Emergency Action Plan (EAP)

Dolese Detention Basin

National Inventory of Dams (NID) No. OK00065

NW ¼ of the NE ¼ of Section 20, T-2-N, R-12-W, I.M.

City of Lawton, Comanche County, Oklahoma

June 2021

Approved By:

Michael Merritt, Director
Comanche Co./City of Lawton
Emergency Management

6/25/21

Date

Larry Wolcott, PE
Public Works Director
City of Lawton, Public Works Admin.

6.16.21

Date

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Date

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BASIC EAP DATA

Purpose

The purpose of the Emergency Action Plan (EAP) is to reduce the risk of human life loss and injury and minimize property damage during an unusual or emergency event at the Dolese Detention Basin and downstream water shed area.

Potential Impact Areas

See *Evacuation Map (Appendix B-4) and People at Risk (Appendix B-5) for the locations of the residents and businesses that may be flooded if the dam should fail. Due to the large number of people that would be affected, individual contact information is not included; instead whole neighborhoods & streets would be evacuated.*

Dam Description:

This is a flood detention dam which totally drains between rain events.

Height: 27 ft. Drainage Area: .834 sq. miles

Built: 1984 Hazard Classification: High

Legal Description: NW1/4 NE1/4 Sec.20, T-2-N, R-12-W, I.M.

Latitude: N 34° 38.1' Longitude: W 98° 28.5' Dam Owner/Operator: City of Lawton

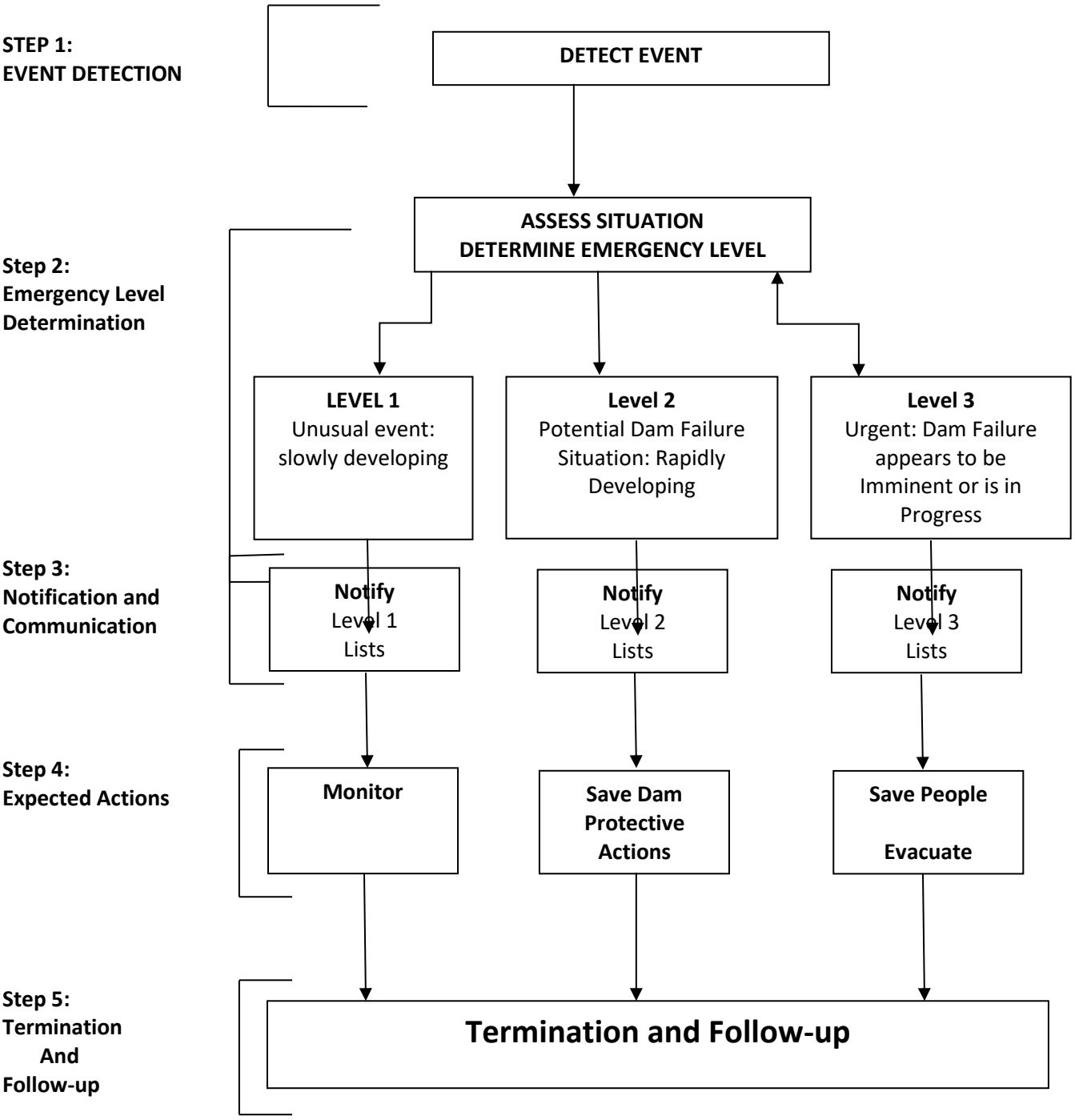
National Inventory of Dams No.: OK00065 Dam Designer: Johnson Engineering

See detailed design data in *Appendix B-6 and B-7*.

Directions to dam (see Location and Vicinity Map; Appendix B-2)

From I-44, go west on Roger's Lane (also known as Highway US-62) about 5 miles to NW 67th Street, turn south approximately 1/3 mile to NW Surreywood Drive, turn west 1 block to NW 68th Street, turn north one block and street turns west and becomes NW Faircloud Drive, proceed approximately ¼ mile west, dam and spillway are on the north side of the road.

EAP OVERVIEW



ROLES AND RESPONSIBILITIES

Dam Operator's Representative (City of Lawton, Drainage Field Supervisor)

- As soon as an emergency event is observed or reported, immediately determine the emergency level (see Emergency Levels tab).
  - ❖ Level 1: unusual event, slowly developing
  - ❖ Level 2: potential dam failure situation, rapidly developing
  - ❖ Level 3: dam failure appears imminent or is in progress
- Immediately notify the personnel in the order on the notification chart for the appropriate level (see Notification Charts on pages 12, 14 and 17).
- Provide updates of the situation to the Comanche County/City of Lawton Emergency Management Director to assist him/her in making timely and accurate decisions regarding warnings and evacuations.
- Provide leadership to assure the EAP is reviewed and updated annually or as needed and copies of the revised EAP are distributed to all who receive copies of the original EAP.

Incident Commander

- Serve as the primary contact person responsible for coordination of all emergency actions.
- When a Level 2 situation occurs:
  - ❖ Prepare for the possible evacuations that may be needed if a Level 3 situation occurs.
  - ❖ Advise Public Information Officer (PIO) to activate Joint Information Center (JIC) in case of emergency evacuations, and updating media.
- When a Level 3 situation occurs:
  - ❖ Initiate warning and order evacuation of people at risk downstream of the dam.
  - ❖ Carry out the evacuation of people and close roads within the evacuation area (see Evacuation Map Appendix B-4).
- Maintain communication with the PIO and Dispatch.
- Decide when to terminate the emergency with input from all affected agencies.
- Participate in an annual review and update of the EAP.

Dam Operator's Technical Representatives (City of Lawton, Engineering Division)

- Advised the dam operator of the emergency level determination, if time permits.
- Advised the dam operator of remedial actions to take if Level 2 event occurs.

State Dam Safety Agency (Oklahoma Water Resources Board)

- Advised the dam operator of the emergency level determination, if time permits.
- Advised the dam operator of remedial actions to take if Level 2 event occurs, if time permits.

THE FIVE-STEP EAP PROCESS

This Plan consists of a Five-Step Process as listed below:

STEP 1: Event Detection
STEP 2: Emergency Level Determination
STEP 3: Notification and Communication
STEP 4: Expected Actions
STEP 5: Termination

STEP 1 - EVENT DETECTION

This step describes the detection of an unusual or emergency event and provides information to assist the dam operator in determining the appropriate emergency level for the event.

Unusual or emergency events may be detected by:

- Observations at or near the dam by government personnel (local, state, or Federal), landowners, visitors to the dam, or the public.
- Earthquakes felt or reported in the vicinity of the dam.
- Forewarning of conditions that may cause an unusual event or emergency event at the dam (for example, a severe weather or flash flood forecast).

See Guidance for Determining the Emergency Level Table on page 9 for assistance in evaluating specific events to determine if they are unusual or potential emergency situations.

STEP 2 - EMERGENCY LEVEL DETERMINATION

After an unusual or emergency event is detected or reported, the City of Lawton's Drainage Maintenance Supervisor is responsible for classifying the event into one of the following three emergency levels:

Emergency Level 1 – Non-emergency, unusual event, slowly developing:

This situation is not normal but has not yet threatened the operation or structural integrity of the dam, but possibly could if it continues to develop. The City of Lawton's Engineering Division should be contacted to investigate the situation and recommend actions to take. The condition of the dam should be closely monitored, especially during storm events, to detect any development of a potential or imminent dam failure situation. The Emergency Management Director should be informed if it's determined that the conditions may possibly develop into a worse condition that may require emergency actions.

Emergency Level 2 - Potential dam failure situation, rapidly developing:

This situation may eventually lead to dam failure and flash flooding downstream, but there is not an immediate threat of dam failure. The Comanche County/City of Lawton Emergency Management Director should be notified of this emergency situation and placed on alert. The Dam Operator should closely monitor the condition of the dam and periodically report the status of the situation to the Comanche County/City of Lawton Emergency Management Director. If the dam condition worsens and failure becomes imminent, the Comanche County/City of Lawton Emergency Management Director must be notified immediately of the change in the emergency level to evacuate the people at risk downstream.

If time permits, the City of Lawton's Engineering Division and OWRB Officials should be contacted to evaluate the situation and recommend remedial actions to prevent failure of the dam. The Dam Operator should initiate remedial repairs (note local resources that may be available - see Appendix B-1). Time available to employ remedial actions may be hours or days.

This emergency level is also applicable when flow through the earth spillway has or is expected to result in flooding of downstream areas and people near the channel could be endangered. Comanche County/City of Lawton Emergency Management Services should be on alert to initiate evacuations or road closures if the flooding increases.

Emergency Level 3 - Urgent: Dam failure appears imminent or is in progress:

This is an extremely urgent situation when a dam failure is occurring or obviously is about to occur and cannot be prevented. Flash flooding will occur downstream of the dam. This situation is also applicable when flow through the earth spillway is causing downstream flooding of people and roads. The Comanche County/City of Lawton Emergency Management Director should be contacted immediately so emergency services can begin evacuations of all at-risk people and close roads as needed (see Evacuation Map Appendix B-4).

See the following pages for guidance in determining the proper emergency level for various situations.

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Guidance for Determining the Emergency Level

Event	Situation	Emergency Level*
Earth Spillway Flow	Reservoir water surface elevation at auxiliary spillway crest of spillway is Flowing with no active erosion	1
	Spillway flowing with active gully erosion	2
	Spillway flow that could result in flooding of people downstream if the reservoir level continues to rise	2
	Spillway flow that is flooding people downstream	3
Embankment Overtopping	Reservoir level is 1 foot below the top of the dam	2
	Water from the reservoir is flowing over the top of the dam	3
Seepage	New seepage areas in or near the dam	1
	New seepage areas with cloudy discharge or increasing flow rate	2
	Seepage with discharge greater than 10 gallons per minute	3
Sink Holes	Observation of new sinkhole in reservoir area or on embankment	2
	Rapidly enlarging sinkhole	3
Embankment Cracking	New Cracks in the embankment greater than 1/4 –inch wide without seepage	1
	Cracks in the embankment with seepage	2
Embankment Movement	Visual Movement/slippage of the embankment slope	1
	Sudden or rapidly proceeding slides of the embankment slopes	3
Instruments	Instrumentation reading beyond predetermined values	1
Earthquake	Measurable earthquake felt or reported on a within 50 miles of the dam	1
	Earthquake resulting in visible damage to the dam or appurtenances	2
	Earthquake resulting in uncontrolled release of water from the dam	3
Security Threat	Verified bomb threat, if carried out, could result in damage to the dam	2
	Detonated bomb that has resulted in damage to the dam or appurtenances	3
Sabotage/ Vandalism	Damage to dam or appurtenance with no impacts to the functioning of the dam	1
	Modification to the dam or appurtenances that could adversely impact the functioning of the dam	1
	Damage to dam or appurtenances that has resulted in seepage flow	2
	Damage to dam or appurtenances that has resulted in uncontrolled water release	3

****Emergency Level 1: Non-emergency unusual event, slowly developing***
****Emergency Level 2: Potential dam failure situation, rapidly developing***
****Emergency Level 3: Urgent; dam failure appears imminent or is in progress***

EXAMPLES OF EMERGENCY SITUATIONS

The following are examples of conditions that usually constitute an emergency situation that may occur at a dam. Adverse or unusual conditions that can cause the failure of a dam are typically related to aging or design and construction oversights. Extreme weather events that exceed the original designed conditions can cause significant flow through the auxiliary spillway or overtopping of the embankment. However, accidental or intentional damage to the dam may also result in emergency conditions. The

conditions have been grouped to identify the most likely emergency-level condition. The groupings are provided as guidance only. Not all emergency conditions may be listed, and the dam operator is urged to use conservative judgment in determining whether a specific condition should be defined as an emergency situation at the dam.

Pre-existing conditions on this dam: This is a storm water detention dam built in 1984. The low flow inlet is a 24" RCP, and the high flow auxiliary inlet is an 8' x 8' drop inlet. The two inlets join and flow thru the dam in an 8' x 6' RCB Conduit. There is no emergency earth spillway on this dam. The low flow inlet tends to plug with debris since the area immediately upstream is heavily wooded. The reservoir is normally dry and supports a healthy stand of grass, with the area along the upstream channel tree lined.

Embankment Overtopping

Emergency Level 2 - Potential dam failure situation; rapidly developing:

1. The reservoir level is within 1 foot from the top of the dam.

Emergency Level 3 - Urgent; dam failure appears imminent or is in process:

1. The reservoir level has exceeded the top of the dam, and flow is occurring over the embankment.

Seepage and Sinkholes

Emergency Level 2 - Potential dam failure situation; rapidly developing:

1. Cloudy seepage or soil deposits are observed at seepage exit points or from internal drain outlet pipes.
2. New or increased areas of wet or muddy soils are present on the downstream slope, abutment, and/or foundation of the dam, and there is an easily detectable and unusual increase in volume of downstream seepage.
3. Significant new or enlarging sinkhole(s) near the dam or settlement of the dam is observed.
4. Reservoir level is falling without apparent cause.
5. The following known dam defects are or will soon be inundated by a rise in the reservoir:
    a. Sinkhole(s) located on the upstream slope, crest, abutment, and/or foundation of the dam: or
    b. Transverse cracks extending through the dam, abutments, or foundation.

Emergency Level 3 - Urgent; dam failure appears imminent or is in progress:

1. Rapidly increasing cloudy seepage or soil deposits at seepage exit points to the extent that failure appears imminent or is in progress.
2. Rapid increase in volume of downstream seepage to the extent that failure appears imminent or is in progress.
3. Water flowing out of holes in the downstream slope, abutment, and/or foundation of the dam to the extent that failure appears imminent or is in progress.
4. Whirlpools or other evidence exists indicating that the reservoir is draining rapidly through the dam or foundation.

5. Rapidly enlarging sinkhole(s) are forming on the dam or abutments to the extent that failure appears imminent or is in progress.
6. Rapidly increasing flow through crack(s) eroding materials to the extent that failure appears imminent or is in progress.

Embankment Movement and Cracking

Emergency Level 2 - potential dam failure situation; rapidly developing:

1. Settlement of the crest, slopes, abutments and/or foundation of the dam that may eventually result in breaching of the dam.
2. Significant increase in length, width, or offset of cracks in the crest, slopes, abutments, and/or foundation the dam that may eventually result in breaching of the dam.

Emergency Level 3 - Urgent; dam failure appears imminent or is in progress:

1. Sudden or rapidly proceeding slides, settlement, or cracking of the embankment crest, slopes, abutments, and/or foundation, and breaching of the dam appears imminent or is in progress.

STEP 3 - NOTIFICATION AND COMMUNICATION

Notification

After the emergency level has been determined, the people on the following notification flowcharts for the appropriate emergency level shall be notified immediately.

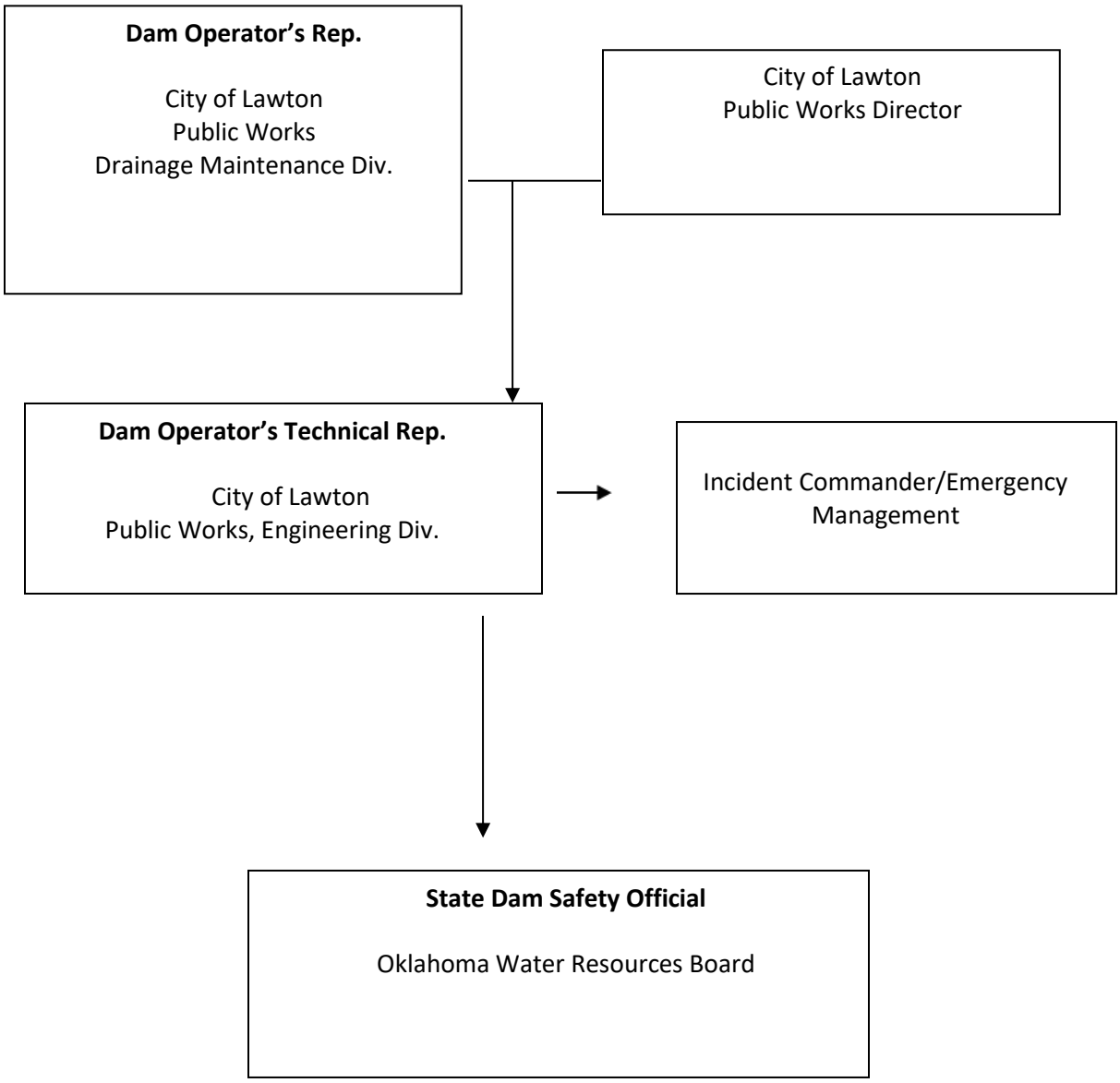
Communication

Emergency Level 1- Non-emergency, unusual event; slowly developing:

The City of Lawton Drainage Maintenance Supervisor should contact the City of Lawton Engineering Division. Describe the situation, and request technical assistance on the next steps to take.

EMERGENCY LEVEL 1 NOTIFICATIONS

NON-EMERGENCY
UNUSUAL EVENT; SLOWLY DEVELOPING



Emergency Level 2- Emergency event, potential dam failure situation; rapidly is developing:

The following message may be used by the City of Lawton Drainage Maintenance Supervisor to help describe the emergency situation to the 911 Dispatch.

"This is (identify yourself: name, position) ___ _____ _____ .

We have an emergency condition at the Dolese Detention Basin Dam in the City of Lawton which is located south of Rogers Lane and west of NW 67th Street.

We have activated the Emergency Action Plan for this dam and are currently under Emergency Level 2.
Please begin to contact those on the notification flow-chart.

We are implementing predetermined actions to respond to a rapidly developing situation that could result in dam failure.

Please prepare to evacuate the area along low-lying portions below the Dolese Detention Basin Dam.

Reference the Evacuation Map in your copy of the Emergency Action Plan.

We will advise you when the situation is resolved or if the situation gets worse.

I can be contacted at the following number_____. If you cannot reach me, please call the following alternative number_____"

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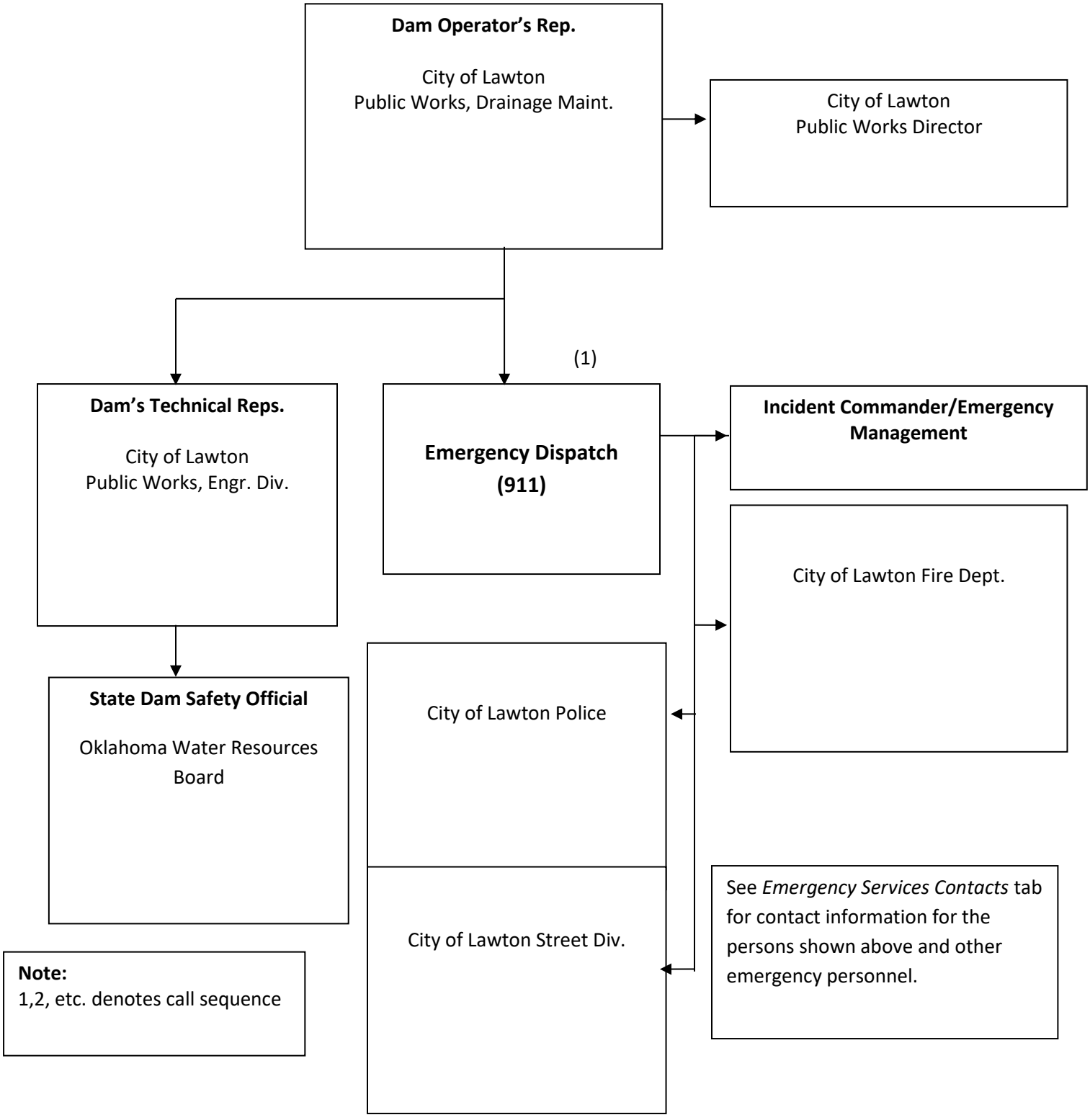
EMERGENCY LEVEL 2 NOTIFICATIONS

EMERGENCY EVENT, POTENTIAL DAM FAILURE
SITUATION; RAPIDLY DEVELOPING



Emergency Level 3- Urgent event; dam failure appears imminent or is in progress:

The Comanche County/City of Lawton Dispatch should be contacted immediately and the area evacuated (see Evacuation Map in Appendix B-4). The following actions should be taken:

1. Call the Comanche County/City of Lawton dispatch center (Comanche County/City of Lawton 911). Be sure to say, "This is an emergency." They will call other authorities as needed. Statements and notifications to the Media to begin the evacuations will be issued by the appropriate authorities using National Incident Management System (NIMS) and the National Response Plan (NRP) and recognized Joint Information System under NIMS/NRP. If needed, a Joint Information Center (JIC) will be established so that relevant and current information will be disseminated to the public.

   The following message may be used by the City of Lawton Drainage Maintenance Supervisor to help describe the emergency situation to the Dispatch Center (E-911):

   "This is an emergency. <u>This is, identify yourself: name, position</u> .

   The Dolese Detention Basin Dam in the City of Lawton which is located south of Rogers Lane and west of NW 67th Street is failing. The downstream area must be evacuated immediately. Repeat, the Dolese Detention Basin Dam is failing; evacuate the area along low-lying areas immediately.

   We have activated the Emergency Action Plan for this dam and are currently under Emergency Level 3. Reference the Evacuation Map in your copy of the Emergency Action Plan.

   I can be contacted at the following number_____. If you cannot reach me, please call the following alternative number_____."

2. Do whatever is necessary to bring people in immediate danger (anyone on the dam, downstream from the dam, or evacuees) to safety as directed by Incident Commander.

3. Keep in frequent contact with the Comanche County/City of Lawton Emergency Management Team to keep them up-to-date on the condition of the dam. They will tell you how you can help handle the emergency.

4. If all means of communications are lost: (1) try to find out why, (2) try to get to another radio or telephone what works, or (3) get someone else to try to re-establish communications. If these means fail, handle the immediate problems as well as you can, and periodically try to re-establish contact with the Emergency Management Team.

The following pre-scripted message may be used as a guide for the Public Information Officer to communicate the status of the emergency with the public:

"Attention. This is an emergency message from the Comanche County/City of Lawton Emergency Management Office. Listen carefully. Your life may depend on immediate action.

The Dolese Detention Basin Dam in the City of Lawton which is located south of Rogers Lane and west of NW 67th Street, is failing. I repeat, the Dolese Detention Basin Dam in the City of Lawton which is located south of Rogers Lane and west of NW 67th Street, is failing. The Sub-divisions of Grayson's Mountain Estates and Faircloud Estates are immediately downstream of this dam.

If you are in or near this area, proceed immediately to high ground away from the valley and low lying areas downstream. Do not travel on NW 67th Street between Rogers's Lane and Quanah Parker Trailway, or return to you home to recover your possessions if you live in the low lying area below this dam. You cannot outrun or drive away from the flood wave. Proceed immediately to high ground away from the valley and low lying areas along Meadowbrook Creek."

Repeat message.

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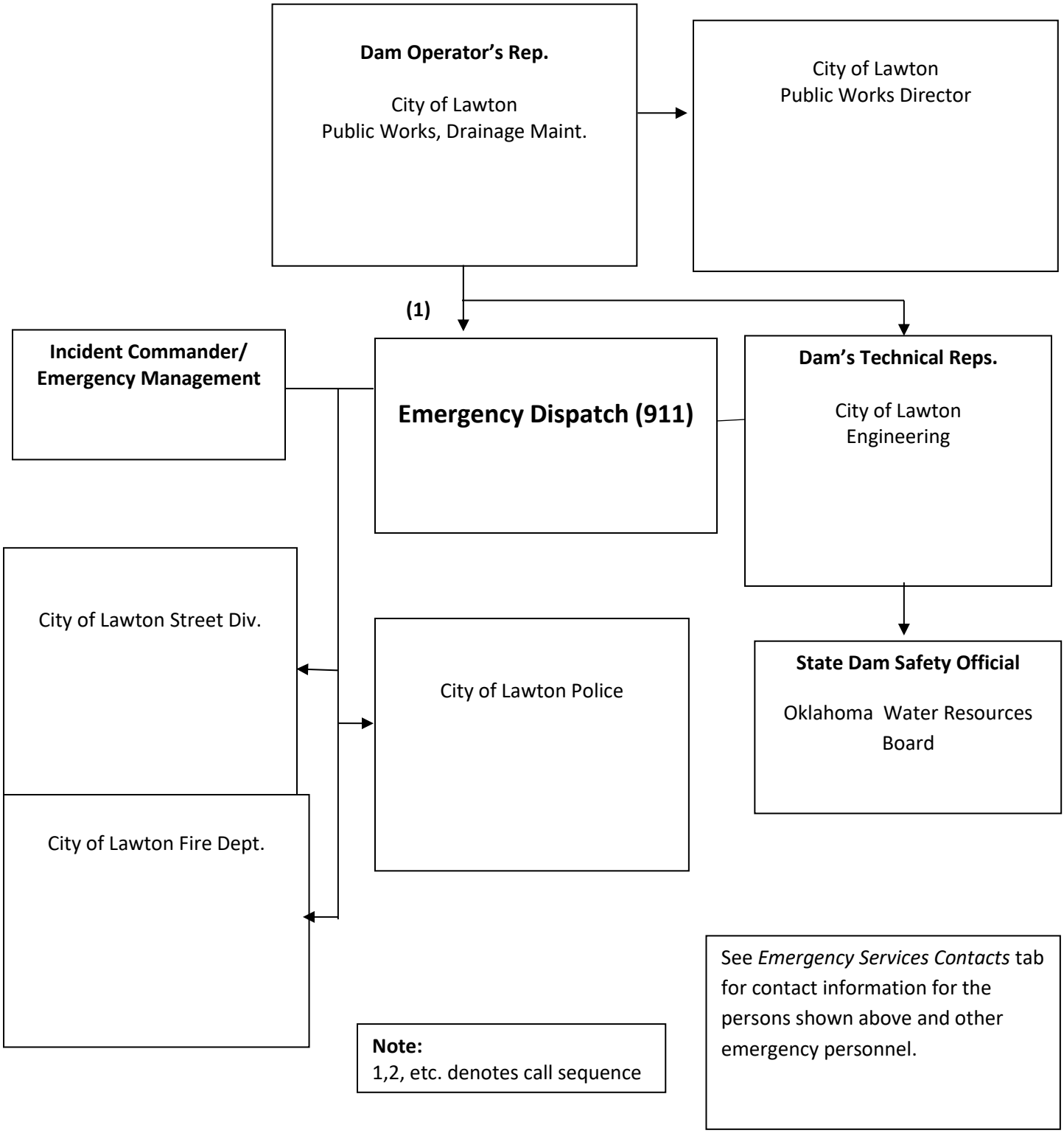
EMERGENCY LEVEL 3 NOTIFICATIONS

URGENT EVENT, DAM FAILURE APPEARS IMMINENT OR IS IN PROGRESS



EMERGENCY SERVICES CONTACTS

Agency/Organization	Principal Contact	Telephone Number(s)
City of Lawton City Manager's Office	Michael Cleghorn City Manager	(580) 581-3301 (office) (580) 351-4102 (bus.cell) (254) 415-8764 (per. Cell)
	~~Bart Hadley~~ Dewayne Burk Deputy City Manager	(580) 581-3301 (office) (580) 678-6953 (per.cell) (580) 647-6578 (bus.cell)
	Richard Rogalski Deputy City Manager	(580) 581-3301 (office) (580) 591-2545 (per. Cell)
City of Lawton Dispatch –E911	'Various On-Duty 24-7'	911 (local emergency) (580) 581-3272 (non-emergency)
City of Lawton Fire Department	Raanon Adams Fire Chief	(580) 581-3280 (office) (580) 512-2037 (bus.cell)
	'Various On-Duty 24-7' Asst. Fire Chief	(580) 581-3300 (office) Local 911
City of Lawton Police Department	James Smith Police Chief	(580) 581-3200 (main.office) (580) 581-3201 (bus.direct) (580) 351-4207 (bus.cell)
	~~James Apple~~ William Hines ~~Asst. Police Chief~~ Deputy Chief	~~(580) 581-3200~~ (580) 581-3229 (main.office) (580) 581-3208 (bus.direct) ~~(580) 357-7657 (home)~~ (580) 351-4860 (bus.cell)
City of Lawton Public Works Department	Larry Wolcott, PE Director	(580) 581-3410 (office) (580) 280-6004 (bus.cell)
	Joe Ramirez, Field Supt. Drainage Maintenance Div.	(580) 581-3424 (office) (580) 351-8938 (bus.cell) (580) 919-8360 (per.cell)
	Cliff Haggenmiller, Supt. Streets Division	(580) 581-3425 (office) (580) 704-9958 (per.cell)
City of Lawton Engineering Department	~~George Hennessee, PE~~ Joseph Painter, P.E. Director	(580) 581-3385 (office) ~~(580) 595-9449 (home)~~ ~~(405) 651-9449 (per.cell)~~ (405) 919-2350 (per.cell)
	(VACANT) Traffic Engineer	(580) 581-3410 (office)

Agency/Organization (Continued)	**Principal Contact**	**Telephone Number(s)**
Comanche Co./City of Lawton Emergency Management	Michael Merritt Director	(580) 355-0535 (office) (580) 351-8780 (bus.cell) (580) 357-3243 (home) (580) 591-2003 (per.cell)
	Rachael Huey Deputy Dir.	(580) 585-5305 (office) (580) 351-8788 (bus.cell)
Comanche County Sheriff	Kenny Stradley	(580) 353-4280
Oklahoma Water Resource Board (OWRB)	Yohanes Sugeng, PE Dam Safety Program Mngr.	(405) 530-8800 (main office) (405) 530-8867 (bus.direct)
	Zach Hollandsworth, PE ~~Project Engineer~~ Engineering Manager	(405) 530-8859 (bus.direct)

NOTE: Lawton Dispatch may have additional numbers for various individuals shown on this list.

NOTE: This list shall be updated as needed without updating the complete plan. Information (names, titles and/or phone numbers) updated from last year noted in red.

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STEP 4 - EXPECTED ACTIONS

If the police or sheriff receives a 911 call regarding the observations of an unusual or emergency event at the dam, they should immediately contact the City of Lawton's Public Works Director and/or the City of Lawton's Drainage Maintenance Superintendent. After the emergency level is determined, the following actions should be taken. If time permits, the Oklahoma Water Resources Board should be contacted for technical consultation.

Emergency Level 1- Non emergency, unusual event; slowly developing:

1. The City of Lawton's Drainage Maintenance personnel should inspect the dam. At a minimum, the inspection should include the full length of the upstream slope, crest, downstream toe, and downstream slope. Also, check the reservoir area, abutments, and downstream channel for signs of changing conditions. If piping, increased seepage, erosion, cracking, or settlements are observed, immediately report the observed conditions to the City of Lawton's Engineering Division; refer to the emergency level table for guidance in determining the appropriate event level for the new condition and recommended actions.

2. Record all contacts that were made on the Contact Checklist (Appendix A-1). Record all information, observations, and actions taken on the Event Log Form (Appendix A-2). Note the time of changing conditions. Document the situation with photographs and video, if possible.

3. The City of Lawton's Drainage Maintenance Superintendent should contact the City of Lawton's Engineering Division and request technical staff to investigate the situation and recommend corrective actions,

Emergency Level 2- Potential dam failure situation; rapidly developing:

1. The City of Lawton's Drainage Maintenance Superintendent should contact the City of Lawton's Engineering Division to report the situation and, if time permits, request technical staff to investigate the situation and recommend corrective actions.

2. The City of Lawton's Drainage Maintenance Superintendent should contact the Comanche County/City of Lawton Dispatch to inform them that the EAP has been activated and if current conditions get worse, an emergency situation may require evacuation. Preparations should be made for possible road closures and evacuations.

3. Provide updates to the Comanche County/City of Lawton Emergency Management Services to assist them in making timely decisions concerning the need for warnings, road closures, and evacuations.

4. If time permits, the City of Lawton's Drainage Maintenance personnel should inspect the dam. At a minimum, the inspection should include the full length of the upstream slope, crest, downstream toe, and downstream slope. Also, check the reservoir area, abutments, and downstream channel for signs of changing conditions. If piping, increased seepage, erosion,

cracking, or settlements are observed, immediately report the observed conditions to the City of Lawton's Engineering Division; refer to the emergency level table for guidance in determining the appropriate event level for the new condition and recommended actions.

5. Record all contacts that were made on the Contact Checklist (Appendix A-1). Record all information, observations, and actions taken on the Event Log Form (Appendix A-2). Note the time of changing conditions. Document the situation with photographs and video if possible.

6. If time permits, the following emergency remedial actions should be taken as appropriate.

EMERGENCY REMEDIAL ACTIONS

If time permits, the following emergency remedial actions should be considered for Emergency Level 2 conditions. Immediate implementation of these remedial actions may delay, moderate, or prevent the failure of the dam. Several of the listed adverse or unusual conditions may be apparent at the dam at the same time, requiring implementation of several modes of remedial actions. Close monitoring of the dam must be maintained to confirm the success of any remedial action taken at the dam. Time permitting, any remedial action should be developed through consultation with the City of Lawton's Engineering Division and the Oklahoma Water Resources Board. See resources *available* (Appendix B-1) for sources of equipment and materials to assist with remedial actions.

Embankment overtopping

1. If the water level in the reservoir is no longer rising, place sandbags along the low areas of the top of the dam to control wave action, reduce the likelihood of flow concentration during minor overtopping, and to safely direct more water through the spillway.

2. Cover the weak areas of the top of the dam and downstream slope with riprap, sandbags, plastic sheets, or other materials to provide erosion-resistant protection.

Seepage and sinkholes

1. Ensure that the low flow & high flow inlets are clear of debris and are able to operate at full capacity to lower the reservoir level as rapidly as possible to a level that stops or decreases the seepage to a non-erosive velocity. If the inlets are damaged or blocked, pumping or siphoning may be required. Continue lowering the water level until the seepage stops.

2. If the entrance to the seepage origination point is observed in the reservoir (possible whirlpool) and is accessible, attempt to reduce the flow by plugging the entrance with readily available materials such as hay bales, bentonite, soil or rock fill, or plastic sheeting.

3. Cover the seepage exit area(s) with several feet of sand/gravel to hold fine-grained embankment or foundation materials in place. Alternatively, construct sandbag or other types of ring dikes around seepage exit areas to retain a pool of water, providing backpressure and reducing the erosive nature of the seepage.

4. Prevent vehicles and equipment from driving between the seepage exit points and the embankment to avoid potential loss from the collapse of an underground void.

Embankment Movement

1. Ensure that the outlet conduit is not blocked so that the reservoir may drain at it's maximum rate. If the inlet(s) are damaged or blocked, pumping or siphoning may be required.

2. Repair settlement of the crest by placing sandbags or earth and rock fill materials in the damaged area to restore freeboard.

3. Stabilize slides by placing a soil or rock filled buttress against the toe of the slide.

Earthquake

1. Immediately conduct a general overall visual inspection of the dam.

2. Perform a field survey to determine if there has been any settlement and movement of the dam embankment, spillway, and low-level outlet works.

3. Drain the reservoir, if required.

Emergency Level 3- Urgent; dam failure appears imminent or is in progress:

1. The City of Lawton shall immediately contact the Comanche County/City of Lawton Dispatch and others shown on the notification chart. Dispatch will tone out to appropriate departments according to the chart.

2. The Comanche County/City of Lawton Emergency Management Director shall lead the effort to carry out warnings, close roads, and evacuate people at risk downstream from the dam (see evacuation map tab).

3. The City of Lawton shall maintain continuous communication and provide the Comanche County/City of Lawton Emergency Management Director with updates of the situation to assist him/her in making timely decisions concerning warning and evacuations.

4. The City of Lawton should record all contacts that were made on the Contact Checklist (Appendix A-1). Record all information, observations, and actions taken on the event log form (Appendix A-2). Note the time of changing conditions. Document the situation with photographs and video if possible.

5. Advise people monitoring the dam to follow safe procedures. Everyone should stay away from any of the failing structures or slopes and out of the potential breach inundation areas.

STEP 5 - TERMINATION

Whenever the EAP has been activated, an emergency level has been declared, all EAP actions have been completed, and the emergency is over, the EAP operations must eventually be terminated and follow-up procedures completed.

Termination responsibilities

The Incident Commander is responsible for terminating EAP operations and relaying this decision to the City of Lawton with input from all affected organizations. It is then the responsibility of each person to notify the same group of contacts that were notified during the original event notification process to inform those people that the event has been terminated.

Prior to termination of an Emergency Level 3 event that has not caused actual dam failure, the City of Lawton Engineering Division or the State Dam Safety Officer will inspect the dam or require the inspection of the dam to determine whether any damage has occurred that could potentially result in loss of life, injury, or property damage. If it is determined that conditions do not pose a threat to people or property, the Comanche County/City of Lawton Emergency Management Director will be advised to terminate EAP operations as described above.

The City of Lawton shall assure that the Dam Safety Emergency Situation Report (Appendix A-3) is completed to document the emergency event and all actions that were taken. The City of Lawton shall

distribute copies of the completed report to the Oklahoma Water Resources Board, the Comanche County/City of Lawton Emergency Management Director and internally to the Drainage Maintenance Division and Engineering Division.

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MAINTENANCE- EAP REVIEW AND REVISION

EAP Annual Review

The City of Lawton will review and, if needed, update the EAP at least once each year.

The EAP annual review will include the following:

- Calling all contacts on the three notification charts in the EAP to verify that the phone numbers and persons in the specified positions are current. The EAP will be revised if any of the contacts have changed.

- Contacting the local law enforcement agency to verify the phone numbers and persons in the specified positions. In addition, the person(s) contacted will be asked if he/she/they know where the EAP is kept and if responsibilities described in the EAP are understood.

- Calling the locally available resources to verify that the phone numbers, addresses, and services are current.

Revisions

The City of Lawton is responsible for updating the EAP document. The EAP document held by the City of Lawton, Public Works Director is the master document. When revisions occur, the City of Lawton will provide the revised pages and a revised revision summary page to all the EAP document holders. The document holders are responsible for revising outdated copy of the respective document(s) whenever revisions are received. Outdated pages shall be immediately discarded to avoid any confusion with the revisions.

EAP periodic test

The City of Lawton will host and facilitate a periodic test of the EAP at least once every 10 years.

This periodic test will consist of a meeting, including a tabletop exercise, conducted at a location determined by the City of Lawton, Public Works Director. Attendance should include key City of Lawton personnel from Public Works Administration, Drainage Maintenance Division, Streets Division, Engineering Division and Police Department, Comanche County/City of Lawton Emergency Management Director/or his/her designee, and others with key responsibilities listed in the EAP. At the discretion of the Public Works Director, other organizations that may be involved with an unusual or emergency event at the dam are encouraged to participate. Before the tabletop exercise begins, meeting participants will visit the dam during the periodic test to familiarize themselves with the dam site.

The tabletop exercise will begin with the facilitator presenting a scenario of an unusual or emergency event at the dam. The scenario will be developed prior to the exercise. Once the scenario has been

presented, the participants will discuss the responses and actions that they would take to address and resolve the scenario. The narrator will control the discussion, ensuring realistic responses and developing the scenario throughout the exercise. The Public Works Director, or his/her designee, should complete an event log as they would during an actual event.

After the tabletop exercise, the five sections of the EAP will be reviewed and discussed. Mutual aid agreements and other emergency procedures can be discussed. The City of Lawton will prepare a written summary of the periodic test and revise the EAP, as necessary.

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RECORD HOLDERS OF CONTROL COPIES OF THIS EAP

COPY NUMBER	ORGANIZATION	PERSON RECEIVING COPY
1	City of Lawton Public Works Department Administration	
2	Comanche County/City of Lawton Emergency Management Director	
3	City of Lawton Public Works Department Drainage Maintenance Div.	
4	City of Lawton Police Department #10 SW 4th Street Lawton, Oklahoma 73501	
5	City of Lawton City Clerk's Office	
6	City of Lawton Engineering Division	
7	City of Lawton Police Dispatch (E911)	
8	Oklahoma Water Resources Board Oklahoma City, Oklahoma	
9	Comanche County Sheriff	
10		

RECORD OF REVISIONS AND UPDATES MADE TO THIS EAP

(Original Issue June 1, 2021)

Rev. #	DATE	Description of Revision(s) Made	Made By:
1			
2			
3			
4			
5			
6			
7			
8			

CONCURRENCES

By my signature, I acknowledge that I, or my representative, have reviewed this plan and concur with the tasks and responsibilities assigned herein for me and my organization.

1. Larry Wolcott Date 6/17/21

Larry Wolcott, PE, Public Works Director, City of Lawton

2. Michael Merritt Date 6/25/21

Michael Merritt, Comanche County/City of Lawton Emergency Management Director

3. [redacted] Date 6/17/21

James Smith, Chief of Police, City of Lawton

4. Date 6/17/21

Jose Ramirez, Superintendent Drainage Maintenance Division, City of Lawton

5. Date 6/17/2021

Joseph Painter, PE, Director of Engineering, City of Lawton

6. Raanon Adams Digitally signed by Raanon Adams DN: cn=Raanon Adams, o=Lawton Fire Department, ou, email=radams@lawtonok.gov, c=US Date: 2021.06.17 14:14:39 -05'00' Date 6/17/21

Raanon Adams, Fire Chief, City of Lawton

7. For Jerry Undersheriff Date 6-25-21

Kenny Stradley, Comanche County Sheriff

APPENDICES-FORMS, GLOSSARY, MAPS, AND SUPPORTING DATA

Appendix A

Appendix B

Appendix A-1
Contact Checklist

Date: _____

Dam Name: Dolese Detention Basin Dam **Dam NID #: OK00065**

The following contacts should be made immediately after the emergency level is determined (see pages 7 - 11 for guidance to determine the appropriate emergency level for a specific situation). The person making the contacts should sign and record the time of the call and who was notified for each contact made. Refer to pages 12 – 17 *for critical contact information and pages 18 – 19* for contact information for other possible emergency services.

Emergency Level 1 (see page 12)

Dept/Agency Contacted	Person Contacted	Time	Contacted By
City of Lawton Drainage Maint. Div.			
City of Lawton Public Works Admin.			
City of Lawton Engineering Division			
Oklahoma Water Resource Board			

Continued next page

Appendix A-1
Continued

Emergency Level 2 (see page 14)

Dept/Agency Contacted	Person Contacted	Time	Contacted By
City of Lawton Drainage Maint. Div.			
City of Lawton Public Works Admin.			
City of Lawton Engineering Division			
Oklahoma Water Resource Board			
Comanche Co. Emergency Management			

Emergency Level 3 (see page 17)

Dept/Agency Contacted	Person Contacted	Time	Contacted By
City of Lawton Drainage Maint. Div.			
City of Lawton Public Works Admin.			
City of Lawton Engineering Division			
Oklahoma Water Resource Board			
Comanche Co. Emergency Management			

Appendix A-2

Unusual or Emergency Event Log

(to be completed during the emergency)

Dam Name: Dolese Detention Basin Dam **Dam NID #: OK00065**

When and how was the event detected?

_____

_____

Weather conditions:

_____

_____

_____

General description of the emergency situation:

_____

_____

_____

_____

Emergency Level Determination: _____ Made by: _____

ACTIONS AND EVENT PROGRESSION

DATE	TIME	ACTION/EVENT PROGRESSION	TAKEN BY

Report prepared by:_____ Date: _____

Appendix A-3

Dam Emergency Situation Report

(to be completed following the termination of the emergency)

National Inventory of Dams (NID) No: **OK00065**
Dam Name: **Dolese Detention Basin Dam**
Dam Location: The dam is located approx. ¼ south of Rogers Lane, and ¼ west of NW 67th Street, and can be accessed from NW Faircloud Drive.

Date:_____ Time: _____

Weather conditions: _____

General Description of emergency situation:
_____
_____

Area(s) of dam affected:
_____
_____

Extent of Dam damage:
_____

Possible Cause(s):
_____

Effect on dam's operation:
_____

Initial reservoir elevation: _____

Maximum reservoir elevation:_____ Time:_____

Final reservoir elevation: _____ Time: _____

Description of area flooded downstream/damages/injuries/loss of life: -
_____
_____
_____

Other data and comments: _____
_____

Observer's name and telephone number: _____

Report prepared by: _____Date:_____

Appendix A-4
Glossary of Terms

Abutment: That part of the valley side against which the dam is constructed. The left and right abutments of dams are defined with the observer looking downstream from the dam.

Acre-foot: A unit of volumetric measure that would cover 1 acre to a depth of 1 foot. One acre foot is equal to 43,560 cubic feet or 325,851 gallons.

Berm: A nearly horizontal step (bench) in the upstream or downstream sloping face of the dam.

Boil: A disruption of the soil surface due to water discharging from below the surface. Eroded soil may be deposited in the form of a ring (miniature volcano) around the disruption.

Breach: An opening through a dam resulting from partial or total failure of the dam. A controlled breach is an intentionally constructed opening. An uncontrolled breach is an unintended failure of the dam.

Conduit: A closed channel (round pipe or rectangular box) that conveys water through, around, or under the dam.

Control Section: A usually level segment in the profile of an open channel spillway above which water in the reservoir discharges through the spillway.

Cross Section: A slice through the dam showing elevation vertically and direction of natural water flow horizontally from left to right. Also, a slice through a spillway showing elevation vertically and left & right sides of the spillway looking downstream.

Dam: An artificial barrier constructed across a watercourse for the purpose of storing, controlling or diverting water.

Dam Failure: The uncontrolled release of a dam's impounded water.

Dam Operator: The person(s) or unit(s) of government with responsibility for the operation and maintenance of dam.

Drain (Toe, Foundation or Blanket) A water collection system of sand and gravel and typically pipes along the downstream portion of the dam to collect seepage and convey it to a safe outlet.

Drainage Area: (Watershed)	The geographic area on which rainfall flows into the dam.
Drawdown:	The lowering or releasing of the water level in a reservoir over time or the volume lowered or released over a particular period of time.
Emergency:	A condition that develops unexpectedly, endangers the structural integrity of the dam and/or downstream human life and property, and requires immediate action.
Emergency Action Plan: (EAP)	A formal document identifying potential emergency conditions that may occur at the dam and specifying preplanned actions to minimize potential failure of the dam or minimize failure consequences including loss of life, property damage, and environmental impacts.
Evacuation Map;	A map showing the geographic area downstream of a dam that should be evacuated if it is threatened to be flooded by a breach of the dam or other large discharge.
Failure:	The catastrophic breakdown of a dam, characterized by the sudden, rapid, and uncontrolled release of impounded water.
Filter:	The layers of sand and gravel in a drain that allow seepage through an embankment to discharge into the drain without eroding the embankment soil.
Flood Hydrograph:	A graph showing, for a given point on a stream, the discharge, height or other characteristic of a flood with respect to time.
Floodplain:	The downstream area that would be inundated or otherwise affected by the failure of a dam or by large flows.
Flood Profile:	A graph (elevation view) showing the relationship of the water surface elevation and natural ground elevations for a discharge at a given location along longitudinal segments of a watercourse for a flood event. The flood event may either be a dam failure or a natural flow condition. Also see Water Surface Profile.

Flood Routing: The process of determining progressively over time the amplitude of a flood wave as it moves past a dam or downstream to successive points along a watercourse.

Freeboard: Vertical distance between a stated water level in the reservoir and the top of the dam.

Gate (Slide or Sluice or Regulating): An operable, watertight valve to manage the discharge of water from the dam.

Hazard A situation which creates the potential for adverse consequences such as loss of life, property damage, and adverse social and environmental impacts. Impacts may be for a defined area downstream of a dam from floodwaters released through spillways and outlet works of the dam or waters released by partial or complete failure of the dam. They may also be for a landslide around the reservoir perimeter.

Hazard Classification: A system that categorizes dams (High, Significant, or Low) according to the degree of their potential to create adverse incremental consequences such as loss of life, property damage, or environmental impacts of a failure or mis-operation of a dam.

Headwater The water immediately upstream from a dam. The water surface elevation varies due to fluctuations in inflow and the amount of water passed through the dam.

Height of Dam The vertical distance between the lowest point along the top of the dam and the lowest point at the downstream toe which usually occurs in the bed of the outlet channel. (OWRB regulations consider the height from the natural bed of the stream or watercourse at the downstream toe of the barrier (dam) or from the lowest elevation of the outside limit of the barrier if it is not across a stream channel or watercourse, to the top of the dam.)

Hydrograph A graph showing the discharge, stage, velocity, or other hydraulic property with respect to time at a particular point on a watercourse.

Incident Commander: The highest predetermined official available at the scene of an emergency situation.

Instrumentation:	An arrangement of devices installed into or near dams that provide measurements to evaluate the structural behavior and other performance parameters of the dam and appurtenant structures.
Inundation area or map:	The geographic area downstream of the dam that would be flooded by a breach of the dam or other large discharge.
Maintenance:	Maintaining structures and equipment in intended operating condition, equipment repair, and minor structure repair.
Notification:	To immediately inform appropriate individuals, organizations, or agencies about a potential emergency situation so they can initiate appropriate actions.
Outlet Works (Principal Spillway)	An appurtenant structure that provides for controlled passage of normal water flows through the dam.
Piping:	The progressive destruction of an embankment or embankment foundation by internal erosion of the soil by seepage flows.
PMP/PMF (Probable Max. Precipitation/ Probable Max. Flood):	The theoretically greatest precipitation or resulting flood that is meteorologically feasible for a given duration over a specific drainage area at a particular geographical location.
Reservoir:	The body of water impounded or potentially impounded by the dam.
Riprap:	A layer of large rock, precast blocks, bags of cement, or other suitable material, generally placed on an embankment or along a watercourse as protection against wave action, erosion, or scour.
Risk:	A measure of the likelihood and severity of an adverse consequence.
Seepage:	The natural movement of water through the embankment, foundation, or abutments of the dam.
Slide:	The movement of a mass of earth down a slope on the embankment or abutment of the dam.

Spillway (Auxiliary or Emergency):	The appurtenant structure that provides the controlled conveyance of excess water through, over, or around the dam. A structure over or through which flood flows are discharged. If the elevation of the spillway crest is the only control, it is considered an uncontrolled spillway.
Spillway capacity:	The maximum discharge the spillway can safely convey with the reservoir at the maximum design elevation.
Spillway crest:	The lowest level at which reservoir water can flow into the spillway.
Tailwater:	The body of water immediately downstream of the embankment at a specific point in time. The water surface elevation varies with discharge from the reservoir.
Toe of dam:	The junction of the upstream or downstream face (slope) of an embankment with the ground surface.
Top of Dam (Crest of Dam):	The elevation of the uppermost surface of an embankment which can safely impound water behind the dam.
Water Surface Profile	A graph (elevation view) showing the relationship of the water surface elevation and natural ground elevations at a given location along longitudinal segments of a watercourse for a specific discharge. Also see Flood Profile.

Appendix B-1
Resources Available

Locally available equipment, labor, and materials: The City of Lawton has the following resources that can be utilized in the event of an Emergency:

- Three (3) Front End Loaders
- Eight (8) Backhoes
- Four (4) Track Hoes
- Two (2) Motor Graders
- Fourteen (14) Dump Trucks
- One (1) Wheel Excavator
- Two (2) 6" Pumps and Two (2) 4" Pumps
- Clay Dirt Pit @ Landfill

- Approx. 290 Individuals work for City of Lawton's Public Works Department

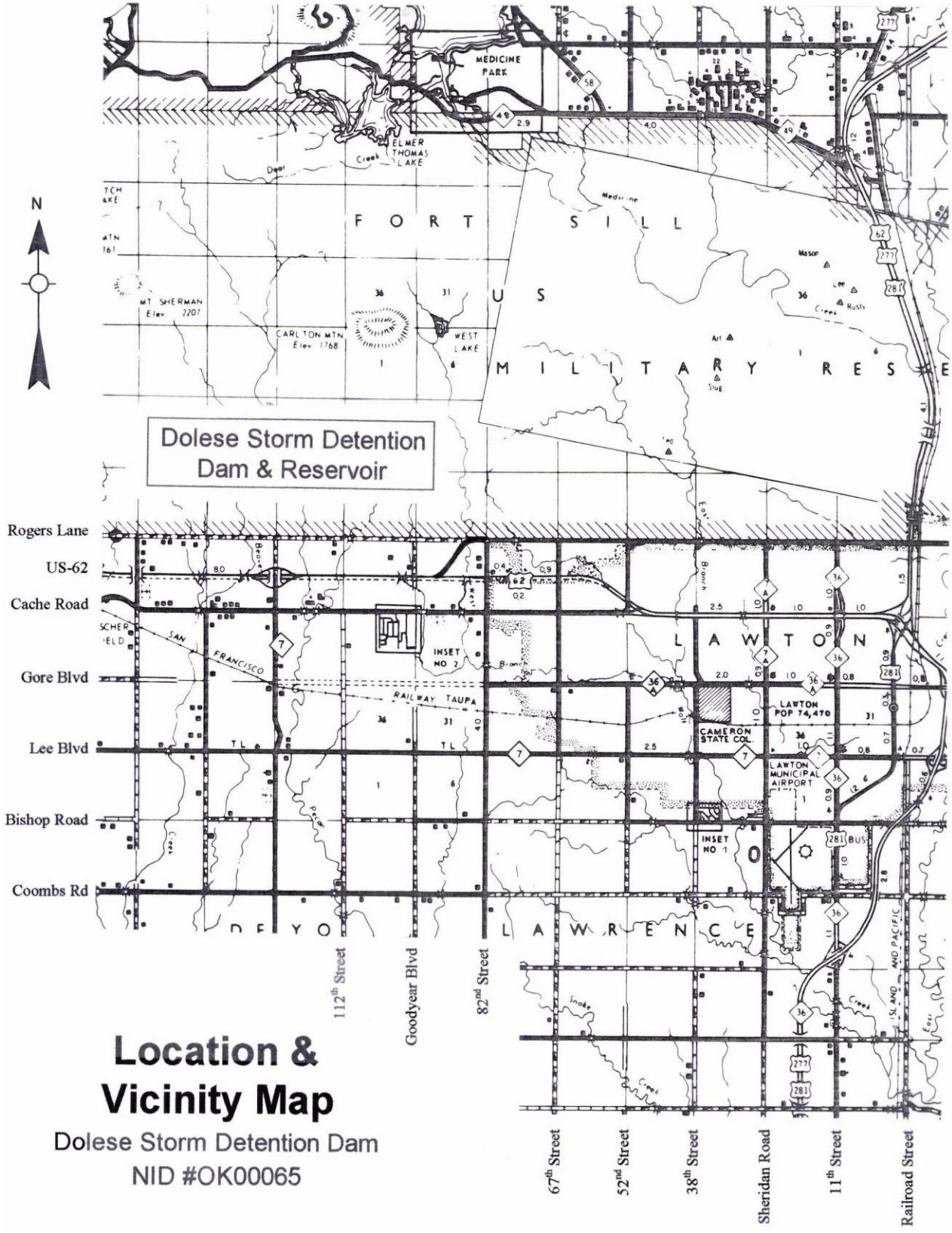
Contact the City of Lawton's Public Works Director for available equipment and personnel at time of emergency.

The City of Lawton Engineering Division has a list of local Road Contractor's that can be utilized in the event of an emergency.

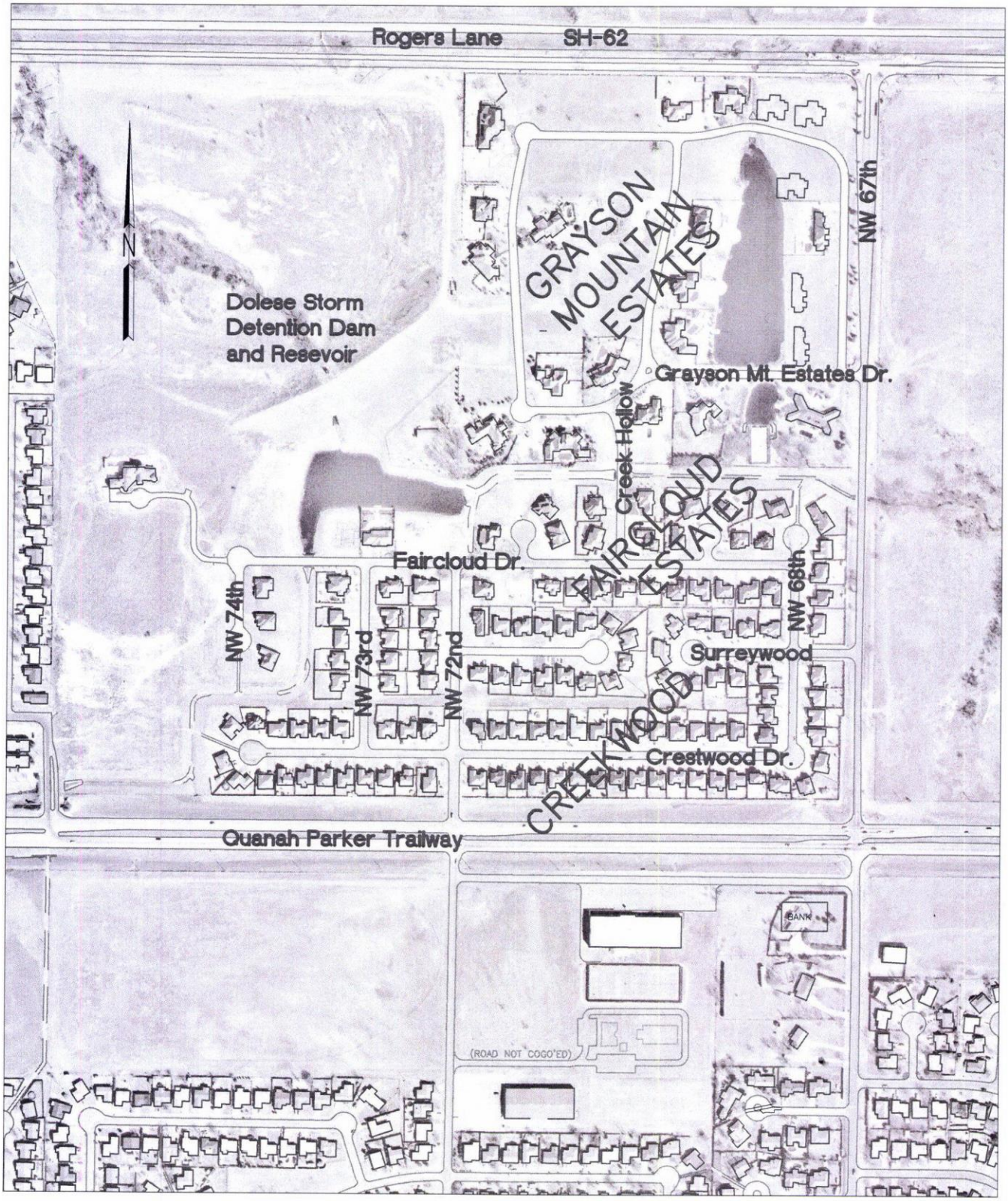
Other Locally available resources include (all phone numbers 580 area code):

Heavy Equipment Service and Rental	**Sand and Gravel Supply**	**Ready-Mix Concrete Supply**
RSC Equipment Rental 2420 SW Lee Blvd. Lawton, Oklahoma 353-0054	Atlas-Tuck Concrete, Inc. 1601 SW Sheridan Road Lawton, Oklahoma 353-8241 or 355-8241	Southwest Ready Mix 8 SE 'I' Avenue Lawton, Oklahoma 355-2093
Pioneer Equipment Rental 901 SE Interstate Drive Lawton, Oklahoma 351-0333	Dolese (Richard's Spur) 375 NW Dolese Road Elgin, Oklahoma 492-4771	Lawton Transit Mix, Inc. 2208 SW 'F' Avenue Lawton, Oklahoma 353-6900
		Atlas-Tuck Concrete, Inc. 1601 SW Sheridan Road Lawton, Oklahoma 353-8241 or 355-8241
Pumps	**Diving Contractor**	**Sand Bags**
RSC Equipment Rental 2420 SW Lee Blvd. Lawton, Oklahoma 353-0054	Dive Pro Ltd, Co. 302 SW Lee Blvd. Lawton, Oklahoma 355-2912	Pioneer Equipment Rental 901 SE Interstate Drive Lawton, Oklahoma 351-0333

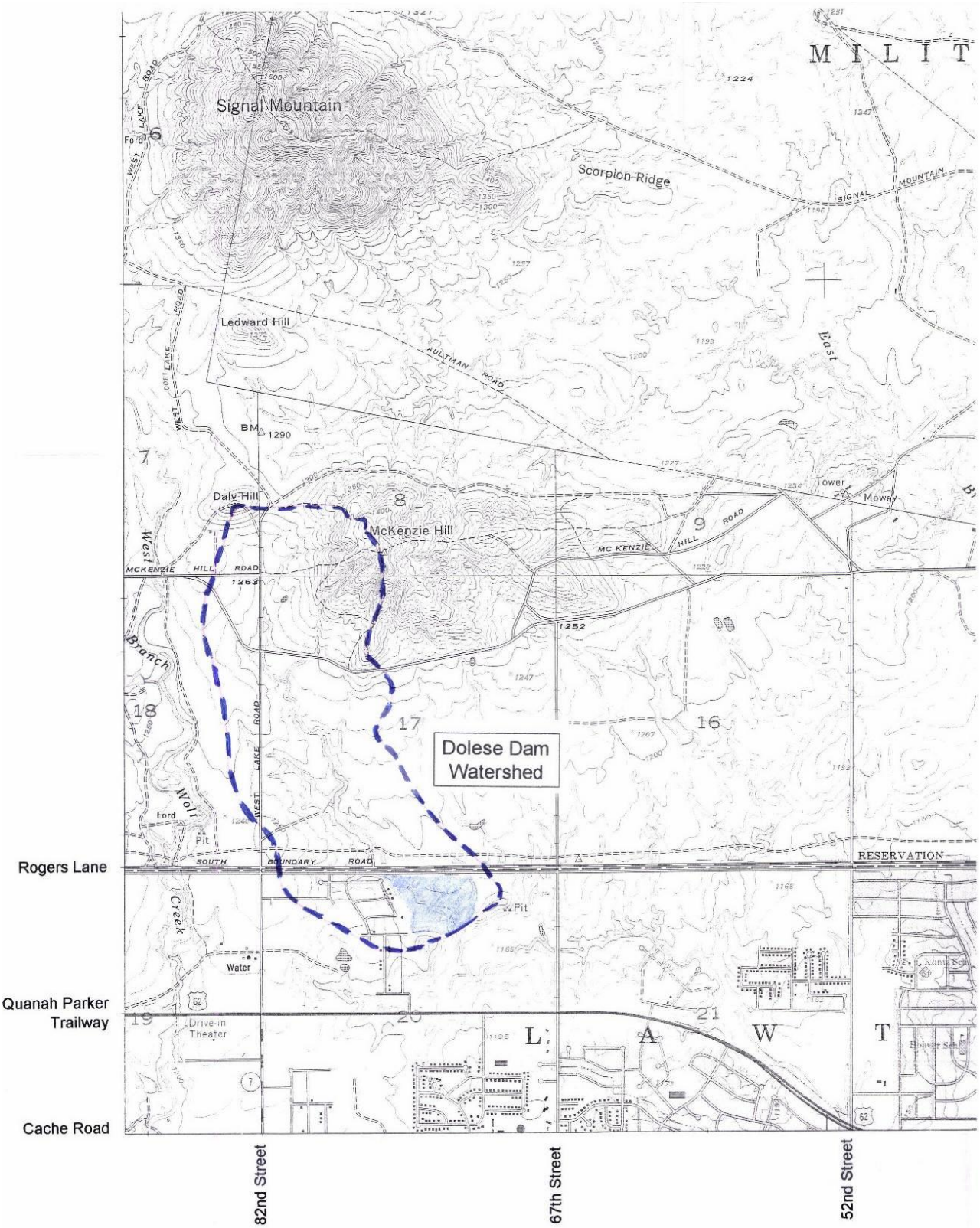
Appendix B-2
Location and Vicinity Maps



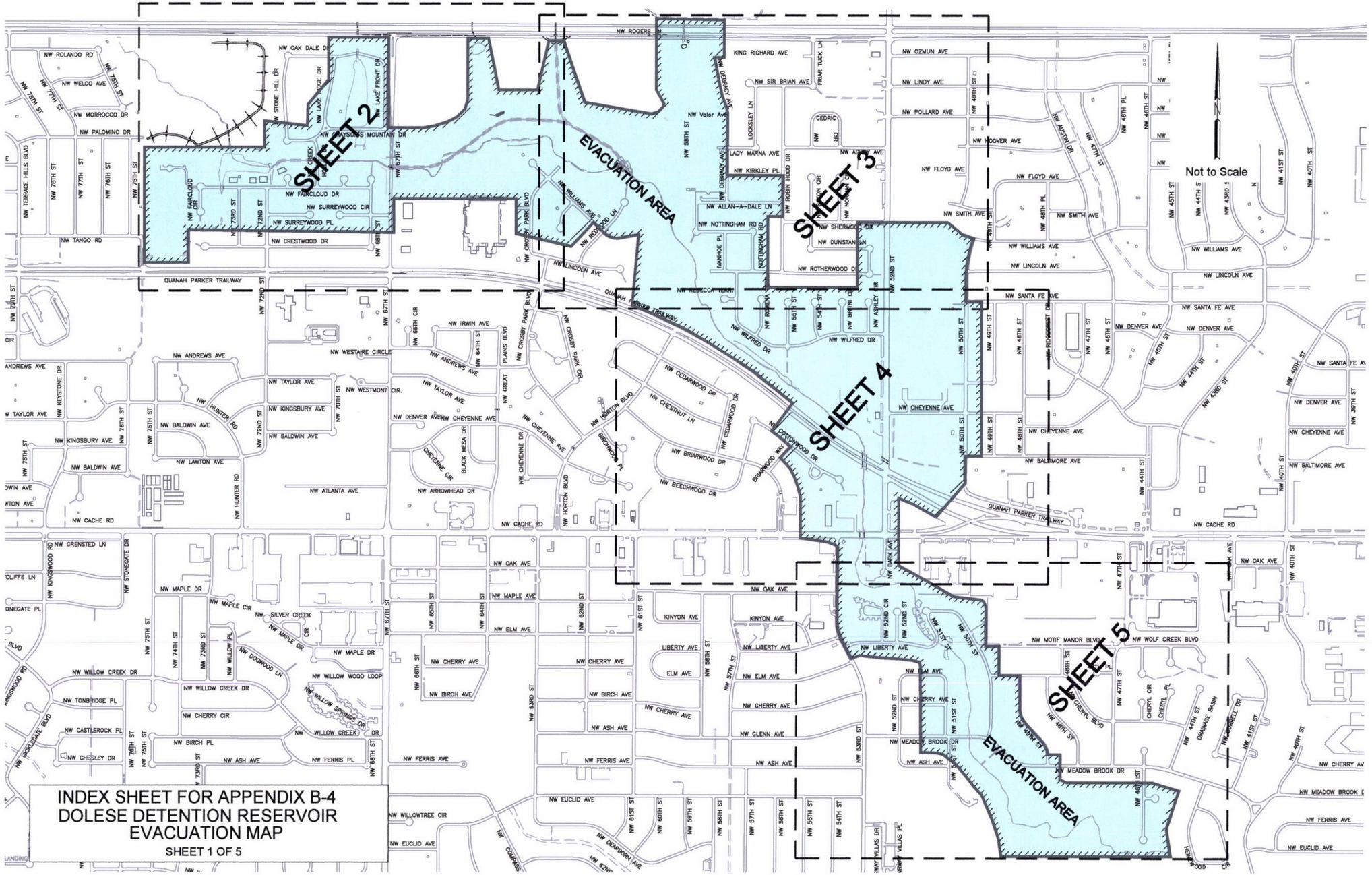
Appendix B-2
Location and Vicinity Maps



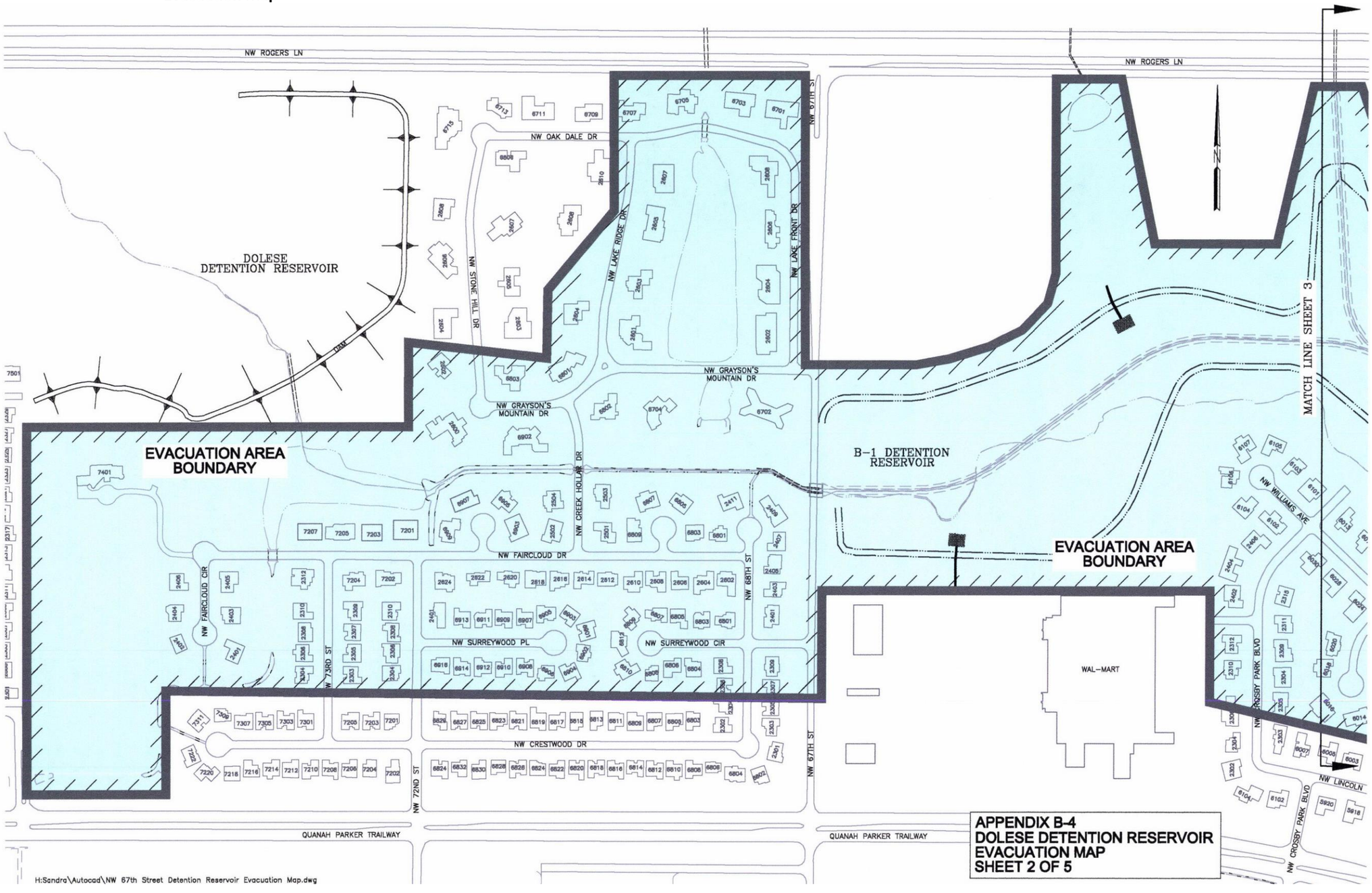
Appendix B-3
Watershed Project Map



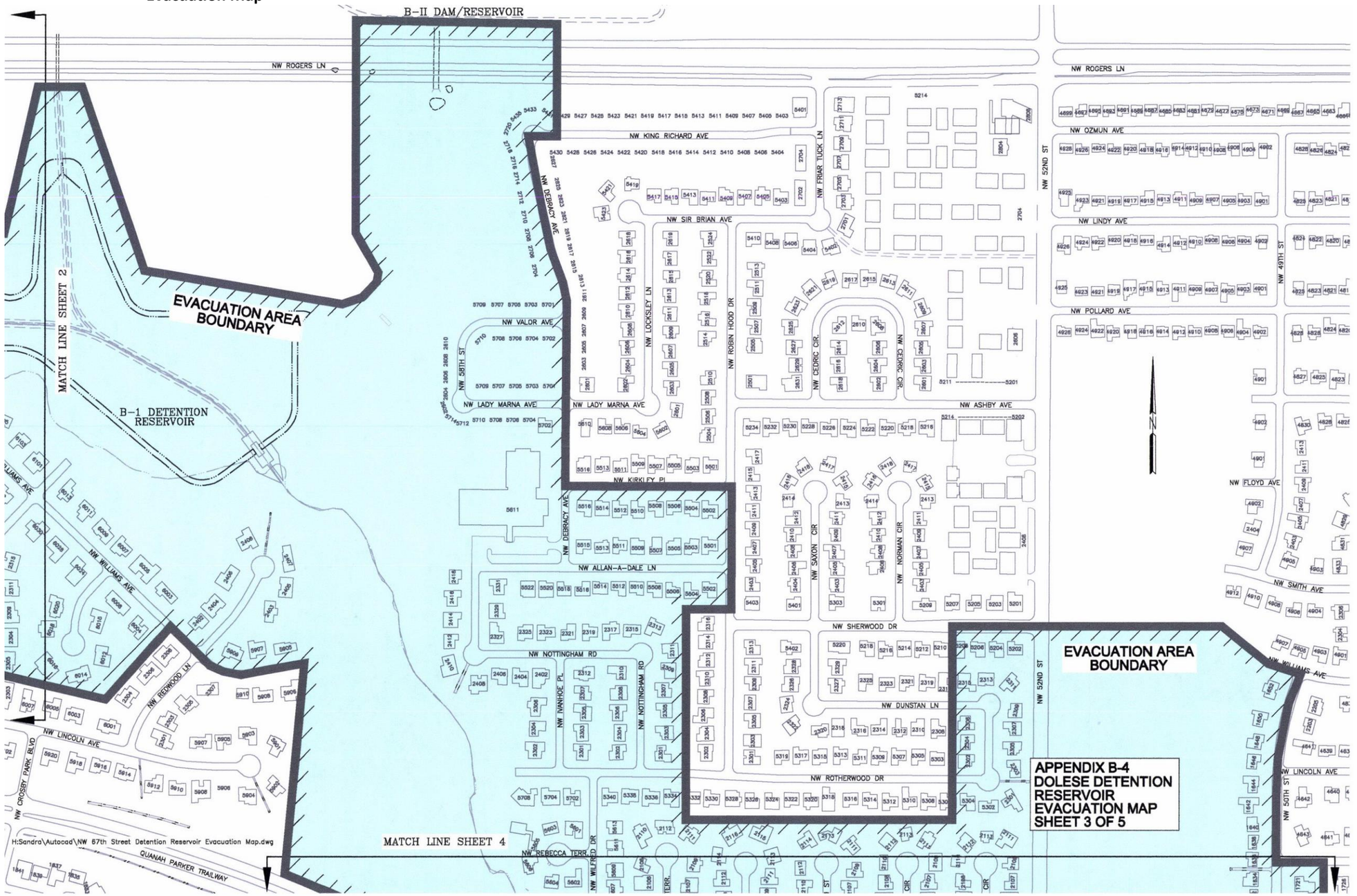
Appendix B-4
Evacuation Map



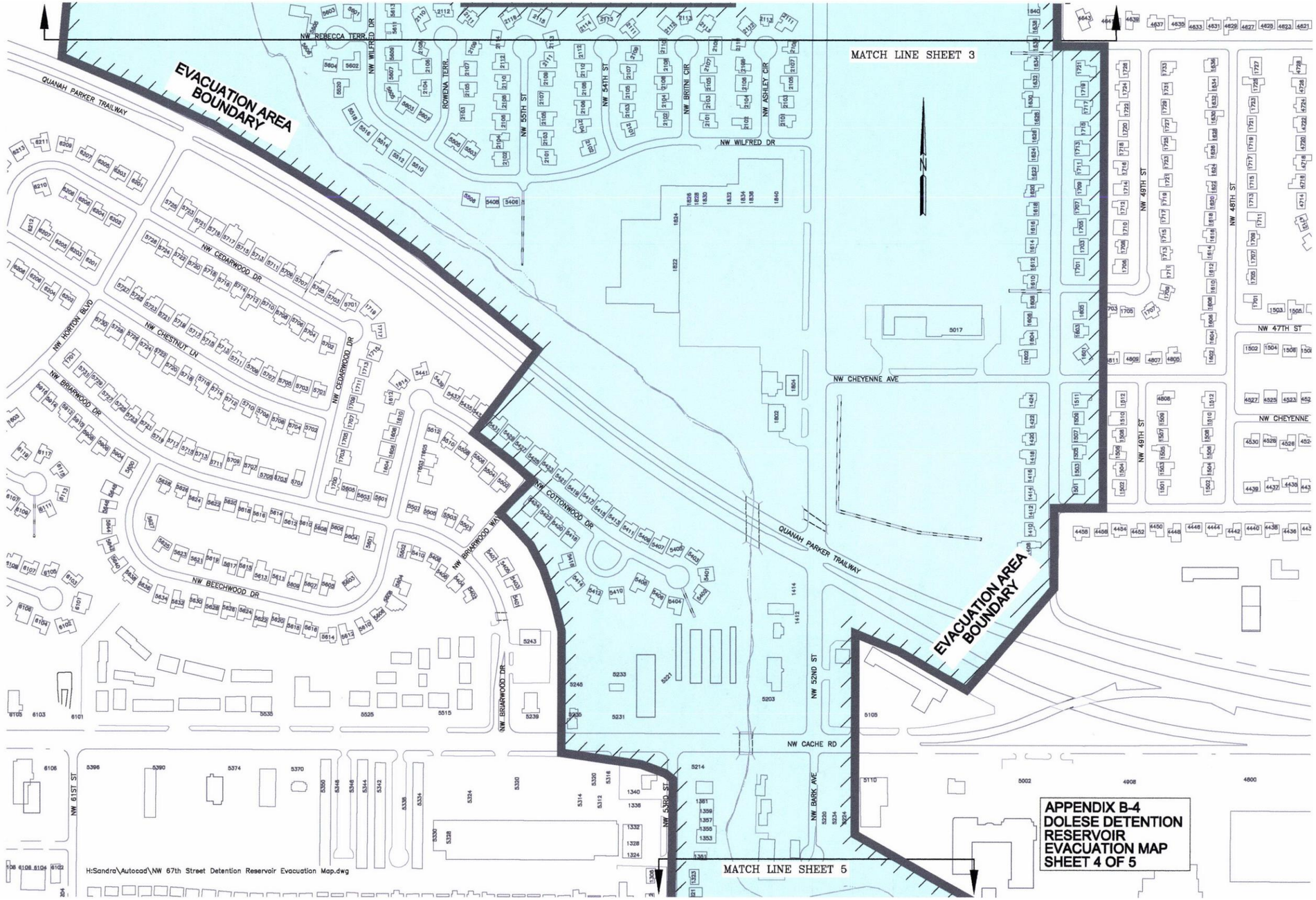
Appendix B-4
Evacuation Map



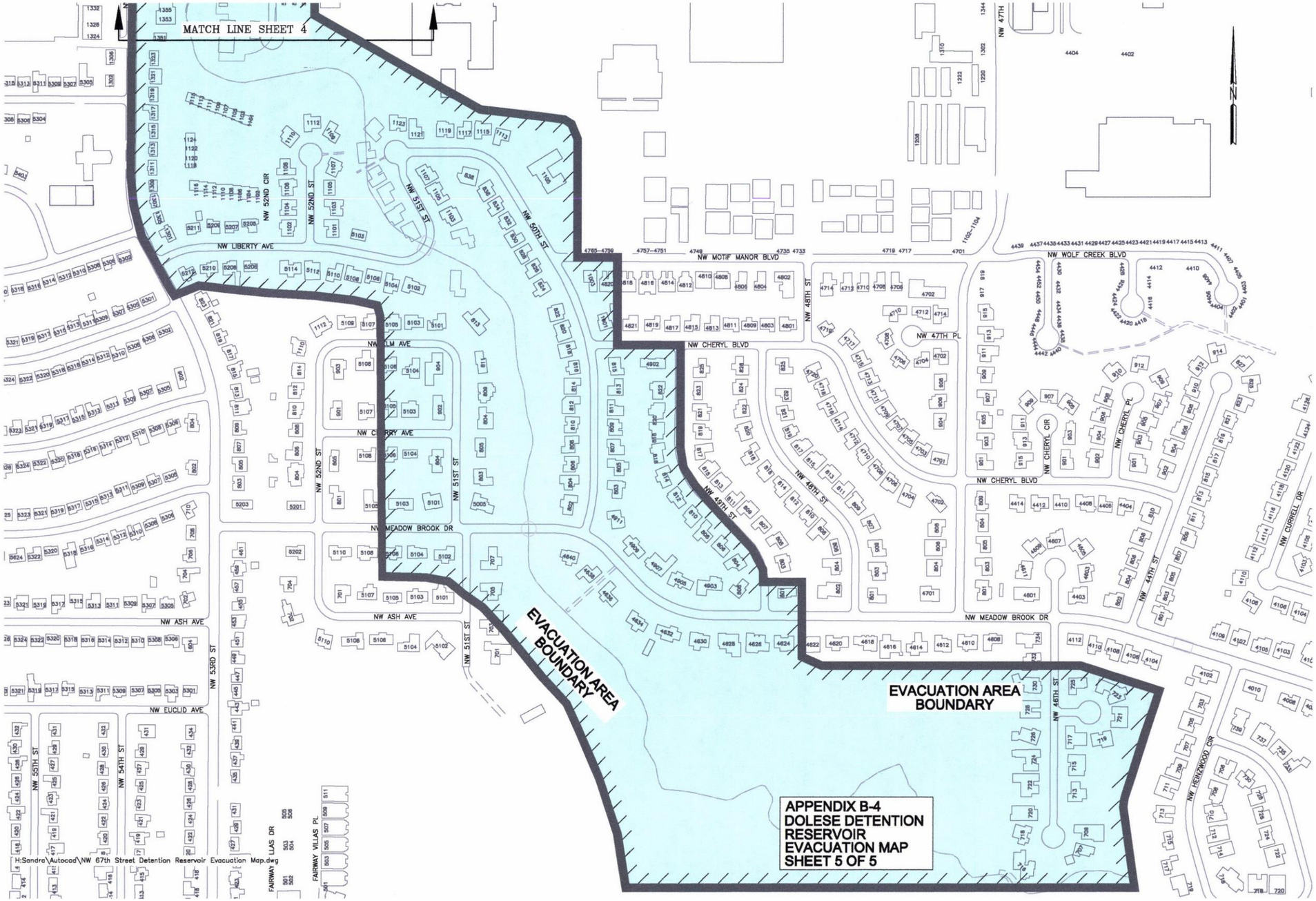
Appendix B-4
Evacuation Map



Appendix B-4
Evacuation Map



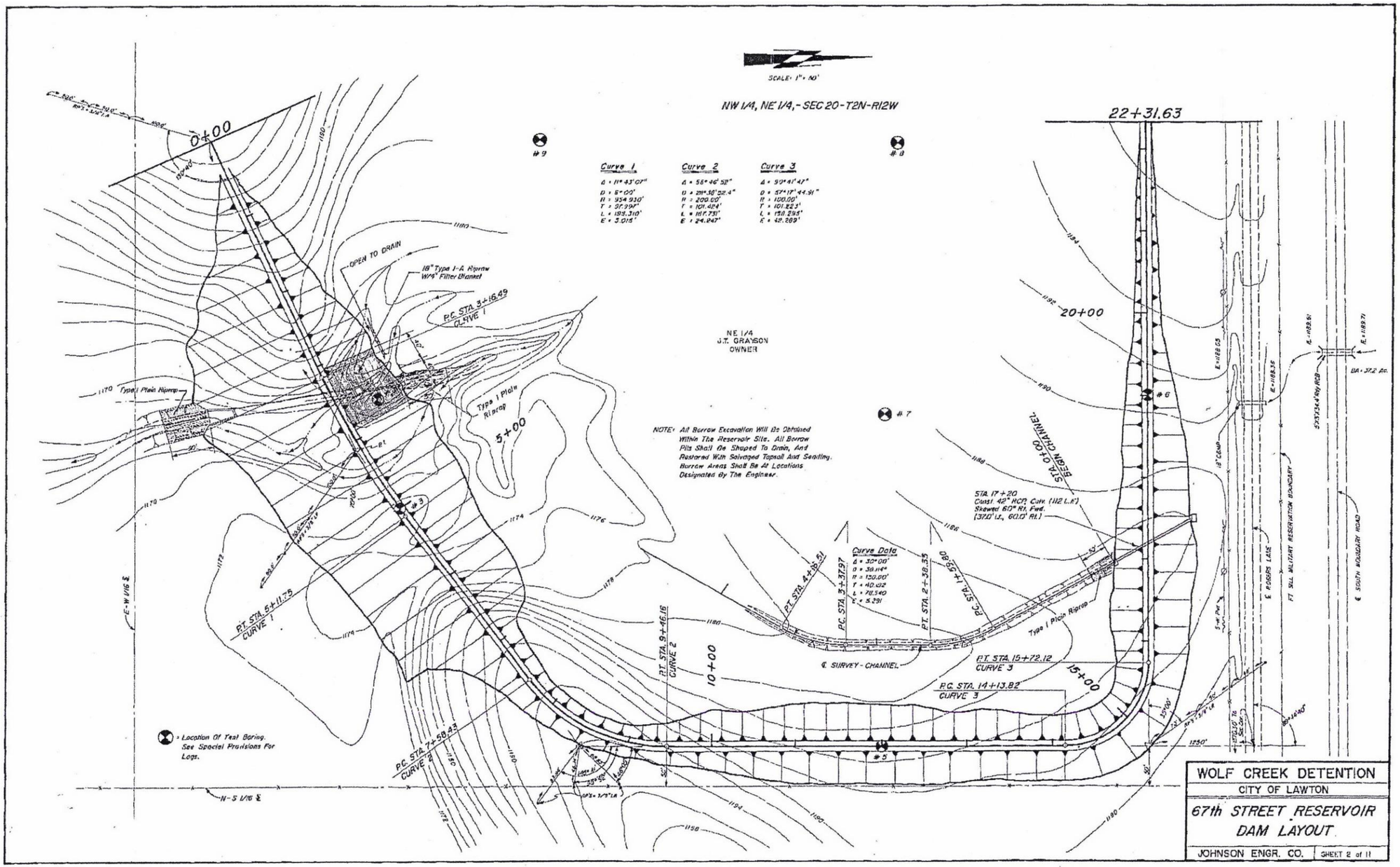
Appendix B-4
Evacuation Map



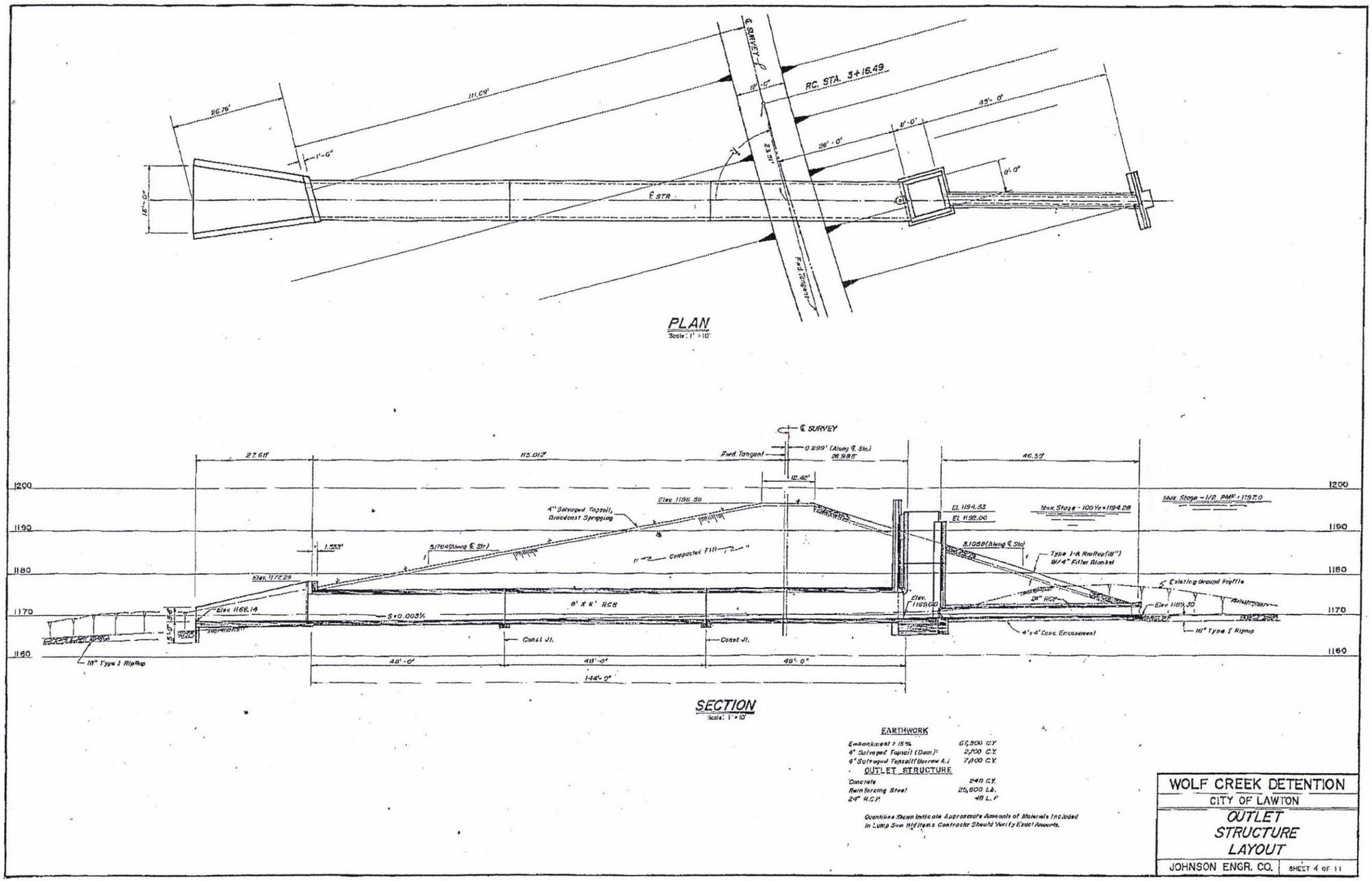
Appendix B-5
Residents/Businesses/Highways at risk

A major flood caused by a sudden breach of the dam is estimated to inundate numerous properties downstream as shown on the preceeding Evacuation Map. It is estimated that 635 homes, 1 school (Hugh Bish Elementary School at 5611 NW Allan-a-Dale Lane, phone 248-2244) and numerous commercial business located mainly along NW 52nd Street and Cache Road would require evacuation during a Level 3 Event. Due to the large number of properties, and the high rate of ownership transfer (mainly due to the influence of Ft. Sill), it is not practical to list each property by address, owner/resident and phone number. In the case of evacuation, entire neighborhoods will be contacted by means determined by the Emergency Management Director and as shown on the Evacuation Map.

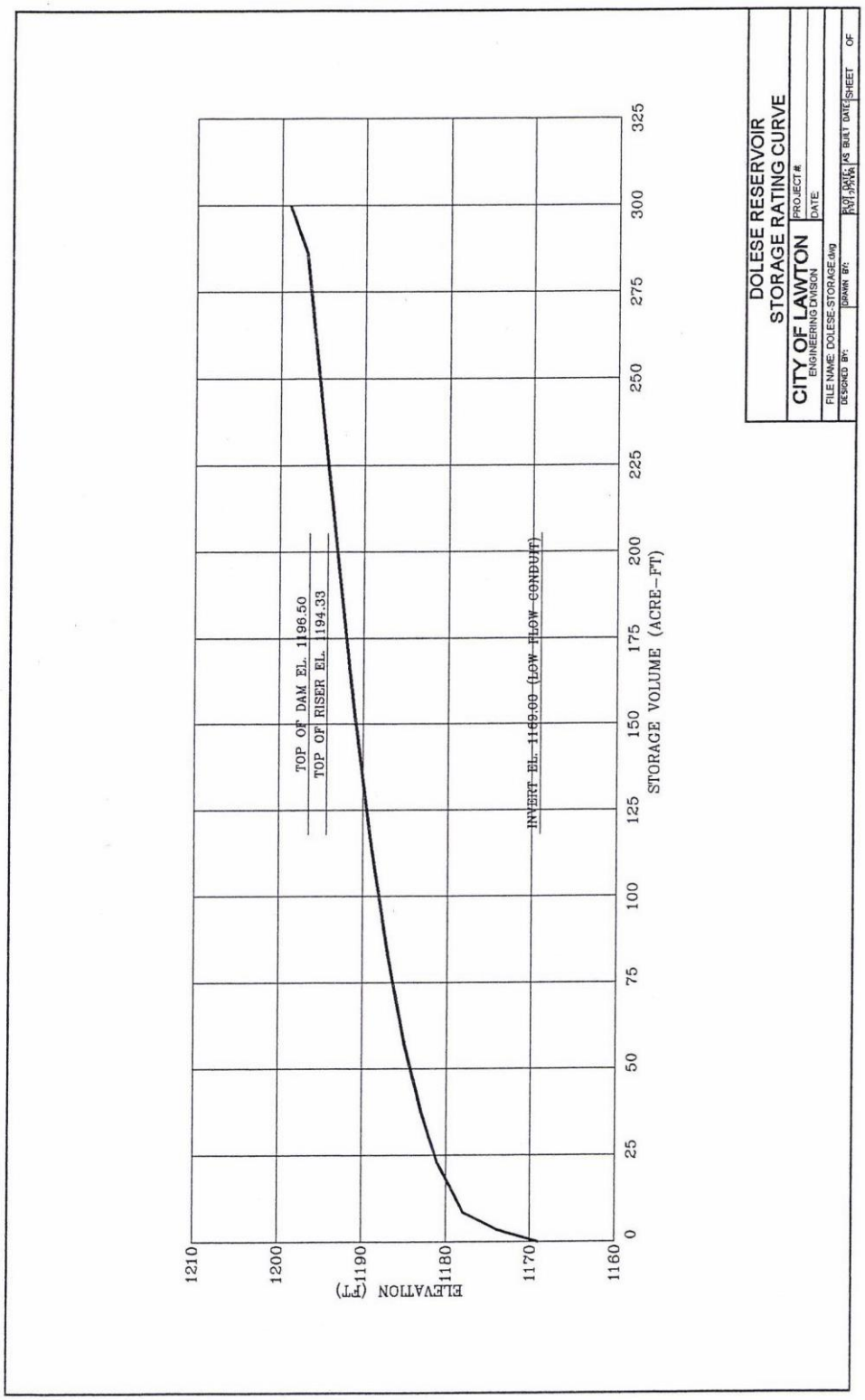
Appendix B-6
Plan View of Dam



Appendix B-7
Profile of Principal Spillway



Appendix B-8
Reservoir Elevation-area-volume
And Spillway Capacity Data



Appendix B-9
National Inventory of Dams (NID) Data

Dam Name: 67TH STREET RESERVOIR Former Dam Name: 67TH STR

Other Dam Name: DOLESE DAM and GRAYSON MOUNTAIN ESTATES DAM

NID ID: OK00065 State ID: OK00065

General Information

Owner: CITY OF LAWTON Owner Type: LOCAL GOVERNMENT

Purposes: C (Flood Control and Storm Water Management)

Inspection/Regulation Information

Hazard Potential Class.: High Insp. Frequency: 1 Year

State Regulated Dam?: Yes

State Regulating Agency: OWRB (Oklahoma Water Resource Board)

Location Information

State: OK River: TR-MIDDLE BRANCH WOLF CREEK

County: COMANCHE Section: Sec. 20, T-02-N, R-12-W, IM

City: LAWTON Distance: 0 Miles (In City Limits)

Latitude: 34.635 Longitude: -98.475

Engineering Information

Designer: JOHNSON ENGR.

Year Completed: 1984 Year Modified: 0

Dam Height: 27 Ft Structural Height: 27 Ft

Hydraulic Height: 27 Ft NID Height: 27 Ft

Dam Length: 2,231Ft Maximum Storage: 300 Acre-Ft

Normal Storage: 0 Acre-Ft NID Storage: 300 Acre-Ft

Volume: 67,900 CY Surface Area: 0 Acre

Drainage Area: 0.834 Sq. Mile Max. Discharge: 637 CFS

Spillway Type: U (Uncontrolled) Spillway Width: 32 Ft

Dam Type: REPG (Earth Gravity) Foundation: SK (Soil Known)

Core: HEK (Homogenous Earth Known) Outlet Gates: U (Uncontrolled)

Number of Locks: 0 Lock Width: 0

Lock Length: 0