40. These items are listed in detail in the Operational Plan section (Section 8) of this permit.

1.13 Access Roads

The primary access to the site is from South 54th Street W, which is adjacent to the eastern permit boundary. South 54th Street W is a gravel-paved road and is in good condition. The primary access to the proposed western unit will be W. 23rd St. S. (Hancock Road). Traffic is restricted by a locked gate at the landfill entrance controlled by Muskogee Community RDF. All roads inside the facility are maintained by WMO.

1.14 Air Quality Permitting Status

Currently, the site is subject to New Source Performance Standards (NSPS) Subpart XXX requirements, given that it has had a capacity increase since July 2014. The site is currently authorized by Title V Operating Permit No. 2016-1126-TVR3, dated June 21, 2017. The site will apply for an air construction permit prior to beginning construction on the expansion area. The site will continue to follow all applicable NSPS requirements and will maintain compliance with applicable air quality permit requirements. All applicable NSPS and air quality documentation will be placed in the Site Operating Record.

1.15 Aesthetic Enhancement

In accordance with OAC 252:515-3-37. The visual harmony of the expansion areas will be enhanced by (1) establishing buffer zones greater than the required minimum of 100 feet, as shown in the permit figures/drawings and as discussed in Section 8.7, and (2) the establishment of interim and permanent vegetation. Noise will be controlled by the established buffer zones as discussed in Section 8.7. Dust will be controlled as discussed in Section 8.11.

2 LOCATION STANDARDS

2.1 Introduction

OAC 252:515-5 identifies location restrictions related to solid waste disposal facilities. The location restrictions pertain to scenic rivers, recreational/ preservation areas, endangered or threatened species, 100-year floodplain, public water supply, wellhead protection area, wetlands, terrace deposits, karst terrain, earthquake epicenter areas, asbestos monofills, utility/transmission lines, fault areas, seismic impact zones, unstable areas, and airports. The following is a summary of those findings. Appendix D contains the correspondences associated with the Location Restriction Demonstrations.

2.2 Scenic Rivers

OAC 252:515-5-31(a) requires that no new MSWLFs shall be located within the drainage basin of any river designated under Oklahoma Scenic Rivers Commission (OSRC) Act (82§21-1452) unless a statement is obtained from the OSRC stating the proposed site is not expected to adversely affect the river or point of public interest. The Oklahoma Scenic Rivers Act provides protection for designated Oklahoma scenic rivers including the Illinois River, Lee Creek, Little Lee Creek, Barren Fork Creek, Flint Creek, and the Mountain Fork River. The proposed expansion permit boundary is within the Arkansas River drainage basin, which is not part of any designated scenic river drainage system. The OSRC response received on January 9, 2023, included in Appendix D-3 of Appendix D, the OSRC has no comments. Therefore, the proposed landfill expansion complies with the scenic rivers location restriction.

2.3 Recreation/Preservation Area

OAC 252:515-5-31(b) states that no new MSWLF shall be located within one-half mile of an area dedicated and managed for public recreation or natural preservation by any federal, state, or local governmental agency. The Oklahoma Tourism and Recreation Department, Oklahoma Natural Areas Registry, and the United States Department of Interior Bureau of Reclamation were contacted to determine the potential proximity of public recreation and natural preservation areas. According

to these agencies, no public recreation and natural preservation areas are located within one-half mile of the proposed expansion. Therefore, the proposed expansion complies with the Recreation/Preservation Area location restriction. Copies of the agency correspondence are included in Appendix D-4 of Appendix D.

The Muskogee County Commissioners were contacted several times without response. Additional information regarding communication efforts with the county commissioners is provided in Appendix D-4.

2.4 Endangered and Threatened Species

OAC 252:515-5-31(c) states that owners/operators of new MSWLFs obtain a statement from the Oklahoma Department of Wildlife Conservation (ODWC) and Oklahoma Biological Survey (OBS) concerning endangered or threatened wildlife or plant species within one-mile of the proposed site. Supporting correspondence from the ODWC and OBS are included in Appendix D, Appendix D-2. According to the agency responses, no endangered or threatened species of concern are known by these agencies to exist within or near the proposed permit boundary.

In addition, Goshawk Environmental Consulting, Inc. (Goshawk) conducted an on-site field reconnaissance for endangered or threatened wildlife and plant species habitats and completed a habitat assessment report on December 19, 2022. Goshawk's report also concluded that, due to a lack of suitable habitat on the landfill property, no endangered or threatened species are known to exist near the proposed permit boundary. As part of the survey, Goshawk obtained information from the U.S. Fish and Wildlife Service regarding threatened and endangered species. Goshawk's report is included in Appendix D, Appendix D-2. Therefore, the proposed landfill expansion area complies with this location restriction and no mitigation plan is required.

2.5 100-Year Floodplain

OAC 252:515-5-32(a) states that no new MSWLFs shall be permitted in the 100-year floodplain. Based on Flood Insurance Rate Maps (FIRMs) obtained through the Federal Emergency Management Agency (FEMA) for the Muskogee Community RDF, the RDF is located within an area of minimal flood hazard (Zone X). The edge of the existing limits of waste is approximately 0.25 miles west of the Coody Creek Tributary 100-year floodplain, and approximately 0.5 miles east of the Pecan Creek Tributary. As shown on Figure 4, no portion of the proposed expansion area is within a FEMA 100-year floodplain.

2.6 Public Water Supply

OAC 252:515-15-5-32(b) states that no MSWLF shall be located within one mile up gradient of a public water supply surface water intake that is in existence or permitted for construction at the time a complete modification is filed or within a one-year travel time of a public water supply well. The following subsections address public water supply surface water intakes, wellhead delineations, and aquifer recharge or discharge areas.

2.6.1 Public Water Supply Surface Water Intakes

The online geographic information system (GIS) ODEQ database indicated that there are no public water supply surface water intakes within three miles of the proposed permit boundary (http://gis.deq.ok.gov/maps/).

2.6.2 Public Water Supply Well

The online GIS OWRB database was queried for locations of area public water supply wells. The results are shown on Figure 10. According to OWRB records, six private water wells are located within the 3-mile radius of the permit boundary. No public water supply wells were identified in OWRB records. Therefore, the proposed landfill complies with OAC 252:515-15-5-32(b).

2.7 Wetlands

OAC 252:515-5-32(d) requires that new MSWLFs and expansions not be located in wetlands. The proposed permit boundary area was examined for wetlands by Goshawk Environmental Consulting, Inc. (an environmental services firm with experience in wetland delineation). As noted in Goshawk's report (Appendix I), refer to Sheet 8, eleven potential wetlands occupy the western expansion area. Five herbaceous wetlands or depressional areas dominated by herbaceous vegetation were found in the northern and southern portion of the site (W-1, W-3, W-5, W-6, and W-8). These areas may have been created due to terracing or other land improvement activities. Three wetlands (W-4, W-10, and W-11) were found in depressions within woodland communities. Three open water ponds were found on the site (W-2, W-7, and W-9). Wetlands W-1, W-2, W-3, W-7, W-8, and W-9 were found to be jurisdictional.

Also as noted in Goshawk's report, there are 3 unnamed tributaries onsite, as shown on Sheet 4 of the Goshawk report, exhibited characteristics to be considered Waters of the U.S.

A USACE Section 404 Individual Permit for the development of the expansion area was submitted to USACE in September 2023. The expansion area will not be

developed until the Section 404 Individual Permit is approved by the USACE. A copy of the Section 404 Individual Permit Application will be included in Appendix I.

2.8 Terrace Deposits

OAC 252:515-5-51(a) states that no MSWLF shall be located within an area designated as alluvium or terrace deposits and their recharge areas as shown on Oklahoma Geologic Survey (OGS) publication "Map of Aquifers and Recharge Areas in Oklahoma," compiled by Kenneth S. Johnson, OGS (1991). The 1991 map compiles data previously presented on two maps: one on bedrock aquifers and the other on alluvium and terrace deposits compiled by Kenneth S. Johnson, 1983 (Maps Showing Principal Groundwater Resources and Recharge Areas in Oklahoma; Oklahoma State Department of Health and the Oklahoma Geological Survey, 2 sheets). A portion of this map, which has been reproduced as Figure 9. As shown on the figure, the landfill permit boundary does not lie within alluvium deposits, terrace deposits, or bedrock aquifers, or their associated recharge areas. Therefore, the proposed landfill complies with OAC 252:515-5-51(a).

2.9 Karst Terrain

OAC 252:515-5-51(b) states that no part of a new MSWLF location shall be both within a locally fractured or cavernous limestone (aquifer) or cherty limestone bedrock and within five miles of any water well owned by a rural water district. The proposed landfill expansion area is not in karst terrain. In addition, the geologic maps (Figures 5, 6, and 8) do not indicate the presence of soluble rock (i.e., limestone, dolomite, and/or halite) within 750 feet of the surface, which is necessary for karst terrain formation. Also, the site topographic map and a site walkover indicated no karst characteristic features were present (i.e., sinkholes, vanishing streams, caves, large springs, and/or blind valleys). The Reconnaissance of Water Resources of the southwest Muskogee Quadrangle indicates there is no "karst bedrock aquifer" within five miles of the Muskogee Community RDF. Therefore, the proposed expansion complies with the karst terrain location restriction.

2.10 Earthquake Epicenter Areas

OAC 252:515-5-51(c) prohibits any area within the permit boundary of a new disposal facility that accepts non-hazardous industrial waste to be located within 5 miles of the epicenter of a greater than 4.0 on the Richter Scale magnitude or a modified Mercalli Scale intensity of greater than a category V earthquake as recorded by the Oklahoma Geological Survey (OGS) records. This location restriction does not apply to the Muskogee Community RDF, which is an existing municipal solid waste landfill.

Additionally, review of the online Geological Survey Earthquake Catalog of Oklahoma (www.ou.edu/ogs/research/earthquakes/catalogs), which catalogs earthquakes in the State of Oklahoma since 1882, indicated that within the past 10 years, no earthquakes with more than 4.0 on the Richter Scale or a number V on the modified Mercalli Scale have occurred within a 5-mile radius of the site. Lastly, pseudo-static method was used during stability analysis to account for seismic loads, (refer to Appendix M for more information). Therefore, the proposed expansion complies with the earthquake epicenter area location restriction.

2.11 Asbestos Monofills

OAC 252:515-5-51(d) prohibits the location of new asbestos monofills within 500 yards of an occupied residence or 3 miles of a municipally incorporated area. According to 27A Oklahoma Statute 2-10-103(11), a monofill is a landfill which is used to dispose of a single type of specified non-hazardous industrial solid waste, except for other non-hazardous industrial solid wastes which are not readily separable from the specified waste. This location restriction does not apply to the Muskogee Community RDF because it is an existing municipal solid waste facility and not an asbestos monofill (nor is the proposed expansion area). However, as noted in Section 8.4, the Muskogee Community RDF is approved to accept asbestos and materials containing asbestos.

2.12 Utility/Transmission Lines

OAC 252:515-5-52(a) requires a minimum of 25 feet between the active disposal area and any above ground or underground pipeline or transmission line. There are several known above ground utilities on site, including the overhead easements that cross near the expansion landfill footprint. Additional utilities service Muskogee Community RDF and allow for the operation of the scalehouse/office, maintenance shop, sanitary sewer utilities, leachate systems, and landfill gas systems. Additional discussion on site easements is included in Appendix B. If necessary, these utilities and/or easements for the utilities will be relocated and/or abandoned to meet the location restriction before the waste disposal area is developed in these areas. Documentation of all utility line and easement relocations will be maintained in the Site Operating Record.

2.13 Fault Areas

OAC 252:515-5-52(b) requires that new MSWLFs and expansions shall not be located within 200 feet of a fault that has had displacement in Holocene (most recent 11,000 years) time. Based on the OWRB Interactive Database Map, there are no mapped faults within 200 feet of the proposed permit boundary.

The landfill and the surrounding area were examined for the presence of Holocene (last 11,000 years) fault displacements. This included a physical inspection of the site and surrounding area, review of previous fault investigations, available literature and maps, and a current aerial photograph. No unusual Holocene scarps, topographic breaks, vegetation changes, or lineaments were interpreted within 200 feet of the site. No structural damage to facilities or surface indications of crude oil and/or natural gas accumulations were observed. No apparent Holocene structural influence of stream courses was observed. In addition, no unusual relief or topographic features, such as sag ponds, truncated alluvial spurs, or offset tributary alignments, were observed. The Tectonic Map of Oklahoma (Arbenz, 1956) indicates no mapped faults within Muskogee County. In summary, there is no evidence of Holocene faulting within 200 feet of the site. Therefore, the proposed expansion complies with the fault area location restriction.

2.14 Seismic Impact Zones

A seismic impact zone is defined as an area with a 10 percent or greater probability that the maximum horizontal acceleration in lithified earth material, expressed as a percentage of the earth's gravitational pull (g), will exceed 0.1 g in 250 years. A 2014 USGS contour map of peak horizontal acceleration, expressed as percent of gravity (%g) values, with a 2% probability of exceedance within 50 years is presented on Figure 7. According to the USGS, the 2% probability of exceedance within 50 years is statistically equivalent to a 10% exceedance within 250 years. The Interactive Hazard Map for the Lower 48 States, dated 2014, from the USGS seismic hazard database indicates that there is a less than 10 percent probability that the maximum horizontal acceleration will exceed 10 percent of the earth's gravitational pull within 250 years.

The USGS data indicates the facility is not located within a seismic impact zone. Additionally, OAC 252:515-5-52(c)(1) states that no new MSWLF shall be located in a seismic impact zone except as provided in 27A Oklahoma Statute §2-10-501(D)(3), which states that the location restriction does not apply to privately-owned landfills which regularly serve one or more municipalities, and which have been accepting non-hazardous industrial solid waste under approval of the ODEQ. The Muskogee Community RDF serves numerous communities in the Muskogee metropolitan area and has been receiving non-hazardous industrial wastes, as permitted by the ODEQ. Therefore, the seismic impact zone restriction would not apply.

Although this location restriction does not apply, seismic impact is considered in the design. Appendices M (Geotechnical Assessment) and L (Leachate Collection System Design) address seismic issues in conjunction with the slope stability analyses for the landfill and demonstrate compliance with OAC 252:515-5-52(c)(2). The leachate collection system will consist of flexible pipes and joints and has been designed to resist the maximum horizontal and vertical displacement caused by a

seismic event. The liner materials will be composed of flexible materials and have been designed to withstand a seismic event.

2.15 Unstable Areas

OAC 252:515-5-52(d) states that no new MSWLF shall be located over a subsurface mining area or any other unstable areas. Based on a review of the location of the proposed landfill expansion area by a licensed WCG professional engineer, it was determined that the new MSWLF is not located within an unstable area and disposal area excavations will be founded in the non-cohesive, Alluvium Unit and the disposal cells are not likely to experience significant differential settling as discussed in Appendix M – Geotechnical Assessment.

For determination of unstable areas at the site, a review of existing geotechnical and geological data, along with WCG site observations and a slope stability analysis were conducted as part of the location restriction demonstration (refer to Appendix M). No significant differential settling, geomorphologic features indicative of instability or human caused areas of instability were observed by WCG in the proposed landfill expansion area. Unstable areas, which would be susceptible to natural or human-induced events or forces have not been identified at the site. Therefore, the proposed landfill expansion area is stable and the proposed expansion complies with the unstable area location restriction.

2.16 Airports

OAC 252:515-5-52(e) states that no MSWLF that has the potential to cause or create bird hazards to aircraft shall be permitted within 10,000 feet of any airport runway used by turbojet aircraft and within 5,000 feet of any airport used by only piston-engine aircraft except as approved by the U.S. Federal Aviation Administration (FAA).

No airports are located within 10,000 feet of the facility. Therefore, the landfill expansion complies with the airport location restriction.

3 SUBSURFACE INVESTIGATION

3.1 Introduction

Several subsurface investigations have been completed and approved by ODEQ for the existing permit area. WCG conducted a subsurface investigation of the proposed 316.8-acre waste proposed landfill expansion area in 2022. The subsurface investigation for the proposed landfill expansion area was completed in accordance with OAC 252:515-7-(1-5, 31-38, and 51-56). The investigation includes a drilling plan, completed soil borings and piezometers, a regional hydrogeologic study, and a groundwater study. The subsurface investigation report is presented in Appendix E. The design of the landfill expansion area is based on the new data gathered from this investigation.

3.2 Monitoring Wells

The subsurface conditions of the site consist of residual unconsolidated sediments underlain by shale. These sediments are primarily part of the Savannah Formation.

The existing eastern unit groundwater monitoring system network consists of eight monitoring wells screened within the uppermost weathered shale strata. The proposed western unit groundwater monitoring system will consist of the proposed monitoring system is shown on Figure 11 and is discussed in Appendix E and Appendix F.

3.3 Design and Construction

Design, construction considerations, and details of the proposed groundwater monitoring system are included in Section 4 of Appendix E (Subsurface Investigation and Groundwater Study).

3.4 Plugging

All monitoring wells and piezometers that are removed will be plugged and abandoned according to the Oklahoma Water Resources Board and ODEQ requirements of OAC 785:35-11, 252:515-7-3, and 252:515-7-71(b).

3.5 Monitoring Program

The monitoring program will follow the proposed Ground Water Sampling and Analysis Plan (GWSAP). This plan satisfies the regulations put forth in OAC 252:515-9. This document is included in Appendix F. The GWSAP includes the following:

- Groundwater sample collection, preservation, and analysis methodologies;
- Chain of Custody procedures;
- Monitoring Constituents;
- Establishment of background groundwater quality;
- Detection monitoring program; and
- Statistical analyses procedures.

Detection monitoring of the proposed groundwater monitoring system for the proposed landfill expansion area will be performed in accordance with 252:515-9-71 through 72 after the background water quality has been established for the proposed system. None of the existing facility Subtitle D monitoring wells are in assessment monitoring or corrective action at this time.

4 EXPLOSIVE GAS CONTROL

4.1 Methane Monitoring Program

In accordance with OAC 252:515-15, a methane-monitoring program will address the type and frequency of monitoring in all structures and permitted areas. Site boundaries will be monitored to identify any migration of methane gas through the subsurface. Structures inside the permitted area will also be monitored to ensure that methane levels do not exceed 25 percent of the lower explosive limit. The Landfill Gas Management Plan is included in Appendix G. The proposed gas probes for the proposed landfill expansion area are included in Figure 12.

4.2 Landfill Gas Monitoring Probes

Currently, the site has 9 existing LFG monitoring probes along the eastern landfill waste boundary. As a result of the proposed landfill expansion, 26 new probes will be installed. At landfill completion, the monitoring network will consist of 35 monitoring probes. At a minimum the new probes will extend from ground surface down to the lowest bottom of waste elevation in the Muskogee Community RDF in accordance with OAC 252:515-15-4. The installation of the new probes, construction records, depths, and placement information will be submitted to the ODEQ.

4.3 Excessive Gas Procedure

In accordance with OAC 252:515-15-5 in the event that methane gas levels do exceed the limits specified, Muskogee Community RDF personnel will decide if the threat warrants an evacuation to protect human health. ODEQ will be notified immediately. Documentation of methane measurements and any steps taken to protect the safety of individuals will be recorded in the Site Operating Record and reported to the ODEQ within seven days. Upon review of the exceedances, a remediation plan will be prepared and submitted within 30 days. The plan, upon approval by the ODEQ, will be implemented within 60 days. This plan may be modified to meet the facility's conditions by approval from ODEQ. The ODEQ will be notified that the remediation plan has been implemented and that a copy of the plan has been placed in the Site Operating Record.

4.4 Landfill Gas Collection and Control System

The site is requesting to install and operate a landfill gas collection and control system (GCCS) by March 17, 2024 over the existing 56.7 acres of footprint. The collection system for Cells 12/13 (4.2 acres) will be constructed in the next 3 to 5 years. This GCCS will be expanded as needed to provide control of LFG.

4.5 LFG Regulatory Compliance

The site has had a design capacity increase since July 2014. As such, the site is subject to requirements of 40 CFR Subpart XXX. The estimated non methane organic compound (NMOC) emissions from the site is greater than 34 mg/yr. The site is required to install and operate a landfill gas collection and control system by March 17, 2024 (i.e., over the existing 56.7 acres of footprint and the Cells 12/13 (4.2 acres) to be constructed in the next 3 to 5 years).

5 STORMWATER MANAGEMENT

5.1 Surface Water Protection

In accordance with OAC 252:515-17-3, the facility has been designed to prevent discharge of pollutants into waters of the State or waters of the United States, as follows:

- No discharge of solid waste or pollutants into or adjacent to waters of the State, including wetlands, that is in violation of the requirements of the Oklahoma Water Quality Management Plan will occur. During the active life of the facility all stormwater coming into contact with solid waste will be retained as contaminated water and disposed of as outlined in Appendix L.
- No discharge of pollutants into or adjacent to waters of the United States, including wetlands, that violates any requirement of the Clean Water Act, including, but not limited to, the Oklahoma Pollution Discharge Elimination System (OPDES) requirements will occur. Muskogee Community RDF has received a permit from ODEQ to discharge stormwater runoff consistent with an OPDES Stormwater Industrial General Permit for industrial activity. In addition to the above, leachate and contaminated water will be disposed of by one of the approved methods listed in Appendix L, Section 5. Consistent with OAC 252:515-13-55, the site has obtained approval from a Publicly Owned Treatment Works (POTW) (the City of Muskogee) to discharge leachate and contaminated water. The Industrial Permit (No. 078) authorizes wastewater discharge from the Muskogee Community RDF into the City of Muskogee sanitary sewer system. A copy of the Industrial Permit is included in Appendix L-8.
- The proposed site development requires the placement of fill into wetlands and jurisdictional waters of the United States. The USACE regulates all construction activities within the nation's waters (including wetlands). Waste Management of Oklahoma, Inc. will obtain a Section 404 Individual Permits, including a Section 401 Water Quality Certifications from ODEQ for the construction activities associated with the proposed site's development. Coordination with the USACE is included in Appendix I.
- No discharge of a nonpoint source pollution of waters of the United States, including wetlands, that violates any requirement of an area-wide or

statewide Water Quality Management Plan that has been approved under the Federal Clean Water Act, §208 or §319, as amended will occur. Coordination with the Oklahoma Water Resources Board is included in Appendix D, Appendix D-5.

5.2 Run-on Control System

The Surface Water Management Plan for this proposed landfill expansion design has been prepared in accordance with OAC 252:515-17. The proposed drainage improvements for this expansion includes providing final cover erosion control structures (i.e., chutes and swales), and perimeter drainage channels. A drawing depicting the layout of the proposed drainage system is presented on Drawing 5. As shown on Drawing 5, stormwater runoff will be collected in swales located near the upper grade break on the landfill and on the 4 (Horizontal) to 1 (Vertical) sideslopes, and then conveyed to drainage letdown structures (chutes) and down the 25 percent slopes to the perimeter drainage system. The proposed channels will be constructed before fill is placed above existing grade in each adjacent landfill sector. Stormwater drainage from developed areas will be directed into the perimeter channels or stormwater detention areas that will convey stormwater to existing drainage features. The site is designed so that the expansion area development will not significantly alter existing permitted drainage patterns and to prevent stormwater run-on to the active portion of the landfill during a 24-hour, 25-year storm event. The design of the stormwater management system is included in Appendix H.

The stormwater management system will be constructed as the site is developed. As the site develops, the permanent erosion control structures (i.e., chutes, swales, perimeter channels, etc.) will be constructed. This will provide for the conveyance of all stormwater generated from the developed portions of the site.

Surface waters will be managed throughout the active life of the landfill to minimize the amount of stormwater that will come in contact with waste or enter the leachate collection system. Surface water will be controlled through the use of diversion berms, stormwater diversion ditches, and stormwater detention areas. Stormwater that comes into contact with waste at the working face area will be considered contaminated water and treated as leachate (refer to Section 5.3).

5.3 Run-off Control System

Contaminated water that collects behind the containment berm and does not infiltrate into the landfill will be pumped into tanker trucks and handled in accordance with Section 5 of Appendix L. Contaminated water may also be transported to a leachate storage tank or pond and managed as leachate. At no time will contaminated water be allowed to discharge into waters of the United States.

The design calculations and the size of the containment and diversion berms required around the active working face for the 25-year, 24-hour storm event are provided in Appendix L.

5.4 Stormwater Pollution Prevention Plan

The Stormwater Pollution Prevention Plan (SWPPP) will be prepared in accordance with the facility's current National Pollutant Discharge Elimination System under the current multi-sector permit (OKR052322).

6 LINER AND FINAL COVER SYSTEMS

6.1 Liner Design and Installation

The waste disposal area will be expanded from approximately 60.9 acres to 126.4 acres. The excavation plan, top of liner plan, and top of leachate collection layer plan are presented on Drawings 7 through 9. Drawings 14 and 15 include details of the liner system construction for the expansion area.

The liner system design will include an alternative Geosynthetic Clay Liner (GCL) liner system design in accordance with OAC 252:515-11-2(c). The composite liner details are depicted on Drawing 14. The alternative GCL liner system design configuration is shown below (from top to bottom). There are two options for the liner system.

Composite Liner System	
Option 1 (CCL)	**Option 2 (GCL)**
12-inch-thick protective cover layer ($k \geq 1x10^{-3}$ cm/s)	12-inch-thick layer protective cover layer ($k \geq 1x10^{-3}$ cm/s)
12-inch-thick granular drainage layer ($k \geq 1x10^{-3}$ cm/s)	12-inch-thick granular drainage layer ($k \geq 1x10^{-3}$ cm/s)
8-oz/sy geotextile	8-oz/sy geotextile
60-mil-thick high density polyethylene (HDPE) geomembrane liner	60-mil-thick high density polyethylene (HDPE) geomembrane liner
24-inch-thick compacted clay liner	Geosynthetic clay liner (GCL)
	12-inch-thick compacted clay liner

For Option 2 an unreinforced GCL will be used for the landfill floor, and a reinforced GCL will be used on slopes greater than 7H:1V. The design demonstration for the alternative liner system design is provided in Appendix N. Material specifications, construction, and testing requirements for the alternative liner system design are provided in Appendix K. The results of the stability analysis indicated the calculated factors of safety are greater than the recommended minimum factors of safety.

The expansion excavation area is designed to have a minimum slope of 1 percent (from the phase ridge line to the leachate collection line). The sidewalls will be constructed with a typical slope of 3(H):1(V). The leachate collection trench will be situated down the center of each phase. Sump riser pipes and clean out pipes are provided for each phase.

6.2 Liner Installation and Testing

A Liner and Leachate Collection/Protective Cover System Installation Quality Assurance/Quality Control (QA/QC) Plan has been prepared and will be followed during the construction of each of the new sectors. The Liner and Leachate Collection/Protective Cover System Installation QA/QC Plan is included in Appendix K. The purpose of the Liner and Leachate Collection/Protective Cover System Installation QA/QC Plan is to ensure that the liner and leachate collection/protective cover systems comply with OAC 252:515-11-4 through 76, and OAC 252:515-13.

6.3 Final Cover Design

The proposed evapotranspiration (ET) final cover system is a monolithic soil cover that employs a thick layer of soil with adequate soil-water storage capacity to retain any infiltrated water until it can be removed through ET. The ET final cover system concept relies on the soil to act like a sponge. A key to the design is that the "soil sponge" or "soil rooting medium" be designed thick enough to hold infiltration of precipitation until the water can be consumed by ET. The ET final cover system will consist of the layers listed in the following table.

Evapotranspiration (ET) Final Cover System
12-inch-thick vegetation layer
24-inch-thick vegetation support layer
12-inch-thick foundation layer (intermediate cover)

The ET final cover system design is included in Appendix J. Figure 1 in Appendix J contains the ET final cover system details. In addition, Appendix J also includes the Final Cover Quality Assurance/Quality Control Plan and the Vegetation Plan.

A geotechnical report including veneer stability demonstrations for both liner and final cover systems is provided in Appendix M.

An additional 12 inches of compacted earthen material (intermediate cover) shall be applied over all disposal areas not protected by final cover meeting the requirements of OAC 252:515-19-53 or managed with run-off control structures meeting the requirements of OAC 252:515-17-2(2).

7 LEACHATE COLLECTION/PROTECTIVE COVER SYSTEM

7.1 Leachate Collection/Protective Cover System Design

The purpose of the leachate collection/protective cover system is to control the accumulation of leachate on the bottom liner and reduce the potential for migration of leachate into the environment. The leachate collection system is designed to satisfy the requirements set forth in OAC 252:515-13, these include maintaining 1 foot or less of head above the top of the liner and provide at least 5 feet of separation between the top of the geomembrane liner and the highest groundwater.

The leachate collection/protective cover system consists of a leachate collection/protective cover layer and the underlying leachate collection piping, trenches, and sumps. This system will collect leachate from the phases, minimize head buildup on the liner system, and manage the leachate through its disposal. The 5-foot separation requirement provides a safety factor for groundwater protection.

The leachate collection/protective cover layer is placed above the liner to allow leachate to discharge freely from the overlaying wastes and flow laterally to the perforated collection pipes. The leachate collection layer consists of a 12-inch soil layer with a permeability of $1x10^{-3}$ cm/s or greater overlying an 8 oz/sy geotextile. The protective cover layer also consists of an additional 12-inch-thick soil layer ($k \geq 1x10^{-3}$ cm/s).

The leachate collection layer follows the top of the liner slope to promote leachate flow toward the leachate collection trenches and ultimately to the sumps for removal (Drawing 9). This layer provides a high permeability layer to effectively transmit leachate to collection pipes and sumps, thereby reducing leachate head buildup. In each of the phases the top of the liner slopes a minimum 1 percent from the phase ridge to the middle of each phase, where the leachate collection trenches are located.

Leachate collection pipes are installed in the middle of the leachate collection trenches to aid in the transport of leachate to the sumps. The collection pipes are 6-inch-diameter SDR17 HDPE pipe with 1/2-inch diameter perforations. The perforated collection pipes are placed in the trench with the holes facing downward in the trench. In the leachate collection trench, a geotextile will encapsulate the piping and drainage stone to prevent clogging of the drainage stone and

perforations and prevent puncture of the underlying geotextile and geomembrane. Washed stone surrounds the collection pipes with a minimum hydraulic conductivity of 1 cm/s. Each trench slopes towards the sumps located on the end of each phase. This ensures that the leachate in the trenches flows freely to the leachate collection sumps. Drawing 15 contains details concerning the leachate collection system.

As demonstrated in Appendix L, 100 percent of the leachate generated daily can be recirculated once a 10-foot-thick lift of waste is in place. In accordance with ODEQ guidelines, recirculation of leachate will only occur over areas of the landfill that have been lined with ODEQ-approved composite liner systems.

7.2 Leachate Management

The leachate collection sumps and pumps have been sized to limit maximum head above the liner system to 12 inches and provide a reasonable pump cycle time. Leachate removal from each sump is accomplished with a submersible pump. The leachate collected in the leachate sumps is currently pumped from the sumps to a lined leachate storage pond located north of the current landfill. Storage tanks may also be used in managing leachate in future. As discussed in Section 5 of Appendix L, the leachate is directly discharged to the sewer system. Muskogee Community RDF may also store leachate in tanks or ponds before pumping to the sewer system.

Leachate and contaminated water will be disposed of by one of the following methods.

1. Direct discharge to the City of Muskogee sanitary sewer system. Consistent with OAC 252:515-13-55, the site has obtained approval from a POTW to discharge leachate and contaminated water. The Industrial Permit (No. 078) authorizes wastewater discharge from the Muskogee Community RDF into the City of Muskogee sanitary sewer system.
2. Recirculated at the working face, as needed to stabilize waste and facilitate compaction. The recirculation of leachate will be performed following the procedures set for in the Leachate Recirculation System Operating Plan (Section 6).
3. Pumping and transport by tanker to a licensed waste water treatment facility.

Refer to Appendix L for additional information.

7.3 Performance Evaluations

Samples will be collected from the existing leachate storage tanks or future leachate pond to comply with all applicable discharge permit requirements. A grab sample may be obtained and used for laboratory analysis.

In addition, leachate levels will be monitored at the leachate storage ponds and in the sumps prior to and following pumping cycles to estimate the amount of leachate generated by the landfill.

This allows for a qualitative evaluation of the landfill design. The removal of leachate will occur as necessary to maintain less than one foot of head on the liner system.

The leachate collection system will be routinely inspected, at least quarterly, to ensure the proper operation of the system. In the event that the leachate collection system is shown to have failed to perform as designed, the facility shall submit a corrective action plan to the ODEQ within 30 days. The facility should begin the implementation of such a plan within 30 days of the ODEQ approval.

8 OPERATIONAL PLAN

8.1 Hours of Operation

The site will typically operate Monday through Friday (5 am to 7 pm) and Saturdays (5 am to 1 pm); however, the operating hours are not limited to those time periods. The incoming volume of waste will change the operational hours of the facility. At certain times of the year and with changes in incoming volumes due to special circumstances and/or projects, the facility will increase or decrease the daily hours of operation to accommodate the incoming volume. The facility ultimately will be open to serve the community needs. However, an appropriate amount of staff and equipment will always be maintained during operational hours to ensure that applicable regulations are properly followed.

8.2 Public Access Control

The permitted and proposed landfill area are controlled by a perimeter fence, natural barriers, and/or a gate which are locked when the landfill personnel are not present. The primary entrance to the existing facility is South 54th Street W which runs north/south adjacent to the eastern permit boundary. The entrance road is constructed of all weather/gravel mixture that runs from South 54th Street W to the scalehouse. The proposed entrance to the western landfill unit will be W. 23rd St. S. (Hancock Road). The scalehouse personnel will control the access to the landfill during operation hours. When the site is closed the main entry gate will be closed and locked to prevent unauthorized disposal at the site. Maintenance on the perimeter fences, gates, and locks will be performed as necessary to maintain control of the site.

The City of Muskogee or Muskogee County maintains the access road to the site (i.e., South 54th Street W). The vehicular traffic utilizing the facility will consist of waste collection vehicles such as compactors, transfer, transport and roll-off transport vehicles which vary in type size, length, weight, and capacity. South 54th Street W is maintained to support the present and any additional future traffic to the site. Internal roads will be maintained by Muskogee Community RDF and intended to support all traffic in all weather conditions. Temporary roads will be used as waste

placement areas are completed. All interior site roads will be graded for proper drainage and drainage culverts will be installed and maintained as needed.

During dry and windy weather water trucks will spray the roads to minimize dust problems. To minimize the tracking of mud from the site to public roads, the entrance road will be maintained and constructed for all weather (paved or gravel). The entrance road will be maintained during periods of inclement weather to help ensure that mud-tracking does not become a problem.

8.3 Measuring Procedure

8.3.1 General Information

OAC 252:515-19-33 states that all waste delivered to and disposed of will be measured by either weight or volume. In January of 1996, ODEQ mandated the utilization of weight measurements. Therefore, the landfill personnel will record the amount of solid waste the facility disposes on a daily basis. These records will be maintained for review by the ODEQ at the facility. In compliance with OAC 252:515-19-33(a), scales are located onsite. In addition, the scales will be tested and certified annually in accordance with requirements of the Oklahoma Department of Agriculture, Food, and Forestry.

The Muskogee Community RDF currently has tare weight procedures in place. The procedures incorporate past experience in using tare weights as a means to determine average truck weights over a period of time. Those vehicles that are regular users of the landfill have established historical data that allows tare weights for the individual vehicles to become increasingly accurate over time.

Currently, vehicles are identified by unit number or name and stored in the site computer database by means of a customer ID number. As a vehicle enters the scale, the scale attendant enters the ID number in the computer, and the vehicle's tare weight (i.e., weight of vehicle without waste) is automatically retrieved based on historical data for that vehicle.

Due to variations in each individual truck weight (i.e., fuel quantity, removable or added equipment, number of passengers, etc.), an estimated tare weight for each truck will be used. This will be the average sum of all previously measured weights for that truck/vehicle.

Tare weight records are maintained in a computerized truck file listing that can be printed at any time for review. If the scales are inoperative, tonnage will be estimated on a volume basis where one cubic yard of solid waste will be calculated to weigh one-third ton. Monthly reports will also be filed in the operating record and submitted to the ODEQ no later than the 15th of the month following the

reporting month. Solid waste disposal fees will be remitted to the ODEQ in accordance with 27A O.S. §2-10-802(B).

8.3.2 Existing Customers

Given the historical data previously gathered for existing customers, existing trucks will reweigh annually to gather current data that can be used to recalculate the average tare weight. With this method, slight variations can be accounted for and the average (estimated) tare weight will remain accurate over time.

Existing customers will be notified that equipment changes (removed and/or added) must be communicated to the site management so that the vehicle can reweigh as soon as possible. Each time a truck/vehicle has a change in equipment, it will reweigh and the new weight will be added to the average tare weight database.

8.3.3 New Customers

New customer vehicles will be weighed empty on their first trip to the landfill. Thereafter, vehicles will reweigh annually as described above.

8.3.4 Existing Equipment

Collection vehicles owned by WM or its subsidiaries have been weighed and tare weights are in the computer database. Each truck has been assigned an ID number. When a facility owned truck enters the landfill, the scale operator will enter the ID number. The computer will subtract measured gross weight, leaving the net weight of the waste load.

Trucks will reweigh annually to gather current data that can be used to recalculate the average tare weight to be used. With this method, slight variations can be accounted for and the average (estimated) tare weight will become more accurate over time.

Equipment changes (removed and/or added to the trucks) will be communicated to the site management so that the vehicle can reweigh as soon as possible. Each time a truck/vehicle has a change in equipment, it will reweigh and the new weight added to the average weight database.

8.3.5 New Equipment

New equipment will be weighed and given an ID number on the first visit to the landfill and this information added to the database.

8.4 Asbestos

Muskogee Community RDF is approved to accept asbestos and materials containing asbestos in compliance with all the requirements set forth in OAC 252:515-19-36, all regulations set forth in 252:100 and 380:50. These requirements are stated in the Waste Exclusion Plan included in Appendix O.

8.5 Litter Control

Blowing litter will be controlled in accordance with OAC 252:515-19-35. The site operations will conduct unloading of waste in such a matter to reduce the blowing of waste from outside the active disposal area. The working face will be covered at the end of each day as well as when necessary during the operational day to help minimize the scattering of waste. In addition, litter fencing will be placed downwind of the active area during windy weather periods. The entire landfill site and the approaching roadways within 1/2 mile will be cleaned by landfill personnel at least once a week or whenever the site or surrounding area deems necessary. In addition, signage will be posted advising customers to adequately cover their loads to prevent blowing litter.

8.6 Cover Material Requirements

A daily cover with at least 6 inches of earthen material or an approved Alternative Daily Cover (ADC) will be placed over the exposed solid waste at the end of each operating day or more frequently, if needed. The cover is used to prevent and control disease vectors, fires, odors, blowing litter and scavenging at the facility. The material will be compacted sufficiently to minimize washout and keep any rainfall from exiting the active disposal area.

As part of this Tier III Permit Modification, Oklahoma Landfill proposes to use spray-type ADCs (e.g., ConCover, AIRTROL® Plaster, Second Nature®, Refiber, BioCover, or an approved equivalent), a tarp ADC (e.g., DURASHIELD, Fabrisoil, HDPE flexible membrane liner materials, or an equivalent material), contaminated material ADC, wood chip ADC, or tire chip ADC. In accordance with Section 252:515-19-51(d) of the ODEQ Municipal Solid Waste Regulations, material characteristics, operation methods and inspection procedures are discussed below.

8.6.1 Spray Type ADC

- General Material Description – The spray type ADC materials that will be used at this site are composed of the following materials.
  - Wood fiber, corrugated fiber, and/or recycled paper

  - Guar gum tackifier and/or other polymers
  - Water or leachate. If leachate is utilized, the spray type ADC material will only be utilized over a composite lined area, including recirculation barrier lined areas.

  The material is mixed in a hydromulch machine and applied to the working face where it forms a crust-like barrier after application. This barrier prevents odors, windblown litter, and also creates a barrier between the solid waste material and vectors.

- Operational Methods – The spray type operational method includes the following:
  - The operator will be familiar with the product to be used prior to use of the ADC.
  - The operator will not operate the machine until qualified personnel have trained him.
  - The operator will mix the spray ADC according to the manufacturer's recommendation.
  - The operator will spread the material on the working face and verify that the entire area is covered with the minimum specified thickness. If the thickness is not sufficient to control vectors, odors, windblown litter, and waste the operator will spray additional material to satisfy this requirement.
  - The operator will then take the machine to an appropriate place to be washed, cleaned, and stored for use the following day.
- ADC Verification and Inspection Procedures – At the end of each working day, site personnel will visually inspect the working face to verify that the approved ADC has been placed over the exposed wastes. Site personnel will also routinely assess the effectiveness of the ADC in controlling vectors, fires, odors, and windblown waste.

8.6.2 Tarp ADC

- General Material Description – The tarp ADC materials that will be used at this site will typically be composed of synthetic materials. Tarp options will include, but not be limited to, DURASHIELD, Fabrisoil, or an equivalent material.
- Operational Methods – The tarp ADC operational method includes the following:
  - Panels of ADC material will be pulled over the working face.

  - The perimeter of the tarps will be anchored appropriately with tires, dirt, sandbags, or similar material.
  - The tarps will be removed the following morning by pulling across itself (to reduce drag) and stored in an inactive area.

- ADC Verification and Inspection Procedures – At the end of each working day, site personnel will visually inspect the working face to verify that the approved ADC has been placed over the exposed wastes. Site personnel will also routinely assess the effectiveness of the ADC in controlling vectors, fires, odors, and windblown waste.

8.6.3 Contaminated Material

- General Material Description – The contaminated materials that will be used at this site will meet the sampling standards included in the Waste Exclusion Plan. Each contaminated material generator will provide a laboratory analysis indicating compliance with the site Waste Exclusion Plan for each specific contaminated material. Waste Connections will request ODEQ approval for each contaminated generator and specific contaminated material prior to use as an ADC.
- Operational Method – The contaminated material ADC operational method includes the following:
  - At least 6 inches of contaminated material will be placed over the working face.
  - The working area will be surrounded by a contaminated water containment berm and stormwater diversion berm.
  - The contaminated material will be covered with waste within a 24-hour period.
- ADC Verification and Inspection Procedures – At the end of each working day, site personnel will visually inspect the working face to verify that the approved ADC has been placed over the exposed wastes. Site personnel will also routinely assess the effectiveness of the ADC in controlling vectors, fires, odors, and windblown waste.

8.6.4 Wood Chips ADC

- General Material Description – The wood chips (mixed with 50% soil) that will be used at this site will be the chippings of clean wood material, brush, and/or leaves.
- Operational Methods – The wood chip material ADC operational method includes the following:

  - At least 6 inches of wood chips will be placed over the working face.
  - The working area will be surrounded by a contaminated water containment berm and stormwater diversion berm.
  - The wood chips will be covered with waste within a 24-hour period.
- ADC Verification and Inspection Procedures – At the end of each working day, site personnel will visually inspect the working face to verify that the approved ADC has been placed over the exposed wastes. Site personnel will also routinely assess the effectiveness of the ADC in controlling vectors, fires, odors, and windblown waste.

8.6.5 Tire Chips ADC

- General Material Description – The tire chips that will be used at this site will be the chippings of waste tires.
- Operational Methods – The tire chip material ADC operational method includes the following:
  - At least six (6) inches of tire chips will be placed over the working face.
  - The working area will be surrounded by a contaminated water containment berm and stormwater diversion berm.
  - The tire chips will be covered with waste within a 24-hour period.
- ADC Verification and Inspection Procedures – At the end of each working day, site personnel will visually inspect the working face to verify that the approved ADC has been placed over the exposed wastes. Site personnel will also routinely assess the effectiveness of the ADC in controlling vectors, fires, odors, and windblown waste.

8.7 Buffer Zones

In accordance with OAC 252:515-19-38, waste-free buffer zones of at least 100 feet offset from the proposed permit boundary for the landfill expansion area included in this permit modification will be maintained. No disposal waste will be placed inside the buffer zone.

8.8 Air Criteria

Currently, the site is subject to NSPS Subpart XXX requirements, given that it has had a capacity increase since July 2014. The site is currently authorized by Title V Operating Permit No. 2016-1126-TVR3, dated June 21, 2017. The site will apply for

an air construction permit prior to beginning construction on the expansion area. The site will continue to follow all applicable NSPS requirements and will maintain compliance with applicable air quality permit requirements. All applicable NSPS and air quality documentation will be placed in the Site Operating Record.

8.9 Salvage or Recyclery Operations

No scavenging will be permitted at the disposal site. However, in accordance with OAC 252:515-19-39, diversion of the appropriate waste streams to recycling facilities with verification of an ODEQ-approved recycling and salvage plan is permitted.

8.10 Disease Control

With the proper compaction and cover of waste, most disease vectors will be eliminated. If a situation warrants, the use of alternative actions will be available as required. Professional exterminators will be contacted, if necessary, to eliminate rodents and other pests.

8.11 Dust Control

Dust resulting from vehicular traffic construction activity and landfill operations will be kept to a minimum within the property through the utilization of a water truck, road base material, and/or vegetation establishment. The site water truck is utilized throughout the day to apply water to various haul roads throughout the site.

In addition, several of the site haul roads are covered with various road base materials, and the top deck access road which is maintained with gravel. Finally, as portions of the landfill are developed to final grade, final or temporary vegetation is established through means of seeding or sodding.

8.12 Dead Animals, Containers, and Municipal Sewage

Muskogee Community RDF may receive dead animals or slaughterhouse wastes. Dead animals and slaughterhouse wastes will be buried at the working face and covered with a minimum of 3 feet of other solid waste or a minimum of 2 feet of soil immediately upon receipt. Additional waste or soil will be added over the dead animals or slaughterhouse wastes if objectionable odors are created by the wastes.

Unless disposed containers follow the criteria below, containers holding liquid wastes will not be disposed of at Muskogee Community RDF in accordance with OAC 252:515-19-72. The containers allowed to be disposed of at the landfill are:

a. containers similar in size and quantity to that normally found in household waste;

b. designed to hold liquids for use other than storage; or

c. derived from household waste.

Municipal sewage sludge treated to Class B requirements as discussed in 40 CFR 503.32(b) is allowed to be disposed of at the Muskogee Community RDF if the sludge passes the Paint Filter Liquids Test (PFLT), EPA Method 9095. If the sludge does not pass the paint filter test, it will be bulked or solidified on-site or removed from the site and disposed of at another permitted site.

8.13 Animal Feeding

In accordance with OAC 252:515-17-2(i), no domestic animals except for guard dogs will be allowed on the site. Furthermore, no animals will be allowed near the active disposal area.

8.14 Discharge

Contaminated water or leachate is currently pumped to a leachate storage area which discharges to the City of Muskogee sanitary sewer system. Additional discussion on contaminated water and leachate management is included in Section 7.2.

8.15 Waste Placement

In accordance with OAC 252:515-19-38(a), no waste will be placed or allowed to enter waters that come in contact with waters of the State located outside the permit boundary. This is further addressed in Section 7. No waste will be allowed in the buffer zones as outlined in Section 8.7.

8.16 Accident Prevention and Safety

Safety training will be provided to new employees as well as refresher courses for current employees in safety and accident prevention.

in Appendix O, outlines acceptance requirements for disposal at Muskogee Community RDF.

8.19 Exclusion of Hazardous Waste

In accordance with OAC 252:515-29, Muskogee Community RDF has developed a Waste Exclusion Plan designed to prevent the receipt of hazardous waste, radioactive waste, and PCB waste at the landfill. The Waste Exclusion Plan is included in Appendix O. This proactive plan minimizes the potential for hazards or otherwise unacceptable wastes to be transported to the site for disposal. Implementation of this plan provides protection from the potential dangers that a waste could pose to employees, the public, or the environment.

9 CLOSURE AND POSTCLOSURE PLAN

The closure and postclosure plan is included in Appendix P. These plans were developed to meet the requirements of OAC 252:515-25. The closure plan will include the necessary actions to certify the facility as closed. While the postclosure plan sets forth the maintenance and monitoring during the postclosure period.

10 CLOSURE AND POSTCLOSURE COST ESTIMATES

The Cost Estimates for closure and postclosure care has been prepared consistent with OAC 252:515-27-31 through 34. Cost estimates are required for solid waste landfill facilities whose debts and liabilities could become the debts and liabilities of a state or the United States (i.e., in the event of forced closure, which occurs when an operational municipal solid waste landfill facility can no longer operate because of an inability to manage the incurred debts and liabilities). As such time, the responsibility for closure would be assumed by the ODEQ. The closure and postclosure cost estimates are provided in Appendix Q.

FIGURES

In accordance with OAC 252-515-1-4(b) and 252-515-3-51(e), figures/drawings have been provided in an alternative scale. The alternative scales are clearly identified on each figure/drawing.

Figure 1 General Site Location Map

Figure 2 Topographic Site Location Map

Figure 3 Land Use Map

Figure 4 Flood Insurance Rate Map (FIRM)

Figure 5 Regional Geology Map and Stratigraphic Column

Figure 6 Regional Geologic Cross-Section

Figure 7 USGS Seismic Impact Zone Map

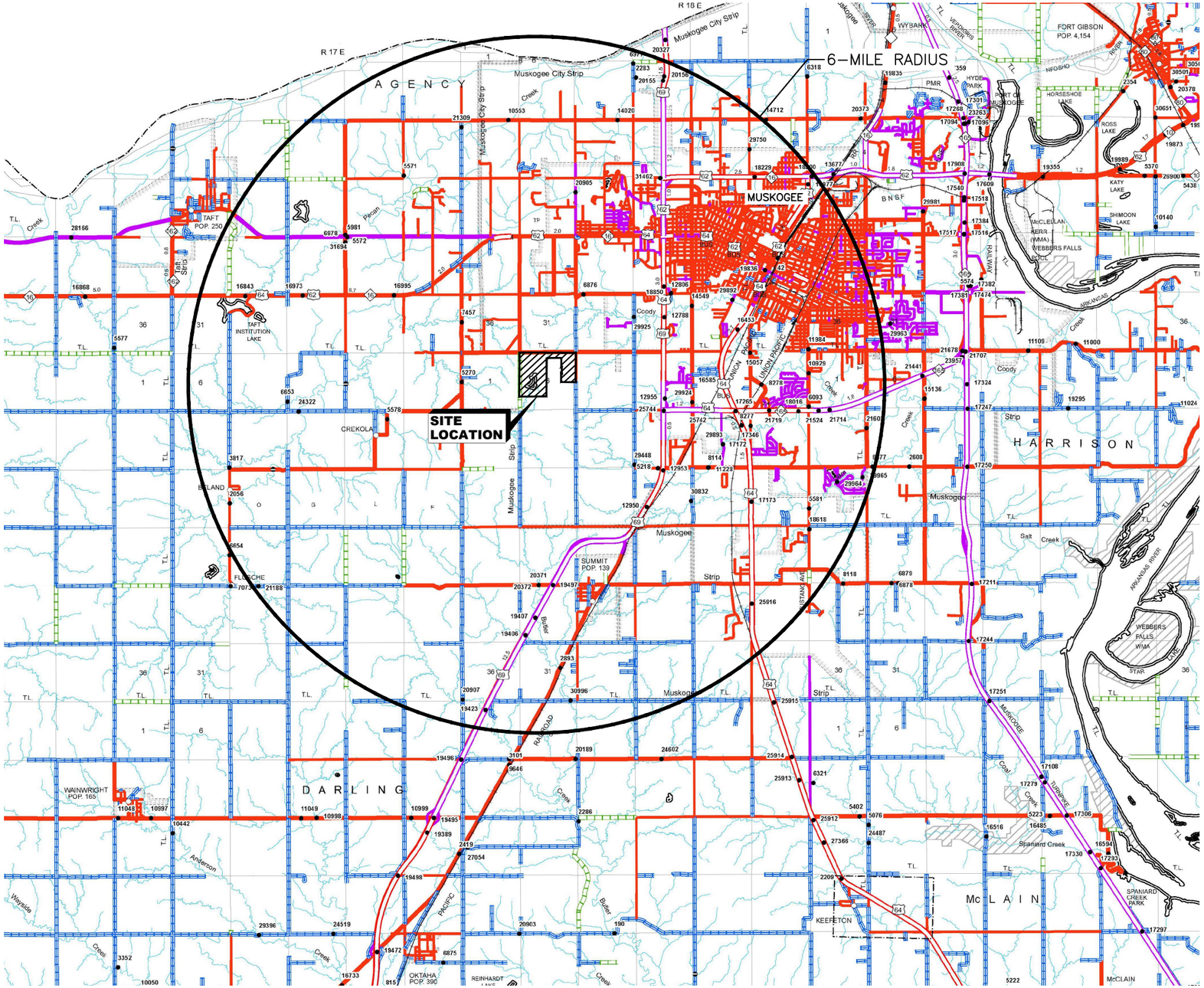
Figure 8 Surface Geologic Map

Figure 9 Groundwater Resource and Recharge Area Map

Figure 10 Public and Private Water Wells

Figure 11 Existing and Proposed Monitoring Well Locations

Figure 12 Existing and Proposed Landfill Gas Probe Locations



0 1 2
SCALE IN MILES

Legend

- Interstate Highway
- US Highway
- State Highway
- Divided Highway - Asphalt
- Divided Highway - Concrete
- Asphalt
- Concrete
- Gravel
- Grade & Drain
- Unimproved
- Railroad
- State Line
- County Line
- Section Line
- Corporate Limit
- Wildlife Management Area
- Wildlife Refuge
- River or Stream
- Lake or Reservoir
- Bridges
- Low Water Crossing
- Natural Elevation Point
- Natural Elevation Point

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NOTES:

1. REPRODUCED FROM GENERAL HIGHWAY MAPS, MUSKOGEE COUNTY, OKLAHOMA, (OK DOT STRATEGIC ASSET AND PERFORMANCE MANAGEMENT DIVISION OCTOBER 2018).
2. REFER TO FIGURE 11 FOR WASTE DISPOSAL AREAS AND BUFFERING ZONE.

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DATE: 10/2023
FILE: 0086-364-11
CAD: FIG 1-SITE LOCATION MAP.DWG

DRAWN BY: RAA
DESIGN BY: JBP
REVIEWED BY: JVQ

Weaver Consultants Group
CA 3804 PE-06/30/2025

PREPARED FOR
WASTE MANAGEMENT OF OKLAHOMA, INC.

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NO.	DATE	DESCRIPTION

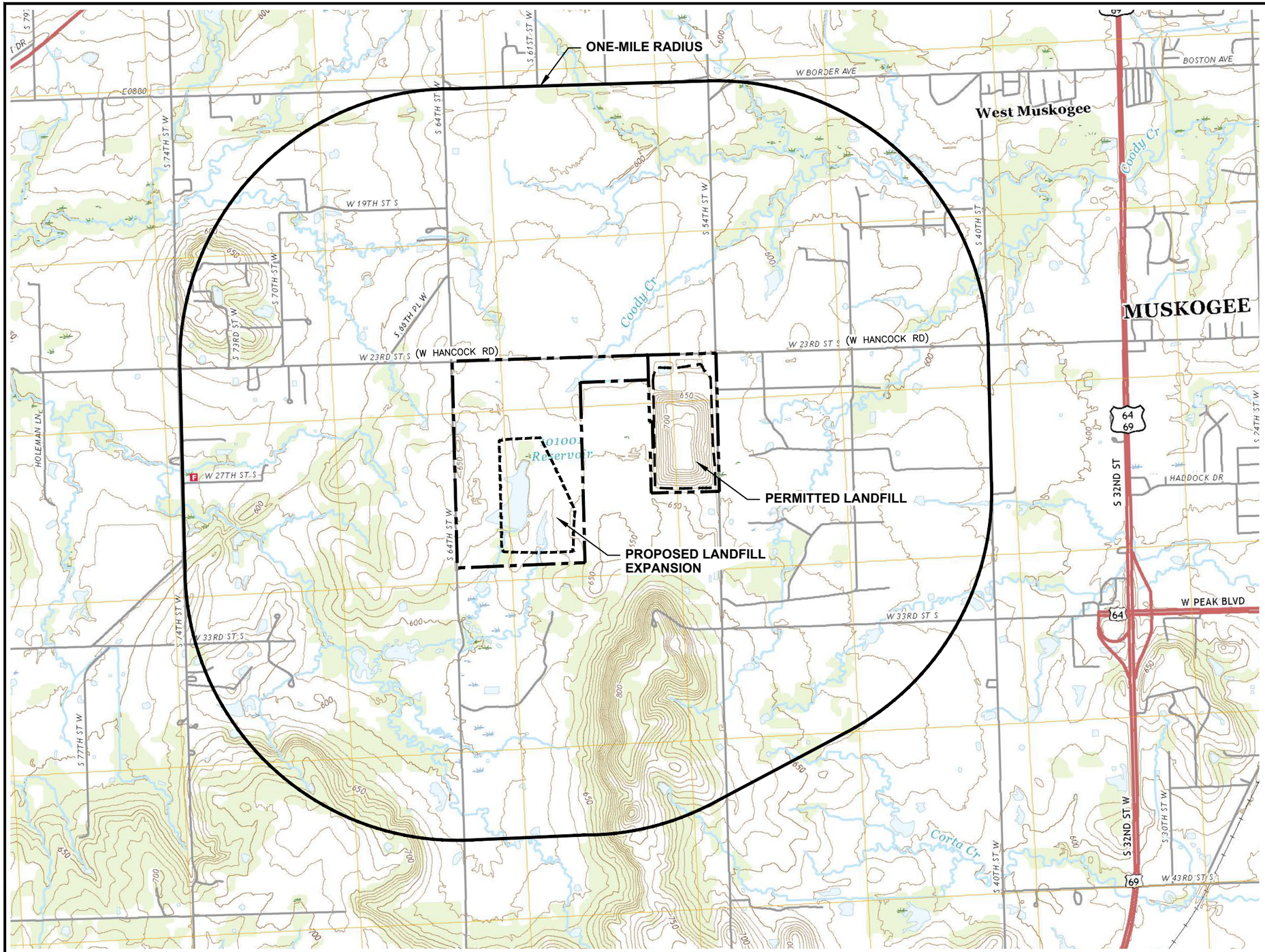
TIER III PERMIT MODIFICATION
GENERAL SITE LOCATION MAP

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FIGURE 1

0:\0086\364\EXPANSION 2022\INTRO TEXT\FIG 1-SITE LOCATION MAP.dwg, smurrey, 1:2



0 1000 2000
SCALE IN FEET

LEGEND

- EXISTING PERMIT BOUNDARY
- PROPOSED PERMIT BOUNDARY
- PERMITTED LIMITS OF WASTE
- PROPOSED LIMITS OF WASTE

ROAD CLASSIFICATION

Expressway	Local Connector
Secondary Hwy	Local Road
Ramp	4WD

Interstate Route · US Route · State Route

NOTES:

1. ADAPTED FROM USGS 7.5 MINUTE QUADRANGLE TOPOGRAPHIC MAP (MUSKOGEE COUNTY, OKLAHOMA, 2018).
2. THE MAP AREA SHOWN IS WITHIN TOWNSHIP 14 NORTH, RANGE 18 EAST.

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SOUTHWEST MUSKOGEE, OK
2018

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CAD: FIG 2-TOPO. SITE LOCATION MAP.DWG

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DESIGN BY: JBP
REVIEWED BY: JVQ

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TOPOGRAPHIC SITE LOCATION MAP

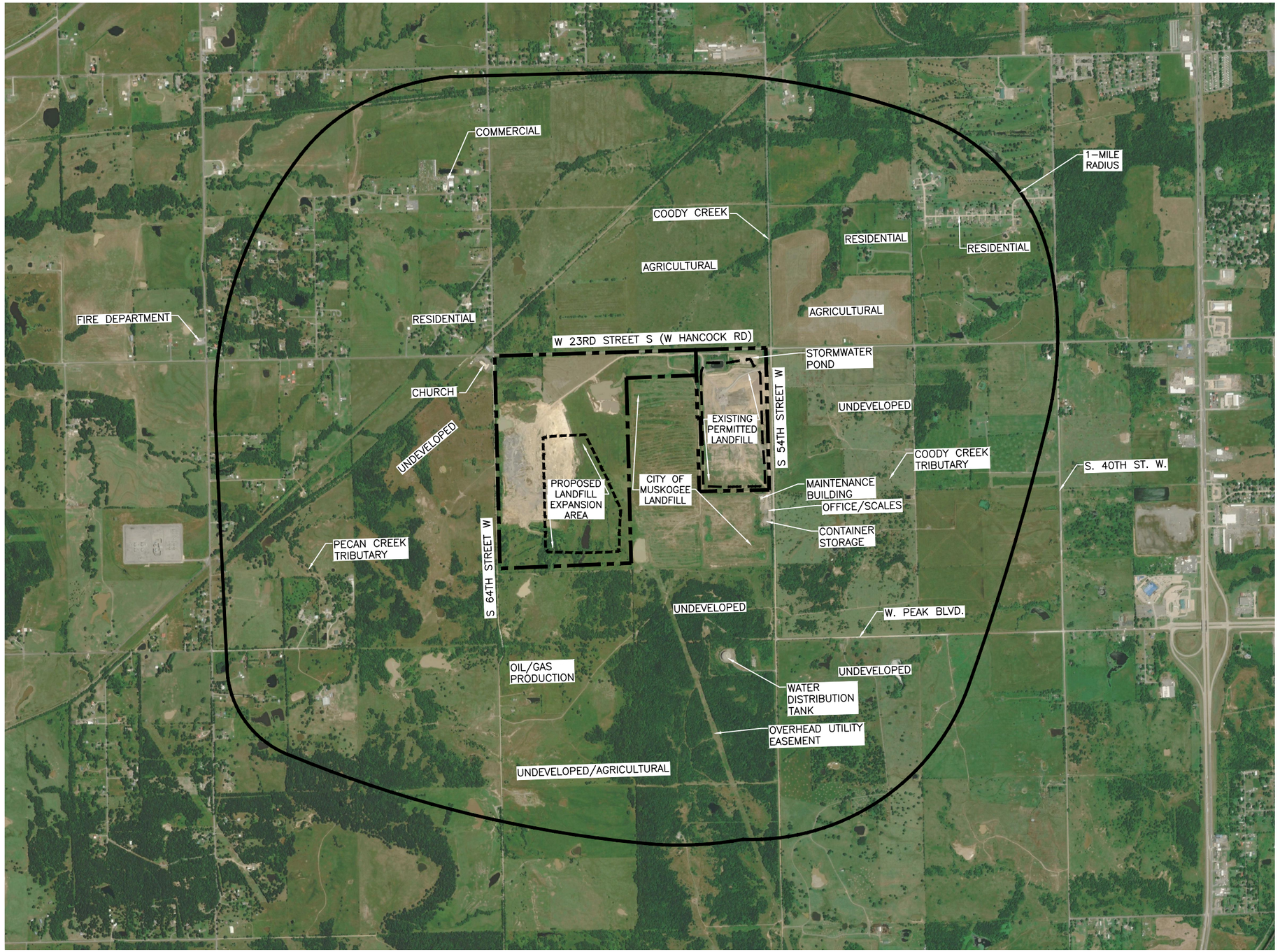
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FIGURE 2

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O:\0086\364\EXPANSION 2022\INTRO TEXT\FIG 2-TOPOGRAPHIC SITE LOCATION MAP.dwg, shurrey, 1:2



N

0 1000 2000

SCALE IN FEET

LEGEND

- EXISTING PERMIT BOUNDARY
- PROPOSED PERMIT BOUNDARY
- PERMITTED LIMITS OF WASTE
- PROPOSED LIMITS OF WASTE

NOTE:

1. AERIAL PHOTOGRAPHY OBTAINED FROM GOOGLE EARTH, DATED JUNE 10, 2020.
2. THE CITY OF MUSKOGEE LANDFILL IS NOT PART OF THE PROPOSED EXPANSION AND IS SHOWN FOR REFERENCE PURPOSES.
4. PERMIT BOUNDARY AND EXISTING OVERHEAD EASEMENTS WERE REPRODUCED FROM LEGAL DESCRIPTION PREPARED BY WEAVER CONSULTANTS GROUP, SIGNED BY MICHAEL D BYTNER, LLS# 1986.

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CAD: FIG 3-LAND USE MAP.DWG

DRAWN BY: SRF
DESIGN BY: JBP
REVIEWED BY: JVQ

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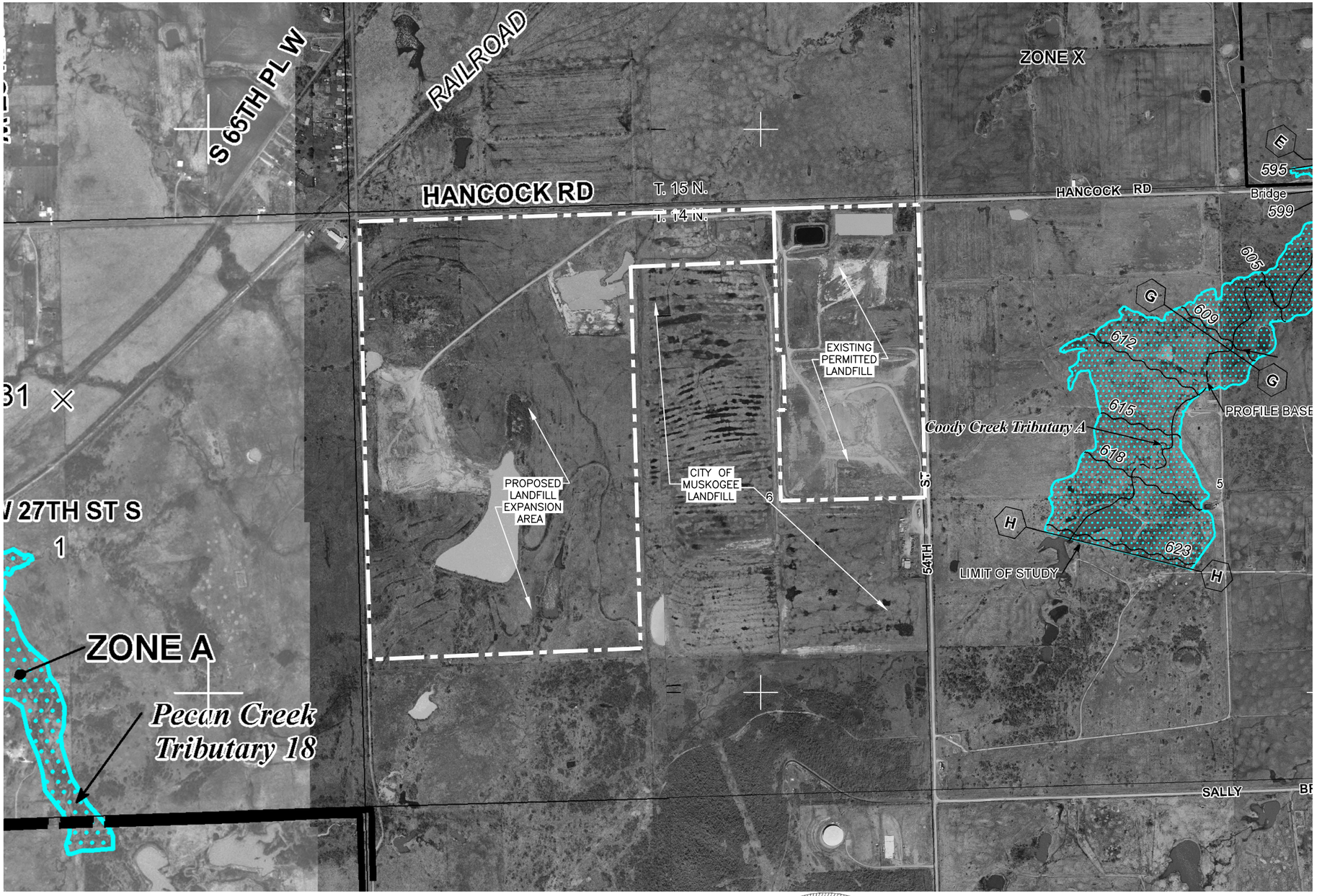
TIER III PERMIT MODIFICATION LAND USE MAP

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FIGURE 3

O:\0086\364\EXPANSION 2022\INTRO TEXT\FIG 3-LAND USE MAP.dwg, smurray, 1:2



N

0 500 1000
SCALE IN FEET

LEGEND

EXISTING PERMIT BOUNDARY

PROPOSED PERMIT BOUNDARY

SPECIAL FLOOD HAZARD AREAS SUBJECT TO INUNDATION BY THE 1% ANNUAL CHANCE FLOOD

The 1% annual chance flood (100-year flood), also known as the base flood, is the flood that has a 1% chance of being equaled or exceeded in any given year. The Special Flood Hazard Area is the area subject to flooding by the 1% annual chance flood. Areas of Special Flood Hazard include Zones A, AE, AH, AO, AR, A99, V, and VE. The Base Flood Elevation is the water-surface elevation of the 1% annual chance flood.

ZONE A No Base Flood Elevations determined.

ZONE AE Base Flood Elevations determined.

ZONE AH Flood depths of 1 to 3 feet (usually areas of ponding); Base Flood Elevations determined.

ZONE AO Flood depths of 1 to 3 feet (usually sheet flow on sloping terrain); average depths determined. For areas of alluvial fan flooding, velocities also determined.

ZONE AR Special Flood Hazard Area formerly protected from the 1% annual chance flood by a flood control system that was subsequently decertified. Zone AR indicates that the former flood control system is being restored to provide protection from the 1% annual chance or greater flood.

ZONE A99 Areas to be protected from 1% annual chance flood event by a Federal flood protection system under construction; no Base Flood Elevations determined.

ZONE V Coastal flood zone with velocity hazard (wave action); no Base Flood Elevations determined.

ZONE VE Coastal flood zone with velocity hazard (wave action); Base Flood Elevations determined.

FLOODWAY AREAS IN ZONE AE

The floodway is the channel of a stream plus any adjacent floodplain areas that must be kept free of encroachment so that the 1% annual chance flood can be carried without substantial increases in flood heights.

OTHER FLOOD AREAS

ZONE X Areas of 0.2% annual chance flood; areas of 1% annual chance flood with average depths of less than 1 foot or with drainage areas less than 1 square mile; and areas protected by levees from 1% annual chance flood.

OTHER AREAS

ZONE X Areas determined to be outside the 0.2% annual chance floodplain.

ZONE D Areas in which flood hazards are undetermined, but possible.

COASTAL BARRIER RESOURCES SYSTEM (CBRS) AREAS

OTHERWISE PROTECTED AREAS (OPAs)

CBRS areas and OPAs are normally located within or adjacent to Special Flood Hazard Areas.

1% annual chance floodplain boundary

0.2% annual chance floodplain boundary

Floodway boundary

Zone D boundary

CBRS and OPA boundary

Boundary dividing Special Flood Hazard Area Zones and boundary dividing Special Flood Hazard Areas of different Base Flood Elevations, flood depths, or flood velocities

513 — Base Flood Elevation line and value; elevation in feet*

(EL 987) — Base Flood Elevation value where uniform within zone; elevation in feet*

* Referenced to the North American Vertical Datum of 1988

A — A — Cross section line

23 — 23 — Transect line

97°07'30", 32°22'30" — Geographic coordinates referenced to the North American Datum of 1983 (NAD 83), Western Hemisphere

4275000mE — 1000-meter Universal Transverse Mercator grid ticks, zone 15

6000000 FT — 5000-foot grid values: Oklahoma State Plane coordinate system, North Zone (FIPSZONE = 3501), Lambert projection

DX5510 — Bench mark (see explanation in Notes to Users section of this FIRM panel)

M1.5 — River Mile

NOTES:

1. THE PERMIT BOUNDARY WAS REPRODUCED FROM A LEGAL DESCRIPTION PREPARED BY WEAVER CONSULTANTS GROUP.
2. FLOODPLAIN REPRODUCED FROM FLOOD RATE INSURANCE MAPS (40101C0250F AND 401010235F) DATED FEBRUARY 4, 2011.

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REVIEWED BY: JVQ

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FLOOD INSURANCE RATE MAP (FIRM)

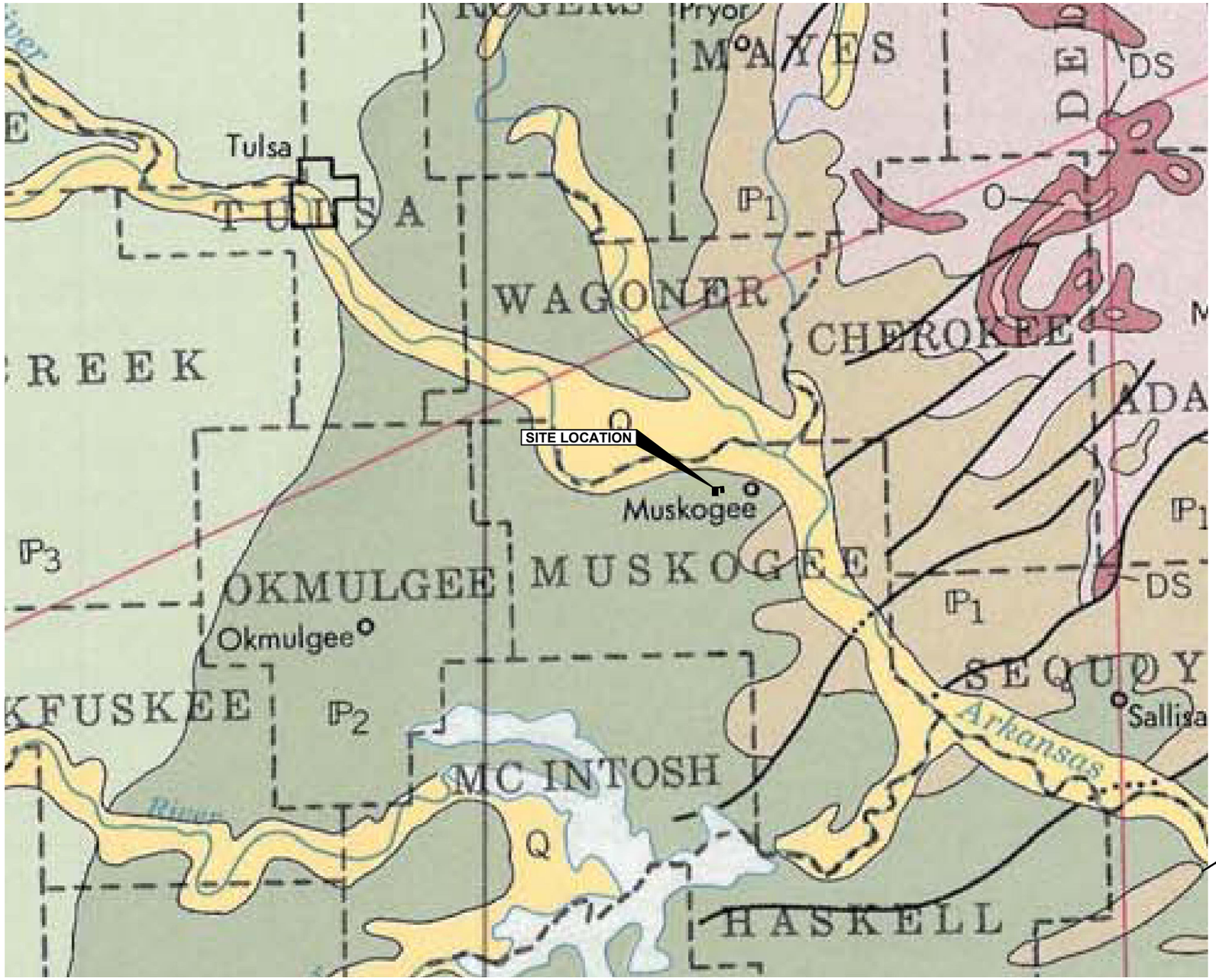
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FIGURE 4

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O:\0086\364\EXPANSION 2022\INTRO TEXT\FIG 4-FIRM.dwg, 8.5x11 (2)



N

0 5 10

SCALE IN MILES

Sedimentary Rocks

- Q — QUATERNARY. Sand, silt, clay, and gravel in flood plains and terrace deposits of major rivers. Generally 25 to 100 feet thick.
- T — TERTIARY. Sand, clay, gravel, and caliche deposited from ancient rivers draining Rocky Mountains. Generally 50 to 500 feet thick.
- K_2, K_1 — CRETACEOUS. Nonmarine sand and clay and marine limestone and clay up to 3,000 feet thick in southeast. Marine sandstone and shale are about 200 feet thick in Panhandle.
- J — JURASSIC. Nonmarine shale, sandstone, and conglomerate in Panhandle. Generally 250 to 500 feet thick.
- Ṛ — TRIASSIC. Nonmarine shale and sandstone in Panhandle. Commonly 200 to 500 feet thick.
- P_4, P_3, P_2, P_1 — PERMIAN. Dominantly shallow-marine, deltaic, and alluvial deposits of red sandstone and shale. Gypsum outcrops (white) are conspicuous, and thick salt units are widespread in subsurface. Generally 1,000 to 4,500 feet thick.
- P? — PERMIAN(?). Marine limestone, sandstone, and shale with Permian-Pennsylvanian transitional fossils. Thickness, 500 to 2,000 feet.
- P_3, P_2, P_1 — PENNSYLVANIAN. Dominantly marine shale, with interbedded sandstone, limestone, and coal. Thickness commonly 2,000 to 5,000 feet, but much greater in Anadarko basin (16,000 feet), Ardmore basin (15,000 feet), Ouachita Mountains (15,000 feet), and Arkoma basin (18,000 feet). Thick conglomerate near Wichita and Arbuckle Mountains.
- M — MISSISSIPPIAN. Mostly cherty marine limestone 300 to 3,000 feet thick in north. Elsewhere, rocks are mostly marine shale and sandstone 1,000 to 5,000 feet thick, and 10,000 feet thick in Ouachita Mountains.
- DS — DEVONIAN-SILURIAN. Marine limestone 100 to 800 feet thick, overlain by black shale 50 to 500 feet thick. In Ouachita Mountains, units are chert, shale, and sandstone 500 to 1,200 feet thick.
- O — ORDOVICIAN. Marine limestone and dolomite, with some sandstone and shale. Thickens from 1,000 feet in north to 9,000 feet in south. In Ouachita Mountains, unit is shale, sandstone, and cherty limestone.
- C — CAMBRIAN. Marine limestone and dolomite, with a basal sandstone. Generally 500 to 2,000 feet thick.

Igneous Rocks

- Tb — TERTIARY. Basaltic lava flow 50 to 85 feet thick in northwest corner of Panhandle. Caps Black Mesa.
- Ci — CAMBRIAN. Granite, rhyolite, and gabbro in Wichita Mountains and rhyolite in Arbuckle Mountains. Formed about 525 million years ago; nearly 20,000 feet thick. In subsurface (cross section), includes metamorphic rocks that may be partly Precambrian.
- pC — PRECAMBRIAN. Granite, underlying almost all of Oklahoma and cropping out only in the Arbuckle Mountains and Mayes County. Formed 1.05 to 1.35 billion years ago; these are the oldest rocks at the surface in Oklahoma.

Geologic contact

Fault

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10/13/2023

NOTES:

1. ADAPTED FROM THE GENERALIZED GEOLOGIC MAP OF OKLAHOMA COMPILED BY CARL C. BRANSON AND KENNETH S. JOHNSON, DATED 1979.
2. REFER TO FIGURE 11 FOR WASTE DISPOSAL AREA, BUFFER ZONE, AND PERMIT BOUNDARY.

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DRAWN BY: RAA
DESIGN BY: JBP
REVIEWED BY: JVQ

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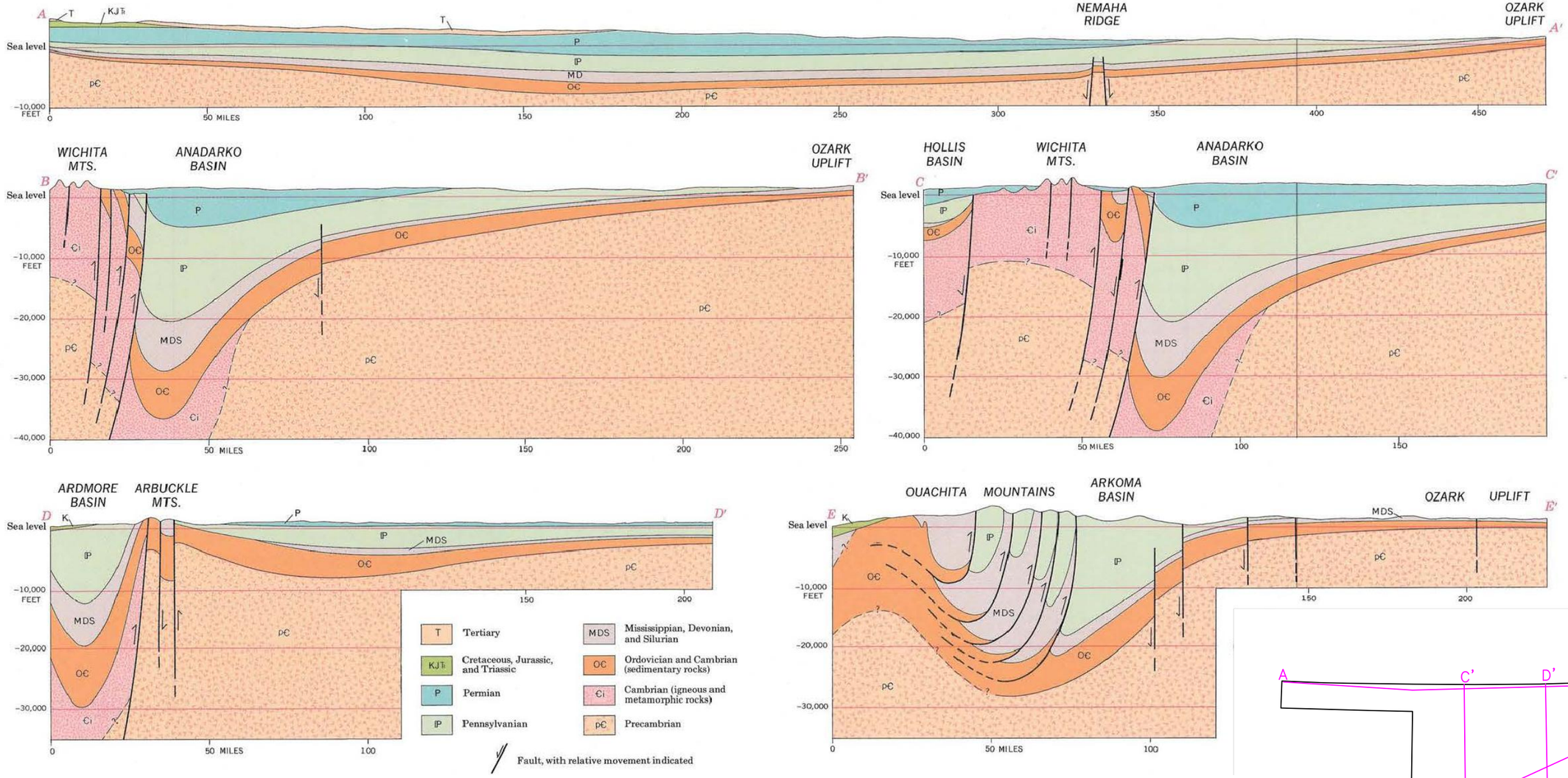
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REGIONAL GEOLOGY MAP AND STRATOGRAPHIC COLUMN

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FIGURE 5

O:\0086\364\EXPANSION 2022\INTRO TEXT\FIG 5-REGIONAL GEOLOGY AND STRAT MAP.dwg, smurrey, 1:2



NOTES:

1. ADAPTED FROM THE GENERALIZED GEOLOGIC CROSS SECTIONS IN OKLAHOMA CREATED BY KENNETH S. JOHNSON, DATED 1979.

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CAD: FIG 6-GEOLOGIC SECTION.DWG
DRAWN BY: RAA
DESIGN BY: JBP
REVIEWED BY: JVQ

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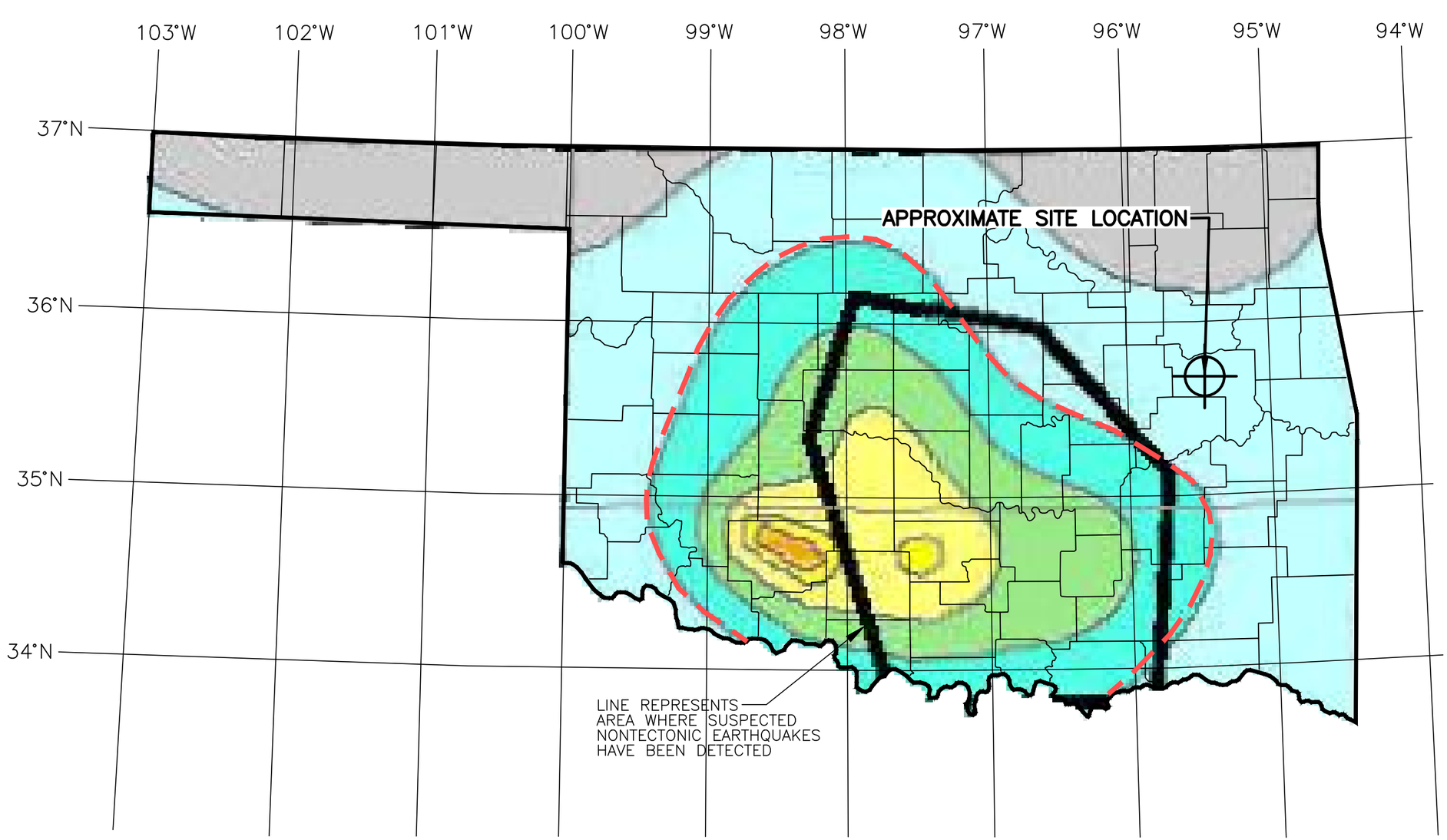
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REGIONAL GEOLOGIC CROSS-SECTION

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FIGURE 6

O:\0086\364\EXPANSION 2022\NTRO TEXT\FIG 6-REGIONAL GEOLOGY SECTION.dwg, smurrey, 12



N

0 100 200

APPROXIMATE SCALE IN MILES

PEAK ACCELERATION
(EXPRESSED AS A FACTION OF STANDARD GRAVITY (g)

0.8
0.4
0.3
0.2
0.14
0.1
0.06
0.04
0.02
0

NOTES:

1. BASED ON USGS 2014 DATA, THE AREA WITHIN THE RED DASHED CONTOUR LINE (10% OF GRAVITATIONAL FORCE OR 0.1g) IS DEFINED BY THE ODEQ AS A SEISMIC IMPACT ZONE.
2. SEISMIC IMPACT ZONE MAP OBTAINED FROM U.S. GEOLOGICAL SURVEY OPEN–FILE REPORT 2014–1091, ENTITLED "2014 UPDATE OF THE UNITED STATES NATIONAL SEISMIC HAZARD MAPS, TWO PERCENT PROBABILITY OF EXCEDENCE OF 50 YEARS MAP OF PEAK GROUND ACCELERATION."
3. ACCORDING TO THE USGS, 2% PROBABILITY OF EXCEDENCE IN 50 YEARS IS STATISTICALLY EQUIVALENT TO A 10% PROBABILITY OF EXCEDENCE IN 250 YEARS.

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DATE: 10/2023
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CAD: FIG 7-SEISMIC ZONE.DWG

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REVIEWED BY: JVQ

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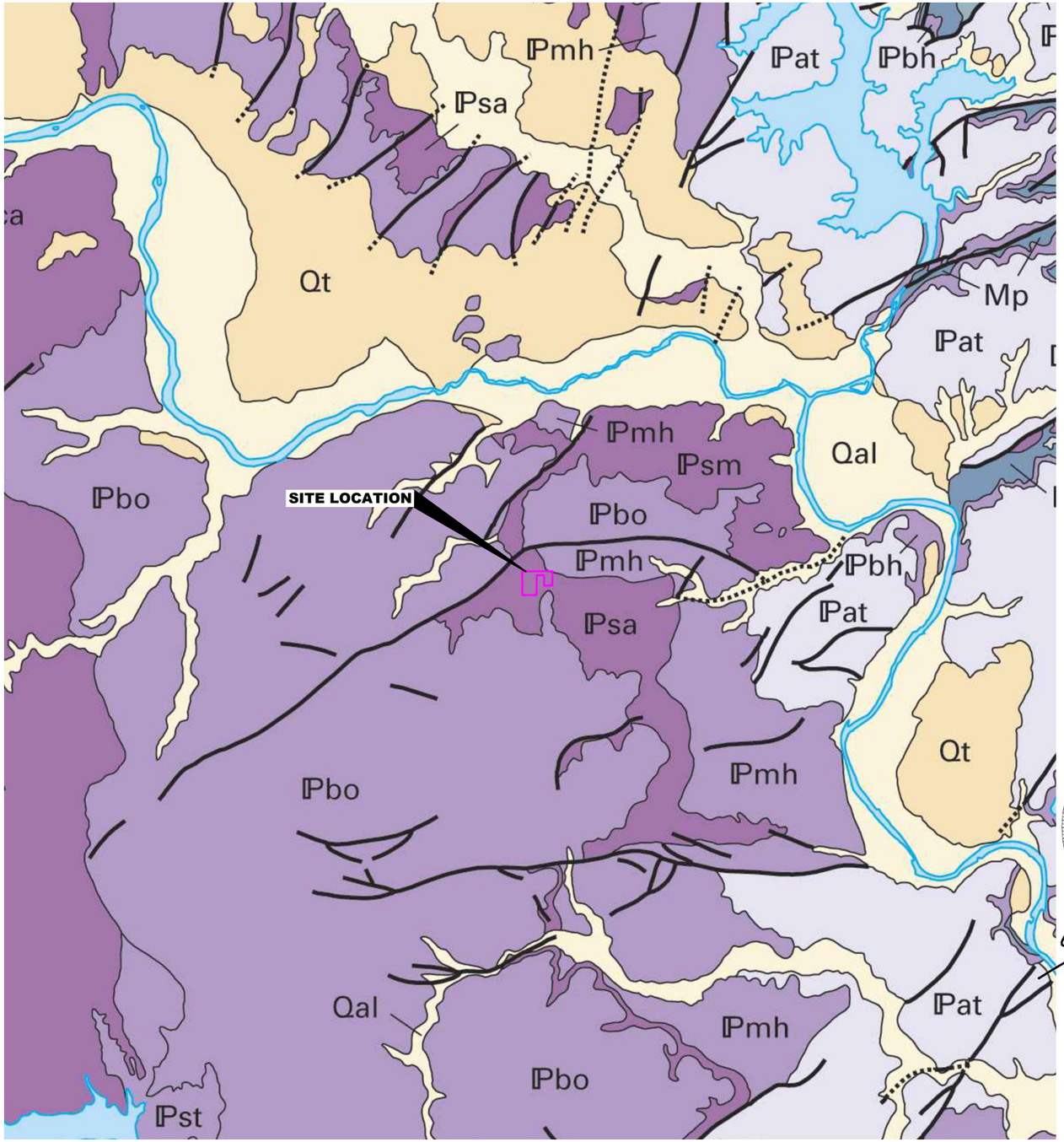
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USGS SEISMIC IMPACT ZONE MAP

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FIGURE 7

G:\0086\364\EXPANSION 2022\INTRO TEXT\FIG 7-SEISMIC ZONE.dwg, smurrey, 1:1



MAP UNITS

Psp	Salt Plains Formation
Pp	Purcell Sandstone
Pk	Kingman Formation or Kingman Siltstone
Pfa	Fairmont Shale
Pg	Garber Sandstone
Pw	Wellington Formation
Pu	Permian rocks undifferentiated
Po	Oscar Group
Pv	Vanoss Group
Pa	Ada Group or Ada Formation
Pva	Vamoosa Group or Vamoosa Formation
Pho	Hoxbar Group
Pht	Hilltop Formation
Pbv	Vamoosa+Tallant+Barnsdall Formations
Pto	Torpedo Formation
Pta	Tallant Formation
Pbd	Barnsdall Formation
Pwi	Wann and Iola Formations or Iola Limestone
Pch	Chanute Formation
Pb	Belle City Formation or Limestone
Pn	Nellie Bly Formation
Phg	Hogshooter Formation
Pd	Dewey Formation or Dewey Limestone
Pnh	Nellie Bly Formation and Hogshooter Limestone
Pcf	Coffeyville or Francis Formation (restricted)
Pcc	Coffeyville and Checkerboard Formations or Checkerboard Limestone
Pde	Deese Group
Pdo	Dornick Hills Group
Psl	Seminole Formation
Phu	Upper Holdenville Formation
Ph	Holdenville Formation or Holdenville Shale
Plp	Lenapah Formation
Phl	Holdenville and Lenapah Formations
Pnw	Nowata Formation
Pol	Oologah Formation
Pw	Wewoka Formation
Pwe	Wetumka Shale
Pca	Calvin Sandstone
Plb	Labette Formation
Pfs	Fort Scott Limestone
Pse	Senora Formation
Pst	Stuart Shale
Pth	Thurman Sandstone
Pbo	Boggy Formation
Pbj	Bluejacket Sandstone
Psa	Savanna Formation
Pm	McAlester Formation
Psm	Savanna and McAlester Formations
Psmh	Savanna+McAlester+Hartshorne Formations
Psma	Savanna+McAlester+Hartshorne+Atoka Formations
Pha	Hartshorne Sandstone
Pmh	McAlester and Hartshorne Formations
Pat	Atoka Formation
Plm	Lynn Mountain Formation
Pbh	Bloyd and Hale Formations
Pu	Atoka, Bloyd and Hale Formations Undifferentiated
Pwa	Wapanucka Formation
Pwal	Wapanucka Formation
Pwas	Wapanucka Formation
Pwc	Wapanucka Formation and Chickachoc Chert
Plg	Limestone Gap
Pul	Union Valley Formation with limestone
Pus	Union Valley Formation with sandstone
Pjv	Johns Valley Formation or Johns Valley Shale
Pjf	Jackfork Group or Jackfork Sandstone
Pmo	Morrowan rocks, undifferentiated
Pmoa	Morrowan-Atokan (?) rocks undifferentiated
Mp	Pitkin+Fayetteville+Hindsville+Moorefield Formations
Mpfh	Pitkin+Fayetteville+Batesville+Hindsville+Moorefield Formations
Mg	Goddard Shale
Md	Delaware Creek Shale
Msw	Sycamore and Welden Limestones
Mst	Stanley Group or Stanley Shale
Mkr	Keokuk and Reeds Spring Formations and St. Joe Group
Mu	Mississippian Rocks above Chattanooga Shale Undifferentiated
MDw	Woodford Shale
MDO	Chattanooga+Fernvale+Fite+Tyner+Burgen+Cotter Formations
MDSO	Undifferentiated, Mississippian, Devonian, Silurian, and Ordovician Rocks
MDSa	Arkansas Novaculite
Da	Arkansas Novaculite
Dw	Woodford Shale
Dp	Pine Top Chert
DSh	Hunton Group
Sm	Missouri Mountain Shale
Sb	Blaylock Sandstone
Smb	Missouri Mountain Shale and Blaylock Sandstone
SmOp	Missouri Mountain and Polk Creek Shales
Op	Polk Creek Shale
Obf	Bigfork Chert
Ow	Womble Formation or Womble Shale
Ovb	Viola Limestone and Bromide Formation
Osfv	Sylvan Shale+Fernvale Limestone and Viola Limestone
Obm	Bromide+Tulip Creek and McLish Formations
Ooj	Oil Creek and Joins Formation
Ows	West Spring Creek Formation
Oua	Upper part of Arbuckle Group
Ok	Kindblade Formation
Owk	West Spring Creek and Kindblade Formations
Ocm	Cool Creek and McKenzie Hill Formations
Ob	Blakely Sandstone
Om	Mazarn Shale
Ocs	Crystal Mountain Sandstone
Oc	Collier Shale
Cat	Lower part of Arbuckle Group and Timbered Hills Group
Cb	Arbuckle Group and Timbered Hills Group
Cth	Timbered Hills Group
Cp	Colbert Porphyry
Cbf	Butterfly Dolomite+Signal Mountain Limestone+Royer Dolomite and Fort Sill Li
Ccr	Carlton Rhyolite Group
Cwg	Wichita Granite Group
Cr	Raggedy Mountain Gabbro Group
pCt	Tishomingo and Troy Granites
pCs	Spavinaw Granite
d	Diorite Sill
	Water
	Unknown

Faults—
normal,
dotted where concealed,
dashed where inferred

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10/13/2023

N

0 10000 20000
SCALE IN FEET

NOTES:

1. ADAPTED FROM THE GEOLOGIC MAP OF THE MIDWEST CITY 7.5' QUADRANGLE OKLAHOMA AND CLEVELAND COUNTIES, OKLAHOMA AND THE GEOLOGIC MAP OF SPENCER 7.5' QUADRANGLE OKLAHOMA COUNTY, OKLAHOMA.

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DESIGN BY: JBP
REVIEWED BY: JVQ

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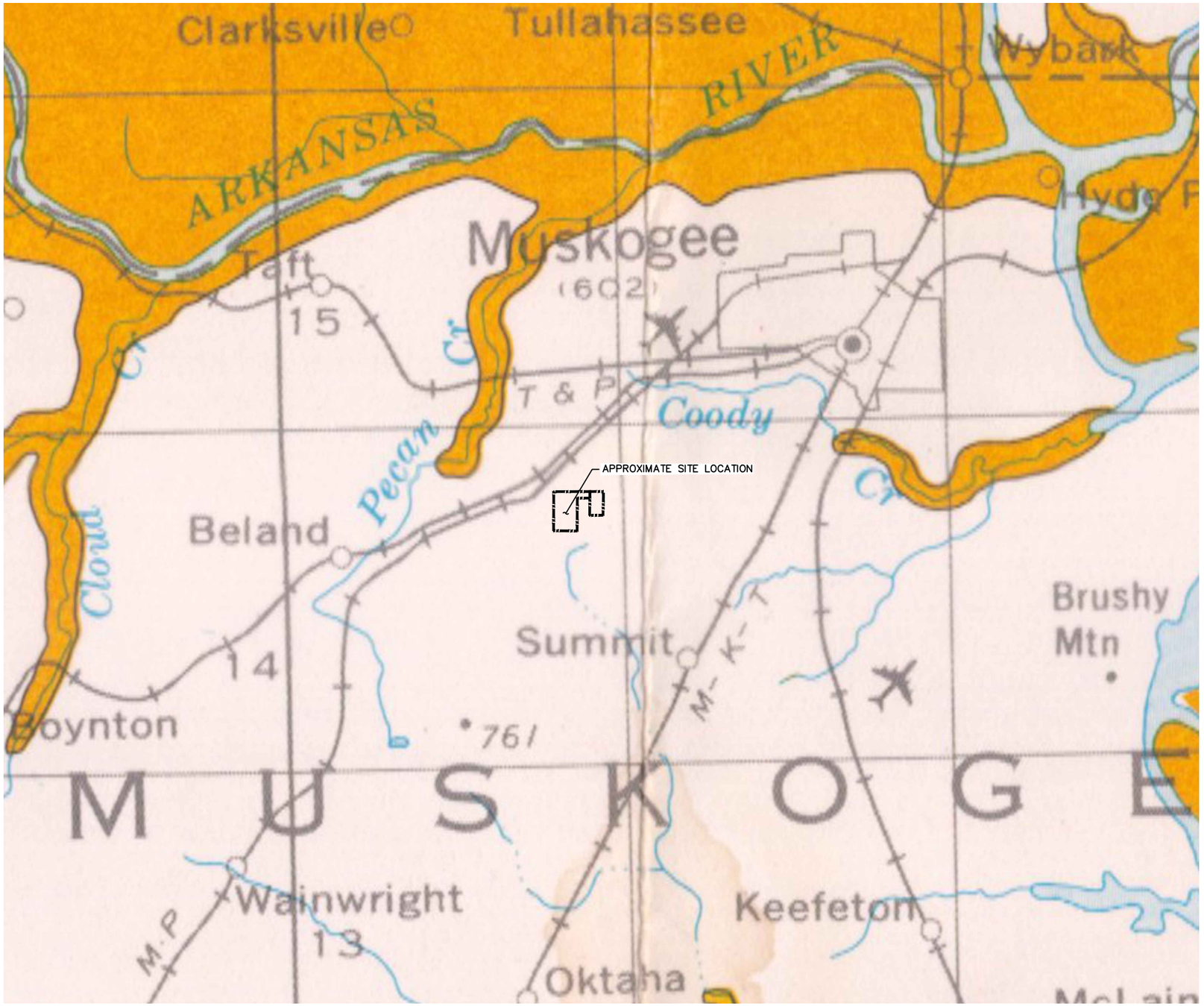
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SURFACE GEOLOGIC MAP

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FIGURE 8

G:\0086\364\EXPANSION 2022\INTRO TEXT\FIG 8-REGIONAL GEOLOGY MAP.dwg, shurry, 1:2



N

0 1 2

SCALE IN MILES

LEGEND

EXISTING PERMIT BOUNDARY

PROPOSED PERMIT BOUNDARY

Alluvium and Terrace Deposits and Their Recharge Areas (Quaternary in age). Unconsolidated deposits of sand, silt, clay, and gravel that occur along or adjacent to modern and ancient streams. Thickness generally ranges from 10 to 50 ft (locally as much as 100 ft). Wells generally yield 10 to 500 gpm of water (locally several thousand gpm), and most water is of good quality (less than 1,000 mg/L dissolved solids). Recharge areas are essentially the same as distribution of the alluvium and terrace deposits.

Bedrock Aquifers and Their Recharge Areas (Cambrian through Tertiary in age). Rock units and sediments that generally are favorable or moderately favorable for development of groundwater resources. Thickness of aquifers generally ranges from 100 ft to several thousand ft. Depths to fresh water range from a few feet to more than 1,000 ft, with most wells 100-400 ft deep. Wells drilled into these aquifers generally yield 25–300 gpm, although wells in some aquifers yield up to 600–2,500 gpm. Water in most aquifers is of good to fair quality (300–1,500 mg/L dissolved solids). Pattern on map also includes known and potential recharge areas for bedrock aquifers.

NOTES:

1. THIS FIGURE SHOWS THE SITE LOCATION ON THE "MAP OF AQUIFERS AND RECHARGE AREAS IN OKLAHOMA," COMPILED BY KENNETH S. JOHNSON, GEOLOGICAL SURVEY, 1991. THE 1991 MAP BRINGS TOGETHER DATA PREVIOUSLY PRESENTED ON TWO MAPS: ONE ON BEDROCK AQUIFERS AND THE OTHER ON ALLUVIUM AND TERRACE DEPOSITS COMPILED BY K.S. JOHNSON, 1983 (MAPS SHOWING PRINCIPAL GROUNDWATER RESOURCES AND RECHARGE AREAS IN OKLAHOMA; OKLAHOMA STATE DEPARTMENT OF HEALTH AND THE OKLAHOMA GEOLOGICAL SURVEY, 2 SHEETS). TYPICALLY, RECHARGE TO ALLUVIAL AND TERRACE DEPOSIT AQUIFERS IS FROM PERCOLATION OF SURFACE WATER FOLLOWING RAINFALL EVENTS.
2. AS SHOWN IN FIGURE, THE PERMIT PROPERTY IS NOT LOCATED WITHIN AN ALLUVIUM OR TERRACE DEPOSIT OR THEIR RECHARGE AREAS, OR A BEDROCK AQUIFER OR THEIR RECHARGE AREAS.

LICENSED PROFESSIONAL ENGINEER
JONATHAN V. QUEEN
24456
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10/13/2023

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DATE: 10/2023
FILE: 0086-364-11
CAD: FIG 9-RECHARGE MAP.DWG

DRAWN BY: RAA
DESIGN BY: JBP
REVIEWED BY: JVQ

Weaver Consultants Group
CA 3804 PE-06/30/2025

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NO.	DATE	DESCRIPTION

TIER III PERMIT MODIFICATION GROUNDWATER RESOURCE AND RECHARGE AREA MAP

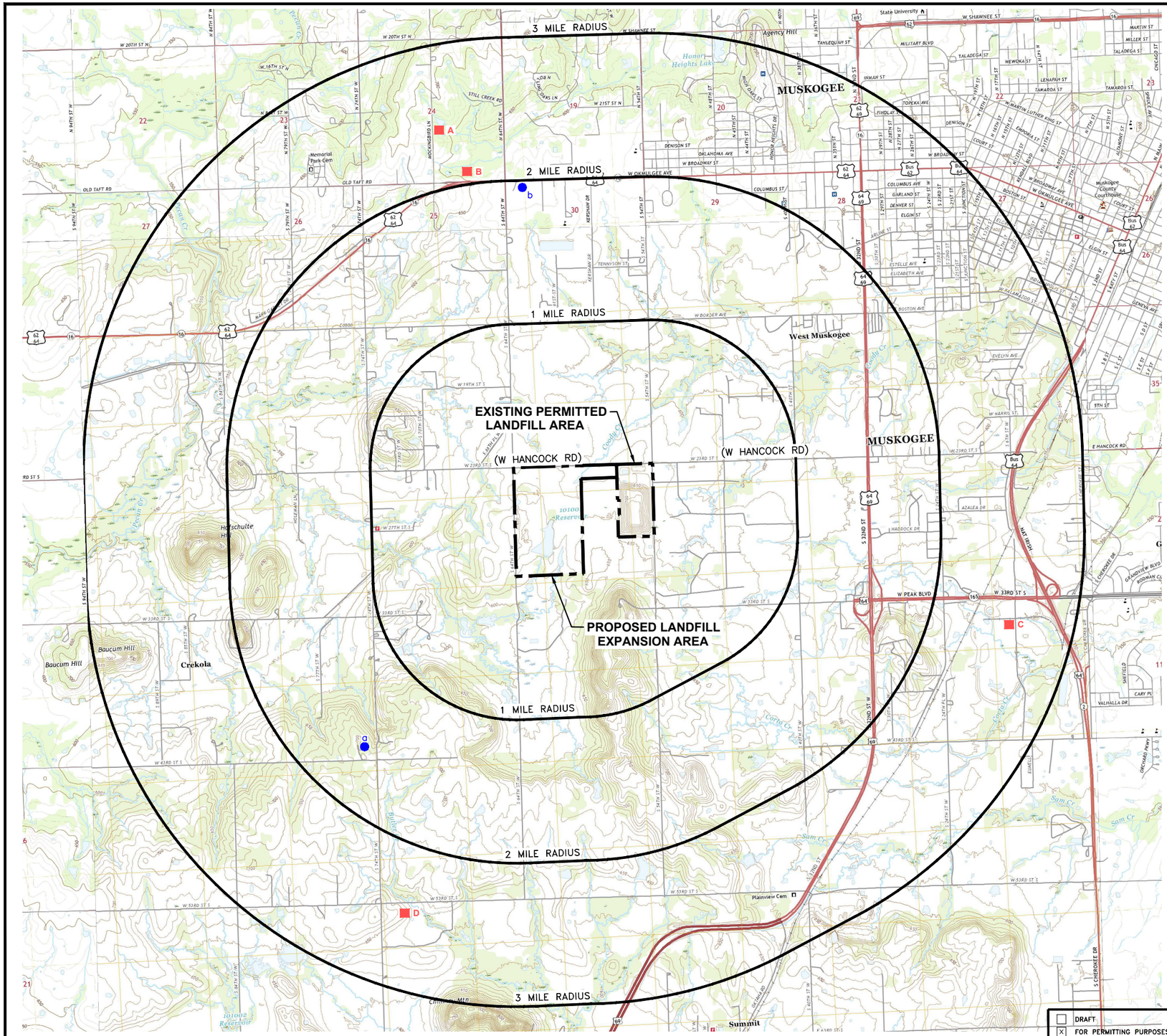
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MUSKOGEE COUNTY, OKLAHOMA

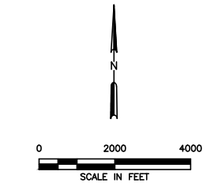
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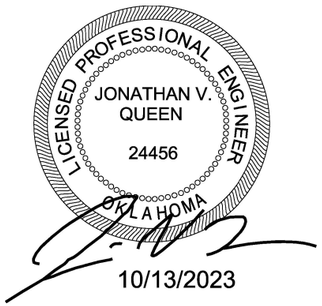
FIGURE 9

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G:\0086\364\EXPANSION 2022\INTRO TEXT\FIG 9-GW RESOURCE AND RECHARGE MAP.dwg, sharrey, 1:2







LEGEND

- EXISTING PERMIT BOUNDARY
- PROPOSED PERMIT BOUNDARY
- a — OWRB PRIVATE WATER WELL LOCATION WITHIN 2.0 MILE OF PROPOSED PERMIT BOUNDARY
- A — OWRB PRIVATE WATER SUPPLY WELL LOCATION WITHIN 3.0 MILES OF PROPOSED PERMIT BOUNDARY

PRIVATE WATER SUPPLY WELLS INSIDE 2 MILE RADIUS				
MAP ID	WELL ID #	OWNER	TOTAL DEPTH	GROUNDWATER ELEVATION
a	23573	B.E. DAVIS	102	N/A*
b	23573	B.E. DAVIS	75	40

PRIVATE WATER SUPPLY WELLS INSIDE 3 MILE RADIUS				
MAP ID	WELL ID #	OWNER	TOTAL DEPTH	GROUNDWATER ELEVATION
A	168576	ANTHIS	140	14
B	185470	DONALD BROOKS	180	60
C	36841	JACK ASHWOOD	175	113
D	71669	JIM HALEY	70	54

* INFORMATION NOT AVAILABLE ON THE OKLAHOMA WATER RESOURCES BOARD WEB PAGE.

NOTES:

1. ADAPTED FROM USGS 7.5 MINUTE QUADRANGLE TOPOGRAPHIC MAP (SOUTHWEST MUSKOGEE, SOUTHEAST MUSKOGEE, NORTHWAST MUSKOGEE, NORTH WEST MUSKOGEE, TAFT, BEELAND, WAIN WRIGHT, OKTAHA AND KEETTON, OK 2022).
2. PERMIT BOUNDARY WAS REPRODUCED FROM LEGAL DESCRIPTION PREPARED BY WEAVER CONSULTANTS GROUP, SIGNED BY MICHAEL D BYTNER, LLS# 1986.
3. PUBLIC WATER WELL RECORDS OBTAINED FROM THE OKLAHOMA WATER RESOURCES BOARD (OWRB) ON–LINE GIS DATABASES (SEPTEMBER 2022).
4. THE OWRB RECORDS INDICATE THERE ARE NO SURFACE WATER INTAKES LOCATED WITHIN 3.0 MILES DOWNSTREAM OF THE FACILITY.
5. NO WATER SUPPLY WELLS IDENTIFIED WITHIN 1 MILE RADIUS.

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CAD: FIG 10-GW RESOURCES/USAGE MAP.DWG

DRAWN BY: RAA
DESIGN BY: JBP
REVIEWED BY: JVQ

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TIER III PERMIT MODIFICATION PUBLIC AND PRIVATE WATER WELLS

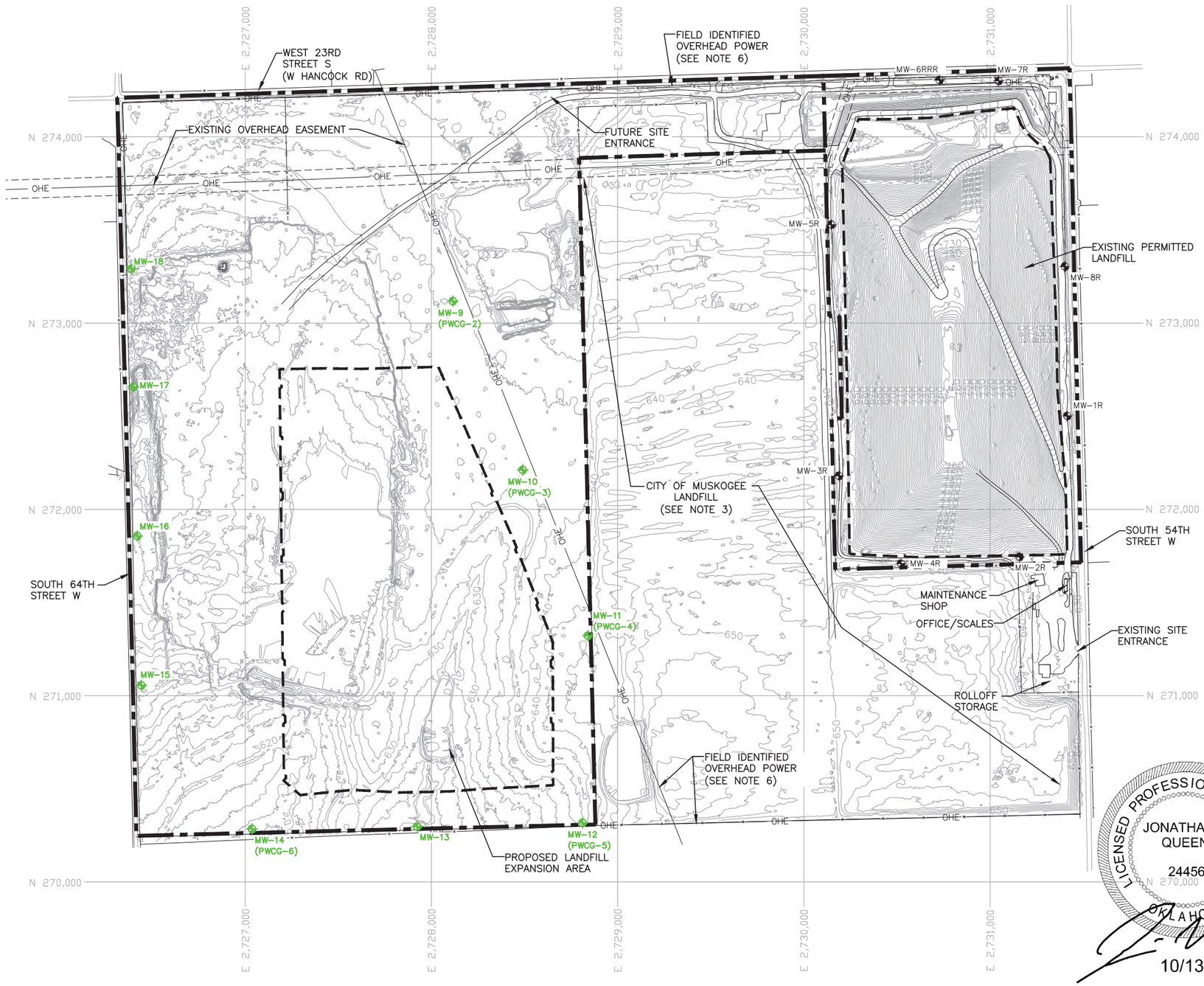
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MUSKOGEE COUNTY, OKLAHOMA

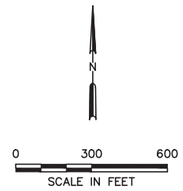
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FIGURE 10

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0:\0086\364\EXPANSION 2022\INTRO TEXT\FIG 10-GW RESOURCES AND USAGE MAP.dwg, smurrey, 1:2



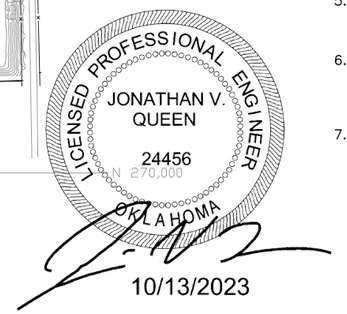


LEGEND

- EXISTING PERMIT BOUNDARY
- PROPOSED PERMIT BOUNDARY
- PERMITTED LIMITS OF WASTE
- PROPOSED LIMITS OF WASTE
- N 273,000 — STATE PLANE COORDINATE GRID
- 640 — EXISTING CONTOUR
- APPROXIMATE OG&E POWER LINE EASEMENT
- MW-5R — EXISTING GROUNDWATER MONITORING WELL
- MW-9 (PWCG-1) — PROPOSED GROUNDWATER MONITORING WELL

NOTES:

1. EXISTING CONTOURS AND ELEVATIONS PROVIDED BY HYDREX ENVIRONMENTAL COMPILED FROM AERIAL PHOTOGRAPHY FLOWN 01-25-2023.
2. THE EXPANSION WILL ADD A SEPARATE UNIT TO THE WEST OF THE EXISTING LANDFILL. NO CHANGES ARE PROPOSED TO THE EASTERN UNIT.
3. THE CITY OF MUSKOGEE LANDFILL IS NOT PART OF THE PROPOSED EXPANSION AND IS SHOWN FOR REFERENCE PURPOSES.
4. FORMER PIEZOMETER DESIGNATION IS SHOWN IN PARENTHESES WHERE APPLICABLE.
5. PERMIT BOUNDARY AND EXISTING OVERHEAD EASEMENTS WERE REPRODUCED FROM LEGAL DESCRIPTION PREPARED BY WEAVER CONSULTANTS GROUP, SIGNED BY MICHAEL D BYTNER, LLS# 1986.
6. AN EASEMENT RECORD WAS NOT FOUND OR PROVIDED TO THE SURVEYOR. THE OVERHEAD POWER RUNNING ALONG THE NORTHERN AND SOUTHERN PROPERTY LINE AND NORTHWEST/SOUTHEAST ACROSS THE PROPERTY WAS FIELD IDENTIFIED AND SURVEYED.
7. A WASTE FREE BUFFER ZONE OF AT LEAST 100-FEET OFFSET FROM THE PROPOSED PERMIT BOUNDARY FOR THE LANDFILL EXPANSION AREA INCLUDED IN THIS MODIFICATION WILL BE MAINTAINED.



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FILE: 0086-364-11
CAD: FIG 11-EXIST. AND PROP. MW.DWG

DRAWN BY: JDW
DESIGN BY: AKE
REVIEWED BY: JBP

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NO.	DATE	DESCRIPTION

TIER III PERMIT MODIFICATION EXISTING AND PROPOSED MONITORING WELL LOCATIONS

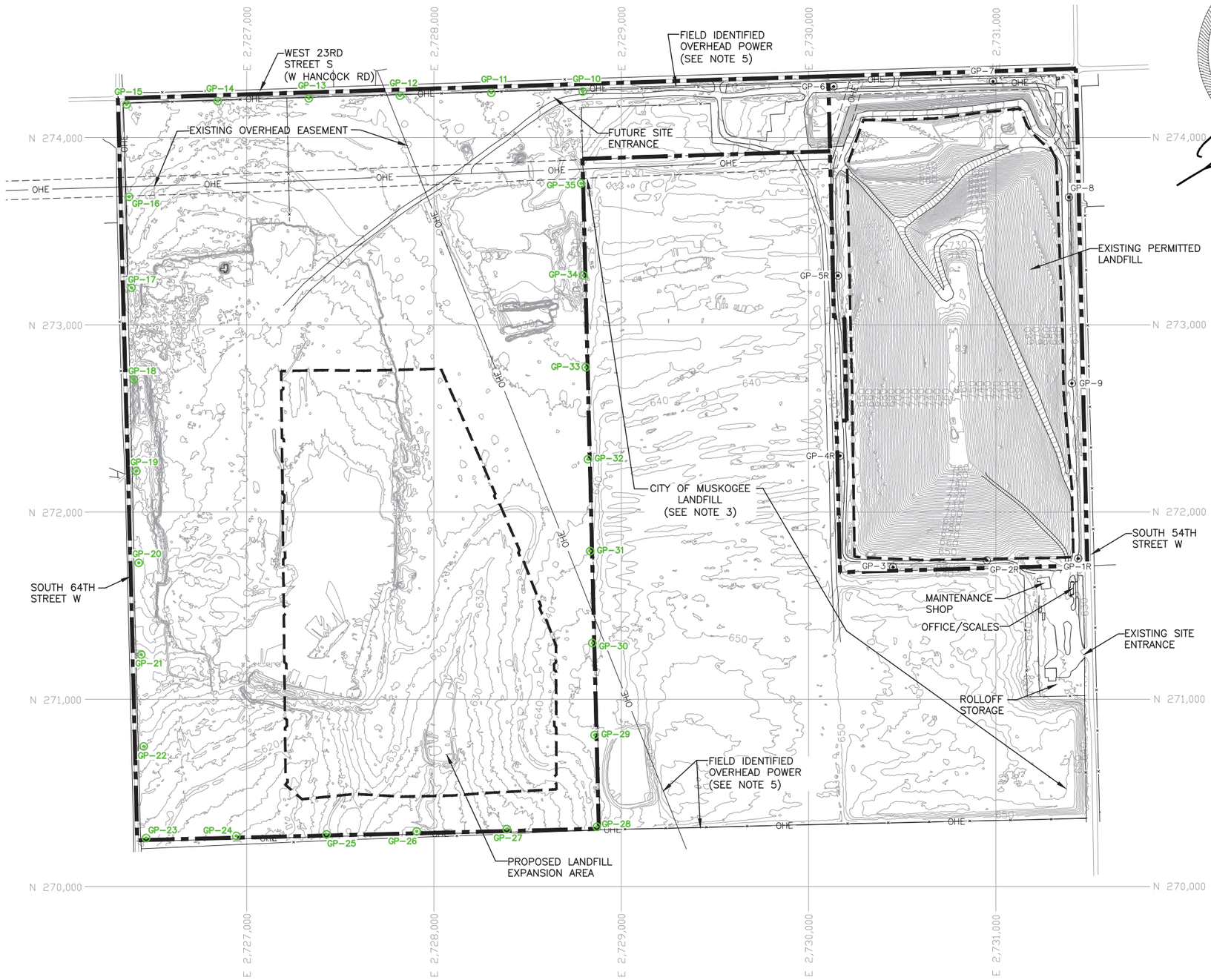
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FIGURE 11

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O:\0086\364\EXPANSION 2022\INTRO TEXT\FIG 11-EXISTING AND PROPOSED MW.dwg, smurrey, 1:2



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10/13/2023

N

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LEGEND

- EXISTING PERMIT BOUNDARY
- PROPOSED PERMIT BOUNDARY
- PERMITTED LIMITS OF WASTE
- PROPOSED LIMITS OF WASTE
- N 273,000 — STATE PLANE COORDINATE GRID
- 640 — EXISTING CONTOUR
- OHE — EXISTING OVERHEAD EASEMENT
- GP-5 — EXISTING LANDFILL GAS MONITORING PROBE
- GP-X — PROPOSED LANDFILL GAS MONITORING PROBE

NOTES:

1. EXISTING CONTOURS AND ELEVATIONS PROVIDED BY HYDREX ENVIRONMENTAL COMPILED FROM AERIAL PHOTOGRAPHY FLOWN 01-25-2023.
2. THE EXPANSION WILL ADD A SEPARATE UNIT TO THE WEST OF THE EXISTING LANDFILL. NO CHANGES ARE PROPOSED TO THE EASTERN UNIT.
3. THE CITY OF MUSKOGEE LANDFILL IS NOT PART OF THE PROPOSED EXPANSION AND IS SHOWN FOR REFERENCE PURPOSES.
4. PERMIT BOUNDARY AND EXISTING OVERHEAD EASEMENTS WERE REPRODUCED FROM LEGAL DESCRIPTION PREPARED BY WEAVER CONSULTANTS GROUP, SIGNED BY MICHAEL D BYTNER, LLS# 1986.
5. AN EASEMENT RECORD WAS NOT FOUND OR PROVIDED TO THE SURVEYOR. THE OVERHEAD POWER RUNNING ALONG THE NORTHERN AND SOUTHERN PROPERTY LINE AND NORTHWEST/SOUTHEAST ACROSS THE PROPERTY WAS FIELD IDENTIFIED AND SURVEYED.

O:\0086\364\EXPANSION 2022\INTRO TEXT\FIG 12-EXISTING AND PROPOSED GAS PROBES.dwg, smurrey, 1:2

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DRAWN BY: SRF
DESIGN BY: MB
REVIEWED BY: JBP

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TIER III PERMIT MODIFICATION EXISTING AND PROPOSED LANDFILL GAS PROBE LOCATIONS

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FIGURE 12

DRAWINGS

In accordance with OAC 252-515-1-4(b) and 252-515-3-51(e), figures/drawings have been provided in an alternative scale. The alternative scales are clearly identified on each figure/drawing.

1 Cover Sheet and Site Vicinity Map
2 Location and Boundary Map
3 Existing Ground Contour Map
4 Existing Permitted Drainage Plan
5 Post-Development Drainage Plan
6 Site Plan
7 Excavation Plan
8 Top of Liner Plan
9 Top of Protective Cover Plan
10 Closure Contour and Stormwater Management Plan
11 Cross-Section Location Map – Open Phases
12 Cross-Section Location Map – Closed Phases
13 Cross-Sections A and B
14 Liner and Leachate Collection System Details
15 Liner and Leachate Collection System Details
16 Final Cover Details
17 Drainage Details
18 Drainage Details
19 Drainage Details
20 Drainage Details

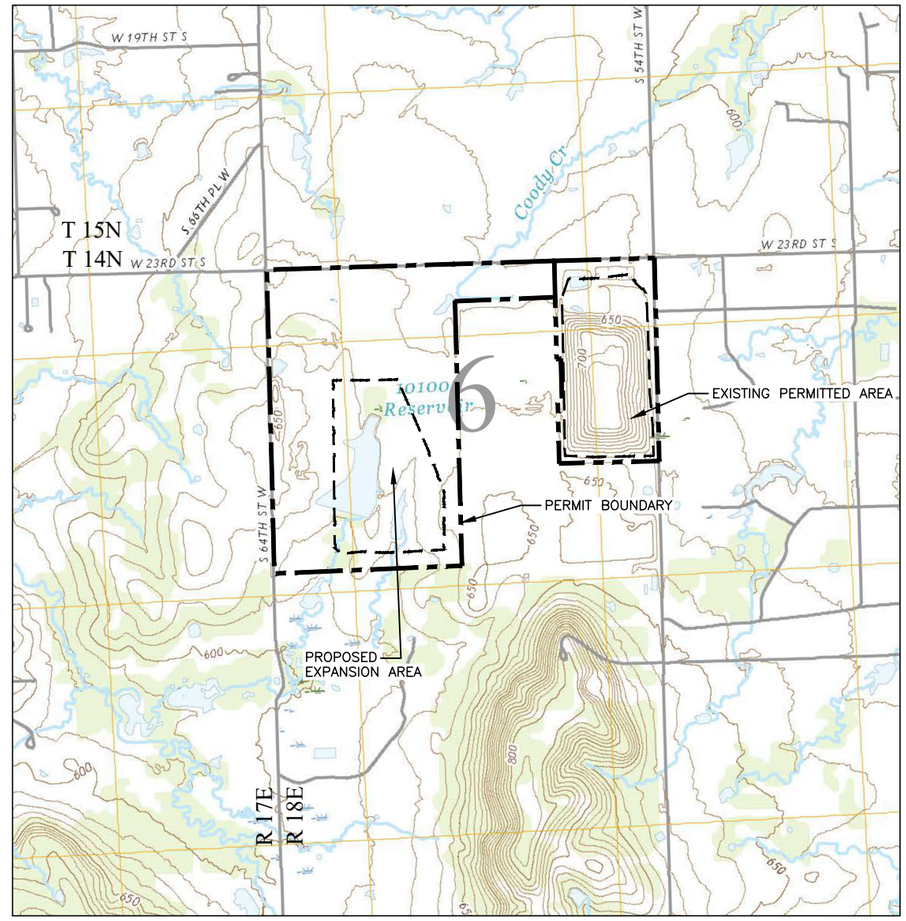
Full-size Permit Design Drawings are provided in a separate package.

WASTE MANAGEMENT OF OKLAHOMA, INC.
MUSKOGEE COMMUNITY RECYCLING AND DISPOSAL FACILITY
MUSKOGEE COUNTY, OKLAHOMA
LANDFILL EXPANSION

OCTOBER 2023

INDEX TO DRAWINGS

DRAWING NO	DRAWING TITLE
1	COVER SHEET AND SITE VICINITY MAP
2	LOCATION AND BOUNDARY MAP
3	EXISTING GROUND CONTOUR MAP
4	EXISTING PERMITTED DRAINAGE PLAN
5	POST–DEVELOPMENT DRAINAGE PLAN
6	SITE PLAN
7	EXCAVATION PLAN
8	TOP OF LINER PLAN
9	TOP OF PROTECTIVE COVER PLAN
10	CLOSURE CONTOUR AND STORMWATER MANAGEMENT PLAN
11	CROSS–SECTION LOCATION MAP–OPEN PHASES
12	CROSS–SECTION LOCATION MAP–CLOSED PHASES
13	CROSS–SECTION A AND B
14	LINER AND LEACHATE COLLECTION SYSTEM DETAILS
15	LINER AND LEACHATE COLLECTION SYSTEM DETAILS
16	FINAL COVER DETAILS
17	DRAINAGE DETAILS
18	DRAINAGE DETAILS
19	DRAINAGE DETAILS
20	DRAINAGE DETAILS



VICINITY MAP
U.S. GOVERNMENTS LOTS 3, 4, 5, 6, AND PART OF
U.S. GOVERNMENT LOTS 1 AND 2, SE1/4 NE1/4, AND NE1/4 SW1/4
T 14N, R 18E, SECTION 6
MUSKOGEE COUNTY, STATE OF OKLAHOMA

N
0 1000 2000
SCALE IN FEET

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10/13/2023

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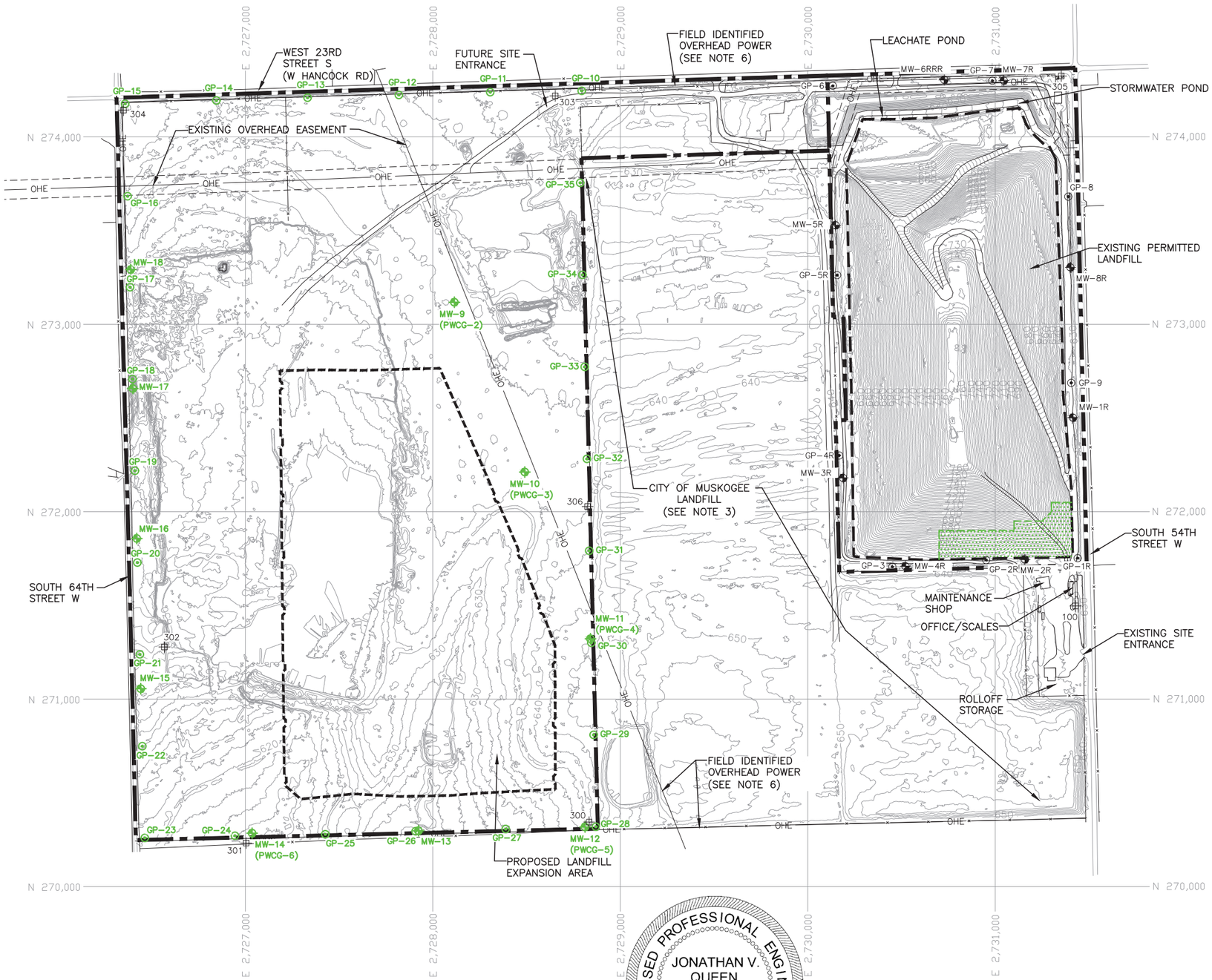
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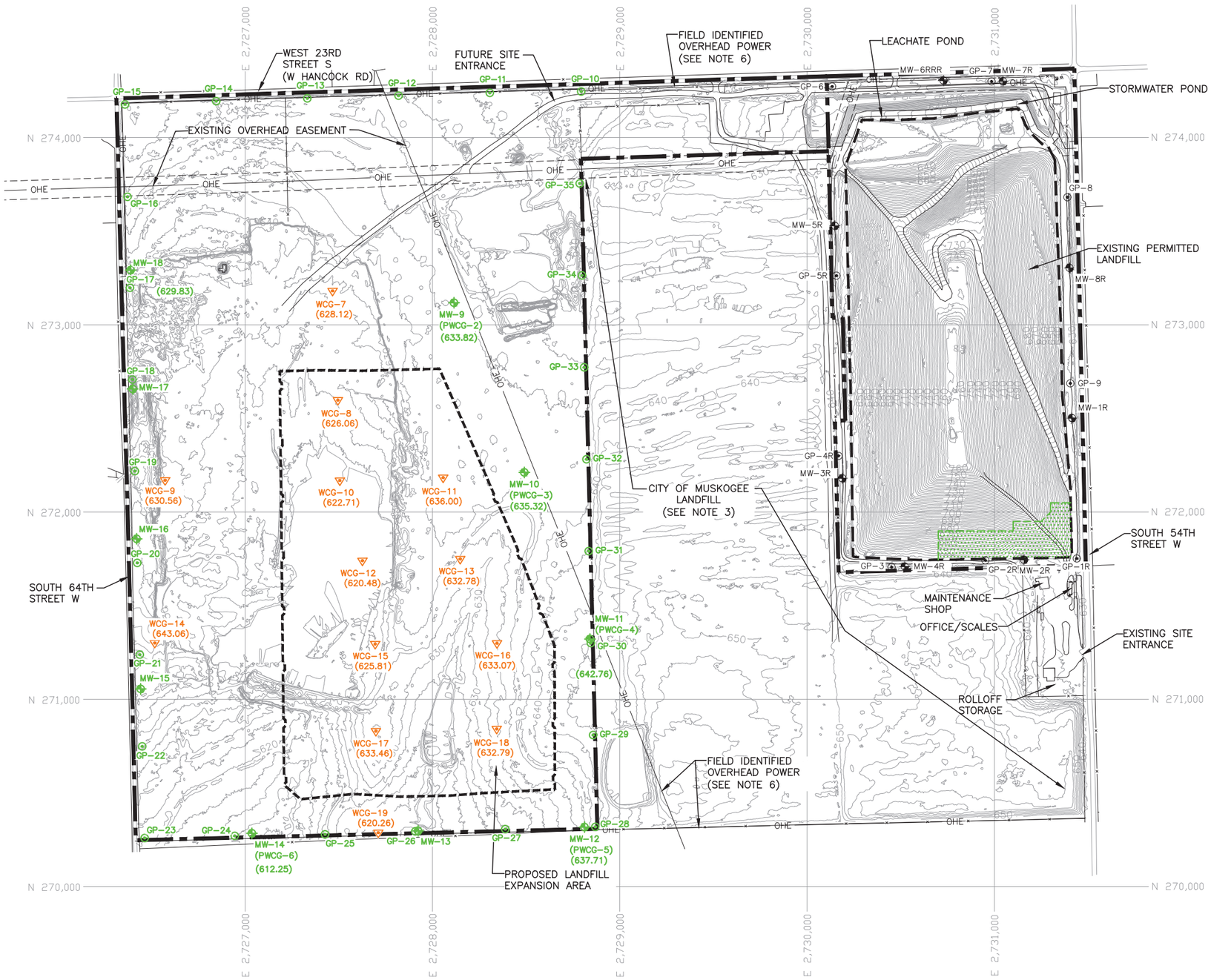
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FORT WORTH, TEXAS 76109
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(817) 735–9775 (FAX)
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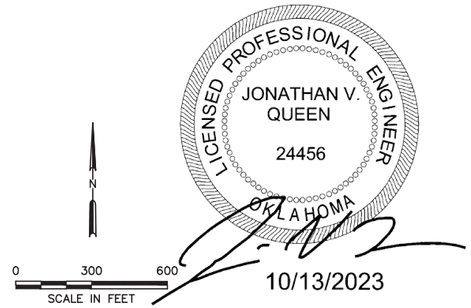
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E 2,728,000
E 2,729,000
E 2,730,000
E 2,731,000
N 274,000
N 273,000
N 272,000
N 271,000
N 270,000
WEST 23RD STREET S (W HANCOCK RD)
FUTURE SITE ENTRANCE
FIELD IDENTIFIED OVERHEAD POWER (SEE NOTE 6)
LEACHATE POND
STORMWATER POND
EXISTING OVERHEAD EASEMENT
EXISTING PERMITTED LANDFILL
CITY OF MUSKOGEE LANDFILL (SEE NOTE 3)
SOUTH 64TH STREET W
SOUTH 54TH STREET W
MAINTENANCE SHOP
OFFICE/SCALES
EXISTING SITE ENTRANCE
ROLLOFF STORAGE
FIELD IDENTIFIED OVERHEAD POWER (SEE NOTE 6)
PROPOSED LANDFILL EXPANSION AREA
GP-15
GP-14
GP-13
GP-12
GP-11
GP-10
GP-6
GP-7
MW-6RR
MW-7R
GP-8
GP-35
GP-16
MW-5R
GP-5R
MW-8R
MW-18
GP-17
GP-34
MW-9 (PWCG-2)
GP-33
GP-9
MW-1R
GP-18
MW-17
GP-32
GP-4R
MW-3R
GP-19
MW-10 (PWCG-3)
GP-3
MW-4R
GP-2R
MW-2R
GP-1R
MW-16
GP-20
GP-31
MW-11 (PWCG-4)
GP-30
GP-21
MW-15
GP-29
GP-22
GP-23
GP-24
GP-25
GP-26
MW-13
GP-27
GP-28
MW-14 (PWCG-6)
MW-12 (PWCG-5)
303
304
305
306
302
301
300
100
630
640
650
660
670
680
690
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710
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740
750
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770
780
790
800
810
820
830
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850
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870
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890
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920
930
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960
970
980
990
1000
1010
1020





N

0 300 600
SCALE IN FEET

LEGEND

- EXISTING PERMIT BOUNDARY
- PROPOSED PERMIT BOUNDARY
- PERMITTED LIMITS OF WASTE
- PROPOSED LIMITS OF WASTE
- N 273,000 — STATE PLANE COORDINATE GRID
- 640 — EXISTING CONTOUR
- OHE — EXISTING OVERHEAD EASEMENT
- IN-PLACE FINAL COVER
- MW-5R — EXISTING GROUNDWATER MONITORING WELL
- MW-9 (PWCG-1) (629.83) — PROPOSED GROUNDWATER MONITORING WELL (EXISTING WCG 2022 PIEZOMETER LOCATIONS)
- GP-5 — EXISTING LANDFILL GAS MONITORING PROBE
- GP-10 — PROPOSED LANDFILL GAS MONITORING PROBE
- WCG-7 (628.12) — WCG 2022 BOREHOLE LOCATION (SURFACE ELEVATION IN FT-MSL)

NOTES:

1. EXISTING CONTOURS AND ELEVATIONS PROVIDED BY HYDREX ENVIRONMENTAL COMPILED FROM AERIAL PHOTOGRAPHY FLOWN 01-25-2023.
2. THE EXPANSION WILL ADD A SEPARATE UNIT TO THE WEST OF THE EXISTING LANDFILL. NO CHANGES ARE PROPOSED TO THE EASTERN UNIT.
3. THE CITY OF MUSKOGEE LANDFILL IS NOT PART OF THE PROPOSED EXPANSION AND IS SHOWN FOR REFERENCE PURPOSES.
4. PERMIT BOUNDARY AND EXISTING OVERHEAD EASEMENTS WERE REPRODUCED FROM LEGAL DESCRIPTION PREPARED BY WEAVER CONSULTANTS GROUP, SIGNED BY MICHAEL D BYTNER, LLS# 1986.
5. A WASTE-FREE BUFFER ZONE AT LEAST 100-FEET OFFSET FROM THE PERMIT BOUNDARY FOR THE LANDFILL EXPANSION AREA INCLUDED IN THIS MODIFICATION WILL BE MAINTAINED.
6. AN EASEMENT RECORD WAS NOT FOUND OR PROVIDED TO THE SURVEYOR. THE OVERHEAD POWER RUNNING ALONG THE NORTHERN AND SOUTHERN PROPERTY LINE AND NORTHWEST/SOUTHEAST ACROSS THE PROPERTY WAS FIELD IDENTIFIED AND SURVEYED.
7. REFER TO SECTION 2.5 FOR WETLANDS INFORMATION.
8. REFER TO DRAWING 4 AND 5 FOR THE LOCATION AND QUANTITIES OF SURFACE DRAINAGE ENTERING AND EXITING THE FACILITY.
9. SURFACE ELEVATIONS FOR WCG 2022 BORINGS AND EXISTING PIEZOMETER LOCATIONS SURVEYED BY WCG AND POSTED AT PIEZOMETER/BORING LOCATIONS IN FT-MSL.

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CAD: 3-EXISTING CONTOUR MAP.DWG

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DESIGN BY: JBP
REVIEWED BY: JVQ

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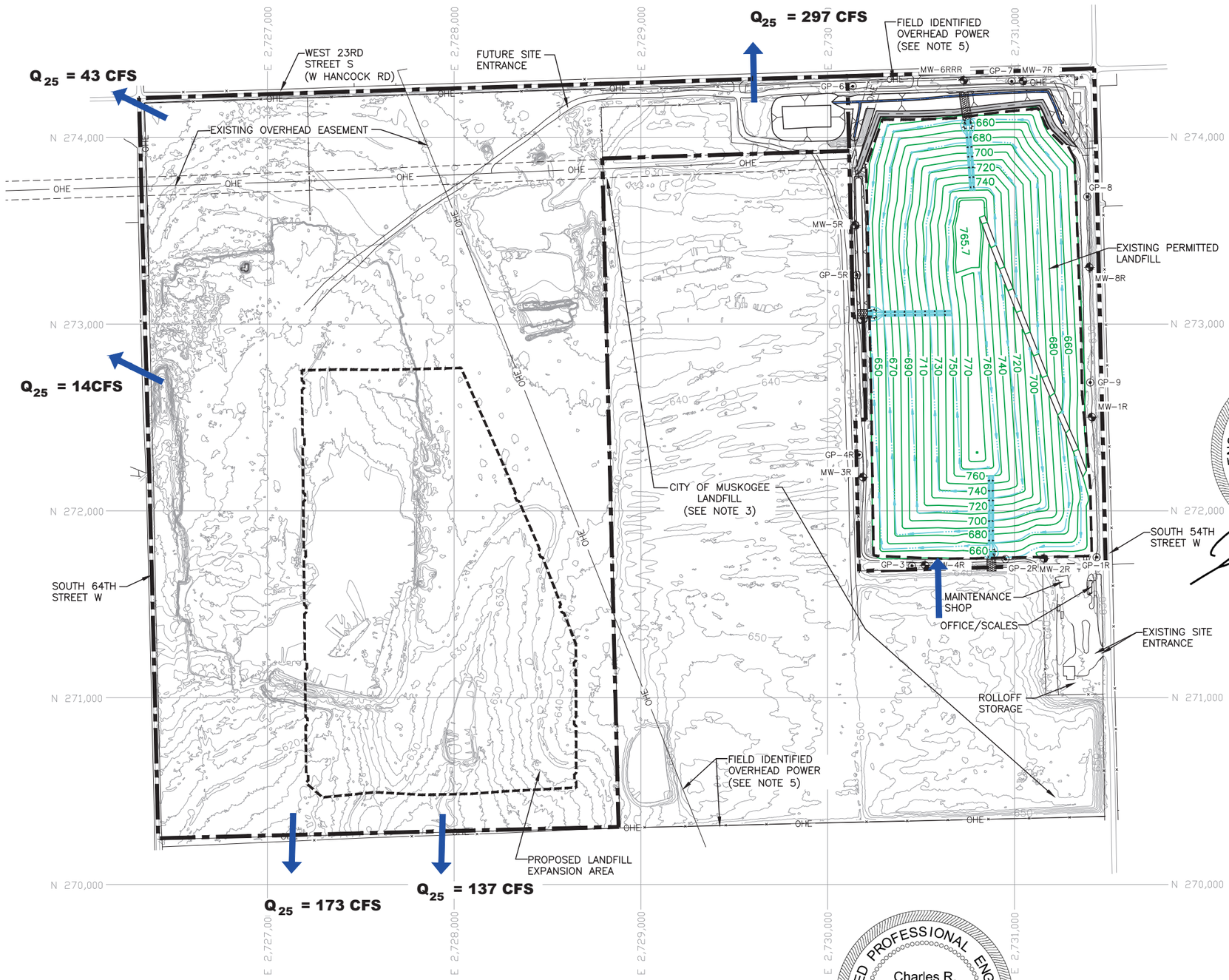
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DRAWING 3

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0 300 600

SCALE IN FEET

LEGEND

- EXISTING PERMIT BOUNDARY
- PROPOSED PERMIT BOUNDARY
- PERMITTED LIMITS OF WASTE
- PROPOSED LIMITS OF WASTE
- N 273,000 — STATE PLANE COORDINATE GRID
- 640 — EXISTING CONTOUR
- 770 — PERMITTED FINAL COVER CONTOUR
- PERMITTED DRAINAGE SWALE
- PERMITTED DRAINAGE CHUTE
- PERMITTED DRAINAGE CHANNEL
- RIPRAP/GABIONS
- OHE — EXISTING OVERHEAD EASEMENT
- MW-5R — EXISTING GROUNDWATER MONITORING WELL
- GP-5 — EXISTING LANDFILL GAS MONITORING PROBE

LICENSED PROFESSIONAL ENGINEER
JONATHAN V. QUEEN
24456
OKLAHOMA
10/13/2023

NOTES:

1. EXISTING CONTOURS AND ELEVATIONS PROVIDED BY HYDREX ENVIRONMENTAL COMPILED FROM AERIAL PHOTOGRAPHY FLOWN 01-25-2023.
2. THE EXPANSION WILL ADD A SEPARATE UNIT TO THE WEST OF THE EXISTING LANDFILL. NO CHANGES ARE PROPOSED TO THE EASTERN UNIT.
3. THE CITY OF MUSKOGEE LANDFILL IS NOT PART OF THE PROPOSED EXPANSION AND IS SHOWN FOR REFERENCE PURPOSES.
4. PERMIT BOUNDARY AND EXISTING OVERHEAD EASEMENTS WERE REPRODUCED FROM LEGAL DESCRIPTION PREPARED BY WEAVER CONSULTANTS GROUP, SIGNED BY MICHAEL D BYTNER, LLS# 1986.
5. AN EASEMENT RECORD WAS NOT FOUND OR PROVIDED TO THE SURVEYOR. THE OVERHEAD POWER RUNNING ALONG THE NORTHERN AND SOUTHERN PROPERTY LINE AND NORTHWEST/SOUTHEAST ACROSS THE PROPERTY WAS FIELD IDENTIFIED AND SURVEYED.
6. REFER TO APPENDIX H FOR ADDITIONAL DRAINAGE INFORMATION.
7. REFER TO APPENDIX I FOR USACE ADDITIONAL INFORMATION.
8. PERMITTED FINAL COVER CONTOURS AND DRAINAGE REPRODUCED FROM THE TIER I PERMIT MODIFICATION PREPARED BY WEAVER CONSULTANTS GROUP, LLC IN NOVEMBER 2021 AND APPROVED BY ODEQ ON JANUARY 24, 2022.

LICENSED PROFESSIONAL ENGINEER
Charles R. Marsh
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10/13/2023

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DESIGN BY: MB
REVIEWED BY: CRM

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REVISIONS		
NO.	DATE	DESCRIPTION

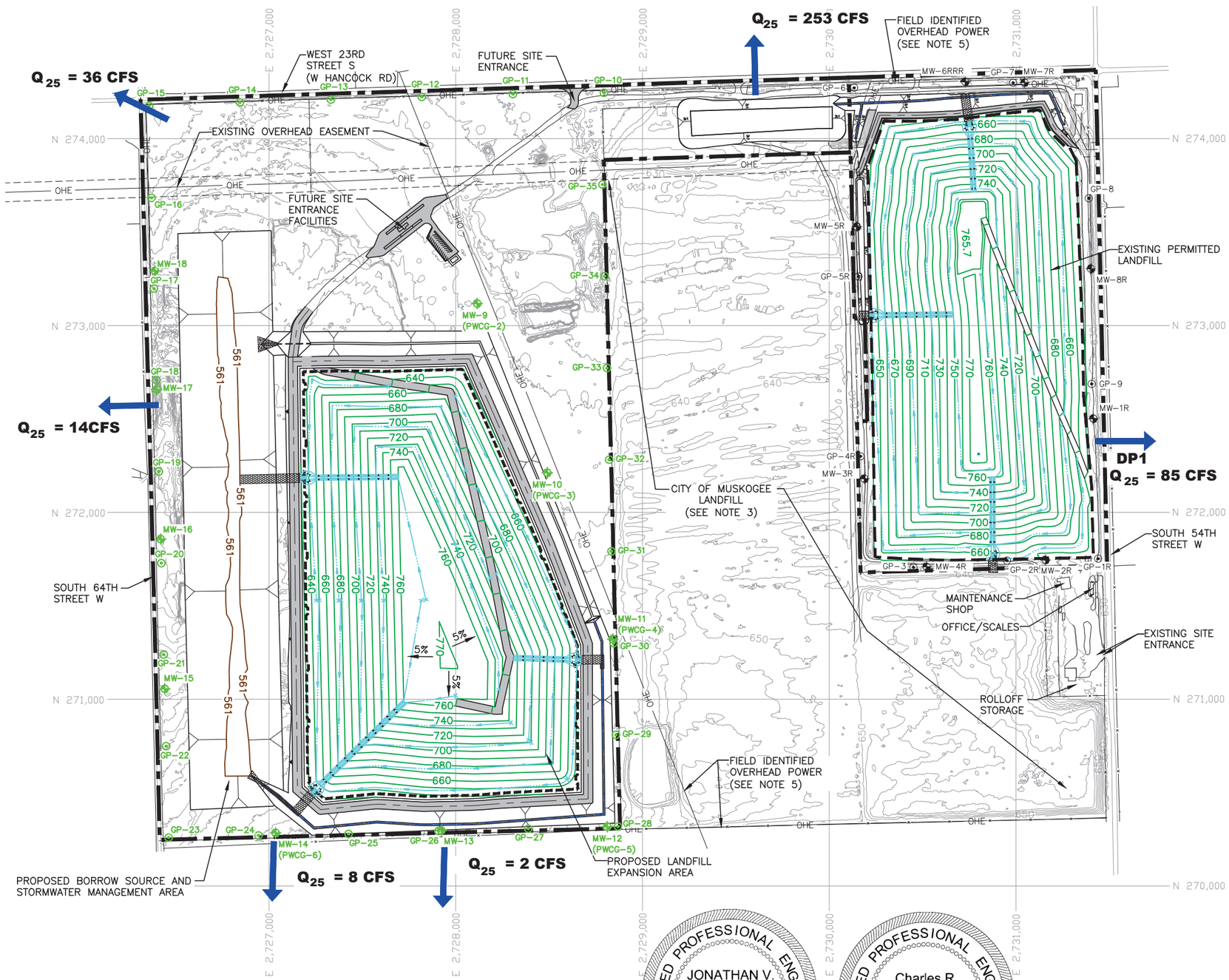
TIER III PERMIT MODIFICATION
EXISTING PERMITTED DRAINAGE PLAN

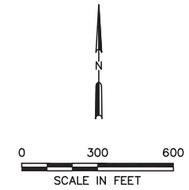
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MUSKOGEE COUNTY, OKLAHOMA

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O:\0086\364\EXPANSION 2022\PERMIT DRAWINGS\4-PERMITTED DRAINAGE.dwg, sburrey, 1:2





LEGEND

- EXISTING PERMIT BOUNDARY
- PROPOSED PERMIT BOUNDARY
- PERMITTED LIMITS OF WASTE
- PROPOSED LIMITS OF WASTE
- N 273,000 — STATE PLANE COORDINATE GRID
- 640 — EXISTING CONTOUR
- 561 — BORROW AREA CONTOUR
- 770 — FINAL COVER CONTOUR
- PROPOSED DRAINAGE SWALE
- PROPOSED DRAINAGE CHUTE
- PROPOSED DRAINAGE CHANNEL
- RIPRAP/GABIONS
- OHE — EXISTING OVERHEAD EASEMENT
- MW-5R — EXISTING GROUNDWATER MONITORING WELL
- MW-9 (PWCG-1) — PROPOSED GROUNDWATER MONITORING WELL
- GP-5 — EXISTING LANDFILL GAS MONITORING PROBE
- GP-10 — PROPOSED LANDFILL GAS MONITORING PROBE

NOTES:

1. EXISTING CONTOURS AND ELEVATIONS PROVIDED BY HYDREX ENVIRONMENTAL COMPILED FROM AERIAL PHOTOGRAPHY FLOWN 01-25-2023.
2. THE EXPANSION WILL ADD A SEPARATE UNIT TO THE WEST OF THE EXISTING LANDFILL. NO CHANGES ARE PROPOSED TO THE EASTERN UNIT.
3. THE CITY OF MUSKOGEE LANDFILL IS NOT PART OF THE PROPOSED EXPANSION AND IS SHOWN FOR REFERENCE PURPOSES.
4. PERMIT BOUNDARY AND EXISTING OVERHEAD EASEMENTS WERE REPRODUCED FROM LEGAL DESCRIPTION PREPARED BY WEAVER CONSULTANTS GROUP, SIGNED BY MICHAEL D BYTNER, LLS# 1986.
5. AN EASEMENT RECORD WAS NOT FOUND OR PROVIDED TO THE SURVEYOR. THE OVERHEAD POWER RUNNING ALONG THE NORTHERN AND SOUTHERN PROPERTY LINE AND NORTHWEST/SOUTHEAST ACROSS THE PROPERTY WAS FIELD IDENTIFIED AND SURVEYED.
6. REFER TO APPENDIX H FOR ADDITIONAL DRAINAGE INFORMATION.
7. PERMITTED FINAL COVER CONTOURS AND DRAINAGE REPRODUCED FROM THE TIER I PERMIT MODIFICATION PREPARED BY WEAVER CONSULTANTS GROUP, LLC IN NOVEMBER 2021 AND APPROVED BY ODEQ ON JANUARY 24, 2022.

POST-DEVELOPMENT DRAINAGE SUMMARY
THE PROPOSED LANDFILL EXPANSION DOES NOT AFFECT THE EXISTING PERMITTED DRAINAGE PATTERNS. STORMWATER FLOWS REMAIN CONSISTENT WITH PERMITTED DRAINAGE PATTERNS.

LICENSED PROFESSIONAL ENGINEER
JONATHAN V. QUEEN
24456
OKLAHOMA
10/13/2023

LICENSED PROFESSIONAL ENGINEER
Charles R. Marsh
24599
OKLAHOMA
10/13/2023

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DATE: 10/2023
FILE: 0086-364-11
CAD: 5-POST DEV. DRAINAGE.DWG
DRAWN BY: JDW
DESIGN BY: JBP
REVIEWED BY: JVQ

Weaver Consultants Group
CA 3804 PE - 06/30/2025

PREPARED FOR
WASTE MANAGEMENT OF OKLAHOMA, INC.

REVISIONS		
NO.	DATE	DESCRIPTION

TIER III PERMIT MODIFICATION
POST-DEVELOPMENT DRAINAGE PLAN

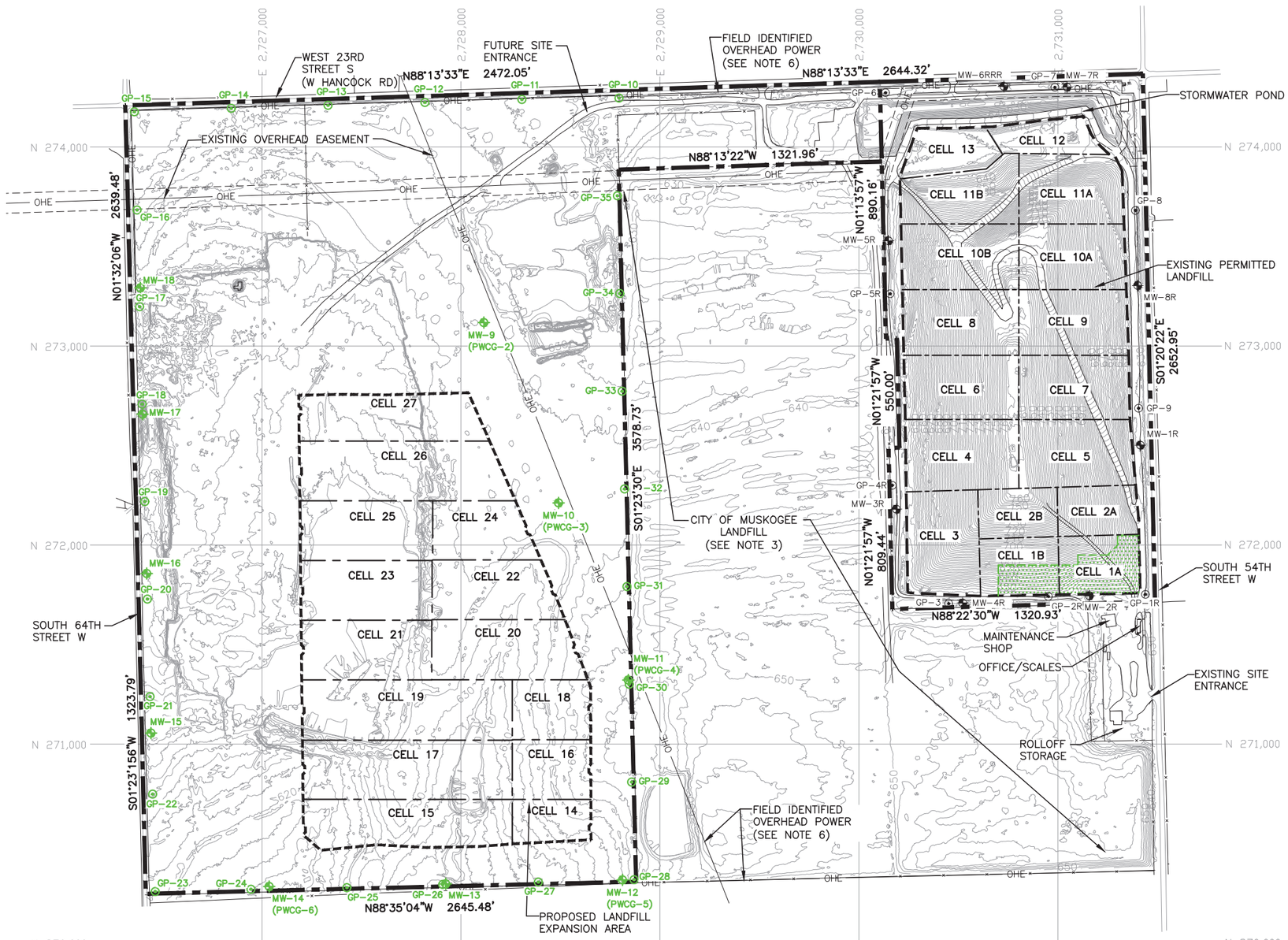
MUSKOGEE COMMUNITY RDF
MUSKOGEE COUNTY, OKLAHOMA

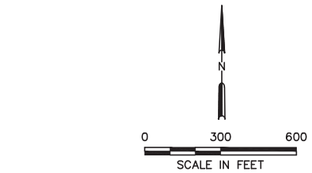
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LEGEND

- EXISTING PERMIT BOUNDARY
- PROPOSED PERMIT BOUNDARY
- PERMITTED LIMITS OF WASTE
- PROPOSED LIMITS OF WASTE
- N 273,000 — STATE PLANE COORDINATE GRID
- 640 — EXISTING CONTOUR
- OHE — EXISTING OVERHEAD EASEMENT
- IN-PLACE FINAL COVER
- CELL BOUNDARY
- MW-5R — EXISTING GROUNDWATER MONITORING WELL
- MW-9 (PWCG-1) — PROPOSED GROUNDWATER MONITORING WELL
- GP-5 — EXISTING LANDFILL GAS MONITORING PROBE
- GP-10 — PROPOSED LANDFILL GAS MONITORING PROBE

NOTES:

1. EXISTING CONTOURS AND ELEVATIONS PROVIDED BY HYDREX ENVIRONMENTAL COMPILED FROM AERIAL PHOTOGRAPHY FLOWN 01-25-2023.
2. THE EXPANSION WILL ADD A SEPARATE UNIT TO THE WEST OF THE EXISTING LANDFILL. NO CHANGES ARE PROPOSED TO THE EASTERN UNIT.
3. THE CITY OF MUSKOGEE LANDFILL IS NOT PART OF THE PROPOSED EXPANSION AND IS SHOWN FOR REFERENCE PURPOSES.
4. PERMIT BOUNDARY AND EXISTING OVERHEAD EASEMENTS WERE REPRODUCED FROM LEGAL DESCRIPTION PREPARED BY WEAVER CONSULTANTS GROUP, SIGNED BY MICHAEL D BYTNER, LLS# 1986.
5. A WASTE-FREE BUFFER ZONE AT LEAST 100-FEET OFFSET FROM THE PERMIT BOUNDARY FOR THE LANDFILL EXPANSION AREA INCLUDED IN THIS MODIFICATION WILL BE MAINTAINED.
6. AN EASEMENT RECORD WAS NOT FOUND OR PROVIDED TO THE SURVEYOR. THE OVERHEAD POWER RUNNING ALONG THE NORTHERN AND SOUTHERN PROPERTY LINE AND NORTHWEST/SOUTHEAST ACROSS THE PROPERTY WAS FIELD IDENTIFIED AND SURVEYED.
7. REFER TO APPENDIX H FOR DRAINAGE INFORMATION.
8. EASEMENT RELATED INFORMATION IS DISCUSSED IN SECTION 2.3 IN APPENDIX B-3.
9. AVAILABLE SURFACE AND TOP OF CASING ELEVATIONS ARE PROVIDED IN APPENDIX E AND APPENDIX G-3.
10. CELL CONSTRUCTION SEQUENCE MAY VARY BASED ON SITE OPERATIONS DURING DEVELOPMENT. FOR EXAMPLE, CONSTRUCTION MAY INITIATE ON THE NORTH END (CELL 27) PRIOR TO THE SOUTH END (CELL 14/15) OF THE WESTERN UNIT OR CONSTRUCTION MAY INITIATE ON THE SOUTHWEST END (CELL 15) PRIOR TO THE SOUTHEAST END (CELL 14) OF THE WESTERN UNIT. ANY SEQUENCE CHANGE WILL BE SUBMITTED TO THE ODEQ FOR APPROVAL DURING THE REVIEW OF THE CONSTRUCTION PLANS FOR EACH CELL.
11. THE LANDFILL AREA IS CONTROLLED BY A PERIMETER FENCE, NATURAL BARRIERS, AND/OR GATES. PUBLIC ACCESS CONTROL IS DISCUSSED IN SECTION 8.2 PUBLIC ACCESS CONTROL.
12. UTILITY/TRANSMISSION LINES ARE DISCUSSED IN SECTION 2.3 UTILITY/TRANSMISSION LINES.
13. A SECTION 404 INDIVIDUAL PERMIT IS CURRENTLY UNDER REVIEW BY THE USACE. THE EXPANSION AREA WILL NOT BE DEVELOPED UNTIL THE SECTION 404 INDIVIDUAL PERMIT IS APPROVED BY USACE.

CELL	AREA (AC)	CELL	AREA (AC)
14	1.9	21	4.5
15	5.7	22	4.2
16	2.7	23	4.5
17	7.2	24	3.3
18	2.7	25	4.6
19	7.3	26	7.0
20	5.0	27	4.9

* CELLS NOT REFERENCED REMAIN UNCHANGED.



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DATE: 10/2023
FILE: 0086-364-11
CAD: 6-SITE PLAN.DWG

DRAWN BY: JDW
DESIGN BY: JBP
REVIEWED BY: JVQ

Weaver Consultants Group
CA 3804 PE - 06/30/2025

PREPARED FOR
WASTE MANAGEMENT OF OKLAHOMA, INC.

REVISIONS

NO.	DATE	DESCRIPTION

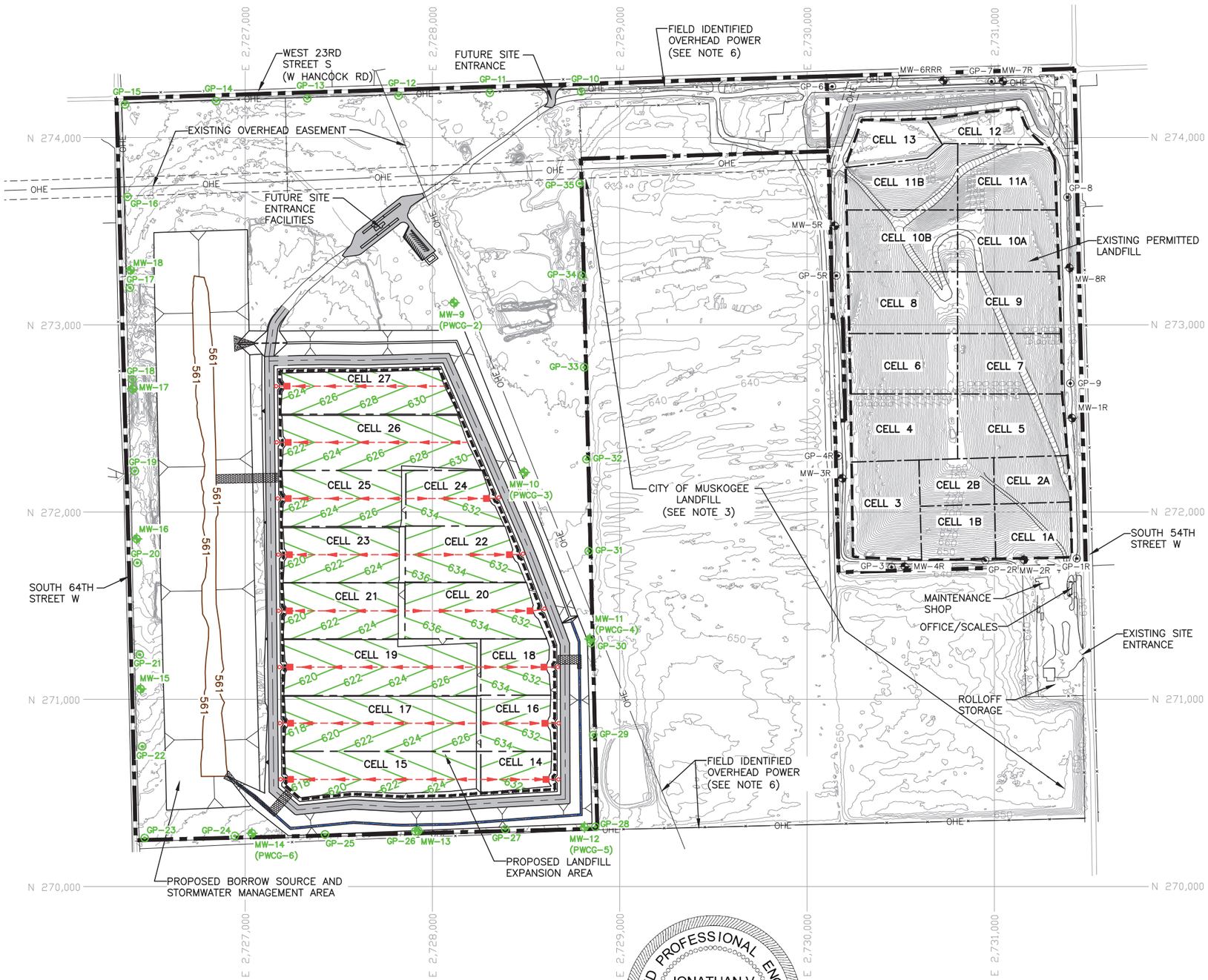
TIER III PERMIT MODIFICATION SITE PLAN

MUSKOGEE COMMUNITY RDF
MUSKOGEE COUNTY, OKLAHOMA

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DRAWING 6

0:\0086\364\EXPANSION 2022\PERMIT DRAWINGS\6-SITE PLAN.dwg, smurray, 1:2



0 300 600

SCALE IN FEET

LEGEND

- EXISTING PERMIT BOUNDARY
- PROPOSED PERMIT BOUNDARY
- PERMITTED LIMITS OF WASTE
- PROPOSED LIMITS OF WASTE
- N 273,000 — STATE PLANE COORDINATE GRID
- 640 — EXISTING CONTOUR
- 636 — EXCAVATION CONTOUR
- 561 — SOIL BORROW CONTOUR
- CELL BOUNDARY
- PROPOSED LEACHATE LINE
- PROPOSED LEACHATE SUMP
- PROPOSED LEACHATE CLEANOUT RISER
- PROPOSED DRAINAGE CHANNEL
- OHE — EXISTING OVERHEAD EASEMENT
- MW-5R — EXISTING GROUNDWATER MONITORING WELL
- MW-9 (PWCG-1) — PROPOSED GROUNDWATER MONITORING WELL
- GP-5 — EXISTING LANDFILL GAS MONITORING PROBE
- GP-10 — PROPOSED LANDFILL GAS MONITORING PROBE

NOTES:

1. EXISTING CONTOURS AND ELEVATIONS PROVIDED BY HYDREX ENVIRONMENTAL COMPILED FROM AERIAL PHOTOGRAPHY FLOWN 01–25–2023.
2. THE EXPANSION WILL ADD A SEPARATE UNIT TO THE WEST OF THE EXISTING LANDFILL. NO CHANGES ARE PROPOSED TO THE EASTERN UNIT.
3. THE CITY OF MUSKOGEE LANDFILL IS NOT PART OF THE PROPOSED EXPANSION AND IS SHOWN FOR REFERENCE PURPOSES.
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5. A WASTE–FREE BUFFER ZONE AT LEAST 100–FEET OFFSET FROM THE PERMIT BOUNDARY FOR THE LANDFILL EXPANSION AREA INCLUDED IN THIS MODIFICATION WILL BE MAINTAINED.
6. AN EASEMENT RECORD WAS NOT FOUND OR PROVIDED TO THE SURVEYOR. THE OVERHEAD POWER RUNNING ALONG THE NORTHERN AND SOUTHERN PROPERTY LINE AND NORTHWEST/SOUTHEAST ACROSS THE PROPERTY WAS FIELD IDENTIFIED AND SURVEYED.
7. ALL PROPOSED EXCAVATION SIDESLOPES ARE 3(HORIZONTAL):1(VERTICAL).
8. LOCATION AND DEPTHS OF BOREHOLES CAN BE FOUND IN APPENDIX E.
9. A SECTION 404 INDUSTRIAL PERMIT IS CURRENTLY UNDER REVIEW BY THE USACE. THE EXPANSION AREA WILL NOT BE DEVELOPED UNTIL THE 404 PERMIT IS APPROVED.

LICENSED PROFESSIONAL ENGINEER
JONATHAN V. QUEEN
24456
OKLAHOMA
10/13/2023

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DATE: 10/2023
FILE: 0086–364–11
CAD: 7–EXCAVATION PLAN.DWG
DRAWN BY: JDW
DESIGN BY: JBP
REVIEWED BY: JVQ

Weaver Consultants Group
CA 3804 PE – 06/30/2025

PREPARED FOR
WASTE MANAGEMENT OF OKLAHOMA, INC.

REVISIONS		
NO.	DATE	DESCRIPTION

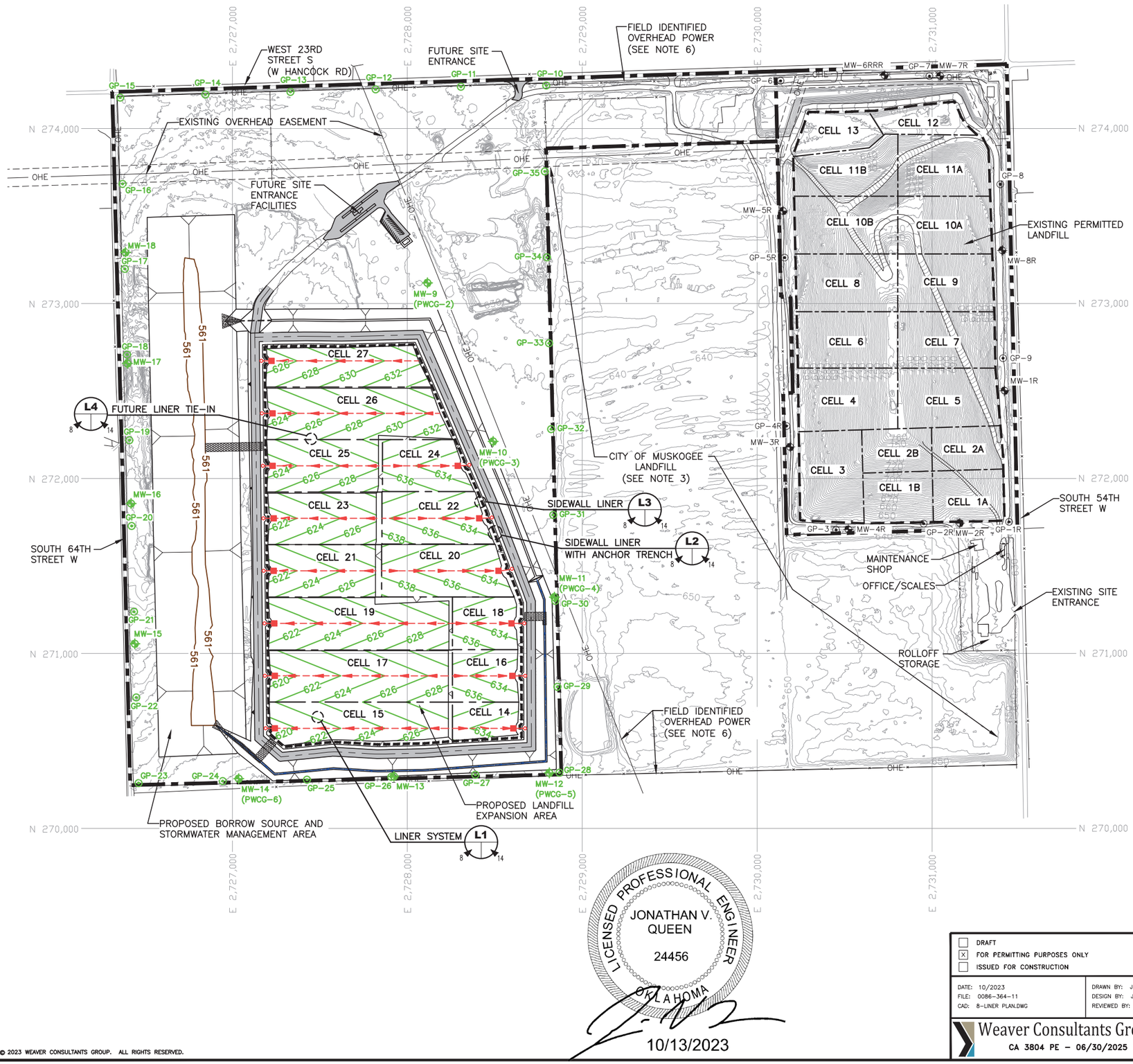
TIER III PERMIT MODIFICATION EXCAVATION PLAN

MUSKOGEE COMMUNITY RDF
MUSKOGEE COUNTY, OKLAHOMA

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0 300 600
SCALE IN FEET

LEGEND

- EXISTING PERMIT BOUNDARY
- PROPOSED PERMIT BOUNDARY
- PERMITTED LIMITS OF WASTE
- PROPOSED LIMITS OF WASTE
- N 273,000 — STATE PLANE COORDINATE GRID
- 640 — EXISTING CONTOUR
- 638 — TOP OF LINER CONTOUR
- 561 — SOIL BORROW CONTOUR
- CELL BOUNDARY
- PROPOSED LEACHATE LINE
- PROPOSED LEACHATE SUMP
- PROPOSED DRAINAGE CHANNEL
- OHE — EXISTING OVERHEAD EASEMENT
- MW-5R — EXISTING GROUNDWATER MONITORING WELL
- MW-9 (PWCG-1) — PROPOSED GROUNDWATER MONITORING WELL
- GP-5 — EXISTING LANDFILL GAS MONITORING PROBE
- GP-10 — PROPOSED LANDFILL GAS MONITORING PROBE

NOTES:

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7. ALL PROPOSED EXCAVATION SIDESLOPES ARE 3(HORIZONTAL):1(VERTICAL).
8. LOCATION AND DEPTHS OF BOREHOLES CAN BE FOUND IN APPENDIX E.
9. A SECTION 404 INDUSTRIAL PERMIT IS CURRENTLY UNDER REVIEW BY THE USACE. THE EXPANSION AREA WILL NOT BE DEVELOPED UNTIL THE 404 PERMIT IS APPROVED.

LICENSED PROFESSIONAL ENGINEER
JONATHAN V. QUEEN
24456
OKLAHOMA
10/13/2023

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DATE: 10/2023
FILE: 0086-364-11
CAD: 8-LINER PLAN.DWG
DRAWN BY: JDW
DESIGN BY: JBP
REVIEWED BY: JVQ

Weaver Consultants Group
CA 3804 PE - 06/30/2025

PREPARED FOR
WASTE MANAGEMENT OF OKLAHOMA, INC.

REVISIONS		
NO.	DATE	DESCRIPTION

TIER III PERMIT MODIFICATION
TOP OF LINER PLAN

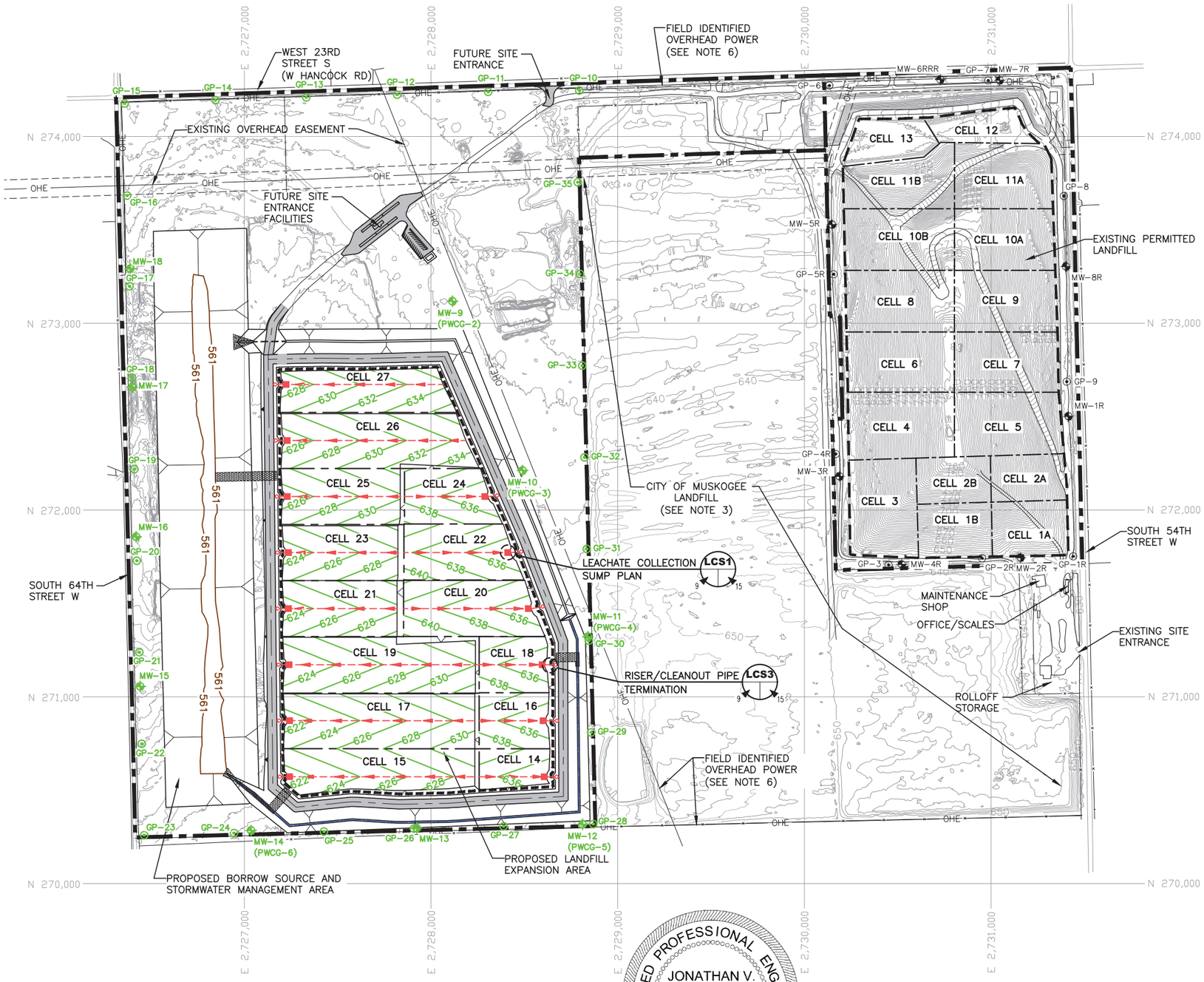
MUSKOGEE COMMUNITY RDF
MUSKOGEE COUNTY, OKLAHOMA

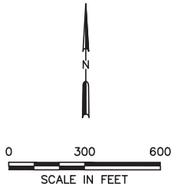
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DRAWING 8

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O:\0086\364\EXPANSION 2022\PERMIT DRAWING\8-TOP OF LINER PLAN.dwg, smurrey, 1:2





LEGEND

- EXISTING PERMIT BOUNDARY
- PROPOSED PERMIT BOUNDARY
- PERMITTED LIMITS OF WASTE
- PROPOSED LIMITS OF WASTE
- N 273,000 — STATE PLANE COORDINATE GRID
- 640 — EXISTING CONTOUR
- 640 — TOP OF PROTECTIVE COVER CONTOUR
- 561 — SOIL BORROW CONTOUR
- CELL BOUNDARY
- PROPOSED LEACHATE LINE
- PROPOSED LEACHATE SUMP
- PROPOSED DRAINAGE CHANNEL
- OHE — EXISTING OVERHEAD EASEMENT
- MW-5R — EXISTING GROUNDWATER MONITORING WELL
- MW-9 (PWCG-1) — PROPOSED GROUNDWATER MONITORING WELL
- GP-5 — EXISTING LANDFILL GAS MONITORING PROBE
- GP-10 — PROPOSED LANDFILL GAS MONITORING PROBE

NOTES:

1. EXISTING CONTOURS AND ELEVATIONS PROVIDED BY HYDREX ENVIRONMENTAL COMPILED FROM AERIAL PHOTOGRAPHY FLOWN 01–25–2023.
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7. ALL PROPOSED EXCAVATION SIDESLOPES ARE 3(HORIZONTAL):1(VERTICAL).
8. LOCATION AND DEPTHS OF BOREHOLES CAN BE FOUND IN APPENDIX E.
9. A SECTION 404 INDUSTRIAL PERMIT IS CURRENTLY UNDER REVIEW BY THE USACE. THE EXPANSION AREA WILL NOT BE DEVELOPED UNTIL THE 404 PERMIT IS APPROVED.

LICENSED PROFESSIONAL ENGINEER
JONATHAN V. QUEEN
24456
OKLAHOMA
10/13/2023

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DATE: 10/2023
FILE: 0086–364–11
CAD: 9–TOP OF PROT COVER PLAN.DWG
DRAWN BY: JDW
DESIGN BY: JBP
REVIEWED BY: JVQ

Weaver Consultants Group
CA 3804 PE – 06/30/2025

PREPARED FOR
WASTE MANAGEMENT OF OKLAHOMA, INC.

REVISIONS		
NO.	DATE	DESCRIPTION

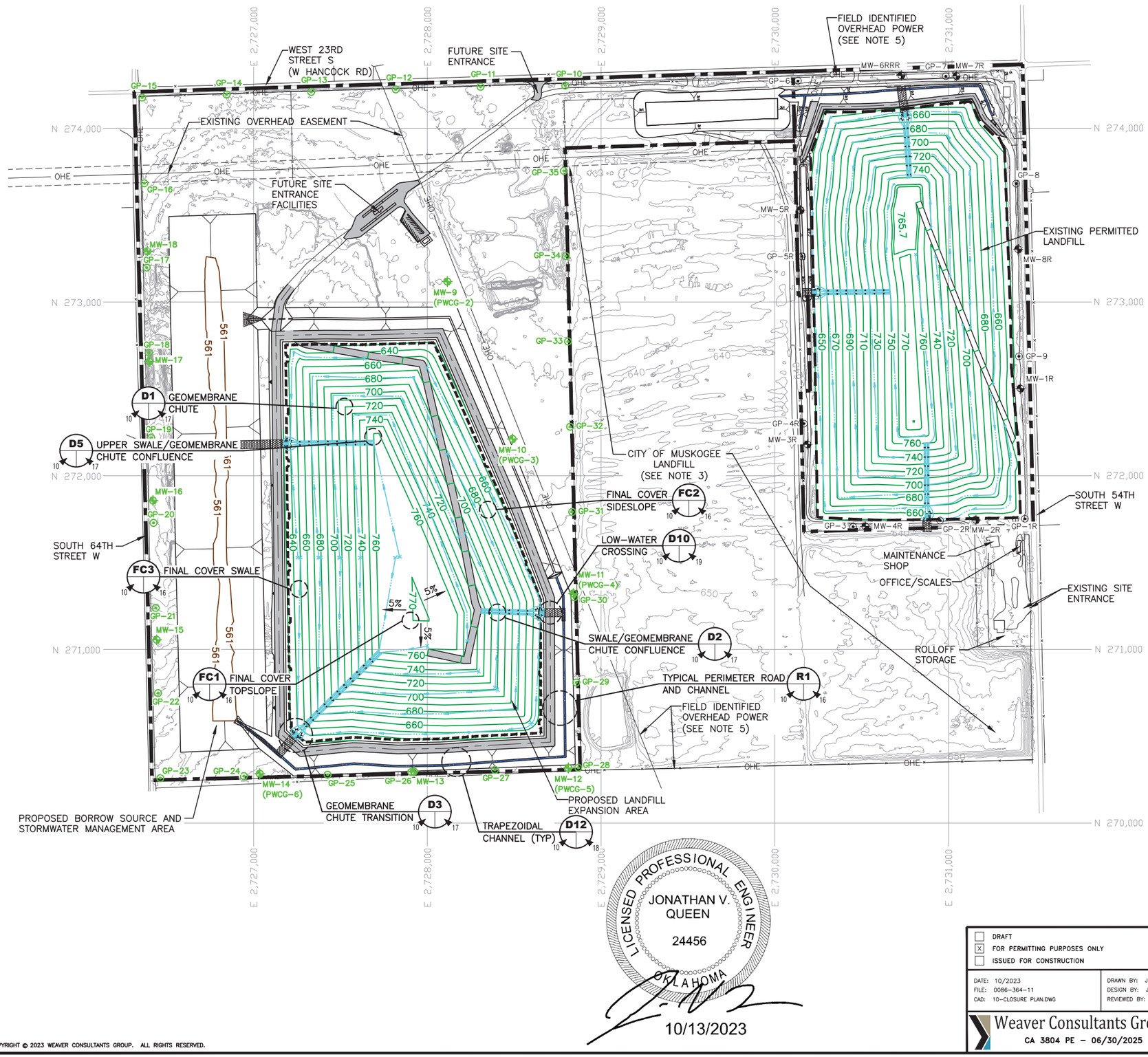
TIER III PERMIT MODIFICATION
TOP OF PROTECTIVE COVER PLAN

MUSKOGEE COMMUNITY RDF
MUSKOGEE COUNTY, OKLAHOMA

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DRAWING 9

O:\0086\364\EXPANSION 2022\PERMIT DRAWINGS\9-PROTECTIVE COVER PLAN.dwg, smurrey, 1:2



0 300 600
SCALE IN FEET

LEGEND

- EXISTING PERMIT BOUNDARY
- PROPOSED PERMIT BOUNDARY
- PERMITTED LIMITS OF WASTE
- PROPOSED LIMITS OF WASTE
- N 273,000 — STATE PLANE COORDINATE GRID
- 640 — EXISTING CONTOUR
- 561 — BORROW AREA CONTOUR
- 770 — FINAL COVER CONTOUR
- PROPOSED DRAINAGE SWALE
- PROPOSED DRAINAGE CHUTE
- PROPOSED DRAINAGE CHANNEL
- RIPRAP/GABIONS
- OHE — EXISTING OVERHEAD EASEMENT
- MW-5R — EXISTING GROUNDWATER MONITORING WELL
- MW-9 (PWCG-1) — PROPOSED GROUNDWATER MONITORING WELL
- GP-5 — EXISTING LANDFILL GAS MONITORING PROBE
- GP-10 — PROPOSED LANDFILL GAS MONITORING PROBE

NOTES:

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6. REFER TO APPENDIX H FOR ADDITIONAL DRAINAGE INFORMATION.
7. REFER TO APPENDIX I FOR USACE ADDITIONAL INFORMATION.
8. PERMITTED FINAL COVER CONTOURS AND DRAINAGE REPRODUCED FROM THE TIER I PERMIT MODIFICATION PREPARED BY WEAVER CONSULTANTS GROUP, LLC IN NOVEMBER 2021 AND APPROVED BY ODEQ ON JANUARY 24, 2022.
9. LEACHATE REMOVAL LOCATIONS ARE SHOWN ON DRAWINGS 6-9. ADDITIONAL LEACHATE HANDLING INFORMATION IS INCLUDED IN APPENDIX L.

LICENSED PROFESSIONAL ENGINEER
JONATHAN V. QUEEN
24456
OKLAHOMA
10/13/2023

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DATE: 10/2023
FILE: 0086-364-11
CAD: 10-CLOSURE PLAN.DWG
DRAWN BY: JDW
DESIGN BY: JBP
REVIEWED BY: JVQ

Weaver Consultants Group
CA 3804 PE - 06/30/2025

PREPARED FOR
WASTE MANAGEMENT OF OKLAHOMA, INC.

REVISIONS		
NO.	DATE	DESCRIPTION

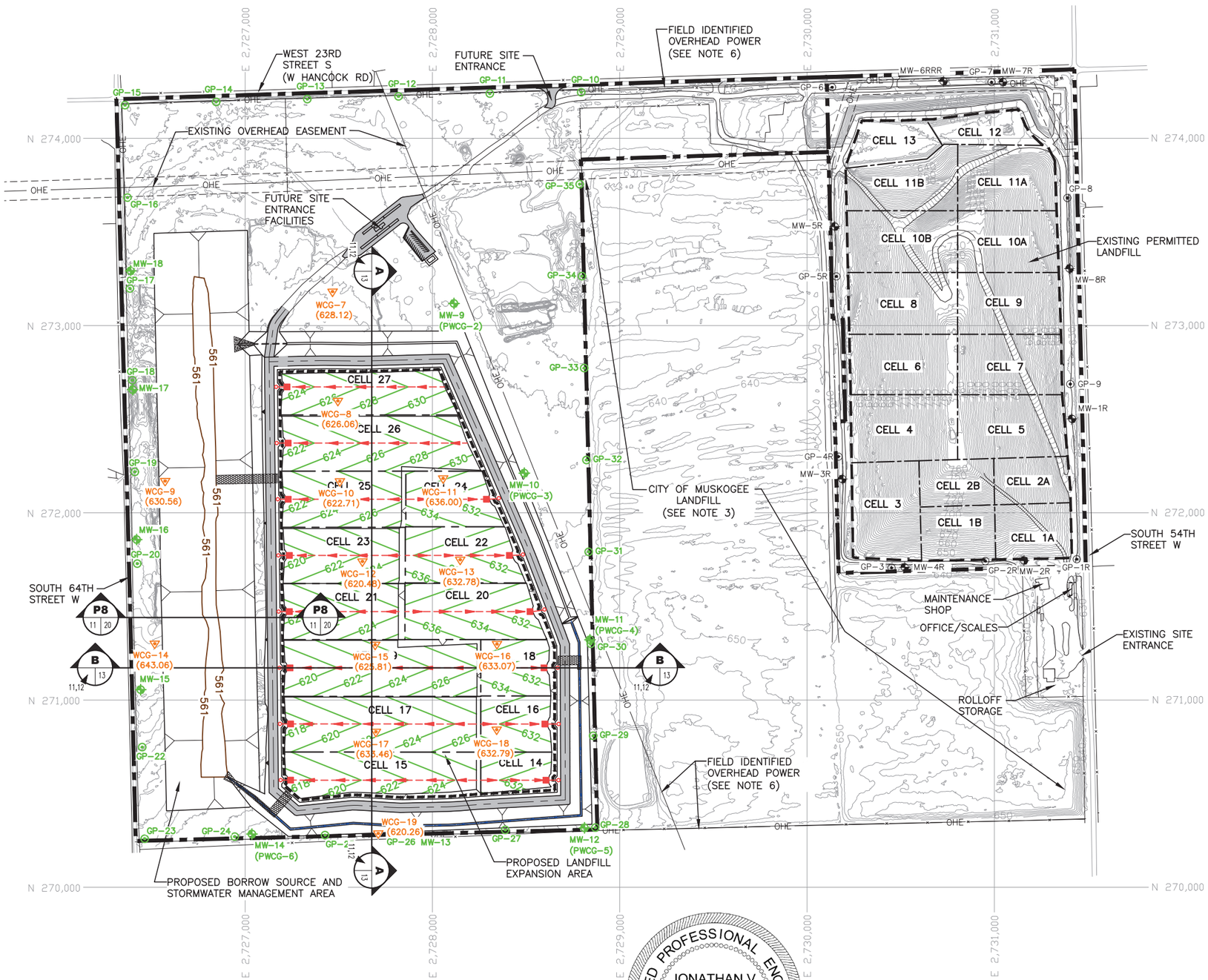
TIER III PERMIT MODIFICATION CLOSURE CONTOUR AND STORMWATER MANAGEMENT PLAN

MUSKOGEE COMMUNITY RDF
MUSKOGEE COUNTY, OKLAHOMA

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DRAWING 10

O:\0086\364\EXPANSION 2022\PERMIT DRAWINGS\10-CLOSURE PLAN.dwg, smurrey, 1:2



0 300 600
SCALE IN FEET

LEGEND

- EXISTING PERMIT BOUNDARY
- PROPOSED PERMIT BOUNDARY
- PERMITTED LIMITS OF WASTE
- PROPOSED LIMITS OF WASTE
- N 273,000 — STATE PLANE COORDINATE GRID
- 640 — EXISTING CONTOUR
- 636 — EXCAVATION CONTOUR
- 561 — SOIL BORROW CONTOUR
- CELL BOUNDARY
- PROPOSED LEACHATE LINE
- PROPOSED LEACHATE SUMP
- PROPOSED DRAINAGE CHANNEL
- OHE — EXISTING OVERHEAD EASEMENT
- MW-5R — EXISTING GROUNDWATER MONITORING WELL
- MW-9 (PWCG-1) — PROPOSED GROUNDWATER MONITORING WELL
- GP-5 — EXISTING LANDFILL GAS MONITORING PROBE
- GP-10 — PROPOSED LANDFILL GAS MONITORING PROBE
- WCG-7 (628.12) — WCG 2022 BOREHOLE LOCATION (SURFACE ELEVATION IN FT-MSL)

NOTES:

1. EXISTING CONTOURS AND ELEVATIONS PROVIDED BY HYDREX ENVIRONMENTAL COMPILED FROM AERIAL PHOTOGRAPHY FLOWN 01-25-2023.
2. THE EXPANSION WILL ADD A SEPARATE UNIT TO THE WEST OF THE EXISTING LANDFILL. NO CHANGES ARE PROPOSED TO THE EASTERN UNIT.
3. THE CITY OF MUSKOGEE LANDFILL IS NOT PART OF THE PROPOSED EXPANSION AND IS SHOWN FOR REFERENCE PURPOSES.
4. PERMIT BOUNDARY AND EXISTING OVERHEAD EASEMENTS WERE REPRODUCED FROM LEGAL DESCRIPTION PREPARED BY WEAVER CONSULTANTS GROUP, SIGNED BY MICHAEL D BYTNER, LLS# 1986.
5. A WASTE-FREE BUFFER ZONE AT LEAST 100-FEET OFFSET FROM THE PERMIT BOUNDARY FOR THE LANDFILL EXPANSION AREA INCLUDED IN THIS MODIFICATION WILL BE MAINTAINED.
6. AN EASEMENT RECORD WAS NOT FOUND OR PROVIDED TO THE SURVEYOR. THE OVERHEAD POWER RUNNING ALONG THE NORTHERN AND SOUTHERN PROPERTY LINE AND NORTHWEST/SOUTHEAST ACROSS THE PROPERTY WAS FIELD IDENTIFIED AND SURVEYED.
7. ALL PROPOSED EXCAVATION SIDESLOPES ARE 3(HORIZONTAL):1(VERTICAL).
8. LOCATION AND DEPTHS OF BOREHOLES CAN BE FOUND IN APPENDIX E.
9. A SECTION 404 INDUSTRIAL PERMIT IS CURRENTLY UNDER REVIEW BY THE USACE. THE EXPANSION AREA WILL NOT BE DEVELOPED UNTIL THE 404 PERMIT IS APPROVED.

LICENSED PROFESSIONAL ENGINEER
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10/13/2023

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DATE: 10/2023
FILE: 0086-364-11
CAD: 11-EXCAVATION SECTION LOC.DWG
DRAWN BY: JDW
DESIGN BY: JBP
REVIEWED BY: JVQ

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CA 3804 PE - 06/30/2025

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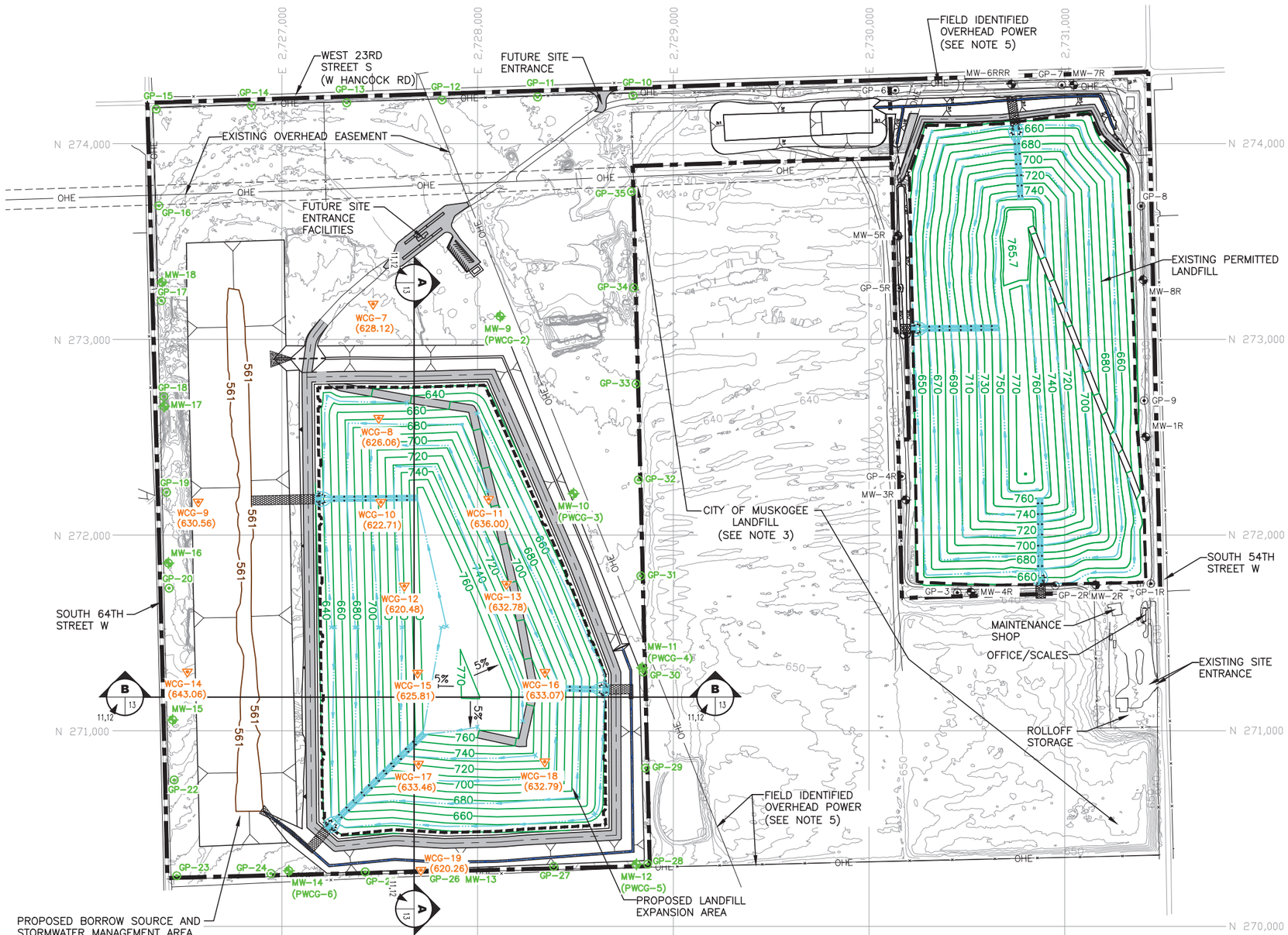
TIER III PERMIT MODIFICATION CROSS-SECTION LOCATION MAP-OPEN PHASES

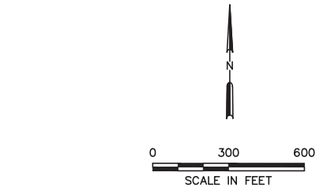
MUSKOGEE COMMUNITY RDF
MUSKOGEE COUNTY, OKLAHOMA

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DRAWING 11

O:\0086\364\EXPANSION 2022\PERMIT DRAWINGS\11-EXCAVATION SECTION LOCATION.dwg, smurray, 1:2





LEGEND

- EXISTING PERMIT BOUNDARY
- PROPOSED PERMIT BOUNDARY
- PERMITTED LIMITS OF WASTE
- PROPOSED LIMITS OF WASTE
- N 273,000 — STATE PLANE COORDINATE GRID
- 640 — EXISTING CONTOUR
- 561 — BORROW AREA CONTOUR
- 770 — FINAL COVER CONTOUR
- PROPOSED DRAINAGE SWALE
- PROPOSED DRAINAGE CHUTE
- PROPOSED DRAINAGE CHANNEL
- RIPRAP/GABIONS
- OHE — EXISTING OVERHEAD EASEMENT
- MW-5R — EXISTING GROUNDWATER MONITORING WELL
- MW-9 (PWCG-1) — PROPOSED GROUNDWATER MONITORING WELL
- GP-5 — EXISTING LANDFILL GAS MONITORING PROBE
- GP-10 — PROPOSED LANDFILL GAS MONITORING PROBE
- WCG-7 (628.12) — WCG 2022 BOREHOLE LOCATION (SURFACE ELEVATION IN FT–MSL)

NOTES:

1. EXISTING CONTOURS AND ELEVATIONS PROVIDED BY HYDREX ENVIRONMENTAL COMPILED FROM AERIAL PHOTOGRAPHY FLOWN 01–25–2023.
2. THE EXPANSION WILL ADD A SEPARATE UNIT TO THE WEST OF THE EXISTING LANDFILL. NO CHANGES ARE PROPOSED TO THE EASTERN UNIT.
3. THE CITY OF MUSKOGEE LANDFILL IS NOT PART OF THE PROPOSED EXPANSION AND IS SHOWN FOR REFERENCE PURPOSES.
4. PERMIT BOUNDARY AND EXISTING OVERHEAD EASEMENTS WERE REPRODUCED FROM LEGAL DESCRIPTION PREPARED BY WEAVER CONSULTANTS GROUP, SIGNED BY MICHAEL D BYTNER, LLS# 1986.
5. AN EASEMENT RECORD WAS NOT FOUND OR PROVIDED TO THE SURVEYOR. THE OVERHEAD POWER RUNNING ALONG THE NORTHERN AND SOUTHERN PROPERTY LINE AND NORTHWEST/SOUTHEAST ACROSS THE PROPERTY WAS FIELD IDENTIFIED AND SURVEYED.
6. REFER TO APPENDIX H FOR ADDITIONAL DRAINAGE INFORMATION.
7. REFER TO APPENDIX I FOR USACE ADDITIONAL INFORMATION.
8. PERMITTED FINAL COVER CONTOURS AND DRAINAGE REPRODUCED FROM THE TIER I PERMIT MODIFICATION PREPARED BY WEAVER CONSULTANTS GROUP, LLC IN NOVEMBER 2021 AND APPROVED BY ODEQ ON JANUARY 24, 2022.

LICENSED PROFESSIONAL ENGINEER
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10/13/2023

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DATE: 10/2023
FILE: 0086-364-11
CAD: 12-FINAL COVER SEC LOC.DWG
DRAWN BY: JDW
DESIGN BY: JBP
REVIEWED BY: JVQ

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CA 3804 PE – 06/30/2025

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REVISIONS		
NO.	DATE	DESCRIPTION

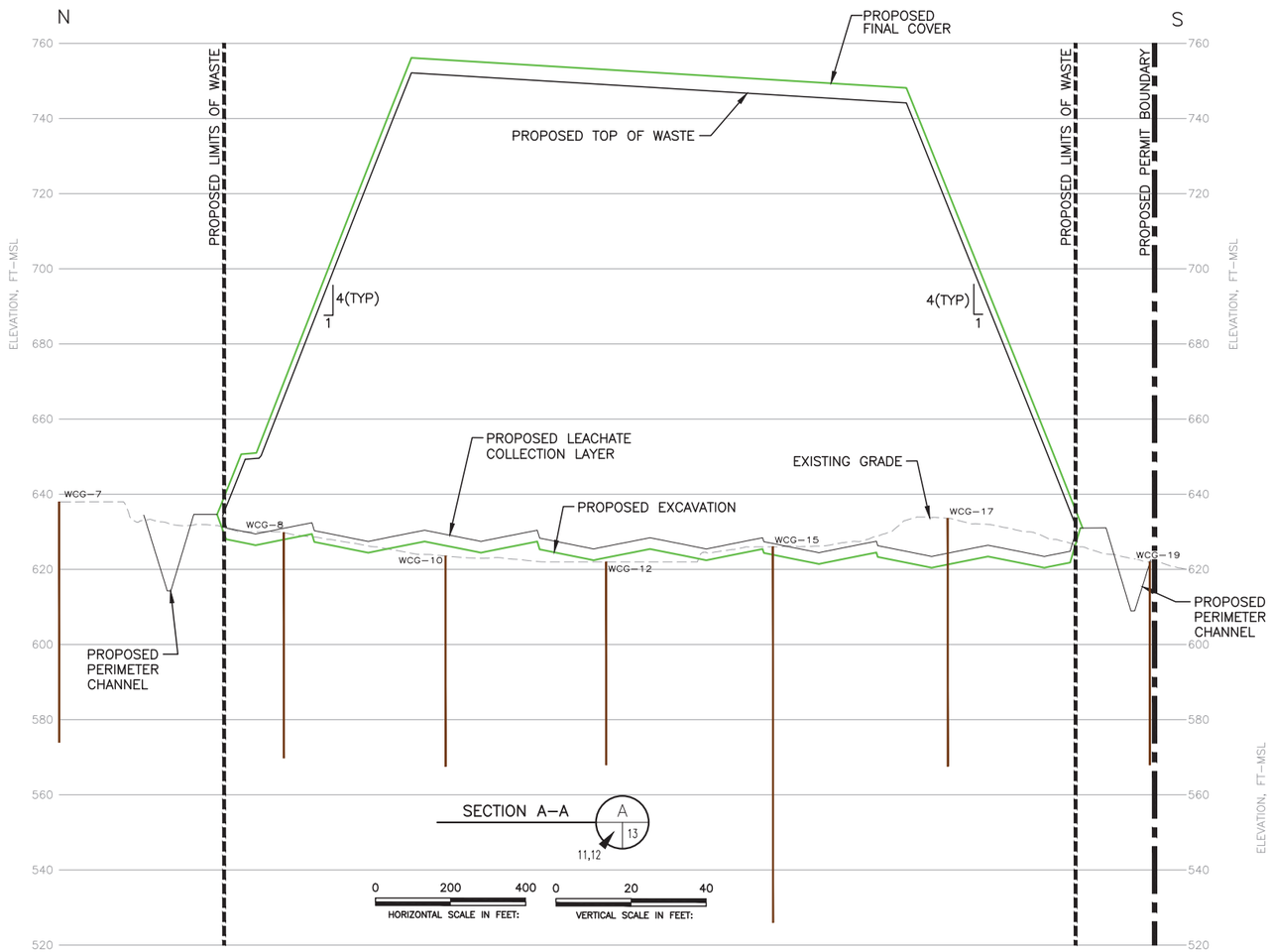
TIER III PERMIT MODIFICATION
CROSS–SECTION LOCATION MAP–CLOSED PHASES

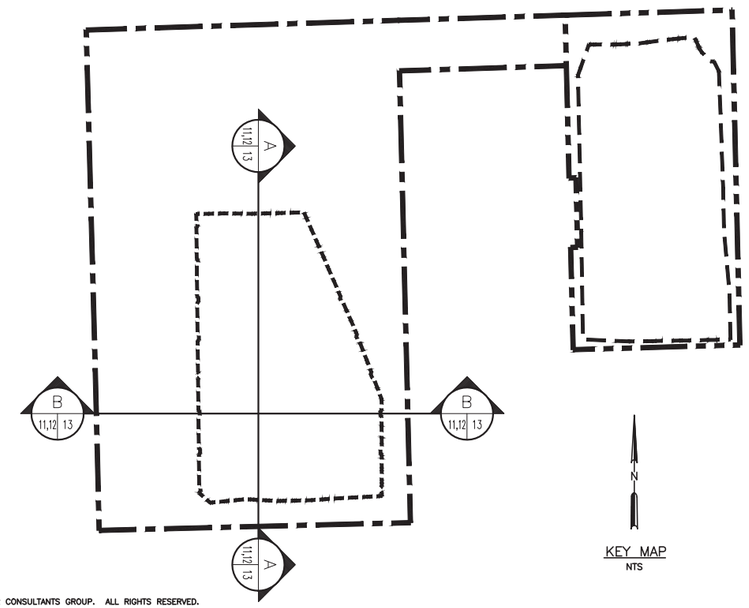
MUSKOGEE COMMUNITY RDF
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DRAWING 12

O:\0086\364\EXPANSION 2022\PERMIT DRAWINGS\12-FINAL COVER SECTION LOCATION.dwg, smurrey, 1:2





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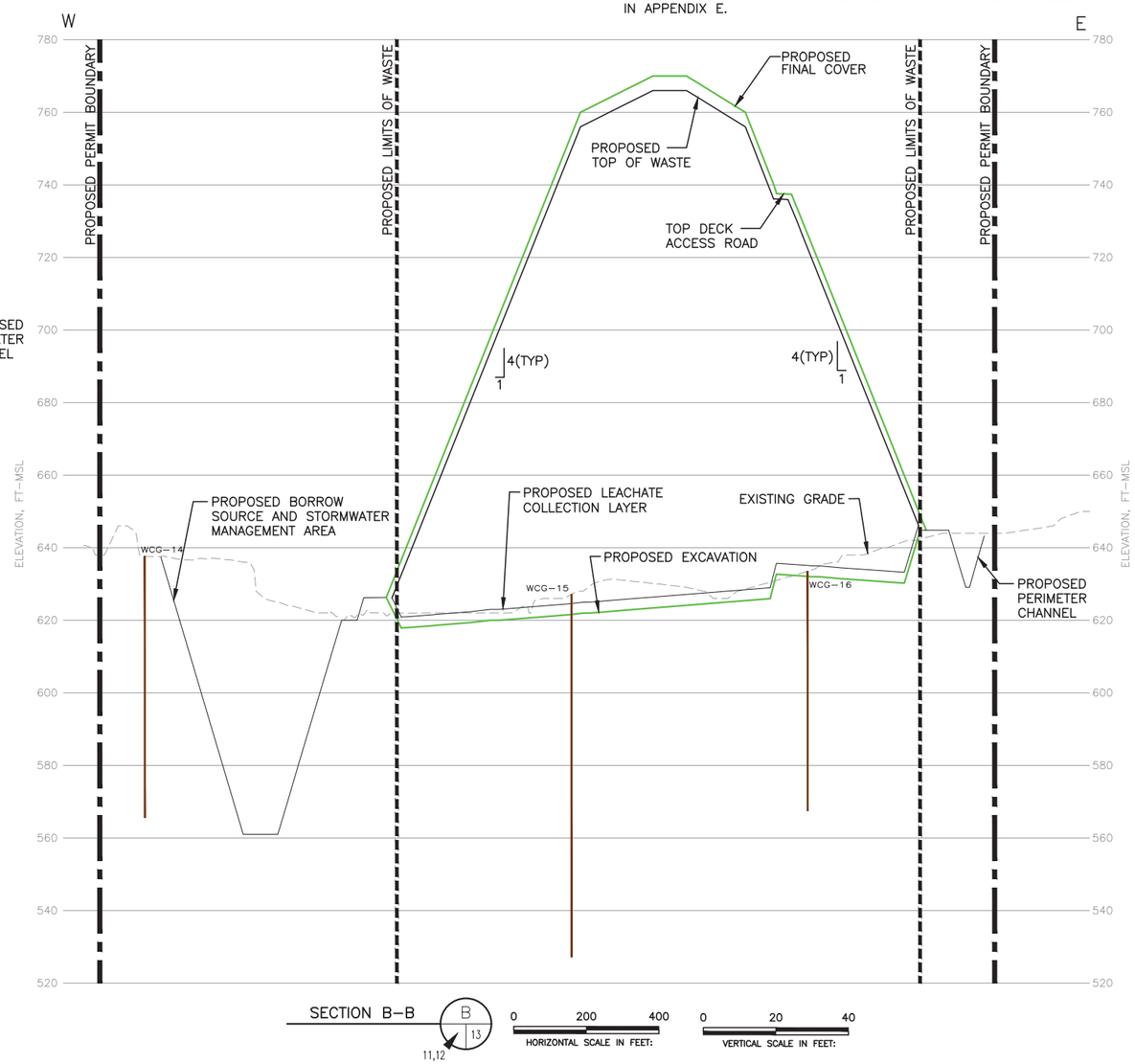
LICENSED PROFESSIONAL ENGINEER
JONATHAN V. QUEEN
24456
OKLAHOMA
10/13/2023

LEGEND

- PROPOSED PERMIT BOUNDARY
- PROPOSED LIMITS OF WASTE
- PROPOSED FINAL COVER
- EXISTING GRADE

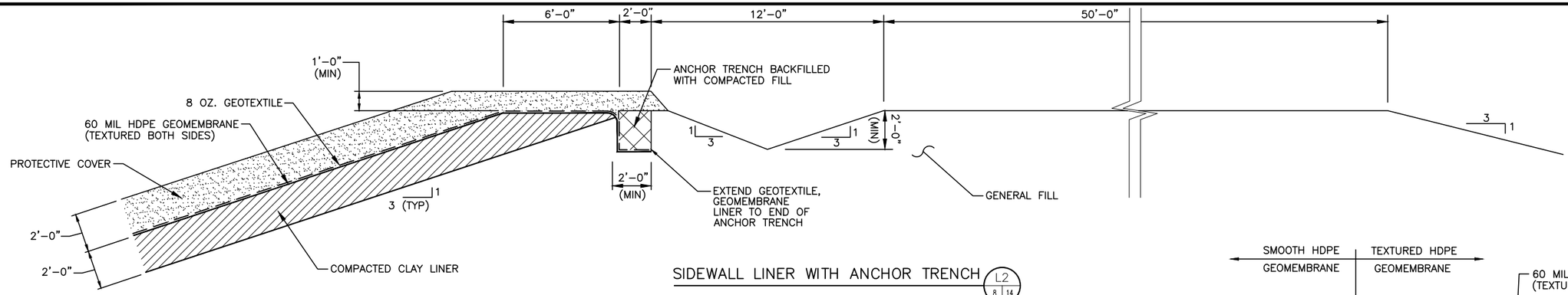
NOTES:

1. EXISTING CONTOURS AND ELEVATIONS PROVIDED BY HYDREX ENVIRONMENTAL FROM AERIAL PHOTOGRAPHY FLOWN 01-24-2022.
2. REFER TO DRAWING 14 FOR LINER SYSTEM DETAILS.
3. REFER TO DRAWING 15 FOR LEACHATE COLLECTION SYSTEM DETAILS.
4. REFER TO DRAWING 16 FOR PERIMETER ROAD AND CHANNEL DETAILS.
5. REFER TO DRAWING 16 FOR FINAL COVER DETAILS.
6. POST DEVELOPMENT AND EXCAVATION GRADES ARE SHOWN ON DRAWINGS 11 AND 12.
7. ADDITIONAL BORING AND GROUNDWATER INFORMATION IS PROVIDED IN APPENDIX E.



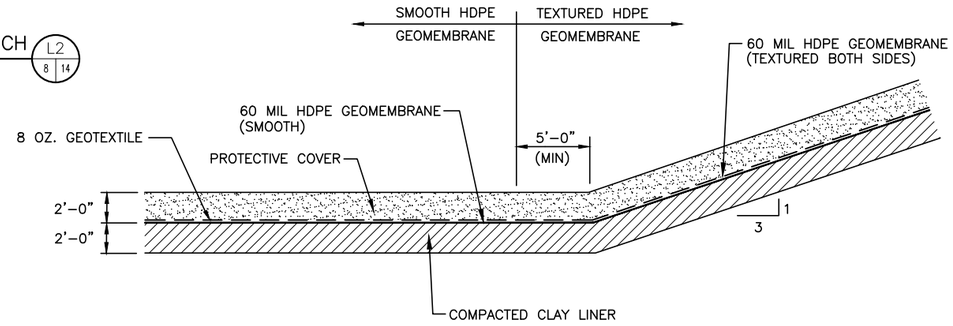
☐ DRAFT ☒ FOR PERMITTING PURPOSES ONLY ☐ ISSUED FOR CONSTRUCTION	PREPARED FOR WASTE MANAGEMENT OF OKLAHOMA, INC.	TIER III PERMIT MODIFICATION CROSS-SECTIONS A AND B
DATE: 10/2023 FILE: 0086-364-11 CAD: 13-CROSS SECTION A.DWG DRAWN BY: JDW DESIGN BY: JBP REVIEWED BY: JVQ	REVISIONS NO. / DATE / DESCRIPTION	MUSKOGEE COMMUNITY RDF MUSKOGEE COUNTY, OKLAHOMA
Weaver Consultants Group CA 3804 PE - 06/30/2025	WWW.WCGRP.COM	DRAWING 13

O:\0086\364\EXPANSION 2022\PERMIT DRAWINGS\13-CROSS SECTION.dwg, smurray, 1:2



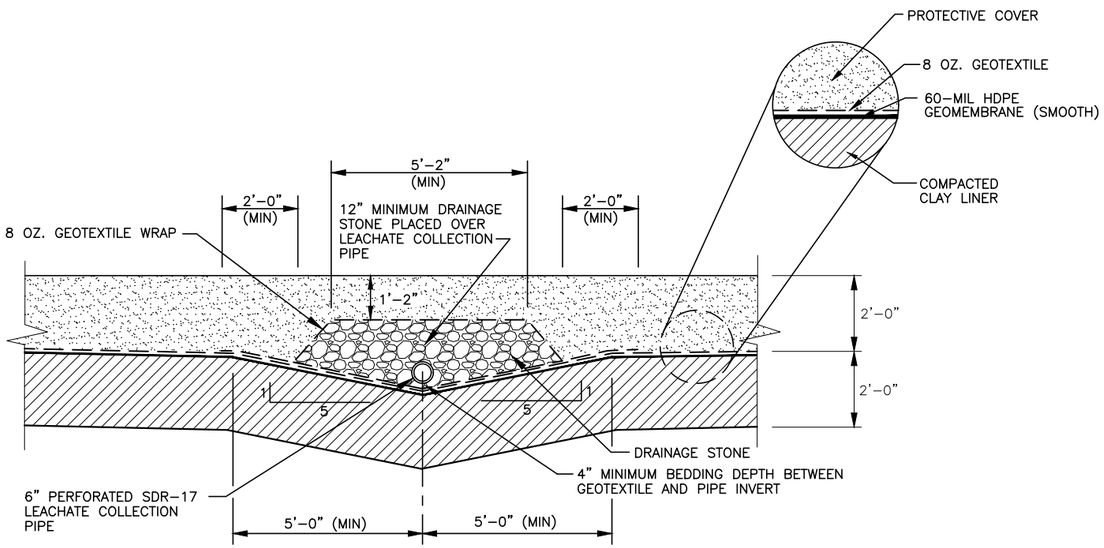
SIDEWALL LINER WITH ANCHOR TRENCH L2 8 14

0 3 6
SCALE IN FEET



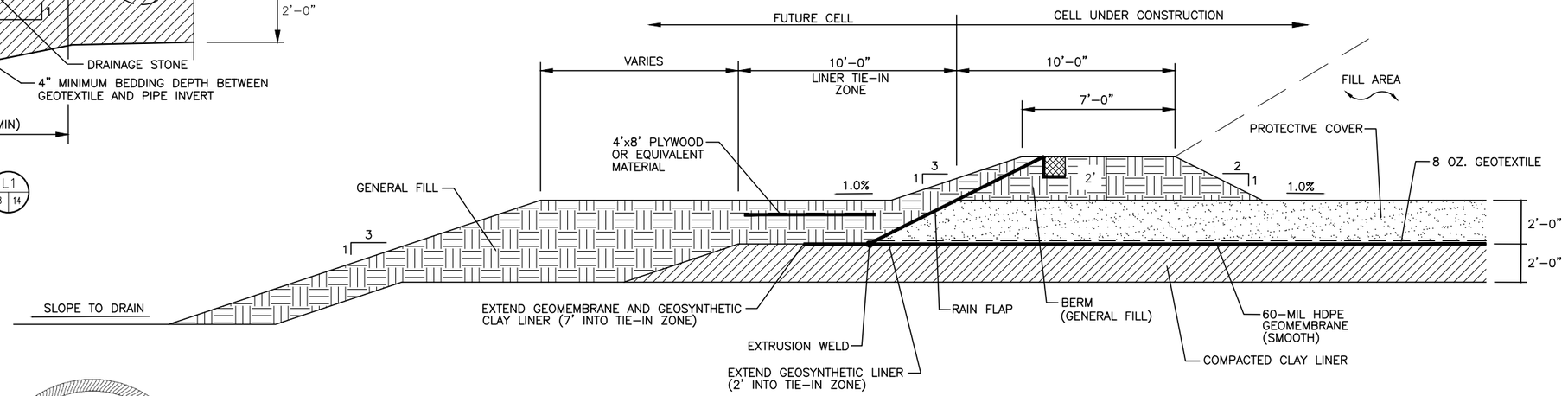
SIDEWALL LINER L3 8 14

0 5 10
SCALE IN FEET



LINER SYSTEM L1 8 14

0 2 4
SCALE IN FEET



FUTURE LINER TIE-IN L4 8 14

0 3 6
SCALE IN FEET

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24456
OKLAHOMA
10/13/2023

NOTE:

1. MATERIAL PROPERTIES AND QA/QC REQUIREMENTS FOR EACH OF THE LINER COMPONENTS ARE SPECIFIED IN APPENDIX K.
2. AN ALTERNATE TO THE 2 FEET OF CLAY IS 1 FOOT OF CLAY OVERLAIN BY A GCL. ONLY REINFORCED GCL WILL BE UTILIZED. UNREINFORCED GCL WILL NOT BE UTILIZED.

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DATE: 10/2023
FILE: 0086-364-11
CAD: 14-LINER-DTLS.DWG
DRAWN BY: JDW
DESIGN BY: JBP
REVIEWED BY: JVQ

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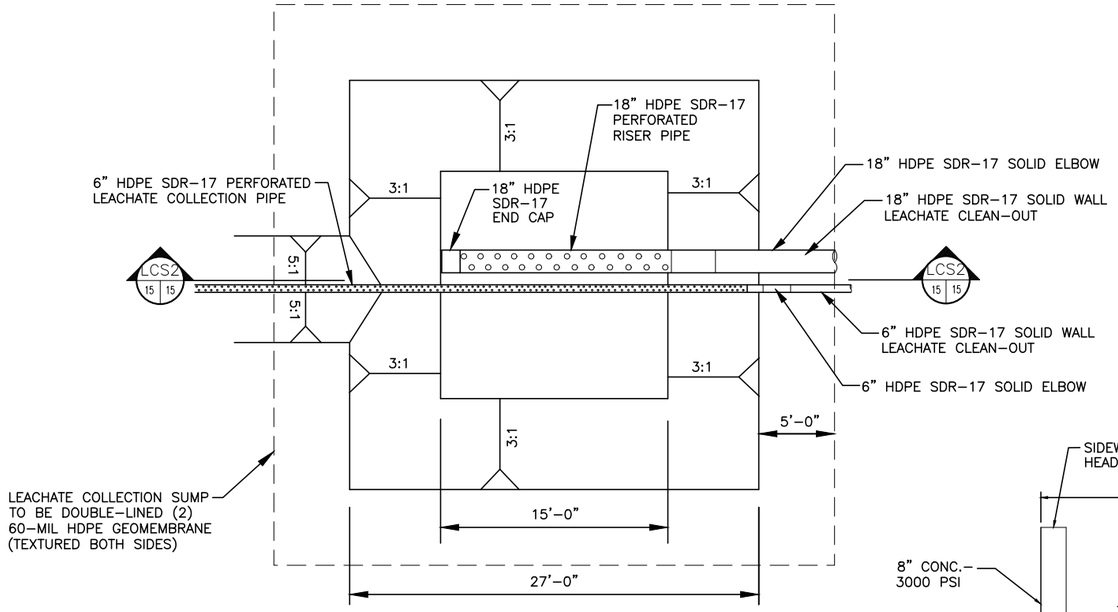
TIER III PERMIT MODIFICATION LINER AND LEACHATE COLLECTION SYSTEM DETAILS

MUSKOGEE COMMUNITY RDF
MUSKOGEE COUNTY, OKLAHOMA

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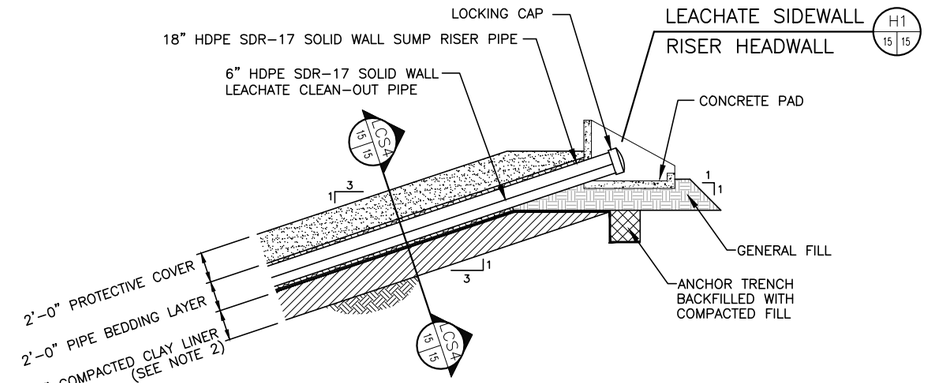
DRAWING 14

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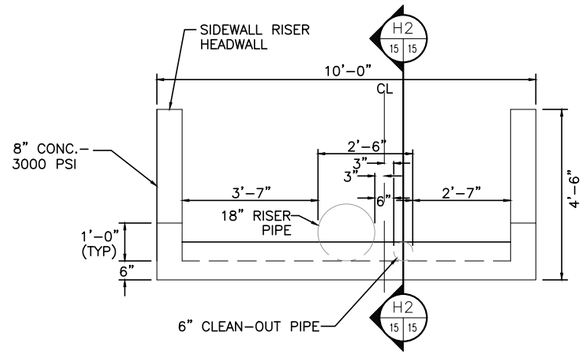
LEACHATE COLLECTION SUMP PLAN LCS1 (9 15)

0 5 10
SCALE IN FEET



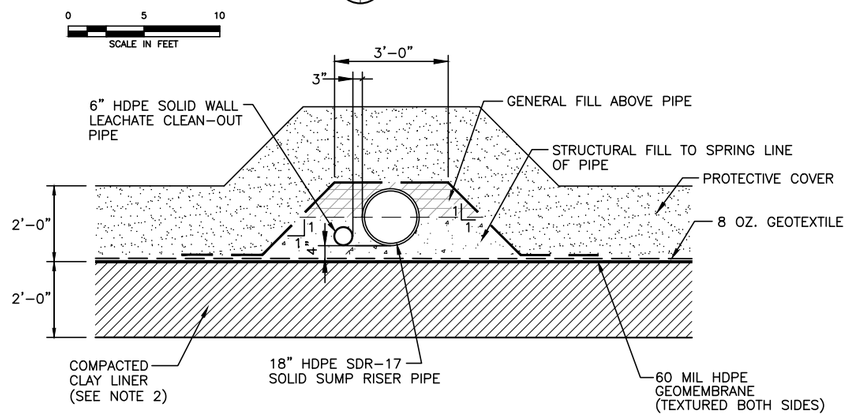
RISER/CLEANOUT PIPE TERMINATION LCS3 (9 15)

0 5 10
SCALE IN FEET



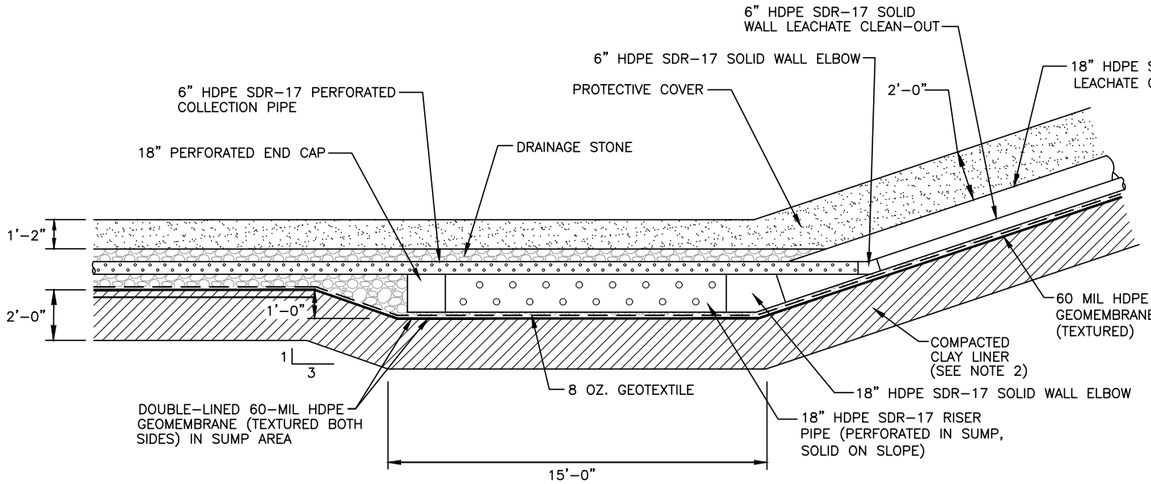
LEACHATE SIDEWALL RISER HEADWALL H1 (15 15)

0 2 4
SCALE IN FEET



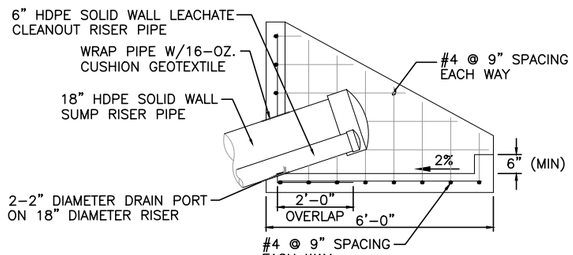
RISER/CLEANOUT PIPE SIDEWALL SECTION LCS4 (15 15)

0 2 4
SCALE IN FEET



TYPICAL LEACHATE SUMP SECTION LCS2 (15 15)

0 3 6
SCALE IN FEET



SIDEWALL RISER HEADWALL SECTION H2 (15 15)

0 2 4
SCALE IN FEET

NOTE:

1. MATERIAL PROPERTIES AND QA/QC REQUIREMENTS FOR EACH OF THE LINER COMPONENTS ARE SPECIFIED IN APPENDIX K.
2. AN ALTERNATE TO THE 2 FEET OF CLAY IS 1 FOOT OF CLAY OVERLAIN BY A GCL. ONLY REINFORCED GCL WILL BE UTILIZED. UNREINFORCED GCL WILL NOT BE UTILIZED.

LICENSED PROFESSIONAL ENGINEER
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OKLAHOMA

10/13/2023

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FILE: 0086-364-11
CAD: 15-SUMP-DTLS.DWG
DRAWN BY: JDW
DESIGN BY: JBP
REVIEWED BY: JVQ

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CA 3804 PE-06/30/2025

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REVISIONS

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TIER III PERMIT MODIFICATION LINER AND LEACHATE COLLECTION SYSTEM DETAILS

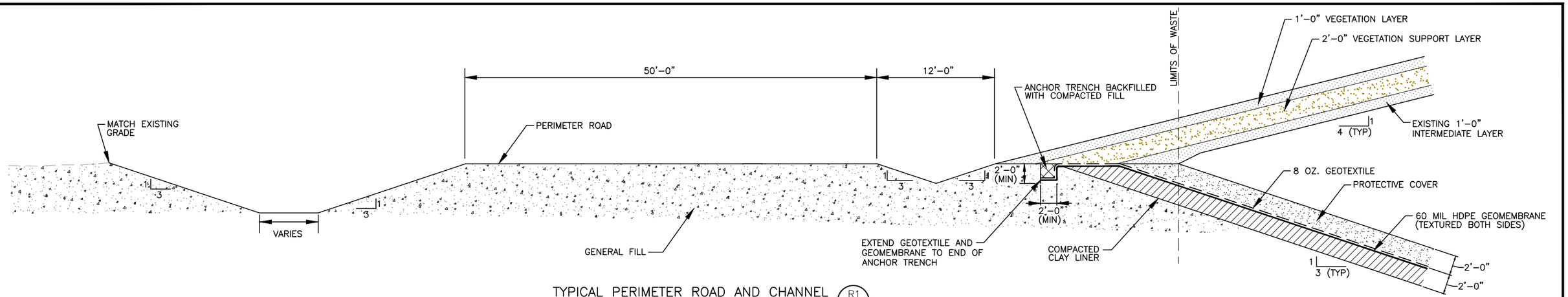
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MUSKOGEE COUNTY, OKLAHOMA

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DRAWING 15

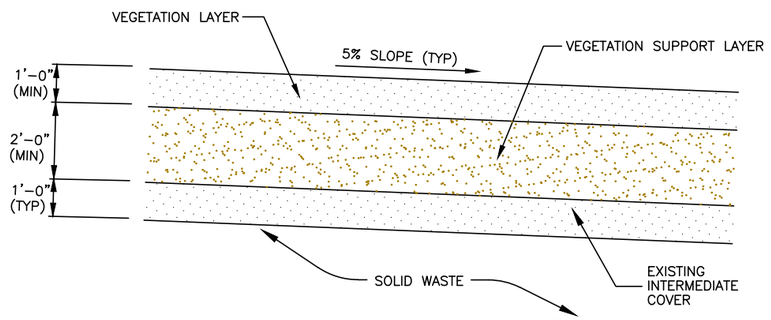
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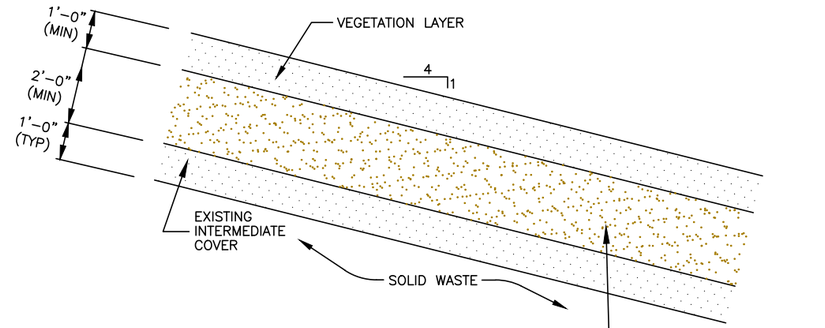
TYPICAL PERIMETER ROAD AND CHANNEL R1 (10 | 16)

0 5 10
SCALE IN FEET



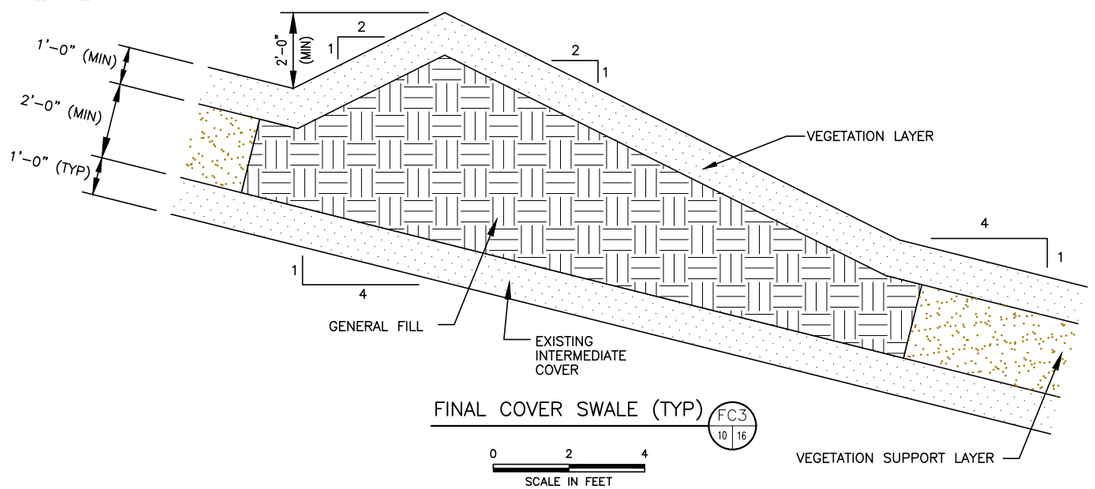
FINAL COVER–TOPSLOPE FC1 (10 | 16)

0 2 4
SCALE IN FEET



FINAL COVER–SIDESLOPE FC2 (10 | 16)

0 2 4
SCALE IN FEET



FINAL COVER SWALE (TYP) FC3 (10 | 16)

0 2 4
SCALE IN FEET

NOTE:

1. MATERIAL PROPERTIES AND QA/QC REQUIREMENTS FOR EACH OF THE LINER COMPONENTS ARE SPECIFIED IN APPENDIX K.

LICENSED PROFESSIONAL ENGINEER
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OKLAHOMA
10/13/2023

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DATE: 10/2023
FILE: 0086-364-11
CAD: 16-FC-DTLS.DWG
DRAWN BY: JDW
DESIGN BY: JBP
REVIEWED BY: JVQ

Weaver Consultants Group
CA 3804 PE-06/30/2025

PREPARED FOR
WASTE MANAGEMENT OF OKLAHOMA, INC.

REVISIONS

NO.	DATE	DESCRIPTION

TIER III PERMIT MODIFICATION
FINAL COVER DETAILS

MUSKOGEE COMMUNITY RDF
MUSKOGEE COUNTY, OKLAHOMA

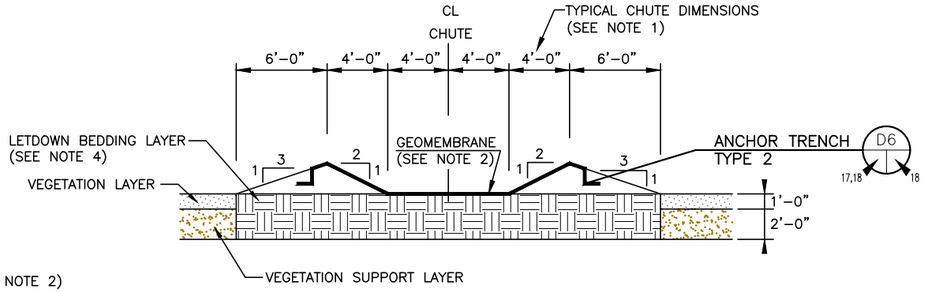
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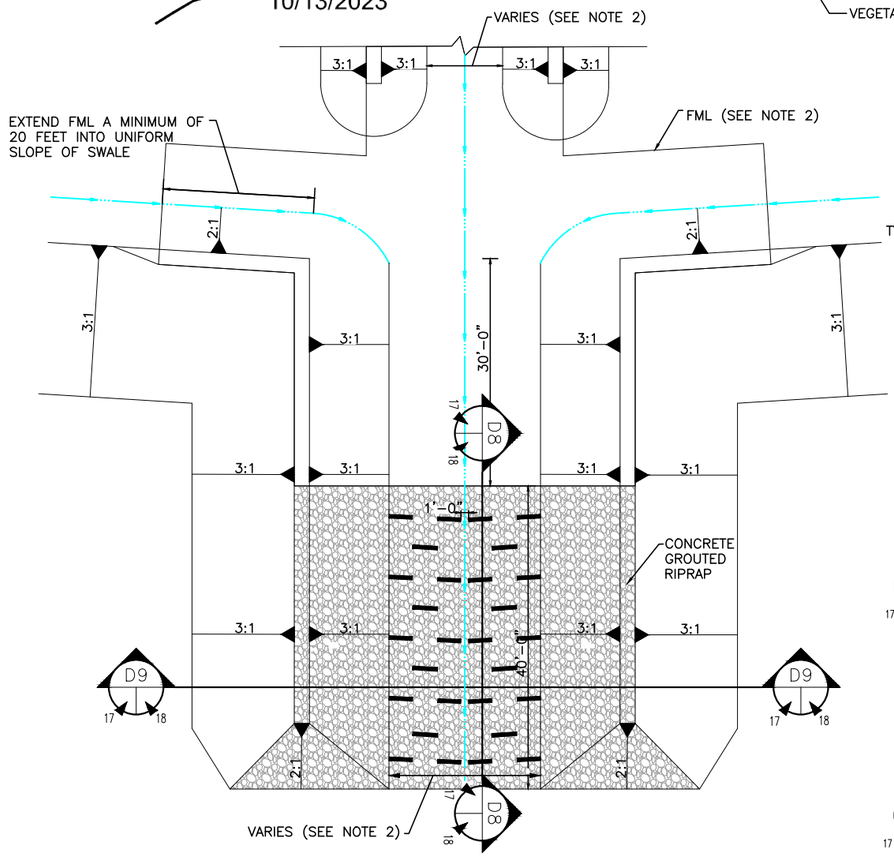
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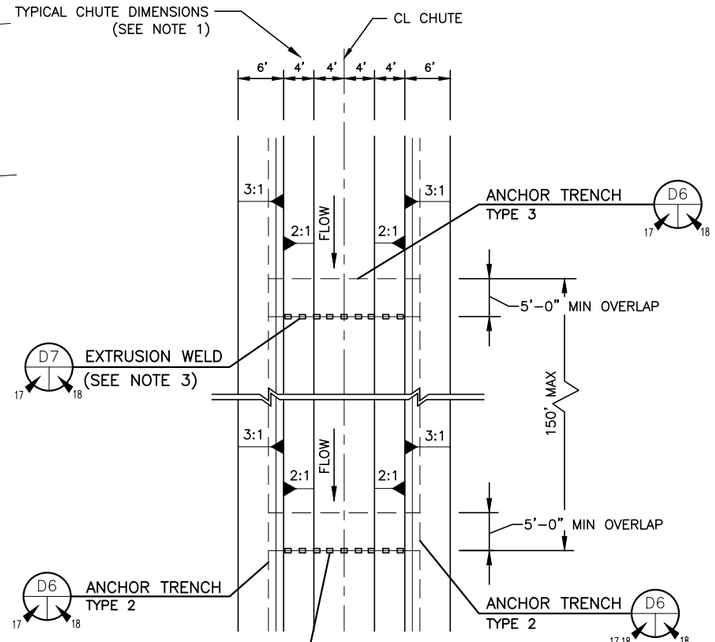
GEOMEMBRANE CHUTE D1 (10,17,18 / 17)

0 5 10
SCALE IN FEET



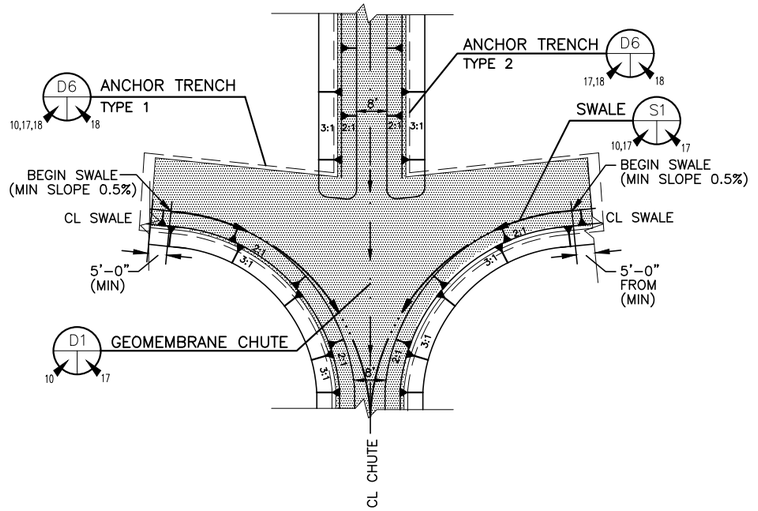
GEOMEMBRANE CHUTE TRANSITION D3 (10 / 17)

0 10 20
SCALE IN FEET



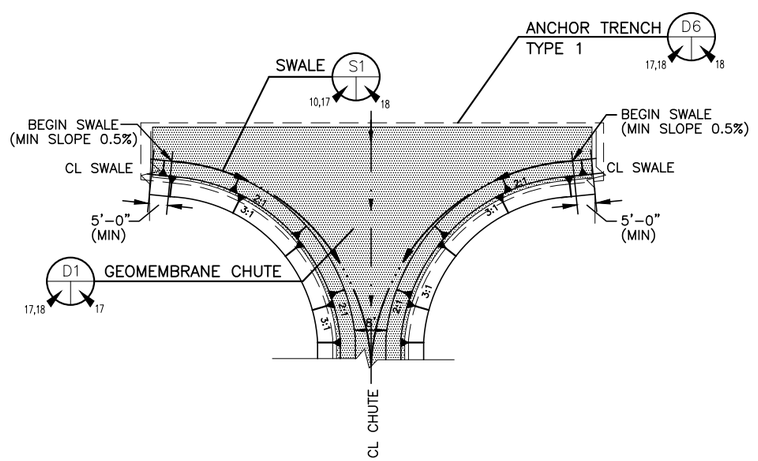
GEOMEMBRANE PLACEMENT D4 (17 / 17)

0 10 20
SCALE IN FEET



SWALE/GEOMEMBRANE CHUTE CONFLUENCE D2 (10 / 17)

0 20 40
SCALE IN FEET



UPPER SWALE/GEOMEMBRANE CHUTE CONFLUENCE D5 (10 / 17)

0 20 40
SCALE IN FEET

NOTES:

1. SEE APPENDIX H FOR CHUTE DESIGN SUMMARY.
2. 60 MIL HDPE GEOMEMBRANE TEXTURED BOTH SIDES SHALL BE USED FOR GEOMEMBRANE LETDOWN LINING.
3. EXTRUSION WELD UPSTREAM PANEL OVER DOWNSTREAM PANEL USING 1'–0" LONG EXTRUSION WELD WITH A SPACING OF 1'–0" BETWEEN EACH WELD.
4. VEGETATION LAYER MATERIAL BELOW DRAINAGE LETDOWN WILL CONSIST OF A SW OR SP MATERIAL AS DEFINED BY UNIFIED SOIL CLASSIFICATION SYSTEM (USCS).

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DATE: 10/2023
FILE: 0086-364-11
CAD: 17-DRAINAGE DETAILS.DWG
DRAWN BY: RAA
DESIGN BY: MB
REVIEWED BY: CRM

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CA 3804 PE – 06/30/2025

PREPARED FOR
WASTE MANAGEMENT OF OKLAHOMA, INC.

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NO.	DATE	DESCRIPTION

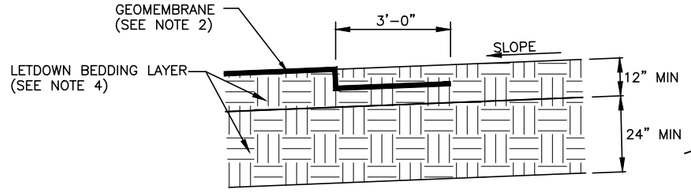
TIER III PERMIT MODIFICATION
DRAINAGE DETAILS

MUSKOGEE COMMUNITY RDF
MUSKOGEE COUNTY, OKLAHOMA

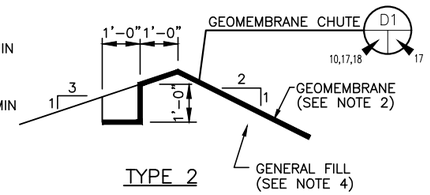
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DRAWING 17

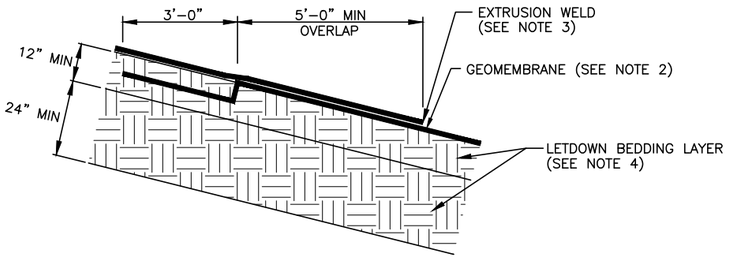
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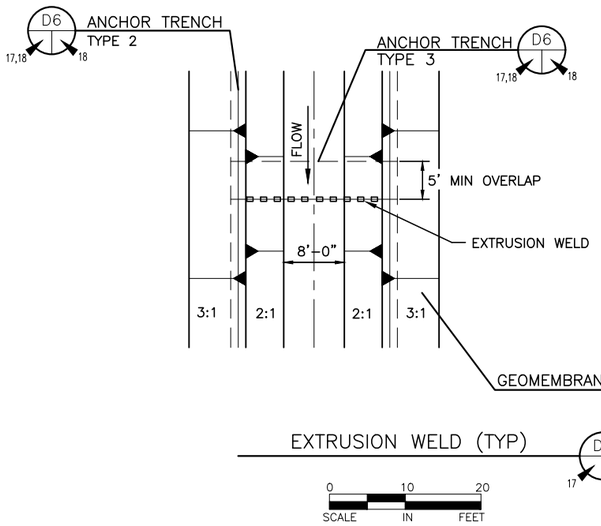
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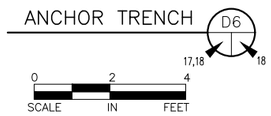


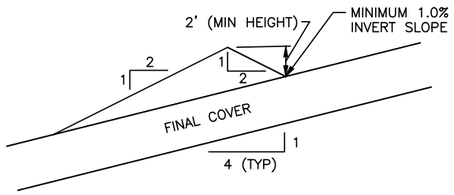
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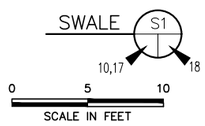


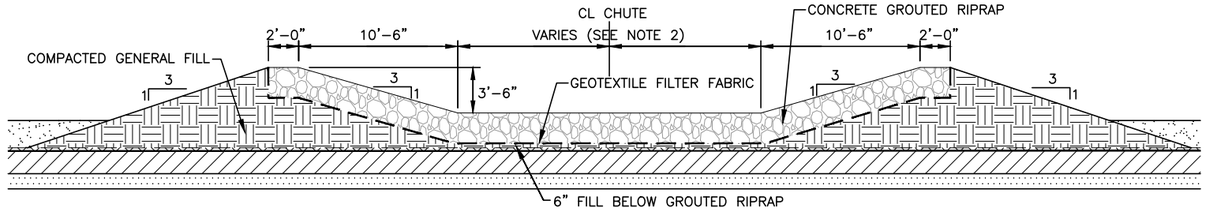
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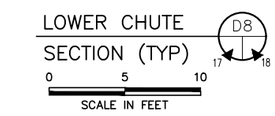


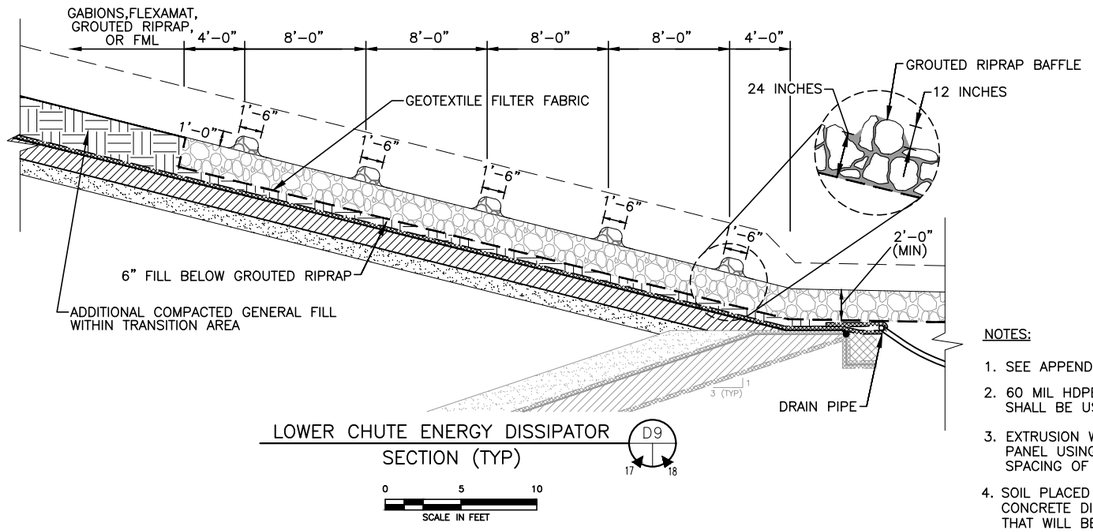










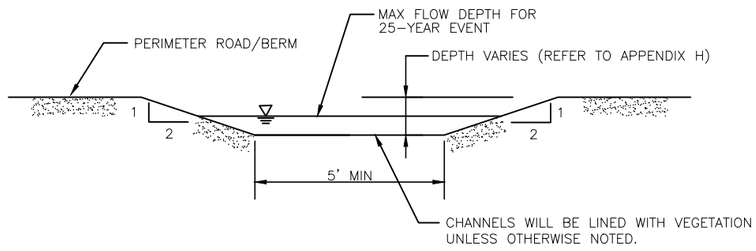


LOWER CHUTE ENERGY DISSIPATOR
SECTION (TYP) D9
17 18

0 5 10
SCALE IN FEET

LICENSED PROFESSIONAL ENGINEER
JONATHAN V. QUEEN
24456
OKLAHOMA

10/13/2023



TRAPEZOIDAL CHANNEL (TYP) D12
10 18

0 2 4
SCALE IN FEET

NOTES:

1. SEE APPENDIX H FOR CHUTE DESIGN SUMMARY.
2. 60 MIL HDPE GEOMEMBRANE TEXTURED BOTH SIDES SHALL BE USED FOR GEOMEMBRANE LETDOWN LINING.
3. EXTRUSION WELD UPSTREAM PANEL OVER DOWNSTREAM PANEL USING 1'-0" LONG EXTRUSION WELD WITH A SPACING OF 1'-0" BETWEEN EACH WELD.
4. SOIL PLACED UNDER GEOMEMBRANE LETDOWN AND CONCRETE DISSIPATER SHALL NOT CONTAIN TOPSOIL THAT WILL BE USED FOR VEGETATIVE LAYER.

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☒ FOR PERMITTING PURPOSES ONLY
☐ ISSUED FOR CONSTRUCTION

DATE: 10/2023
FILE: 0086-364-11
CAD: 18-DRAINAGE DETAILS.DWG

DRAWN BY: RAA
DESIGN BY: MB
REVIEWED BY: CRM

Weaver Consultants Group
CA 3804 PE – 06/30/2025

PREPARED FOR
WASTE MANAGEMENT OF OKLAHOMA, INC.

REVISIONS		
NO.	DATE	DESCRIPTION

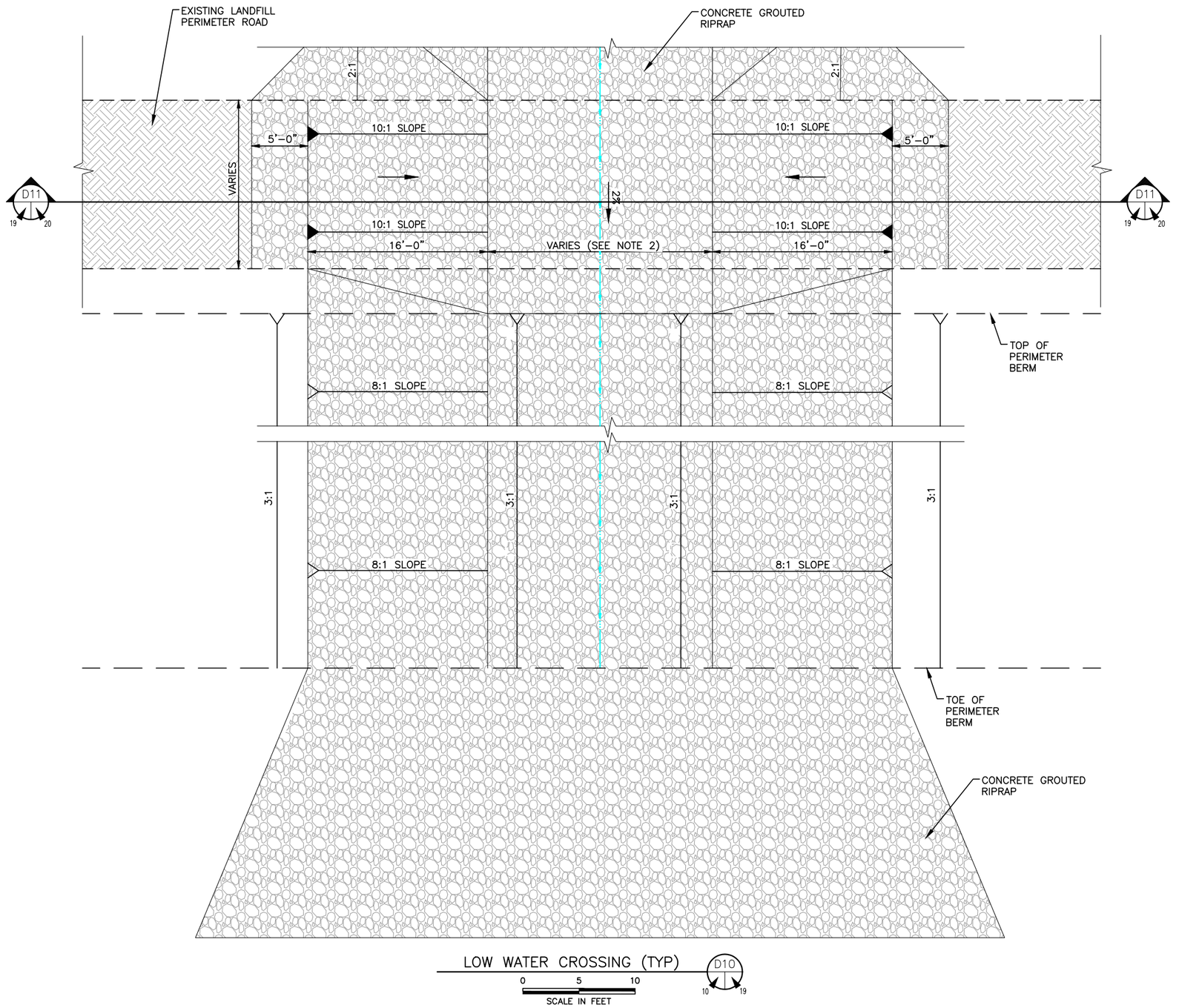
TIER III PERMIT MODIFICATION
DRAINAGE DETAILS

MUSKOGEE COMMUNITY RDF
MUSKOGEE COUNTY, OKLAHOMA

WWW.WCGRP.COM

DRAWING 18

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LOW WATER CROSSING (TYP) D10 10 19

0 5 10

SCALE IN FEET

LICENSED PROFESSIONAL ENGINEER
JONATHAN V. QUEEN
24456
OKLAHOMA
10/13/2023

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DATE: 10/2023
FILE: 0086-364-11
CAD: 19-DRAINAGE DETAILS.DWG

DRAWN BY: RAA
DESIGN BY: MB
REVIEWED BY: CRM

Weaver Consultants Group
CA 3804 PE - 06/30/2025

PREPARED FOR
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REVISIONS

NO.	DATE	DESCRIPTION

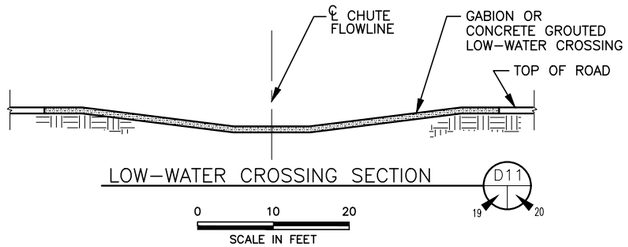
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DRAINAGE DETAILS

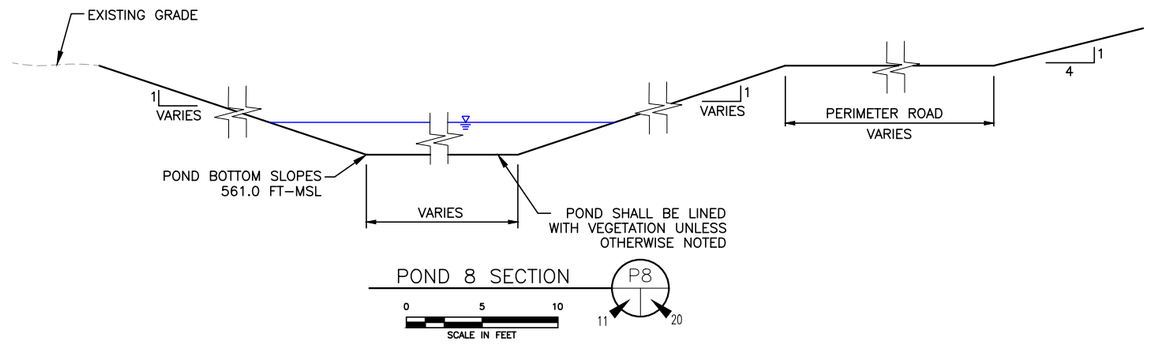
MUSKOGEE COMMUNITY RDF
OKLAHOMA COUNTY, OKLAHOMA

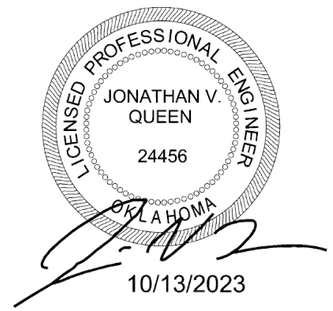
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DRAWING 19

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DATE: 10/2023
FILE: 0086-364-11
CAD: 20-DRAINAGE DETAILS.DWG

DRAWN BY: JDW
DESIGN BY: MB
REVIEWED BY: CRM

Weaver Consultants Group
CA 3804 PE - 06/30/2025

PREPARED FOR
WASTE MANAGEMENT OF OKLAHOMA, INC.

REVISIONS

NO.	DATE	DESCRIPTION

TIER III PERMIT MODIFICATION
DRAINAGE DETAILS

MUSKOGEE COMMUNITY RDF
MUSKOGEE COUNTY, OKLAHOMA

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DRAWING 20

MUSKOGEE COMMUNITY RECYCLING AND DISPOSAL FACILITY
MUSKOGEE COUNTY, OKLAHOMA
ODEQ PERMIT NO. 3551020

APPENDIX A

WASTE MANAGEMENT
ANNUAL REPORTS

Prepared for

Waste Management of Oklahoma, Inc.

October 2023

Prepared by

Weaver Consultants Group, LLC
CA 3804 PE – 06/30/2025
6420 Southwest Boulevard, Suite 206
Fort Worth, Texas 76109
817-735-9770

WCG Project No. 0086-364-11-19

WASTE MANAGEMENT
ANNUAL REPORTS

The purpose of this appendix is to provide a location for Waste Management annual reports. Annual reports are available at http://investors.wm.com/financial-information/annual-reports.

MUSKOGEE COMMUNITY RECYCLING AND DISPOSAL FACILITY
MUSKOGEE COUNTY, OKLAHOMA
ODEQ PERMIT NO. 3551020

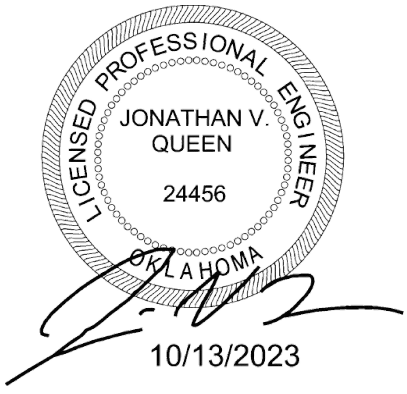
APPENDIX B

PERMIT, PROOF OF PUBLICATION, LEGAL DESCRIPTION, AND VOLUME CALCULATIONS

Prepared for

Waste Management of Oklahoma, Inc.

October 2023



Prepared by

Weaver Consultants Group, LLC
CA 3804 PE – 06/30/2025
6420 Southwest Boulevard, Suite 206
Fort Worth, Texas 76109
817-735-9770

WCG Project No. 0086-364-11-19

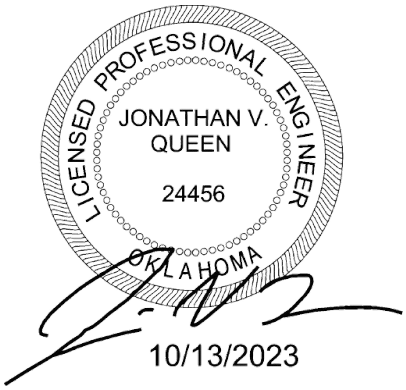
CONTENTS

APPENDIX B-1
Existing Permits

APPENDIX B-2
Proof of Publication

APPENDIX B-3
Permit Boundary Legal Description, Deeds, Easements

APPENDIX B-4
Volume Calculations



APPENDIX B-1

EXISTING PERMIT

Note: This appendix includes the following.

- January 24, 2022 Permit Modification to increase the permitted waste disposal capacity, revise drainage letdown/swale, and revise perimeter drainage system.
- January 8, 2014 Tier I Permit Modification to incorporate existing in-place final cover, access road, powerline realignment and revise as-built completion plan, drainage letdown/swale completion plan for decrease in permitted footprint.
- July 1996 Permit Modification to obtain approval of site development and operating plan for Subtitle D Municipal Solid Waste Landfill.
- April 4, 1987 Permit to construct, operate, and maintain a Type I-B landfill facility.
- April 4, 1987 Solid Waste Permit Transfer from City of Muskogee to Waste Management of Oklahoma, Inc.
- August 6, 1996 Permit Modification to obtain approval of site development and operating plan for Subtitle D Municipal Solid Waste Landfill.
- April 4, 1987 Permit to construct, operate, and maintain a Type I-B landfill facility.
- April 4, 1987 Solid Waste Permit Transfer from City of Muskogee to Waste Management of Oklahoma, Inc.

SCOTT A. THOMPSON
Executive Director

OKLAHOMA DEPARTMENT OF ENVIRONMENTAL QUALITY

KEVIN STITT
Governor

January 24, 2022

Mr. Pete Schultze
Waste Management Inc.
2801 S. 54th St.
Muskogee, OK 74401

Re: Tier I Modification, Landfill Completion and Excavation Plan Revision, Muskogee Community R&D Facility, Muskogee County, Permit Number 3551020

Dear Mr. Schultze:

The Department of Environmental Quality (DEQ) is in receipt of the above referenced application dated November 22, 2021. DEQ has reviewed the application and found it to be technically complete.

The application proposes to increase the permitted waste disposal capacity of the landfill. The increase in capacity is 685,000 cubic yards, which is an 11.6% increase above the already approved 5,915,889 cubic yard capacity. The application also proposes to revise the Completion Plan and drainage letdown/swale configuration and revise the perimeter drainage system, including replacement of the northern permitted stormwater detention area with a proposed stormwater detention area to the west on an adjacent property. Pursuant to Oklahoma Administrative Code (OAC) 252:4-7-58(2) the submittal was processed as a Tier I Application. The Department approves the permit modification, which is effective on the date that it is signed.

Please contact Martha Grafton of my staff at (405) 702-5144 or martha.grafton@deq.ok.gov, if there are any questions concerning the permit modification.

Sincerely,

Hillary Young, P.E.
Chief Engineer
Land Protection Division

HY/mg

Enclosure

SCOTT A. THOMPSON
Executive Director

OKLAHOMA DEPARTMENT OF ENVIRONMENTAL QUALITY

KEVIN STITT
Governor

SOLID WASTE PERMIT MODIFICATION

The Department of Environmental Quality hereby approves the following modification:

Permit Number:	3551020
Facility:	Muskogee Community R&D Facility
Facility Type:	Municipal Solid Waste Facility
County :	Muskogee County

MODIFICATION: Modify the permit to (1) increase the permitted waste disposal capacity by 4.2 acres north of Cell 11 (proposed Cell 12 and 13); (2) revise the completion plan and drainage letdown/swale configuration per the proposed footprint modification; and (3) revise the perimeter drainage system, including replacement of the northern permitted stormwater detention area with a proposed stormwater detention area to the west on an adjacent property. The increase in waste disposal capacity is 685,000 cubic yards, which is an 11.6% increase above the already approved 5,915,889 cubic yard capacity. Pursuant to Oklahoma Administrative Code (OAC) 252:4-7-58(2) the submittal was processed as a Tier I Application.

INCORPORATION BY REFERENCE:

The application, dated November 22, 2021 is considered approved and is incorporated as part of this modification.

CONDITIONS:

Upon completion of construction, Muskogee Community R&D Facility shall:

1. Update the closure and post closure cost estimates, as necessary, to incorporate changes made in this modification.

2. Update the re-circulation and irrigation plans, as necessary, to incorporate this modification.

The permittee is authorized to operate in conformity with the application described above. Commencing operations under this modification constitutes acceptance of, and consent to, the conditions contained herein.

Hillary Young

Date: 1-24-22

Hillary Young, P.E.
Chief Engineer
Land Protection Division

SCOTT A. THOMPSON
Executive Director

OKLAHOMA DEPARTMENT OF ENVIRONMENTAL QUALITY

MARY FALLIN
Governor

January 8, 2014

Mr. Pete Schultze
Waste Management, Inc.
2801 S. 54th St. W.
Muskogee, OK 74401

Re: Tier I Permit Modification
Drainage Improvements & Landfill Completion Plan Revisions
Muskogee Recycling & Disposal Facility (Permit No. 3551020)
Muskogee County, OK

Dear Mr. Schultze:

The Department of Environmental Quality (DEQ) received the above referenced permit modification dated December 5, 2013, submitted by Weaver Boos Consultants, LLC – Southwest. The submittal was processed as a Tier I permit modification in accordance with Oklahoma Administrative Code (OAC) 252:4-7-58(2)(A)(ii).

The modification includes plans to: (1) incorporate the existing in-place final cover, (2) revise the completion plan to reflect as-built conditions, (3) revise the drainage letdown/swale configuration, (4) incorporate an existing landfill access road to the top deck in lieu of the permitted soil tack-on road, (5) incorporate the OG&E proposed power line realignment and easement location, (6) decrease the permitted footprint by 0.03 acres adjacent to the proposed power line easement location, and (7) revise the completion plan to reflect the decrease of the permitted footprint.

In accordance with OAC 252:515-5-52(a), a minimum horizontal separation of twenty-five (25) feet will be maintained between all waste management and disposal areas of the landfill and any above-ground utility line. The relocation of the utility line and the subsequent buffer zone will result in a footprint reduction of 0.03 acres. In addition, the existing in-place final cover, landfill access road, and as-built conditions have been incorporated into the completion plan.

In accordance with OAC 252:515-3-55(c), the modification included an existing contour map depicting the location and quantities of surface drainage entering and exiting the facility. Surface drainage location and quantities were demonstrated for the 25-year, 24-hour storm for three (3) development conditions. Those conditions included: (1) pre-development conditions, (2) current permitted post-development conditions, and (3) proposed post-development conditions.

The previously permitted drainage plan, dated July 1996, prepared by Rust Environmental & Infrastructure includes a pre-development analysis. This 1996 pre-development analysis was completed in an out of date modeling system that utilized more aggressive inputs than typically utilized in landfill drainage analysis. The updated drainage plan includes pre- and post-development analysis completed in HEC-1, flood hydrograph software developed by the U.S. Army Corps of Engineers. Upon re-evaluating pre- and post- development conditions using the HEC-1 model, inadequacies in the permitted drainage plan were revealed. This modification addresses those inadequacies by updating the post-development drainage plan to more closely reflect pre-development conditions.

The permit modification has been approved and a copy is enclosed with this letter. If you have any questions or concerns, please contact Rachel Hanigan at (405) 702-5196.

Sincerely,

Saba Tahmassebi, Ph.D., P.E.
Chief Engineer
Land Protection Division

ST/rh

cc: Jonathan V. Queen, P.E., Weaver Boos Consultants, LLC – Southwest

Enclosure: Solid Waste Permit Modification

SCOTT A. THOMPSON
Executive Director

OKLAHOMA DEPARTMENT OF ENVIRONMENTAL QUALITY

MARY FALLIN
Governor

SOLID WASTE PERMIT MODIFICATION

The Department of Environmental Quality hereby approves the following modification:

Permit Number:	**3551020**
Facility:	**Muskogee Community Recycling & Disposal Facility**
Facility Type:	**Municipal Solid Waste Landfill**
County:	**Muskogee County**

Modification: Modify the existing permit to change the existing drainage and landfill completion plans.

Conditions:

1. The application, dated December 5, 2013, is considered approved and is incorporated as a part of this permit modification.
2. In accordance with OAC 252:515-5-52(a), a minimum horizontal separation of twenty-five (25) feet will be maintained between all waste management and disposal areas of the landfill and any above-ground utility line.
3. The facility shall manage stormwater in accordance with OAC 252:515-17.
4. The facility shall maintain an updated stormwater pollution prevention plan (SWP3) on site at all times, as required by its Oklahoma Pollutant Discharge Elimination System (OPDES) permit.
5. Best management practices (BMPs) will be implemented to control erosion and sedimentation throughout site development.
6. Sediment that collects in the channels and stormwater detention ponds will be removed consistent with the stormwater system maintenance plan described in Section 1.4 of the application.

The permittee is authorized to operate in conformity with the application submitted to the Land Protection Division on December 5, 2013. Commencing operations under this modification constitutes acceptance of, and consent to, the conditions contained herein.

Date: 1/9/14

Saba Tahmassebi, Ph.D., P.E.
Chief Engineer
Land Protection Division

APPROVED

RECEIVED

MAY 12 1997

Waste Management
Division

Waste Management , Inc.

WASTE MANAGEMENT OF OKLAHOMA, INC.
MUSKOGEE COMMUNITY
RECYCLING AND DISPOSAL FACILITY
MUSKOGEE, OKLAHOMA

ODEQ PERMIT NO. 3551020

SUBTITLE D PERMIT MODIFICATIONS

JULY 1996

RUST ENVIRONMENT & INFRASTRUCTURE

Joan K. Leavitt, M.D.
Commissioner

Board of Health
James A. Cox, Jr., M.D.
President
Linda M. Johnson, M.D.
Vice President
Robert D. McCullough, II D.O.
Secretary/Treasurer
Wallace Byrd, M.D.
John B. Carmichael, D.D.S.
Ernest D. Martin
Walter Scott Mason, III
Edwin L. Pointer, M.D.
W. A. "Tate" Taylor

OKLAHOMA STATE DEPARTMENT OF HEALTH

P.O. BOX 53551
1000 N.E. TENTH
OKLAHOMA CITY, OK 73152

AN EQUAL OPPORTUNITY EMPLOYER

April 4, 1987

CERTIFIED MAIL

Walter G. Beckham, City Manager
City of Muskogee
P. O. Box 1927
Muskogee, Oklahoma 74402

Re: Permit Number 3551020
Type I-B Landfill Facility

Dear Mr. Beckham:

Enclosed is a permit to construct, operate, and maintain a Type I-B landfill facility, located in Lot 1 and the SE/4 of the NE/4 of Section 6, Township 14 North, Range 18 East, Indian Meridian, in Muskogee County, Oklahoma (see Attachment A). This permit is issued in accordance with the Regulations Governing Solid Waste and Sludge Manaagemnt, OSDH Bulletin 0524, adopted by the Oklahoma State Board of Health June 26, 1986. All operational practices shall be conducted in accordance with said Regulations, with the provisions of the enclosed permit, and with the plans and specifications approved by the Department on the date hereof. The facility shall be constructed in accordance with said plans and specifications, with the provisions of the enclosed permit, and with the technical design standards contained in the Solid Waste Management Rules and Regulations Including Sludge Management Rules and Regulations, OSDH Bulletin 0524, adopted by the Oklahoma State Board of Health March 27, 1982.

The enclosed permit is issued subject to the provisions listed thereon. Upon receipt of this permit, it should be made a part of your permanent records.

We are returning one set of the approved plans and specifications, forwarding one set to the Muskogee County Health Department, and retaining one set for our files.

Sincerely,

Dwain Farley

Dwain Farley, Ph.D., Chief
Waste Management Service

Enclosures

cc: J. C. Shutler, RPS, Muskogee County Health Department
Gary Burnett, RPS, District Sanitarian

OKLAHOMA STATE DEPARTMENT OF HEALTH
1000 NORTHEAST TENTH STREET
POST OFFICE BOX 53551
OKLAHOMA CITY, OKLAHOMA 73152

WASTE MANAGEMENT SERVICE
ENVIRONMENTAL HEALTH SERVICES

PERMIT

TYPE I-B

CITY OF MUSKOGEE

PERMIT NUMBER: 3551020

EFFECTIVE DATE: April 4, 1987
EXPIRATION DATE: See Provision 3

having complied with the requirements of the law is hereby granted permission to construct, operate, and maintain a Type I-B Metropolitan Sanitary Landfill located in Lot 1 and the SE/4 of the NE/4 of Section 6, Township 14 North, Range 18 East. Indian Meridian in Muskogee County, Oklahoma (see Attachment A).

This site shall be subject to the following provisions:

(see Attachment B)

Dwain Farley _____ Chief, Waste Management Services

Mark L Coleman _____ Deputy Commissioner for Environmental Health Services

Jane K. Leavitt, MD _____ Commissioner of Health

CITY OF MUSKOGEE
Permit Number 3551020
Type I-B
Attachment A

LEGAL DESCRIPTION
CITY OF MUSKOGEE LANDFILL

Lot 1 and the SE 1/4 of the NE 1/4 of Section 6, Township 14 North, Range 18 East, being more particularly described as follows:

Beginning at the Northeast Corner of said Section 6; thence West along the North line of said Section 6 a distance of 1320 feet according to U. S. Government Survey; thence Southerly along the West line of the East Half of the Northeast Quarter of said Section 6 a distance of 2659.30 feet according to U. S. Government Survey to a point on the South line of the Northeast Quarter of said Section 6; thence Easterly along the South line of said Northeast Quarter of said Section 6 a distance of 1320 feet according to U. S. Government Survey to a point on the East line of said Section 6; thence Northerly along said East line of said Section 6 a distance of 2665.74 feet according to U. S. Government Survey to the Point of Beginning and containing 80.68 acres, more or less, according to U. S. Government Survey thereof.

CITY OF MUSKOGEE

PERMIT NUMBER 3551020

TYPE I-B METROPOLITAN SANITARY LANDFILL

ATTACHMENT B

PERMIT PROVISIONS

1. All operational practices and procedures shall conform to the best possible public health practices.

2. Operation of the facility shall be conducted in accordance with the plans and specifications submitted, amended, and approved as parts of the permit application, and with the Regulations Governing Solid Waste and Sludge Management (OSDH Bulletin 0524) for a Type I-B site, as adopted by the Oklahoma State Board of Health on June 26, 1986.

3. This permit is effective for the lifetime of the facility, estimated in the application plans to be 9 years. This permit will therefore expire upon completion of the landfill to the designed boundaries and final grades represented in the plans and specifications approved April 4, 1987. If the facility's life ends before or extends after April 4, 1996, due to changes in operation or other factors not addressed in the approved application or modifications thereto, the permit holder shall immediately notify the Department in writing. Alterations to facility life resulting from Department approved permit modifications shall modify the expiration date in accordance with the terms of the permit modifications.

4. Wastes designated as hazardous by either the Oklahoma State Department of Health or the U.S. Environmental Protection Agency shall not be accepted or disposed of at this facility. Wastes excluded from designation as "hazardous" or "controlled" industrial waste solely on the basis of quantity shall not be accepted or disposed of at this facility.

5. If the population served by or the waste volume received at this site increases by ten percent (10%) or more above the figures stated in the approved application report, the permit holder must modify the expected life of site and amount of land to be covered by the performance bond.

6. All abandoned petroleum wells and test holes in the permitted area shall be plugged in accordance with procedures acceptable to and approved by the Oklahoma Corporation Commission (OCC). Original plugging records of any such wells known to be in the site area, and of any such wells discovered during development of the landfill, shall be submitted to the OCC so that it can evaluate suitability of the plugging methods used. If the OCC judges that any abandoned petroleum well or test hole in the permit area is not adequately plugged, the permittee shall ensure that said well or test hole is properly and acceptably plugged in accordance with current OCC procedures before waste disposal operations are extended over the well or test hole.

Any abandoned petroleum well or test hole in the permit area that does or may leak water, brine, gas, oil, or other fluids into the landfill or its liner must be plugged or replugged according to current OCC requirements, prior to development of the landfill over the well.

7. Permittee shall establish and maintain a buffer zone at least fifty (50) feet wide along the north and east sides of the permit area, parallel to the section line roadways. Said buffer zone may not be used for waste disposal.

Joan K. Leavitt, M.D.
Commissioner

Board of Health
James A. Cox, Jr., M.D.
President
Linda M. Johnson, M.D.
Vice President
Robert D. McCullough, II D.O.
Secretary/Treasurer
Wallace Byrd, M.D.
John B. Carmichael, D.D.S.
Ernest D. Martin
Walter Scott Mason, III
Edwin L. Pointer, M.D.
W. A. "Tate" Taylor

OKLAHOMA STATE DEPARTMENT OF HEALTH

P.O. BOX 53551
1000 N.E. TENTH
OKLAHOMA CITY, OK 73152

AN EQUAL OPPORTUNITY EMPLOYER

April 4, 1987

County Clerk
Muskogee County Courthouse
P. O. Box 130
Muskogee, Oklahoma 74058

Dear County Clerk:

Re: City of Muskogee
Type I-B Landfill Facility
Permit Number 3551020
Muskogee County

Pursuant to 63 O.S. 1981, § 2258 (of the Oklahoma Solid Waste Management Act), this agency is required, where we have issued such a disposal permit, to file a recordable notice of the permit in the land records of the county in which the site is located.

Please find enclosed such a notice to be filed. Please stamp the duplicate copy and return it to the Waste Management Service of this department. I have enclosed a stamped return envelope for your convenience. I would also respectfully request that you waive the filing fees for this agency of the State of Oklahoma.

Very truly yours,

Robert D. Kellogg

Robert D. Kellogg, Attorney
Environmental Health Services

RDK:am

Enclosures

STATE OF OKLAHOMA)
) SS.
County of Oklahoma)

Know All Men by These Presents, That on or about April 4, 1987, Oklahoma State Department of Health has issued Permit Number 3551020 to the City of Muskogee to establish, construct, operate, and maintain a Type I-B Metropolitan Sanitary Landfill located in: Lot 1 and the SE/4 of the NE/4 of Section 6, Township 14 North, Range 18 East, Indian Meridian, in Muskogee County, Oklahoma (see Attachment A), said permit being issued pursuant to 63 O.S. 1981, as amended through April 9, 1986, Section 2251 et seq., and to rules and regulations promulgated in accordance therewith.

In witness whereof, we have hereunto set our hands this 4th day of April, 1987.

Dwain Farley
Chief
Waste Management Service

Mark S. Coleman
Deputy Commissioner for
Environmental Health Services

Joan K. Leavitt, MD
Commissioner of Health

The foregoing instrument was acknowledged before me this 4th day of April, 1987, by Joan K. Leavitt, MD., Commissioner, Mark S. Coleman, and Dwain Farley.

Nida Benteng
Notary Public

My Commission expires: 2/4/90

Joan K. Leavitt, M.D.
Commissioner

OKLAHOMA STATE
DEPARTMENT OF HEALTH
1000 NE TENTH
OKLAHOMA CITY, OK
73117-1299

Board of Health
John B. Carmichael, D.D.S.
President
Ernest D. Martin, R.Ph.
Vice President
Burdge F. Green, M.D.
Secretary-Treasurer
Gordon H. Deckert, M.D.
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Linda M. Johnson, M.D.
Walter Scott Mason, III
Lee W. Paden
Orange Welborn, M.D.

AN EQUAL OPPORTUNITY EMPLOYER

12/92

SOLID WASTE PERMIT TRANSFER

1. Permit Number: 355120

2. Original date: April 4, 1987

3. Existing Facility Name: City of Muskogee Landfill (Area A)

4. Location: 1.5 miles west of Highway 69, south of Muskogee, on Hancock Road to the northwest corner of the site, Lot 1 and the SE 1/4 of the NE 1/4 of Section 6, Township 14 North, Range 18 East, Muskogee County, Oklahoma; more particularly described in the Attachment A to this document.

5. Permittee: City of Muskogee

6. Terms:

(a) Transferor: City of Muskogee
Transferee: Waste Management of Oklahoma, Inc.
2801 South 54th Street West
Muskogee, Oklahoma 74401

(b) Name Change. The name of the facility will be changed to Muskogee Community Landfill & Recycling Center as a result of this transfer.

(c) Acceptance of existing permit. The transferee accepts the existing permit as amended, as well as the permit application, plans and specifications.

(d) Acceptance of closure/post-closure plan and financial assurance and future updates. The closure and post-closure plan as revised and the posting of financial assurance in the amount of $3,530,711.00 in the form of Irrevocable Letter of Credit are approved and accepted herein. Upon application for modification or amendment of this Permit, the Department may require the submission of an updated closure and/or post-closure plan and, if an increase in cost is found to exist, the submission of increased financial assurances upon the issuance of such modification or amendment.

7. Effective: This amendment is approved by the Oklahoma State Department of Health when fully signed and becomes effective on the last date signed, as indicated below:

RECEIVED
JUN - 3 1993

Michael S Houtz for
Chief, Solid Waste Management Service

Date: 12/16/92

Mark L Coleman
Deputy Commissioner for
Environmental Health Services

Date: 12.16.92

Grace K Lee, MD
Commissioner of Health

Date: 12.17.92

ACKNOWLEDGEMENT

THIS AMENDMENT MUST BE SIGNED BY AN AUTHORIZED REPRESENTATIVE FOR THE CITY OF MUSKOGEE AND WASTE MANAGEMENT OF OKLAHOMA, INC.

By signing this Acknowledgement, both parties acknowledge that they have read this document and understand the terms and provisions of this permit transfer. Both parties agree to comply with the Solid Waste Management Act, 63 O.S. 1991, §1-2300 et seq., the Solid Waste Management Regulations (Oklahoma Administrative Code 310:360 et seq.) and all provisions of this amendment.

Walter D. Beckham
Signature

City Manager
Title

Walter G. Beckham
Name of Authorized Signatory for the
City of Muskogee (Please print or type.)

12-21-92
Date

Signature

Assistant Vice President
Title

Joe Mrjenovich
Name of Authorized Signatory for
Waste Management of Oklahoma, Inc.
(Please print or type.)

12/18/92
Date

Subscribed and sworn to before me
this 18th day of December, 1992.

Melissa A Vineyard
Notary Public

My Commission expires 10/22/96

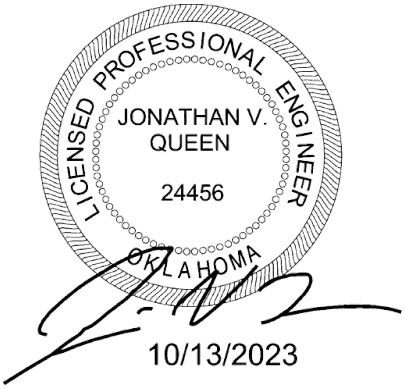
APPENDIX B-2

PROOF OF PUBLICATION

[Insert proof of publication – will be submitted to ODEQ after notice is completed]

APPENDIX B-3

PERMIT BOUNDARY LEGAL DESCRIPTION, DEEDS, EASEMENTS



PERMIT BOUNDARY LEGAL DESCRIPTION AND DEEDS

This appendix includes the following information.

- Permit Boundary Legal Description. The legal description for the 316.82-acre permit boundary is included on Sheets B-3-2 through B-3-4.
- The deeds associated with each tract owned by Waste Management of Oklahoma, Inc. are included on Sheets B-3-5 through B-3-8
- Easement Summary. Sheet B-3-2 shows the location and holders of easements located on the site. The various easements on and along the perimeter of the proposed permit boundary area will not be affected by the proposed landfill expansion.

EXHIBIT "A"

W HANCOCK STREET
(49.5' STATUTORY RIGHT-OF-WAY)

S 64TH STREET
(49.5' STATUTORY RIGHT-OF-WAY)

S 54TH STREET W
(49.5' STATUTORY RIGHT-OF-WAY)

TOWNSHIP 15 NORTH
TOWNSHIP 14 NORTH
RANGE 17 EAST
RANGE 18 EAST

(N 88°13'38" E - 2472.45 RECORD)
(BK. 2288, PG. 285)
N88°13'33"E 2472.05'

NW CORNER SECTION 6, T14N, R18E
SET MAG NAIL & WASHER
PER OCCR FILED 8-22-14
BY BRIAN D. BIRD PLS# 1869
& BY UNDERSIGNED

N1/4 CORNER SECTION 6, T14N, R18E
SET MAG NAIL & WASHER PER OCCR
FILED 8-22-14 BY BRIAN D. BIRD
PLS# 1869 & BY UNDERSIGNED
28.46' N OF FENCE

SET 5/8" CAPPED IRON ROD
1.0' W OF FENCE

N88°13'23"E 1322.15'
(N 88°13'28" E, 1322.19' RECORD)
(BK. 2498, PG. 604)

WASTE MANAGEMENT OF OKLAHOMA, INC.
BOOK 4846, PAGE 546
TOTAL AREA=12.1407 ACRES
0.7512 ACRES IN STATUTORY ROW
NET=11.3895 ACRES

S88°13'23"W 1322.17'
(S 88°13'28" W, 1322.19' RECORD)
(BK. 4846, PG. 546)

N88°13'23"E 2644.30'

N88°13'23"E 1322.15'
(WEST - 1320.00 RECORD)
(BK. 2498, PG. 604)

NW CORNER GOV'T LOT 1
SECTION 6, T14N, R18E
SET MAG NAIL & WASHER
35.02' N OF FENCE

SET 5/8" CAPPED IRON ROD
0.93' W OF FENCE

POB
NW CORNER NW 1/4
SECTION 5, T14N, R18E
SET MAG NAIL & WASHER OVER
BRASS DISC FOUND PER OCCR
FILED 12-27-2018 BY DARIN
STRATTON PLS# 1504 &
FILED BY UNDERSIGNED

N: 274,368.12
E: 2,731,426.51

T15N
W HANCOCK STREET
R17E
S 64TH STREET
S 54TH STREET W
6
LOCATION MAP
NOT TO SCALE

0 250 500
(FEET)
1 inch = 500 ft.

GOV'T LOT 4
GOV'T LOT 3
GOV'T LOT 2
GOV'T LOT 1
GOV'T LOT 5
GOV'T LOT 6
GOV'T LOT 7

CITY OF MUSKOGEE, OKLAHOMA
BOOK 1364, PAGE 47

WASTE MANAGEMENT OF OKLAHOMA, INC.
BOOK 2288, PAGE 285-286

TOTAL AREA=224.7503 ACRES
3.6424 ACRES IN STATUTORY ROW
NET=221.1079 ACRES

NW 1/4 SECTION 6
NE 1/4 SECTION 6
SW 1/4 SECTION 6
SE 1/4 SECTION 6
NE 1/4 SW 1/4 SECTION 6
SE 1/4 NW 1/4 SECTION 6
SW 1/4 NE 1/4 SECTION 6
SE 1/4 NE 1/4 SECTION 6
SE 1/4 SW 1/4 SECTION 6

N01°32'06"W 2639.48'
(N 01°32'40" E - 3959.85 RECORD - BK. 2288, PG. 285)

N01°23'16"W 1323.79'

N01°20'15"W 890.00'
N01°20'15"W 1290.00'
N01°20'15"W 550.00'
N01°20'15"W 809.44'

S01°20'07"E 2645.94'
S01°20'07"E 3577.94'
S01°20'07"E 3977.94'
(S 01°29'43" E 3976.00 RECORD)
(BK. 2288, PG. 285)
S01°20'07"E 2664.01'

(S 88°03'38" W RECORD)
(BK. 2498, PG. 603)
S88°17'07"W 55.00'
SET 5/8" CAPPED IRON ROD
25.00'W & ONLINE (CORNER FALLS
IN CONCRETE)

(N 01°25'25" W RECORD)
(BK. 2498, PG. 603)

N88°17'07"E 55.00'
(N 88°13'38" E RECORD)
(BK. 2498, PG. 603)

WASTE MANAGEMENT OF OKLAHOMA, INC.
BOOK 2498, PAGE 604-605

CITY OF MUSKOGEE, OKLAHOMA
BOOK 2498, PAGE 603
(0.72 ACRE EXCEPTION TO
BK. 2498, PG. 603)

E 1/4 SECTION 6, T14N, R18E
5/8" IRON ROD FOUND PER OCCR
FILED 12-27-2018 BY DARIN STRATTON
PLS# 1504 & BY UNDERSIGNED

S01°20'22"E 2652.95'
(BASIS OF BEARINGS)
(NORTHERLY - 2665.74 RECORD)
(BK. 2498, PG. 604)

N88°22'30"E 2644.46'

S88°22'30"W 2462.81'

W1/4 CORNER SECTION 6, T14N, R18E
5/8" IRON ROD FOUND PER OCCR
FILED 8-22-14 BY BRIAN D. BIRD
PLS# 1869 & BY UNDERSIGNED

CENTER OF SECTION 6, T14N, R18E
SET 5/8" CAPPED IRON ROD
CORNER RECORD BY UNDERSIGNED
7.3' W OF FENCE

SW CORNER SW 1/4 NE 1/4 SECTION 6, T14N, R18E
SET 5/8" CAPPED IRON ROD
5.2' W & 1.7' S OF FENCE

S88°22'30"W 1322.23'
(EASTERLY - 1320.00 RECORD)
(BK. 2498, PG. 604)

PT. NE 1/4 OF THE SE 1/4 SECTION 6
CITY OF MUSKOGEE, OKLAHOMA
BK. 2498, PG. 602

N 1/2 NW 1/4 SE 1/4 SECTION 6
CITY OF MUSKOGEE, OKLAHOMA
BOOK 1287, PAGE 531

N 208.75' S1/2 NW 1/4 SE 1/4
CITY OF MUSKOGEE, OKLAHOMA
BOOK 1287, PAGE 531

S 1/2 NW 1/4 SE 1/4 SECTION 6,
LESS N 208.75' THEREOF
CITY OF MUSKOGEE, OKLAHOMA
BOOK 1291, PAGE 502

S 1/2 NW 1/4 NE 1/4 SECTION 6,
CITY OF MUSKOGEE, OKLAHOMA
BOOK 1291, PAGE 502

Pt. NE 1/4 OF THE SE 1/4 SECTION 6
WASTE MANAGEMENT OF OKLAHOMA, INC.
BK. 2498, PG. 606

SW CORNER GOV'T LOT 6
SECTION 6, T14N, R18E
SET 5/8" CAPPED IRON ROD
45.5' N OF E-W FENCELINE

SE CORNER NE 1/4 SW 1/4
SECTION 6, T14N, R18E
SET 5/8" CAPPED IRON ROD
7.1' N OF FENCE
11.6' W OF FENCE

S88°33'57"W 2461.57'
(S 88°36'06" E - 2469.03 RECORD)
(BK. 2288, PG. 285)

45.2'
18.21'

LOT 7 & SE 1/4 SW 1/4 SECTION 6
THE WAYNE RAMEY & LINDA JO RAMEY
FAMILY REVOCABLE LIVING TRUST
BOOK 4409, PAGE 483

S 1/2 SE 1/4 SECTION 6
ROGER VARNELL & JOYCE VARNELL
BOOK 4558, PAGE 313

SW CORNER SECTION 6, T14N, R18E
STONE FOUND PER OCCR FILED
8-22-14 BY BRIAN C. BIRD PLS#
1869 & BY UNDERSIGNED

S1/4 CORNER SECTION 6, T14N, R18E
5/8" CAPPED IRON ROD FOUND
PER OCCR FILED 3-6-06
BY EDWARD SEATON PLS# 1353

SE CORNER SECTION 6, T14N, R18E
OHD STANDARD BRASS CAP NUMBER M-51-202
PER OCCR FILED 12-27-2018
BY DARIN STRATTON PLS# 1504

TOTAL AREA=79.7766 ACRES
EXCLUDES 55'x550' EXCEPTION
2.2445 ACRES IN STATUTORY ROW
NET=77.5321 ACRES

SEE SHEETS 2 & 3 FOR LINE & SYMBOL LEGEND

TOTAL SURVEYED AREA
316.6677 ACRES / 13,794,048 SQ. FT.

TOTAL AREA WITHIN STATUTORY RIGHT-OF-WAY
6.6381 ACRES / 289,156 SQ. FT.

CERTIFICATE OF SURVEY:

THIS PLAT OF SURVEY MEETS THE OKLAHOMA MINIMUM STANDARDS FOR THE PRACTICE OF LAND SURVEYING AS ADOPTED BY THE OKLAHOMA STATE BOARD OF LICENSURE FOR PROFFECIONAL ENGINEERS AND LAND SURVEYORS.

MICHAEL D. BYTNER, PLS #1986
WEAVER CONSULTANTS GROUP, LLC
35 E. WACKER DRIVE, STE 1250
CHICAGO, IL 60601 817-735-9770
OKPELS SURVEY FIRM NO. 3804

LICENSED PROFESSIONAL LAND SURVEYOR
MICHAEL D. BYTNER
1986
OKLAHOMA

EXHIBIT A: PERMIT BOUNDARY EXHIBIT
U.S. GOVERNMENT LOTS 3, 4, 5, 6 , AND PART OF U.S. GOVERNMENT LOTS 1 AND 2, SE1/4 NW1/4, NE1/4 SW1/4, AND PART OF SE1/4 NE1/4, ALL IN SECTION 6, T14N, R18E, IB&M MUSKOGEE COUNTY, STATE OF OKLAHOMA

No.	DATE	REVISION DESCRIPTION

Weaver Consultants Group
WEAVER CONSULTANTS GROUP, LLC
6420 SOUTHWEST BLVD
SUITE 206
FORT WORTH, TX 76109
(817)-735-9770
www.wcgrp.com

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REVIEWED BY: AJW
DATE: 10/13/2023
FILE: 0086-364-11-19
SEE PLOT STAMP

SHEET 1 OF 3

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P:\SBI Survey\Projects\0086-364-11-19 Muskogee, OK Landfill Permit Boundary\2-0 Drawings\2.1 CAD\0086-364-11-19 Muskogee Boundary_20230614.dwg

EXHIBIT "A"

W HANCOCK STREET
(49.5' STATUTORY RIGHT-OF-WAY)

S 64TH STREET
(49.5' STATUTORY RIGHT-OF-WAY)

S 54TH STREET W
(49.5' STATUTORY RIGHT-OF-WAY)

TOWNSHIP 15 NORTH
TOWNSHIP 14 NORTH
RANGE 17 EAST
RANGE 18 EAST

20' RIGHT-OF-WAY EASEMENT
MUSKOGEE COUNTY RURAL
WATER DISTRICT No. 6
BK. 2209, PG. 9

20' RIGHT-OF-WAY EASEMENT
MUSKOGEE COUNTY RURAL
WATER DISTRICT No. 6
BK. 2206, PG. 7

100' ACCESS LICENSE
BK. 2498, PG. 595

OKLAHOMA GAS & ELECTRIC COMPANY
PERMANENT UTILITY EASEMENT
BOOK 4415, PAGE 162-164

OKLAHOMA GAS AND ELECTRIC COMPANY
75' EASEMENT
BK. 1023, PG. 586

OKLAHOMA GAS AND ELECTRIC COMPANY
100' EASEMENT
BK. 1023, PG. 162

OKLAHOMA GAS AND ELECTRIC COMPANY
100' EASEMENT
BK. 1023, PG. 163

RURAL WATER DISTRICT NO. 6
40' RIGHT-OF-WAY EASEMENT
BK. 1285, PG. 284

"BORROW PROPERTY"
OKLAHOMA STATE DEPARTMENT OF HEALTH
DEPARTMENT OF ENVIRONMENTAL QUALITY
TEMPORARY EASEMENT FOR ACCESS
BK. 3263, PG. 381

EASEMENT RECORD NOT FOUND OR PROVIDED TO THE SURVEYOR

GRAND RIVER DAM AUTHORITY
RIGHT-OF-WAY EASEMENT
BK. 3331, PG. 114
(NOT PLOTTABLE)

"PERMIT PROPERTY"
OKLAHOMA STATE DEPARTMENT OF HEALTH
DEPARTMENT OF ENVIRONMENTAL QUALITY
TEMPORARY EASEMENT FOR ACCESS
BK. 3263, PG. 381

CITY OF MUSKOGEE
PERMIT
BK. 1429, PG. 287
(NOT PLOTTABLE)

CANEY RIVER GAS COMPANY
RIGHT-OF-WAY EASEMENT
BK. 163, PG. 440
(NOT PLOTTABLE)

CANEY RIVER GAS COMPANY
RIGHT-OF-WAY EASEMENT
BK. 163, PG. 439
(NOT PLOTTABLE)

CANEY RIVER GAS COMPANY
RIGHT-OF-WAY EASEMENT
BK. 163, PG. 300
(NOT PLOTTABLE)

GREAT LAKES PIPE LINE COMPANY
RIGHT-OF-WAY EASEMENT
BK. 636, PG. 59
(NOT PLOTTABLE)

ARTHUR OIL COMPANY
GAS CONTRACT
BK. 307, PG. 208
(NOT PLOTTABLE)

CANEY RIVER GAS COMPANY
RIGHT-OF-WAY EASEMENT
BK. 163, PG. 188
(NOT PLOTTABLE)

CROWN PETROLEUM CO.
RIGHT-OF-WAY EASEMENT
BK. 275, PG. 612
(NOT PLOTTABLE)

GREAT LAKES PIPE LINE COMPANY
RIGHT-OF-WAY EASEMENT
BK. 639, PG. 386
(NOT PLOTTABLE)

GREAT LAKES PIPE LINE COMPANY
RIGHT-OF-WAY EASEMENT
BK. 636, PG. 53
(NOT PLOTTABLE)

SINCLAIR-CUDAHY PIPE LINE COMPANY
RIGHT-OF-WAY EASEMENT
BK. 337, PG. 259
(NOT PLOTTABLE)

GREAT LAKES PIPE LINE COMPANY
RIGHT-OF-WAY EASEMENT
BK. 688, PG. 261
(NOT PLOTTABLE)

MID-CONTENT PIPE LINE
COMPANY
RIGHT-OF-WAY EASEMENT
BK. 1265, PG. 248
(NOT PLOTTABLE)

GOV'T LOT 4
GOV'T LOT 3
GOV'T LOT 2
GOV'T LOT 1
GOV'T LOT 5
GOV'T LOT 6
GOV'T LOT 7

NW 1/4 SECTION 6
NE 1/4 SECTION 6
SE 1/4 NW 1/4 SECTION 6
SW 1/4 NE 1/4 SECTION 6
SE 1/4 NE 1/4 SECTION 6
NE 1/4 SW 1/4 SECTION 6
SW 1/4 SECTION 6
N 1/2 SE 1/4 SECTION 6
SE 1/4 SW 1/4 SECTION 6
SE 1/4 SECTION 6

6

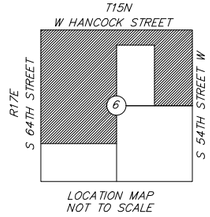
CP# 304
CP# 303
CP# 305
CP# 306
CP# 302
CP# 301
CP# 300
CP# 100

AT-1 AT-2 AT-3 AT-4 AT-5 AT-6 AT-7 AT-8 AT-9 AT-10 AT-11 AT-12

FH
WATER LIFT STATION
GM

20' 100' 75' 40'

0 250 500
(FEET)
1 inch = 500 ft.



LOCATION MAP
NOT TO SCALE

LEGEND

- ..... PROPERTY & PERMIT BOUNDARY LINE
- ..... SECTION LINE
- ..... EASEMENT LINE
- ..... RIGHT-OF-WAY
- OHE ..... OVER HEAD ELECTRIC
- S01°20'22"E 2652.95' ..... MEASURED DIMENSION (BY THIS SURVEY)
- (N 01°25'25" W - 550.00 RECORD) ..... RECORD DIMENSION
- ..... AERIAL TARGET (SEE NOTE 1)
- ..... CONTROL ESTABLISHED BY WCG (SEE NOTE 5)
- BK. ..... BOOK
- PG. ..... PAGE
- FH ..... FIRE HYDRANT
- TPD ..... TELEPHONE PEDESTAL
- GM ..... GAS METER

CERTIFICATE OF SURVEY:

THIS PLAT OF SURVEY MEETS THE OKLAHOMA MINIMUM STANDARDS FOR THE PRACTICE OF LAND SURVEYING AS ADOPTED BY THE OKLAHOMA STATE BOARD OF LICENSURE FOR PROFFECIONAL ENGINEERS AND LAND SURVEYORS.

LICENSED PROFESSIONAL LAND SURVEYOR
MICHAEL D. BYTNER
1986
OKLAHOMA

MICHAEL D. BYTNER, PLS #1986
WEAVER CONSULTANTS GROUP, LLC
35 E. WACKER DRIVE, STE 1250
CHICAGO, IL 60601 817-735-9770
OKPELS SURVEY FIRM NO. 3804

EXHIBIT A: EASEMENT EXHIBIT

U.S. GOVERNMENT LOTS 3, 4, 5, 6 , AND PART OF U.S. GOVERNMENT LOTS 1 AND 2, SE1/4 NW1/4, NE1/4 SW1/4, AND PART OF SE1/4 NE1/4, ALL IN SECTION 6, T14N, R18E, IB&M MUSKOGEE COUNTY, STATE OF OKLAHOMA

No.	DATE	REVISION DESCRIPTION

Weaver Consultants Group
WEAVER CONSULTANTS GROUP, LLC
6420 SOUTHWEST BLVD
SUITE 206
FORT WORTH, TX 76109
(817)-735-9770
www.wcgrp.com

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DRAWN BY: TJM
REVIEWED BY: AJW
DATE: 10/13/2023
FILE: 0086-364-11-19
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SHEET 2 OF 3

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P:\SBI Survey\Projects\0086-364-11-19 Muskogee, OK Landfill Permit Boundary\2.0 Drawings\2.1 CAD\0086-364-11-19 Muskogee Boundary_20230614.dwg

LEGAL DESCRIPTION:

A TRACT OF LAND IN U.S. GOVERNMENT LOTS 3, 4, 5, 6, AND PART OF U.S. GOVERNMENT LOTS 1 AND 2, AND THE SOUTHEAST QUARTER OF THE NORTHWEST QUARTER, THE NORTHEAST QUARTER OF THE SOUTHWEST QUARTER, AND PART OF THE SOUTHEAST QUARTER OF THE NORTHEAST QUARTER, ALL IN SECTION 6, TOWNSHIP 14 NORTH, RANGE 18 EAST, IB&M MUSKOGEE COUNTY, STATE OF OKLAHOMA, AND MORE PARTICULARLY DESCRIBED BY METES AND BOUNDS AS FOLLOWS:

BEGINNING AT THE NORTHEAST CORNER OF SAID SECTION 6;

THENCE SOUTH 01°20'22" EAST, ALONG THE EAST LINE OF THE EAST HALF OF THE NORTHEAST QUARTER OF SAID SECTION 6 (ASSUMED FOR THE BASIS OF BEARINGS FOR THIS TRACT), A DISTANCE OF 2652.95 FEET (NORTHERLY, 2665.74 FEET–RECORD BK. 2498, PG. 604) TO THE SOUTHEAST CORNER THEREOF;

THENCE SOUTH 88°22'30" WEST, ALONG THE SOUTH LINE OF SAID EAST HALF OF THE NORTHEAST QUARTER, A DISTANCE OF 1322.23 FEET (EASTERLY, 1320.00 FEET–RECORD BK. 2498, PG. 604) TO THE SOUTHWEST CORNER OF SAID EAST HALF OF THE NORTHEAST QUARTER;

THENCE NORTH 01°20'15" WEST, ALONG THE WEST LINE OF SAID EAST HALF OF THE NORTHEAST QUARTER, A DISTANCE OF 809.44 FEET;

THENCE NORTH 88°17'07" EAST, A DISTANCE OF 55.00 FEET (NORTH 88°13'38" EAST–RECORD BK. 2498, PG. 603);

THENCE NORTH 01°20'15" WEST, A DISTANCE OF 550.00 FEET (NORTH 01°25'25" WEST–RECORD BK. 2498, PG. 603);

THENCE SOUTH 88°17'07" WEST, A DISTANCE OF 55.00 FEET (SOUTH 88°13'38" WEST–RECORD BK. 2498, PG. 603) TO A POINT IN THE WEST LINE OF SAID EAST HALF OF THE NORTHEAST QUARTER AND EAST LINE OF SAID GOVERNMENT LOT 2;

THENCE NORTH 01°20'15" WEST, ALONG SAID WEST LINE OF THE EAST HALF AND EAST LINE OF SAID GOVERNMENT LOT 2, A DISTANCE OF 890.00 FEET TO A POINT 400.00 FEET SOUTH OF THE NORTHEAST CORNER OF SAID LOT 2 (AS MEASURED ALONG THE EAST LINE THEREOF);

THENCE SOUTH 88°13'23" WEST, ALONG A LINE 400.00 FEET SOUTHERLY OF AND PARALLEL WITH THE NORTH LINE OF SAID GOVERNMENT LOT 2, A DISTANCE OF 1322.17 FEET (SOUTH 88°13'28" WEST, 1322.19 FEET–RECORD BK. 4846, PG. 546) TO A POINT IN THE EAST LINE OF SAID GOVERNMENT LOT 3, BEING 400.00 FEET SOUTHERLY OF THE NORTHEAST CORNER OF SAID GOVERNMENT LOT 3 (AS MEASURED ALONG THE EAST LINE THEREOF);

THENCE SOUTH 01°20'07" EAST, ALONG THE EAST LINE OF SAID GOVERNMENT LOT 3, SAID SOUTHEAST QUARTER OF THE NORTHWEST QUARTER, AND SAID NORTHEAST QUARTER OF THE SOUTHWEST QUARTER, A DISTANCE OF 3,577.94 FEET (SOUTH 01°29'43" EAST–RECORD BK. 2288, PG. 285) TO THE SOUTHEAST CORNER OF SAID NORTHEAST QUARTER OF THE SOUTHWEST QUARTER;

THENCE SOUTH 88°33'57" WEST, ALONG THE SOUTH LINE OF SAID NORTHEAST QUARTER OF THE SOUTHWEST QUARTER AND SAID GOVERNMENT LOT 6, A DISTANCE OF 2461.57 FEET (SOUTH 88°36'06" EAST, 2469.03 FEET–RECORD BK. 2288, PG. 285), TO THE WEST LINE OF SAID SECTION 6 AND SOUTHWEST CORNER OF SAID GOVERNMENT LOT 6;

THENCE NORTH 01°23'16" WEST, ALONG THE WEST LINE OF SAID GOVERNMENT LOT 6 AND SAID SECTION 6, A DISTANCE OF 1323.79 FEET (NORTH 01°32'40" EAST,–RECORD BK. 2288, PG. 285) TO THE SOUTHWEST CORNER OF SAID GOVERNMENT LOT 5;

THENCE NORTH 01°32'06" WEST, ALONG THE WEST LINE OF SAID GOVERNMENT LOT 5 AND GOVERNMENT LOT 4 AND SAID SECTION 6, A DISTANCE OF 2639.48 FEET (NORTH 01°32'40" EAST–RECORD BK. 2288, PG. 285) TO THE NORTHWEST CORNER OF SAID GOVERNMENT LOT 4 AND SAID SECTION 6;

THENCE NORTH 88°13'33" EAST, ALONG THE NORTH LINE OF SAID GOVERNMENT LOT 4, SAID GOVERNMENT LOT 3, AND SAID SECTION 6, A DISTANCE OF 2472.05 FEET (NORTH 88°13'38" EAST, 2472.45 FEET–RECORD BK. 2288, PG. 285) TO THE NORTHWEST CORNER OF SAID GOVERNMENT LOT 2;

THENCE NORTH 88°13'23" EAST, ALONG THE NORTH LINE OF SAID GOVERNMENT LOT 2, SAID GOVERNMENT LOT 1, AND SAID SECTION 6, A DISTANCE OF 2644.30 FEET TO THE **POINT OF BEGINNING** AND CONTAINING 13,794,048 SQUARE FEET OR 316.6677 ACRES OF LAND MORE OR LESS.

THIS PROPERTY DESCRIPTION WAS PREPARED ON OCTOBER 10, 2023 BY MICHAEL D. BYTNER, LICENSED PROFESSIONAL LAND SURVEYOR NO. 1986 BASED ON FIELD SURVEYS PERFORMED OCTOBER 19, 2022 AND COMPLETED JUNE 15, 2023.

SURVEY NOTES:

1. BASIS OF BEARINGS: AN ASSUMED MEASURED BEARING OF SOUTH 01°22'11" EAST FOR THE EAST LINE OF THE EAST HALF OF THE NORTHEAST QUARTER OF SECTION 6 WAS HELD AS THE BASIS OF BEARINGS FOR THIS SURVEY, RELATIVE TO LOCAL SITE CONTROL FOR THE MUSKOGEE LANDFILL AS PROVIDED BY WASTE MANAGEMENT OF OKLAHOMA, INC. COORDINATES SHOWN HEREON ARE RELATIVE TO SAID LOCAL SITE CONTROL. ELEVATIONS SHOWN HEREON ARE RELATIVE TO A LOCAL SITE VERTICAL DATUM. (SEE LOCAL SITE CONTROL TABLE BELOW)

2. THIS SURVEY IS THE RESULT OF AN ON THE GROUND SURVEY PERFORMED BY WCG ON OCTOBER 19, 2022 AND CONCLUDING ON JUNE 15, 2023.

3. THIS SURVEY WAS COMPLETED WITH THE BENEFIT OF A TITLE SEARCH PERFORMED BY JENKINS & WALKER ENERGY PARTNERS.

4. ALL SET IRON RODS ARE 5/8" REBAR WITH CAP STAMPED "WEAVER CONSULTANTS GROUP 3804." ALL MAG NAILS SET WITH WASHER ARE STAMPED "W.C.G. FIRM 3804."

5. CONTROL POINTS 100 AND 300–306 SHOWN BELOW SET BY WCG ON OCTOBER 19, 2022.

6. THIS SURVEY WAS PREPARED FOR PERMITTING PURPOSES ONLY.

Local Site Control				
Aerial Target	Northing	Easting	Elevation	Description
AT-1	272111.90	2728827.89	636.97	Red Capped Iron Rod
AT-2	274207.95	2726284.08	629.85	PK Nail
AT-4	274286.05	2728829.98	623.31	PK Nail
AT-5	270433.37	2731400.21	654.94	Iron Rod
AT-7	271757.63	2731442.60	632.04	Iron Rod
AT-8	274365.09	2731391.83	622.03	PK Nail

SITE CONTROL SET BY WCG				
POINT	NORTHIING	EASTING	ELEVATION	DESCRIPTION
100	271496.99	2731428.573	634.83	SET MAG NAIL NEAR SCALE
300	270343.28	2728833.62	638.97	1/2" IR WITH RED CAP "WCG"
301	270232.00	2727003.91	612.73	1/2" IR WITH RED CAP "WCG"
302	271278.11	2726567.96	641.74	1/2" IR WITH RED CAP "WCG"
303	274219.05	2728653.24	626.92	1/2" IR WITH RED CAP "WCG"
304	274142.87	2726349.73	630.25	1/2" IR WITH RED CAP "WCG"
305	274325.27	2731352.46	622.59	1/2" IR WITH RED CAP "WCG"
306	272027.50	2728825.41	637.69	1/2" IR WITH RED CAP "WCG"

CERTIFICATE OF SURVEY:

THIS PLAT OF SURVEY MEETS THE OKLAHOMA MINIMUM STANDARDS FOR THE PRACTICE OF LAND SURVEYING AS ADOPTED BY THE OKLAHOMA STATE BOARD OF LICENSURE FOR PROFFECIONAL ENGINEERS AND LAND SURVEYORS.

LICENSED PROFESSIONAL LAND SURVEYOR
MICHAEL D. BYTNER
1986
OKLAHOMA

MICHAEL D. BYTNER, PLS #1986
WEAVER CONSULTANTS GROUP, LLC
35 E. WACKER DRIVE, STE 1250
CHICAGO, IL 60601 817-735-9770
OKPELS SURVEY FIRM NO. 3804

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EXHIBIT A: METES & BOUNDS DESCRIPTION

U.S. GOVERNMENT LOTS 3, 4, 5, 6, AND PART OF U.S. GOVERNMENT LOTS 1 AND 2, SE1/4 NW1/4, NE1/4 SW1/4, AND PART OF SE1/4 NE1/4, ALL IN SECTION 6, T14N, R18E, IB&M MUSKOGEE COUNTY, STATE OF OKLAHOMA

No.	DATE	REVISION DESCRIPTION

Weaver Consultants Group

WEAVER CONSULTANTS GROUP, LLC
6420 SOUTHWEST BLVD
SUITE 206
FORT WORTH, TX 76109
(817)-735-9770
www.wcgrp.com

REUSE OF DOCUMENTS
This document, and the designs incorporated herein, as an instrument of professional service, is the property of Weaver Consultants Group, and is not to be used in whole or in part, without the written authorization of Weaver Consultants Group.

DRAWN BY: TJM
REVIEWED BY: AJW
DATE: 10/13/2023
FILE: 0086-364-11-19
SEE PLOT STAMP

P:\SBI Survey\Projects\0086-364-11-19 Muskogee, OK Landfill Permit Boundary\2.0 Drawings\2.1 CAD\0086-364-11-19 Muskogee Boundary_20230614.dwg

4041 N. 141 E. Ave
Tulsa. OK 74116

Rec 251.25

841749

145C.

WARRANTY DEED

Statutory Form -- Individual

KNOW ALL MEN BY THESE PRESENTS:

THAT Eileen Rooney Warren now Hewgley and James M. Hewgley Jr., wife and husband, of Tulsa County, State of Oklahoma, Party of the First Part, in consideration of the sum of Ten Dollars in hand paid, the receipt of which is hereby acknowledged, does hereby Grant, Bargain, Sell and Convey unto Waste Management of Oklahoma, Inc., an Oklahoma corporation, Party of the Second Part, the following described real property and premises situated in Muskogee County, State of Oklahoma to-wit:

SEE ATTACHED EXHIBIT "A"

together with all the improvements thereon and the appurtenances thereunto belonging, and warrant the title to the same.

TO HAVE AND TO HOLD said described premises unto the said Party of the Second Part, its heirs and assigns forever, free, clear and discharged of and from all former grants, charges, taxes, judgments, mortgages and other liens and encumbrances of whatsoever nature.

Signed and delivered this 6 day of October, 1994.

OKLAHOMA Documentary TAX OCT 11 1994 251.25

Eileen Rooney Hewgley
Eileen Rooney Warren now Hewgley

James M Hewgley Jr
James M. Hewgley, Jr.

STATE OF OKLAHOMA)
) SS:
COUNTY OF TULSA)

Before me, the undersigned, a Notary Public in and for said County and State on this 6th day of October, 1994, personally appeared Eileen Rooney Warren now Hewgley and James M. Hewgley, Jr., wife and husband, to me known to be the identical persons who executed the within and foregoing instrument and acknowledged to me that they executed the same as their free and voluntary act and deed for the uses and purposes therein set forth.

Given under my hand and seal the day and year last above

LOUISE D. REID NOTARY PUBLIC IN AND FOR TULSA COUNTY STATE OF OKLAHOMA My Commission Expires 9-16-96

Louise D. Reid
NOTARY PUBLIC

My commission expires:

BOOK 2288 PAGE 285

STATE OF OKLAHOMA MUSKOGEE COUNTY FILED OF RECORD
Oct 11 3 40 PM '94
BETTY PACE COUNTY CLERK

STATE OF OKLAHOMA SS
COUNTY OF MUSKOGEE
I, POLLY IRVING, County clerk, of the County and State aforesaid, hereby Certify that this is a true and correct copy of an instrument filed in the Office of County Clerk of Muskogee County.
10.6.1994, Witness my hand and Seal this 9.20.2022
BY POLLY IRVING, COUNTY CLERK DEPUTY

EXHIBIT "A"

A tract of land in U.S. Government Lots 3, 4, 5, and 6, and the NE¼ SW¼, and the SE¼ NW¼, all in Section 6, T14N, R18E, IB&M Muskogee County, State of Oklahoma, more particularly described by metes and bounds as follows: Beginning at the northwest corner of said Section 6 said point also being the northwest corner of said Lot 4;

THENCE North 88 degrees 13 minutes 38 seconds East a distance of 2472.45 feet along the north line of said Lots 4 and 3 to the northeast corner of said Lot 3;

THENCE South 01 degrees 29 minutes 43 seconds East a distance of 3976.00 feet along the east line of said Lot 3, the SE¼ NW¼, and the NE¼ SW¼ to the southeast corner of said NE¼ SW¼;

THENCE South 88 degrees 36 minutes 06 seconds West a distance of 2469.03 feet along the south line of said NE¼ SW¼ and Lot 6 to the southwest corner of said Lot 6;

THENCE North 01 degrees 32 minutes 40 seconds West a distance of 3959.85 feet along the west line of said Section 6 to the POINT OF BEGINNING, and containing 9803651.3 square feet or 225.0609 acres of land, more or less.

2288 286
BOOK PAGE

C:\DOCS\TOONEY\40\te
October 5, 1994

PO Box 1927
Muskogee, OK 74402-1927
attn: city atty.

886428

6-14-18

10.00
P.C.S.

QUITCLAIM DEED

Know All Men by These Presents:

That the City of Muskogee, Oklahoma, a municipal corporation of Muskogee County, State of Oklahoma, party of the first part, in consideration of the sum of Ten Dollars ($10.00) in hand paid, the receipt of which is hereby acknowledged, does hereby QUITCLAIM, GRANT, BARGAIN, SELL and CONVEY UNTO Waste Management of Oklahoma, Inc., party of the second part, the following described real property and premises situate in Muskogee County, State of Oklahoma, to-wit:

Beginning at the Northeast corner of Section 6, Township 14 North, Range 18 East; Thence West along the North line of said Section 6 a distance of 1320.00 feet according to the U.S. Government Survey; thence Southerly along the West line of the East Half of the Northeast Quarter of said Section 6 a distance of 2659.30 feet according to U.S. Government Survey to a point on the South line of the Northeast Quarter of said Section 6; thence Easterly along the South line of said Northeast Quarter of said Section 6 a distance of 1320.00 feet according to U.S. Government Survey to a point on the East line of said Section 6; thence Northerly along said East line of said Section 6 a distance of 2665.74 feet according to U.S. Government Survey to the Point of Beginning and containing 80.68 acres, more or less, according to U.S. Government Survey thereof; less the following:

Commencing at the northeast corner of Section 6, T14N, R18E, thence S88°13'38"W and along the north line of said Section 6, for a distance of 1322.17 feet to a point, said point being the northwest corner of the E 1/2 of the NE 1/4 of said Section 6; thence S01°25'25"E and along the west line of the said E 1/2 of the NE 1/4 for a distance of 1290.00 feet to the Point of Beginning; thence continuing S01°25'25"E for a distance of 550.00 feet to a point; thence N88°13'38"E for a distance of 55.00 feet to a point; thence N01°25'25"W for a distance of 550.00 feet to a point; thence S88°03'38"W for a distance of 55.00 feet to the Point of Beginning

BOOK 2498 PAGE 604

together with all the improvements thereon and the appurtenances thereunto belonging.

TO HAVE AND TO HOLD said described premises unto the said party of the second party, and its legal representatives, successors and assigns forever, free, clear and discharged of and from all former grants, charges, taxes, judgments, mortgages and other liens and encumbrances of whatsoever nature, except the statutory roadway easements along the section lines, and all other valid easements, restrictions and other matters.

SIGNED AND DELIVERED this 22nd day of December, 1997.

ATTEST:

By: _____

Its: _____

CITY OF MUSKOGEE, OKLAHOMA

By: Steve Coussons

Its: City Attorney #1 Parcel.

COUNTY OF MUSKOGEE * STATE OF OKLAHOMA *

KAREN ARCHER
COUNTY CLERK

Dec 23 3 56 PM '97

STATE OF OKLAHOMA
MUSKOGEE COUNTY
FILED OF RECORD

STATE OF OKLAHOMA
COUNTY OF MUSKOGEE SS
I, POLLY IRVING, County clerk, of the County and State aforesaid, hereby Certify that this is a true and correct copy of an instrument filed in the Office of County Clerk of Muskogee County.
12-22-1997, Witness my hand and Seal this 9-20-2022
BY _____ POLLY IRVING, COUNTY CLERK _____ DEPUTY

STATE OF OKLAHOMA §
§
COUNTY OF MUSKOGEE §

MUNICIPAL CORPORATE ACKNOWLEDGEMENT

Before me, the undersigned, a Notary Public, in and for said County and State on this 22 day of December, 1997, personally appeared Steve Cousparis, to me known to be the identical person who subscribed the name of the maker thereof to the foregoing instrument as its City Attorney and acknowledged to me that he/she executed the same as his/her free and voluntary act and deed and as the free and voluntary act and deed of such municipal corporation, for the uses and purposes therein set forth.

Given under my hand and seal of office the day and year last above written.

My Commission Expires 5/14/99

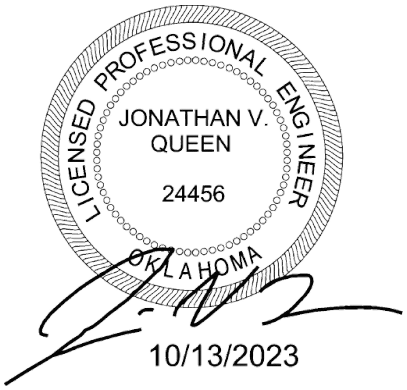
Notary Public Tammy Webb

BOOK 2498 PAGE 605

APPENDIX B-4

VOLUME CALCULATIONS

Includes pages B-4-1 through B-4-6



CONTENTS

1 SITE LIFE **B-4-1**

1.1 Solid Waste Generation B-4-1

1.2 Landfill Capacity B-4-1

1.3 Site Life Calculations B-4-1

SITE LIFE CALCULATIONS **B-4-2**

SHEET B-4-4 **B-4-4**

Depth of Waste Between Bottom of Final Cover and Bottom of Waste

AVERAGE DENSITY DETERMINATION **B-4-5**



1 SITE LIFE

1.1 Solid Waste Generation

Waste Management of Oklahoma, Inc. estimates that the waste stream will be approximately 153,866 estimated tons per year in 2022 (538 tons per day based on a typical 286-day operating year) for the Muskogee Community Recycling and Disposal Facility. The waste inflow rate is assumed to increase consistent with the projected growth rate of the Muskogee City area. The expected maximum annual waste acceptance rate is 163,572 tons per year in 2044 (572 tons per day based on a 286-day operating schedule). The above projections are based on current market conditions and may vary as market conditions change. Over the life of the facility, the expected average daily volume of incoming waste is projected to be approximately 555 tons/day.

1.2 Landfill Capacity

The total volume available for solid waste and daily cover after January 24, 2022 (date of topographic information) is estimated to be 1,048,280 cubic yards using the average end area method (the additional capacity due to the expansion is 6,707,000 cubic yards). This airspace estimate includes the remaining available volume in the existing permitted area, as well as the volume resulting from the landfill expansion.

1.3 Site Life Calculations

The site life calculations are presented on pages B-4-2 through B-4-4. In summary, the site life is projected to be approximately 24.4 years, which would result in the site's closure during the year 2045.

MUSKOGEE COMMUNITY
RECYCLING AND DISPOSAL FACILITY
0086-364-11-19
SITE LIFE CALCULATIONS

Required: Determine approximate site life (years) for the site. The site will typically operate 286 days per year.

Solution: Determine available landfill tonnage and initial annual waste inflow rate:

Remaining airspace (includes existing permitted site and expansion)=	7,755,280	cy	(as of Jan 24, 2022)
Percent daily cover =	16	%	
In-place density of waste/cover soils=	1,388	lb/cy	

Estimate the total remaining airspace (tons).

-Estimate density of waste only

$(\gamma_{soil})(16\% \text{ of } 7{,}755{,}280 \text{ cy}) + (\gamma_{waste})(84\% \text{ of } 7{,}755{,}280 \text{ cy}) = (\gamma_{soil/waste})(7{,}755{,}280 \text{ cy})$

$(2{,}430 \text{ lb/cy})(1{,}240{,}845 \text{ cy}) + (\gamma_{waste})(6{,}514{,}435 \text{ cy}) = (1{,}388 \text{ lb/cy})(7{,}755{,}280 \text{ cy})$

γ_{waste} = 1,190 lb/cy

Remaining airspace = (84% of 7,755,280 cy)*(1,190 lb/cy*1/2,000 tons/lb)

Remaining airspace = 3,874,538 tons

Total remaining capacity (includes existing permitted site and expansion)=	3,874,538	tons

Initial waste stream estimate =	538	tons/day
Days of operation per year =	286	days

Initial waste inflow rate =	153,866	tons/year

Assumed annual growth rates (based on water use projections):

Growth rate (years 2021-2030) =	3.00%	or annualized growth rate of :	0.2962%
Growth rate (years 2031-2040) =	2.52%	or annualized growth rate of :	0.2488%
Growth rate (years 2041-2050) =	2.46%	or annualized growth rate of :	0.2429%

The growth projections were obtained from the Oklahoma Water Resources Board (OWRB projections used in the 2012 Oklahoma Comprehensive Water Plan for Muskogee County). The initial waste stream volume was provided by Waste Management of Oklahoma, Inc.

The following table calculates the waste stream growth (assuming the growth rates described above) and the projected cumulative airspace consumed.

	Year	Waste Inflow (tons/year)	Tonnage Consumed (tons)	
January 22	2021	153,866	154,709	288 days
	2022	154,322	309,031	
	2023	154,779	463,810	
	2024	155,237	619,047	
	2025	155,697	774,745	
	2026	156,159	930,903	
	2027	156,621	1,087,525	
	2028	157,085	1,244,610	
	2029	157,551	1,402,160	
	2030	158,017	1,560,177	
	2031	158,410	1,718,588	
	2032	158,804	1,877,392	
	2033	159,200	2,036,592	
	2034	159,596	2,196,188	
	2035	159,993	2,356,180	
	2036	160,391	2,516,571	
	2037	160,790	2,677,361	
	2038	161,190	2,838,551	
	2039	161,591	3,000,141	
	2040	161,993	3,162,134	
	2041	162,386	3,324,520	
	2042	162,781	3,487,301	
	2043	163,176	3,650,477	
	2044	163,572	3,814,050	
	2045	60,488	3,874,538	105 days

Available tonnage is consumed during year	2045	
Site life is projected to be approximately	24.4	years

Summary of waste tonnage information:

Initial inflow =	538 tons/day

$$\text{Maximum inflow} = \frac{\text{Tonnage accepted during final full year of operation (163,572 tons)}^{1}}{\text{286 days of operation per year}}$$

[1] 163,572 tons represents the calculated total tonnage accepted for the full year of 2044.

Projected maximum waste inflow rate:

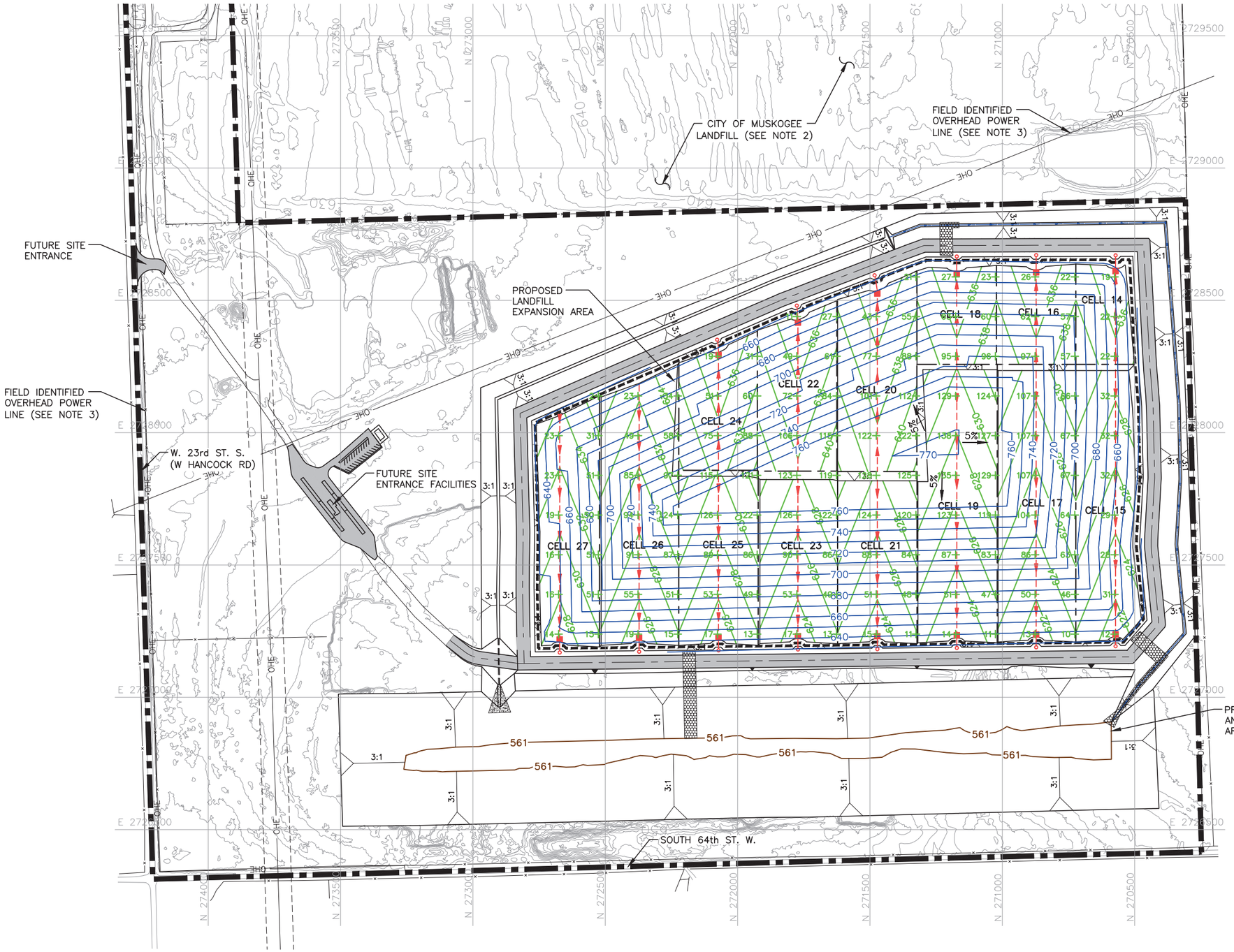
Maximum inflow =	572 tons/day

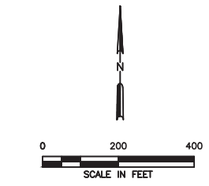
$$\text{Average inflow} = \frac{\text{Maximum waste consumed}}{\text{Site Life}}$$

Projected average waste inflow rate:

$$\frac{\text{3,874,538 tons}}{\text{24.4 years * 286 days/year}}$$

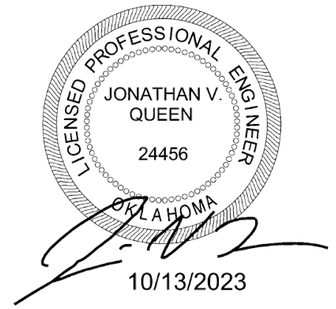
Average inflow =	555 tons/day





LEGEND

- PROPOSED PERMIT BOUNDARY
- PROPOSED LIMITS OF WASTE
- N 273000 — STATE PLANE COORDINATE GRID
- 640 — EXISTING CONTOUR
- OHE — EXISTING OVERHEAD EASEMENT
- 636 — EXCAVATION CONTOUR
- SECTOR BOUNDARY
- PROPOSED LEACHATE LINE
- PROPOSED LEACHATE SUMP
- 561 — BORROW AREA CONTOUR
- 700 — PROPOSED BOTTOM OF FINAL COVER CONTOUR
- 35+ — DEPTH OF FILL



NOTES:

1. EXISTING CONTOURS AND ELEVATIONS PROVIDED BY HYDREX ENVIRONMENTAL COMPILED FROM AERIAL PHOTOGRAPHY FLOWN 01-25-2023.
2. THE CITY OF MUSKOGEE LANDFILL IS NOT PART OF THE PROPOSED EXPANSION AND IS SHOWN FOR REFERENCE PURPOSES.
3. AN EASEMENT RECORD WAS NOT FOUND OR PROVIDED TO THE SURVEYOR. THE OVERHEAD POWER RUNNING ALONG THE NORTHERN AND SOUTHERN PROPERTY LINE AND NORTHWEST/SOUTHEAST ACROSS THE PROPERTY WAS FIELD IDENTIFIED.

- [ ] DRAFT
- [X] FOR PERMITTING PURPOSES ONLY
- [ ] ISSUED FOR CONSTRUCTION

DATE: 03/2023
FILE: 0086-364-11
CAD: SHEET M-2B-1.DWG

DRAWN BY: RAA
DESIGN BY: JBM
REVIEWED BY: DEP

Weaver Consultants Group
CA 3804 PE - 06/30/2025

PREPARED FOR
WASTE MANAGEMENT OF OKLAHOMA, INC.

REVISIONS		
NO.	DATE	DESCRIPTION

TIER III PERMIT MODIFICATION DEPTH OF WASTE PLAN

MUSKOGEE COMMUNITY RDF
MUSKOGEE COUNTY, OKLAHOMA

WWW.WCGRP.COM

SHEET B-4-4

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O:\0086\364\EXPANSION 2022\APPENDIX B\B-4-4 DEPTH OF FILL.dwg, smurrey, 1:2

MUSKOGEE COMMUNITY
RECYCLING AND DISPOSAL FACILITY
0086-364-11-19
AVERAGE DENSITY DETERMINATION TO SUPPORT SITE LIFE CALCULATIONS

Required: Determine average density for the landfill between the proposed/permitted bottom of waste contours and the bottom of the final cover system.

Method:
1. Determine average thickness of waste throughout the landfill profile.
2. Determine the average density of the fill between the proposed/permitted bottom of waste contours and the bottom of the final cover system.

References:
1. Acar, Yalcin B.& Daniel, David E., *Geoenvironment 2000 Characterization, Containment, Remediation, and Performance in Environmental Geotechnics,* Volume 2, American Society of Civil Engineers, 1995.

List of Symbols

$D_{avg.}$ = Average Density, lb/yd^3

Procedure:

1. Determine average thickness of waste throughout the landfill profile.

   Using the Drawing B-4-4, the average thickness of waste over the entire site is shown below.

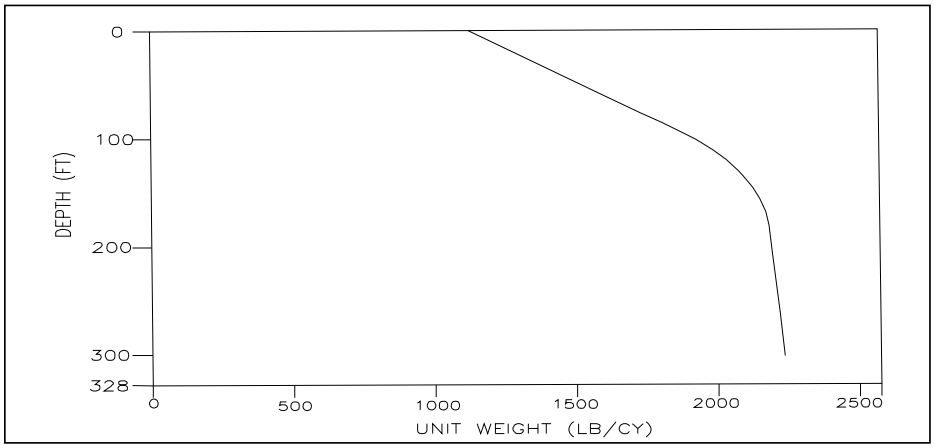
   Volume of Waste[d] = 13,307,889 cy
   Area of Waste = 5,501,628 ft^2

   Average Thickness of Waste = 65 ft

2. Determine the average density of the fill between the proposed/permitted bottom of waste contours and the bottom of the final cover system.

   a) Waste/daily cover generally is placed into a landfill with a density from 1,100 lb/yd^3 to 1,300 lb/yd^3.
   b) Using the Unit Weight Profile for MSW graph shown on the following page, density estimates were obtained at the top and bottom of the average 65-foot lift.
   c) The density reading at the top and bottom the lift were averaged to determine an average density for the lift.
   d) Volume of waste in above calculation represents total design capacity for existing permitted landfill and expansion combined.

UNIT WEIGHT PROFILE FOR WASTE/DAILY COVER WITHIN A MSW LANDFILL[1]



[1] Graph derived from Reference 1

$$D_{avg.} = \frac{D_{top} + D_{bottom}}{2}$$

D_{top} = 1,133 lb/yd^3

D_{bottom} = 1,642 lb/yd^3

$D_{avg.}$ = 1,388 lb/yd^3

MUSKOGEE COMMUNITY RECYCLING AND DISPOSAL FACILITY
MUSKOGEE COUNTY, OKLAHOMA
ODEQ PERMIT NO. 3551020

APPENDIX C
TEMPORARY EASEMENT FOR ACCESS

Prepared for

Waste Management of Oklahoma, Inc.

October 2023

Prepared by

Weaver Consultants Group, LLC
CA 3804 PE – 06/30/2025
6420 Southwest Boulevard, Suite 206
Fort Worth, Texas 76109
817-735-9770

WCG Project No. 0086-364-11-19

CONTENTS

TEMPORARY ACCESS EASEMENT **C-1**

TEMPORARY ACCESS EASEMENT

The purpose of this appendix is to provide a Temporary Easement for Access for the Muskogee Community Recycling and Disposal Facility in accordance with OAC 252:515, Subchapter 3. Consistent with OAC 252:515-3-34(c), a Temporary Easement for Access will be provided on pages C-2 and C-3. The Temporary Easement for Access to the landfill tract will be recorded with the County Clerk's office in Muskogee County.

[Temporary Easement for Access will be submitted to ODEQ after filing with Muskogee County.]

MUSKOGEE COMMUNITY RECYCLING AND DISPOSAL FACILITY
MUSKOGEE COUNTY, OKLAHOMA
ODEQ PERMIT NO. 3551020

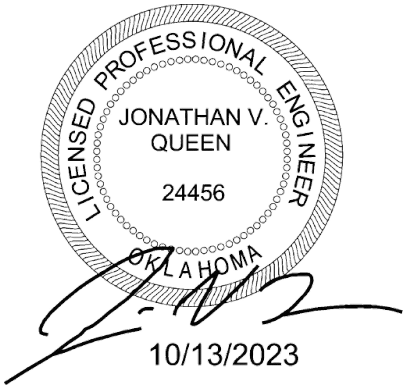
APPENDIX D

LOCATION RESTRICTION CORRESPONDENCE

Prepared for

Waste Management of Oklahoma, Inc.

October 2023



Prepared by

Weaver Consultants Group, LLC
CA 3804 PE – 06/30/2025
6420 Southwest Boulevard, Suite 206
Fort Worth, Texas 76109
817-735-9770

WCG Project No. 0086-364-11-19

LIST OF APPENDICES

APPENDIX D-1
Airports

APPENDIX D-2
Endangered and Threatened Species

APPENDIX D-3
Scenic Rivers

APPENDIX D-4
Recreation/Preservation Areas

APPENDIX D-5
Surface Water Intake



APPENDIX D-1

AIRPORTS

CONTENTS

This appendix provides documentation for the required coordination with the Federal Aviation Administration (FAA) and airports within 5 miles. The FAA web-based Circle Search for Airports (Version 2020 – Dec. 2) identified Muskogee Davis Regional Airport (MKO) as the closest airport to the site. The MKO runway is greater than 5 miles from the site, therefore this location restriction is not applicable. This appendix includes:

- A copy of the March 2023 Circle Search for Airports.
- Figure 1 – FAA Airport Vicinity Map

Federal Aviation Administration

« OE/AAA

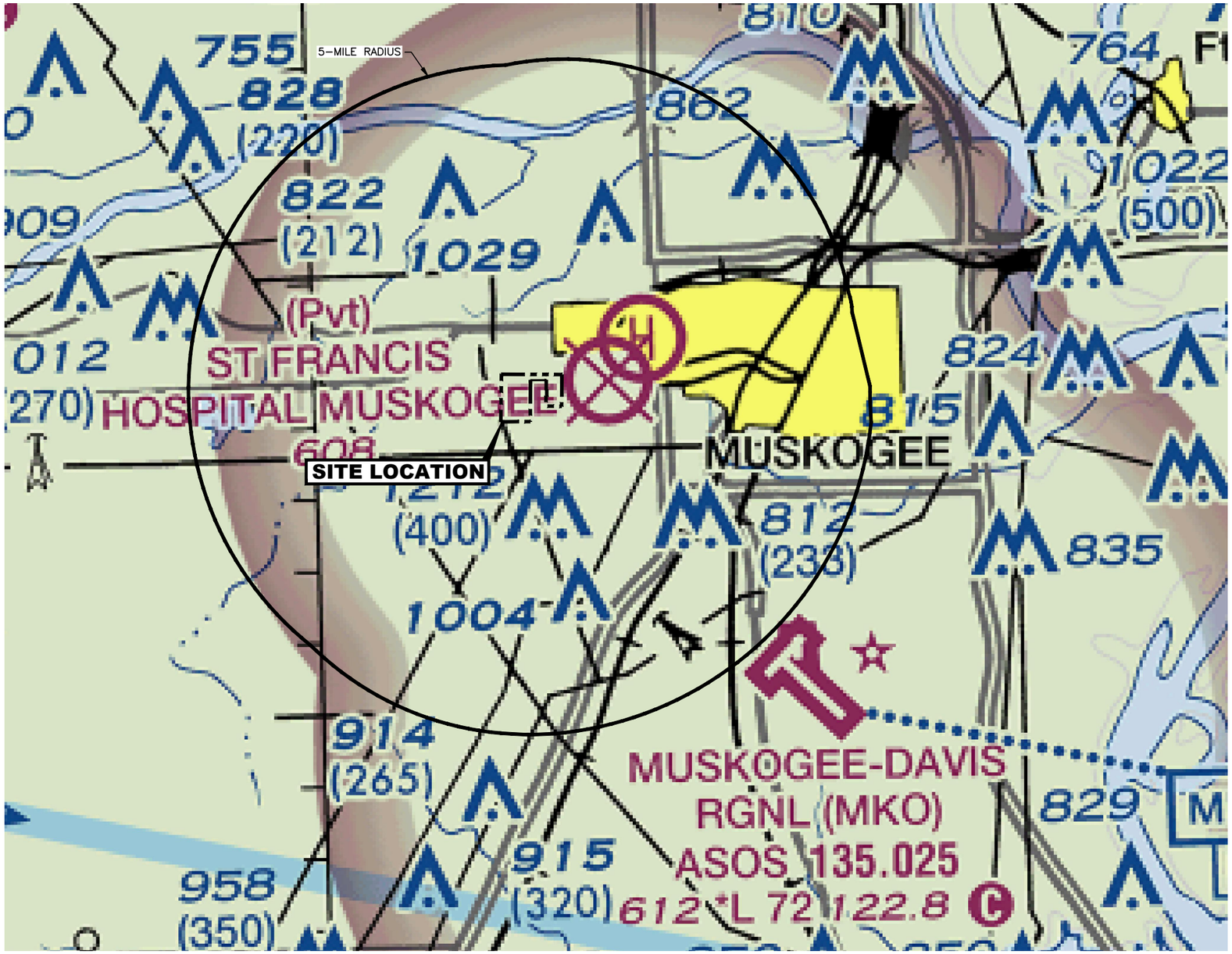
Circle Search For Airports Results

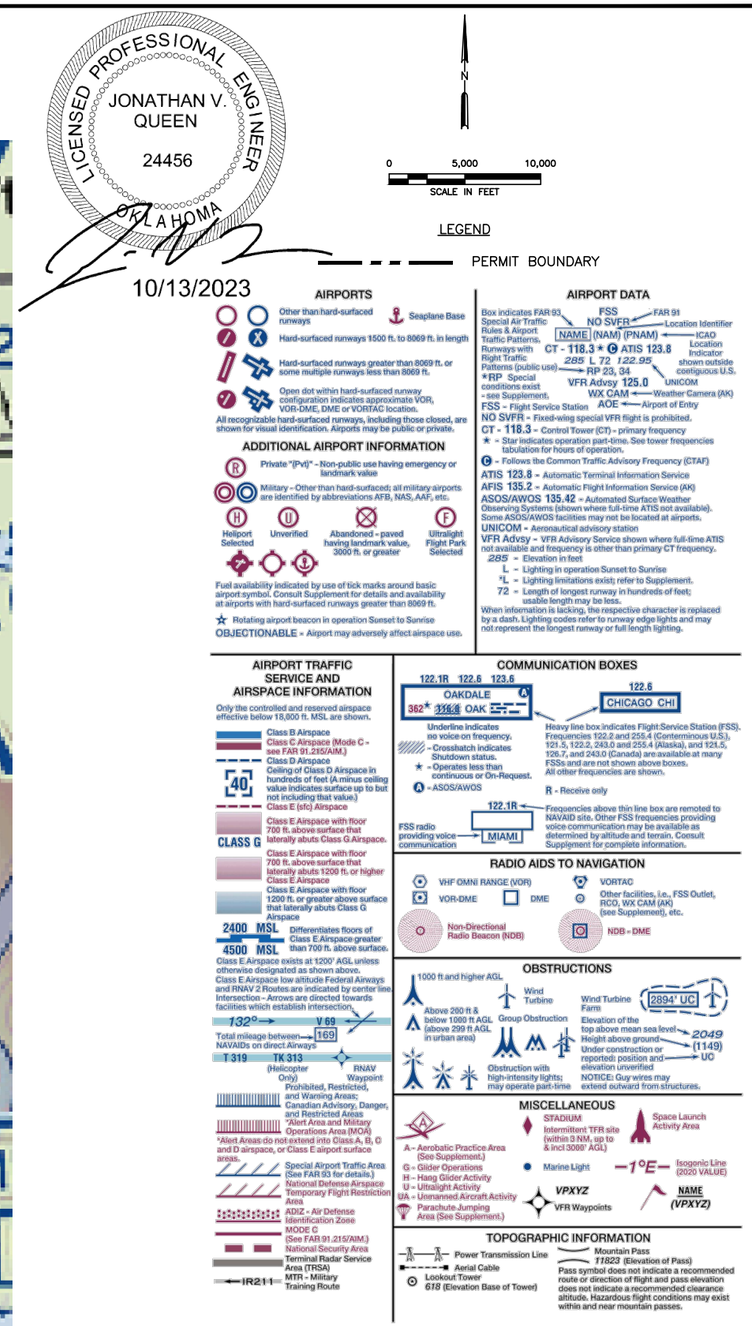
Records 1 to 1 of 1 Page 1 of 1

Locator Id	Name	Site Type	City	State	Latitude	Longitude	Distance(NM)	Azimuth
MKO	MUSKOGEE-DAVIS RGNL	Airport	MUSKOGEE	OK	35° 39' 27.90" N	95° 21' 41.90" W	5.45	318.36°

Rows per Page: 20

Records 1 to 1 of 1 **Page:** 1 Page 1 of 1





LICENSED PROFESSIONAL ENGINEER
JONATHAN V. QUEEN
24456
OKLAHOMA

10/13/2023

NOTES:

1. THIS MAP REPRODUCED FROM THE FAA DALLAS–FORT WORTH SECTIONAL AERONAUTICAL CHARTS DATED OCTOBER 05, 2023.
2. THERE ARE NO PUBLIC AIRPORTS WITHIN A 5 MILE RADIUS OF THE SITE.

D-1-3

- [ ] DRAFT
- [X] FOR INFORMATIONAL PURPOSES ONLY
- [ ] ISSUED FOR CONSTRUCTION

DATE: 10/2023
FILE: 0086-364-11
CAD: 1-AIRPORT MAP.DWG
DRAWN BY: JDW
DESIGN BY: JBP
REVIEWED BY: JVQ

Weaver Consultants Group
CA 3804 PE-06/30/2025

PREPARED FOR
WASTE MANAGEMENT OF OKLAHOMA, INC.

REVISIONS		
NO.	DATE	DESCRIPTION

FAA AIRPORT VICINITY MAP

MUSKOGEE COMMUNITY RDF
MUSKOGEE COUNTY, OKLAHOMA

WWW.WCGRP.COM

FIGURE 1

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O:\0086\364\EXPANSION 2022\LOCATION RESTRICTION\1-AIRPORT MAP.dwg, smurray, 1:2

APPENDIX D-2

ENDANGERED AND THREATENED SPECIES

CONTENTS

This appendix provides documentation for the required coordination with the Oklahoma Department of Wildlife Conservation and the Oklahoma Biological Survey. This appendix includes:

- Oklahoma Department of Wildlife Conservation confirmation letter. The Oklahoma Department of Wildlife Conservation did recommend a consultation with US Fish and Wildlife Services. As noted in the Threatened and Endangered Species Review included in initial correspondence, Goshawk Environmental Consulting, Inc. obtained information from US Fish and Wildlife.
- Weaver Consultants Group, LLC request for Oklahoma Department of Wildlife conservation review.
- Oklahoma Biological Survey confirmation e-mail. The email from the Oklahoma Natural Heritage Inventory, which is a program of the Oklahoma Biological Survey, states they have searched their database of endangered and threatened species and found one occurrence of relevant species within the vicinity of the project.
- Weaver Consultants Group, LLC request for Oklahoma Biological Survey review.

J. KEVIN STITT, GOVERNOR

J. D. STRONG, DIRECTOR

Wildlife Conservation Commission

Leigh Gaddis
Chairman
James V. Barwick
Vice Chairman
Rick Holder
Secretary
Tim Diehl
D. Chad Dillingham
Jess Kane
Mark H. Mabrey
John P. Zelbst

February 3, 2023

Weaver Consultants Group
6420 Southwest Boulevard, Suite 206
Fort Worth, Texas 76109

RE: Endangered or Threatened Wildlife Species Statement
Muskogee Community Recycling and Disposal Facility Expansion
Muskogee, OK

To Whom it May Concern:

This letter is written in response to your request for threatened and endangered species information in reference to the expansion of a municipal solid waste facility in Muskogee, Oklahoma. Based upon the site description provided, there are no species listed as species of STATE concern which may be at or within one mile of the proposed permit boundary or expansion area.

Please understand that due to time and a personnel constraint, the Oklahoma Department of Wildlife Conservation has not performed an actual field survey of this specific project area; therefore, we can provide only limited site-specific information. The information sent to this office regarding the proposed project has been reviewed and compared against our current records for endangered and threatened species, and our response is based on this review. I will make note that there is a difference between STATE and FEDERALLY listed species. The Oklahoma Department of Wildlife Conservation only oversees STATE listed species, whereas the U.S. Fish and Wildlife Service reserves authority FEDERALLY listed species. For this reason, if you are concerned about species of federal interest, we urge you to consult with the Tulsa Ecological Service Office of the U.S. Fish and Wildlife Service (918-581-7458), as they may have additional information of which we are unaware.

We appreciate the opportunity to review this project and submit comments. If you have any questions, or if I can be of any assistance, please contact me at either (405)255-5153 or ashley.nealis@odwc.ok.gov.

Sincerely,

Ashley Nealis

Ashley Nealis
North Central Region Fisheries Supervisor
Oklahoma Department of Wildlife Conservation

Weaver Consultants Group

Project No. 0086-364-11-19
January 6, 2023

J. D. Strong, Director
Oklahoma Department of Wildlife Conservation
1801 North Lincoln
Oklahoma City, Oklahoma 73105

Re: Endangered or Threatened Wildlife Species Statement
Muskogee Community Recycling and Disposal Facility Expansion
Muskogee, Oklahoma

Dear Mr. Strong:

The purpose of this letter, submitted on behalf of Waste Management of Oklahoma, Inc., is to obtain endangered or threatened wildlife species information and demonstrate compatibility with Oklahoma Department of Environmental Quality (DEQ) landfill location restriction regulation Oklahoma Administrative Code (OAC) §252:515-5-31(c). This regulation requires that a permit applicant for an expansion of a municipal solid waste landfill facility obtain a current information statement from the Oklahoma Department of Wildlife Conservation (ODWC).

The ODEQ landfill location restriction regulation set forth in §252:515-5-31(c), requires that a permit applicant for an expansion of a municipal solid waste facility obtain a statement from the ODWC regarding current information about endangered or threatened wildlife or plant species listed in state and federal laws that exist within one mile of the landfill permit boundary or expansion area. Weaver Consultants Group, LLC is preparing a landfill expansion application, under contract with Waste Management of Oklahoma, Inc., to expand their existing landfill (Muskogee Community Recycling and Disposal Facility) located in the City of Muskogee, Oklahoma.

The proposed expansion areas were assessed by Goshawk Environmental Consulting, Inc. (Goshawk), an environmental services firm with experience in threatened and endangered species habitat assessment. Goshawk conducted an on-site field reconnaissance for endangered or threatened wildlife and plant species habitats. Goshawk's report concluded that the site does not provide habitat for and would not likely be occupied by any federal or state listed threatened and endangered species.

To assist you in your statement regarding threatened or endangered wildlife within one mile of the referenced project, please find attached a project summary, site location drawings, and the Goshawk report.

To verify compliance with §252:515-5-31(c), we will need to include a statement from the ODWC regarding current information about endangered or threatened wildlife or plant species listed in state and federal laws that exist within one mile of the landfill permit boundary or expansion area within the permit application.

Your assistance with this matter is sincerely appreciated. Please call if you have any questions or need additional information.

Sincerely,
Weaver Consultants Group, LLC

Jonathan V. Queen, P.E.
Project Director

Attachment: Project Summary and Site Location Maps
Threatened and Endangered Species Review

cc: Guy R. Campbell, Waste Management of Oklahoma, Inc.
Pete Schultze, Waste Management of Oklahoma, Inc.

PROJECT SUMMARY AND SITE LOCATION MAPS

Project Summary

Muskogee Community Recycling and Disposal Facility Expansion
Waste Management of Oklahoma, Inc.
Muskogee, Oklahoma

Introduction

The Muskogee Community Recycling and Disposal Facility is in the process of expanding the existing landfill to provide long-term disposal capacity for municipal solid waste that is generated in the City of Muskogee, Muskogee County, and the surrounding areas. The purpose of this summary is to provide an overview of the proposed landfill expansion. The site is located outside the city limits of the City of Muskogee, south of W. 23rd Street S., west of S. 54th Street W., and east of S. 64th Street W. The following subsections detail information regarding the owner and operator of the site, general site information, and a summary of the proposed site design.

Owner/Operator Information

The Muskogee Community Recycling and Disposal Facility is owned and operated by Waste Management of Oklahoma, Inc., a Waste Management, Inc. company. Waste Management, Inc. is an integrated solid waste services company that provides solid waste collection, transfer, disposal and recycling services and serves more than 20 million residential, commercial and industrial customers in North America.

Site Information

The following drawings are attached to this summary.

- Site Location Map (Figure 1). This figure shows the site location on a standard Oklahoma Department of Transportation Oklahoma County Highway Map.
- Aerial Photograph (Figure 2). This figure shows the existing recycling and disposal facility and proposed expansion area, on a recent aerial photograph.
- General Topographic Map (Figure 3). This figure shows the existing landfill and waste disposal area, as well as the proposed expansion area, on an USGS map.

- Permitted and Proposed Completion Plan (Figure 4). This figure shows the permitted and proposed landfill completion plans on detailed site topographic maps. The proposed condition will consist of two separate units. The eastern unit will be consistent with the currently permitted condition, as no changes are proposed to the unit. A separate unit will be built to the west for the proposed condition.

The Muskogee Community Recycling and Disposal Facility is located southwest of the City of Muskogee at 2801 S. 54th St. W., Muskogee, Oklahoma 74401. The service area includes the City of Muskogee, Muskogee County, and other surrounding areas. The facility currently operates under Oklahoma Department of Environmental Quality (ODEQ) Permit No. 3551020.

Design Summary

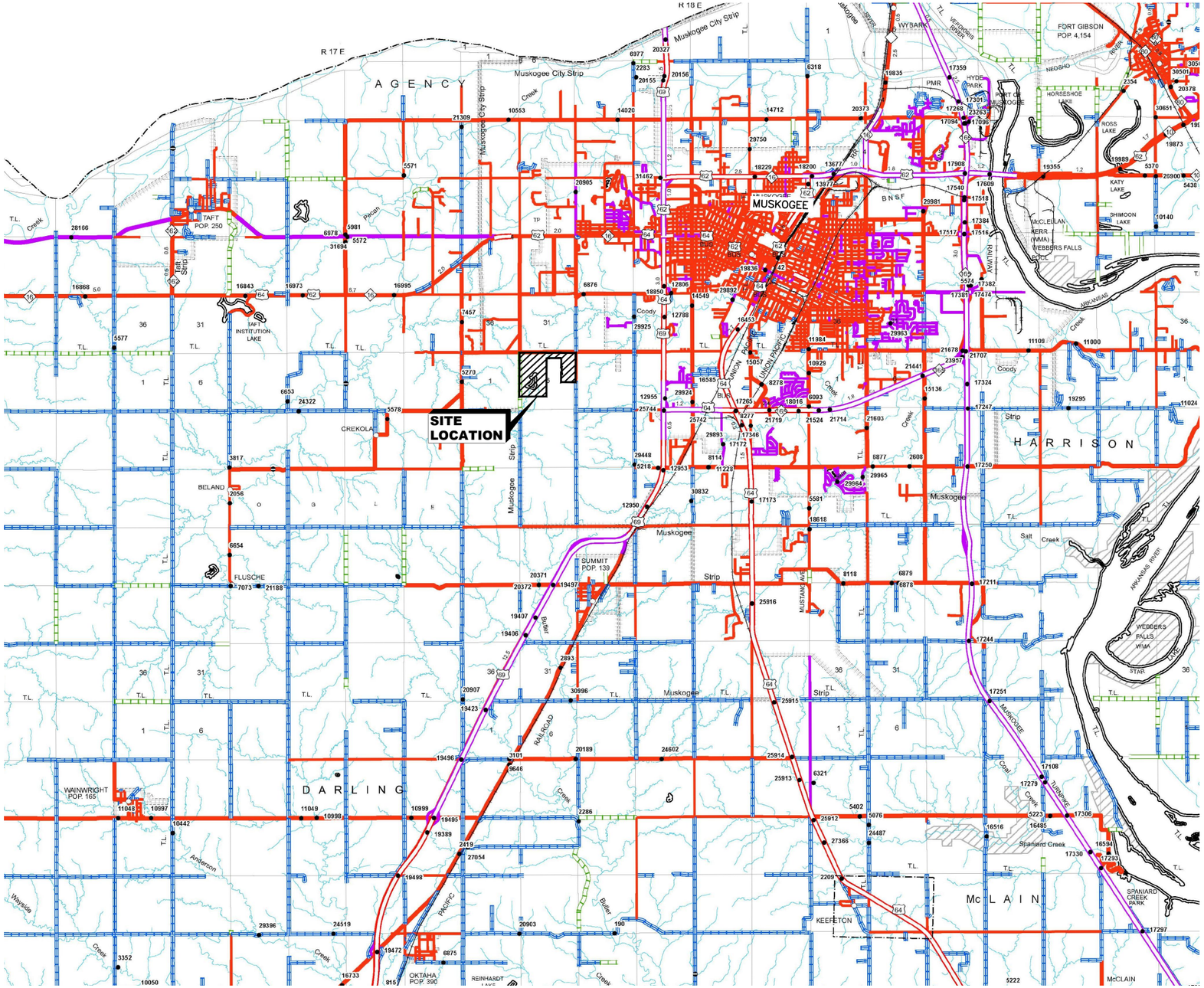
The following information presents a summary of the design and operations for the proposed Muskogee Community Recycling and Disposal Facility expansion.

- The permit boundary will be expanded by approximately 245 acres. A separate landfill unit will be built to the west of the existing landfill, adding an additional 70 acres for waste disposal.
- Accepted wastes will remain consistent with the current municipal solid waste landfill permit. The facility will accept municipal solid waste, construction and demolition wastes, non-hazardous industrial waste, encapsulated asbestos waste, vegetative waste, semi-solid waste, and sludges as permitted by the ODEQ.
- Access to the site is currently provided via the existing site access road from S. 54th Street W. As the site transitions to the western expansion area, a new site entrance will be developed along W. 23rd Street S. Based on traffic patterns of existing landfill traffic, most vehicles bound for the landfill will access the site using W. 23rd Street S. from Interstate Highway 64/69. The existing roads are capable of handling the traffic load associated with the landfill.
- A liner and final cover system that meets all regulatory requirements will be used for the solid waste containment system. The design objective of the containment system (final cover, liner, and leachate management system) is to isolate the solid waste and remove leachate (defined as liquid that has contacted solid waste) that collects on the liner system. Leachate that is removed from the landfill will be discharged offsite to the City of Muskogee publicly owned treatment works (POTW) in accordance with the City of Muskogee Industrial Wastewater Treatment/Disposal Permit No. 078. The construction procedures of the liner and final cover systems follow strict ODEQ approved quality control and quality assurance procedures, which are verified by an independent testing firm. Each of the containment system

components must be thoroughly reviewed and approved by the ODEQ before solid waste is placed in the landfill.

- To verify that the highest levels of environmental protection are maintained, the following landfill monitoring systems are provided:
  - Groundwater Monitoring System. The purpose of the groundwater monitoring system is to verify the integrity of the containment system and verify that groundwater is not adversely impacted by the landfill. This is accomplished by obtaining water samples from the monitor wells, located on the perimeter of the landfill, which are screened in the uppermost saturated zone to monitor groundwater quality. The water samples are tested at an off-site laboratory.
  - Landfill Gas Monitoring System. The purpose of the landfill gas monitoring system is to verify the integrity of the containment system and verify that methane gas, produced from the decomposing waste material, has not migrated beyond the permit boundary. This is accomplished by obtaining subsurface air samples from the landfill gas probes, located on the perimeter of the landfill, which are screened across potential migration pathways. The samples are tested on-site with a portable landfill gas analyzer.
  - These monitoring systems are sampled and tested periodically. The groundwater monitoring results are filed with the ODEQ and are public record.
- Site Operations. Properly trained personnel will operate the site. A detailed site operating plan will be included in the landfill expansion permit application. The plan will detail the required equipment, personnel, and safety procedures required to operate the site in accordance with ODEQ regulations. The site will continue to provide solid waste disposal service six days a week and the active landfill area will be covered at the end of each workday to prevent potential nuisance conditions such as odors and vectors. The Muskogee Community Recycling and Disposal Facility will continue to be inspected by the ODEQ on a regular basis to ensure the site is in compliance with state regulations.

The development of this site will also require permitting and or coordination with local, state, and federal agencies including the County Commissioner, Oklahoma Tourism and Recreation Department, Grand River Dam Authority, Oklahoma Department of Wildlife Conservation, Oklahoma Biological Survey, Oklahoma Natural Areas Registry, Bureau of Reclamation, United States Army Corps of Engineers, and Oklahoma Department of Environmental Quality.



Legend

- Interstate Highway
- US Highway
- State Highway
- Divided Highway - Asphalt
- Divided Highway - Concrete
- Asphalt
- Concrete
- Gravel
- Grade & Drain
- Unimproved
- Railroad
- State Line
- County Line
- Section Line
- Corporate Limit
- Wildlife Management Area
- Wildlife Refuge
- River or Stream
- Lake or Reservoir
- Bridges
- Low Water Crossing
- Natural Elevation Point
- Natural Elevation Point

NOTE:

1. REPRODUCED FROM GENERAL HIGHWAY MAPS, MUSKOGEE COUNTY, OKLAHOMA, (OK DOT STRATEGIC ASSET AND PERFORMANCE MANAGEMENT DIVISION OCTOBER 2018).

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- [ ] DRAFT
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DATE: 01/2023
FILE: 0086-364-11
CAD: FIG 1-SITE LOCATION MAP.DWG

DRAWN BY: RAA
DESIGN BY: JBP
REVIEWED BY: JVQ

Weaver Consultants Group
CA 3804 PE-06/30/2023

PREPARED FOR
WASTE MANAGEMENT OF OKLAHOMA, INC.

REVISIONS

NO.	DATE	DESCRIPTION

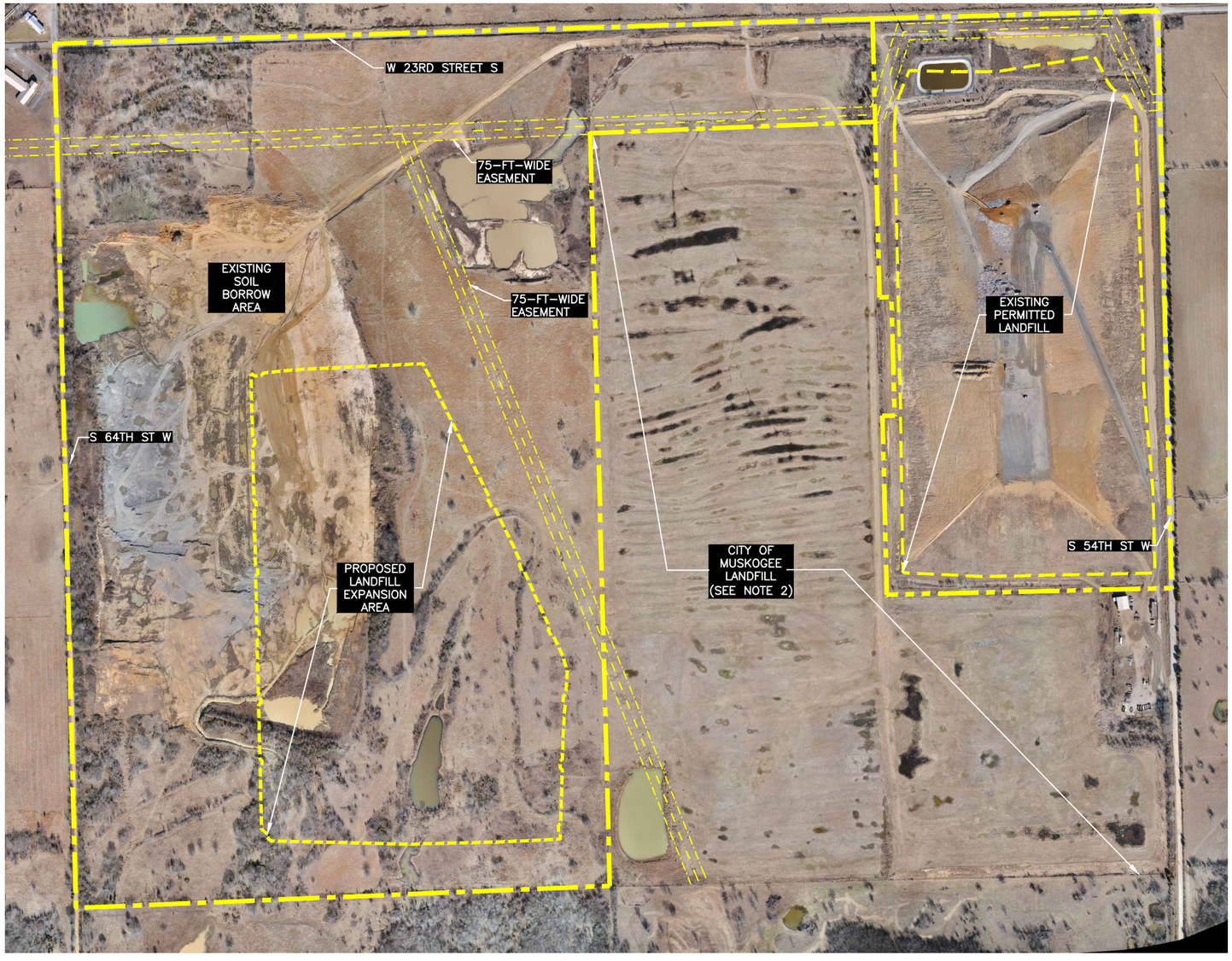
SITE LOCATION MAP

MUSKOGEE COMMUNITY RDF
MUSKOGEE COUNTY, OKLAHOMA

WWW.WCGRP.COM

FIGURE 1

O:\0086\364\EXPANSION 2022\LOCATION RESTRICTION\FIG 1-SITE LOCATION MAP.dwg, jputhr, 1:2



N

0 300 600

SCALE IN FEET

LEGEND

- EXISTING PERMIT BOUNDARY
- PROPOSED PERMIT BOUNDARY
- PERMITTED LIMITS OF WASTE
- PROPOSED LIMITS OF WASTE
- APPROXIMATE OG&E POWER LINE EASEMENT

NOTE:

1. AERIAL PHOTOGRAPHY PROVIDED BY HYDREX DRONE DIVISION, IMAGERY DATED 01-24-2022.
2. THE CITY OF MUSKOGEE LANDFILL IS NOT PART OF THE PROPOSED EXPANSION AND IS SHOWN FOR REFERENCE PURPOSES.

0:\0086\364\EXPANSION 2022\LOCATION RESTRICTION\FIG 2-AERIAL PHOTO.dwg, jpuhr, 1:2

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DATE: 01/2023
FILE: 0086-364-11
CAD: FIG 2-AERIAL PHOTO.DWG

DRAWN BY: RAA
DESIGN BY: JBP
REVIEWED BY: JVQ

Weaver Consultants Group
CA 3804 PE-06/30/2023

PREPARED FOR
WASTE MANAGEMENT OF OKLAHOMA, INC.

REVISIONS

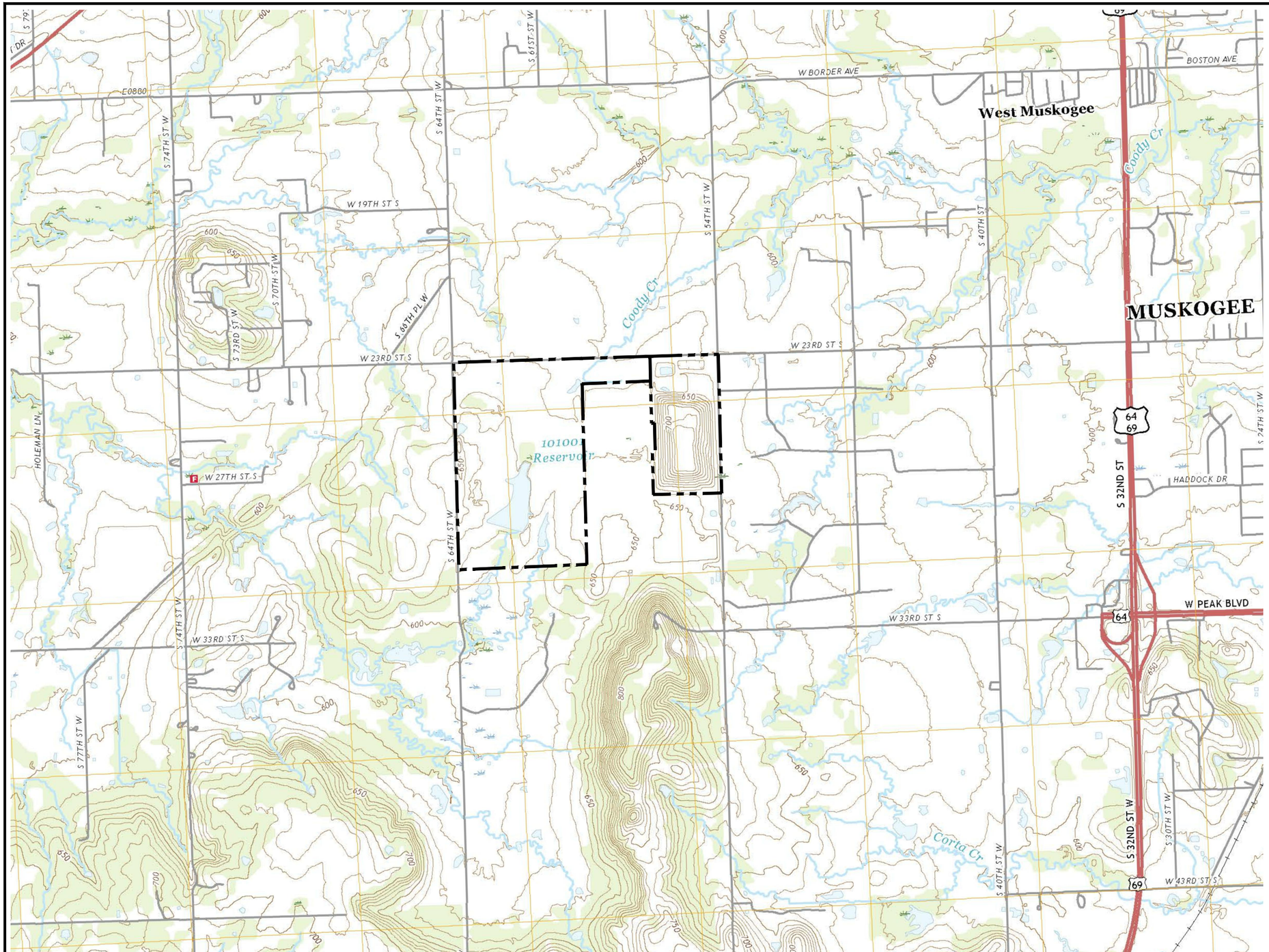
NO.	DATE	DESCRIPTION

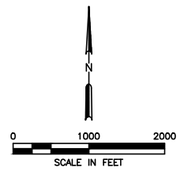
AERIAL PHOTOGRAPH

MUSKOGEE COMMUNITY RDF
MUSKOGEE COUNTY, OKLAHOMA

WWW.WCGRP.COM

FIGURE 2





LEGEND

EXISTING PERMIT BOUNDARY

PROPOSED PERMIT BOUNDARY

NOTES:

1. ADAPTED FROM USGS 7.5 MINUTE QUADRANGLE TOPOGRAPHIC MAP (MUSKOGEE COUNTY, OKLAHOMA, 2018).
2. NO PUBLIC WATER SUPPLY SURFACE WATER INTAKES WERE REPORTED BY THE OKLAHOMA WATER RESOURCES BOARD (OWRB) WITHIN ONE MILE OF THE FACILITY.
3. BASED ON OKLAHOMA WATER RESOURCES BOARD (OWRB) DATABASE THERE IS NO REPORTED WELL LOGS ON PROPERTY OWNED BY WASTE MANAGEMENT OF OKLAHOMA INC. (WMO).
4. THE MAP AREA SHOWN IS WITHIN TOWNSHIP 14 NORTH, RANGE 18 EAST.
5. REFER TO FIGURE 12 FOR WASTE DISPOSAL AREAS ON BUFFER ZONES.

SOUTHWEST MUSKOGEE, OK

2018

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DATE: 01/2023
FILE: 0086-364-11
CAD: FIG 3-GENERAL TOPO. MAP.DWG

DRAWN BY: RAA
DESIGN BY: JBP
REVIEWED BY: JVQ

Weaver Consultants Group
CA 3804 PE-06/30/2023

PREPARED FOR
WASTE MANAGEMENT OF OKLAHOMA, INC.

REVISIONS		
NO.	DATE	DESCRIPTION

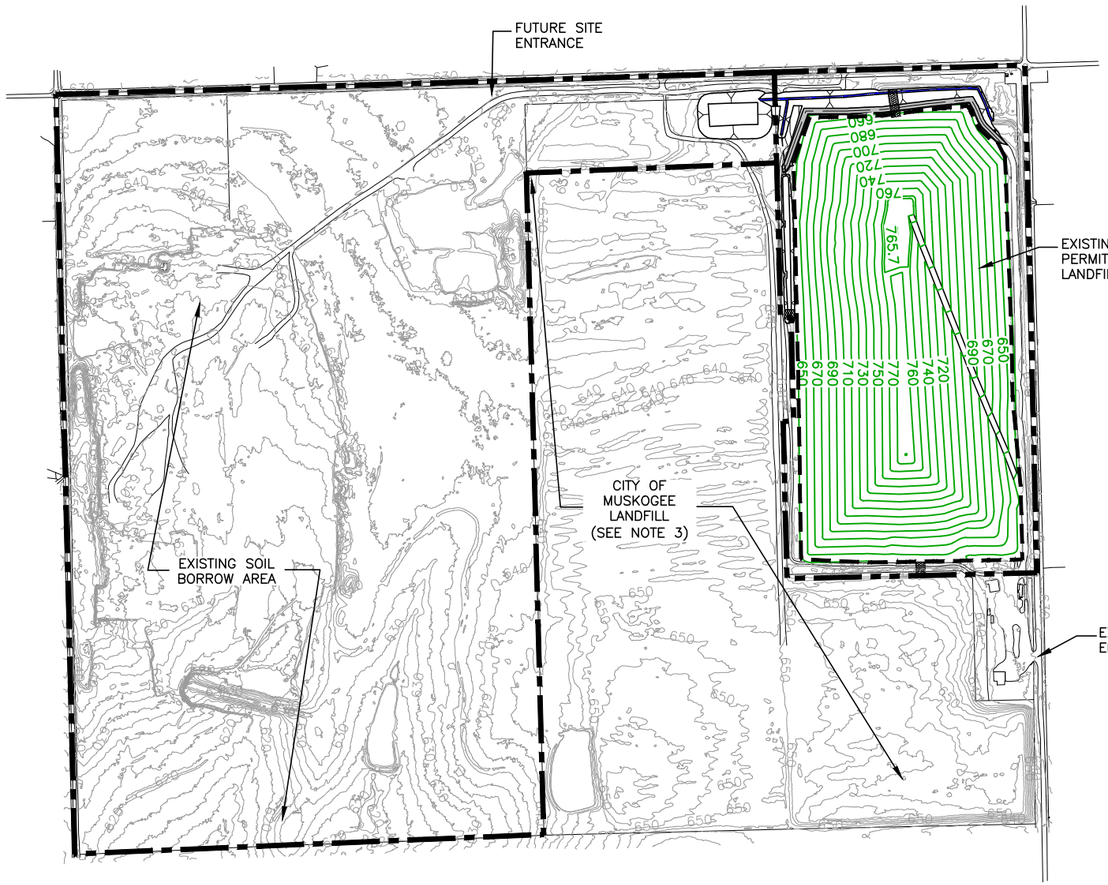
GENERAL TOPOGRAPHIC MAP

MUSKOGEE COMMUNITY RDF
MUSKOGEE COUNTY, OKLAHOMA

WWW.WCGRP.COM

FIGURE 3

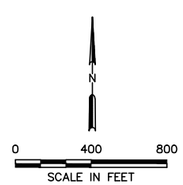
G:\0086\364\EXPANSION 2022\LOCATION RESTRICTION\FIG 3-GENERAL TOPOGRAPHIC MAP.dwg, jpuhr, 1:2



PERMITTED COMPLETION PLAN



PROPOSED COMPLETION PLAN



LEGEND:

- EXISTING PERMIT BOUNDARY
- PROPOSED PERMIT BOUNDARY
- PERMITTED LIMITS OF WASTE
- PROPOSED LIMITS OF WASTE
- N 273000 — STATE PLANE COORDINATE GRID
- 700 — EXISTING CONTOUR
- 700 — FINAL COVER CONTOUR
- 561 — BORROW AREA CONTOUR
- APPROXIMATE OG&E POWER LINE EASEMENT

NOTES:

1. EXISTING CONTOURS AND ELEVATIONS PROVIDED BY AIR MAPS OF ARKANSAS, LLC FROM AERIAL PHOTOGRAPHY FLOWN 01–24–2022.
2. THE EXPANSION WILL ADD A SEPARATE UNIT TO THE WEST OF THE EXISTING LANDFILL. NO CHANGES ARE PROPOSED TO THE EASTERN UNIT.
3. THE CITY OF MUSKOGEE LANDFILL IS NOT PART OF THE PROPOSED EXPANSION AND IS SHOWN FOR REFERENCE PURPOSES.

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DATE: 10/2022
FILE: 0086-364-11
CAD: FIG 4-COMPLETION PLAN.DWG

DRAWN BY: RAA
DESIGN BY: JBP
REVIEWED BY: JVQ

Weaver Consultants Group
CA 3804 PE – 06/30/2023

PREPARED FOR
WASTE MANAGEMENT OF OKLAHOMA, INC.

REVISIONS		
NO.	DATE	DESCRIPTION

PERMITTED COMPLETION PLAN AND PROPOSED COMPLETION PLAN

MUSKOGEE COMMUNITY, RDF
OKLAHOMA COUNTY, OKLAHOMA

WWW.WCGRP.COM

FIGURE 4

O:\0086\364\EXPANSION 2022\LOCATION RESTRICTION\FIG 4-COMPLETION PLAN COMP.dwg, jpuhr, 1:2

THREATENED AND ENDANGERED SPECIES REVIEW

GOSHAWK
ENVIRONMENTAL CONSULTING, INC.

19 December 2022

Jonathan Queen
Weaver Consultants Group, LLC
6420 Southwest Blvd., Suite 206
Fort Worth, Texas 76109

Re: Threatened or Endangered Species Habitat Assessment
±245-Acre Muskogee Landfill Expansion Site
Muskogee County, Oklahoma

Dear Mr. Queen:

Goshawk Environmental Consulting, Inc. (Goshawk) conducted a Threatened or Endangered (T/E) species habitat assessment of the proposed ±245-acre Muskogee Landfill Expansion Site in Muskogee County, Oklahoma. The assessment included a literature review and field investigation to evaluate the site for T/E species habitat and determine the likelihood of use by each species.

1.0 INTRODUCTION

The Muskogee Landfill expansion site is located in the north-central portion of Muskogee County approximately 2.5 miles southwest of the town of Muskogee, Oklahoma (Appendix A, Figure 1). The site is comprised of approximately 245 acres located west of the existing Muskogee Municipal Solid Waste Disposal Facility. The site is located at the southeast corner of West 23rd Street North (N. Hancock Street) and South 64th Street West. The site is within Section 6 of Township 14N, Range 18E. The site was historically used for ranching purposes but appears to have been used as a borrow site more recently. The southern portions of the site drain toward the Pecan Creek Watershed and the northern portions drain toward the Coody Creek watershed.

2.0 REGULATORY BACKGROUND

The Endangered Species Act prohibits any action that causes a “take” of any listed T/E species. A “take” is defined as harm or harassment, including hunting, wounding, killing, trapping, and the capture or collection of individuals of listed species. The law also protects against the degradation or loss of vital habitat for listed species. The United States Fish and Wildlife Service (USFWS) and National Marine Fisheries Service are the regulatory authorities for federally listed T/E species.

State-listed T/E species are protected under Oklahoma Statutes §29-5-412. The Oklahoma Department of Wildlife Conservation has the authority to establish a list of fish and wildlife species that are endangered or threatened. Unlike the federal act, the state’s regulation makes no provision for the protection of wildlife species from indirect take (e.g., destruction of habitat or unfavorable management practices); rather, it protects from the unlawful possession, hunting, killing, trade, or transportation of state-listed species. Therefore, the state-listed species are only a potential development constraint if state-listed species currently occupy the site.

3.0 LITERATURE REVIEW

Literature and agency file searches were conducted to identify the potential occurrence of any federally and/or state-listed T/E species or their potential habitat on the site. Reviewed map sources include the USGS 7.5 minute topographic quadrangle (Southwest Muskogee, Oklahoma) and recent digital aerial orthoimagery (2018). Internet searches were conducted within the Oklahoma Natural Heritage Inventory

(ONHI) database county listing and the US Fish and Wildlife Service (USFWS) *Information, Planning and Conservation System* (IPaC).

3.1 TOPOGRAPHIC MAP

The USGS topographic Southwest Muskogee, Oklahoma quadrangle (Appendix A, Figure 2) indicates the northeastern portion of the site is relatively flat with the remaining portions slightly sloping toward mapped watersheds. The majority of the site is indicated as grasslands (white background) with a small area of woodlands (solid green background) centrally located. Elevations range from approximately 650 feet above mean sea level (AMSL) along the western boundary to 620 feet AMSL at the southern boundary. Two unnamed tributaries (dot-dash blue lines) are indicated originating onsite at open water ponds and flowing south off the site. Another unnamed tributary is mapped flowing north across the northeast corner of the site. Two other open water ponds are indicated, one along the west boundary and near the northern boundary. Four buildings are indicated in the northwest corner of the site, one intended for human occupation (solid black square) and three are outbuildings (open outline). Two powerlines traverse the site, one in an east to west fashion and the other southeast to northwest. Surrounding areas are similar to the site and contain slightly sloping rangeland.

3.2 AERIAL ORTHOIMAGERY

The 2018 natural color aerial orthoimagery (Appendix A, Figure 3) indicates the majority of the site has experienced land disturbance or modification. The eastern open water pond indicated on the topographic map at the headwaters of the mapped tributary is evident on the aerial orthoimagery. The western open water pond at the headwaters of the mapped tributary is not depicted on the aerial orthoimagery as on the topographic map. The open water pond indicated on the topographic map near the northern boundary is evident on the aerial orthoimagery, however, another larger, open water area is noted immediately adjacent and to the southwest. The open water pond indicated on the topographic map near the western boundary is much larger in size on the aerial orthoimagery. A large area of disturbance is noted in the western half of the site on the aerial orthoimagery. A road is visible servicing this area which suggests this area may be utilized as borrow. The eastern half of the site is primarily an open grassland with a few widely dispersed trees. Woodlands are noted in the northwest corner of the site and along the two mapped tributaries near the southern boundary. Surrounding lands include a mixture of open grasslands interspersed with woodlands, similar to the site.

3.3 ONHI

ONHI website identifies the federal and state endangered, threatened, and candidate species, as well as non-regulatory rare species with potential to occur in Muskogee County. The T/E and candidate species listed from the ONHI database for Muskogee County include the American burying beetle (threatened), Arkansas River speckled chub (endangered), Arkansas River shiner (threatened), Neosho madtom (threatened), gray myotis bat (endangered), Indiana myotis bat (endangered), and alligator snapping turtle (proposed threatened). An online request of T/E habitat identification was submitted to the ONHI. On 1 November 2022 ONHI responded with a written document stating that “7 occurrence(s) of relevant species” are within the vicinity of the site (Appendix B). More specifically, five of the occurrences were American burying beetle within various sections of Township 14N, Range 17E, one in Township 15N, Range 17E, and one in Section 32 of Township 14N, Range 18E. The nearest of these occurrences are within 2 miles southwest of the Muskogee Landfill Expansion Site.

3.4 USFWS IPaC

An internet search of the US Fish and Wildlife (USFWS) *Information, Planning and Conservation System* (IPaC) was conducted to identify federally listed T/E species "that should be considered as part of an effects analysis" for the site. The T/E species listed in the IPaC Trust Resource Report for the site (Appendix C) are the gray bat (endangered), tricolored bat (proposed threatened), piping plover (threatened), red knot (threatened), American burying beetle (threatened), and monarch butterfly (candidate). Critical habitat for these species is not designated within the site.

4.0 FIELD INVESTIGATION

Goshawk conducted a field investigation on 17 and 18 October 2022 to assess the site for potential T/E species or their habitats. The entire site was traversed on foot to identify any T/E species or habitats. None of the state or federally listed T/E species were observed during the field investigation. The site conditions were generally consistent with those depicted on the aerial orthoimagery and described in Section 3.2.

The large area of disturbance in the western portion of the site has been utilized for borrow (Appendix D, Photo 1). There is very little to no vegetative coverage within the borrow area. The sides and bottom of the borrow area are irregular. The open water area indicated near the western boundary did not exist. The western open water pond at the headwaters of a tributary was dry during the field investigation (Appendix D, Photo 2). The eastern open water pond does exist as shown on the aerial orthoimagery. The grasslands and woodlands were found to be present as indicated on the aerial orthoimagery.

The grassland communities appeared to be previously improved and regularly maintained. Several terraces were noted within the grasslands and evidence of regular mowing for hay was present (Appendix D, Photos 3 and 4). Vegetation is dominated by little bluestem, silver bluestem, Bermuda grass, split beard bluestem, and bristlegrass. Some areas contained annual ragweed, dewberry, and other forbs. An occasional plum shrub or tree was noted throughout the grassland area as well.

The woodlands in the northwest corner of the site are relatively open with a canopy coverage of approximately 40 percent (Appendix D, Photo 5). Trees included American elm, cedar elm, hickory, and plum with a relatively dense ground cover of goldenrod, dewberry, bristlegrass, little bluestem, and bushy bluestem. The woodlands located along the tributaries in the southern portion of the site have a canopy coverage of approximately 80 percent (Appendix D, Photo 6). Trees include American elm, green ash, cedar elm, and osage orange with a relatively open ground cover consisting of coral berry, dewberry, and sedge.

5.0 HABITAT SUITABILITY FINDINGS

The habitat suitability analysis is limited to the federally listed threatened and endangered species that could potentially occur on the site according to the IPaC Trust Resource Report.

5.1 GRAY BAT

Gray bats utilize caves or cave-like structures (box culverts, mines, quarries, bridges) for roosting year-round. The gray bat may migrate between 200 and 500 miles between its winter and summer roosts. Northeastern Oklahoma is considered the western limit of the gray bats summer range. There are no caves within Muskogee Landfill Expansion site. Additionally, there are no structures that would likely provide roosting habitat within the site. The site does not provide any roost habitat for the gray bat; therefore, it is unlikely to exist. No impacts to the gray bat are anticipated.

5.2 PIPING PLOVER

The piping plover is a migratory species that winters along the Gulf Coast and nests around the Great Lakes and along the upper Atlantic Coast. It primarily inhabits sandy beaches and lakeshores and migrates along the major river systems. The piping plover mainly migrates through Oklahoma; however, they may occasionally nest along major rivers within the state. There are no major watercourses within the Muskogee Landfill Expansion site and the minor watercourses do not exhibit sandy beaches or shores. The lack of suitable habitat on-site would likely preclude the piping plover from utilizing the Muskogee Landfill Expansion site.

5.3 RED KNOT

The red knot is a migratory shore bird that breeds in the Arctic regions of Canada and winters along the coast of the US and South America. Although the red knot relies mostly on shoreline habitats, stopover areas along the migration route can provide important feeding grounds for refueling. The lack of suitable habitat within the site, coupled with no known migration staging areas near the site, likely preclude the red knot from utilizing the Muskogee Landfill Expansion site.

5.4 AMERICAN BURYING BEETLE

The American burying beetle utilizes a wide range of vegetative habitats including woodlands, shrublands, grasslands, riparian areas, and forests. They will even utilize lightly grazed pastures. The presence of small mammals, birds, and other carrion sources may be more important than vegetation types. The American burying beetle are not typically found in highly modified habitats, especially when soils have been impacted.

The Muskogee Landfill Expansion site has both grassland and woodland vegetative habitats that are relatively unimpacted by previous disturbances. These areas are limited to the south, east, and northern portions of the site. Some of the grasslands are regularly mowed for hay production and there is evidence of some terracing. Since the American burying beetle has been documented within relatively close proximity to the site, there exists a potential that American burying beetle may use portions of the site not previously impacted.

6.0 SUMMARY

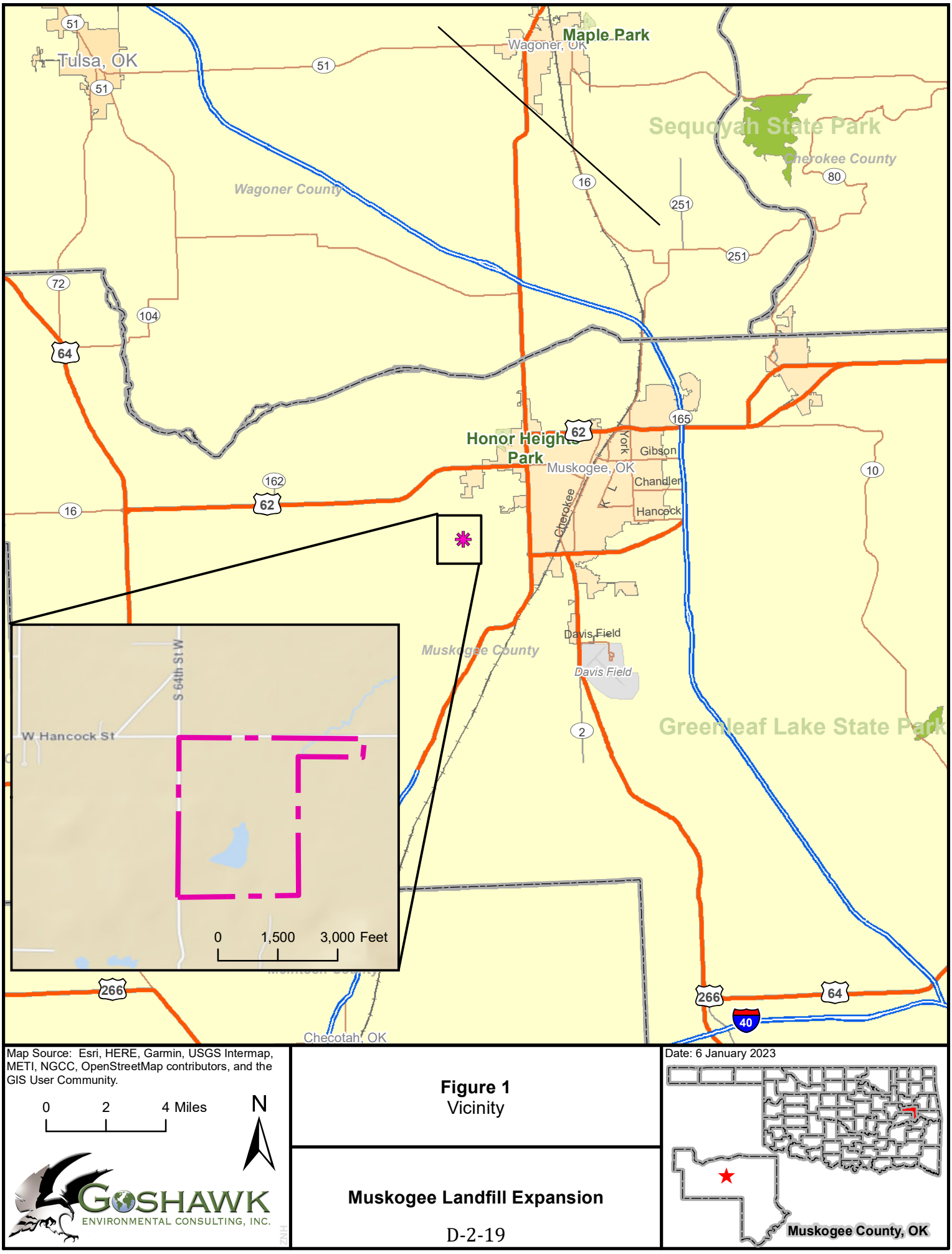
Based on this assessment, it is Goshawk's opinion the Muskogee Landfill Expansion Site could provide habitat for the federally listed threatened American burying beetle. A formal consultation with the US Fish and Wildlife Service may be warranted.

Habitat does not exist within the site for any of the other listed species. While it is possible that the migratory bird species may utilize the landfill site during migration, use would be transitory in nature and of short duration. Lack of suitable habitat makes the occurrence of the migratory species highly unlikely. If there are any questions or additional information is required, please contact our office.

Sincerely,

Zane N. Homesley
President

APPENDIX A
FIGURES



Map Source: Esri, HERE, Garmin, USGS Intermap, METI, NGCC, OpenStreetMap contributors, and the GIS User Community.

0 2 4 Miles

N

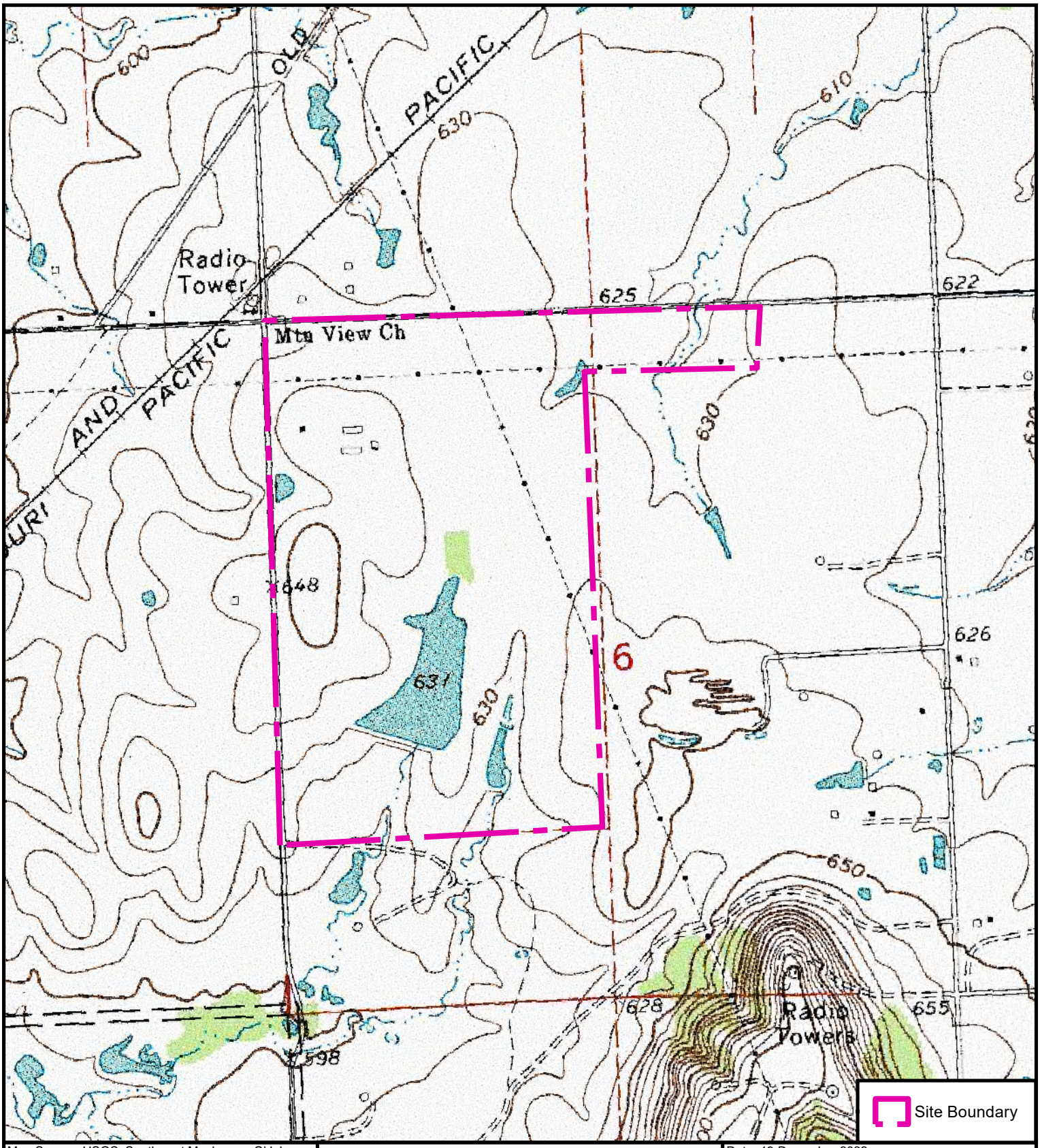
GOSHAWK ENVIRONMENTAL CONSULTING, INC.

Figure 1
Vicinity

Muskogee Landfill Expansion

D-2-19

Date: 6 January 2023



Map Source: USGS, Southwest Muskogee, Oklahoma Quadrangle.

0 500 1,000 Feet

N

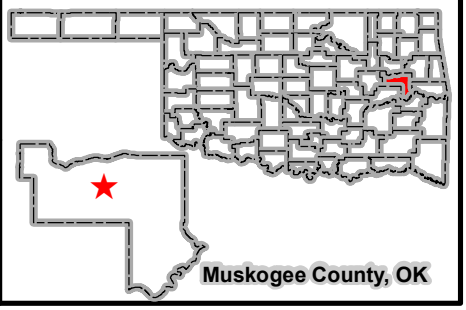
GOSHAWK
ENVIRONMENTAL CONSULTING, INC.

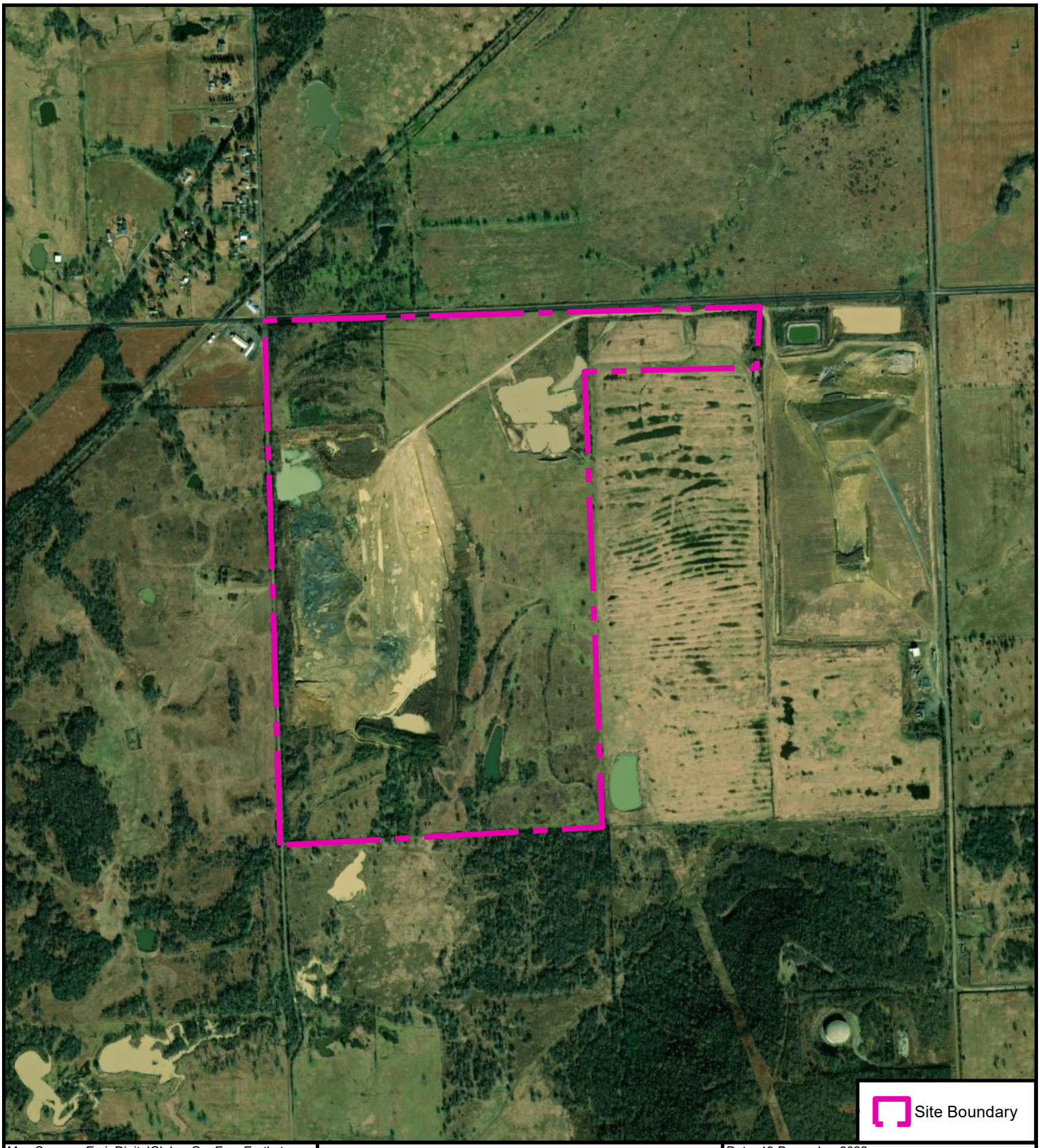
Figure 2
USGS Topographic

Muskogee Landfill Expansion

D-2-20

Date: 19 December 2022





Map Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGrid, IGN, and the GIS User Community.

0 500 1,000 Feet

N

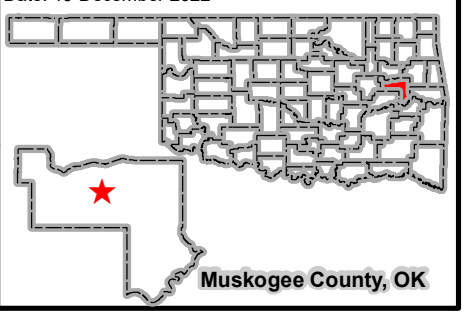
GOSHAWK ENVIRONMENTAL CONSULTING, INC.

Figure 3
Aerial Orthoimagery

Muskogee Landfill Expansion

D-2-21

Date: 19 December 2022



APPENDIX B
ONHI LETTER

OBS Ref. 2022-513-BUS-GOS

Dear Mr. Homesley, November 1, 2022

We have reviewed occurrence information on federal and state threatened, endangered or candidate species, as well as non-regulatory rare species and ecological systems of importance currently in the Oklahoma Natural Heritage Inventory database for the following location you provided:

Sec. 6-T14N-R18E, Muskogee County

We found 7 occurrence(s) of relevant species within the vicinity of the project location as described.

Species Name	Common Name	Federal Status
Nicrophorus americanus	**American burying beetle**	**Threatened**
County	***TRS***	***Count***
Muskogee	Sec. 6-T14N-R17E	1
Muskogee	Sec. 10-T14N-R17E	1
Muskogee	Sec. 11-T14N-R17E	1
Muskogee	Sec. 13-T14N-R17E	1
Muskogee	Sec. 14-T14N-R17E	1
Muskogee	Sec. 32-T14N-R18E	1
Muskogee	Sec. 27-T15N-R17E	1

Additionally, absence from our database does not preclude such species from occurring in the area.

If you have any questions about this response, please send me an email, or call us at the number given below.

Although not specific to your project, you may find the following links helpful.

ONHI, guide to ranking codes for endangered and threatened species:
http://www.oknaturalheritage.ou.edu/content/biodiversity-info/ranking-guide/

Information regarding the Oklahoma Natural Areas Registry:
https://okregistry.wordpress.com/

Todd Fagin
Oklahoma Natural Heritage Inventory
(405) 325-4700
tfagin@ou.edu

APPENDIX C
IPAC TRUST RESOURCE REPORT

IPaC **U.S. Fish & Wildlife Service**

IPaC resource list

This report is an automatically generated list of species and other resources such as critical habitat (collectively referred to as *trust resources*) under the U.S. Fish and Wildlife Service's (USFWS) jurisdiction that are known or expected to be on or near the project area referenced below. The list may also include trust resources that occur outside of the project area, but that could potentially be directly or indirectly affected by activities in the project area. However, determining the likelihood and extent of effects a project may have on trust resources typically requires gathering additional site-specific (e.g., vegetation/species surveys) and project-specific (e.g., magnitude and timing of proposed activities) information.

Below is a summary of the project information you provided and contact information for the USFWS office(s) with jurisdiction in the defined project area. Please read the introduction to each section that follows (Endangered Species, Migratory Birds, USFWS Facilities, and NWI Wetlands) for additional information applicable to the trust resources addressed in that section.

NOT FOR CONSULTATION

Location

Muskogee County, Oklahoma



Local office

Oklahoma Ecological Services Field Office

(918) 581-7458
(918) 581-7467

9014 East 21st Street

Tulsa, OK 74129-1428

NOT FOR CONSULTATION

Endangered species

This resource list is for informational purposes only and does not constitute an analysis of project level impacts.

The primary information used to generate this list is the known or expected range of each species. Additional areas of influence (AOI) for species are also considered. An AOI includes areas outside of the species range if the species could be indirectly affected by activities in that area (e.g., placing a dam upstream of a fish population even if that fish does not occur at the dam site, may indirectly impact the species by reducing or eliminating water flow downstream). Because species can move, and site conditions can change, the species on this list are not guaranteed to be found on or near the project area. To fully determine any potential effects to species, additional site-specific and project-specific information is often required.

Section 7 of the Endangered Species Act **requires** Federal agencies to "request of the Secretary information whether any species which is listed or proposed to be listed may be present in the area of such proposed action" for any project that is conducted, permitted, funded, or licensed by any Federal agency. A letter from the local office and a species list which fulfills this requirement can **only** be obtained by requesting an official species list from either the Regulatory Review section in IPaC (see directions below) or from the local field office directly.

For project evaluations that require USFWS concurrence/review, please return to the IPaC website and request an official species list by doing the following:

1. Draw the project location and click CONTINUE.
2. Click DEFINE PROJECT.
3. Log in (if directed to do so).
4. Provide a name and description for your project.
5. Click REQUEST SPECIES LIST.

Listed species[1] and their critical habitats are managed by the Ecological Services Program of the U.S. Fish and Wildlife Service (USFWS) and the fisheries division of the National Oceanic and Atmospheric Administration (NOAA Fisheries[2]).

Species and critical habitats under the sole responsibility of NOAA Fisheries are **not** shown on this list. Please contact NOAA Fisheries for species under their jurisdiction.

---

1. Species listed under the Endangered Species Act are threatened or endangered; IPaC also shows species that are candidates, or proposed, for listing. See the listing status page for more information. IPaC only shows species that are regulated by USFWS (see FAQ).

NOT FOR CONSULTATION

2. NOAA Fisheries, also known as the National Marine Fisheries Service (NMFS), is an office of the National Oceanic and Atmospheric Administration within the Department of Commerce.

The following species are potentially affected by activities in this location:

Mammals

NAME	STATUS
Gray Bat Myotis grisescens Wherever found No critical habitat has been designated for this species. https://ecos.fws.gov/ecp/species/6329	Endangered
Tricolored Bat Perimyotis subflavus Wherever found No critical habitat has been designated for this species. https://ecos.fws.gov/ecp/species/10515	Proposed Endangered

Birds

NAME	STATUS
Piping Plover Charadrius melodus There is **final** critical habitat for this species. Your location does not overlap the critical habitat. https://ecos.fws.gov/ecp/species/6039	Threatened
Red Knot Calidris canutus rufa Wherever found There is **proposed** critical habitat for this species. https://ecos.fws.gov/ecp/species/1864	Threatened

Insects

NAME	STATUS
American Burying Beetle Nicrophorus americanus No critical habitat has been designated for this species. https://ecos.fws.gov/ecp/species/66	Threatened
Monarch Butterfly Danaus plexippus Wherever found No critical habitat has been designated for this species. https://ecos.fws.gov/ecp/species/9743	Candidate

NOT FOR CONSULTATION

Critical habitats

Potential effects to critical habitat(s) in this location must be analyzed along with the endangered species themselves.

There are no critical habitats at this location.

Migratory birds

Certain birds are protected under the Migratory Bird Treaty Act[1] and the Bald and Golden Eagle Protection Act[2].

Any person or organization who plans or conducts activities that may result in impacts to migratory birds, eagles, and their habitats should follow appropriate regulations and consider implementing appropriate conservation measures, as described below.

1. The Migratory Birds Treaty Act of 1918.
2. The Bald and Golden Eagle Protection Act of 1940.

Additional information can be found using the following links:

- Birds of Conservation Concern https://www.fws.gov/program/migratory-birds/species
- Measures for avoiding and minimizing impacts to birds https://www.fws.gov/library/collections/avoiding-and-minimizing-incidental-take-migratory-birds
- Nationwide conservation measures for birds https://www.fws.gov/sites/default/files/documents/nationwide-standard-conservation-measures.pdf

NOT FOR CONSULTATION

There are no migratory birds of conservation concern expected to occur at this location.

Tell me more about conservation measures I can implement to avoid or minimize impacts to migratory birds.

Nationwide Conservation Measures describes measures that can help avoid and minimize impacts to all birds at any location year round. Implementation of these measures is particularly important when birds are most likely to occur in the project area. When birds may be breeding in the area, identifying the locations of any active nests and avoiding their destruction is a very helpful impact minimization measure. To see when birds are most likely to occur and be breeding in your project area, view the Probability of Presence Summary. Additional measures or permits may be advisable depending on the type of activity you are conducting and the type of infrastructure or bird species present on your project site.

What does IPaC use to generate the list of migratory birds that potentially occur in my specified location?

The Migratory Bird Resource List is comprised of USFWS Birds of Conservation Concern (BCC) and other species that may warrant special attention in your project location.

The migratory bird list generated for your project is derived from data provided by the Avian Knowledge Network (AKN). The AKN data is based on a growing collection of survey, banding, and citizen science datasets and is queried and filtered to return a list of those birds reported as occurring in the 10km grid cell(s) which your project intersects, and that have been identified as warranting special attention because they are a BCC species in that area, an eagle (Eagle Act requirements may apply), or a species that has a particular vulnerability to offshore activities or development.

Again, the Migratory Bird Resource list includes only a subset of birds that may occur in your project area. It is not representative of all birds that may occur in your project area. To get a list of all birds potentially present in your project area, please visit the Rapid Avian Information Locator (RAIL) Tool.

What does IPaC use to generate the probability of presence graphs for the migratory birds potentially occurring in my specified location?

The probability of presence graphs associated with your migratory bird list are based on data provided by the Avian Knowledge Network (AKN). This data is derived from a growing collection of survey, banding, and citizen science datasets.

Probability of presence data is continuously being updated as new and better information becomes available. To learn more about how the probability of presence graphs are produced and how to interpret them, go the Probability of Presence Summary and then click on the "Tell me about these graphs" link.

How do I know if a bird is breeding, wintering or migrating in my area?

To see what part of a particular bird's range your project area falls within (i.e. breeding, wintering, migrating or year-round), you may query your location using the RAIL Tool and look at the range maps provided for birds in your area at the bottom of the profiles provided for each bird in your results. If a bird on your migratory bird species list has a breeding season associated with it, if that bird does occur in your project area, there may be nests present at some point within the timeframe specified. If "Breeds elsewhere" is indicated, then the bird likely does not breed in your project area.

What are the levels of concern for migratory birds?

Migratory birds delivered through IPaC fall into the following distinct categories of concern:

1. "BCC Rangewide" birds are Birds of Conservation Concern (BCC) that are of concern throughout their range anywhere within the USA (including Hawaii, the Pacific Islands, Puerto Rico, and the Virgin Islands);
2. "BCC - BCR" birds are BCCs that are of concern only in particular Bird Conservation Regions (BCRs) in the continental USA; and
3. "Non-BCC - Vulnerable" birds are not BCC species in your project area, but appear on your list either because of the Eagle Act requirements (for eagles) or (for non-eagles) potential susceptibilities in offshore areas from certain types of development or activities (e.g. offshore energy development or longline fishing).

NOT FOR CONSULTATION

Although it is important to try to avoid and minimize impacts to all birds, efforts should be made, in particular, to avoid and minimize impacts to the birds on this list, especially eagles and BCC species of rangewide concern. For more information on conservation measures you can implement to help avoid and minimize migratory bird impacts and requirements for eagles, please see the FAQs for these topics.

Details about birds that are potentially affected by offshore projects

For additional details about the relative occurrence and abundance of both individual bird species and groups of bird species within your project area off the Atlantic Coast, please visit the Northeast Ocean Data Portal. The Portal also offers data and information about other taxa besides birds that may be helpful to you in your project review. Alternately, you may download the bird model results files underlying the portal maps through the NOAA NCCOS Integrative Statistical Modeling and Predictive Mapping of Marine Bird Distributions and Abundance on the Atlantic Outer Continental Shelf project webpage.

Bird tracking data can also provide additional details about occurrence and habitat use throughout the year, including migration. Models relying on survey data may not include this information. For additional information on marine bird tracking data, see the Diving Bird Study and the nanotag studies or contact Caleb Spiegel or Pam Loring.

What if I have eagles on my list?

If your project has the potential to disturb or kill eagles, you may need to obtain a permit to avoid violating the Eagle Act should such impacts occur.

Proper Interpretation and Use of Your Migratory Bird Report

The migratory bird list generated is not a list of all birds in your project area, only a subset of birds of priority concern. To learn more about how your list is generated, and see options for identifying what other birds may be in your project area, please see the FAQ "What does IPaC use to generate the migratory birds potentially occurring in my specified location". Please be aware this report provides the "probability of presence" of birds within the 10 km grid cell(s) that overlap your project; not your exact project footprint. On the graphs provided, please also look carefully at the survey effort (indicated by the black vertical bar) and for the existence of the "no data" indicator (a red horizontal bar). A high survey effort is the key component. If the survey effort is high, then the probability of presence score can be viewed as more dependable. In contrast, a low survey effort bar or no data bar means a lack of data and, therefore, a lack of certainty about presence of the species. This list is not perfect; it is simply a starting point for identifying what birds of concern have the potential to be in your project area, when they might be there, and if they might be breeding (which means nests might be present). The list helps you know what to look for to confirm presence, and helps guide you in knowing when to implement conservation measures to avoid or minimize potential impacts from your project activities, should presence be confirmed. To learn more about conservation measures, visit the FAQ "Tell me about conservation measures I can implement to avoid or minimize impacts to migratory birds" at the bottom of your migratory bird trust resources page.

NOT FOR CONSULTATION

Facilities

National Wildlife Refuge lands

Any activity proposed on lands managed by the National Wildlife Refuge system must undergo a 'Compatibility Determination' conducted by the Refuge. Please contact the individual Refuges to discuss any questions or concerns.

There are no refuge lands at this location.

Fish hatcheries

There are no fish hatcheries at this location.

Wetlands in the National Wetlands Inventory (NWI)

Impacts to NWI wetlands and other aquatic habitats may be subject to regulation under Section 404 of the Clean Water Act, or other State/Federal statutes.

For more information please contact the Regulatory Program of the local U.S. Army Corps of Engineers District.

NOT FOR CONSULTATION

Wetland information is not available at this time

This can happen when the National Wetlands Inventory (NWI) map service is unavailable, or for very large projects that intersect many wetland areas. Try again, or visit the NWI map to view wetlands at this location.

Data limitations

The Service's objective of mapping wetlands and deepwater habitats is to produce reconnaissance level information on the location, type and size of these resources. The maps are prepared from the analysis of high altitude imagery. Wetlands are identified based on vegetation, visible hydrology and geography. A margin of error is inherent in the use of imagery; thus, detailed on-the-ground inspection of any particular site may result in revision of the wetland boundaries or classification established through image analysis.

The accuracy of image interpretation depends on the quality of the imagery, the experience of the image analysts, the amount and quality of the collateral data and the amount of ground truth verification work conducted. Metadata should be consulted to determine the date of the source imagery used and any mapping problems.

Wetlands or other mapped features may have changed since the date of the imagery or field work. There may be occasional differences in polygon boundaries or classifications between the information depicted on the map and the actual conditions on site.

Data exclusions

Certain wetland habitats are excluded from the National mapping program because of the limitations of aerial imagery as the primary data source used to detect wetlands. These habitats include seagrasses or submerged aquatic vegetation that are found in the intertidal and subtidal zones of estuaries and nearshore coastal waters. Some deepwater reef communities (coral or tuberficid worm reefs) have also been excluded from the inventory. These habitats, because of their depth, go undetected by aerial imagery.

Data precautions

Federal, state, and local regulatory agencies with jurisdiction over wetlands may define and describe wetlands in a different manner than that used in this inventory. There is no attempt, in either the design or products of this inventory, to define the limits of proprietary jurisdiction of any Federal, state, or local government or to establish the geographical scope of the regulatory programs of government agencies. Persons intending to engage in activities involving modifications within or adjacent to wetland areas should seek the advice of appropriate Federal, state, or local agencies concerning specified agency regulatory programs and proprietary jurisdictions that may affect such activities.

NOT FOR CONSULTATION

APPENDIX D
PHOTOGRAPHS

Photo #: 1	Date: 17 October 2022
Large Borrow Area Within Western Portion of the Site	

Photo #: 2	Date: 18 October 2022
Open Water Pond at the Headwaters of the Western Tributary	

Photo #:	Date:
3	18 October 2022

Grassland Community in Northern Portion of the Site, Recently Mowed for Hay



Photo #:	Date:
4	18 October 2022

Typical Grassland Community Within Southeastern Portion of the Site



Photo #:	Date:
5	18 October 2022

Woodland Vegetative Community Within Northwestern Portion of the Site



Photo #:	Date:
6	18 October 2022

Woodland Vegetative Community Within the Southern Portion of the Site



OBS Ref. 2023-430-BUS-WCG

Dear Johnna Puhr, September 27, 2023

We have reviewed occurrence information on federal and state threatened, endangered, or candidate species currently in the Oklahoma Natural Heritage Inventory database for the following location you provided:

Sec. 6-T14N-R18E, Muskogee County

We found 8 occurrences of relevant species within the vicinity of the project location as described.

Species Name	Common Name	Federal Status
Nicrophorus americanus	**American Burying Beetle**	**Threatened**
County	***TRS***	***Count***
Muskogee	Sec. 10-T14N-R17E	1
Muskogee	Sec. 11-T14N-R17E	1
Muskogee	Sec. 13-T14N-R17E	1
Muskogee	Sec. 14-T14N-R17E	1
Muskogee	Sec. 32-T14N-R18E	1
Muskogee	Sec. 11-T15N-R17E	1
Muskogee	Sec. 12-T15N-R17E	1
Muskogee	Sec. 27-T15N-R17E	1

Additionally, absence from our database does not preclude such species from occurring in the area.

If you have any questions about this response, please send me an email, or call us at the number given below.

Although not specific to your project, you may find the following link helpful.

ONHI, guide to ranking codes for endangered and threatened species:
http://www.oknaturalheritage.ou.edu/content/biodiversity-info/ranking-guide/

Kristin Comolli
Oklahoma Natural Heritage Inventory
(405) 325-4700
kcomolli@ou.edu

Puhr, Johnna

From: Comolli, Kristin A. <kcomolli@ou.edu>
Sent: Friday, October 6, 2023 5:49 PM
To: Puhr, Johnna
Cc: Hoagland, Bruce W.
Subject: Re: Muskogee Community Recycling and Disposal Facility Proposed Expansion Project
Attachments: 2023-430-BUS-WCG.pdf

CAUTION: This email originated from outside your organization. Exercise caution when opening attachments or clicking links, especially from unknown senders.

Hi Johnna.

I received this message from Jeff Kelly. Jeff is no longer associated with the Oklahoma Natural Heritage Inventory (ONHI).

I know we have corresponded several times. The Oklahoma Natural Heritage Inventory is the state's central repository for information on Oklahoma's natural heritage. When organizations contact us for information, we search our database and provide a report of federal and state regulatory species within a 5-mile radius of their project location. Beyond that, we do not have jurisdiction.

I know you are interested in public recreation or preservation near this location, we do not have that data, but there is a National database that you may find helpful: https://www.usgs.gov/programs/gap-analysis-project/science/protected-areas

I have attached the report I sent on 9/27/2023 again.

Kristin Comolli (she/her)
Database Analyst
Oklahoma Natural Heritage Inventory
University of Oklahoma
111 East Chesapeake Street
Norman, OK 73019
http://oknaturalheritage.ou.edu/

From: Souza, Lara A. <lara.souza@ou.edu>
Sent: Friday, October 6, 2023 4:42 PM
To: Comolli, Kristin A. <kcomolli@ou.edu>
Cc: Crawford, Priscilla H. <prill@ou.edu>
Subject: Fw: Muskogee Community Recycling and Disposal Facility Proposed Expansion Project

dear Kristin and Priscilla,
Please find attached and below a message that is pertinent to ONHI.

Many thanks!!
Hope you both have a great weekend.
Lara

Lara Souza
Director of the Oklahoma Biological Survey
Associate Professor, Department of Microbiology and Plant Biology
University of Oklahoma
Norman, OK 73019
phone:405-325-6057
cell: 405-881-3259

From: Kelly, Jeffrey F. <jkelly@ou.edu>
Sent: Friday, October 6, 2023 12:34 PM
To: Souza, Lara A. <lara.souza@ou.edu>
Subject: Fw: Muskogee Community Recycling and Disposal Facility Proposed Expansion Project

Hi Lara,

I think this is an ONHI request for information.

Jeff

From: Puhr, Johnna <jpuhr@wcgrp.com>
Sent: Friday, October 6, 2023 9:39 AM
To: Kelly, Jeffrey F. <jkelly@ou.edu>
Subject: FW: Muskogee Community Recycling and Disposal Facility Proposed Expansion Project

Mr. Kelly,
I am just following up on my email below. We need a response from you to satisfy requirements of our ODEQ application.
Please let me know if you have any questions.
Thank you,

Johnna Puhr
Project Manager

Weaver Consultants Group
6420 Southwest Blvd. | Suite 206
Fort Worth, TX 76109
O: 817-735-9770 | F: 817-735-9775
jpuhr@wcgrp.com | www.wcgrp.com

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From: Puhr, Johnna
Sent: Friday, January 6, 2023 2:47 PM
To: jkelly@ou.edu
Cc: Queen, Jonathan <jqueen@wcgrp.com>; Campbell, Guy <GCampbe1@wm.com>; Schultze, Pete <pschultze@wm.com>
Subject: Muskogee Community Recycling and Disposal Facility Proposed Expansion Project

Mr. Kelly,
The purpose of this email and attached letter is obtain endangered or threatened wildlife species information and demonstrate compatibility with Oklahoma Department of Environmental Quality (DEQ) landfill location restriction Oklahoma Administrative Code (OAC) 252:515-31(c). This regulation requires that a permit applicant for an expansion of a municipal solid waste landfill facility obtain a current information statement from Oklahoma Biological Survey (OBS). Information on the proposed project as well as a Threatened and Endangered Species Review is included in the attached.
To verify compliance with 252:515-5-31(c), we will need to include a statement from the OBS regarding current information about endangered or threatened wildlife or plant species listed in state and federal laws that exist within one mile of the landfill permit boundary or expansion area within the permit application. Let me know if you would like a hard copy of the attached information.
Please feel free to give me a call with any questions.
Thanks, and have a great weekend.

Weaver Consultants Group

Project No. 0086-364-11-19
January 6, 2023

Jeff Kelly, Biological Survey Director
Oklahoma Biological Survey
111 East Chesapeake Street
Norman, Oklahoma 73019-5112

Re: Endangered or Threatened Wildlife Species Statement
Muskogee Community Recycling and Disposal Facility Expansion
Muskogee, Oklahoma

Dear Mr. Kelly:

The purpose of this letter, submitted on behalf of Waste Management of Oklahoma, Inc., is to obtain endangered or threatened wildlife species information and demonstrate compatibility with Oklahoma Department of Environmental Quality (DEQ) landfill location restriction regulation Oklahoma Administrative Code (OAC) §252:515-5-31(c). This regulation requires that a permit applicant for an expansion of a municipal solid waste landfill facility obtain a current information statement from the Oklahoma Biological Survey (OBS).

The ODEQ landfill location restriction regulation set forth in §252:515-5-31(c), requires that a permit applicant for an expansion of a municipal solid waste facility obtain a statement from the OBS regarding current information about endangered or threatened wildlife or plant species listed in state and federal laws that exist within one mile of the landfill permit boundary or expansion area. Weaver Consultants Group, LLC is preparing a landfill expansion application, under contract with Waste Management of Oklahoma, Inc., to expand their existing landfill (Muskogee Community Recycling and Disposal Facility) located in the City of Muskogee, Oklahoma.

The proposed expansion areas were assessed by Goshawk Environmental Consulting, Inc. (Goshawk), an environmental services firm with experience in threatened and endangered species habitat assessment. Goshawk conducted an on-site field reconnaissance for endangered or threatened wildlife and plant species habitats. Goshawk's report concluded that the site does not provide habitat for and would not likely be occupied by any federal or state listed threatened and endangered species.

To assist you in your statement regarding threatened or endangered wildlife within one mile of the referenced project, please find attached a project summary, site location drawings, and the Goshawk report.

To verify compliance with §252:515-5-31(c), we will need to include a statement from the OBS regarding current information about endangered or threatened wildlife or plant species listed in state and federal laws that exist within one mile of the landfill permit boundary or expansion area within the permit application.

Your assistance with this matter is sincerely appreciated. Please call if you have any questions or need additional information.

Sincerely,
Weaver Consultants Group, LLC

Jonathan V. Queen, P.E.
Project Director

Attachment: Project Summary and Site Location Maps
Threatened and Endangered Species Review

cc: Guy R. Campbell, Waste Management of Oklahoma, Inc.
Pete Schultze, Waste Management of Oklahoma, Inc.

PROJECT SUMMARY AND SITE LOCATION MAPS

Project Summary

Muskogee Community Recycling and Disposal Facility Expansion
Waste Management of Oklahoma, Inc.
Muskogee, Oklahoma

Introduction

The Muskogee Community Recycling and Disposal Facility is in the process of expanding the existing landfill to provide long-term disposal capacity for municipal solid waste that is generated in the City of Muskogee, Muskogee County, and the surrounding areas. The purpose of this summary is to provide an overview of the proposed landfill expansion. The site is located outside the city limits of the City of Muskogee, south of W. 23rd Street S., west of S. 54th Street W., and east of S. 64th Street W. The following subsections detail information regarding the owner and operator of the site, general site information, and a summary of the proposed site design.

Owner/Operator Information

The Muskogee Community Recycling and Disposal Facility is owned and operated by Waste Management of Oklahoma, Inc., a Waste Management, Inc. company. Waste Management, Inc. is an integrated solid waste services company that provides solid waste collection, transfer, disposal and recycling services and serves more than 20 million residential, commercial and industrial customers in North America.

Site Information

The following drawings are attached to this summary.

- Site Location Map (Figure 1). This figure shows the site location on a standard Oklahoma Department of Transportation Oklahoma County Highway Map.
- Aerial Photograph (Figure 2). This figure shows the existing recycling and disposal facility and proposed expansion area, on a recent aerial photograph.
- General Topographic Map (Figure 3). This figure shows the existing landfill and waste disposal area, as well as the proposed expansion area, on an USGS map.

- Permitted and Proposed Completion Plan (Figure 4). This figure shows the permitted and proposed landfill completion plans on detailed site topographic maps. The proposed condition will consist of two separate units. The eastern unit will be consistent with the currently permitted condition, as no changes are proposed to the unit. A separate unit will be built to the west for the proposed condition.

The Muskogee Community Recycling and Disposal Facility is located southwest of the City of Muskogee at 2801 S. 54th St. W., Muskogee, Oklahoma 74401. The service area includes the City of Muskogee, Muskogee County, and other surrounding areas. The facility currently operates under Oklahoma Department of Environmental Quality (ODEQ) Permit No. 3551020.

Design Summary

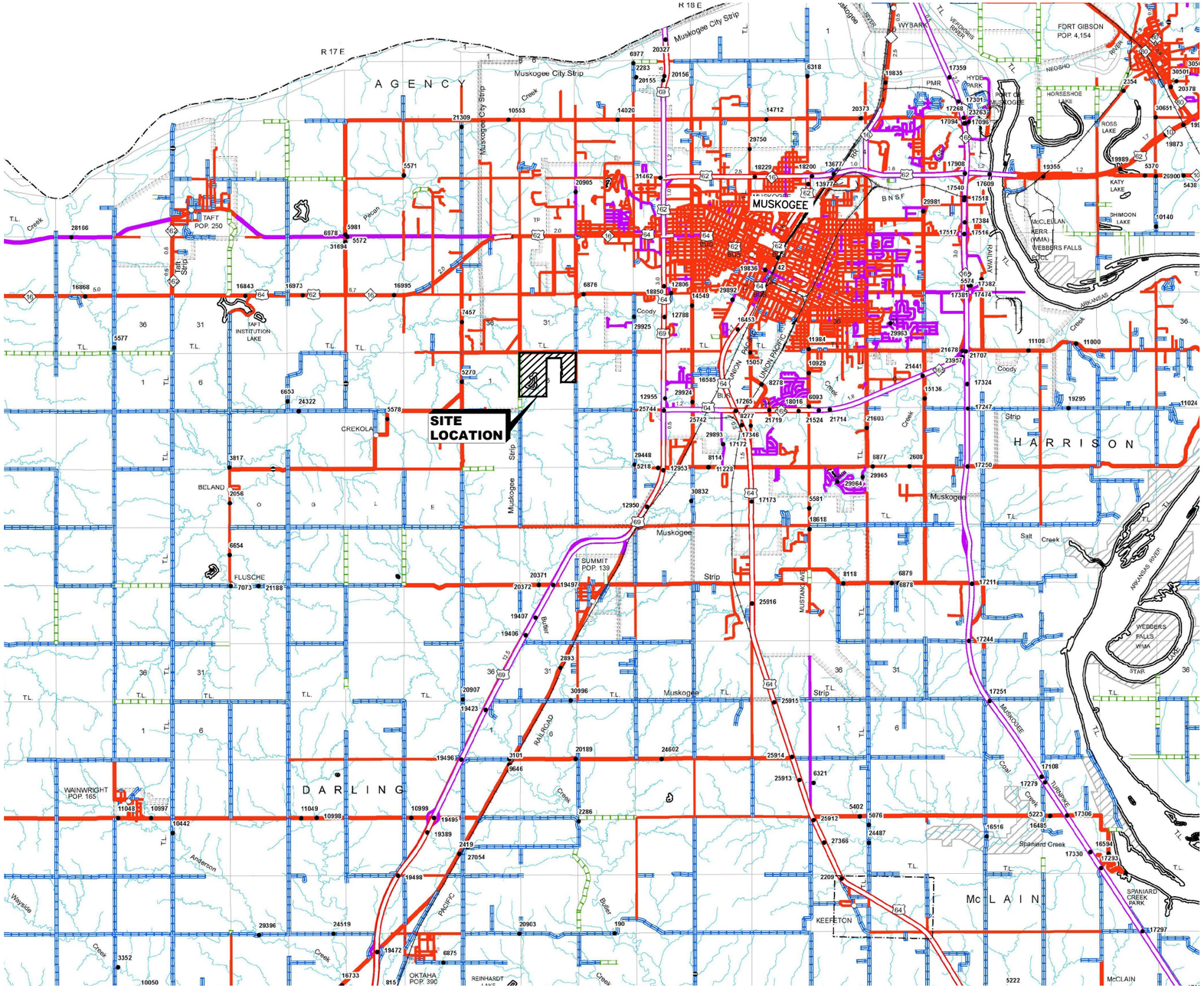
The following information presents a summary of the design and operations for the proposed Muskogee Community Recycling and Disposal Facility expansion.

- The permit boundary will be expanded by approximately 245 acres. A separate landfill unit will be built to the west of the existing landfill, adding an additional 70 acres for waste disposal.
- Accepted wastes will remain consistent with the current municipal solid waste landfill permit. The facility will accept municipal solid waste, construction and demolition wastes, non-hazardous industrial waste, encapsulated asbestos waste, vegetative waste, semi-solid waste, and sludges as permitted by the ODEQ.
- Access to the site is currently provided via the existing site access road from S. 54th Street W. As the site transitions to the western expansion area, a new site entrance will be developed along W. 23rd Street S. Based on traffic patterns of existing landfill traffic, most vehicles bound for the landfill will access the site using W. 23rd Street S. from Interstate Highway 64/69. The existing roads are capable of handling the traffic load associated with the landfill.
- A liner and final cover system that meets all regulatory requirements will be used for the solid waste containment system. The design objective of the containment system (final cover, liner, and leachate management system) is to isolate the solid waste and remove leachate (defined as liquid that has contacted solid waste) that collects on the liner system. Leachate that is removed from the landfill will be discharged offsite to the City of Muskogee publicly owned treatment works (POTW) in accordance with the City of Muskogee Industrial Wastewater Treatment/Disposal Permit No. 078. The construction procedures of the liner and final cover systems follow strict ODEQ approved quality control and quality assurance procedures, which are verified by an independent testing firm. Each of the containment system

components must be thoroughly reviewed and approved by the ODEQ before solid waste is placed in the landfill.

- To verify that the highest levels of environmental protection are maintained, the following landfill monitoring systems are provided:
  - Groundwater Monitoring System. The purpose of the groundwater monitoring system is to verify the integrity of the containment system and verify that groundwater is not adversely impacted by the landfill. This is accomplished by obtaining water samples from the monitor wells, located on the perimeter of the landfill, which are screened in the uppermost saturated zone to monitor groundwater quality. The water samples are tested at an off-site laboratory.
  - Landfill Gas Monitoring System. The purpose of the landfill gas monitoring system is to verify the integrity of the containment system and verify that methane gas, produced from the decomposing waste material, has not migrated beyond the permit boundary. This is accomplished by obtaining subsurface air samples from the landfill gas probes, located on the perimeter of the landfill, which are screened across potential migration pathways. The samples are tested on-site with a portable landfill gas analyzer.
  - These monitoring systems are sampled and tested periodically. The groundwater monitoring results are filed with the ODEQ and are public record.
- Site Operations. Properly trained personnel will operate the site. A detailed site operating plan will be included in the landfill expansion permit application. The plan will detail the required equipment, personnel, and safety procedures required to operate the site in accordance with ODEQ regulations. The site will continue to provide solid waste disposal service six days a week and the active landfill area will be covered at the end of each workday to prevent potential nuisance conditions such as odors and vectors. The Muskogee Community Recycling and Disposal Facility will continue to be inspected by the ODEQ on a regular basis to ensure the site is in compliance with state regulations.

The development of this site will also require permitting and or coordination with local, state, and federal agencies including the County Commissioner, Oklahoma Tourism and Recreation Department, Grand River Dam Authority, Oklahoma Department of Wildlife Conservation, Oklahoma Biological Survey, Oklahoma Natural Areas Registry, Bureau of Reclamation, United States Army Corps of Engineers, and Oklahoma Department of Environmental Quality.



0 1 2
SCALE IN MILES

Legend

- Interstate Highway
- US Highway
- State Highway
- Divided Highway - Asphalt
- Divided Highway - Concrete
- Asphalt
- Concrete
- Gravel
- Grade & Drain
- Unimproved
- Railroad
- State Line
- County Line
- Section Line
- Corporate Limit
- Wildlife Management Area
- Wildlife Refuge
- River or Stream
- Lake or Reservoir
- Bridges
- Low Water Crossing
- Natural Elevation Point
- Natural Elevation Point

NOTE:

1. REPRODUCED FROM GENERAL HIGHWAY MAPS, MUSKOGEE COUNTY, OKLAHOMA, (OK DOT STRATEGIC ASSET AND PERFORMANCE MANAGEMENT DIVISION OCTOBER 2018).

- [ ] DRAFT
- [x] FOR INFORMATIONAL PURPOSES ONLY
- [ ] ISSUED FOR CONSTRUCTION

DATE: 01/2023
FILE: 0086-364-11
CAD: FIG 1-SITE LOCATION MAP.DWG

DRAWN BY: RAA
DESIGN BY: JBP
REVIEWED BY: JVQ

Weaver Consultants Group
CA 3804 PE-06/30/2023

PREPARED FOR
WASTE MANAGEMENT OF OKLAHOMA, INC.

REVISIONS		
NO.	DATE	DESCRIPTION

SITE LOCATION MAP

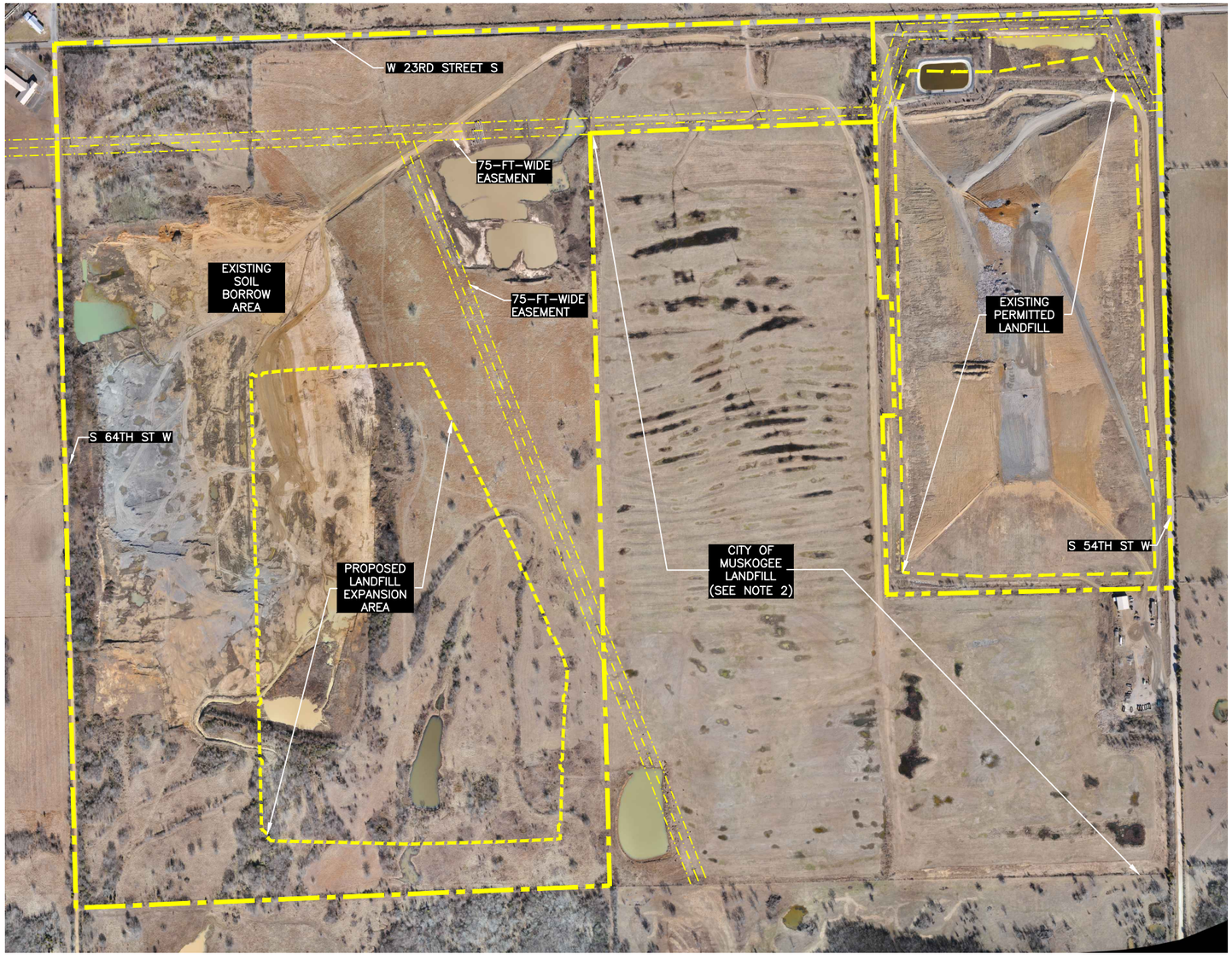
MUSKOGEE COMMUNITY RDF
MUSKOGEE COUNTY, OKLAHOMA

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FIGURE 1

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O:\0086\364\EXPANSION 2022\LOCATION RESTRICTION\FIG 1-SITE LOCATION MAP.dwg, jputhr, 1:2



N

0 300 600

SCALE IN FEET

LEGEND

- EXISTING PERMIT BOUNDARY
- PROPOSED PERMIT BOUNDARY
- PERMITTED LIMITS OF WASTE
- PROPOSED LIMITS OF WASTE
- APPROXIMATE OG&E POWER LINE EASEMENT

NOTE:

1. AERIAL PHOTOGRAPHY PROVIDED BY HYDREX DRONE DIVISION, IMAGERY DATED 01-24-2022.
2. THE CITY OF MUSKOGEE LANDFILL IS NOT PART OF THE PROPOSED EXPANSION AND IS SHOWN FOR REFERENCE PURPOSES.

O:\0086\364\EXPANSION 2022\LOCATION RESTRICTION\FIG 2-AERIAL PHOTO.dwg, jpuhr, 1:2

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DATE: 01/2023
FILE: 0086-364-11
CAD: FIG 2-AERIAL PHOTO.DWG

DRAWN BY: RAA
DESIGN BY: JBP
REVIEWED BY: JVQ

Weaver Consultants Group
CA 3804 PE-06/30/2023

PREPARED FOR
WASTE MANAGEMENT OF OKLAHOMA, INC.

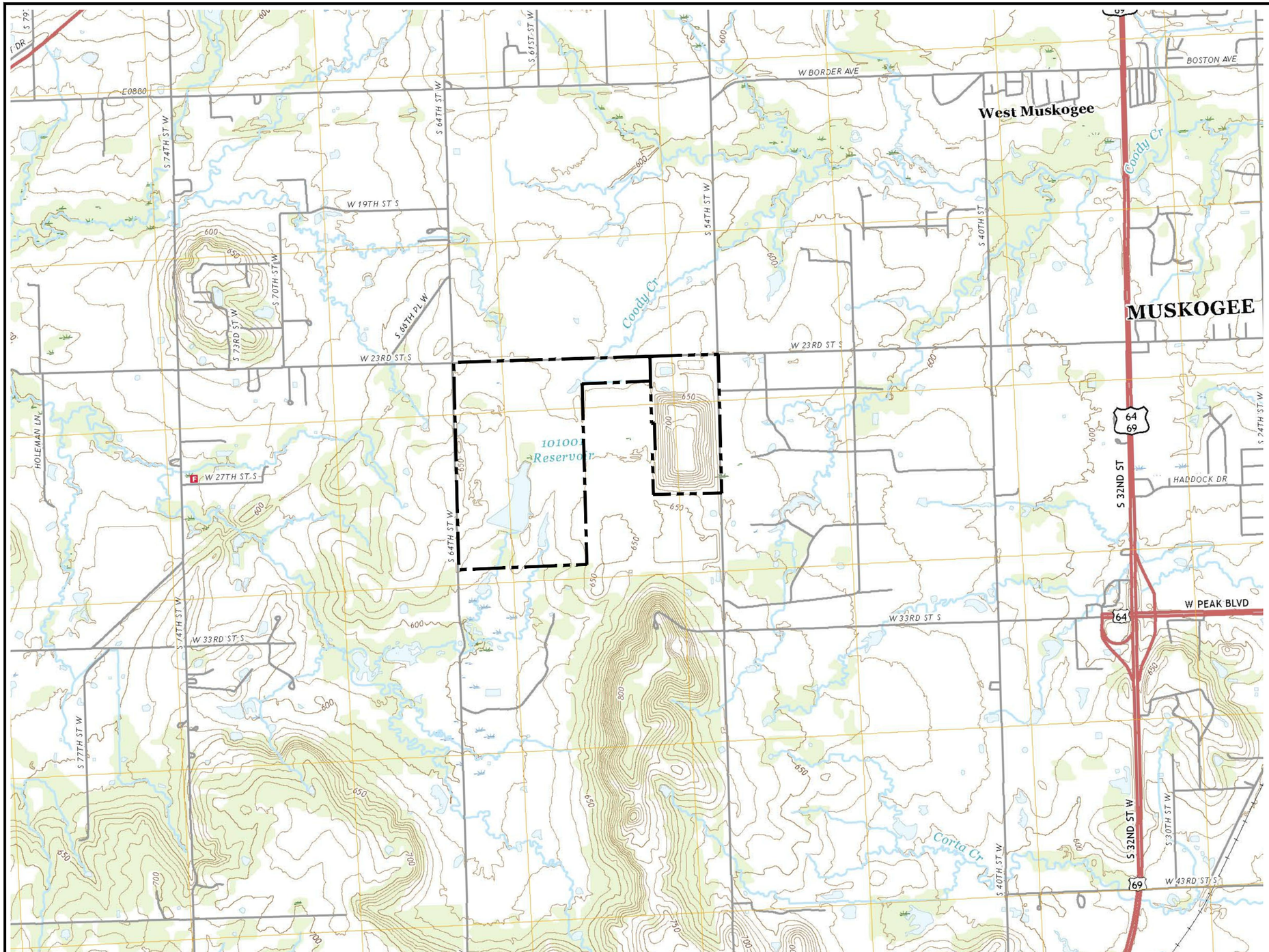
REVISIONS		
NO.	DATE	DESCRIPTION

AERIAL PHOTOGRAPH

MUSKOGEE COMMUNITY RDF
MUSKOGEE COUNTY, OKLAHOMA

WWW.WCGRP.COM

FIGURE 2



0 1000 2000
SCALE IN FEET

LEGEND

EXISTING PERMIT BOUNDARY

PROPOSED PERMIT BOUNDARY

NOTES:

1. ADAPTED FROM USGS 7.5 MINUTE QUADRANGLE TOPOGRAPHIC MAP (MUSKOGEE COUNTY, OKLAHOMA, 2018).
2. NO PUBLIC WATER SUPPLY SURFACE WATER INTAKES WERE REPORTED BY THE OKLAHOMA WATER RESOURCES BOARD (OWRB) WITHIN ONE MILE OF THE FACILITY.
3. BASED ON OKLAHOMA WATER RESOURCES BOARD (OWRB) DATABASE THERE IS NO REPORTED WELL LOGS ON PROPERTY OWNED BY WASTE MANAGEMENT OF OKLAHOMA INC. (WMO).
4. THE MAP AREA SHOWN IS WITHIN TOWNSHIP 14 NORTH, RANGE 18 EAST.
5. REFER TO FIGURE 12 FOR WASTE DISPOSAL AREAS ON BUFFER ZONES.

SOUTHWEST MUSKOGEE, OK

2018

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DATE: 01/2023
FILE: 0086-364-11
CAD: FIG 3-GENERAL TOPO. MAP.DWG

DRAWN BY: RAA
DESIGN BY: JBP
REVIEWED BY: JVQ

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CA 3804 PE-06/30/2023

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WASTE MANAGEMENT OF OKLAHOMA, INC.

REVISIONS		
NO.	DATE	DESCRIPTION

GENERAL TOPOGRAPHIC MAP

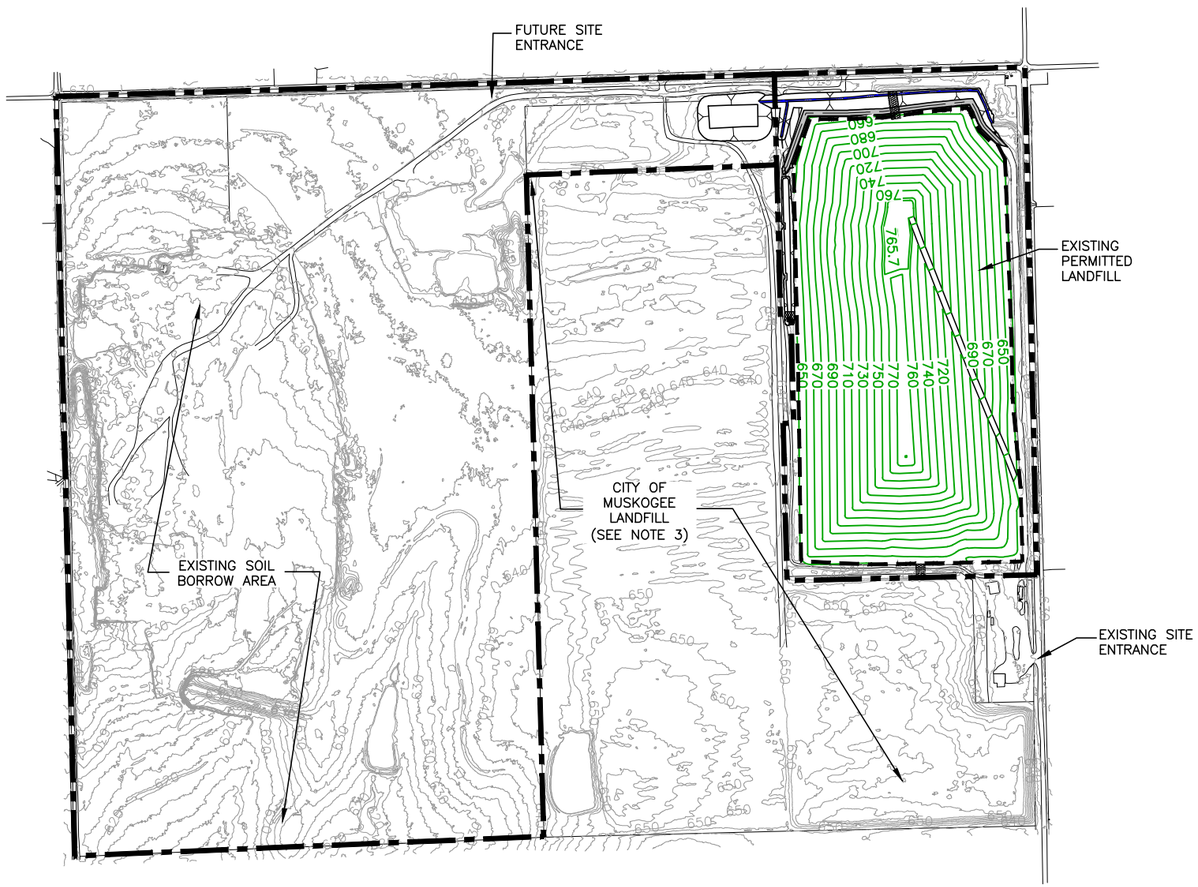
MUSKOGEE COMMUNITY RDF
MUSKOGEE COUNTY, OKLAHOMA

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FIGURE 3

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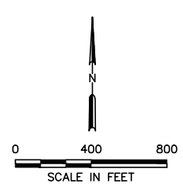
G:\0086\364\EXPANSION 2022\LOCATION RESTRICTION\FIG 3-GENERAL TOPOGRAPHIC MAP.dwg, jpuhr, 1:2



PERMITTED COMPLETION PLAN



PROPOSED COMPLETION PLAN



LEGEND:

- EXISTING PERMIT BOUNDARY
- PROPOSED PERMIT BOUNDARY
- PERMITTED LIMITS OF WASTE
- PROPOSED LIMITS OF WASTE
- N 273000 — STATE PLANE COORDINATE GRID
- 700 — EXISTING CONTOUR
- 700 — FINAL COVER CONTOUR
- 561 — BORROW AREA CONTOUR
- APPROXIMATE OG&E POWER LINE EASEMENT

NOTES:

1. EXISTING CONTOURS AND ELEVATIONS PROVIDED BY AIR MAPS OF ARKANSAS, LLC FROM AERIAL PHOTOGRAPHY FLOWN 01–24–2022.
2. THE EXPANSION WILL ADD A SEPARATE UNIT TO THE WEST OF THE EXISTING LANDFILL. NO CHANGES ARE PROPOSED TO THE EASTERN UNIT.
3. THE CITY OF MUSKOGEE LANDFILL IS NOT PART OF THE PROPOSED EXPANSION AND IS SHOWN FOR REFERENCE PURPOSES.

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DATE: 10/2022
FILE: 0086-364-11
CAD: FIG 4-COMPLETION PLAN.DWG

DRAWN BY: RAA
DESIGN BY: JBP
REVIEWED BY: JVQ

Weaver Consultants Group
CA 3804 PE – 06/30/2023

PREPARED FOR
WASTE MANAGEMENT OF OKLAHOMA, INC.

REVISIONS		
NO.	DATE	DESCRIPTION

PERMITTED COMPLETION PLAN AND PROPOSED COMPLETION PLAN

MUSKOGEE COMMUNITY, RDF
OKLAHOMA COUNTY, OKLAHOMA

WWW.WCGRP.COM

FIGURE 4

O:\0086\364\EXPANSION 2022\LOCATION RESTRICTION\FIG 4-COMPLETION PLAN COMP.dwg, jpuhr, 1:2

THREATENED AND ENDANGERED SPECIES REVIEW

GOSHAWK
ENVIRONMENTAL CONSULTING, INC.

19 December 2022

Jonathan Queen
Weaver Consultants Group, LLC
6420 Southwest Blvd., Suite 206
Fort Worth, Texas 76109

Re: Threatened or Endangered Species Habitat Assessment
±245-Acre Muskogee Landfill Expansion Site
Muskogee County, Oklahoma

Dear Mr. Queen:

Goshawk Environmental Consulting, Inc. (Goshawk) conducted a Threatened or Endangered (T/E) species habitat assessment of the proposed ±245-acre Muskogee Landfill Expansion Site in Muskogee County, Oklahoma. The assessment included a literature review and field investigation to evaluate the site for T/E species habitat and determine the likelihood of use by each species.

1.0 INTRODUCTION

The Muskogee Landfill expansion site is located in the north-central portion of Muskogee County approximately 2.5 miles southwest of the town of Muskogee, Oklahoma (Appendix A, Figure 1). The site is comprised of approximately 245 acres located west of the existing Muskogee Municipal Solid Waste Disposal Facility. The site is located at the southeast corner of West 23rd Street North (N. Hancock Street) and South 64th Street West. The site is within Section 6 of Township 14N, Range 18E. The site was historically used for ranching purposes but appears to have been used as a borrow site more recently. The southern portions of the site drain toward the Pecan Creek Watershed and the northern portions drain toward the Coody Creek watershed.

2.0 REGULATORY BACKGROUND

The Endangered Species Act prohibits any action that causes a “take” of any listed T/E species. A “take” is defined as harm or harassment, including hunting, wounding, killing, trapping, and the capture or collection of individuals of listed species. The law also protects against the degradation or loss of vital habitat for listed species. The United States Fish and Wildlife Service (USFWS) and National Marine Fisheries Service are the regulatory authorities for federally listed T/E species.

State-listed T/E species are protected under Oklahoma Statutes §29-5-412. The Oklahoma Department of Wildlife Conservation has the authority to establish a list of fish and wildlife species that are endangered or threatened. Unlike the federal act, the state’s regulation makes no provision for the protection of wildlife species from indirect take (e.g., destruction of habitat or unfavorable management practices); rather, it protects from the unlawful possession, hunting, killing, trade, or transportation of state-listed species. Therefore, the state-listed species are only a potential development constraint if state-listed species currently occupy the site.

3.0 LITERATURE REVIEW

Literature and agency file searches were conducted to identify the potential occurrence of any federally and/or state-listed T/E species or their potential habitat on the site. Reviewed map sources include the USGS 7.5 minute topographic quadrangle (Southwest Muskogee, Oklahoma) and recent digital aerial orthoimagery (2018). Internet searches were conducted within the Oklahoma Natural Heritage Inventory

(ONHI) database county listing and the US Fish and Wildlife Service (USFWS) *Information, Planning and Conservation System* (IPaC).

3.1 TOPOGRAPHIC MAP

The USGS topographic Southwest Muskogee, Oklahoma quadrangle (Appendix A, Figure 2) indicates the northeastern portion of the site is relatively flat with the remaining portions slightly sloping toward mapped watersheds. The majority of the site is indicated as grasslands (white background) with a small area of woodlands (solid green background) centrally located. Elevations range from approximately 650 feet above mean sea level (AMSL) along the western boundary to 620 feet AMSL at the southern boundary. Two unnamed tributaries (dot-dash blue lines) are indicated originating onsite at open water ponds and flowing south off the site. Another unnamed tributary is mapped flowing north across the northeast corner of the site. Two other open water ponds are indicated, one along the west boundary and near the northern boundary. Four buildings are indicated in the northwest corner of the site, one intended for human occupation (solid black square) and three are outbuildings (open outline). Two powerlines traverse the site, one in an east to west fashion and the other southeast to northwest. Surrounding areas are similar to the site and contain slightly sloping rangeland.

3.2 AERIAL ORTHOIMAGERY

The 2018 natural color aerial orthoimagery (Appendix A, Figure 3) indicates the majority of the site has experienced land disturbance or modification. The eastern open water pond indicated on the topographic map at the headwaters of the mapped tributary is evident on the aerial orthoimagery. The western open water pond at the headwaters of the mapped tributary is not depicted on the aerial orthoimagery as on the topographic map. The open water pond indicated on the topographic map near the northern boundary is evident on the aerial orthoimagery, however, another larger, open water area is noted immediately adjacent and to the southwest. The open water pond indicated on the topographic map near the western boundary is much larger in size on the aerial orthoimagery. A large area of disturbance is noted in the western half of the site on the aerial orthoimagery. A road is visible servicing this area which suggests this area may be utilized as borrow. The eastern half of the site is primarily an open grassland with a few widely dispersed trees. Woodlands are noted in the northwest corner of the site and along the two mapped tributaries near the southern boundary. Surrounding lands include a mixture of open grasslands interspersed with woodlands, similar to the site.

3.3 ONHI

ONHI website identifies the federal and state endangered, threatened, and candidate species, as well as non-regulatory rare species with potential to occur in Muskogee County. The T/E and candidate species listed from the ONHI database for Muskogee County include the American burying beetle (threatened), Arkansas River speckled chub (endangered), Arkansas River shiner (threatened), Neosho madtom (threatened), gray myotis bat (endangered), Indiana myotis bat (endangered), and alligator snapping turtle (proposed threatened). An online request of T/E habitat identification was submitted to the ONHI. On 1 November 2022 ONHI responded with a written document stating that “7 occurrence(s) of relevant species” are within the vicinity of the site (Appendix B). More specifically, five of the occurrences were American burying beetle within various sections of Township 14N, Range 17E, one in Township 15N, Range 17E, and one in Section 32 of Township 14N, Range 18E. The nearest of these occurrences are within 2 miles southwest of the Muskogee Landfill Expansion Site.

3.4 USFWS IPaC

An internet search of the US Fish and Wildlife (USFWS) *Information, Planning and Conservation System* (IPaC) was conducted to identify federally listed T/E species "that should be considered as part of an effects analysis" for the site. The T/E species listed in the IPaC Trust Resource Report for the site (Appendix C) are the gray bat (endangered), tricolored bat (proposed threatened), piping plover (threatened), red knot (threatened), American burying beetle (threatened), and monarch butterfly (candidate). Critical habitat for these species is not designated within the site.

4.0 FIELD INVESTIGATION

Goshawk conducted a field investigation on 17 and 18 October 2022 to assess the site for potential T/E species or their habitats. The entire site was traversed on foot to identify any T/E species or habitats. None of the state or federally listed T/E species were observed during the field investigation. The site conditions were generally consistent with those depicted on the aerial orthoimagery and described in Section 3.2.

The large area of disturbance in the western portion of the site has been utilized for borrow (Appendix D, Photo 1). There is very little to no vegetative coverage within the borrow area. The sides and bottom of the borrow area are irregular. The open water area indicated near the western boundary did not exist. The western open water pond at the headwaters of a tributary was dry during the field investigation (Appendix D, Photo 2). The eastern open water pond does exist as shown on the aerial orthoimagery. The grasslands and woodlands were found to be present as indicated on the aerial orthoimagery.

The grassland communities appeared to be previously improved and regularly maintained. Several terraces were noted within the grasslands and evidence of regular mowing for hay was present (Appendix D, Photos 3 and 4). Vegetation is dominated by little bluestem, silver bluestem, Bermuda grass, split beard bluestem, and bristlegrass. Some areas contained annual ragweed, dewberry, and other forbs. An occasional plum shrub or tree was noted throughout the grassland area as well.

The woodlands in the northwest corner of the site are relatively open with a canopy coverage of approximately 40 percent (Appendix D, Photo 5). Trees included American elm, cedar elm, hickory, and plum with a relatively dense ground cover of goldenrod, dewberry, bristlegrass, little bluestem, and bushy bluestem. The woodlands located along the tributaries in the southern portion of the site have a canopy coverage of approximately 80 percent (Appendix D, Photo 6). Trees include American elm, green ash, cedar elm, and osage orange with a relatively open ground cover consisting of coral berry, dewberry, and sedge.

5.0 HABITAT SUITABILITY FINDINGS

The habitat suitability analysis is limited to the federally listed threatened and endangered species that could potentially occur on the site according to the IPaC Trust Resource Report.

5.1 GRAY BAT

Gray bats utilize caves or cave-like structures (box culverts, mines, quarries, bridges) for roosting year-round. The gray bat may migrate between 200 and 500 miles between its winter and summer roosts. Northeastern Oklahoma is considered the western limit of the gray bats summer range. There are no caves within Muskogee Landfill Expansion site. Additionally, there are no structures that would likely provide roosting habitat within the site. The site does not provide any roost habitat for the gray bat; therefore, it is unlikely to exist. No impacts to the gray bat are anticipated.

5.2 PIPING PLOVER

The piping plover is a migratory species that winters along the Gulf Coast and nests around the Great Lakes and along the upper Atlantic Coast. It primarily inhabits sandy beaches and lakeshores and migrates along the major river systems. The piping plover mainly migrates through Oklahoma; however, they may occasionally nest along major rivers within the state. There are no major watercourses within the Muskogee Landfill Expansion site and the minor watercourses do not exhibit sandy beaches or shores. The lack of suitable habitat on-site would likely preclude the piping plover from utilizing the Muskogee Landfill Expansion site.

5.3 RED KNOT

The red knot is a migratory shore bird that breeds in the Arctic regions of Canada and winters along the coast of the US and South America. Although the red knot relies mostly on shoreline habitats, stopover areas along the migration route can provide important feeding grounds for refueling. The lack of suitable habitat within the site, coupled with no known migration staging areas near the site, likely preclude the red knot from utilizing the Muskogee Landfill Expansion site.

5.4 AMERICAN BURYING BEETLE

The American burying beetle utilizes a wide range of vegetative habitats including woodlands, shrublands, grasslands, riparian areas, and forests. They will even utilize lightly grazed pastures. The presence of small mammals, birds, and other carrion sources may be more important than vegetation types. The American burying beetle are not typically found in highly modified habitats, especially when soils have been impacted.

The Muskogee Landfill Expansion site has both grassland and woodland vegetative habitats that are relatively unimpacted by previous disturbances. These areas are limited to the south, east, and northern portions of the site. Some of the grasslands are regularly mowed for hay production and there is evidence of some terracing. Since the American burying beetle has been documented within relatively close proximity to the site, there exists a potential that American burying beetle may use portions of the site not previously impacted.

6.0 SUMMARY

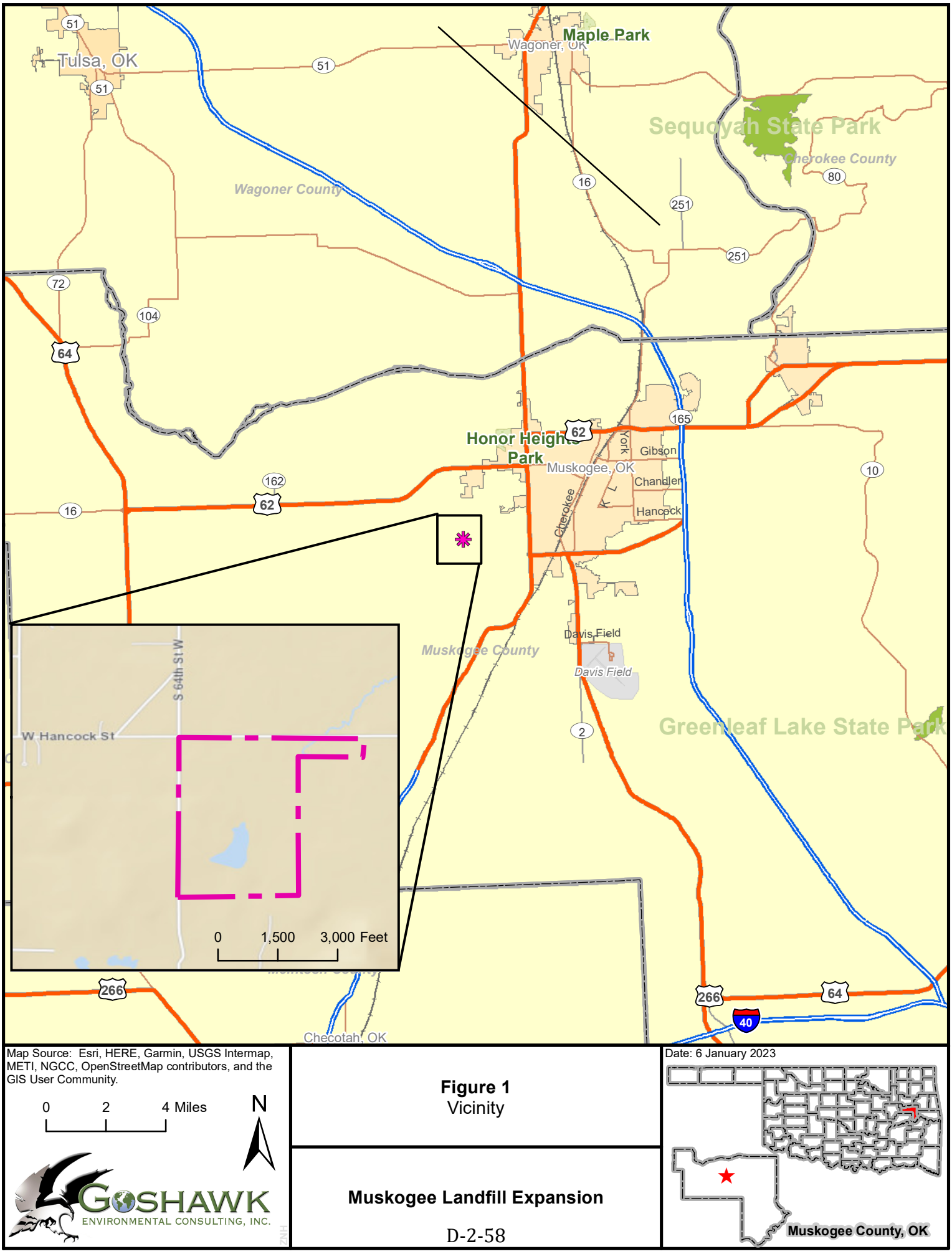
Based on this assessment, it is Goshawk's opinion the Muskogee Landfill Expansion Site could provide habitat for the federally listed threatened American burying beetle. A formal consultation with the US Fish and Wildlife Service may be warranted.

Habitat does not exist within the site for any of the other listed species. While it is possible that the migratory bird species may utilize the landfill site during migration, use would be transitory in nature and of short duration. Lack of suitable habitat makes the occurrence of the migratory species highly unlikely. If there are any questions or additional information is required, please contact our office.

Sincerely,

Zane N. Homesley
President

APPENDIX A
FIGURES



Map Source: Esri, HERE, Garmin, USGS Intermap, METI, NGCC, OpenStreetMap contributors, and the GIS User Community.

0 2 4 Miles

N

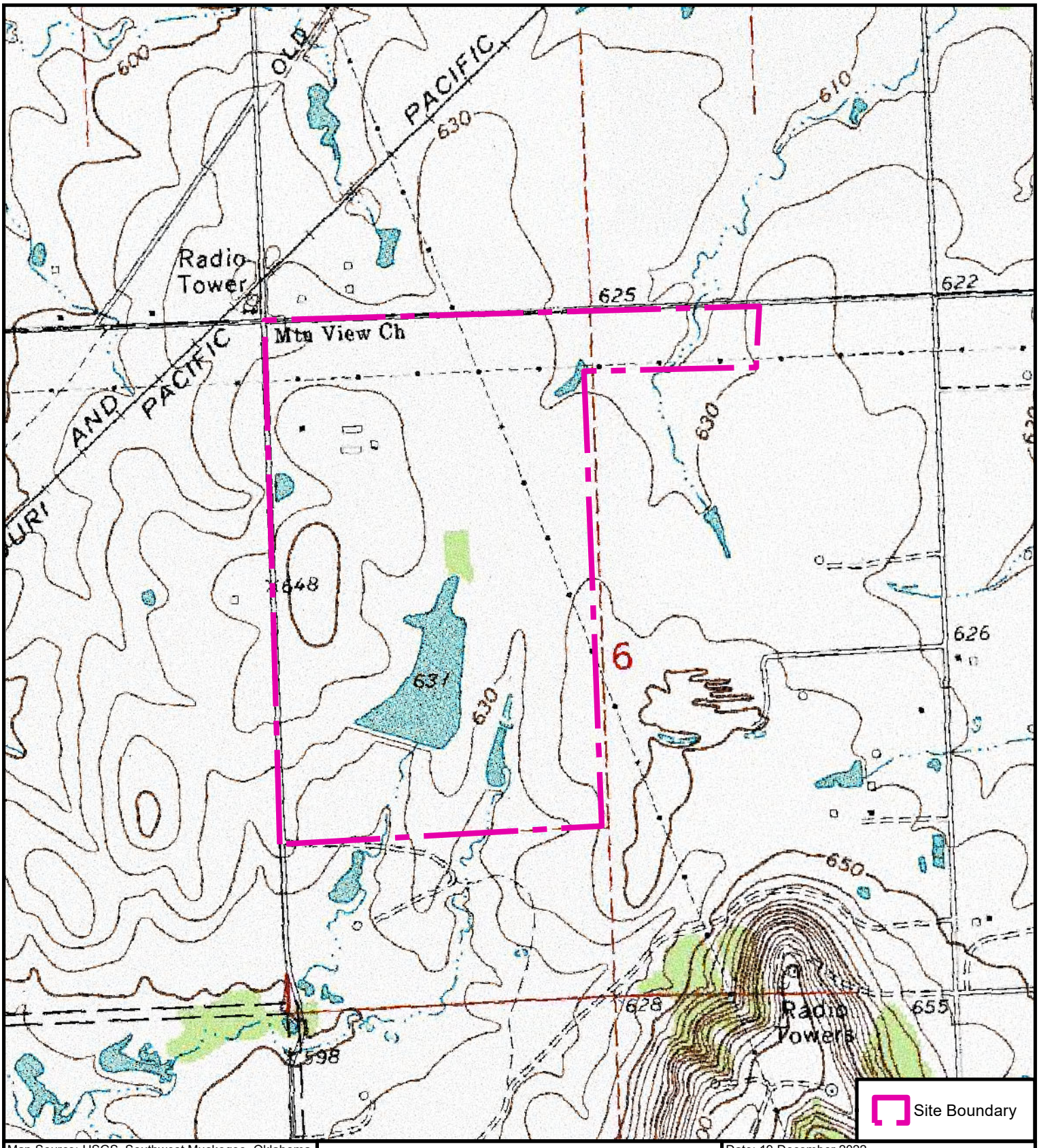
GOSHAWK ENVIRONMENTAL CONSULTING, INC.

Figure 1
Vicinity

Muskogee Landfill Expansion

D-2-58

Date: 6 January 2023



Map Source: USGS, Southwest Muskogee, Oklahoma Quadrangle.

0 500 1,000 Feet

N

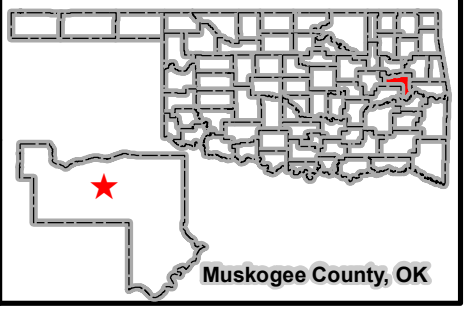
GOSHAWK
ENVIRONMENTAL CONSULTING, INC.

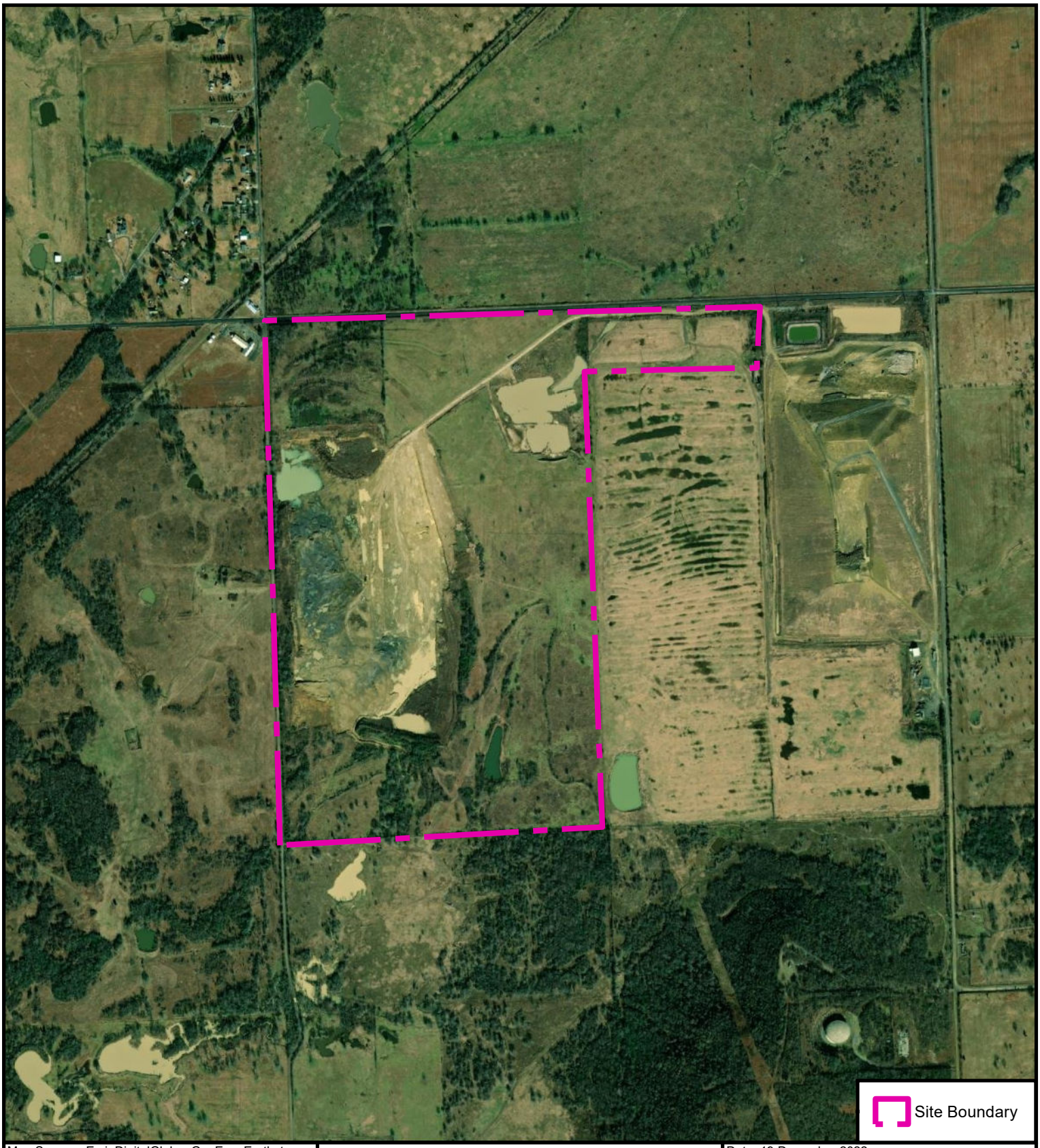
Figure 2
USGS Topographic

Muskogee Landfill Expansion

D-2-59

Date: 19 December 2022





Map Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGrid, IGN, and the GIS User Community.

0 500 1,000 Feet

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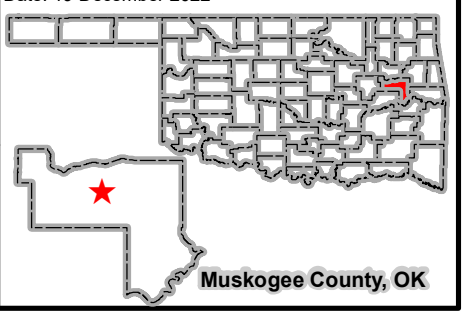
GOSHAWK ENVIRONMENTAL CONSULTING, INC.

Figure 3
Aerial Orthoimagery

Muskogee Landfill Expansion

D-2-60

Date: 19 December 2022



APPENDIX B
ONHI LETTER

OBS Ref. 2022-513-BUS-GOS

Dear Mr. Homesley, November 1, 2022

We have reviewed occurrence information on federal and state threatened, endangered or candidate species, as well as non-regulatory rare species and ecological systems of importance currently in the Oklahoma Natural Heritage Inventory database for the following location you provided:

Sec. 6-T14N-R18E, Muskogee County

We found 7 occurrence(s) of relevant species within the vicinity of the project location as described.

Species Name	Common Name	Federal Status
Nicrophorus americanus	**American burying beetle**	**Threatened**
County	***TRS***	***Count***
Muskogee	Sec. 6-T14N-R17E	1
Muskogee	Sec. 10-T14N-R17E	1
Muskogee	Sec. 11-T14N-R17E	1
Muskogee	Sec. 13-T14N-R17E	1
Muskogee	Sec. 14-T14N-R17E	1
Muskogee	Sec. 32-T14N-R18E	1
Muskogee	Sec. 27-T15N-R17E	1

Additionally, absence from our database does not preclude such species from occurring in the area.

If you have any questions about this response, please send me an email, or call us at the number given below.

Although not specific to your project, you may find the following links helpful.

ONHI, guide to ranking codes for endangered and threatened species:
http://www.oknaturalheritage.ou.edu/content/biodiversity-info/ranking-guide/

Information regarding the Oklahoma Natural Areas Registry:
https://okregistry.wordpress.com/

Todd Fagin
Oklahoma Natural Heritage Inventory
(405) 325-4700
tfagin@ou.edu

APPENDIX C
IPAC TRUST RESOURCE REPORT

IPaC **U.S. Fish & Wildlife Service**

IPaC resource list

This report is an automatically generated list of species and other resources such as critical habitat (collectively referred to as *trust resources*) under the U.S. Fish and Wildlife Service's (USFWS) jurisdiction that are known or expected to be on or near the project area referenced below. The list may also include trust resources that occur outside of the project area, but that could potentially be directly or indirectly affected by activities in the project area. However, determining the likelihood and extent of effects a project may have on trust resources typically requires gathering additional site-specific (e.g., vegetation/species surveys) and project-specific (e.g., magnitude and timing of proposed activities) information.

Below is a summary of the project information you provided and contact information for the USFWS office(s) with jurisdiction in the defined project area. Please read the introduction to each section that follows (Endangered Species, Migratory Birds, USFWS Facilities, and NWI Wetlands) for additional information applicable to the trust resources addressed in that section.

NOT FOR CONSULTATION

Location

Muskogee County, Oklahoma



Local office

Oklahoma Ecological Services Field Office

(918) 581-7458
(918) 581-7467

9014 East 21st Street

Tulsa, OK 74129-1428

NOT FOR CONSULTATION

Endangered species

This resource list is for informational purposes only and does not constitute an analysis of project level impacts.

The primary information used to generate this list is the known or expected range of each species. Additional areas of influence (AOI) for species are also considered. An AOI includes areas outside of the species range if the species could be indirectly affected by activities in that area (e.g., placing a dam upstream of a fish population even if that fish does not occur at the dam site, may indirectly impact the species by reducing or eliminating water flow downstream). Because species can move, and site conditions can change, the species on this list are not guaranteed to be found on or near the project area. To fully determine any potential effects to species, additional site-specific and project-specific information is often required.

Section 7 of the Endangered Species Act **requires** Federal agencies to "request of the Secretary information whether any species which is listed or proposed to be listed may be present in the area of such proposed action" for any project that is conducted, permitted, funded, or licensed by any Federal agency. A letter from the local office and a species list which fulfills this requirement can **only** be obtained by requesting an official species list from either the Regulatory Review section in IPaC (see directions below) or from the local field office directly.

For project evaluations that require USFWS concurrence/review, please return to the IPaC website and request an official species list by doing the following:

1. Draw the project location and click CONTINUE.
2. Click DEFINE PROJECT.
3. Log in (if directed to do so).
4. Provide a name and description for your project.
5. Click REQUEST SPECIES LIST.

Listed species[1] and their critical habitats are managed by the Ecological Services Program of the U.S. Fish and Wildlife Service (USFWS) and the fisheries division of the National Oceanic and Atmospheric Administration (NOAA Fisheries[2]).

Species and critical habitats under the sole responsibility of NOAA Fisheries are **not** shown on this list. Please contact NOAA Fisheries for species under their jurisdiction.

---

1. Species listed under the Endangered Species Act are threatened or endangered; IPaC also shows species that are candidates, or proposed, for listing. See the listing status page for more information. IPaC only shows species that are regulated by USFWS (see FAQ).

NOT FOR CONSULTATION

2. NOAA Fisheries, also known as the National Marine Fisheries Service (NMFS), is an office of the National Oceanic and Atmospheric Administration within the Department of Commerce.

The following species are potentially affected by activities in this location:

Mammals

NAME	STATUS
Gray Bat Myotis grisescens Wherever found No critical habitat has been designated for this species. https://ecos.fws.gov/ecp/species/6329	Endangered
Tricolored Bat Perimyotis subflavus Wherever found No critical habitat has been designated for this species. https://ecos.fws.gov/ecp/species/10515	Proposed Endangered

Birds

NAME	STATUS
Piping Plover Charadrius melodus There is **final** critical habitat for this species. Your location does not overlap the critical habitat. https://ecos.fws.gov/ecp/species/6039	Threatened
Red Knot Calidris canutus rufa Wherever found There is **proposed** critical habitat for this species. https://ecos.fws.gov/ecp/species/1864	Threatened

Insects

NAME	STATUS
American Burying Beetle Nicrophorus americanus No critical habitat has been designated for this species. https://ecos.fws.gov/ecp/species/66	Threatened
Monarch Butterfly Danaus plexippus Wherever found No critical habitat has been designated for this species. https://ecos.fws.gov/ecp/species/9743	Candidate

NOT FOR CONSULTATION

Critical habitats

Potential effects to critical habitat(s) in this location must be analyzed along with the endangered species themselves.

There are no critical habitats at this location.

Migratory birds

Certain birds are protected under the Migratory Bird Treaty Act[1] and the Bald and Golden Eagle Protection Act[2].

Any person or organization who plans or conducts activities that may result in impacts to migratory birds, eagles, and their habitats should follow appropriate regulations and consider implementing appropriate conservation measures, as described below.

1. The Migratory Birds Treaty Act of 1918.
2. The Bald and Golden Eagle Protection Act of 1940.

Additional information can be found using the following links:

- Birds of Conservation Concern https://www.fws.gov/program/migratory-birds/species
- Measures for avoiding and minimizing impacts to birds https://www.fws.gov/library/collections/avoiding-and-minimizing-incidental-take-migratory-birds
- Nationwide conservation measures for birds https://www.fws.gov/sites/default/files/documents/nationwide-standard-conservation-measures.pdf

NOT FOR CONSULTATION

There are no migratory birds of conservation concern expected to occur at this location.

Tell me more about conservation measures I can implement to avoid or minimize impacts to migratory birds.

Nationwide Conservation Measures describes measures that can help avoid and minimize impacts to all birds at any location year round. Implementation of these measures is particularly important when birds are most likely to occur in the project area. When birds may be breeding in the area, identifying the locations of any active nests and avoiding their destruction is a very helpful impact minimization measure. To see when birds are most likely to occur and be breeding in your project area, view the Probability of Presence Summary. Additional measures or permits may be advisable depending on the type of activity you are conducting and the type of infrastructure or bird species present on your project site.

What does IPaC use to generate the list of migratory birds that potentially occur in my specified location?

The Migratory Bird Resource List is comprised of USFWS Birds of Conservation Concern (BCC) and other species that may warrant special attention in your project location.

The migratory bird list generated for your project is derived from data provided by the Avian Knowledge Network (AKN). The AKN data is based on a growing collection of survey, banding, and citizen science datasets and is queried and filtered to return a list of those birds reported as occurring in the 10km grid cell(s) which your project intersects, and that have been identified as warranting special attention because they are a BCC species in that area, an eagle (Eagle Act requirements may apply), or a species that has a particular vulnerability to offshore activities or development.

Again, the Migratory Bird Resource list includes only a subset of birds that may occur in your project area. It is not representative of all birds that may occur in your project area. To get a list of all birds potentially present in your project area, please visit the Rapid Avian Information Locator (RAIL) Tool.

What does IPaC use to generate the probability of presence graphs for the migratory birds potentially occurring in my specified location?

The probability of presence graphs associated with your migratory bird list are based on data provided by the Avian Knowledge Network (AKN). This data is derived from a growing collection of survey, banding, and citizen science datasets.

Probability of presence data is continuously being updated as new and better information becomes available. To learn more about how the probability of presence graphs are produced and how to interpret them, go the Probability of Presence Summary and then click on the "Tell me about these graphs" link.

How do I know if a bird is breeding, wintering or migrating in my area?

To see what part of a particular bird's range your project area falls within (i.e. breeding, wintering, migrating or year-round), you may query your location using the RAIL Tool and look at the range maps provided for birds in your area at the bottom of the profiles provided for each bird in your results. If a bird on your migratory bird species list has a breeding season associated with it, if that bird does occur in your project area, there may be nests present at some point within the timeframe specified. If "Breeds elsewhere" is indicated, then the bird likely does not breed in your project area.

What are the levels of concern for migratory birds?

Migratory birds delivered through IPaC fall into the following distinct categories of concern:

1. "BCC Rangewide" birds are Birds of Conservation Concern (BCC) that are of concern throughout their range anywhere within the USA (including Hawaii, the Pacific Islands, Puerto Rico, and the Virgin Islands);
2. "BCC - BCR" birds are BCCs that are of concern only in particular Bird Conservation Regions (BCRs) in the continental USA; and
3. "Non-BCC - Vulnerable" birds are not BCC species in your project area, but appear on your list either because of the Eagle Act requirements (for eagles) or (for non-eagles) potential susceptibilities in offshore areas from certain types of development or activities (e.g. offshore energy development or longline fishing).

NOT FOR CONSULTATION

Although it is important to try to avoid and minimize impacts to all birds, efforts should be made, in particular, to avoid and minimize impacts to the birds on this list, especially eagles and BCC species of rangewide concern. For more information on conservation measures you can implement to help avoid and minimize migratory bird impacts and requirements for eagles, please see the FAQs for these topics.

Details about birds that are potentially affected by offshore projects

For additional details about the relative occurrence and abundance of both individual bird species and groups of bird species within your project area off the Atlantic Coast, please visit the Northeast Ocean Data Portal. The Portal also offers data and information about other taxa besides birds that may be helpful to you in your project review. Alternately, you may download the bird model results files underlying the portal maps through the NOAA NCCOS Integrative Statistical Modeling and Predictive Mapping of Marine Bird Distributions and Abundance on the Atlantic Outer Continental Shelf project webpage.

Bird tracking data can also provide additional details about occurrence and habitat use throughout the year, including migration. Models relying on survey data may not include this information. For additional information on marine bird tracking data, see the Diving Bird Study and the nanotag studies or contact Caleb Spiegel or Pam Loring.

What if I have eagles on my list?

If your project has the potential to disturb or kill eagles, you may need to obtain a permit to avoid violating the Eagle Act should such impacts occur.

Proper Interpretation and Use of Your Migratory Bird Report

The migratory bird list generated is not a list of all birds in your project area, only a subset of birds of priority concern. To learn more about how your list is generated, and see options for identifying what other birds may be in your project area, please see the FAQ "What does IPaC use to generate the migratory birds potentially occurring in my specified location". Please be aware this report provides the "probability of presence" of birds within the 10 km grid cell(s) that overlap your project; not your exact project footprint. On the graphs provided, please also look carefully at the survey effort (indicated by the black vertical bar) and for the existence of the "no data" indicator (a red horizontal bar). A high survey effort is the key component. If the survey effort is high, then the probability of presence score can be viewed as more dependable. In contrast, a low survey effort bar or no data bar means a lack of data and, therefore, a lack of certainty about presence of the species. This list is not perfect; it is simply a starting point for identifying what birds of concern have the potential to be in your project area, when they might be there, and if they might be breeding (which means nests might be present). The list helps you know what to look for to confirm presence, and helps guide you in knowing when to implement conservation measures to avoid or minimize potential impacts from your project activities, should presence be confirmed. To learn more about conservation measures, visit the FAQ "Tell me about conservation measures I can implement to avoid or minimize impacts to migratory birds" at the bottom of your migratory bird trust resources page.

NOT FOR CONSULTATION

Facilities

National Wildlife Refuge lands

Any activity proposed on lands managed by the National Wildlife Refuge system must undergo a 'Compatibility Determination' conducted by the Refuge. Please contact the individual Refuges to discuss any questions or concerns.

There are no refuge lands at this location.

Fish hatcheries

There are no fish hatcheries at this location.

Wetlands in the National Wetlands Inventory (NWI)

Impacts to NWI wetlands and other aquatic habitats may be subject to regulation under Section 404 of the Clean Water Act, or other State/Federal statutes.

For more information please contact the Regulatory Program of the local U.S. Army Corps of Engineers District.

NOT FOR CONSULTATION

Wetland information is not available at this time

This can happen when the National Wetlands Inventory (NWI) map service is unavailable, or for very large projects that intersect many wetland areas. Try again, or visit the NWI map to view wetlands at this location.

Data limitations

The Service's objective of mapping wetlands and deepwater habitats is to produce reconnaissance level information on the location, type and size of these resources. The maps are prepared from the analysis of high altitude imagery. Wetlands are identified based on vegetation, visible hydrology and geography. A margin of error is inherent in the use of imagery; thus, detailed on-the-ground inspection of any particular site may result in revision of the wetland boundaries or classification established through image analysis.

The accuracy of image interpretation depends on the quality of the imagery, the experience of the image analysts, the amount and quality of the collateral data and the amount of ground truth verification work conducted. Metadata should be consulted to determine the date of the source imagery used and any mapping problems.

Wetlands or other mapped features may have changed since the date of the imagery or field work. There may be occasional differences in polygon boundaries or classifications between the information depicted on the map and the actual conditions on site.

Data exclusions

Certain wetland habitats are excluded from the National mapping program because of the limitations of aerial imagery as the primary data source used to detect wetlands. These habitats include seagrasses or submerged aquatic vegetation that are found in the intertidal and subtidal zones of estuaries and nearshore coastal waters. Some deepwater reef communities (coral or tuberficid worm reefs) have also been excluded from the inventory. These habitats, because of their depth, go undetected by aerial imagery.

Data precautions

Federal, state, and local regulatory agencies with jurisdiction over wetlands may define and describe wetlands in a different manner than that used in this inventory. There is no attempt, in either the design or products of this inventory, to define the limits of proprietary jurisdiction of any Federal, state, or local government or to establish the geographical scope of the regulatory programs of government agencies. Persons intending to engage in activities involving modifications within or adjacent to wetland areas should seek the advice of appropriate Federal, state, or local agencies concerning specified agency regulatory programs and proprietary jurisdictions that may affect such activities.

NOT FOR CONSULTATION

APPENDIX D
PHOTOGRAPHS

Photo #: 1	Date: 17 October 2022	
Large Borrow Area Within Western Portion of the Site		

Photo #: 2	Date: 18 October 2022	
Open Water Pond at the Headwaters of the Western Tributary		

Photo #:	Date:
3	18 October 2022

Grassland Community in Northern Portion of the Site, Recently Mowed for Hay



Photo #:	Date:
4	18 October 2022

Typical Grassland Community Within Southeastern Portion of the Site



Photo #: 5	Date: 18 October 2022
Woodland Vegetative Community Within Northwestern Portion of the Site	

Photo #: 6	Date: 18 October 2022
Woodland Vegetative Community Within the Southern Portion of the Site	

APPENDIX D-3

SCENIC RIVERS

CONTENTS

This appendix provides documentation for the required coordination with the Oklahoma Scenic Rivers Commission. This appendix includes:

- January 9, 2023 Oklahoma Scenic Rivers Commission confirmation response email.
- January 6, 2023 Weaver Consultants Group, LLC request for Oklahoma Scenic Rivers Commission review.

Puhr, Johnna

From: Fite, Edward <Edward.Fite@grda.com>
Sent: Monday, January 09, 2023 2:55 PM
To: Puhr, Johnna
Cc: Queen, Jonathan; Campbell, Guy; Schultze, Pete; Smittle, Jacklyn; Townsend, Darrell
Subject: RE: EXTERNAL: Muskogee Community Recycling and Disposal Facility Expansion-Designated Scenic Rivers

CAUTION: This email originated from outside your organization. Exercise caution when opening attachments or clicking links, especially from unknown senders.

Hello Johnna,
Happy Monday afternoon.
This note is to acknowledge receipt of your email related to the proposed expansion of the Muskogee Community Recycling and Disposal Landfill.
Please note there are no state-designated Scenic Rivers Areas located in Muskogee County.
GRDA has no comments on the proposed project related to potential impacts to Oklahoma Scenic Rivers Areas.
Please feel free to contact me if you have any questions.
Thank you,
Ed Fite
Ecosystems and Watershed Management
Grand River Dam Authority
P.O. Box 70
Langley, OK 74350-0070
Cell Phone: (918) 323-6825
Email: edward.fite@grda.com

From: Puhr, Johnna <jpuhr@wcgrp.com>
Sent: Monday, January 9, 2023 9:50 AM
To: Fite, Edward <edward.fite@grda.com>
Cc: Queen, Jonathan <jqueen@wcgrp.com>; Campbell, Guy <GCampbe1@wm.com>; Schultze, Pete <pschultze@wm.com>
Subject: EXTERNAL: Muskogee Community Recycling and Disposal Facility Expansion-Designated Scenic Rivers

You don't often get email from jpuhr@wcgrp.com. Learn why this is important

Mr. Fite,
The purpose of the email and attached letter is to confirm that the proposed expansion of the Muskogee Community Recycling and Disposal Landfill is not located within the drainage basin of a scenic river, as designated by the Oklahoma Scenic Rivers Act. A review of the GRDA website indicates that no designated scenic rivers are located in the area of the Muskogee Community Recycling and Disposal Facility. As shown on the attached maps, Coody Creek is located northeast of the landfill property.
Further information on the project in included in the project summary in the attached letter. Please review the attached information and confirm that the landfill is not located within the drainage basin of a scenic river. I did not send hard copies please let me know if you need a hard copy.
Please feel free to give me a call with any questions.
Thanks,

Weaver Consultants Group

Project No. 0086-364-11-19
January 6, 2023

Mr. Edward H. Fite III, River Operations & Water Quality Leader
Grand River Dam Authority (GRDA)
15971 Hwy. 10
Tahlequah, Oklahoma 74464

Re: Scenic River Statement
Muskogee Community Recycling and Disposal Facility Expansion
Muskogee, Oklahoma

Dear Mr. Fite:

The purpose of this letter, submitted on behalf of Waste Management of Oklahoma, Inc., is to confirm that the proposed landfill expansion of the Muskogee Community Recycling and Disposal Facility is not located within the drainage basin of a scenic river, as designated by the Oklahoma Scenic Rivers Act. The Oklahoma Department of Environmental Quality (DEQ) landfill location restriction regulation set forth in Oklahoma Administrative Code (OAC) §252:515-5-31(a), requires that a permit applicant for an expansion of a municipal solid waste facility determine if a proposed landfill expansion lies within a drainage basin of a designated scenic river.

Weaver Consultants Group, LLC is preparing a landfill expansion permit application, under contract with Waste Management of Oklahoma, Inc., to expand their existing landfill facility located in the City of Muskogee, Oklahoma. Please find attached a project summary and site location maps to assist in your review.

To verify compliance with §252:515-5-31(a), we are requesting that the GRDA confirm that the landfill is not located within a drainage basin of a scenic river, as designated by the Commission or other agency. A review of the GRDA web site indicates that no designated scenic rivers are located in the area of the Muskogee Community Recycling and Disposal Facility. The proposed landfill expansion is located within the Arkansas River drainage basin. As shown on the attached maps, Coody Creek is located northeast of the landfill property. It is our understanding that the site is not located within a drainage basin of a designated scenic river.

Your assistance with this matter is sincerely appreciated. Please call if you have any questions or need additional information.

Sincerely,
Weaver Consultants Group, LLC

Jonathan V. Queen, P.E.
Project Director

Attachment: Project Summary and Site Location Maps

cc: Guy R. Campbell, Waste Management of Oklahoma, Inc.
Pete Schultze, Waste Management of Oklahoma, Inc.

PROJECT SUMMARY AND SITE LOCATION MAPS

Project Summary

Muskogee Community Recycling and Disposal Facility Expansion
Waste Management of Oklahoma, Inc.
Muskogee, Oklahoma

Introduction

The Muskogee Community Recycling and Disposal Facility is in the process of expanding the existing landfill to provide long-term disposal capacity for municipal solid waste that is generated in the City of Muskogee, Muskogee County, and the surrounding areas. The purpose of this summary is to provide an overview of the proposed landfill expansion. The site is located outside the city limits of the City of Muskogee, south of W. 23rd Street S., west of S. 54th Street W., and east of S. 64th Street W. The following subsections detail information regarding the owner and operator of the site, general site information, and a summary of the proposed site design.

Owner/Operator Information

The Muskogee Community Recycling and Disposal Facility is owned and operated by Waste Management of Oklahoma, Inc., a Waste Management, Inc. company. Waste Management, Inc. is an integrated solid waste services company that provides solid waste collection, transfer, disposal and recycling services and serves more than 20 million residential, commercial and industrial customers in North America.

Site Information

The following drawings are attached to this summary.

- Site Location Map (Figure 1). This figure shows the site location on a standard Oklahoma Department of Transportation Oklahoma County Highway Map.
- Aerial Photograph (Figure 2). This figure shows the existing recycling and disposal facility and proposed expansion area, on a recent aerial photograph.
- General Topographic Map (Figure 3). This figure shows the existing landfill and waste disposal area, as well as the proposed expansion area, on an USGS map.

- Permitted and Proposed Completion Plan (Figure 4). This figure shows the permitted and proposed landfill completion plans on detailed site topographic maps. The proposed condition will consist of two separate units. The eastern unit will be consistent with the currently permitted condition, as no changes are proposed to the unit. A separate unit will be built to the west for the proposed condition.

The Muskogee Community Recycling and Disposal Facility is located southwest of the City of Muskogee at 2801 S. 54th St. W., Muskogee, Oklahoma 74401. The service area includes the City of Muskogee, Muskogee County, and other surrounding areas. The facility currently operates under Oklahoma Department of Environmental Quality (ODEQ) Permit No. 3551020.

Design Summary

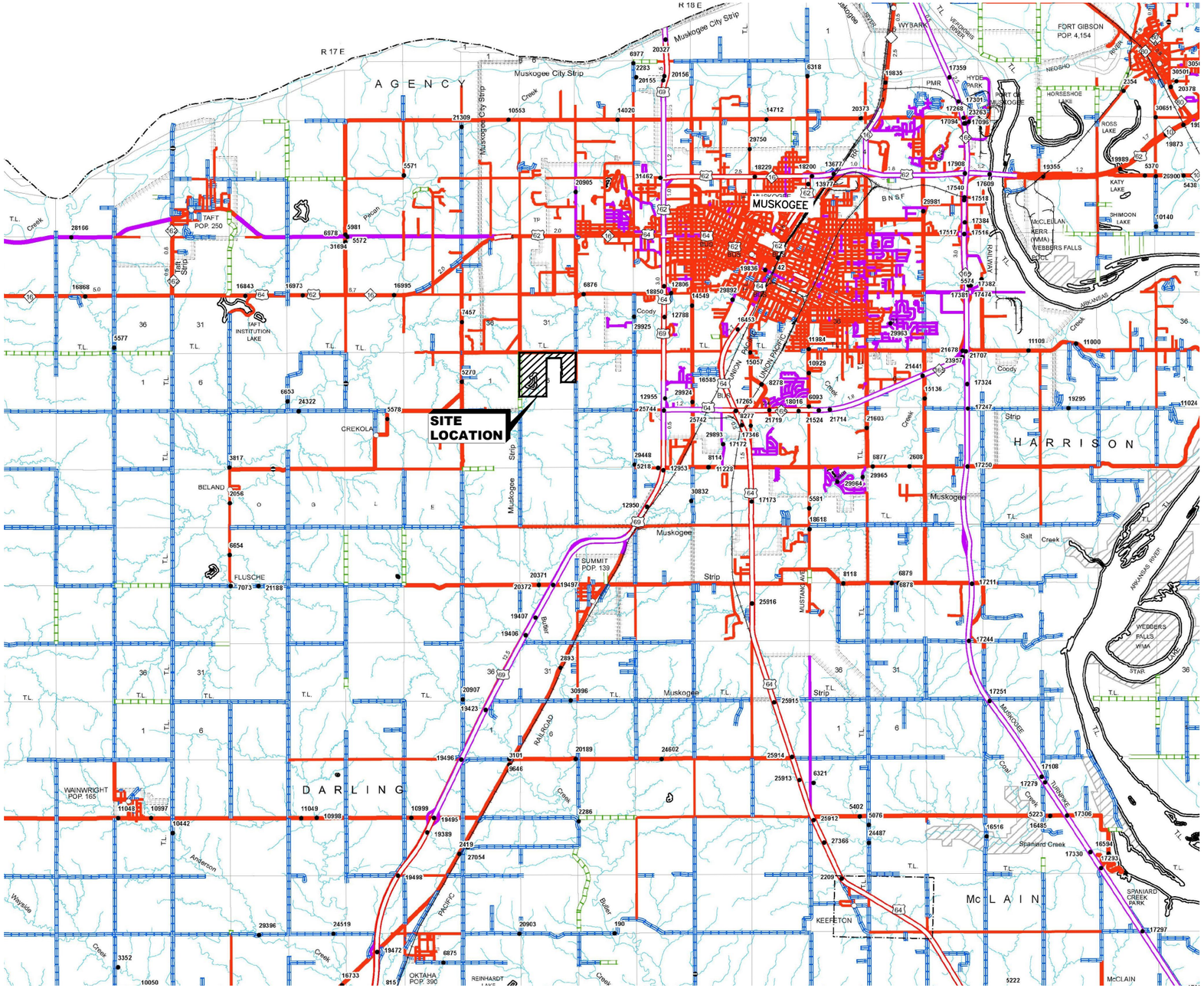
The following information presents a summary of the design and operations for the proposed Muskogee Community Recycling and Disposal Facility expansion.

- The permit boundary will be expanded by approximately 245 acres. A separate landfill unit will be built to the west of the existing landfill, adding an additional 70 acres for waste disposal.
- Accepted wastes will remain consistent with the current municipal solid waste landfill permit. The facility will accept municipal solid waste, construction and demolition wastes, non-hazardous industrial waste, encapsulated asbestos waste, vegetative waste, semi-solid waste, and sludges as permitted by the ODEQ.
- Access to the site is currently provided via the existing site access road from S. 54th Street W. As the site transitions to the western expansion area, a new site entrance will be developed along W. 23rd Street S. Based on traffic patterns of existing landfill traffic, most vehicles bound for the landfill will access the site using W. 23rd Street S. from Interstate Highway 64/69. The existing roads are capable of handling the traffic load associated with the landfill.
- A liner and final cover system that meets all regulatory requirements will be used for the solid waste containment system. The design objective of the containment system (final cover, liner, and leachate management system) is to isolate the solid waste and remove leachate (defined as liquid that has contacted solid waste) that collects on the liner system. Leachate that is removed from the landfill will be discharged offsite to the City of Muskogee publicly owned treatment works (POTW) in accordance with the City of Muskogee Industrial Wastewater Treatment/Disposal Permit No. 078. The construction procedures of the liner and final cover systems follow strict ODEQ approved quality control and quality assurance procedures, which are verified by an independent testing firm. Each of the containment system

components must be thoroughly reviewed and approved by the ODEQ before solid waste is placed in the landfill.

- To verify that the highest levels of environmental protection are maintained, the following landfill monitoring systems are provided:
  - Groundwater Monitoring System. The purpose of the groundwater monitoring system is to verify the integrity of the containment system and verify that groundwater is not adversely impacted by the landfill. This is accomplished by obtaining water samples from the monitor wells, located on the perimeter of the landfill, which are screened in the uppermost saturated zone to monitor groundwater quality. The water samples are tested at an off-site laboratory.
  - Landfill Gas Monitoring System. The purpose of the landfill gas monitoring system is to verify the integrity of the containment system and verify that methane gas, produced from the decomposing waste material, has not migrated beyond the permit boundary. This is accomplished by obtaining subsurface air samples from the landfill gas probes, located on the perimeter of the landfill, which are screened across potential migration pathways. The samples are tested on-site with a portable landfill gas analyzer.
  - These monitoring systems are sampled and tested periodically. The groundwater monitoring results are filed with the ODEQ and are public record.
- Site Operations. Properly trained personnel will operate the site. A detailed site operating plan will be included in the landfill expansion permit application. The plan will detail the required equipment, personnel, and safety procedures required to operate the site in accordance with ODEQ regulations. The site will continue to provide solid waste disposal service six days a week and the active landfill area will be covered at the end of each workday to prevent potential nuisance conditions such as odors and vectors. The Muskogee Community Recycling and Disposal Facility will continue to be inspected by the ODEQ on a regular basis to ensure the site is in compliance with state regulations.

The development of this site will also require permitting and or coordination with local, state, and federal agencies including the County Commissioner, Oklahoma Tourism and Recreation Department, Grand River Dam Authority, Oklahoma Department of Wildlife Conservation, Oklahoma Biological Survey, Oklahoma Natural Areas Registry, Bureau of Reclamation, United States Army Corps of Engineers, and Oklahoma Department of Environmental Quality.



Legend

- Interstate Highway
- US Highway
- State Highway
- Divided Highway - Asphalt
- Divided Highway - Concrete
- Asphalt
- Concrete
- Gravel
- Grade & Drain
- Unimproved
- Railroad
- State Line
- County Line
- Section Line
- Corporate Limit
- Wildlife Management Area
- Wildlife Refuge
- River or Stream
- Lake or Reservoir
- Bridges
- Low Water Crossing
- Natural Elevation Point
- Natural Elevation Point

NOTE:

1. REPRODUCED FROM GENERAL HIGHWAY MAPS, MUSKOGEE COUNTY, OKLAHOMA, (OK DOT STRATEGIC ASSET AND PERFORMANCE MANAGEMENT DIVISION OCTOBER 2018).

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- [X] FOR INFORMATIONAL PURPOSES ONLY
- [ ] ISSUED FOR CONSTRUCTION

DATE: 01/2023
FILE: 0086-364-11
CAD: FIG 1-SITE LOCATION MAP.DWG

DRAWN BY: RAA
DESIGN BY: JBP
REVIEWED BY: JVQ

Weaver Consultants Group
CA 3804 PE-06/30/2023

PREPARED FOR
WASTE MANAGEMENT OF OKLAHOMA, INC.

REVISIONS

NO.	DATE	DESCRIPTION

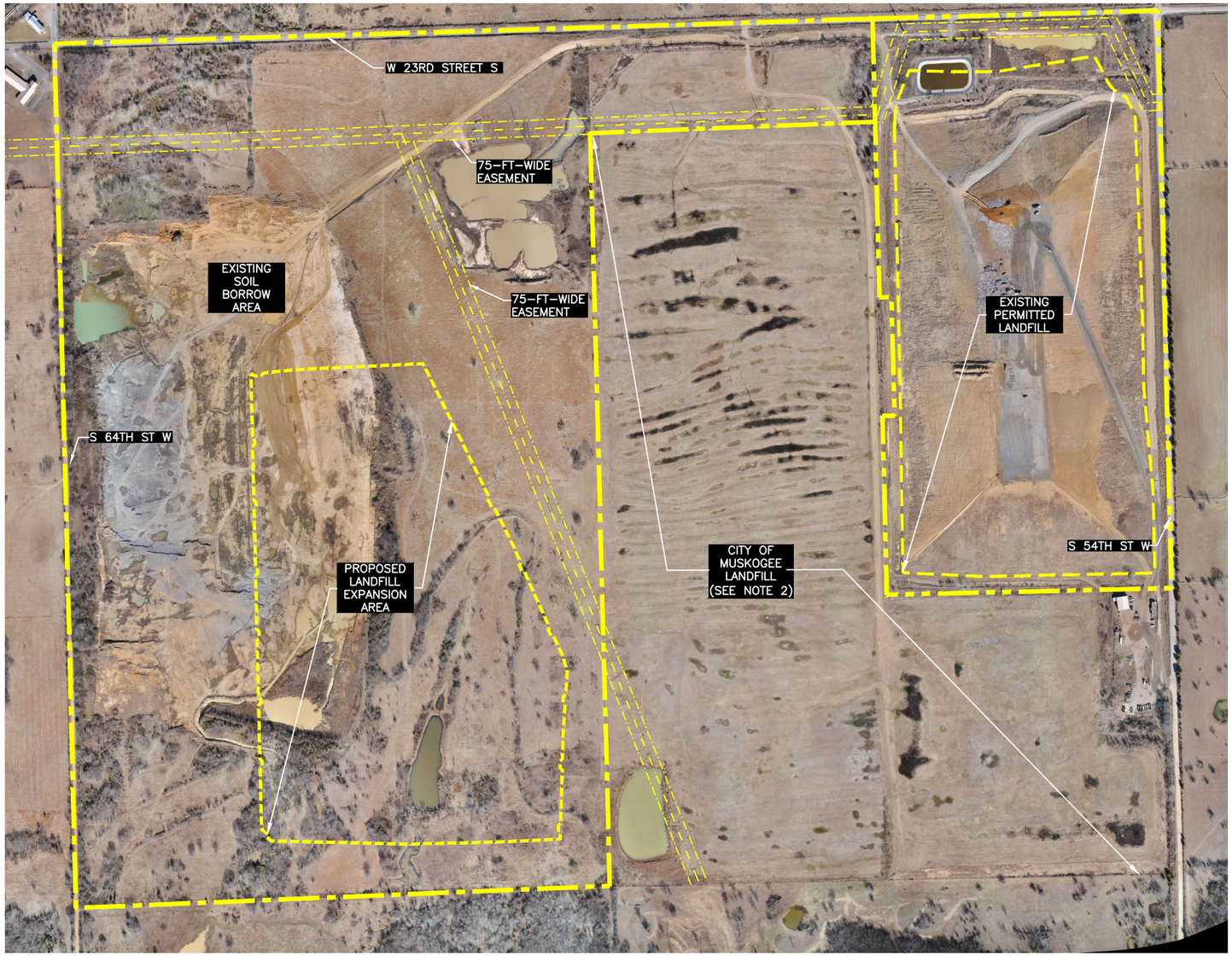
SITE LOCATION MAP

MUSKOGEE COMMUNITY RDF
MUSKOGEE COUNTY, OKLAHOMA

WWW.WCGRP.COM

FIGURE 1

O:\0086\364\EXPANSION 2022\LOCATION RESTRICTION\FIG 1-SITE LOCATION MAP.dwg, jputhr, 1:2



N

0 300 600

SCALE IN FEET

LEGEND

- EXISTING PERMIT BOUNDARY
- PROPOSED PERMIT BOUNDARY
- PERMITTED LIMITS OF WASTE
- PROPOSED LIMITS OF WASTE
- APPROXIMATE OG&E POWER LINE EASEMENT

NOTE:

1. AERIAL PHOTOGRAPHY PROVIDED BY HYDREX DRONE DIVISION, IMAGERY DATED 01-24-2022.
2. THE CITY OF MUSKOGEE LANDFILL IS NOT PART OF THE PROPOSED EXPANSION AND IS SHOWN FOR REFERENCE PURPOSES.

O:\0086\364\EXPANSION 2022\LOCATION RESTRICTION\FIG 2-AERIAL PHOTO.dwg, jpuhr, 1:2

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FILE: 0086-364-11
CAD: FIG 2-AERIAL PHOTO.DWG

DRAWN BY: RAA
DESIGN BY: JBP
REVIEWED BY: JVQ

Weaver Consultants Group
CA 3804 PE-06/30/2023

PREPARED FOR
WASTE MANAGEMENT OF OKLAHOMA, INC.

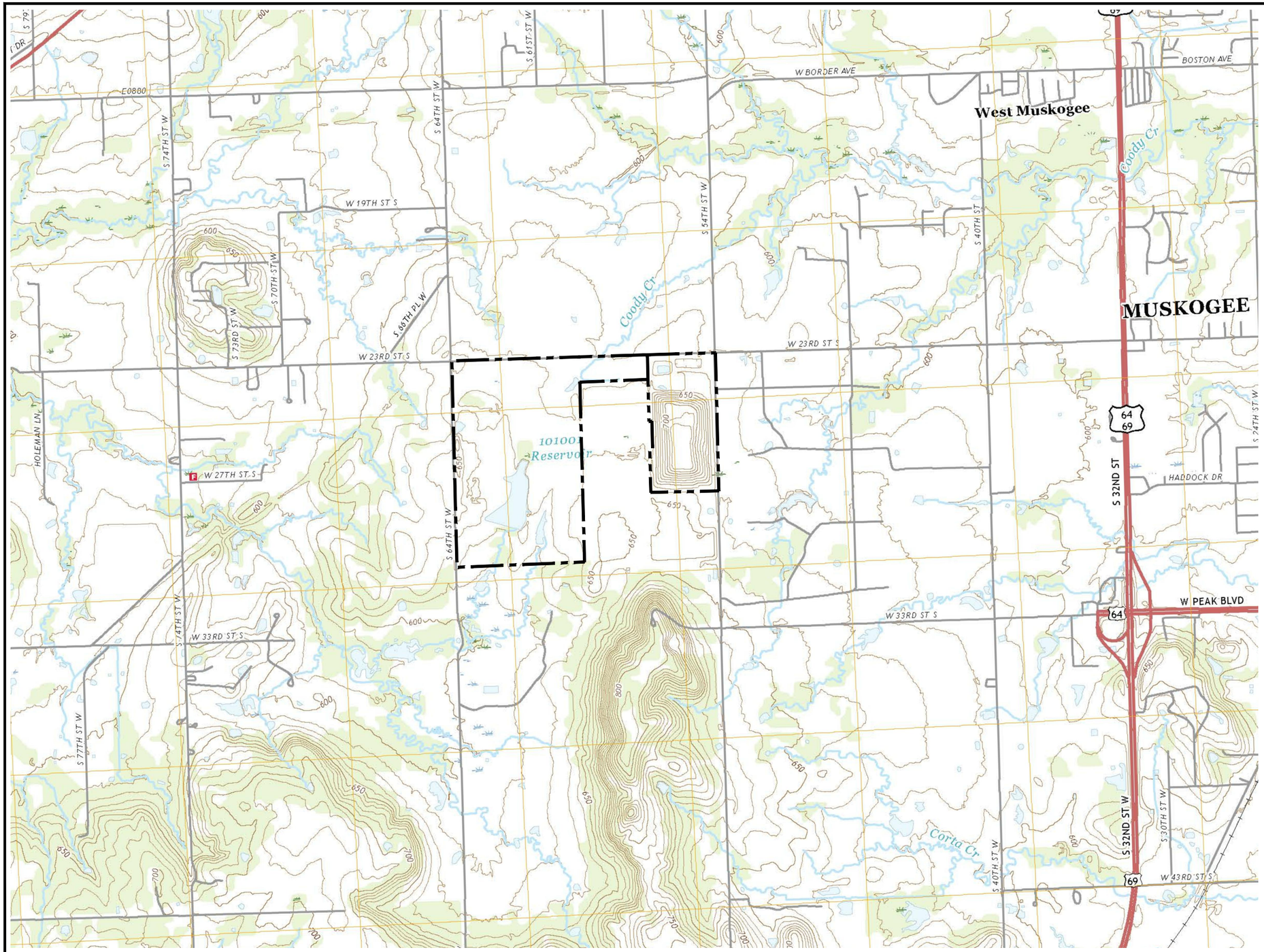
REVISIONS		
NO.	DATE	DESCRIPTION

AERIAL PHOTOGRAPH

MUSKOGEE COMMUNITY RDF
MUSKOGEE COUNTY, OKLAHOMA

WWW.WCGRP.COM

FIGURE 2



0 1000 2000
SCALE IN FEET

LEGEND

EXISTING PERMIT BOUNDARY

PROPOSED PERMIT BOUNDARY

NOTES:

1. ADAPTED FROM USGS 7.5 MINUTE QUADRANGLE TOPOGRAPHIC MAP (MUSKOGEE COUNTY, OKLAHOMA, 2018).
2. NO PUBLIC WATER SUPPLY SURFACE WATER INTAKES WERE REPORTED BY THE OKLAHOMA WATER RESOURCES BOARD (OWRB) WITHIN ONE MILE OF THE FACILITY.
3. BASED ON OKLAHOMA WATER RESOURCES BOARD (OWRB) DATABASE THERE IS NO REPORTED WELL LOGS ON PROPERTY OWNED BY WASTE MANAGEMENT OF OKLAHOMA INC. (WMO).
4. THE MAP AREA SHOWN IS WITHIN TOWNSHIP 14 NORTH, RANGE 18 EAST.
5. REFER TO FIGURE 12 FOR WASTE DISPOSAL AREAS ON BUFFER ZONES.

SOUTHWEST MUSKOGEE, OK

2018

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DATE: 01/2023
FILE: 0086-364-11
CAD: FIG 3-GENERAL TOPO. MAP.DWG

DRAWN BY: RAA
DESIGN BY: JBP
REVIEWED BY: JVQ

Weaver Consultants Group
CA 3804 PE-06/30/2023

PREPARED FOR
WASTE MANAGEMENT OF OKLAHOMA, INC.

REVISIONS		
NO.	DATE	DESCRIPTION

GENERAL TOPOGRAPHIC MAP

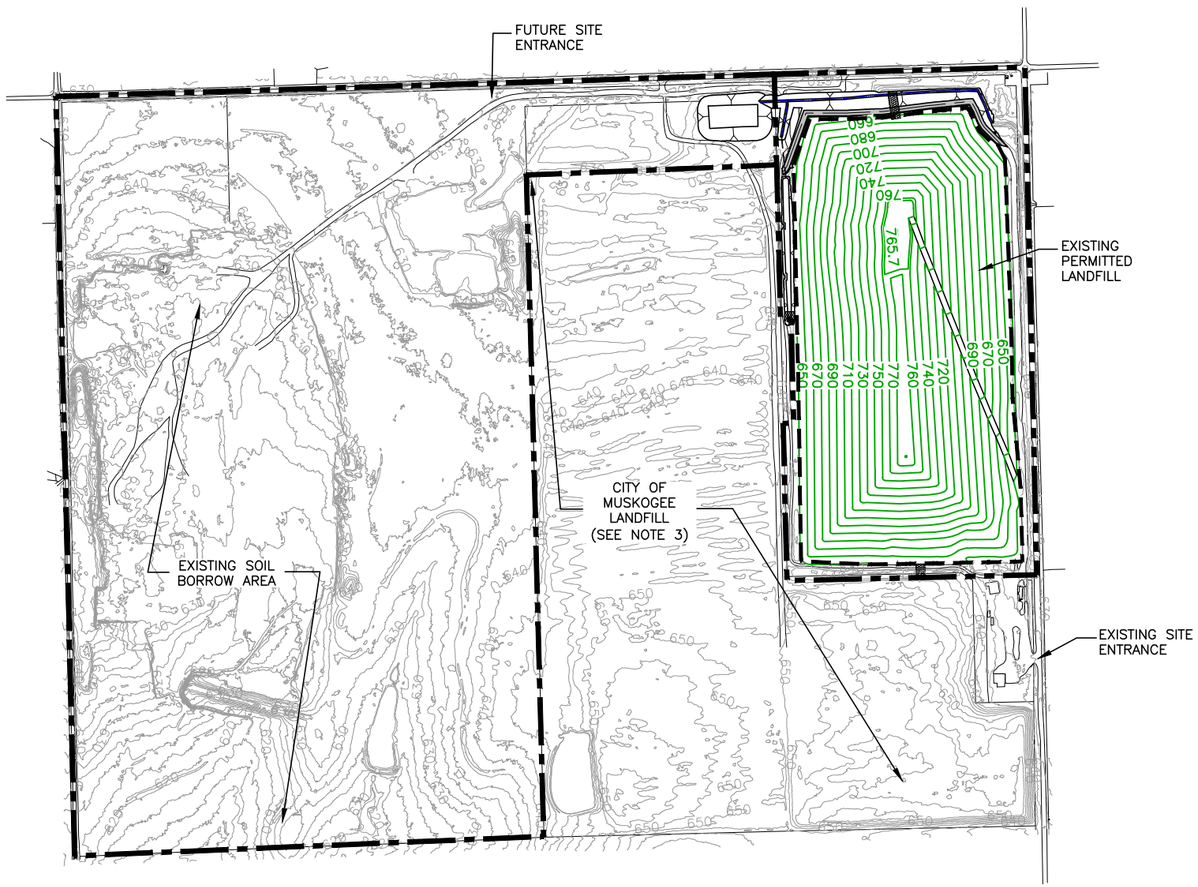
MUSKOGEE COMMUNITY RDF
MUSKOGEE COUNTY, OKLAHOMA

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FIGURE 3

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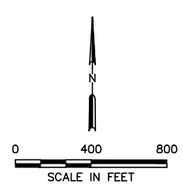
G:\0086\364\EXPANSION 2022\LOCATION RESTRICTION\FIG 3-GENERAL TOPOGRAPHIC MAP.dwg, jpubr, 1:2



PERMITTED COMPLETION PLAN



PROPOSED COMPLETION PLAN



LEGEND:

- EXISTING PERMIT BOUNDARY
- PROPOSED PERMIT BOUNDARY
- PERMITTED LIMITS OF WASTE
- PROPOSED LIMITS OF WASTE
- N 273000 — STATE PLANE COORDINATE GRID
- 700 — EXISTING CONTOUR
- 700 — FINAL COVER CONTOUR
- 561 — BORROW AREA CONTOUR
- APPROXIMATE OG&E POWER LINE EASEMENT

NOTES:

1. EXISTING CONTOURS AND ELEVATIONS PROVIDED BY AIR MAPS OF ARKANSAS, LLC FROM AERIAL PHOTOGRAPHY FLOWN 01–24–2022.
2. THE EXPANSION WILL ADD A SEPARATE UNIT TO THE WEST OF THE EXISTING LANDFILL. NO CHANGES ARE PROPOSED TO THE EASTERN UNIT.
3. THE CITY OF MUSKOGEE LANDFILL IS NOT PART OF THE PROPOSED EXPANSION AND IS SHOWN FOR REFERENCE PURPOSES.

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DATE: 10/2022
FILE: 0086-364-11
CAD: FIG 4-COMPLETION PLAN.DWG

DRAWN BY: RAA
DESIGN BY: JBP
REVIEWED BY: JVQ

Weaver Consultants Group
CA 3804 PE – 06/30/2023

PREPARED FOR
WASTE MANAGEMENT OF OKLAHOMA, INC.

REVISIONS		
NO.	DATE	DESCRIPTION

PERMITTED COMPLETION PLAN AND PROPOSED COMPLETION PLAN

MUSKOGEE COMMUNITY, RDF
OKLAHOMA COUNTY, OKLAHOMA

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FIGURE 4

O:\0086\364\EXPANSION 2022\LOCATION RESTRICTION\FIG 4-COMPLETION PLAN COMP.dwg, jpuhr, 1:2

APPENDIX D-4

RECREATION/PRESERVATION AREAS

CONTENTS

This appendix provides documentation for the required coordination with the Oklahoma Tourism and Recreation Department, Bureau of Reclamation, Oklahoma Natural Areas Registry, and Muskogee County Commissioners. This appendix includes:

- January 6, 2023, Bureau of Reclamation confirmation email.
- January 6, 2023, Weaver Consultants Group, LLC request for Bureau of Reclamation review.
- January 20, 2023, Oklahoma Tourism and Recreation Department confirmation e-mail.
- January 18, 2023, Weaver Consultants Group, LLC email response addressing Oklahoma Tourism and Recreation Departments comments regarding Eagle Crest Golf Course and Mountain View Settlement.
- January 6, 2023, Weaver Consultants Group, LLC request for Oklahoma Tourism and Recreation Department review.
- September 27, 2023, Oklahoma Natural Area Registry Response email. As indicated in attached email, the Oklahoma Natural Areas Registry does not maintain data on public recreation or preservation areas near this location.
- Weaver Consultants Group, LLC request for Oklahoma Natural Areas Registry review.
- January 6, 2023, Weaver Consultants Group, LLC request for Muskogee County Review.
- May 24, 2023, Weaver Consultants Group, LLC request for Muskogee County Review.
- May 31, 2023, Weaver Consultants Group, LLC email requesting Muskogee County Review.
- July 6, 2023, Weaver Consultants Group, LLC email requesting Muskogee County Review.

Weaver Consultants Group, LLC has also reached out to the county by phone without response. Weaver Consultants Group, LLC will continue to reach out to the county during the ODEQ review process.

Puhr, Johnna

From: Dixson, Ashley L <ADixson@usbr.gov>
Sent: Friday, January 06, 2023 3:02 PM
To: Puhr, Johnna
Cc: Campbell, Guy; Queen, Jonathan; PSchultze@wm.com; Tompkins, Jeffrey D
Subject: Re: [EXTERNAL] Muskogee Community Recycling and Disposal Facility Expansion
Attachments: 2023-01-06 Muskogee Landfill Expansion-Bureau of Reclamation.pdf

CAUTION: This email originated from outside your organization. Exercise caution when opening attachments or clicking links, especially from unknown senders.
Hi Johnna,

The Bureau of Reclamation does not own or administer any area dedicated to recreation or preservation that is located within one-half mile of the subject proposed expansion. Please let me know if you have any other questions.

Ashley Dixson
Natural Resource Specialist
Oklahoma City Field Office
Bureau of Reclamation
5924 NW 2nd St., Suite 200
Oklahoma City, OK 73127
phone: 405-470-4828
email: adixson@usbr.gov

From: Puhr, Johnna <jpuhr@wcgrp.com>
Sent: Friday, January 6, 2023 2:17 PM
To: Dixson, Ashley L <ADixson@usbr.gov>
Cc: Campbell, Guy <GCampbe1@wm.com>; Queen, Jonathan <jqueen@wcgrp.com>; PSchultze@wm.com <pschultze@wm.com>
Subject: [EXTERNAL] Muskogee Community Recycling and Disposal Facility Expansion

This email has been received from outside of DOI - Use caution before clicking on links, opening attachments, or responding.

Ms. Dixson,
The purpose of this email and attached letter is to confirm that the proposed landfill expansion of the Muskogee Community Recycling and Disposal Facility is not located within one-half mile of a public recreation or preservation area designated by a federal, state, or local agency. Further information on the project in included in the project summary in the attached letter. Please review the attached information and confirm that the landfill is not located within one-half mile of an area dedicated for public recreation or preservation.
Please feel free to give me a call with any questions.
Thanks, and have a great weekend.

Weaver Consultants Group

Project No. 0086-364-11-19
January 6, 2023

Ms. Ashley Dixson
Natural Resource Specialist
Bureau of Reclamation
5924 NW 2nd Street, Suite 200
Oklahoma City, Oklahoma 73127

Re: Public Recreation or Preservation Area Statement
Muskogee Community Recycling and Disposal Facility Expansion
Muskogee, Oklahoma

Dear Ms. Dixon:

The purpose of this letter, submitted on behalf of Waste Management of Oklahoma, Inc., is to confirm that the proposed landfill expansion of the Muskogee Community Recycling and Disposal Facility is not located within one-half mile of a public recreation or preservation area designated by a federal, state, or local agency. The Oklahoma Department of Environmental Quality (ODEQ) landfill location restriction regulations set forth in Oklahoma Administrative Code (OAC) §252:515-5-31(b), require that a permit applicant for an expansion of a municipal solid waste facility determine if a proposed landfill expansion lies within one-half mile of an area designated for public recreation or preservation.

Weaver Consultants Group, LLC is preparing a permit application, under contract with Waste Management of Oklahoma, Inc., to expand their existing landfill located in the City of Muskogee, Oklahoma. A landfill has been operating at this location for over 25 years. Please find attached a project summary and site locations maps to facilitate your review.

To verify compliance with §252:515-5-31(b), we are requesting that the Bureau of Reclamation confirm that the landfill is not located within one-half mile of an area dedicated for public recreation or preservation.

Your assistance with this matter is sincerely appreciated. Please call if you have any questions or need additional information.

Sincerely,
Weaver Consultants Group, LLC

Jonathan V. Queen, P.E.
Project Director

Attachments: Project Summary and Site Location Maps

cc: Guy R. Campbell, Waste Management of Oklahoma, Inc.
Pete Schultze, Waste Management of Oklahoma, Inc.

PROJECT SUMMARY AND SITE LOCATION MAPS

Project Summary

Muskogee Community Recycling and Disposal Facility Expansion
Waste Management of Oklahoma, Inc.
Muskogee, Oklahoma

Introduction

The Muskogee Community Recycling and Disposal Facility is in the process of expanding the existing landfill to provide long-term disposal capacity for municipal solid waste that is generated in the City of Muskogee, Muskogee County, and the surrounding areas. The purpose of this summary is to provide an overview of the proposed landfill expansion. The site is located outside the city limits of the City of Muskogee, south of W. 23rd Street S., west of S. 54th Street W., and east of S. 64th Street W. The following subsections detail information regarding the owner and operator of the site, general site information, and a summary of the proposed site design.

Owner/Operator Information

The Muskogee Community Recycling and Disposal Facility is owned and operated by Waste Management of Oklahoma, Inc., a Waste Management, Inc. company. Waste Management, Inc. is an integrated solid waste services company that provides solid waste collection, transfer, disposal and recycling services and serves more than 20 million residential, commercial and industrial customers in North America.

Site Information

The following drawings are attached to this summary.

- Site Location Map (Figure 1). This figure shows the site location on a standard Oklahoma Department of Transportation Oklahoma County Highway Map.
- Aerial Photograph (Figure 2). This figure shows the existing recycling and disposal facility and proposed expansion area, on a recent aerial photograph.
- General Topographic Map (Figure 3). This figure shows the existing landfill and waste disposal area, as well as the proposed expansion area, on an USGS map.

- Permitted and Proposed Completion Plan (Figure 4). This figure shows the permitted and proposed landfill completion plans on detailed site topographic maps. The proposed condition will consist of two separate units. The eastern unit will be consistent with the currently permitted condition, as no changes are proposed to the unit. A separate unit will be built to the west for the proposed condition.

The Muskogee Community Recycling and Disposal Facility is located southwest of the City of Muskogee at 2801 S. 54th St. W., Muskogee, Oklahoma 74401. The service area includes the City of Muskogee, Muskogee County, and other surrounding areas. The facility currently operates under Oklahoma Department of Environmental Quality (ODEQ) Permit No. 3551020.

Design Summary

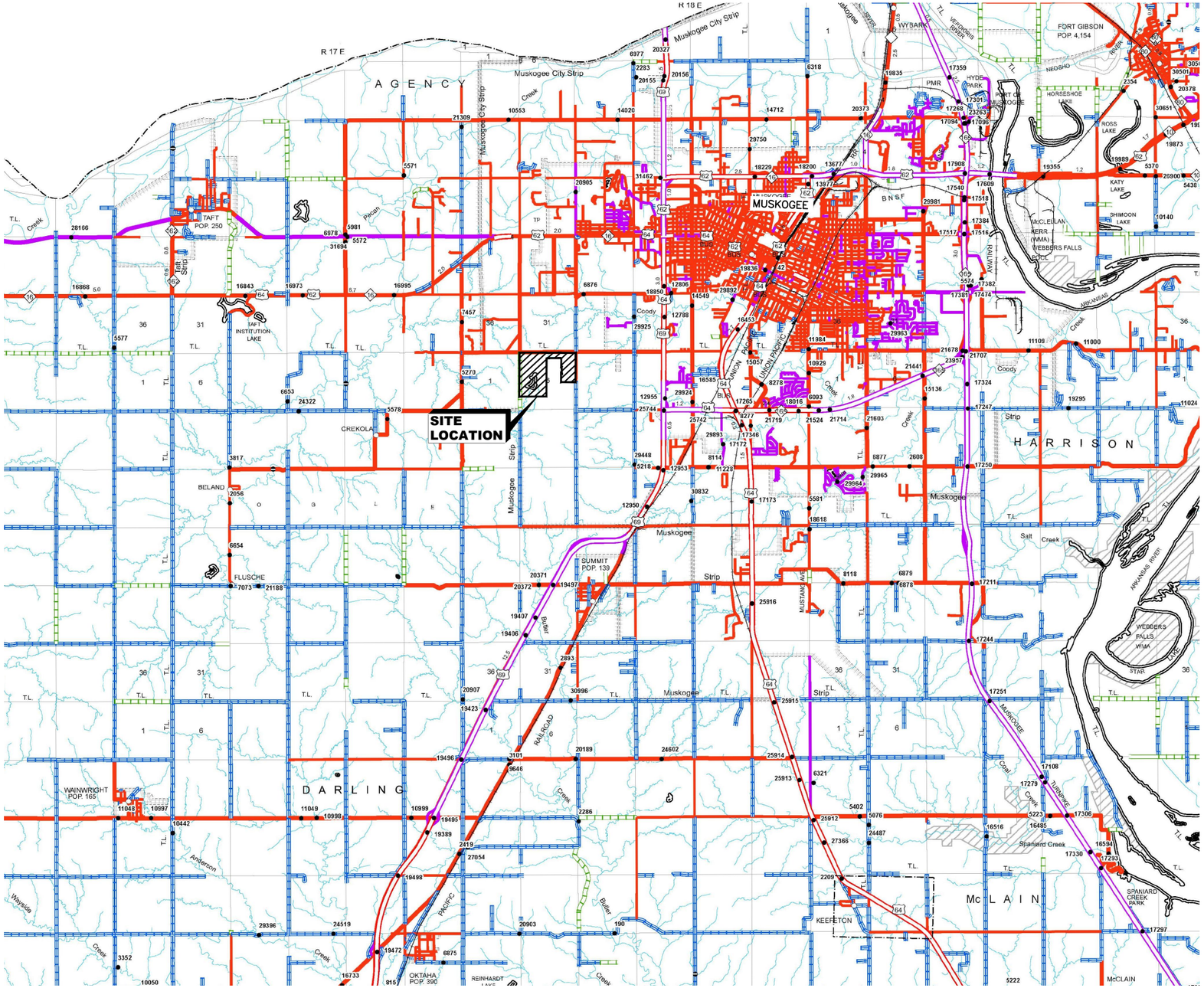
The following information presents a summary of the design and operations for the proposed Muskogee Community Recycling and Disposal Facility expansion.

- The permit boundary will be expanded by approximately 245 acres. A separate landfill unit will be built to the west of the existing landfill, adding an additional 70 acres for waste disposal.
- Accepted wastes will remain consistent with the current municipal solid waste landfill permit. The facility will accept municipal solid waste, construction and demolition wastes, non-hazardous industrial waste, encapsulated asbestos waste, vegetative waste, semi-solid waste, and sludges as permitted by the ODEQ.
- Access to the site is currently provided via the existing site access road from S. 54th Street W. As the site transitions to the western expansion area, a new site entrance will be developed along W. 23rd Street S. Based on traffic patterns of existing landfill traffic, most vehicles bound for the landfill will access the site using W. 23rd Street S. from Interstate Highway 64/69. The existing roads are capable of handling the traffic load associated with the landfill.
- A liner and final cover system that meets all regulatory requirements will be used for the solid waste containment system. The design objective of the containment system (final cover, liner, and leachate management system) is to isolate the solid waste and remove leachate (defined as liquid that has contacted solid waste) that collects on the liner system. Leachate that is removed from the landfill will be discharged offsite to the City of Muskogee publicly owned treatment works (POTW) in accordance with the City of Muskogee Industrial Wastewater Treatment/Disposal Permit No. 078. The construction procedures of the liner and final cover systems follow strict ODEQ approved quality control and quality assurance procedures, which are verified by an independent testing firm. Each of the containment system

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  - Groundwater Monitoring System. The purpose of the groundwater monitoring system is to verify the integrity of the containment system and verify that groundwater is not adversely impacted by the landfill. This is accomplished by obtaining water samples from the monitor wells, located on the perimeter of the landfill, which are screened in the uppermost saturated zone to monitor groundwater quality. The water samples are tested at an off-site laboratory.
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The development of this site will also require permitting and or coordination with local, state, and federal agencies including the County Commissioner, Oklahoma Tourism and Recreation Department, Grand River Dam Authority, Oklahoma Department of Wildlife Conservation, Oklahoma Biological Survey, Oklahoma Natural Areas Registry, Bureau of Reclamation, United States Army Corps of Engineers, and Oklahoma Department of Environmental Quality.



Legend

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- Wildlife Refuge
- River or Stream
- Lake or Reservoir
- Bridges
- Low Water Crossing
- Natural Elevation Point
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1. REPRODUCED FROM GENERAL HIGHWAY MAPS, MUSKOGEE COUNTY, OKLAHOMA, (OK DOT STRATEGIC ASSET AND PERFORMANCE MANAGEMENT DIVISION OCTOBER 2018).

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DATE: 01/2023
FILE: 0086-364-11
CAD: FIG 1-SITE LOCATION MAP.DWG

DRAWN BY: RAA
DESIGN BY: JBP
REVIEWED BY: JVQ

Weaver Consultants Group
CA 3804 PE-06/30/2023

PREPARED FOR
WASTE MANAGEMENT OF OKLAHOMA, INC.

REVISIONS		
NO.	DATE	DESCRIPTION

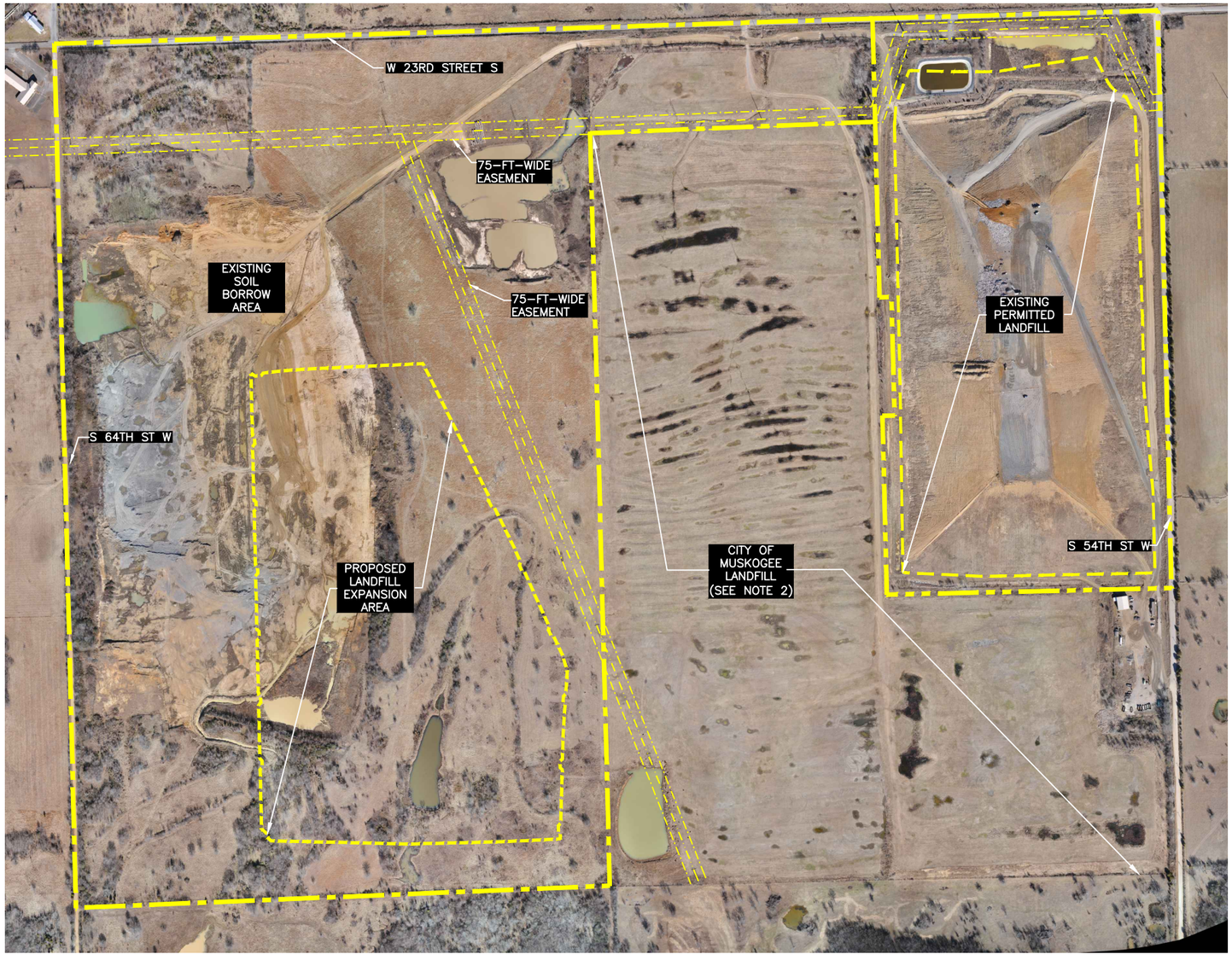
SITE LOCATION MAP

MUSKOGEE COMMUNITY RDF
MUSKOGEE COUNTY, OKLAHOMA

WWW.WCGRP.COM

FIGURE 1

O:\0086\364\EXPANSION 2022\LOCATION RESTRICTION\FIG 1-SITE LOCATION MAP.dwg, jputhr, 1:2



N

0 300 600

SCALE IN FEET

LEGEND

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O:\0086\364\EXPANSION 2022\LOCATION RESTRICTION\FIG 2-AERIAL PHOTO.dwg, jpuhr, 1:2

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CAD: FIG 2-AERIAL PHOTO.DWG

DRAWN BY: RAA
DESIGN BY: JBP
REVIEWED BY: JVQ

Weaver Consultants Group
CA 3804 PE-06/30/2023

PREPARED FOR
WASTE MANAGEMENT OF OKLAHOMA, INC.

REVISIONS

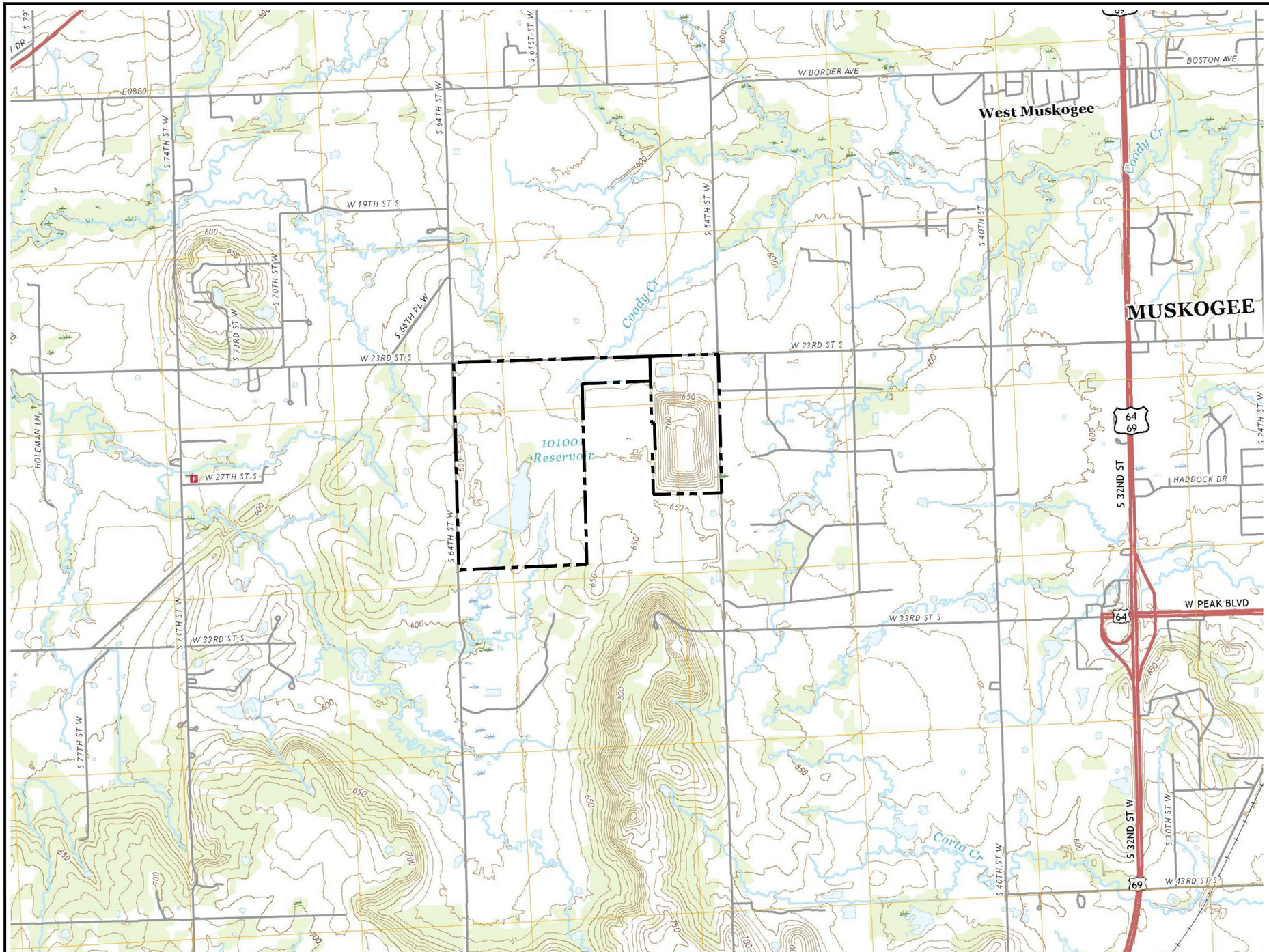
NO.	DATE	DESCRIPTION

AERIAL PHOTOGRAPH

MUSKOGEE COMMUNITY RDF
MUSKOGEE COUNTY, OKLAHOMA

WWW.WCGRP.COM

FIGURE 2



0 1000 2000
SCALE IN FEET

LEGEND

EXISTING PERMIT BOUNDARY

PROPOSED PERMIT BOUNDARY

NOTES:

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4. THE MAP AREA SHOWN IS WITHIN TOWNSHIP 14 NORTH, RANGE 18 EAST.
5. REFER TO FIGURE 12 FOR WASTE DISPOSAL AREAS ON BUFFER ZONES.

SOUTHWEST MUSKOGEE, OK

2018

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DATE: 01/2023
FILE: 0086-364-11
CAD: FIG 3-GENERAL TOPO. MAP.DWG

DRAWN BY: RAA
DESIGN BY: JBP
REVIEWED BY: JVQ

Weaver Consultants Group
CA 3804 PE-06/30/2023

PREPARED FOR
WASTE MANAGEMENT OF OKLAHOMA, INC.

REVISIONS

NO.	DATE	DESCRIPTION

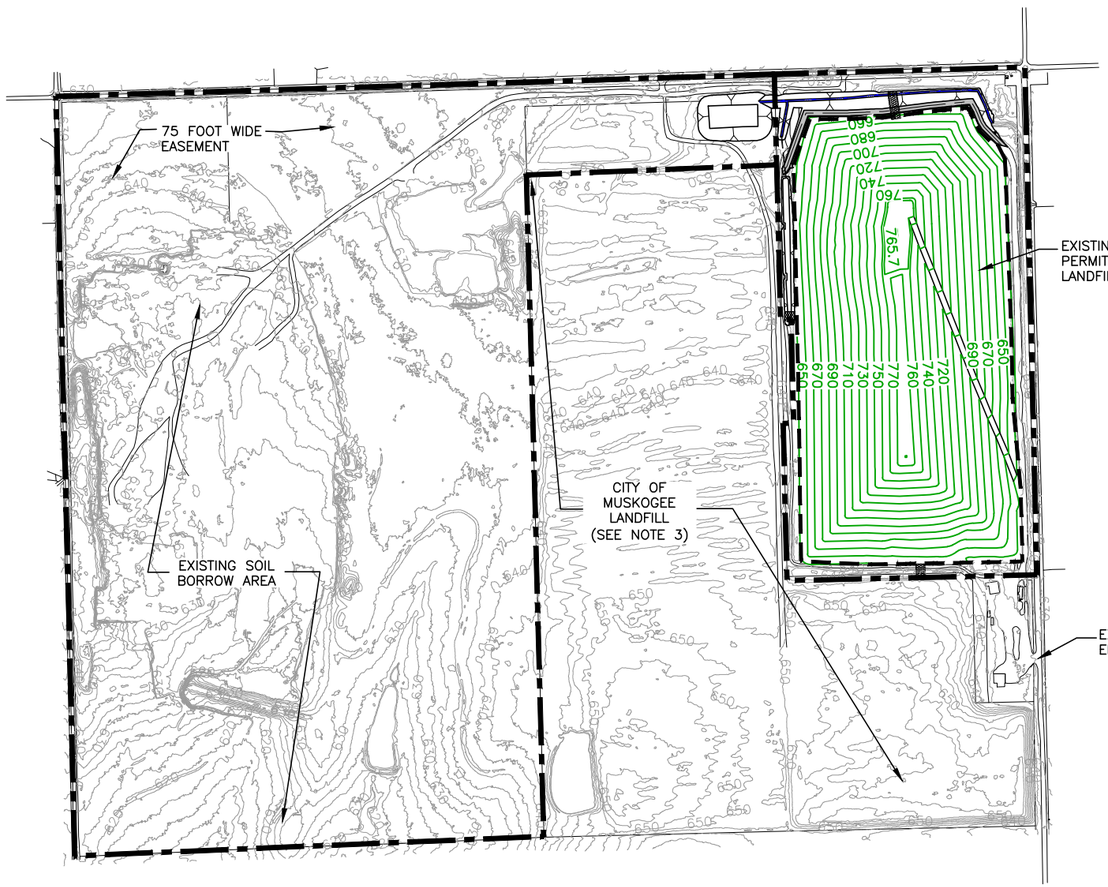
GENERAL TOPOGRAPHIC MAP

MUSKOGEE COMMUNITY RDF
MUSKOGEE COUNTY, OKLAHOMA

WWW.WCGRP.COM

FIGURE 3

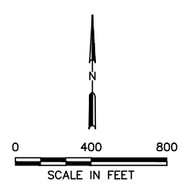
O:\0086\364\EXPANSION 2022\LOCATION RESTRICTION\FIG 3-GENERAL TOPOGRAPHIC MAP.dwg, jpuhr, 1:2



PERMITTED COMPLETION PLAN



PROPOSED COMPLETION PLAN



LEGEND:

- EXISTING PERMIT BOUNDARY
- PROPOSED PERMIT BOUNDARY
- PERMITTED LIMITS OF WASTE
- PROPOSED LIMITS OF WASTE
- N 273000 — STATE PLANE COORDINATE GRID
- 700 — EXISTING CONTOUR
- 700 — FINAL COVER CONTOUR
- 561 — BORROW AREA CONTOUR
- APPROXIMATE OG&E POWER LINE EASEMENT

NOTES:

1. EXISTING CONTOURS AND ELEVATIONS PROVIDED BY AIR MAPS OF ARKANSAS, LLC FROM AERIAL PHOTOGRAPHY FLOWN 01–24–2022.
2. THE EXPANSION WILL ADD A SEPARATE UNIT TO THE WEST OF THE EXISTING LANDFILL. NO CHANGES ARE PROPOSED TO THE EASTERN UNIT.
3. THE CITY OF MUSKOGEE LANDFILL IS NOT PART OF THE PROPOSED EXPANSION AND IS SHOWN FOR REFERENCE PURPOSES.

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☐ ISSUED FOR CONSTRUCTION

DATE: 01/2023
FILE: 0086-364-11
CAD: FIG 4-COMPLETION PLAN.DWG

DRAWN BY: RAA
DESIGN BY: JBP
REVIEWED BY: JVQ

Weaver Consultants Group
CA 3804 PE – 06/30/2023

PREPARED FOR
WASTE MANAGEMENT OF OKLAHOMA, INC.

REVISIONS		
NO.	DATE	DESCRIPTION

PERMITTED COMPLETION PLAN AND PROPOSED COMPLETION PLAN

MUSKOGEE COMMUNITY, RDF
OKLAHOMA COUNTY, OKLAHOMA

WWW.WCGRP.COM

FIGURE 4

O:\0086\364\EXPANSION 2022\LOCATION RESTRICTION\FIG 4-COMPLETION PLAN COMP.dwg, jpuhr, 1:2

Puhr, Johnna

From:	Eve Atkinson <Eve.Atkinson@travelok.com>
Sent:	Friday, January 20, 2023 12:13 PM
To:	Puhr, Johnna
Cc:	Rhonda Moore; Brett Thomas
Subject:	Further Clarification on parks within half mile FW: WCGRP- Muskogee County,
Attachments:	2023-01-06 Muskogee Landfill Expansion-OK Tourism & Recreation.pdf; Muskogee Expansion buffer-half mile.JPG

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I want to clarify my statements in the preceding email regarding the completeness of the review.

I am responsible for finding information regarding parks in the system managed by the US Forest Service, the Army Corps of Engineers, National Parks System, including parks funded in the past by the LWCF, Oklahoma State Parks, and parks with trails funded by the Recreational Trail Program, and municipal parks. I review the USGS online maps provided by other State agencies such as the ODEQ and OWRB.

Parks or preserves I might miss are playgrounds by fire departments or town halls, parks or trails in settlements, trails funded by ODOT not part of the RTP program, Nature Conservancy Preserves. If it is not on a navigating map or USGS or Open Streets, I might miss one.

There are no parks within a half mile of the proposed expansion on a map, or air photo, or in our project files.

I am concerned when a solid waste site is within a half mile of a settlement with a church, but I have no information, other than what I can see on the navigational maps and/or air photos.

Based on a review of available maps, air photos, and files in our database of federally funded projects in the LWCF program and RTP program, there are no officially designated parks to the northwest of the expansion area on the west side of Section 6- Twp 14N-R 18E . Attached is the original review letter and a sketch showing I investigated the site.

I hope this clarifies my response.

Sincerely,
Eve Atkinson, Planner II, Federal Grant Office, Oklahoma State Parks. 405 522- 9516

From: Eve Atkinson
Sent: Thursday, January 19, 2023 10:17 AM
To: Puhr, Johnna <jpuhr@wcgrp.com>
Cc: Rhonda Moore <Rhonda.Moore@travelok.com>; Brett Thomas <Brett.Thomas@travelok.com>
Subject: RE: WCGRP- Muskogee County, Map of site and surroundings for your project needed

Johnna,

Thank you for the information regarding the law.

The golf course, Eagle Crest, is located ½ mile east of your existing waste disposal site. It appears to be within the city limits of Muskogee, by a map on ODEQ GIS maps. It may have local government participation. I am not responsible for finding that information. Call the City of Muskogee Parks Department. However, it is at the boundary and not part of the proposal.

There are no known national or state parks within ½ mile of the proposed expansion. There are no known Land and Water Conservation Fund parks either.
Our agency has no way of knowing whether a local park is funded by local taxes, is a private attraction visited by the public, funded by other federal programs. That is why I mention anything I see on aerials. I cross check it with maps such as USGS and others on the ODEQ website.

Regarding the western expansion, there are no LWCF, or State Parks in the surrounding settlement.

From: Puhr, Johnna <jpuhr@wcgrp.com>
Sent: Wednesday, January 18, 2023 1:57 PM
To: Eve Atkinson <Eve.Atkinson@travelok.com>
Cc: Rhonda Moore <Rhonda.Moore@travelok.com>
Subject: [EXTERNAL] RE: WCGRP- Muskogee County, Map of site and surroundings for your project needed

Eve,
Thank you for the information. However, the rule only applies to public recreation areas designated by a federal, state, or local agency.
Are these facilities run, funded or managed by the state?

Johnna Puhr
Project Engineer

Weaver Consultants Group
6420 Southwest Blvd. | Suite 206
Fort Worth, TX 76109
O: 817-735-9770 | F: 817-735-9775
jpuhr@wcgrp.com | www.wcgrp.com

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From: Eve Atkinson <Eve.Atkinson@travelok.com>
Sent: Tuesday, January 10, 2023 4:47 PM
To: Puhr, Johnna <jpuhr@wcgrp.com>
Cc: Rhonda Moore <Rhonda.Moore@travelok.com>
Subject: RE: WCGRP- Muskogee County, Map of site and surroundings for your project needed

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Johnna,

After a review of your maps and inspection of Google Earth 2018 imagery, your existing landfill is at the half mile buffer zone of a golf course, a place of outdoor recreation. The south extent of the golf course is on West 23rd Street South and the west extent is on the half section boundary, between South 54th Street West and South 40th Street West. It is called Eagle Crest Golf Course.

The expansion area is within ½ mile of a settlement called Mountain View, however there are no known parks in the community in our data base of funded trails, or parks or failed projects.

From: Puhr, Johnna <jpuhr@wcgrp.com>
Sent: Monday, January 9, 2023 4:41 PM
To: Eve Atkinson <Eve.Atkinson@travelok.com>
Cc: Rylie Mansuetti <Rylie.Mansuetti@travelok.com>; Rhonda Moore <Rhonda.Moore@travelok.com>; Queen, Jonathan <jqueen@wcgrp.com>; Campbell, Guy <GCampbe1@wm.com>; Schultze, Pete <pschultze@wm.com>
Subject: [EXTERNAL] RE: WCGRP- Muskogee County, Map of site and surroundings for your project needed

Eve,
Attached is our project summary letter including more specific information. The lat/long for the site is Lat: 35°43'14.64"N Long: 95°26'31.74"W
We are wanting to confirm that the proposed landfill expansion of the Muskogee Community Recycling and Disposal Facility is not located within one-half mile of a public recreation or preservation area designated by a federal, state, or local agency. Please review

the attached information and confirm that the landfill is not located within one-half mile of an area dedicated for public recreation or preservation.
Please feel free to give me a call with any questions.
Thanks, and have a great weekend.

Johnna Puhr
Project Engineer

Weaver Consultants Group
6420 Southwest Blvd. | Suite 206
Fort Worth, TX 76109
O: 817-735-9770 | F: 817-735-9775
jpuhr@wcgrp.com | www.wcgrp.com

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From: Eve Atkinson <Eve.Atkinson@travelok.com>
Sent: Monday, January 09, 2023 3:35 PM
To: Puhr, Johnna <jpuhr@wcgrp.com>
Cc: Rhonda Moore <Rhonda.Moore@travelok.com>; Rylie Mansuetti <Rylie.Mansuetti@travelok.com>
Subject: WCGRP- Muskogee County, Map of site and surroundings for your project needed

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I got your request without a written description of the location such as Section Township Range and County or Latitude and Longitude in digital minutes and seconds. Ie 36.9784 and -96.2945 for the center of the area. A map is best with two cross roads too.

Eve Atkinson |Planning Coordinator II | Tourism & Recreation | State Parks | p. 405-522-9516 | TravelOK.com

OKLAHOMA Tourism & Recreation | OKLAHOMA STATE PARKS

Weaver Consultants Group

Project No. 0086-364-11-19
January 9, 2023

Ms. Shelley Zumwalt, Executive Director
Oklahoma Tourism and Recreation Department
120 N. Robinson, 6th Floor
Oklahoma City, Oklahoma 73102

Re: Public Recreation or Preservation Area Statement
Muskogee Community Recycling and Disposal Facility Expansion
Muskogee, Oklahoma

Dear Ms. Zumwalt:

The purpose of this letter, submitted on behalf of Waste Management of Oklahoma, Inc., is to confirm that the proposed landfill expansion of the Muskogee Community Recycling and Disposal Facility is not located within one-half mile of a public recreation or preservation area designated by a federal, state, or local agency. The Oklahoma Department of Environmental Quality landfill location restriction regulations set forth in Oklahoma Administrative Code (OAC) §252:515-5-31(b), requires that a permit applicant for an expansion of a municipal solid waste facility determine if a proposed landfill expansion lies within one-half mile of an area designated for public recreation or preservation.

Weaver Consultants Group, LLC is preparing a landfill expansion permit application, under contract with Waste Management of Oklahoma, Inc., to expand their existing landfill located in the City of Muskogee, Oklahoma. A landfill has been operating at this location for over 25 years. Please find attached a project summary and site location maps to facilitate your review.

To verify compliance with §252:515-5-31(b), we are requesting that the Oklahoma Tourism and Recreation Department confirm that the landfill is not located within one-half mile of an area dedicated and managed by a federal, state, or local government agency for public recreation or preservation.

Your assistance with this matter is sincerely appreciated. Please call if you have any questions or need additional information.

Sincerely,
Weaver Consultants Group, LLC

Jonathan V. Queen, P.E.
Project Director

Attachment: Project Summary and Site Location Maps

cc: Guy R. Campbell, Waste Management of Oklahoma, Inc.
Pete Schultze, Waste Management of Oklahoma, Inc.

PROJECT SUMMARY AND
SITE LOCATION MAPS

Project Summary

Muskogee Community Recycling and Disposal Facility Expansion
Waste Management of Oklahoma, Inc.
Muskogee, Oklahoma

Introduction

The Muskogee Community Recycling and Disposal Facility is in the process of expanding the existing landfill to provide long-term disposal capacity for municipal solid waste that is generated in the City of Muskogee, Muskogee County, and the surrounding areas. The purpose of this summary is to provide an overview of the proposed landfill expansion. The site is located outside the city limits of the City of Muskogee, south of W. 23rd Street S., west of S. 54th Street W., and east of S. 64th Street W. The following subsections detail information regarding the owner and operator of the site, general site information, and a summary of the proposed site design.

Owner/Operator Information

The Muskogee Community Recycling and Disposal Facility is owned and operated by Waste Management of Oklahoma, Inc., a Waste Management, Inc. company. Waste Management, Inc. is an integrated solid waste services company that provides solid waste collection, transfer, disposal and recycling services and serves more than 20 million residential, commercial and industrial customers in North America.

Site Information

The following drawings are attached to this summary.

- Site Location Map (Figure 1). This figure shows the site location on a standard Oklahoma Department of Transportation Oklahoma County Highway Map.
- Aerial Photograph (Figure 2). This figure shows the existing recycling and disposal facility and proposed expansion area, on a recent aerial photograph.
- General Topographic Map (Figure 3). This figure shows the existing landfill and waste disposal area, as well as the proposed expansion area, on an USGS map.

- Permitted and Proposed Completion Plan (Figure 4). This figure shows the permitted and proposed landfill completion plans on detailed site topographic maps. The proposed condition will consist of two separate units. The eastern unit will be consistent with the currently permitted condition, as no changes are proposed to the unit. A separate unit will be built to the west for the proposed condition.

The Muskogee Community Recycling and Disposal Facility is located southwest of the City of Muskogee at 2801 S. 54th St. W., Muskogee, Oklahoma 74401. The service area includes the City of Muskogee, Muskogee County, and other surrounding areas. The facility currently operates under Oklahoma Department of Environmental Quality (ODEQ) Permit No. 3551020.

Design Summary

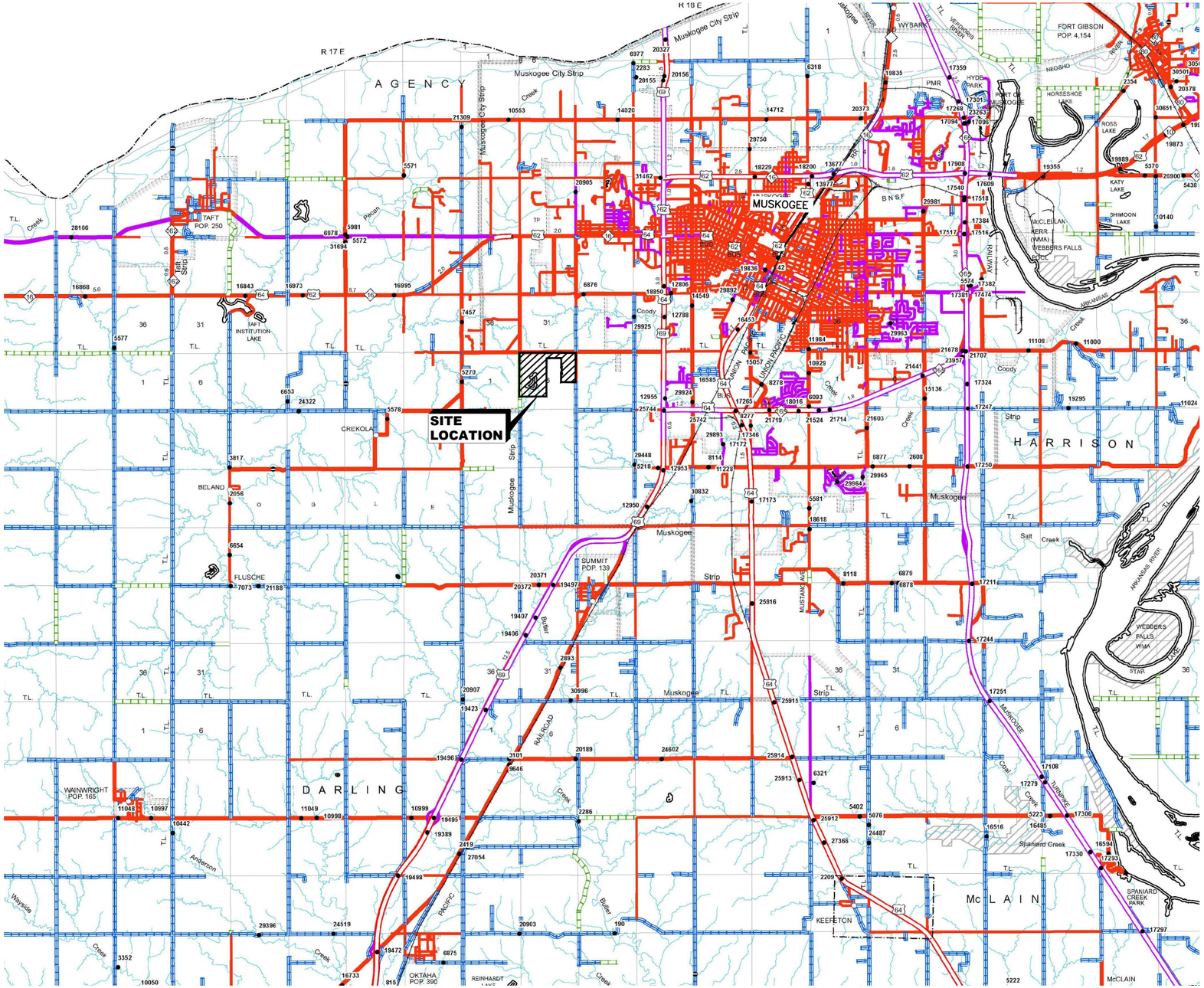
The following information presents a summary of the design and operations for the proposed Muskogee Community Recycling and Disposal Facility expansion.

- The permit boundary will be expanded by approximately 245 acres. A separate landfill unit will be built to the west of the existing landfill, adding an additional 70 acres for waste disposal.
- Accepted wastes will remain consistent with the current municipal solid waste landfill permit. The facility will accept municipal solid waste, construction and demolition wastes, non-hazardous industrial waste, encapsulated asbestos waste, vegetative waste, semi-solid waste, and sludges as permitted by the ODEQ.
- Access to the site is currently provided via the existing site access road from S. 54th Street W. As the site transitions to the western expansion area, a new site entrance will be developed along W. 23rd Street S. Based on traffic patterns of existing landfill traffic, most vehicles bound for the landfill will access the site using W. 23rd Street S. from Interstate Highway 64/69. The existing roads are capable of handling the traffic load associated with the landfill.
- A liner and final cover system that meets all regulatory requirements will be used for the solid waste containment system. The design objective of the containment system (final cover, liner, and leachate management system) is to isolate the solid waste and remove leachate (defined as liquid that has contacted solid waste) that collects on the liner system. Leachate that is removed from the landfill will be discharged offsite to the City of Muskogee publicly owned treatment works (POTW) in accordance with the City of Muskogee Industrial Wastewater Treatment/Disposal Permit No. 078. The construction procedures of the liner and final cover systems follow strict ODEQ approved quality control and quality assurance procedures, which are verified by an independent testing firm. Each of the containment system

components must be thoroughly reviewed and approved by the ODEQ before solid waste is placed in the landfill.

- To verify that the highest levels of environmental protection are maintained, the following landfill monitoring systems are provided:
  - Groundwater Monitoring System. The purpose of the groundwater monitoring system is to verify the integrity of the containment system and verify that groundwater is not adversely impacted by the landfill. This is accomplished by obtaining water samples from the monitor wells, located on the perimeter of the landfill, which are screened in the uppermost saturated zone to monitor groundwater quality. The water samples are tested at an off-site laboratory.
  - Landfill Gas Monitoring System. The purpose of the landfill gas monitoring system is to verify the integrity of the containment system and verify that methane gas, produced from the decomposing waste material, has not migrated beyond the permit boundary. This is accomplished by obtaining subsurface air samples from the landfill gas probes, located on the perimeter of the landfill, which are screened across potential migration pathways. The samples are tested on-site with a portable landfill gas analyzer.
  - These monitoring systems are sampled and tested periodically. The groundwater monitoring results are filed with the ODEQ and are public record.
- Site Operations. Properly trained personnel will operate the site. A detailed site operating plan will be included in the landfill expansion permit application. The plan will detail the required equipment, personnel, and safety procedures required to operate the site in accordance with ODEQ regulations. The site will continue to provide solid waste disposal service six days a week and the active landfill area will be covered at the end of each workday to prevent potential nuisance conditions such as odors and vectors. The Muskogee Community Recycling and Disposal Facility will continue to be inspected by the ODEQ on a regular basis to ensure the site is in compliance with state regulations.

The development of this site will also require permitting and or coordination with local, state, and federal agencies including the County Commissioner, Oklahoma Tourism and Recreation Department, Grand River Dam Authority, Oklahoma Department of Wildlife Conservation, Oklahoma Biological Survey, Oklahoma Natural Areas Registry, Bureau of Reclamation, United States Army Corps of Engineers, and Oklahoma Department of Environmental Quality.



0 1 2
SCALE IN MILES

Legend

- Interstate Highway
- US Highway
- State Highway
- Divided Highway - Asphalt
- Divided Highway - Concrete
- Asphalt
- Concrete
- Gravel
- Grade & Drain
- Unimproved
- Railroad
- State Line
- County Line
- Section Line
- Corporate Limit
- Wildlife Management Area
- Wildlife Refuge
- River or Stream
- Lake or Reservoir
- Bridges
- Low Water Crossing
- Natural Elevation Point
- Natural Elevation Point

NOTE:

1. REPRODUCED FROM GENERAL HIGHWAY MAPS, MUSKOGEE COUNTY, OKLAHOMA, (OK DOT STRATEGIC ASSET AND PERFORMANCE MANAGEMENT DIVISION OCTOBER 2018).

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DATE: 01/2023
FILE: 0086-364-11
CAD: FIG 1-SITE LOCATION MAP.DWG

DRAWN BY: RAA
DESIGN BY: JBP
REVIEWED BY: JVQ

Weaver Consultants Group
CA 3804 PE-06/30/2023

PREPARED FOR
WASTE MANAGEMENT OF OKLAHOMA, INC.

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NO.	DATE	DESCRIPTION

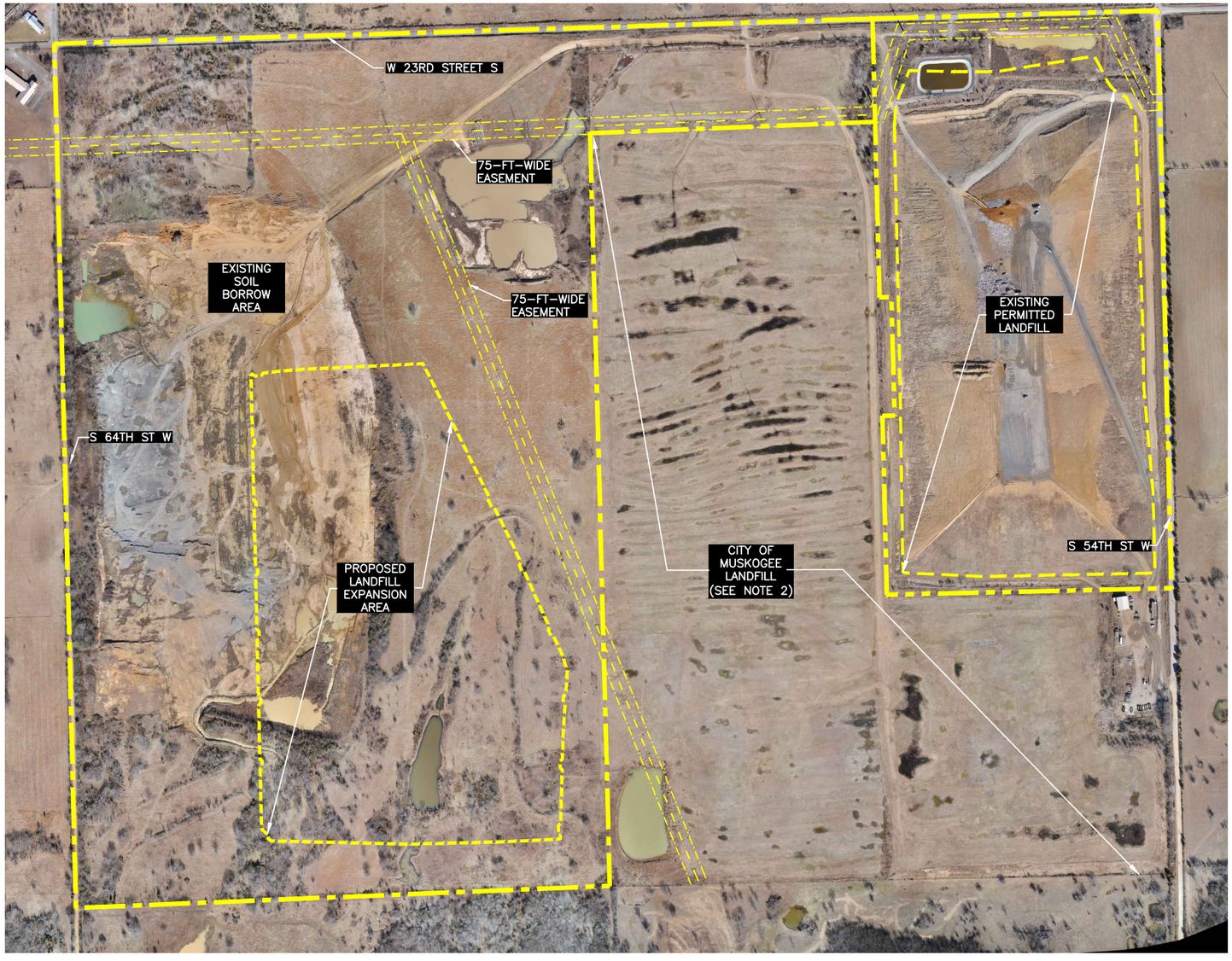
SITE LOCATION MAP

MUSKOGEE COMMUNITY RDF
MUSKOGEE COUNTY, OKLAHOMA

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FIGURE 1

O:\0086\364\EXPANSION 2022\LOCATION RESTRICTION\FIG 1-SITE LOCATION MAP.dwg, jputhr, 1:2



N

0 300 600

SCALE IN FEET

LEGEND

- EXISTING PERMIT BOUNDARY
- PROPOSED PERMIT BOUNDARY
- PERMITTED LIMITS OF WASTE
- PROPOSED LIMITS OF WASTE
- APPROXIMATE OG&E POWER LINE EASEMENT

NOTE:

1. AERIAL PHOTOGRAPHY PROVIDED BY HYDREX DRONE DIVISION, IMAGERY DATED 01-24-2022.
2. THE CITY OF MUSKOGEE LANDFILL IS NOT PART OF THE PROPOSED EXPANSION AND IS SHOWN FOR REFERENCE PURPOSES.

0:\0086\364\EXPANSION 2022\LOCATION RESTRICTION\FIG 2-AERIAL PHOTO.dwg, jpuhr, 1:2

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FILE: 0086-364-11
CAD: FIG 2-AERIAL PHOTO.DWG

DRAWN BY: RAA
DESIGN BY: JBP
REVIEWED BY: JVQ

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CA 3804 PE-06/30/2023

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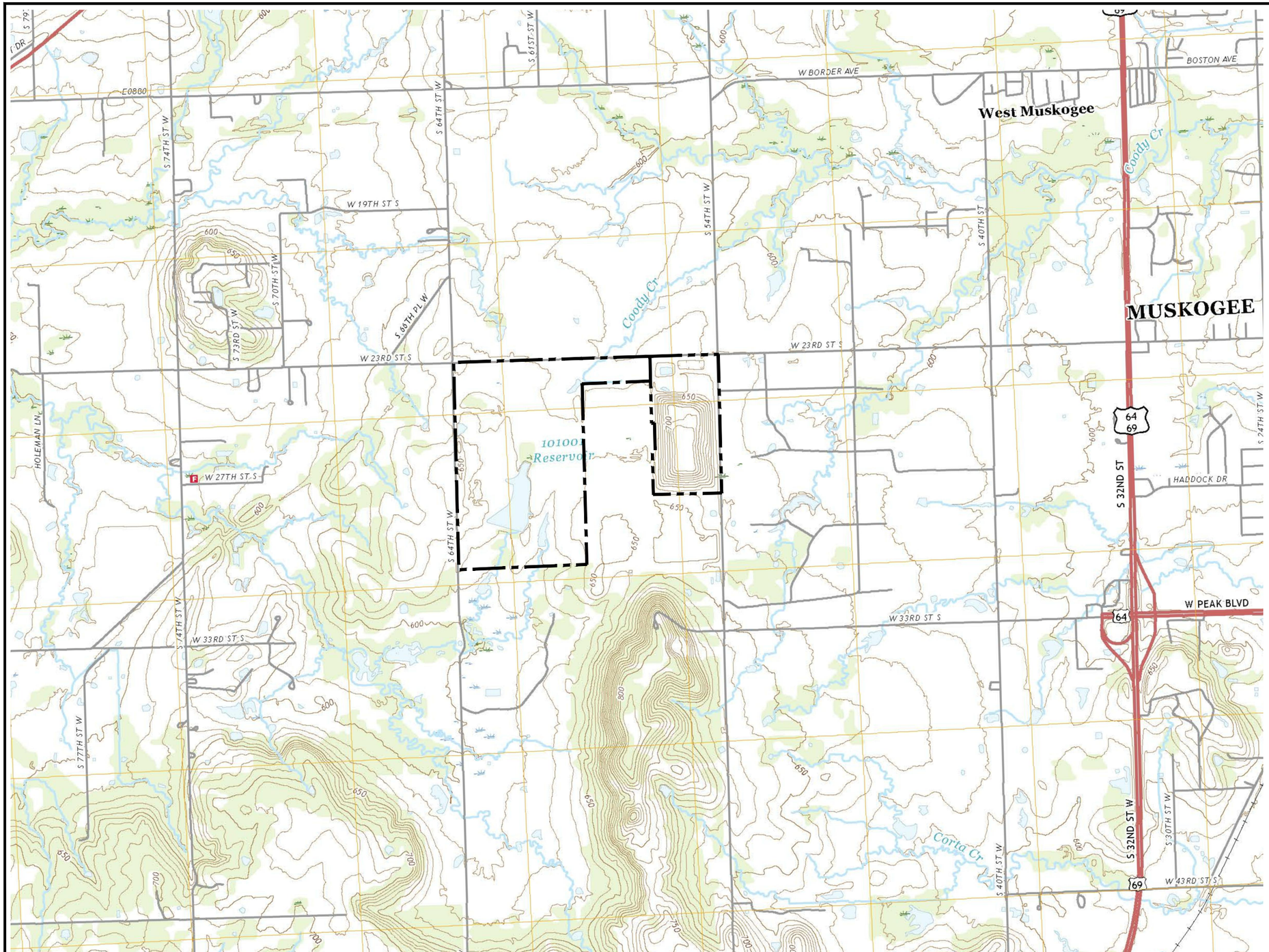
REVISIONS		
NO.	DATE	DESCRIPTION

AERIAL PHOTOGRAPH

MUSKOGEE COMMUNITY RDF
MUSKOGEE COUNTY, OKLAHOMA

WWW.WCGRP.COM

FIGURE 2



0 1000 2000
SCALE IN FEET

LEGEND

EXISTING PERMIT BOUNDARY

PROPOSED PERMIT BOUNDARY

NOTES:

1. ADAPTED FROM USGS 7.5 MINUTE QUADRANGLE TOPOGRAPHIC MAP (MUSKOGEE COUNTY, OKLAHOMA, 2018).
2. NO PUBLIC WATER SUPPLY SURFACE WATER INTAKES WERE REPORTED BY THE OKLAHOMA WATER RESOURCES BOARD (OWRB) WITHIN ONE MILE OF THE FACILITY.
3. BASED ON OKLAHOMA WATER RESOURCES BOARD (OWRB) DATABASE THERE IS NO REPORTED WELL LOGS ON PROPERTY OWNED BY WASTE MANAGEMENT OF OKLAHOMA INC. (WMO).
4. THE MAP AREA SHOWN IS WITHIN TOWNSHIP 14 NORTH, RANGE 18 EAST.
5. REFER TO FIGURE 12 FOR WASTE DISPOSAL AREAS ON BUFFER ZONES.

SOUTHWEST MUSKOGEE, OK

2018

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DATE: 01/2023
FILE: 0086-364-11
CAD: FIG 3-GENERAL TOPO. MAP.DWG

DRAWN BY: RAA
DESIGN BY: JBP
REVIEWED BY: JVQ

Weaver Consultants Group
CA 3804 PE-06/30/2023

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WASTE MANAGEMENT OF OKLAHOMA, INC.

REVISIONS		
NO.	DATE	DESCRIPTION

GENERAL TOPOGRAPHIC MAP

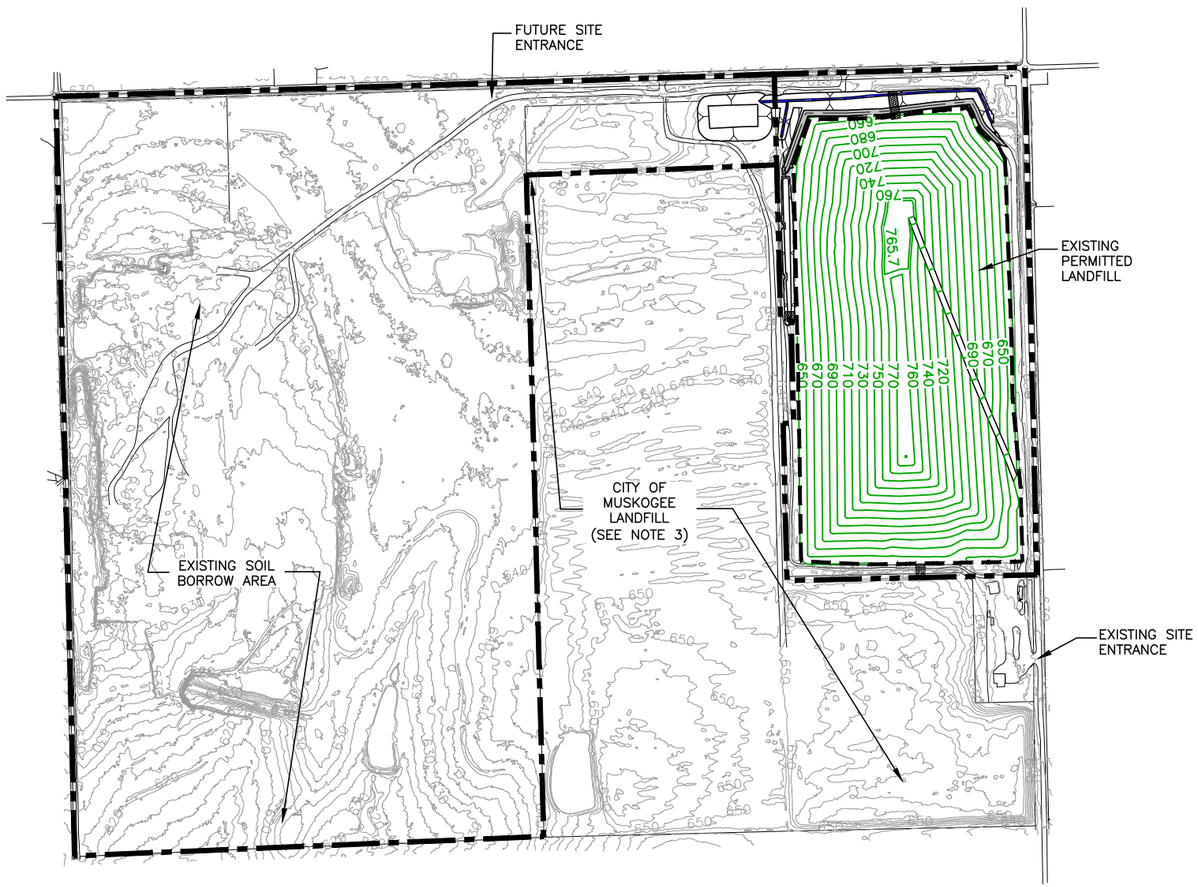
MUSKOGEE COMMUNITY RDF
MUSKOGEE COUNTY, OKLAHOMA

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FIGURE 3

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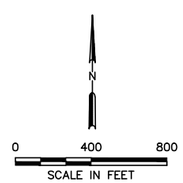
G:\0086\364\EXPANSION 2022\LOCATION RESTRICTION\FIG 3-GENERAL TOPOGRAPHIC MAP.dwg, jpuhr, 1:2



PERMITTED COMPLETION PLAN



PROPOSED COMPLETION PLAN



LEGEND:

- EXISTING PERMIT BOUNDARY
- PROPOSED PERMIT BOUNDARY
- PERMITTED LIMITS OF WASTE
- PROPOSED LIMITS OF WASTE
- N 273000 — STATE PLANE COORDINATE GRID
- 700 — EXISTING CONTOUR
- 700 — FINAL COVER CONTOUR
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NOTES:

1. EXISTING CONTOURS AND ELEVATIONS PROVIDED BY AIR MAPS OF ARKANSAS, LLC FROM AERIAL PHOTOGRAPHY FLOWN 01–24–2022.
2. THE EXPANSION WILL ADD A SEPARATE UNIT TO THE WEST OF THE EXISTING LANDFILL. NO CHANGES ARE PROPOSED TO THE EASTERN UNIT.
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DATE: 10/2022
FILE: 0086-364-11
CAD: FIG 4-COMPLETION PLAN.DWG

DRAWN BY: RAA
DESIGN BY: JBP
REVIEWED BY: JVQ

Weaver Consultants Group
CA 3804 PE – 06/30/2023

PREPARED FOR
WASTE MANAGEMENT OF OKLAHOMA, INC.

REVISIONS		
NO.	DATE	DESCRIPTION

PERMITTED COMPLETION PLAN AND PROPOSED COMPLETION PLAN

MUSKOGEE COMMUNITY, RDF
OKLAHOMA COUNTY, OKLAHOMA

WWW.WCGRP.COM

FIGURE 4

O:\0086\364\EXPANSION 2022\LOCATION RESTRICTION\FIG 4-COMPLETION PLAN COMP.dwg, jpuhr, 1:2

Puhr, Johnna

From: Comolli, Kristin A. <kcomolli@ou.edu>
Sent: Wednesday, September 27, 2023 2:52 PM
To: Puhr, Johnna
Cc: Queen, Jonathan; Hoagland, Bruce W.
Subject: Re: Muskogee Community Recycling and Disposal Facility Proposed Expansion Project
Attachments: 2023-430-BUS-WCG.pdf

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Hi Johnna.

I have attached an updated report of occurrences of federal and state regulatory species within a 5-mile radius of your project area (it looks like the last report we sent for this project was in November of 2022).

Regarding your request for areas dedicated for public recreation or preservation near this location, that is not something we maintain data about.

Kristin Comolli (she/her)
Database Analyst
Oklahoma Natural Heritage Inventory
University of Oklahoma
111 East Chesapeake Street
Norman, OK 73019
http://oknaturalheritage.ou.edu/

From: Puhr, Johnna <jpuhr@wcgrp.com>
Sent: Monday, September 18, 2023 4:11 PM
To: Comolli, Kristin A. <kcomolli@ou.edu>
Cc: Queen, Jonathan <jqueen@wcgrp.com>
Subject: Muskogee Community Recycling and Disposal Facility Proposed Expansion Project

Ms. Comolli,
The purpose of this email and attached letter is to confirm that the proposed landfill expansion of the Muskogee Community Recycling and Disposal Facility is not located within one-half mile of a public recreation or preservation area

designated by a federal, state, or local agency. Further information on the project in included in the project summary in the attached letter. Please review the attached information and confirm that the landfill is not located within one-half mile of an area dedicated for public recreation or preservation.
Please feel free to give me a call with any questions.
Thanks, and have a great weekend.

Johnna Puhr
Project Manager

Weaver Consultants Group
6420 Southwest Blvd. | Suite 206
Fort Worth, TX 76109
O: 817-735-9770 | F: 817-735-9775
jpuhr@wcgrp.com | www.wcgrp.com



IMPORTANT NOTICE: The information contained in this email message (including any attachments) may be confidential, privileged or both, and is intended exclusively for the addressee(s) intended by the sender. If it appears you have received this email message in error, please notify the sender immediately and then delete; any other use of this email message is prohibited. Thank you.

Weaver Consultants Group

Project No. 0086-364-11-19
January 6, 2023

Priscilla Crawford, Conservation Specialist
Oklahoma Natural Areas Registry
111 East Chesapeake Street
Norman, Oklahoma 73019-0575

Re: Public Recreation or Preservation Area Statement
Muskogee Community Recycling and Disposal Facility Expansion
Muskogee, Oklahoma

Dear Ms. Crawford:

The purpose of this letter, submitted on behalf of Waste Management of Oklahoma, Inc., is to confirm that the proposed landfill expansion of the Muskogee Community Recycling and Disposal Facility is not located within one-half mile of a public recreation or preservation area designated by a federal, state, or local agency. The Oklahoma Department of Environmental Quality landfill location restriction regulations, set forth in Oklahoma Administrative Code (OAC) §252:515-5-31(b), requires that a permit applicant for an expansion of a municipal solid waste facility determine if a proposed landfill expansion lies within one-half mile of an area designated for public recreation or preservation.

Weaver Consultants Group, LLC is preparing a landfill expansion permit application, under contract with Waste Management of Oklahoma, Inc., to expand their existing landfill located in the City of Muskogee, Oklahoma. A landfill has operated at this location for over 25 years. Please find attached a project summary and site location maps to facilitate your review.

To verify compliance with §252:515-5-31(b), we are requesting that the Oklahoma Natural Areas Registry confirm that the landfill is not located within one-half mile of an area dedicated and managed by a federal, state, or local government agency for public recreation or preservation.

Your assistance with this matter is sincerely appreciated. Please call if you have any questions or need additional information.

Sincerely,
Weaver Consultants Group, LLC

Jonathan V. Queen, P.E.
Project Director

Attachment: Project Summary and Site Location Maps

cc: Guy R. Campbell, Waste Management of Oklahoma, Inc.
Pete Schultze, Waste Management of Oklahoma, Inc.

PROJECT SUMMARY AND SITE LOCATION MAPS

Project Summary

Muskogee Community Recycling and Disposal Facility Expansion
Waste Management of Oklahoma, Inc.
Muskogee, Oklahoma

Introduction

The Muskogee Community Recycling and Disposal Facility is in the process of expanding the existing landfill to provide long-term disposal capacity for municipal solid waste that is generated in the City of Muskogee, Muskogee County, and the surrounding areas. The purpose of this summary is to provide an overview of the proposed landfill expansion. The site is located outside the city limits of the City of Muskogee, south of W. 23rd Street S., west of S. 54th Street W., and east of S. 64th Street W. The following subsections detail information regarding the owner and operator of the site, general site information, and a summary of the proposed site design.

Owner/Operator Information

The Muskogee Community Recycling and Disposal Facility is owned and operated by Waste Management of Oklahoma, Inc., a Waste Management, Inc. company. Waste Management, Inc. is an integrated solid waste services company that provides solid waste collection, transfer, disposal and recycling services and serves more than 20 million residential, commercial and industrial customers in North America.

Site Information

The following drawings are attached to this summary.

- Site Location Map (Figure 1). This figure shows the site location on a standard Oklahoma Department of Transportation Oklahoma County Highway Map.
- Aerial Photograph (Figure 2). This figure shows the existing recycling and disposal facility and proposed expansion area, on a recent aerial photograph.
- General Topographic Map (Figure 3). This figure shows the existing landfill and waste disposal area, as well as the proposed expansion area, on an USGS map.

- Permitted and Proposed Completion Plan (Figure 4). This figure shows the permitted and proposed landfill completion plans on detailed site topographic maps. The proposed condition will consist of two separate units. The eastern unit will be consistent with the currently permitted condition, as no changes are proposed to the unit. A separate unit will be built to the west for the proposed condition.

The Muskogee Community Recycling and Disposal Facility is located southwest of the City of Muskogee at 2801 S. 54th St. W., Muskogee, Oklahoma 74401. The service area includes the City of Muskogee, Muskogee County, and other surrounding areas. The facility currently operates under Oklahoma Department of Environmental Quality (ODEQ) Permit No. 3551020.

Design Summary

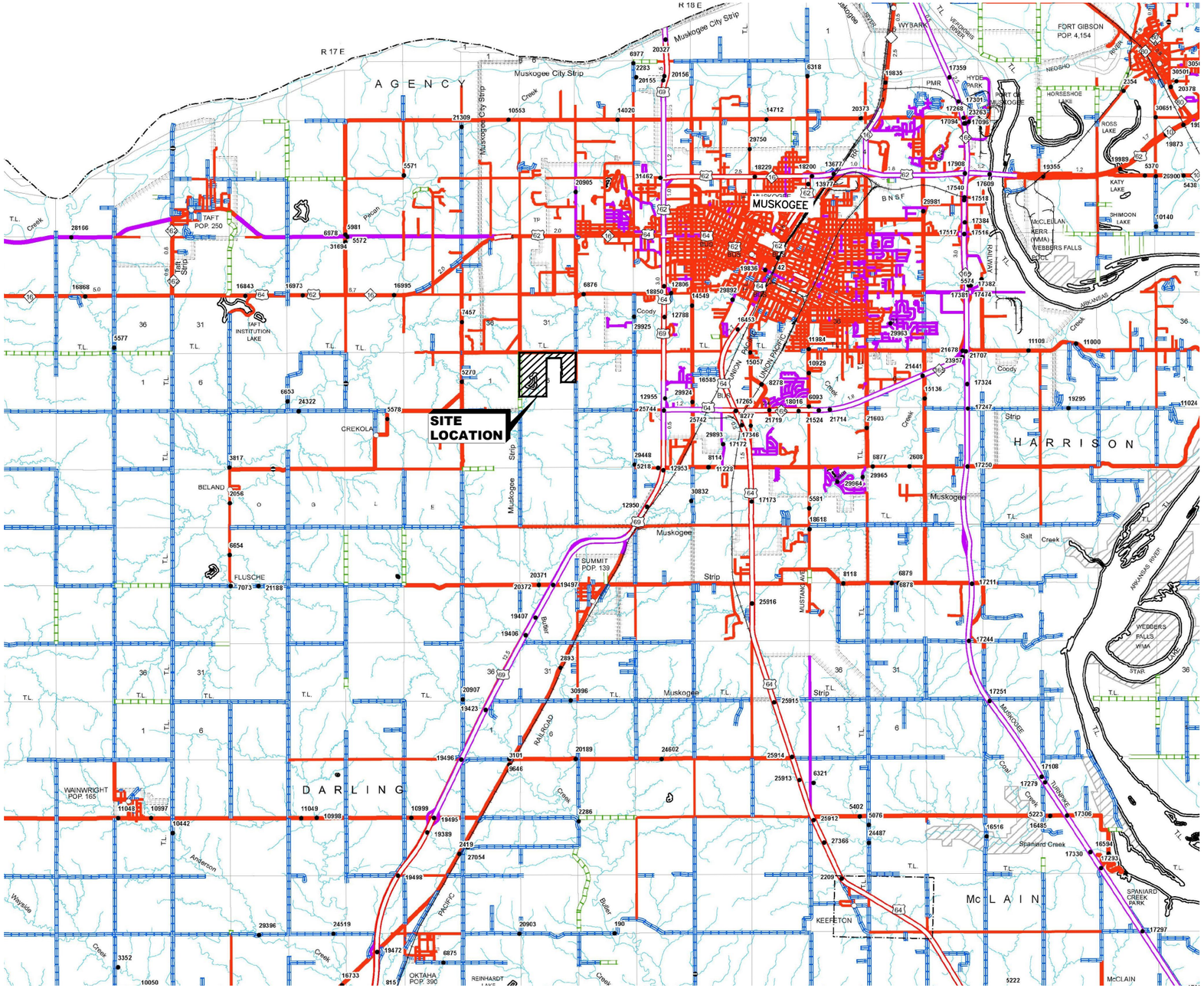
The following information presents a summary of the design and operations for the proposed Muskogee Community Recycling and Disposal Facility expansion.

- The permit boundary will be expanded by approximately 245 acres. A separate landfill unit will be built to the west of the existing landfill, adding an additional 70 acres for waste disposal.
- Accepted wastes will remain consistent with the current municipal solid waste landfill permit. The facility will accept municipal solid waste, construction and demolition wastes, non-hazardous industrial waste, encapsulated asbestos waste, vegetative waste, semi-solid waste, and sludges as permitted by the ODEQ.
- Access to the site is currently provided via the existing site access road from S. 54th Street W. As the site transitions to the western expansion area, a new site entrance will be developed along W. 23rd Street S. Based on traffic patterns of existing landfill traffic, most vehicles bound for the landfill will access the site using W. 23rd Street S. from Interstate Highway 64/69. The existing roads are capable of handling the traffic load associated with the landfill.
- A liner and final cover system that meets all regulatory requirements will be used for the solid waste containment system. The design objective of the containment system (final cover, liner, and leachate management system) is to isolate the solid waste and remove leachate (defined as liquid that has contacted solid waste) that collects on the liner system. Leachate that is removed from the landfill will be discharged offsite to the City of Muskogee publicly owned treatment works (POTW) in accordance with the City of Muskogee Industrial Wastewater Treatment/Disposal Permit No. 078. The construction procedures of the liner and final cover systems follow strict ODEQ approved quality control and quality assurance procedures, which are verified by an independent testing firm. Each of the containment system

components must be thoroughly reviewed and approved by the ODEQ before solid waste is placed in the landfill.

- To verify that the highest levels of environmental protection are maintained, the following landfill monitoring systems are provided:
  - Groundwater Monitoring System. The purpose of the groundwater monitoring system is to verify the integrity of the containment system and verify that groundwater is not adversely impacted by the landfill. This is accomplished by obtaining water samples from the monitor wells, located on the perimeter of the landfill, which are screened in the uppermost saturated zone to monitor groundwater quality. The water samples are tested at an off-site laboratory.
  - Landfill Gas Monitoring System. The purpose of the landfill gas monitoring system is to verify the integrity of the containment system and verify that methane gas, produced from the decomposing waste material, has not migrated beyond the permit boundary. This is accomplished by obtaining subsurface air samples from the landfill gas probes, located on the perimeter of the landfill, which are screened across potential migration pathways. The samples are tested on-site with a portable landfill gas analyzer.
  - These monitoring systems are sampled and tested periodically. The groundwater monitoring results are filed with the ODEQ and are public record.
- Site Operations. Properly trained personnel will operate the site. A detailed site operating plan will be included in the landfill expansion permit application. The plan will detail the required equipment, personnel, and safety procedures required to operate the site in accordance with ODEQ regulations. The site will continue to provide solid waste disposal service six days a week and the active landfill area will be covered at the end of each workday to prevent potential nuisance conditions such as odors and vectors. The Muskogee Community Recycling and Disposal Facility will continue to be inspected by the ODEQ on a regular basis to ensure the site is in compliance with state regulations.

The development of this site will also require permitting and or coordination with local, state, and federal agencies including the County Commissioner, Oklahoma Tourism and Recreation Department, Grand River Dam Authority, Oklahoma Department of Wildlife Conservation, Oklahoma Biological Survey, Oklahoma Natural Areas Registry, Bureau of Reclamation, United States Army Corps of Engineers, and Oklahoma Department of Environmental Quality.



Legend

- Interstate Highway
- US Highway
- State Highway
- Divided Highway - Asphalt
- Divided Highway - Concrete
- Asphalt
- Concrete
- Gravel
- Grade & Drain
- Unimproved
- Railroad
- State Line
- County Line
- Section Line
- Corporate Limit
- Wildlife Management Area
- Wildlife Refuge
- River or Stream
- Lake or Reservoir
- Bridges
- Low Water Crossing
- Natural Elevation Point
- Natural Elevation Point

NOTE:

1. REPRODUCED FROM GENERAL HIGHWAY MAPS, MUSKOGEE COUNTY, OKLAHOMA, (OK DOT STRATEGIC ASSET AND PERFORMANCE MANAGEMENT DIVISION OCTOBER 2018).

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- [X] FOR INFORMATIONAL PURPOSES ONLY
- [ ] ISSUED FOR CONSTRUCTION

DATE: 01/2023
FILE: 0086-364-11
CAD: FIG 1-SITE LOCATION MAP.DWG

DRAWN BY: RAA
DESIGN BY: JBP
REVIEWED BY: JVQ

Weaver Consultants Group
CA 3804 PE-06/30/2023

PREPARED FOR
WASTE MANAGEMENT OF OKLAHOMA, INC.

REVISIONS		
NO.	DATE	DESCRIPTION

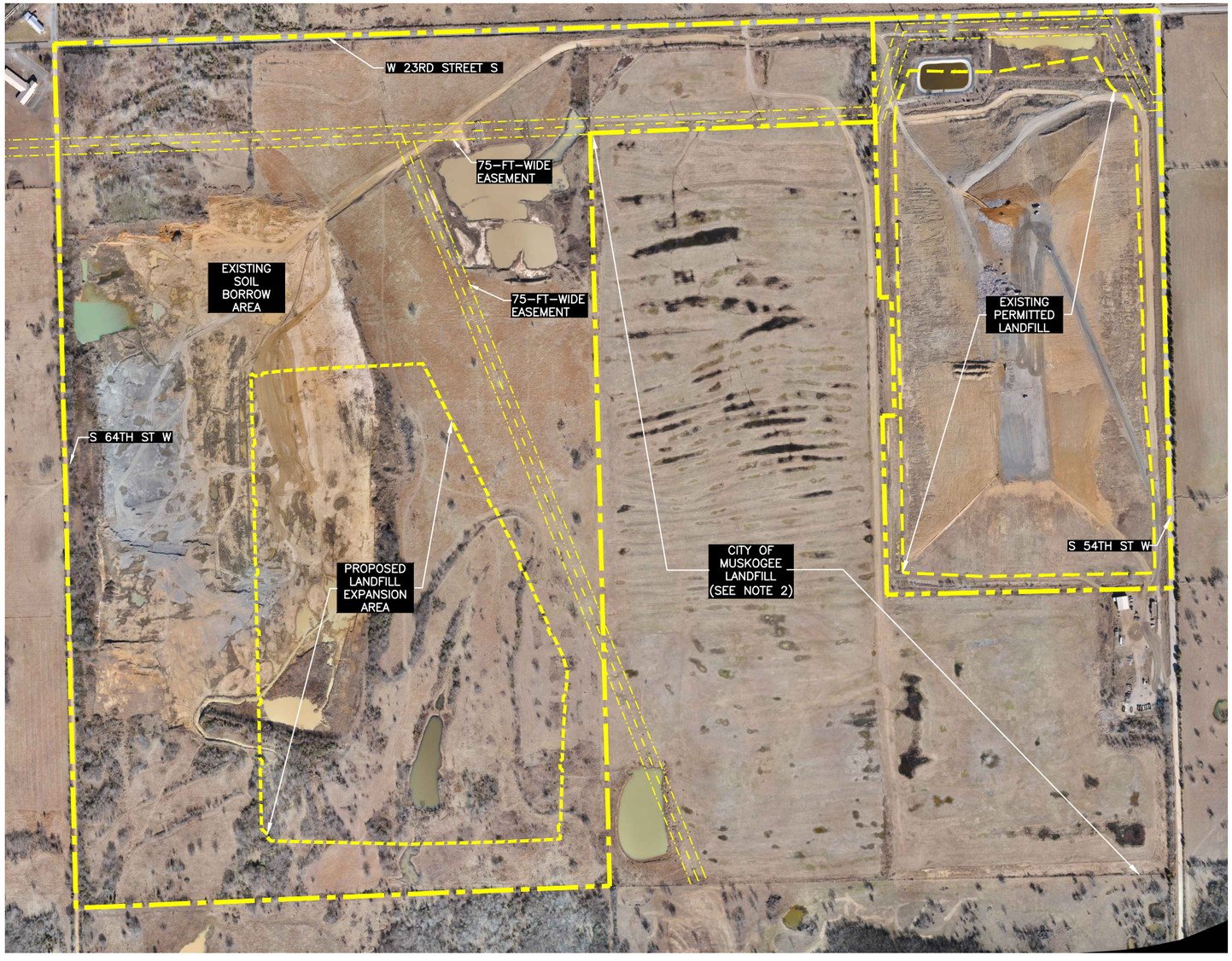
SITE LOCATION MAP

MUSKOGEE COMMUNITY RDF
MUSKOGEE COUNTY, OKLAHOMA

WWW.WCGRP.COM

FIGURE 1

O:\0086\364\EXPANSION 2022\LOCATION RESTRICTION\FIG 1-SITE LOCATION MAP.dwg, jputhr, 1:2



N

0 300 600

SCALE IN FEET

LEGEND

- EXISTING PERMIT BOUNDARY
- PROPOSED PERMIT BOUNDARY
- PERMITTED LIMITS OF WASTE
- PROPOSED LIMITS OF WASTE
- APPROXIMATE OG&E POWER LINE EASEMENT

NOTE:

1. AERIAL PHOTOGRAPHY PROVIDED BY HYDREX DRONE DIVISION, IMAGERY DATED 01-24-2022.
2. THE CITY OF MUSKOGEE LANDFILL IS NOT PART OF THE PROPOSED EXPANSION AND IS SHOWN FOR REFERENCE PURPOSES.

0:\0086\364\EXPANSION 2022\LOCATION RESTRICTION\FIG 2-AERIAL PHOTO.dwg, jpuhr, 1:2

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DATE: 01/2023
FILE: 0086-364-11
CAD: FIG 2-AERIAL PHOTO.DWG

DRAWN BY: RAA
DESIGN BY: JBP
REVIEWED BY: JVQ

Weaver Consultants Group
CA 3804 PE-06/30/2023

PREPARED FOR
WASTE MANAGEMENT OF OKLAHOMA, INC.

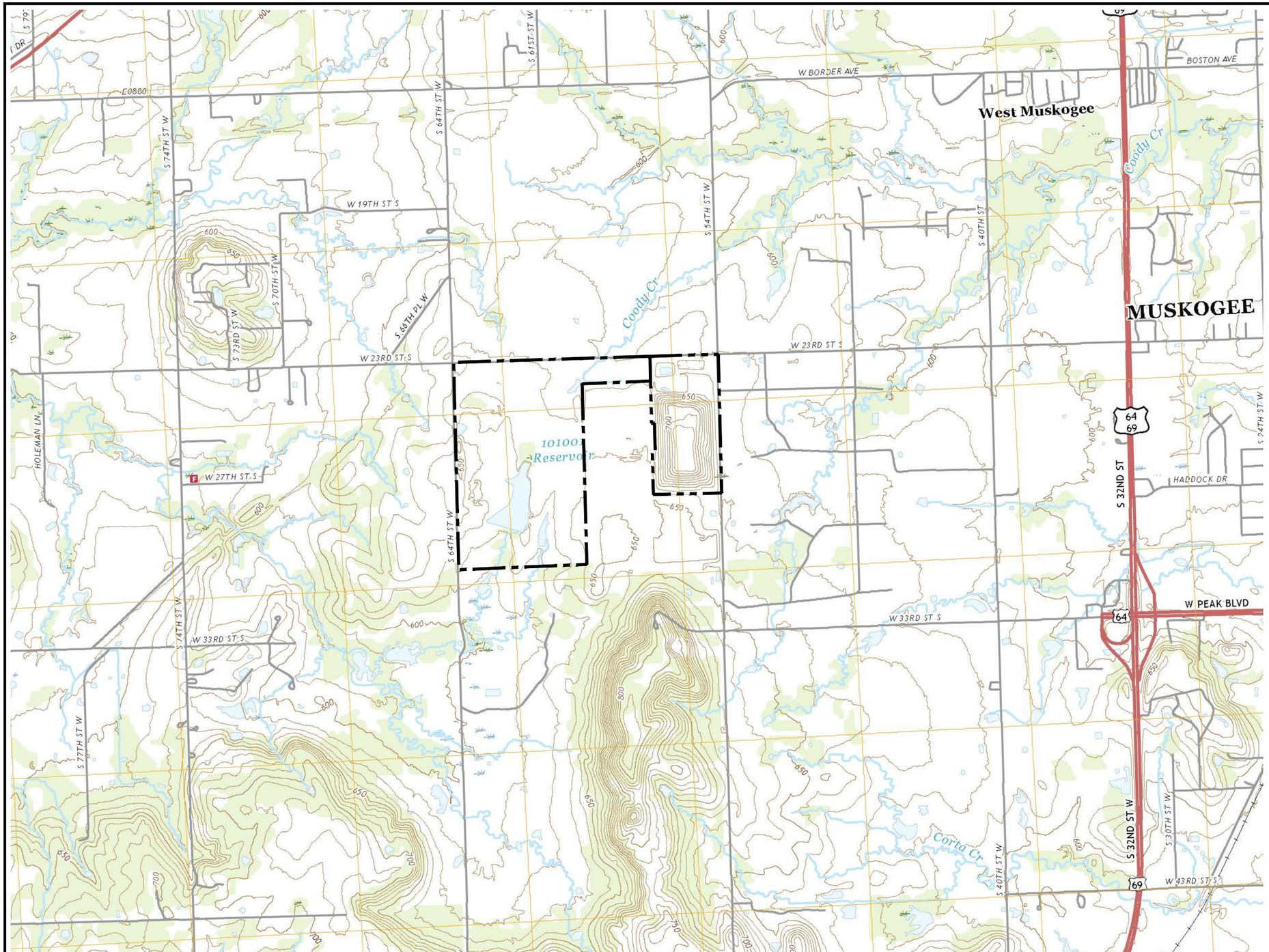
REVISIONS		
NO.	DATE	DESCRIPTION

AERIAL PHOTOGRAPH

MUSKOGEE COMMUNITY RDF
MUSKOGEE COUNTY, OKLAHOMA

WWW.WCGRP.COM

FIGURE 2



0 1000 2000
SCALE IN FEET

LEGEND

EXISTING PERMIT BOUNDARY

PROPOSED PERMIT BOUNDARY

NOTES:

1. ADAPTED FROM USGS 7.5 MINUTE QUADRANGLE TOPOGRAPHIC MAP (MUSKOGEE COUNTY, OKLAHOMA, 2018).
2. NO PUBLIC WATER SUPPLY SURFACE WATER INTAKES WERE REPORTED BY THE OKLAHOMA WATER RESOURCES BOARD (OWRB) WITHIN ONE MILE OF THE FACILITY.
3. BASED ON OKLAHOMA WATER RESOURCES BOARD (OWRB) DATABASE THERE IS NO REPORTED WELL LOGS ON PROPERTY OWNED BY WASTE MANAGEMENT OF OKLAHOMA INC. (WMO).
4. THE MAP AREA SHOWN IS WITHIN TOWNSHIP 14 NORTH, RANGE 18 EAST.
5. REFER TO FIGURE 12 FOR WASTE DISPOSAL AREAS ON BUFFER ZONES.

SOUTHWEST MUSKOGEE, OK

2018

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DATE: 01/2023
FILE: 0086-364-11
CAD: FIG 3-GENERAL TOPO. MAP.DWG

DRAWN BY: RAA
DESIGN BY: JBP
REVIEWED BY: JVQ

Weaver Consultants Group
CA 3804 PE-06/30/2023

PREPARED FOR
WASTE MANAGEMENT OF OKLAHOMA, INC.

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NO.	DATE	DESCRIPTION

GENERAL TOPOGRAPHIC MAP

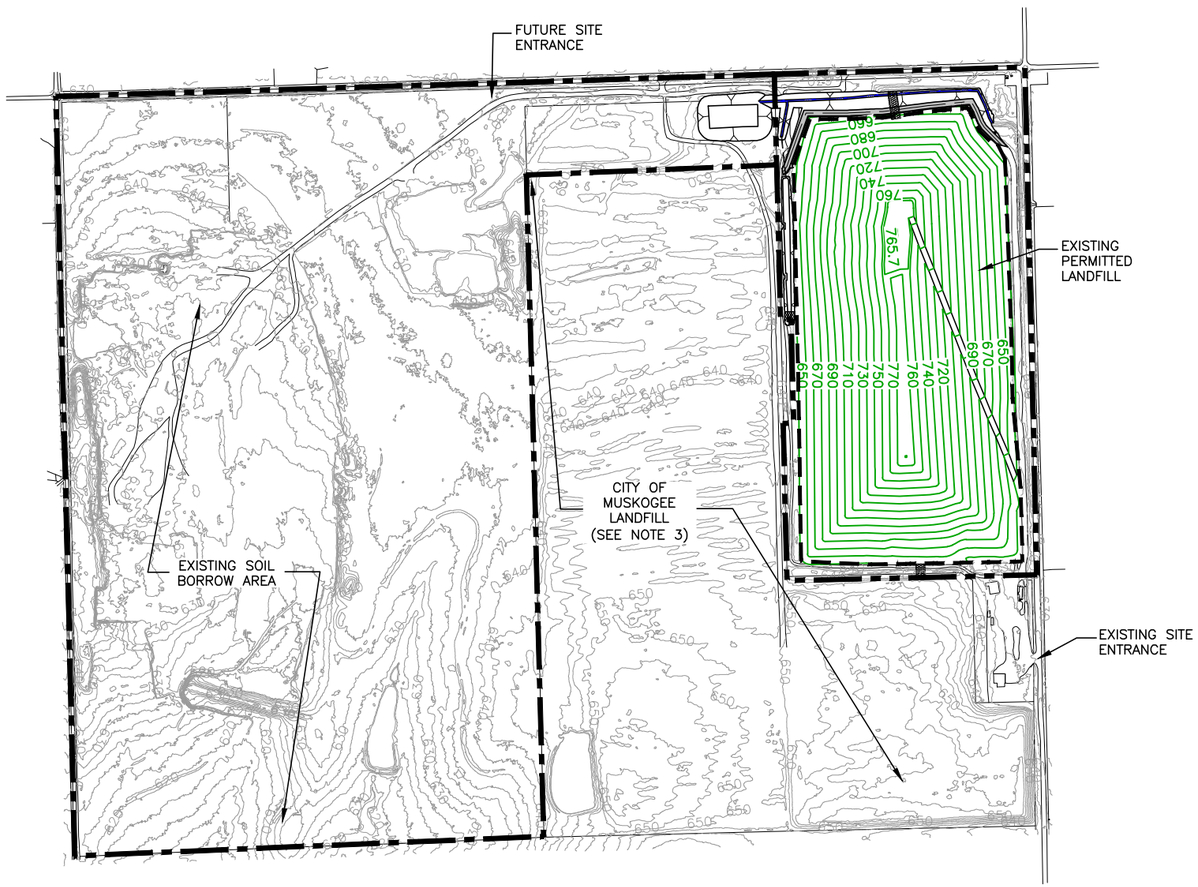
MUSKOGEE COMMUNITY RDF
MUSKOGEE COUNTY, OKLAHOMA

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FIGURE 3

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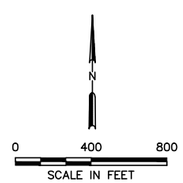
G:\0086\364\EXPANSION 2022\LOCATION RESTRICTION\FIG 3-GENERAL TOPOGRAPHIC MAP.dwg, jpuhr, 1:2



PERMITTED COMPLETION PLAN



PROPOSED COMPLETION PLAN



LEGEND:

- EXISTING PERMIT BOUNDARY
- PROPOSED PERMIT BOUNDARY
- PERMITTED LIMITS OF WASTE
- PROPOSED LIMITS OF WASTE
- N 273000 — STATE PLANE COORDINATE GRID
- 700 — EXISTING CONTOUR
- 700 — FINAL COVER CONTOUR
- 561 — BORROW AREA CONTOUR
- APPROXIMATE OG&E POWER LINE EASEMENT

NOTES:

1. EXISTING CONTOURS AND ELEVATIONS PROVIDED BY AIR MAPS OF ARKANSAS, LLC FROM AERIAL PHOTOGRAPHY FLOWN 01–24–2022.
2. THE EXPANSION WILL ADD A SEPARATE UNIT TO THE WEST OF THE EXISTING LANDFILL. NO CHANGES ARE PROPOSED TO THE EASTERN UNIT.
3. THE CITY OF MUSKOGEE LANDFILL IS NOT PART OF THE PROPOSED EXPANSION AND IS SHOWN FOR REFERENCE PURPOSES.

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DATE: 10/2022
FILE: 0086-364-11
CAD: FIG 4-COMPLETION PLAN.DWG

DRAWN BY: RAA
DESIGN BY: JBP
REVIEWED BY: JVQ

Weaver Consultants Group
CA 3804 PE – 06/30/2023

PREPARED FOR
WASTE MANAGEMENT OF OKLAHOMA, INC.

REVISIONS

NO.	DATE	DESCRIPTION

PERMITTED COMPLETION PLAN AND PROPOSED COMPLETION PLAN

MUSKOGEE COMMUNITY, RDF
OKLAHOMA COUNTY, OKLAHOMA

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FIGURE 4

O:\0086\364\EXPANSION 2022\LOCATION RESTRICTION\FIG 4-COMPLETION PLAN COMP.dwg, jpuhr, 1:2

Weaver Consultants Group

Project No. 0086-364-11-19
January 6, 2023

Kenny Payne, Commissioner
Board of County Commissioners
Muskogee County District 3
901 S. 74 West
Muskogee, Oklahoma 74402

Re: Public Recreation or Preservation Area Statement
Muskogee Landfill Expansion
Muskogee, Oklahoma

Dear Mr. Payne:

The purpose of this letter, submitted on behalf of Waste Management of Oklahoma, Inc., is to confirm that the proposed expansion of the Muskogee Landfill is not located within one-half mile of a public recreation or preservation area designated by a federal, state, or local agency. The Oklahoma Department of Environmental Quality (ODEQ) landfill location restriction regulations set forth in Oklahoma Administrative Code (OAC) §252:515-5-31(b), require that a permit applicant for an expansion of a municipal solid waste facility determine if a proposed landfill expansion lies within one-half mile of an area designated for public recreation or preservation.

Weaver Consultants Group, LLC, is preparing a landfill expansion permit modification, under contract with Waste Management of Oklahoma, Inc., to expand their existing landfill located near Muskogee, Oklahoma. Please find attached a project summary and site locations maps to facilitate your review.

To verify compliance with §252:515-5-31(b), we are requesting that the Board of County Commissioners confirm that the landfill is not located within one-half mile of an area dedicated for public recreation or preservation area, owned, operated, managed, or funded by the county. A similar letter was sent to the United States Department of the Interior (federal government agency) and the Oklahoma Tourism and Recreation Department (state government agency).

Your assistance with this matter is sincerely appreciated. Please call if you have any questions or need additional information.

Sincerely,
Weaver Consultants Group, LLC

Jonathan V. Queen, P.E.
Senior Project Engineer

Attachments: Project Summary and Site Location Maps

cc: Guy R. Campbell, Waste Management of Oklahoma, Inc.
Pete Shultze, Waste Management of Oklahoma, Inc.

PROJECT SUMMARY
AND
SITE LOCATION MAPS

Project Summary

Muskogee Community Recycling and Disposal Facility Expansion
Waste Management of Oklahoma, Inc.
Muskogee, Oklahoma

Introduction

The Muskogee Community Recycling and Disposal Facility is in the process of expanding the existing landfill to provide long-term disposal capacity for municipal solid waste that is generated in the City of Muskogee, Muskogee County, and the surrounding areas. The purpose of this summary is to provide an overview of the proposed landfill expansion. The site is located outside the city limits of the City of Muskogee, south of W. 23rd Street S., west of S. 54th Street W., and east of S. 64th Street W. The following subsections detail information regarding the owner and operator of the site, general site information, and a summary of the proposed site design.

Owner/Operator Information

The Muskogee Community Recycling and Disposal Facility is owned and operated by Waste Management of Oklahoma, Inc., a Waste Management, Inc. company. Waste Management, Inc. is an integrated solid waste services company that provides solid waste collection, transfer, disposal and recycling services and serves more than 20 million residential, commercial and industrial customers in North America.

Site Information

The following drawings are attached to this summary.

- Site Location Map (Figure 1). This figure shows the site location on a standard Oklahoma Department of Transportation Oklahoma County Highway Map.
- Aerial Photograph (Figure 2). This figure shows the existing recycling and disposal facility and proposed expansion area, on a recent aerial photograph.
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The Muskogee Community Recycling and Disposal Facility is located southwest of the City of Muskogee at 2801 S. 54th St. W., Muskogee, Oklahoma 74401. The service area includes the City of Muskogee, Muskogee County, and other surrounding areas. The facility currently operates under Oklahoma Department of Environmental Quality (ODEQ) Permit No. 3551020.

Design Summary

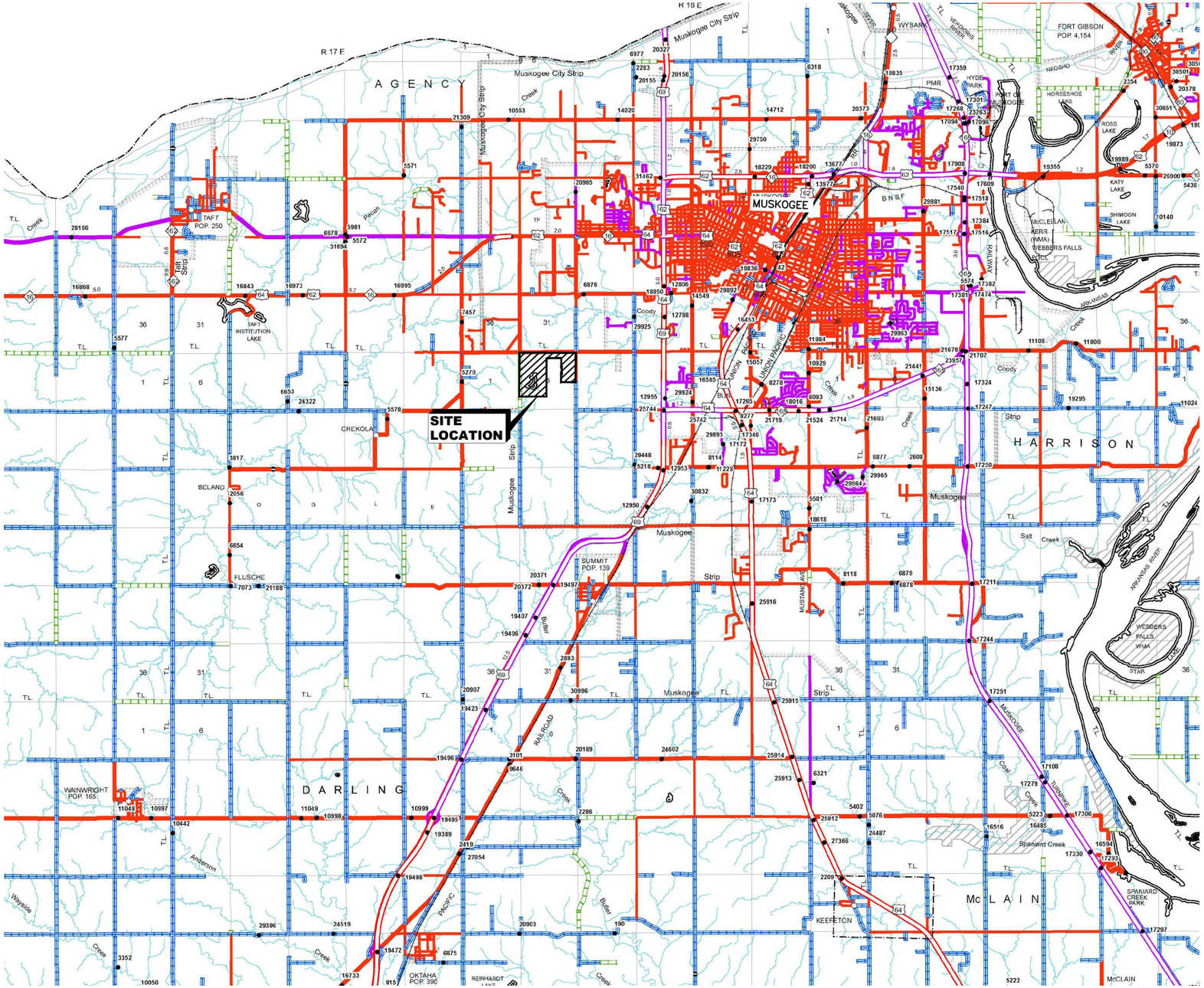
The following information presents a summary of the design and operations for the proposed Muskogee Community Recycling and Disposal Facility expansion.

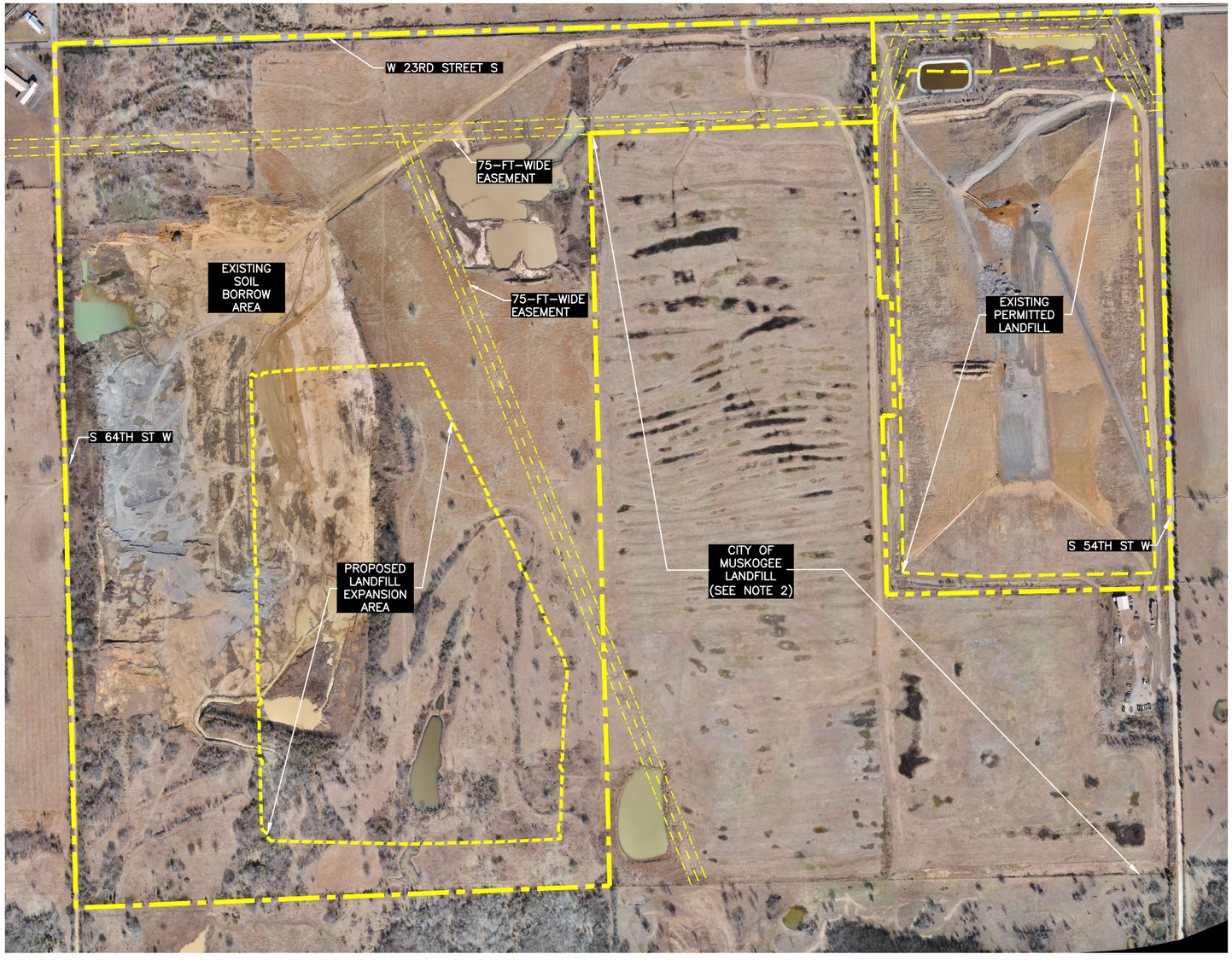
- The permit boundary will be expanded by approximately 245 acres. A separate landfill unit will be built to the west of the existing landfill, adding an additional 70 acres for waste disposal.
- Accepted wastes will remain consistent with the current municipal solid waste landfill permit. The facility will accept municipal solid waste, construction and demolition wastes, non-hazardous industrial waste, encapsulated asbestos waste, vegetative waste, semi-solid waste, and sludges as permitted by the ODEQ.
- Access to the site is currently provided via the existing site access road from S. 54th Street W. As the site transitions to the western expansion area, a new site entrance will be developed along W. 23rd Street S. Based on traffic patterns of existing landfill traffic, most vehicles bound for the landfill will access the site using W. 23rd Street S. from Interstate Highway 64/69. The existing roads are capable of handling the traffic load associated with the landfill.
- A liner and final cover system that meets all regulatory requirements will be used for the solid waste containment system. The design objective of the containment system (final cover, liner, and leachate management system) is to isolate the solid waste and remove leachate (defined as liquid that has contacted solid waste) that collects on the liner system. Leachate that is removed from the landfill will be discharged offsite to the City of Muskogee publicly owned treatment works (POTW) in accordance with the City of Muskogee Industrial Wastewater Treatment/Disposal Permit No. 078. The construction procedures of the liner and final cover systems follow strict ODEQ approved quality control and quality assurance procedures, which are verified by an independent testing firm. Each of the containment system

components must be thoroughly reviewed and approved by the ODEQ before solid waste is placed in the landfill.

- To verify that the highest levels of environmental protection are maintained, the following landfill monitoring systems are provided:
  - Groundwater Monitoring System. The purpose of the groundwater monitoring system is to verify the integrity of the containment system and verify that groundwater is not adversely impacted by the landfill. This is accomplished by obtaining water samples from the monitor wells, located on the perimeter of the landfill, which are screened in the uppermost saturated zone to monitor groundwater quality. The water samples are tested at an off-site laboratory.
  - Landfill Gas Monitoring System. The purpose of the landfill gas monitoring system is to verify the integrity of the containment system and verify that methane gas, produced from the decomposing waste material, has not migrated beyond the permit boundary. This is accomplished by obtaining subsurface air samples from the landfill gas probes, located on the perimeter of the landfill, which are screened across potential migration pathways. The samples are tested on-site with a portable landfill gas analyzer.
  - These monitoring systems are sampled and tested periodically. The groundwater monitoring results are filed with the ODEQ and are public record.
- Site Operations. Properly trained personnel will operate the site. A detailed site operating plan will be included in the landfill expansion permit application. The plan will detail the required equipment, personnel, and safety procedures required to operate the site in accordance with ODEQ regulations. The site will continue to provide solid waste disposal service six days a week and the active landfill area will be covered at the end of each workday to prevent potential nuisance conditions such as odors and vectors. The Muskogee Community Recycling and Disposal Facility will continue to be inspected by the ODEQ on a regular basis to ensure the site is in compliance with state regulations.

The development of this site will also require permitting and or coordination with local, state, and federal agencies including the County Commissioner, Oklahoma Tourism and Recreation Department, Grand River Dam Authority, Oklahoma Department of Wildlife Conservation, Oklahoma Biological Survey, Oklahoma Natural Areas Registry, Bureau of Reclamation, United States Army Corps of Engineers, and Oklahoma Department of Environmental Quality.


SITE LOCATION
MUSKOGEE
FORT GIBSON POP. 4,154
TAFT POP. 250
TAFT INSTITUTION LAKE
CREKOLA
BELAND
FLUSCHE
SUMMIT POP. 139
WAINWRIGHT POP. 165
OKTAHA POP. 390
REINHARDT LAKE
WYBARK
PMR
HYDE PARK
PORT OF CATOOSA
HORSESHOE BEND
ROSS LAKE
KATY LAKE
SHIMOON LAKE
McCLELLAN KERR (WMA) WEBBERS FALLS CUTOFF
WEBBERS FALLS WMA
STAR
SPANIARD CREEK PARK
KEEFETON
McCLAIN
HARRISON
DARLING
AGENCY
Muskogee City Strip
Spaniard Creek
Coal Creek
Butler Creek
Salt Creek
Anderson Creek
Wagoose Creek
Tamaha Strip
Muskogee Strip
Pecan Creek
Turkey Creek
Arkansas River
BNSF RAILWAY
UNION PACIFIC RR
MUSKOGEE RAILROAD
MUSTANG AVE
PKWY
PACIFIC
R 17 E
R 18 E
T. 15 N.
T. 14 N.
T. 13 N.
T. 12 N.
T. 11 N.
T. 10 N.
T. 9 N.
T. 8 N.
T. 7 N.
T. 6 N.
T. 5 N.
T. 4 N.
T. 3 N.
T. 2 N.
T. 1 N.
T. 1 S.
T. 2 S.
T. 3 S.
T. 4 S.
T. 5 S.
T. 6 S.
T. 7 S.
T. 8 S.
T. 9 S.
T. 10 S.
T. 11 S.
T. 12 S.
T. 13 S.
T.



N

0 300 600

SCALE IN FEET

LEGEND

- EXISTING PERMIT BOUNDARY
- PROPOSED PERMIT BOUNDARY
- PERMITTED LIMITS OF WASTE
- PROPOSED LIMITS OF WASTE
- APPROXIMATE OG&E POWER LINE EASEMENT

NOTE:

1. AERIAL PHOTOGRAPHY PROVIDED BY HYDREX DRONE DIVISION, IMAGERY DATED 01-24-2022.
2. THE CITY OF MUSKOGEE LANDFILL IS NOT PART OF THE PROPOSED EXPANSION AND IS SHOWN FOR REFERENCE PURPOSES.

0:\0086\364\EXPANSION 2022\LOCATION RESTRICTION\FIG 2-AERIAL PHOTO.dwg, jpuhr, 1:2

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DATE: 01/2023
FILE: 0086-364-11
CAD: FIG 2-AERIAL PHOTO.DWG

DRAWN BY: RAA
DESIGN BY: JBP
REVIEWED BY: JVQ

Weaver Consultants Group
CA 3804 PE-06/30/2023

PREPARED FOR
WASTE MANAGEMENT OF OKLAHOMA, INC.

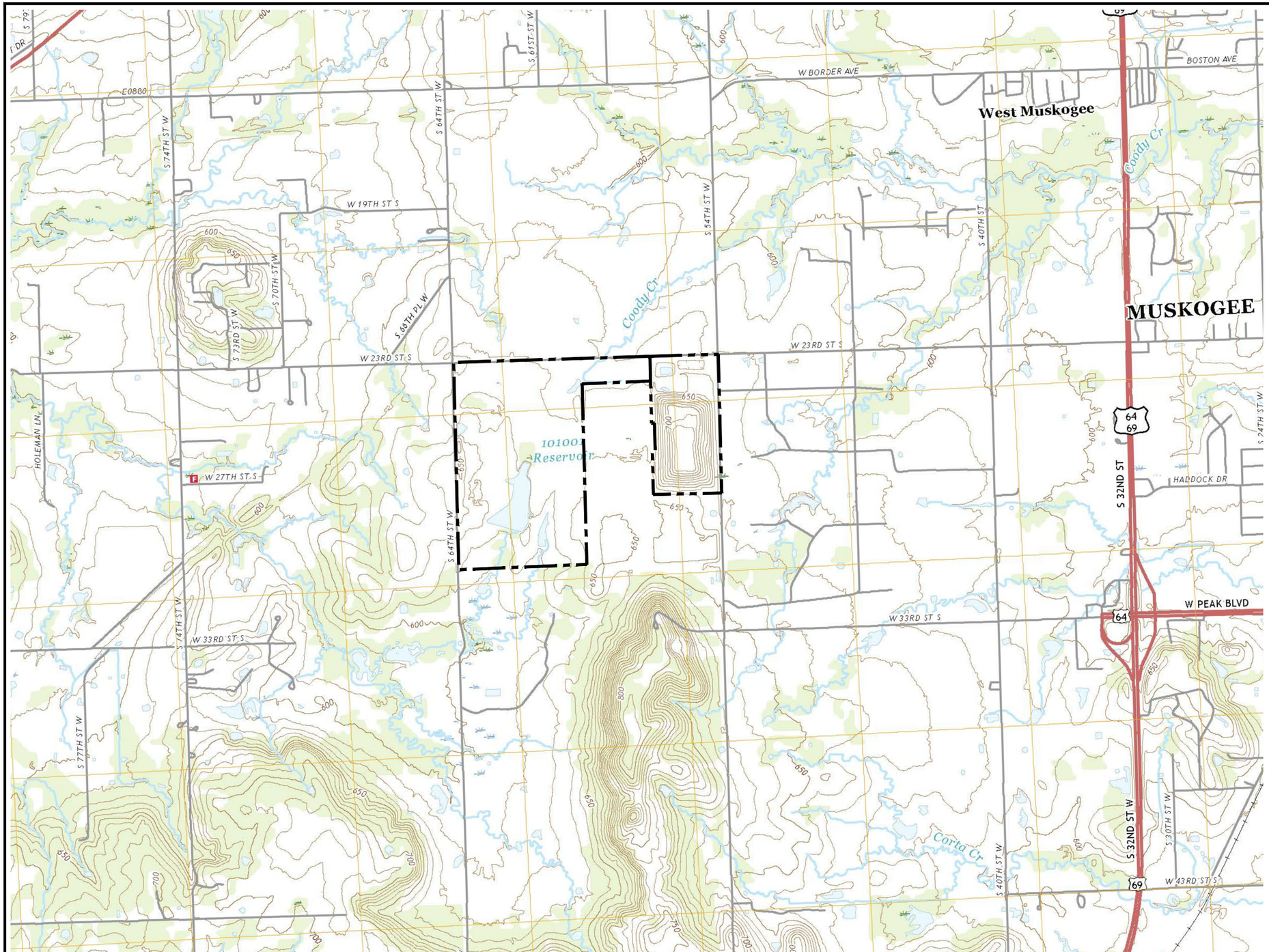
REVISIONS		
NO.	DATE	DESCRIPTION

AERIAL PHOTOGRAPH

MUSKOGEE COMMUNITY RDF
MUSKOGEE COUNTY, OKLAHOMA

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FIGURE 2



0 1000 2000
SCALE IN FEET

LEGEND

EXISTING PERMIT BOUNDARY

PROPOSED PERMIT BOUNDARY

NOTES:

1. ADAPTED FROM USGS 7.5 MINUTE QUADRANGLE TOPOGRAPHIC MAP (MUSKOGEE COUNTY, OKLAHOMA, 2018).
2. NO PUBLIC WATER SUPPLY SURFACE WATER INTAKES WERE REPORTED BY THE OKLAHOMA WATER RESOURCES BOARD (OWRB) WITHIN ONE MILE OF THE FACILITY.
3. BASED ON OKLAHOMA WATER RESOURCES BOARD (OWRB) DATABASE THERE IS NO REPORTED WELL LOGS ON PROPERTY OWNED BY WASTE MANAGEMENT OF OKLAHOMA INC. (WMO).
4. THE MAP AREA SHOWN IS WITHIN TOWNSHIP 14 NORTH, RANGE 18 EAST.
5. REFER TO FIGURE 12 FOR WASTE DISPOSAL AREAS ON BUFFER ZONES.

SOUTHWEST MUSKOGEE, OK

2018

☐ DRAFT
☒ FOR PERMITTING PURPOSES ONLY
☐ ISSUED FOR CONSTRUCTION

DATE: 01/2023
FILE: 0086-364-11
CAD: FIG 3-GENERAL TOPO. MAP.DWG

DRAWN BY: RAA
DESIGN BY: JBP
REVIEWED BY: JVQ

Weaver Consultants Group
CA 3804 PE-06/30/2023

PREPARED FOR
WASTE MANAGEMENT OF OKLAHOMA, INC.

REVISIONS		
NO.	DATE	DESCRIPTION

GENERAL TOPOGRAPHIC MAP

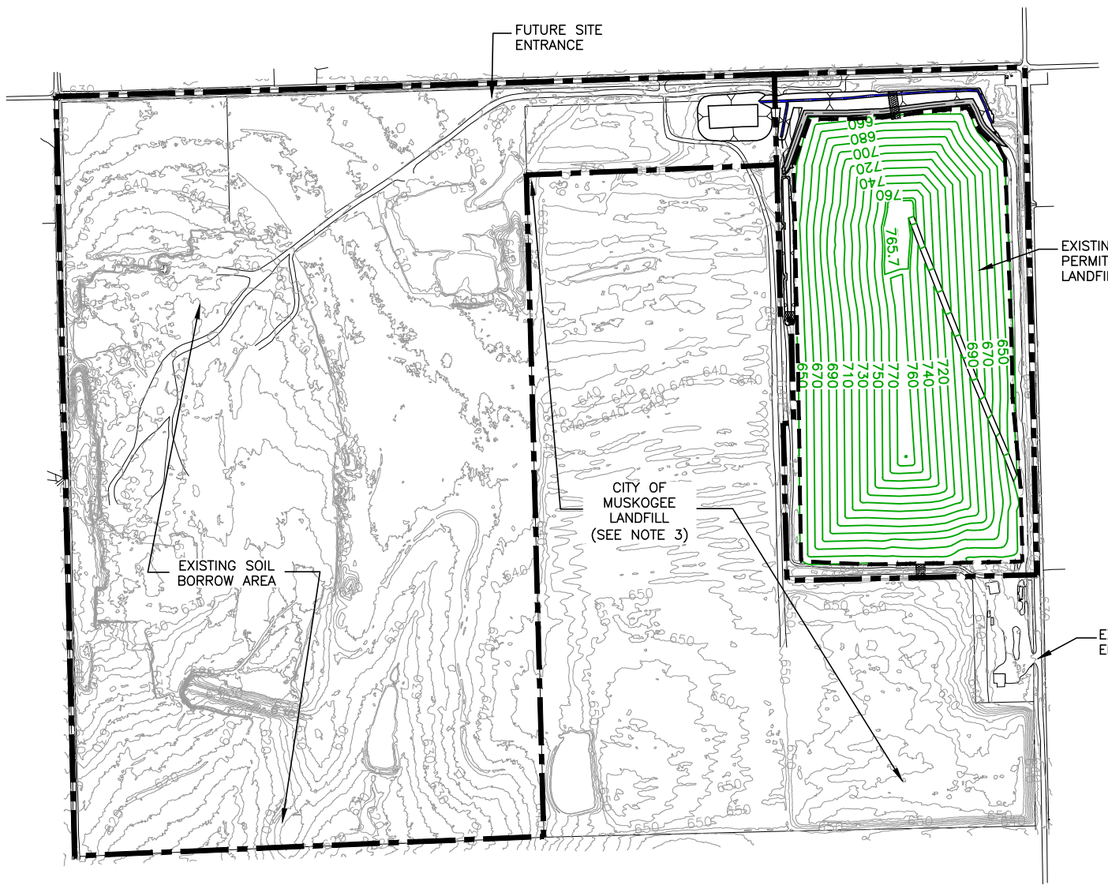
MUSKOGEE COMMUNITY RDF
MUSKOGEE COUNTY, OKLAHOMA

WWW.WCGRP.COM

FIGURE 3

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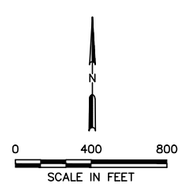
G:\0086\364\EXPANSION 2022\LOCATION RESTRICTION\FIG 3-GENERAL TOPOGRAPHIC MAP.dwg, jpuhr, 1:2



PERMITTED COMPLETION PLAN



PROPOSED COMPLETION PLAN



LEGEND:

- EXISTING PERMIT BOUNDARY
- PROPOSED PERMIT BOUNDARY
- PERMITTED LIMITS OF WASTE
- PROPOSED LIMITS OF WASTE
- N 273000 — STATE PLANE COORDINATE GRID
- 700 — EXISTING CONTOUR
- 700 — FINAL COVER CONTOUR
- 561 — BORROW AREA CONTOUR
- APPROXIMATE OG&E POWER LINE EASEMENT

NOTES:

1. EXISTING CONTOURS AND ELEVATIONS PROVIDED BY AIR MAPS OF ARKANSAS, LLC FROM AERIAL PHOTOGRAPHY FLOWN 01–24–2022.
2. THE EXPANSION WILL ADD A SEPARATE UNIT TO THE WEST OF THE EXISTING LANDFILL. NO CHANGES ARE PROPOSED TO THE EASTERN UNIT.
3. THE CITY OF MUSKOGEE LANDFILL IS NOT PART OF THE PROPOSED EXPANSION AND IS SHOWN FOR REFERENCE PURPOSES.

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☐ ISSUED FOR CONSTRUCTION

DATE: 10/2022
FILE: 0086-364-11
CAD: FIG 4-COMPLETION PLAN.DWG

DRAWN BY: RAA
DESIGN BY: JBP
REVIEWED BY: JVQ

Weaver Consultants Group
CA 3804 PE – 06/30/2023

PREPARED FOR
WASTE MANAGEMENT OF OKLAHOMA, INC.

REVISIONS		
NO.	DATE	DESCRIPTION

PERMITTED COMPLETION PLAN AND PROPOSED COMPLETION PLAN

MUSKOGEE COMMUNITY, RDF
OKLAHOMA COUNTY, OKLAHOMA

WWW.WCGRP.COM

FIGURE 4

O:\0086\364\EXPANSION 2022\LOCATION RESTRICTION\FIG 4-COMPLETION PLAN COMP.dwg, jpuhr, 1:2

Weaver Consultants Group

Project No. 0086-364-11-19
May 24, 2023

Keith Hyslop, Commissioner
Board of County Commissioners
Muskogee County District 2
1300 South Cherokee
Muskogee, Oklahoma 74403

Re: Public Recreation or Preservation Area Statement
Muskogee Landfill Expansion
Muskogee, Oklahoma

Dear Mr. Hyslop:

The purpose of this letter, submitted on behalf of Waste Management of Oklahoma, Inc., is to confirm that the proposed expansion of the Muskogee Landfill is not located within one-half mile of a public recreation or preservation area designated by a federal, state, or local agency. The Oklahoma Department of Environmental Quality (ODEQ) landfill location restriction regulations set forth in Oklahoma Administrative Code (OAC) §252:515-5-31(b), require that a permit applicant for an expansion of a municipal solid waste facility determine if a proposed landfill expansion lies within one-half mile of an area designated for public recreation or preservation.

Weaver Consultants Group, LLC, is preparing a landfill expansion permit modification, under contract with Waste Management of Oklahoma, Inc., to expand their existing landfill located near Muskogee, Oklahoma. Please find attached a project summary and site locations maps to facilitate your review.

To verify compliance with §252:515-5-31(b), we are requesting that the Board of County Commissioners confirm that the landfill is not located within one-half mile of an area dedicated for public recreation or preservation area, owned, operated, managed, or funded by the county. A similar letter was sent to the United States Department of the Interior (federal government agency) and the Oklahoma Tourism and Recreation Department (state government agency).

Your assistance with this matter is sincerely appreciated. Please call if you have any questions or need additional information.

Sincerely,
Weaver Consultants Group, LLC



Jonathan V. Queen, P.E.
Senior Project Engineer

Attachments: Project Summary and Site Location Maps

cc: Guy R. Campbell, Waste Management of Oklahoma, Inc.
Pete Shultze, Waste Management of Oklahoma, Inc.

PROJECT SUMMARY
AND
SITE LOCATION MAPS

Project Summary

Muskogee Community Recycling and Disposal Facility Expansion
Waste Management of Oklahoma, Inc.
Muskogee, Oklahoma

Introduction

The Muskogee Community Recycling and Disposal Facility is in the process of expanding the existing landfill to provide long-term disposal capacity for municipal solid waste that is generated in the City of Muskogee, Muskogee County, and the surrounding areas. The purpose of this summary is to provide an overview of the proposed landfill expansion. The site is located outside the city limits of the City of Muskogee, south of W. 23rd Street S., west of S. 54th Street W., and east of S. 64th Street W. The following subsections detail information regarding the owner and operator of the site, general site information, and a summary of the proposed site design.

Owner/Operator Information

The Muskogee Community Recycling and Disposal Facility is owned and operated by Waste Management of Oklahoma, Inc., a Waste Management, Inc. company. Waste Management, Inc. is an integrated solid waste services company that provides solid waste collection, transfer, disposal and recycling services and serves more than 20 million residential, commercial and industrial customers in North America.

Site Information

The following drawings are attached to this summary.

- Site Location Map (Figure 1). This figure shows the site location on a standard Oklahoma Department of Transportation Oklahoma County Highway Map.
- Aerial Photograph (Figure 2). This figure shows the existing recycling and disposal facility and proposed expansion area, on a recent aerial photograph.
- General Topographic Map (Figure 3). This figure shows the existing landfill and waste disposal area, as well as the proposed expansion area, on an USGS map.

- Permitted and Proposed Completion Plan (Figure 4). This figure shows the permitted and proposed landfill completion plans on detailed site topographic maps. The proposed condition will consist of two separate units. The eastern unit will be consistent with the currently permitted condition, as no changes are proposed to the unit. A separate unit will be built to the west for the proposed condition.

The Muskogee Community Recycling and Disposal Facility is located southwest of the City of Muskogee at 2801 S. 54th St. W., Muskogee, Oklahoma 74401. The service area includes the City of Muskogee, Muskogee County, and other surrounding areas. The facility currently operates under Oklahoma Department of Environmental Quality (ODEQ) Permit No. 3551020.

Design Summary

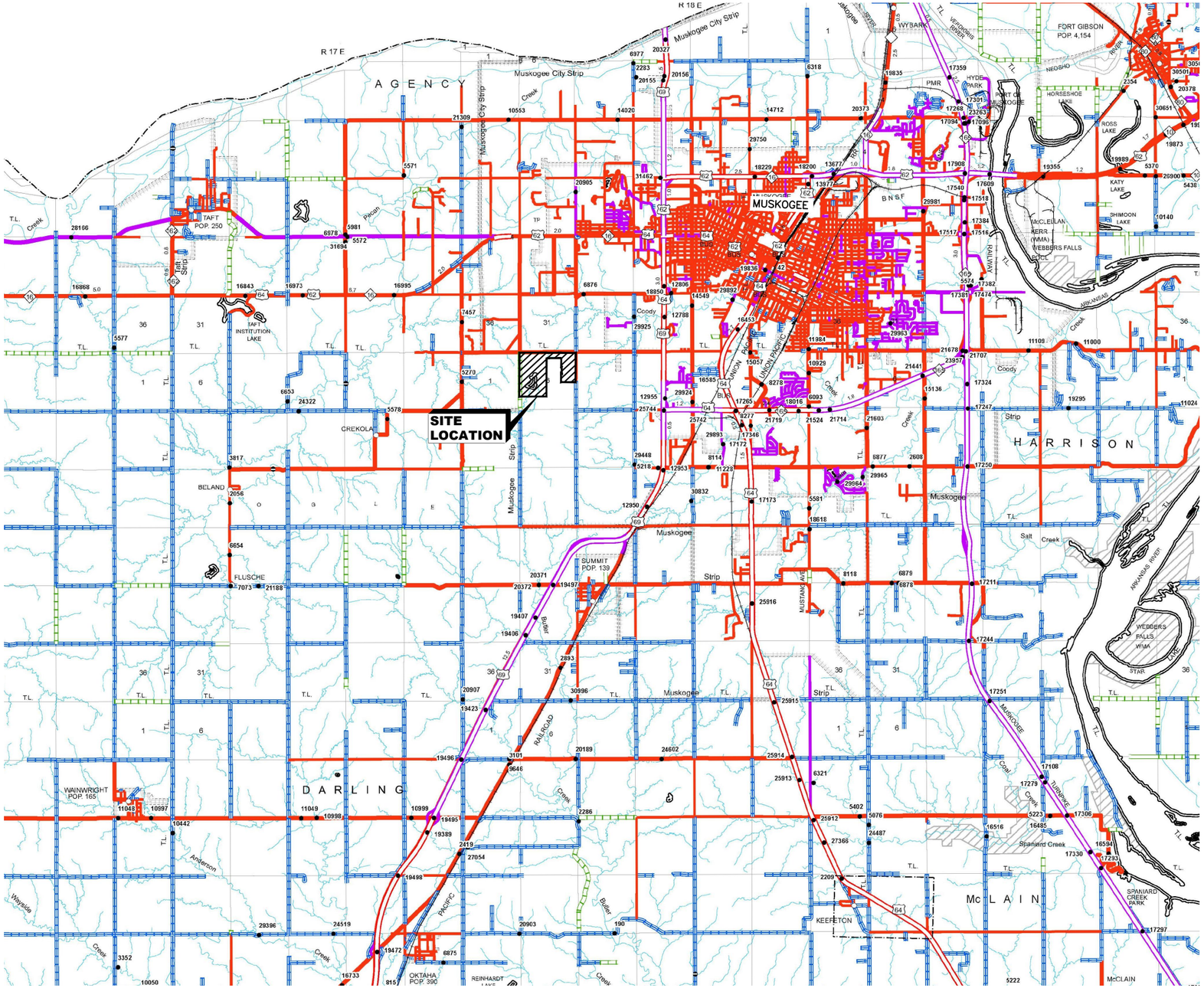
The following information presents a summary of the design and operations for the proposed Muskogee Community Recycling and Disposal Facility expansion.

- The permit boundary will be expanded by approximately 245 acres. A separate landfill unit will be built to the west of the existing landfill, adding an additional 70 acres for waste disposal.
- Accepted wastes will remain consistent with the current municipal solid waste landfill permit. The facility will accept municipal solid waste, construction and demolition wastes, non-hazardous industrial waste, encapsulated asbestos waste, vegetative waste, semi-solid waste, and sludges as permitted by the ODEQ.
- Access to the site is currently provided via the existing site access road from S. 54th Street W. As the site transitions to the western expansion area, a new site entrance will be developed along W. 23rd Street S. Based on traffic patterns of existing landfill traffic, most vehicles bound for the landfill will access the site using W. 23rd Street S. from Interstate Highway 64/69. The existing roads are capable of handling the traffic load associated with the landfill.
- A liner and final cover system that meets all regulatory requirements will be used for the solid waste containment system. The design objective of the containment system (final cover, liner, and leachate management system) is to isolate the solid waste and remove leachate (defined as liquid that has contacted solid waste) that collects on the liner system. Leachate that is removed from the landfill will be discharged offsite to the City of Muskogee publicly owned treatment works (POTW) in accordance with the City of Muskogee Industrial Wastewater Treatment/Disposal Permit No. 078. The construction procedures of the liner and final cover systems follow strict ODEQ approved quality control and quality assurance procedures, which are verified by an independent testing firm. Each of the containment system

components must be thoroughly reviewed and approved by the ODEQ before solid waste is placed in the landfill.

- To verify that the highest levels of environmental protection are maintained, the following landfill monitoring systems are provided:
  - Groundwater Monitoring System. The purpose of the groundwater monitoring system is to verify the integrity of the containment system and verify that groundwater is not adversely impacted by the landfill. This is accomplished by obtaining water samples from the monitor wells, located on the perimeter of the landfill, which are screened in the uppermost saturated zone to monitor groundwater quality. The water samples are tested at an off-site laboratory.
  - Landfill Gas Monitoring System. The purpose of the landfill gas monitoring system is to verify the integrity of the containment system and verify that methane gas, produced from the decomposing waste material, has not migrated beyond the permit boundary. This is accomplished by obtaining subsurface air samples from the landfill gas probes, located on the perimeter of the landfill, which are screened across potential migration pathways. The samples are tested on-site with a portable landfill gas analyzer.
  - These monitoring systems are sampled and tested periodically. The groundwater monitoring results are filed with the ODEQ and are public record.
- Site Operations. Properly trained personnel will operate the site. A detailed site operating plan will be included in the landfill expansion permit application. The plan will detail the required equipment, personnel, and safety procedures required to operate the site in accordance with ODEQ regulations. The site will continue to provide solid waste disposal service six days a week and the active landfill area will be covered at the end of each workday to prevent potential nuisance conditions such as odors and vectors. The Muskogee Community Recycling and Disposal Facility will continue to be inspected by the ODEQ on a regular basis to ensure the site is in compliance with state regulations.

The development of this site will also require permitting and or coordination with local, state, and federal agencies including the County Commissioner, Oklahoma Tourism and Recreation Department, Grand River Dam Authority, Oklahoma Department of Wildlife Conservation, Oklahoma Biological Survey, Oklahoma Natural Areas Registry, Bureau of Reclamation, United States Army Corps of Engineers, and Oklahoma Department of Environmental Quality.



0 1 2
SCALE IN MILES

Legend

- Interstate Highway
- US Highway
- State Highway
- Divided Highway - Asphalt
- Divided Highway - Concrete
- Asphalt
- Concrete
- Gravel
- Grade & Drain
- Unimproved
- Railroad
- State Line
- County Line
- Section Line
- Corporate Limit
- Wildlife Management Area
- Wildlife Refuge
- River or Stream
- Lake or Reservoir
- Bridges
- Low Water Crossing
- Natural Elevation Point
- Natural Elevation Point

NOTE:

1. REPRODUCED FROM GENERAL HIGHWAY MAPS, MUSKOGEE COUNTY, OKLAHOMA, (OK DOT STRATEGIC ASSET AND PERFORMANCE MANAGEMENT DIVISION OCTOBER 2018).

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- [ ] DRAFT
- [x] FOR INFORMATIONAL PURPOSES ONLY
- [ ] ISSUED FOR CONSTRUCTION

DATE: 01/2023
FILE: 0086-364-11
CAD: FIG 1-SITE LOCATION MAP.DWG

DRAWN BY: RAA
DESIGN BY: JBP
REVIEWED BY: JVQ

Weaver Consultants Group
CA 3804 PE-06/30/2023

PREPARED FOR
WASTE MANAGEMENT OF OKLAHOMA, INC.

REVISIONS

NO.	DATE	DESCRIPTION

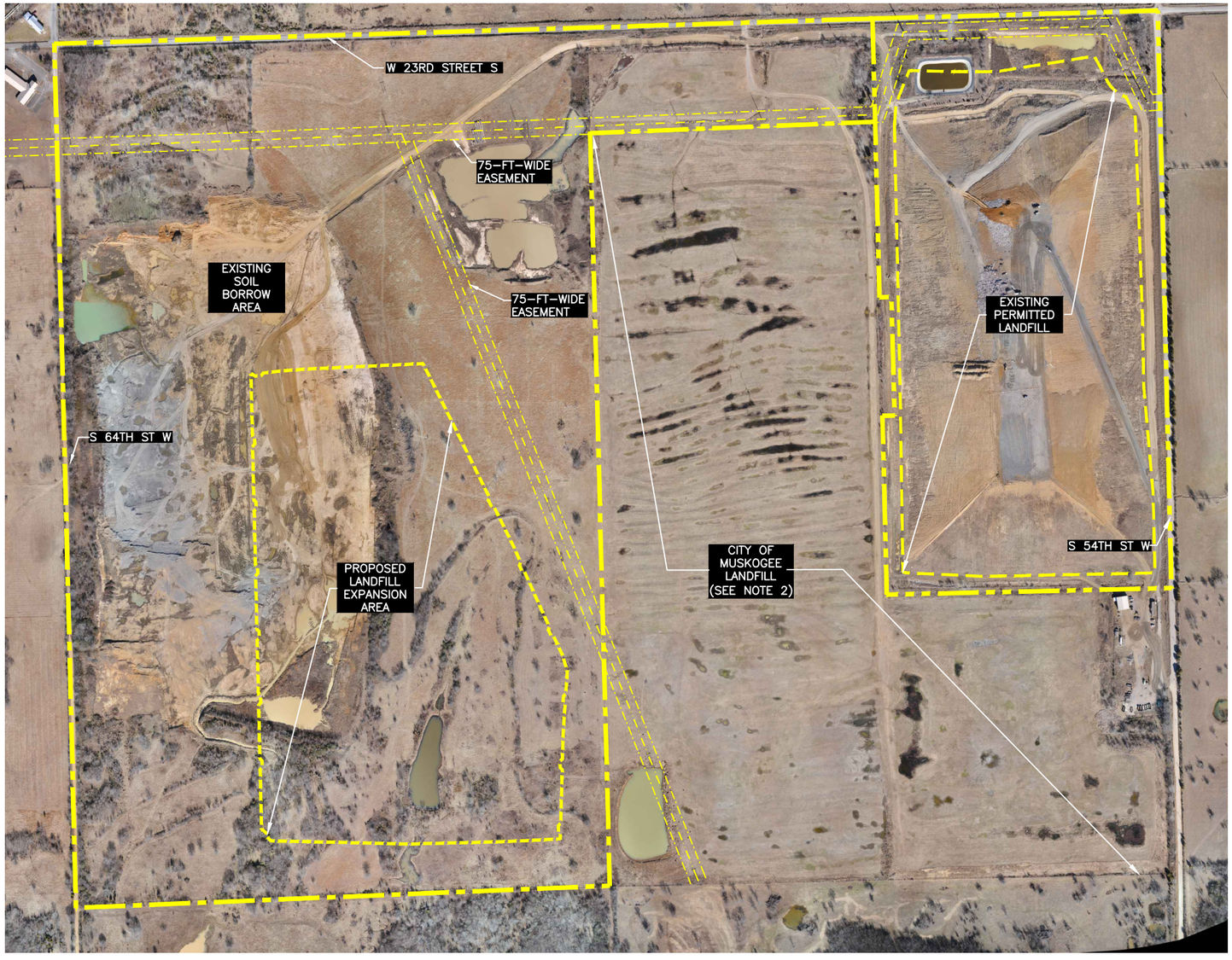
SITE LOCATION MAP

MUSKOGEE COMMUNITY RDF
MUSKOGEE COUNTY, OKLAHOMA

WWW.WCGRP.COM

FIGURE 1

O:\0086\364\EXPANSION 2022\LOCATION RESTRICTION\FIG 1-SITE LOCATION MAP.dwg, jputhr, 1:2



N

0 300 600

SCALE IN FEET

LEGEND

- EXISTING PERMIT BOUNDARY
- PROPOSED PERMIT BOUNDARY
- PERMITTED LIMITS OF WASTE
- PROPOSED LIMITS OF WASTE
- APPROXIMATE OG&E POWER LINE EASEMENT

NOTE:

1. AERIAL PHOTOGRAPHY PROVIDED BY HYDREX DRONE DIVISION, IMAGERY DATED 01-24-2022.
2. THE CITY OF MUSKOGEE LANDFILL IS NOT PART OF THE PROPOSED EXPANSION AND IS SHOWN FOR REFERENCE PURPOSES.

0:\0086\364\EXPANSION 2022\LOCATION RESTRICTION\FIG 2-AERIAL PHOTO.dwg, jpuhr, 1:2

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DATE: 01/2023
FILE: 0086-364-11
CAD: FIG 2-AERIAL PHOTO.DWG

DRAWN BY: RAA
DESIGN BY: JBP
REVIEWED BY: JVQ

Weaver Consultants Group
CA 3804 PE-06/30/2023

PREPARED FOR
WASTE MANAGEMENT OF OKLAHOMA, INC.

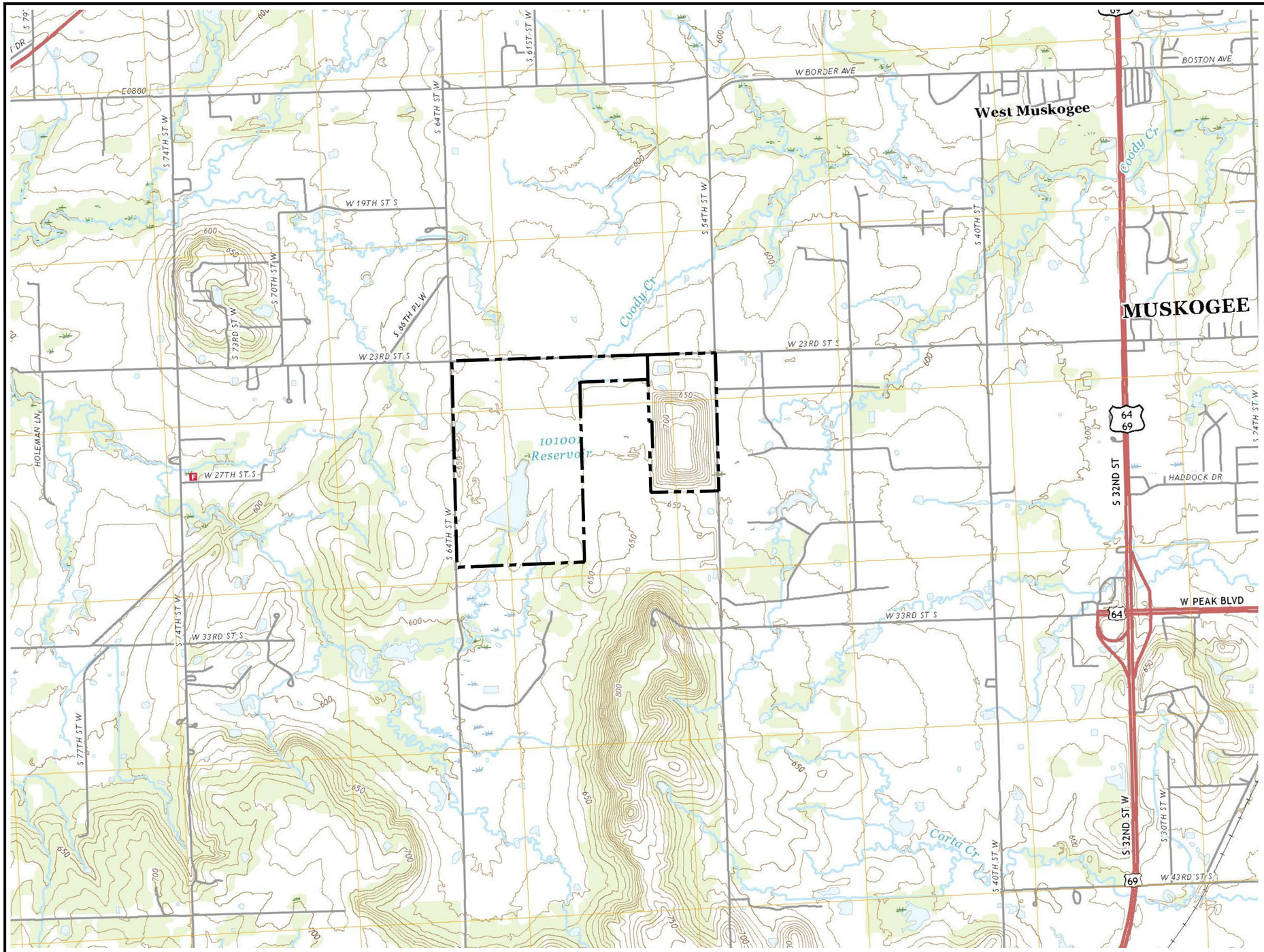
REVISIONS		
NO.	DATE	DESCRIPTION

AERIAL PHOTOGRAPH

MUSKOGEE COMMUNITY RDF
MUSKOGEE COUNTY, OKLAHOMA

WWW.WCGRP.COM

FIGURE 2



0 1000 2000
SCALE IN FEET

LEGEND

EXISTING PERMIT BOUNDARY

PROPOSED PERMIT BOUNDARY

NOTES:

1. ADAPTED FROM USGS 7.5 MINUTE QUADRANGLE TOPOGRAPHIC MAP (MUSKOGEE COUNTY, OKLAHOMA, 2018).
2. NO PUBLIC WATER SUPPLY SURFACE WATER INTAKES WERE REPORTED BY THE OKLAHOMA WATER RESOURCES BOARD (OWRB) WITHIN ONE MILE OF THE FACILITY.
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5. REFER TO FIGURE 12 FOR WASTE DISPOSAL AREAS ON BUFFER ZONES.

SOUTHWEST MUSKOGEE, OK

2018

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DATE: 01/2023
FILE: 0086-364-11
CAD: FIG 3-GENERAL TOPO. MAP.DWG

DRAWN BY: RAA
DESIGN BY: JBP
REVIEWED BY: JVQ

Weaver Consultants Group
CA 3804 PE-06/30/2023

PREPARED FOR
WASTE MANAGEMENT OF OKLAHOMA, INC.

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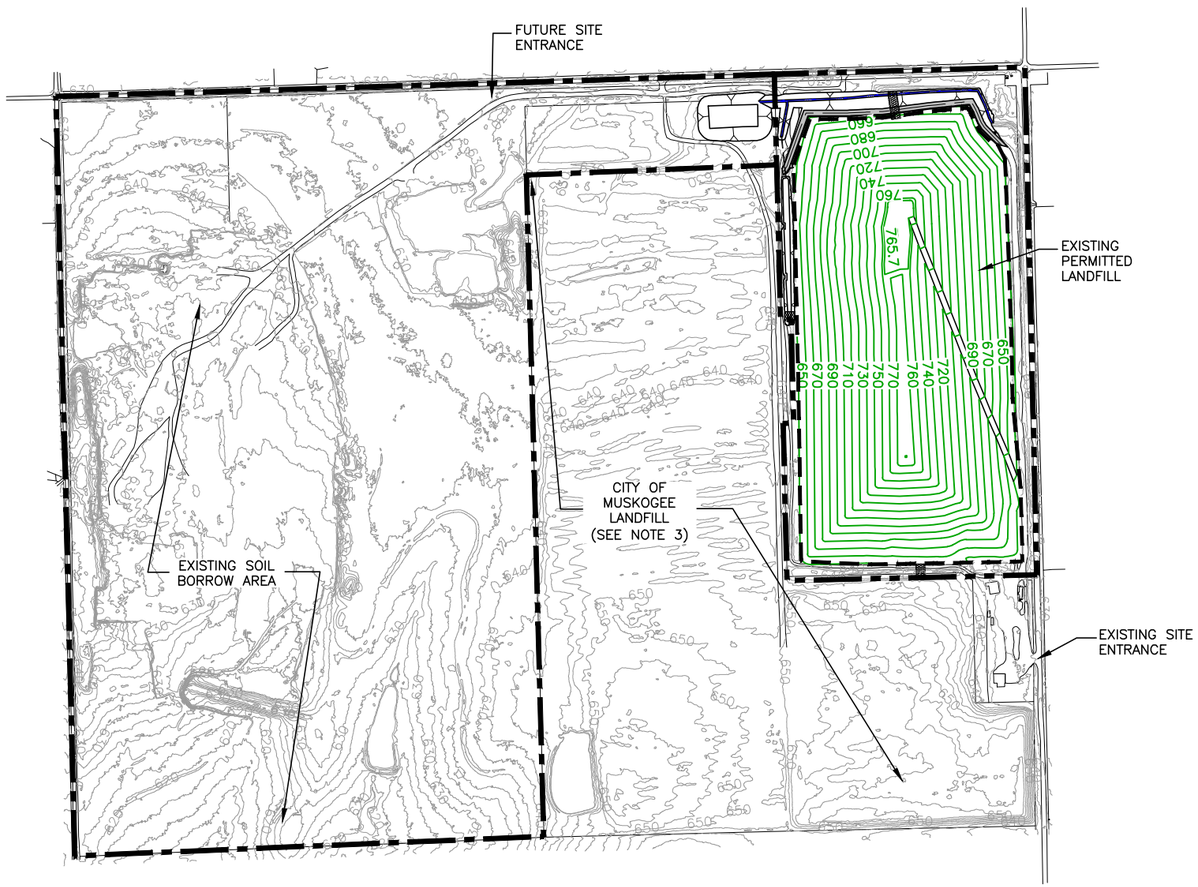
GENERAL TOPOGRAPHIC MAP

MUSKOGEE COMMUNITY RDF
MUSKOGEE COUNTY, OKLAHOMA

WWW.WCGRP.COM

FIGURE 3

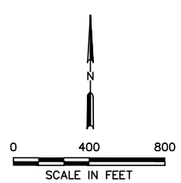
G:\0086\364\EXPANSION 2022\LOCATION RESTRICTION\FIG 3-GENERAL TOPOGRAPHIC MAP.dwg, jpubr, 1:2



PERMITTED COMPLETION PLAN



PROPOSED COMPLETION PLAN



LEGEND:

- EXISTING PERMIT BOUNDARY
- PROPOSED PERMIT BOUNDARY
- PERMITTED LIMITS OF WASTE
- PROPOSED LIMITS OF WASTE
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- 700 — FINAL COVER CONTOUR
- 561 — BORROW AREA CONTOUR
- APPROXIMATE OG&E POWER LINE EASEMENT

NOTES:

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DATE: 10/2022
FILE: 0086-364-11
CAD: FIG 4-COMPLETION PLAN.DWG

DRAWN BY: RAA
DESIGN BY: JBP
REVIEWED BY: JVQ

Weaver Consultants Group
CA 3804 PE – 06/30/2023

PREPARED FOR
WASTE MANAGEMENT OF OKLAHOMA, INC.

REVISIONS		
NO.	DATE	DESCRIPTION

PERMITTED COMPLETION PLAN AND PROPOSED COMPLETION PLAN

MUSKOGEE COMMUNITY, RDF
OKLAHOMA COUNTY, OKLAHOMA

WWW.WCGRP.COM

FIGURE 4

O:\0086\364\EXPANSION 2022\LOCATION RESTRICTION\FIG 4-COMPLETION PLAN COMP.dwg, jpuhr, 1:2

Puhr, Johnna

From: Puhr, Johnna
Sent: Thursday, July 6, 2023 8:40 AM
To: bocc@readymuskogee.org
Cc: Queen, Jonathan; Campbell, Guy; pschultze@wm.com
Subject: FW: Request for Public Recreation or Preservation Area Statement
Attachments: 2023-05-24 Muskogee RDF Expansion - Grady County.pdf

Sheila,
I wanted to follow up on my email below.
As stated below, to verify compliance with ODEQ, we are requesting that the Board of County Commissioners confirm that the landfill is not located within one-half mile of an area dedicated for public recreation or preservation area, owned, operated, managed, or funded by the county.
Thank you,

From: Puhr, Johnna
Sent: Wednesday, May 31, 2023 11:02 AM
To: bocc@readymuskogee.org
Cc: Queen, Jonathan <jqueen@wcgrp.com>; Campbell, Guy <GCampbe1@wm.com>; Schultze, Pete <pschultze@wm.com>
Subject: Request for Public Recreation or Preservation Area Statement

Sheila,
Weaver Consultants Group, LLC is currently preparing a landfill expansion permit modification under contract with Waste Management of Oklahoma, Inc. to expand their landfill located near Muskogee, Oklahoma. Attached is a request to confirm that the proposed expansion of the Muskogee Landfill is not located within one-half mile of a public recreation or preservation area designated by the county. A project summary as well as site location maps are attached.
To verify compliance with ODEQ, we are requesting that the Board of County Commissioners confirm that the landfill is not located within one-half mile of an area dedicated for public recreation or preservation area, owned, operated, managed, or funded by the county.
Please let me know if you have any questions.
Thank you,

APPENDIX D-5

SURFACE WATER INTAKE

CONTENTS

This appendix provides surface water intake documentation for the required coordination with the Oklahoma Water Resources Board. This appendix includes:

- Oklahoma Water Resources Board confirmation e-mail letter.
- Weaver Consultants Group, LLC request for surface water intake review by the Oklahoma Water Resources Board.

Queen, Jonathan

Subject: FW: Muskogee Community Recycling and Disposal Facility Expansion-Surface Water Intake

---

From: Bonnie Moats <Bonnie.Moats@owrb.ok.gov>
Sent: Tuesday, January 31, 2023 8:49 AM
To: Puhr, Johnna <jpuhr@wcgrp.com>
Cc: Jonathan Phillips <Jon.Phillips@owrb.ok.gov>
Subject: FW: Muskogee Community Recycling and Disposal Facility Expansion-Surface Water Intake

CAUTION: This email originated from outside your organization. Exercise caution when opening attachments or clicking links, especially from unknown senders.

Dear Johnna Puhr,

The OWRB staff have reviewed your environmental impact statement and have no questions or concerns. I have cc'd the floodplain management section of the OWRB for additional review. Please let me know if you have any questions.

Sincerely,
Bonnie Moats
Water Right Specialist
Water Rights Administration Division
OKLAHOMA WATER RESOURCES BOARD
w:405.530.8844•c:405.421.3059 • owrb.ok.gov • Facebook • Twitter



From: Puhr, Johnna <jpuhr@wcgrp.com>
Sent: Thursday, January 26, 2023 10:56 AM
To: Bonnie Moats <Bonnie.Moats@owrb.ok.gov>; Kent Wilkins <Kent.Wilkins@owrb.ok.gov>
Subject: [EXTERNAL] RE: Muskogee Community Recycling and Disposal Facility Expansion-Surface Water Intake

Bonnie,
Looks like your server is rejecting the attachment. Here is a link to view the letter instead.
https://wcgrp.sharefile.com/d-sf061be730c39427b8aab544badb75ca6

Johnna Puhr
Project Engineer

Weaver Consultants Group
6420 Southwest Blvd. | Suite 206
Fort Worth, TX 76109
O: 817-735-9770 | F: 817-735-9775
jpuhr@wcgrp.com | www.wcgrp.com

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From: Bonnie Moats <Bonnie.Moats@owrb.ok.gov>
Sent: Thursday, January 26, 2023 9:35 AM
To: Puhr, Johnna <jpuhr@wcgrp.com>; Kent Wilkins <Kent.Wilkins@owrb.ok.gov>
Cc: Queen, Jonathan <jqueen@wcgrp.com>; Campbell, Guy <GCampbe1@wm.com>; Schultze, Pete <pschultze@wm.com>
Subject: RE: Muskogee Community Recycling and Disposal Facility Expansion-Surface Water Intake

CAUTION: This email originated from outside your organization. Exercise caution when opening attachments or clicking links, especially from unknown senders.

Dear Johnna Puhr,

The attachment you sent with your request will not open for me to confirm its location. Please resend the attachment.

Bonnie Moats
Water Right Specialist
Water Rights Administration Division
OKLAHOMA WATER RESOURCES BOARD
w:405.530.8844•c:405.421.3059 • owrb.ok.gov • Facebook • Twitter

OKLAHOMA

From: Puhr, Johnna <jpuhr@wcgrp.com>
Sent: Monday, January 9, 2023 10:36 AM
To: Kent Wilkins <Kent.Wilkins@owrb.ok.gov>; Bonnie Moats <Bonnie.Moats@owrb.ok.gov>
Cc: Queen, Jonathan <jqueen@wcgrp.com>; Campbell, Guy <GCampbe1@wm.com>; Schultze, Pete <pschultze@wm.com>
Subject: [EXTERNAL] Muskogee Community Recycling and Disposal Facility Expansion-Surface Water Intake

Mr. Wilkins,
The purposed of this email and attached letter is to is to confirm that the proposed Muskogee Community Recycling and Disposal Facility expansion is not one mile or less upstream from an existing or planned public water supply surface water intake.
Further information on the project is included in the project summary in the attached letter. Please review the attached information and confirm that the proposed expansion is not located within one mile or less upstream from an existing or planned public water supply surface water intake. I did not send hard copies please let me know if you need a hard copy. Please feel free to give me a call with any questions.
Thanks,

Weaver Consultants Group

Project No. 0086-364-11-19
January 6, 2023

Mr. Kent Wilkins
Permitting Section, Surface Water and Groundwater
Oklahoma Water Resources Board
3800 North Classen Boulevard
Oklahoma City, Oklahoma 73118

Re: Public Water Supply Surface Water Intake Statement
Muskogee Community Recycling and Disposal Facility Expansion
Muskogee, Oklahoma

Dear Mr. Wilkins:

The purpose of this letter, submitted on behalf of Waste Management of Oklahoma, Inc., is to confirm existing Oklahoma Department of Environmental Quality (DEQ) information that the proposed landfill expansion of the Muskogee Community Recycling and Disposal Facility is not one mile or less upstream from an existing or planned public water supply surface water intake. The Oklahoma Department of Environmental Quality (DEQ) landfill location restriction regulation regarding public water supply intakes set forth in Oklahoma Administrative Code (OAC) §252:515-5-32(b), requires that a permit applicant for an expansion of a municipal solid waste facility determine if a proposed landfill expansion is one mile or less upstream from an existing or planned public water supply surface water intake.

Weaver Consultants Group, LLC is preparing a permit application, under contract with Waste Management of Oklahoma, Inc., to expand the existing landfill located in the City of Muskogee, Oklahoma. Our review of the DEQ website indicates the nearest public water supply intake is approximately 12.0 miles northeast of the site on the Nesho River. Please find attached a project summary and site location maps to facilitate in your review.

To verify compliance with §252:515-5-32(b), we are requesting that the Oklahoma Water Resources Board confirm that the landfill is not located within one mile or less upstream from an existing or planned public water supply surface water intake.

Your assistance with this matter is sincerely appreciated. Please call if you have any questions or need additional information.

Sincerely,
Weaver Consultants Group, LLC

Jonathan V. Queen, P.E.
Project Director

Attachment: Project Summary and Site Location Maps

cc: Guy R. Campbell, Waste Management of Oklahoma, Inc.
Pete Schultze, Waste Management of Oklahoma, Inc.

PROJECT SUMMARY AND SITE LOCATION MAPS

Project Summary

Muskogee Community Recycling and Disposal Facility Expansion
Waste Management of Oklahoma, Inc.
Muskogee, Oklahoma

Introduction

The Muskogee Community Recycling and Disposal Facility is in the process of expanding the existing landfill to provide long-term disposal capacity for municipal solid waste that is generated in the City of Muskogee, Muskogee County, and the surrounding areas. The purpose of this summary is to provide an overview of the proposed landfill expansion. The site is located outside the city limits of the City of Muskogee, south of W. 23rd Street S., west of S. 54th Street W., and east of S. 64th Street W. The following subsections detail information regarding the owner and operator of the site, general site information, and a summary of the proposed site design.

Owner/Operator Information

The Muskogee Community Recycling and Disposal Facility is owned and operated by Waste Management of Oklahoma, Inc., a Waste Management, Inc. company. Waste Management, Inc. is an integrated solid waste services company that provides solid waste collection, transfer, disposal and recycling services and serves more than 20 million residential, commercial and industrial customers in North America.

Site Information

The following drawings are attached to this summary.

- Site Location Map (Figure 1). This figure shows the site location on a standard Oklahoma Department of Transportation Oklahoma County Highway Map.
- Aerial Photograph (Figure 2). This figure shows the existing recycling and disposal facility and proposed expansion area, on a recent aerial photograph.
- General Topographic Map (Figure 3). This figure shows the existing landfill and waste disposal area, as well as the proposed expansion area, on an USGS map.

- Permitted and Proposed Completion Plan (Figure 4). This figure shows the permitted and proposed landfill completion plans on detailed site topographic maps. The proposed condition will consist of two separate units. The eastern unit will be consistent with the currently permitted condition, as no changes are proposed to the unit. A separate unit will be built to the west for the proposed condition.

The Muskogee Community Recycling and Disposal Facility is located southwest of the City of Muskogee at 2801 S. 54th St. W., Muskogee, Oklahoma 74401. The service area includes the City of Muskogee, Muskogee County, and other surrounding areas. The facility currently operates under Oklahoma Department of Environmental Quality (ODEQ) Permit No. 3551020.

Design Summary

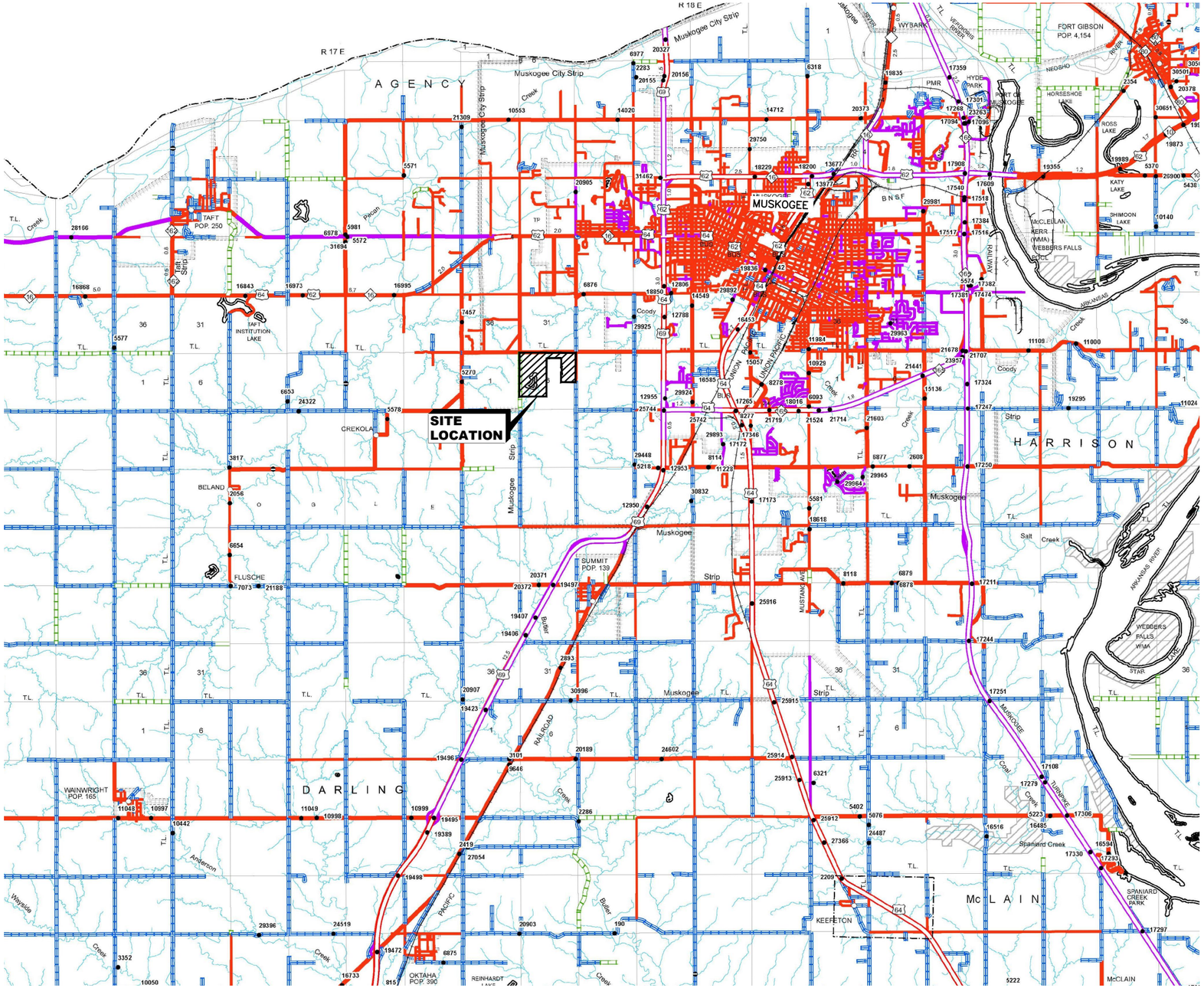
The following information presents a summary of the design and operations for the proposed Muskogee Community Recycling and Disposal Facility expansion.

- The permit boundary will be expanded by approximately 245 acres. A separate landfill unit will be built to the west of the existing landfill, adding an additional 70 acres for waste disposal.
- Accepted wastes will remain consistent with the current municipal solid waste landfill permit. The facility will accept municipal solid waste, construction and demolition wastes, non-hazardous industrial waste, encapsulated asbestos waste, vegetative waste, semi-solid waste, and sludges as permitted by the ODEQ.
- Access to the site is currently provided via the existing site access road from S. 54th Street W. As the site transitions to the western expansion area, a new site entrance will be developed along W. 23rd Street S. Based on traffic patterns of existing landfill traffic, most vehicles bound for the landfill will access the site using W. 23rd Street S. from Interstate Highway 64/69. The existing roads are capable of handling the traffic load associated with the landfill.
- A liner and final cover system that meets all regulatory requirements will be used for the solid waste containment system. The design objective of the containment system (final cover, liner, and leachate management system) is to isolate the solid waste and remove leachate (defined as liquid that has contacted solid waste) that collects on the liner system. Leachate that is removed from the landfill will be discharged offsite to the City of Muskogee publicly owned treatment works (POTW) in accordance with the City of Muskogee Industrial Wastewater Treatment/Disposal Permit No. 078. The construction procedures of the liner and final cover systems follow strict ODEQ approved quality control and quality assurance procedures, which are verified by an independent testing firm. Each of the containment system

components must be thoroughly reviewed and approved by the ODEQ before solid waste is placed in the landfill.

- To verify that the highest levels of environmental protection are maintained, the following landfill monitoring systems are provided:
  - Groundwater Monitoring System. The purpose of the groundwater monitoring system is to verify the integrity of the containment system and verify that groundwater is not adversely impacted by the landfill. This is accomplished by obtaining water samples from the monitor wells, located on the perimeter of the landfill, which are screened in the uppermost saturated zone to monitor groundwater quality. The water samples are tested at an off-site laboratory.
  - Landfill Gas Monitoring System. The purpose of the landfill gas monitoring system is to verify the integrity of the containment system and verify that methane gas, produced from the decomposing waste material, has not migrated beyond the permit boundary. This is accomplished by obtaining subsurface air samples from the landfill gas probes, located on the perimeter of the landfill, which are screened across potential migration pathways. The samples are tested on-site with a portable landfill gas analyzer.
  - These monitoring systems are sampled and tested periodically. The groundwater monitoring results are filed with the ODEQ and are public record.
- Site Operations. Properly trained personnel will operate the site. A detailed site operating plan will be included in the landfill expansion permit application. The plan will detail the required equipment, personnel, and safety procedures required to operate the site in accordance with ODEQ regulations. The site will continue to provide solid waste disposal service six days a week and the active landfill area will be covered at the end of each workday to prevent potential nuisance conditions such as odors and vectors. The Muskogee Community Recycling and Disposal Facility will continue to be inspected by the ODEQ on a regular basis to ensure the site is in compliance with state regulations.

The development of this site will also require permitting and or coordination with local, state, and federal agencies including the County Commissioner, Oklahoma Tourism and Recreation Department, Grand River Dam Authority, Oklahoma Department of Wildlife Conservation, Oklahoma Biological Survey, Oklahoma Natural Areas Registry, Bureau of Reclamation, United States Army Corps of Engineers, and Oklahoma Department of Environmental Quality.



0 1 2
SCALE IN MILES

Legend

- Interstate Highway
- US Highway
- State Highway
- Divided Highway - Asphalt
- Divided Highway - Concrete
- Asphalt
- Concrete
- Gravel
- Grade & Drain
- Unimproved
- Railroad
- State Line
- County Line
- Section Line
- Corporate Limit
- Wildlife Management Area
- Wildlife Refuge
- River or Stream
- Lake or Reservoir
- Bridges
- Low Water Crossing
- Natural Elevation Point
- Natural Elevation Point

NOTE:

1. REPRODUCED FROM GENERAL HIGHWAY MAPS, MUSKOGEE COUNTY, OKLAHOMA, (OK DOT STRATEGIC ASSET AND PERFORMANCE MANAGEMENT DIVISION OCTOBER 2018).

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DATE: 01/2023
FILE: 0086-364-11
CAD: FIG 1-SITE LOCATION MAP.DWG

DRAWN BY: RAA
DESIGN BY: JBP
REVIEWED BY: JVQ

Weaver Consultants Group
CA 3804 PE-06/30/2023

PREPARED FOR
WASTE MANAGEMENT OF OKLAHOMA, INC.

REVISIONS		
NO.	DATE	DESCRIPTION

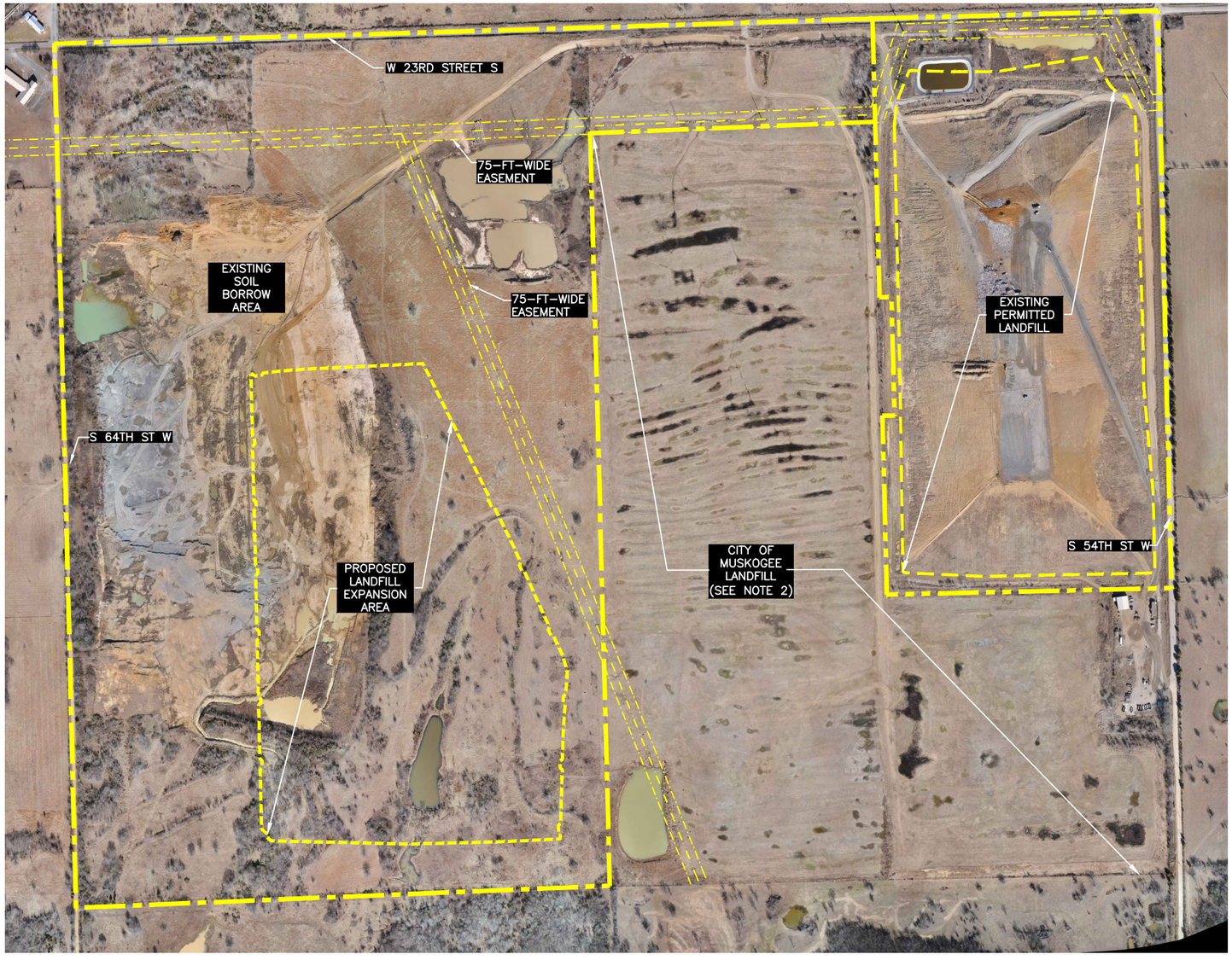
SITE LOCATION MAP

MUSKOGEE COMMUNITY RDF
MUSKOGEE COUNTY, OKLAHOMA

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FIGURE 1

O:\0086\364\EXPANSION 2022\LOCATION RESTRICTION\FIG 1-SITE LOCATION MAP.dwg, jputhr, 1:2



N

0 300 600

SCALE IN FEET

LEGEND

- EXISTING PERMIT BOUNDARY
- PROPOSED PERMIT BOUNDARY
- PERMITTED LIMITS OF WASTE
- PROPOSED LIMITS OF WASTE
- APPROXIMATE OG&E POWER LINE EASEMENT

NOTE:

1. AERIAL PHOTOGRAPHY PROVIDED BY HYDREX DRONE DIVISION, IMAGERY DATED 01-24-2022.
2. THE CITY OF MUSKOGEE LANDFILL IS NOT PART OF THE PROPOSED EXPANSION AND IS SHOWN FOR REFERENCE PURPOSES.

0:\0086\364\EXPANSION 2022\LOCATION RESTRICTION\FIG 2-AERIAL PHOTO.dwg, jpuhr, 1:2

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DESIGN BY: JBP
REVIEWED BY: JVQ

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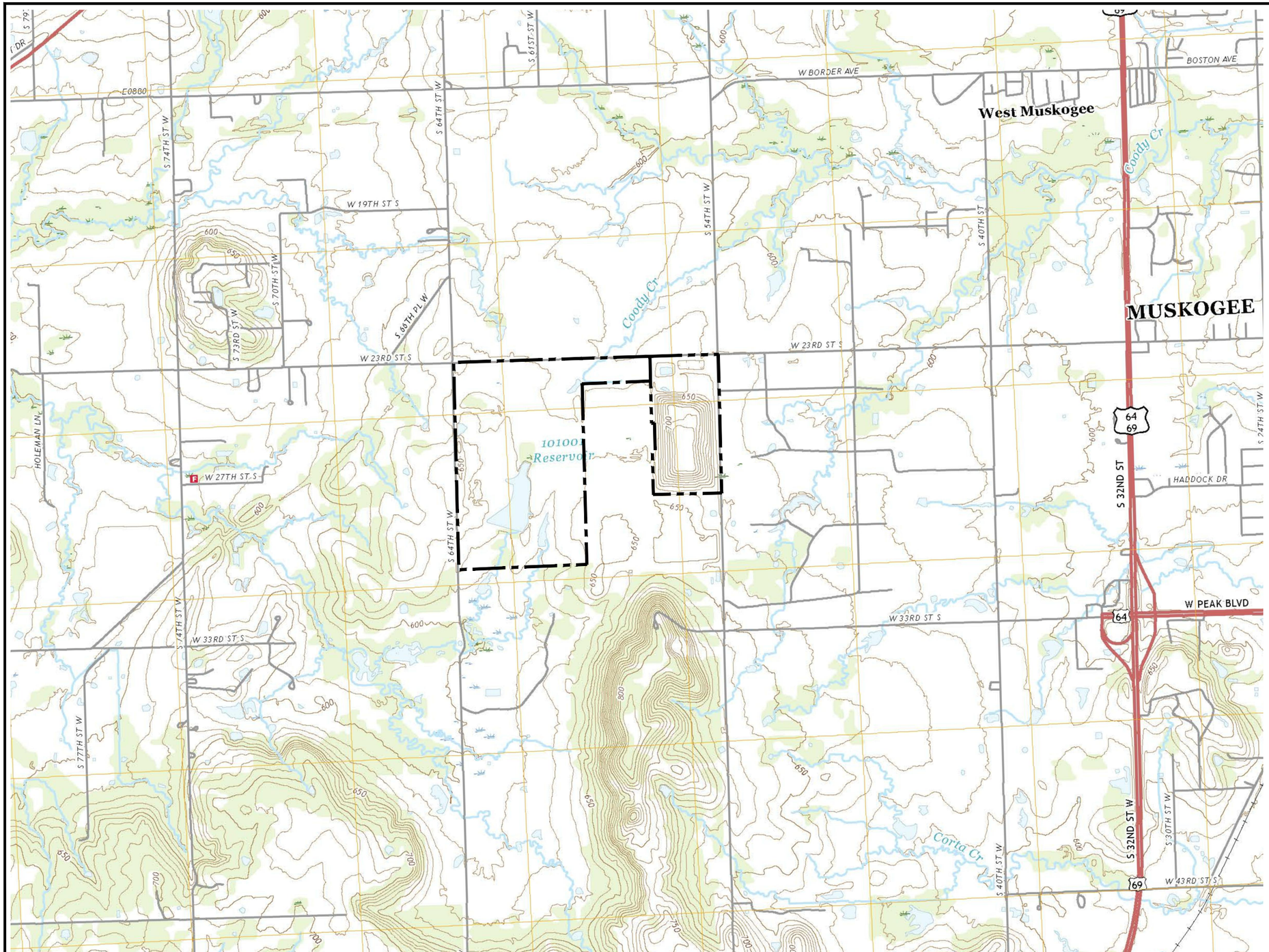
REVISIONS		
NO.	DATE	DESCRIPTION

AERIAL PHOTOGRAPH

MUSKOGEE COMMUNITY RDF
MUSKOGEE COUNTY, OKLAHOMA

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FIGURE 2



0 1000 2000
SCALE IN FEET

LEGEND

EXISTING PERMIT BOUNDARY

PROPOSED PERMIT BOUNDARY

NOTES:

1. ADAPTED FROM USGS 7.5 MINUTE QUADRANGLE TOPOGRAPHIC MAP (MUSKOGEE COUNTY, OKLAHOMA, 2018).
2. NO PUBLIC WATER SUPPLY SURFACE WATER INTAKES WERE REPORTED BY THE OKLAHOMA WATER RESOURCES BOARD (OWRB) WITHIN ONE MILE OF THE FACILITY.
3. BASED ON OKLAHOMA WATER RESOURCES BOARD (OWRB) DATABASE THERE IS NO REPORTED WELL LOGS ON PROPERTY OWNED BY WASTE MANAGEMENT OF OKLAHOMA INC. (WMO).
4. THE MAP AREA SHOWN IS WITHIN TOWNSHIP 14 NORTH, RANGE 18 EAST.
5. REFER TO FIGURE 12 FOR WASTE DISPOSAL AREAS ON BUFFER ZONES.

SOUTHWEST MUSKOGEE, OK

2018

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DRAWN BY: RAA
DESIGN BY: JBP
REVIEWED BY: JVQ

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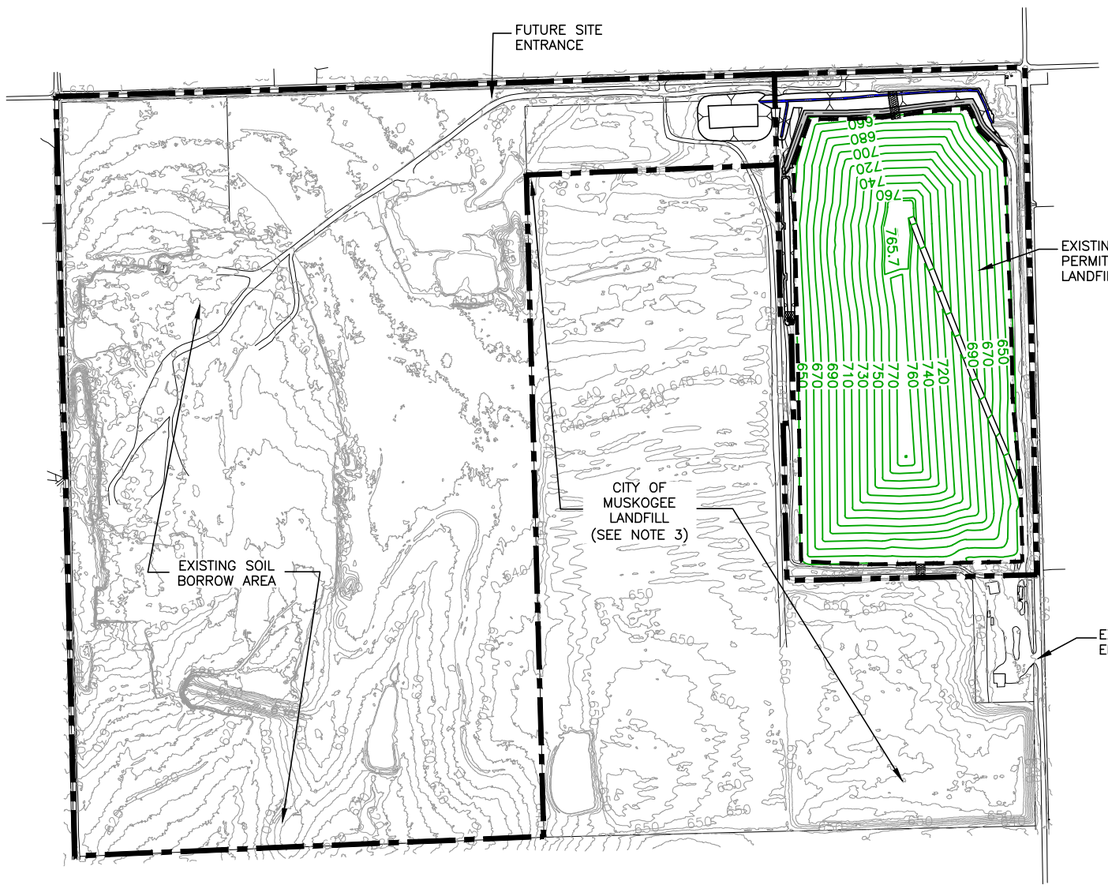
GENERAL TOPOGRAPHIC MAP

MUSKOGEE COMMUNITY RDF
MUSKOGEE COUNTY, OKLAHOMA

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FIGURE 3

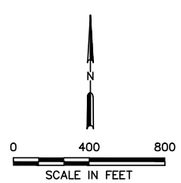
O:\0086\364\EXPANSION 2022\LOCATION RESTRICTION\FIG 3-GENERAL TOPOGRAPHIC MAP.dwg, jpuhr, 1:2



PERMITTED COMPLETION PLAN



PROPOSED COMPLETION PLAN



LEGEND:

- EXISTING PERMIT BOUNDARY
- PROPOSED PERMIT BOUNDARY
- PERMITTED LIMITS OF WASTE
- PROPOSED LIMITS OF WASTE
- N 273000 — STATE PLANE COORDINATE GRID
- 700 — EXISTING CONTOUR
- 700 — FINAL COVER CONTOUR
- 561 — BORROW AREA CONTOUR
- APPROXIMATE OG&E POWER LINE EASEMENT

NOTES:

1. EXISTING CONTOURS AND ELEVATIONS PROVIDED BY AIR MAPS OF ARKANSAS, LLC FROM AERIAL PHOTOGRAPHY FLOWN 01–24–2022.
2. THE EXPANSION WILL ADD A SEPARATE UNIT TO THE WEST OF THE EXISTING LANDFILL. NO CHANGES ARE PROPOSED TO THE EASTERN UNIT.
3. THE CITY OF MUSKOGEE LANDFILL IS NOT PART OF THE PROPOSED EXPANSION AND IS SHOWN FOR REFERENCE PURPOSES.

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DATE: 10/2022
FILE: 0086-364-11
CAD: FIG 4-COMPLETION PLAN.DWG

DRAWN BY: RAA
DESIGN BY: JBP
REVIEWED BY: JVQ

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PERMITTED COMPLETION PLAN AND PROPOSED COMPLETION PLAN

MUSKOGEE COMMUNITY, RDF
OKLAHOMA COUNTY, OKLAHOMA

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FIGURE 4

O:\0086\364\EXPANSION 2022\LOCATION RESTRICTION\FIG 4-COMPLETION PLAN COMP.dwg, jpuhr, 1:2