US Army Corps of Engineers®

JOINT PUBLIC NOTICE

Tulsa District Published: March 20, 2025
Application No. SWT-2022-563 Expires: April 18, 2025

TO WHOM IT MAY CONCERN: The U.S. Army Corps of Engineers and Oklahoma Department of Environmental Quality (ODEQ) jointly announce that the District Engineer has received an application for a Department of the Army (DA) permit and Water Quality Certification pursuant to Sections 404 and 401 of the Clean Water Act. The ODEQ hereby incorporates this public notice and procedure as its own public notice and procedure by reference thereto. This public notice has been provided as a public service and may be reprinted at your discretion. However, any cost incurred as a result of reprinting or further distribution shall not be a basis for claim against the Government. The purpose of this public notice is to solicit comments from the public regarding the work described below:

APPLICANT: Honorable Loran Mayes
City of Wilburton
1110 W Stovall Road
Wilburton, OK 74578

AGENT: Melissa Jones
USDA-NRCS
100 USDA Drive, Suite 206
Stillwater, OK 74074

WATERWAY AND LOCATION: The project would affect waters of the United States associated with an unnamed tributary of Fourche Maline. The project/review area is located on the south side of SE Cravens Road, 3.7 miles southwest of Wilburton, in Section 30, Township 5 North, Range 19 East; at Latitude 34.882310 and Longitude -95.336177; Latimer County, Oklahoma.

EXISTING CONDITIONS: Fourche Maline Creek Watershed Multi-Purpose Structure (MPS) No. 7M, also known as Lloyd Church Lake, was built in 1964 by the City of Wilburton, the Latimer County Conservation District, and the Fourche Maline Creek Conservancy District No. 10 with the assistance of the Oklahoma Conservation Commission and the USDA Natural Resources Conservation Service (NRCS) Watershed Protection and Flood Prevention Program. The primary purpose of the MPS is flood control, but it also provides a source of municipal water for the City of Wilburton and surrounding rural water districts. The project area is located in the Fouche Mountains of the Ouachita Eco-region of Oklahoma Hydrologic 8 Unit (11110105), in the Fourche Maline Creek Watershed. The region features sandstone ridges with narrow valleys that commonly orient in an east-west direction. The dominant vegetation is pine-oak forest and woodlands.

PROJECT PURPOSE:

Basic: The basic project purpose is MPS rehabilitation.

Overall: The overall purpose of this project is to bring Fourche Maline Creek Watershed MPS No. 7M into compliance with current NRCS and Oklahoma safety performance standards for a high hazard dam and extend the service life to 100 years, reducing the risk of catastrophic dam failure and loss of life.

PROPOSED WORK: The applicant requests authorization to complete rehabilitation of Fourche Maline Creek Watershed, MPS No. 7M including the following: The existing concrete principal spillway tower on the front slope of the embankment would be excavated, cut off below the existing conservation pool elevation, conduit filled with a concrete gout mixture, and then back filled to final grade. The riprap lined plunge pool on the back side of the dam would have all riprap removed and be backfilled to proper grade in support of the new roller compacted concrete (RCC) spillway structure. The downstream channel would be excavated to ensure proper flow exiting the new RCC. This excavated material would be redistributed as fill within the rehabilitated dam along with a small amount of on-site borrow, upstream of the embankment, that lies within the conservation pool. The channel immediately downstream of the RCC spillway would be lined with riprap for erosion control along with the front slope of the embankment for erosion control from wave action. The rehabilitation would also include a concrete labyrinth weir crest structure located within the new RCC spillway structure. The RCC stepped spillway with stilling basin would dissipate the energy flowing through the principal spillway port and auxiliary spillway flow. The elevation of the principal spillway crest would be raised 9.5 ft to elevation 764.5, resulting in a change of 53 acres in the surface area of the conservation pool. This change in water level would impact 2,362 lf of intermittent and perennial streams and 3.48 acres of freshwater forested/shrub wetlands. The top of dam would be raised approximately 6 ft to elevation 775.5 and the dam height would be 73.5 ft. The auxiliary spillway crest elevation would be raised 7.3 ft to elevation 770.3. The agricultural water supply inlet and conduit would be replaced or modified to account for the changes in pool elevations.

Table 1: Summary of impacts to waters of the United States.

Original Proposal					
Number or Location	**Impact Activity**	**Type of Water**	**Type of Fill Material**	**Qty of Material cy below OHWM**	**Footprint (ac or lf)**
Principal Spillway Tower	Removal	Conservation Pool	Existing Cast Concrete	20 cy	80 sqft
Principal Spillway Tower	Redistribution	Conservation Pool	On-site soil/loam/silt/clay	160 cy	0.02 ac
Existing Plunge Pool	Removal	Conservation Pool	Riprap	775 cy	0.16 ac

New RCC Auxiliary Spillway	Excavation/ redistribution	Stream	On-site soil/loam/silt/clay	12,294 cy	1.14 ac
New RCC Auxiliary Spillway	Fill	Downstream Channel	Riprap	2,622 cy	0.29 ac
Wave Protection Area upstream side of dam	Riprap	Conservation Pool	Riprap	2,612 cy	0.65 ac
Borrow Area	Redistribution	Conservation Pool	On-site soil/loam/silt/clay	580 cy	.12 ac
Fourche Maline Tributaries	Raising of OHWM	Stream	No fill	n/a	2,362 lf
Freshwater Forested/Shrub Wetlands	Raising of OHWM	Wetlands	No fill	n/a	3.48 ac
Cubic yards (cy), ordinary high-water mark (OHWM), acre (ac), linear feet (lf)					

AVOIDANCE AND MINIMIZATION: The applicant has provided the following information in support of efforts to avoid and/or minimize impacts to the aquatic environment: The contractor would be required to develop a Storm Water Pollution Prevention Plan for construction activities in order to minimize runoff into the tributary system during construction (erosion control and sediment control). The contractor would be responsible for addressing maintenance and inspection, waste materials, and hazardous materials, as well as control to reduce pollutants such as silt barriers and containment methods. The plan would address the management and care of water, emergency action procedure, and protection of the work throughout the project.

COMPENSATORY MITIGATION: The applicant offered the following compensatory mitigation plan to offset unavoidable functional loss to the aquatic environment: The proposed project would raise the principal spillway elevation, increasing the size of the permanent/conservation pool, and inundating intermittent streams. Compensation for impacts to waters of the United States related to stream inundation would be accomplished through on-site in-kind mitigation. Fourche Maline Creek Watershed MPS No. 7M is outside of the service area of any mitigation bank or In-lieu fee program. The proposed mitigation would occur along three intermittent streams that feed into Lloyd Church Lake. These segments of stream are located on City of Wilburton property and can be easily accessed by service road. These sites were selected because of their proximity, common ownership, and high potential for functional improvements in habitat and water quality for Lloyd Church Lake and the tributary system. Mitigation would involve the removal of eastern red cedar along each of these streams. The applicant would be responsible for the protection and maintenance of the riparian buffers.

CULTURAL RESOURCES:
The Corps is evaluating the undertaking for effects to historic properties as required under Section 106 of the National Historic Preservation Act. This public notice serves to inform the public of the proposed undertaking and invites comments including those

from local, State, and Federal government Agencies with respect to historic resources. Our final determination relative to historic resource impacts may be subject to additional coordination with the State Historic Preservation Officer, federally recognized tribes and other interested parties.

The District Engineer's final eligibility and effect determination will be based upon coordination with the SHPO and/or THPO, as appropriate and required, and with full consideration given to the proposed undertaking's potential direct and indirect effects on historic properties within the Corps-identified permit area.

ENDANGERED SPECIES: The Corps has performed an initial review of the application utilizing the U.S. Fish and Wildlife Service Information for Planning and Consultation (IPaC) to determine if any threatened, endangered, proposed, or candidate species, as well as the proposed and final designated critical habitat may occur in the vicinity of the proposed project. The IPaC consultation number is 2023-0058952. Based on this initial review, the Corps has made a preliminary determination that the proposed project may affect species and critical habitat listed in Table 2. No other ESA-listed species or critical habitat will be affected by the proposed action.

Table 2: ESA-listed species and/or critical habitat potentially present in the action area.

Species Common Name and/or Critical Habitat Name	**Scientific Name**	**Federal Status**
Tricolored Bat	*Perimyotis subflavus*	Proposed Endangered
Piping Plover	*Charadrius melodus*	Threatened
Rufa Red Knot	*Calidris canutus rufa*	Threatened
Alligator Snapping Turtle	*Macrochelys temminckii*	Proposed Threatened
American Burying Beetle	*Nicrophorus americanus*	Threatened
Monarch Butterfly	*Danaus plexippus*	Proposed Threatened

Pursuant to Section 7 ESA, any required consultation with the Service(s) will be conducted in accordance with 50 CFR part 402. The NRCS is the lead Federal agency for ESA consultation for the proposed action. Any required consultation will be completed by NRCS.

This notice serves as request to the U.S. Fish and Wildlife Service for any additional information on whether any listed or proposed to be listed endangered or threatened

species or critical habitat may be present in the area which would be affected by the proposed activity.

NAVIGATION: The proposed structure or activity is not located in the vicinity of a federal navigation channel.

SECTION 408: The applicant will not require permission under Section 14 of the Rivers and Harbors Act (33 USC 408) because the activity, in whole or in part, would not alter, occupy, or use a Corps Civil Works project.

WATER QUALITY CERTIFICATION: Water Quality Certification will be required from ODEQ. Comments concerning water quality impacts will be forwarded to ODEQ for consideration in issuing a Section 401 Water Quality Certification for the proposed project. Work may not commence until decisions have been made on both Sections 401 and 404.

NOTE: This public notice is being issued based on information furnished by the applicant. This information has not been verified or evaluated to ensure compliance with laws and regulation governing the Regulatory Program. The geographic extent of aquatic resources within the proposed project area that either are, or are presumed to be, within the Corps jurisdiction has not been verified by Corps personnel.

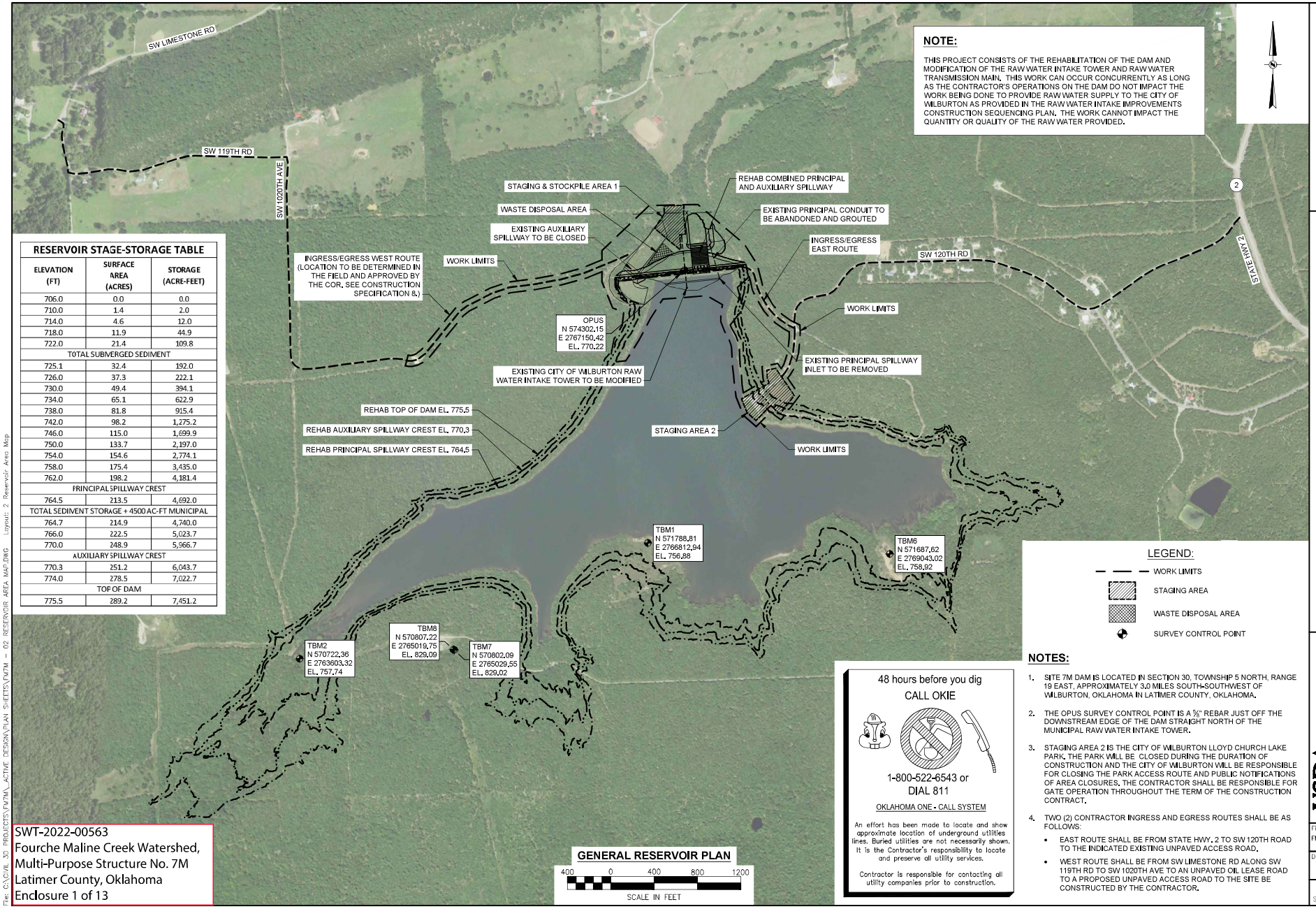
EVALUATION: The decision whether to issue a permit will be based on an evaluation of the probable impacts, including cumulative impacts of the proposed activity and its intended use on the public interest. That decision will reflect the national concern for both protection and utilization of important resources. The benefit which reasonably may be expected to accrue from the proposal must be balanced against its reasonably foreseeable detriments. All factors which may be relevant to the proposal will be considered, including the cumulative effects thereof: conservation, economics, aesthetics, general environmental concerns, wetlands, historic properties, fish and wildlife values, flood hazards, floodplain values, land use, navigation, shoreline erosion and accretion, recreation, water supply and conservation, water quality, energy needs, safety, food and fiber production, mineral needs, considerations of property ownerships, and, in general, the needs and welfare of the people. A permit will be denied if the discharge does not comply with the Environmental Protection Agency's 404(b)(1) Guidelines. Subject to the 404(b)(1) Guidelines and any other applicable guidelines or criteria, a permit will be granted unless the District Engineer determines that it would be contrary to the public interest.

COMMENTS: The Corps is soliciting comments from the public; Federal, State, and local agencies and officials; Indian Tribes; and other interested parties in order to consider and evaluate the impacts of this proposed activity. Any comments received will be considered by the Corps to determine whether to issue, modify, condition, or deny a permit for this proposal. To make this determination, comments are used to assess impacts to endangered species, historic properties, water quality, general environmental effects, and the other public interest factors listed above. Comments are used in the

preparation of an Environmental Assessment and/or an Environmental Impact Statement pursuant to the National Environmental Policy Act. Comments are also used to determine the need for a public hearing and to determine the overall public interest of the proposed activity.

The Tulsa District will receive written comments on the proposed work, as outlined above, until April 18, 2025. Comments should be submitted electronically via the Regulatory Request System (RRS) at https://rrs.usace.army.mil/rrs or to David Carraway at CESWT-RO@usace.army.mil. Alternatively, you may submit comments to mailing address Tulsa District Corps of Engineers, ATTN: Regulatory Office, 2488 East 81st Street, Tulsa, OK 74137. Please refer to the permit application number in your comments.

Any person may request, in writing, within the comment period specified in this notice, that a public hearing be held to consider the application. Requests for public hearings shall state, with particularity, the reasons for holding a public hearing. Requests for a public hearing will be granted, unless the District Engineer determines that the issues raised are insubstantial or there is otherwise no valid interest to be served by a hearing.



NOTE:

THIS PROJECT CONSISTS OF THE REHABILITATION OF THE DAM AND MODIFICATION OF THE RAW WATER INTAKE TOWER AND RAW WATER TRANSMISSION MAIN. THIS WORK CAN OCCUR CONCURRENTLY AS LONG AS THE CONTRACTOR'S OPERATIONS ON THE DAM DO NOT IMPACT THE WORK BEING DONE TO PROVIDE RAW WATER SUPPLY TO THE CITY OF WILBURTON AS PROVIDED IN THE RAW WATER INTAKE IMPROVEMENTS CONSTRUCTION SEQUENCING PLAN. THE WORK CANNOT IMPACT THE QUANTITY OR QUALITY OF THE RAW WATER PROVIDED.

RESERVOIR STAGE-STORAGE TABLE

ELEVATION (FT)	SURFACE AREA (ACRES)	STORAGE (ACRE-FEET)
706.0	0.0	0.0
710.0	1.4	2.0
714.0	4.6	12.0
718.0	11.9	44.9
722.0	21.4	109.8
TOTAL SUBIVERGED SEDIMENT		
725.1	32.4	192.0
726.0	37.3	222.1
730.0	49.4	394.1
734.0	65.1	622.9
738.0	81.8	915.4
742.0	98.2	1,275.2
746.0	115.0	1,699.9
750.0	133.7	2,197.0
754.0	154.6	2,774.1
758.0	175.4	3,435.0
762.0	198.2	4,181.4
PRINCIPAL SPILLWAY CREST		
764.5	213.5	4,692.0
TOTAL SEDIMENT STORAGE + 4500 AC-FT MUNICIPAL		
764.7	214.9	4,740.0
766.0	222.5	5,023.7
770.0	248.9	5,566.7
AUXILIARY SPILLWAY CREST		
770.3	251.2	6,043.7
774.0	278.5	7,022.7
TOP OF DAM		
775.5	289.2	7,451.2

LEGEND:

- WORK LIMITS
- STAGING AREA
- WASTE DISPOSAL AREA
- SURVEY CONTROL POINT

NOTES:

1. SITE 7M DAM IS LOCATED IN SECTION 30, TOWNSHIP 5 NORTH, RANGE 19 EAST, APPROXIMATELY 3.0 MILES SOUTH-SOUTHWEST OF WILBURTON, OKLAHOMA IN LATIMER COUNTY, OKLAHOMA.
2. THE OPUS SURVEY CONTROL POINT IS A ¾" REBAR JUST OFF THE DOWNSTREAM EDGE OF THE DAM STRAIGHT NORTH OF THE MUNICIPAL RAW WATER INTAKE TOWER.
3. STAGING AREA 2 IS THE CITY OF WILBURTON LLOYD CHURCH LAKE PARK. THE PARK WILL BE CLOSED DURING THE DURATION OF CONSTRUCTION AND THE CITY OF WILBURTON WILL BE RESPONSIBLE FOR CLOSING THE PARK ACCESS ROUTE AND PUBLIC NOTIFICATIONS OF AREA CLOSURES. THE CONTRACTOR SHALL BE RESPONSIBLE FOR GATE OPERATION THROUGHOUT THE TERM OF THE CONSTRUCTION CONTRACT.
4. TWO (2) CONTRACTOR INGRESS AND EGRESS ROUTES SHALL BE AS FOLLOWS:
   - EAST ROUTE SHALL BE FROM STATE HWY. 2 TO SW 120TH ROAD TO THE INDICATED EXISTING UNPAVED ACCESS ROAD.
   - WEST ROUTE SHALL BE FROM SW LIMESTONE RD ALONG SW 119TH RD TO SW 1020TH AVE TO AN UNPAVED OIL LEASE ROAD TO A PROPOSED UNPAVED ACCESS ROAD TO THE SITE BE CONSTRUCTED BY THE CONTRACTOR.

48 hours before you dig
CALL OKIE
1-800-522-6543 or
DIAL 811
OKLAHOMA ONE - CALL SYSTEM

An effort has been made to locate and show approximate location of underground utilities lines. Buried utilities are not necessarily shown. It is the Contractor's responsibility to locate and preserve all utility services.

Contractor is responsible for contacting all utility companies prior to construction.

GENERAL RESERVOIR PLAN

400 0 400 800 1200
SCALE IN FEET

SWT-2022-00563
Fourche Maline Creek Watershed,
Multi-Purpose Structure No. 7M
Latimer County, Oklahoma
Enclosure 1 of 13

Designed M. LEHNERR Date 07-20
Drawn M. LEHNERR Date 07-20
Revised Date
Approved Date

RESERVOIR AREA MAP
MULTI-PURPOSE STRUCTURE NO. 7M
FOURCHE MALINE CREEK WATERSHED
LATIMER COUNTY, OKLAHOMA

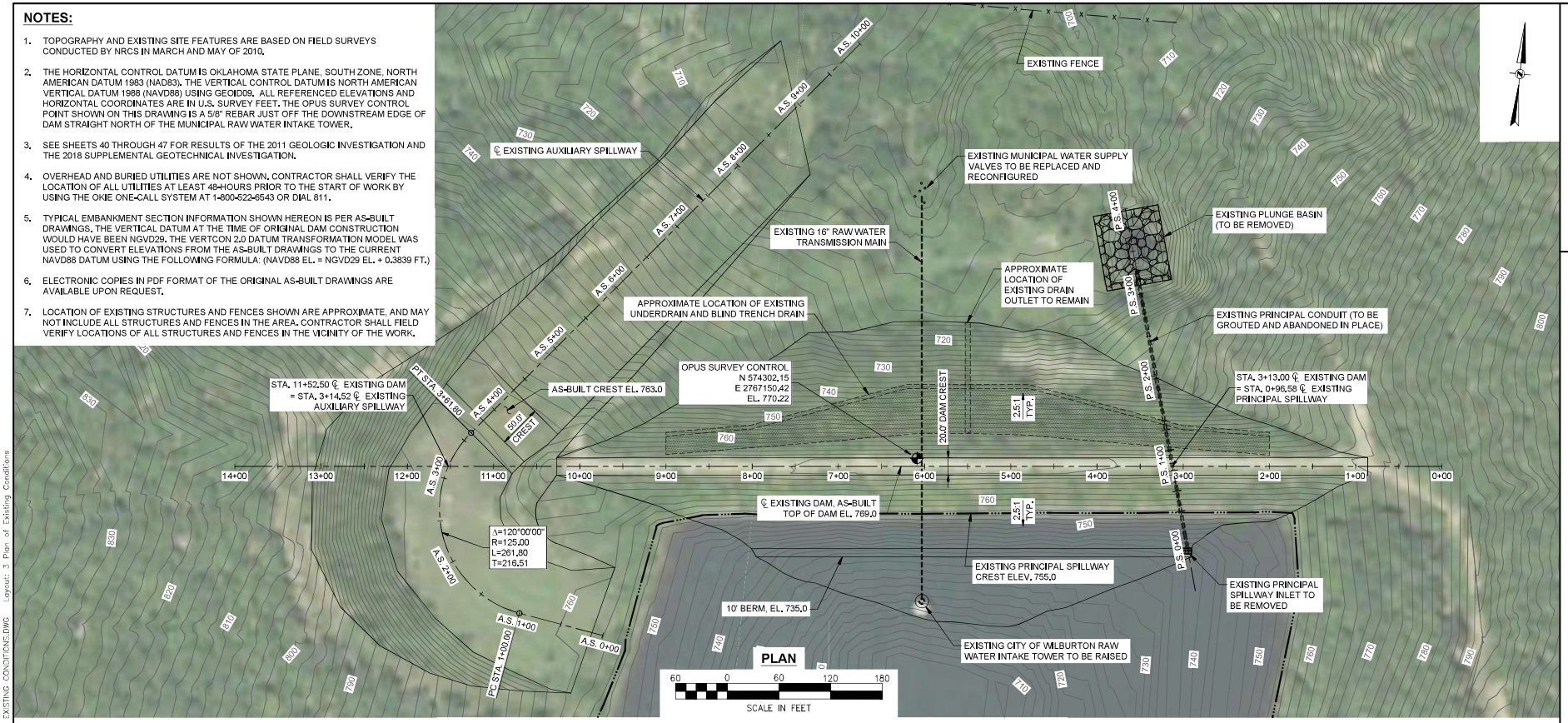
United States Department of Agriculture
Natural Resources Conservation Service

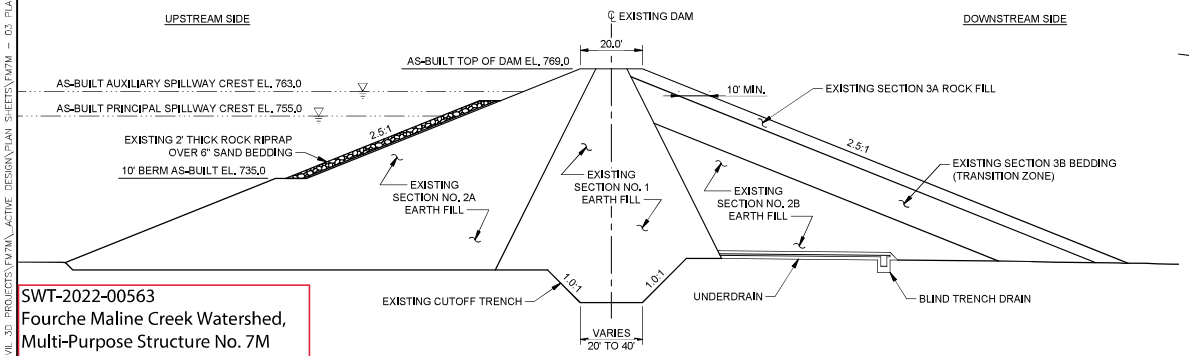
Filename: FM7M – 02 Reservoir Area Map.dwg
Drawing No. OK–425
Sheet 2 of 58

File: C:\CIVIL 3D PROJECTS\FM7M_ACTIVE DESIGN\PLAN SHEETS\FM7M – 02 RESERVOIR AREA MAP.DWG Layout: 2 Reservoir Area Map

NOTES:

1. TOPOGRAPHY AND EXISTING SITE FEATURES ARE BASED ON FIELD SURVEYS CONDUCTED BY NRCS IN MARCH AND MAY OF 2010.
2. THE HORIZONTAL CONTROL DATUM IS OKLAHOMA STATE PLANE, SOUTH ZONE, NORTH AMERICAN DATUM 1983 (NAD83). THE VERTICAL CONTROL DATUM IS NORTH AMERICAN VERTICAL DATUM 1988 (NAVD88) USING GEOID09. ALL REFERENCED ELEVATIONS AND HORIZONTAL COORDINATES ARE IN U.S. SURVEY FEET. THE OPUS SURVEY CONTROL POINT SHOWN ON THIS DRAWING IS A 5/8" REBAR JUST OFF THE DOWNSTREAM EDGE OF DAM STRAIGHT NORTH OF THE MUNICIPAL RAW WATER INTAKE TOWER.
3. SEE SHEETS 40 THROUGH 47 FOR RESULTS OF THE 2011 GEOLOGIC INVESTIGATION AND THE 2018 SUPPLEMENTAL GEOTECHNICAL INVESTIGATION.
4. OVERHEAD AND BURIED UTILITIES ARE NOT SHOWN. CONTRACTOR SHALL VERIFY THE LOCATION OF ALL UTILITIES AT LEAST 48-HOURS PRIOR TO THE START OF WORK BY USING THE OKIE ONE-CALL SYSTEM AT 1-800-522-6543 OR DIAL 811.
5. TYPICAL EMBANKMENT SECTION INFORMATION SHOWN HEREON IS PER AS-BUILT DRAWINGS. THE VERTICAL DATUM AT THE TIME OF ORIGINAL DAM CONSTRUCTION WOULD HAVE BEEN NGVD29. THE VERTCON 2.0 DATUM TRANSFORMATION MODEL WAS USED TO CONVERT ELEVATIONS FROM THE AS-BUILT DRAWINGS TO THE CURRENT NAVD88 DATUM USING THE FOLLOWING FORMULA: (NAVD88 EL. = NGVD29 EL. + 0.3839 FT.)
6. ELECTRONIC COPIES IN PDF FORMAT OF THE ORIGINAL AS-BUILT DRAWINGS ARE AVAILABLE UPON REQUEST.
7. LOCATION OF EXISTING STRUCTURES AND FENCES SHOWN ARE APPROXIMATE, AND MAY NOT INCLUDE ALL STRUCTURES AND FENCES IN THE AREA. CONTRACTOR SHALL FIELD VERIFY LOCATIONS OF ALL STRUCTURES AND FENCES IN THE VICINITY OF THE WORK.





TYPICAL EXISTING EMBANKMENT SECTION
N.T.S.

TYPICAL EXISTING AUXILIARY SPILLWAY SECTION
N.T.S.

SWT-2022-00563
Fourche Maline Creek Watershed,
Multi-Purpose Structure No. 7M
Latimer County, Oklahoma
Enclosure 2 of 13

PLAN OF EXISTING CONDITIONS

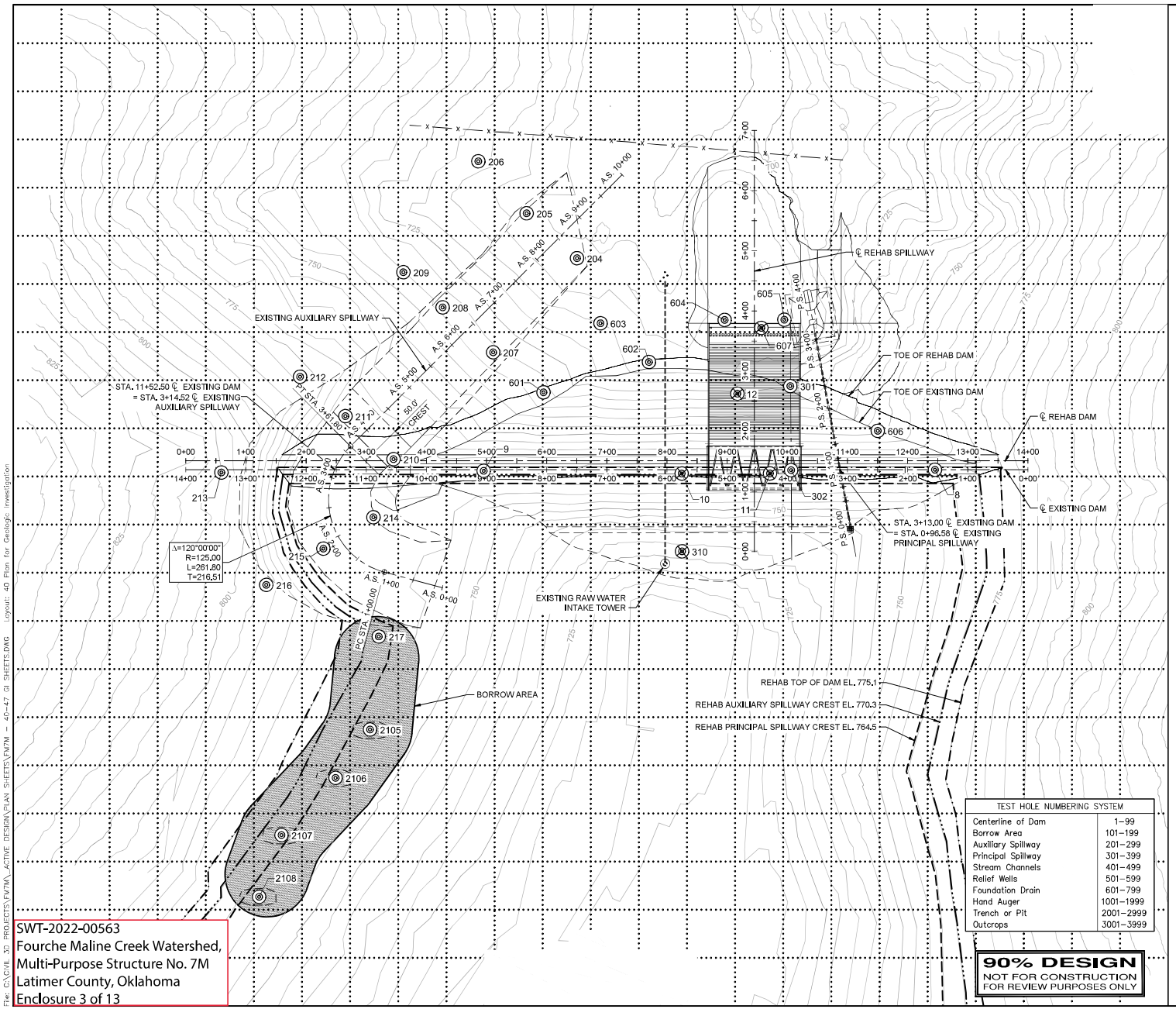
MULTI-PURPOSE STRUCTURE NO. 7M
FOURCHE MALINE CREEK WATERSHED
LATIMER COUNTY, OKLAHOMA

		Date
Designed	M. LENHERR	07-20
Drawn	M. LENHERR	07-20
Revised		
Approved		

United States Department of Agriculture
Natural Resources Conservation Service

Filename: FM7M – 03 Plan of Existing Conditions.dwg
Drawing No. OK-425
Sheet 3 of 58

File: C:\CIVIL 3D PROJECTS\FM7M_ACTIVE DESIGN\PLAN SHEETS\FM7M – 03 PLAN OF EXISTING CONDITIONS.DWG Layout: 3 Plan of Existing Conditions



LEGEND

SYMBOLS
UNCONSOLIDATED MATERIAL

gravel, sand, silt, clay, gravel, sandy, sand, gravelly, silt, gravelly, clay, gravelly, gravel, silty, sand, silty, silt, sandy, clay, sandy, gravel, clayey, sand, clayey, silt, clayey, clay, silty, low plastic clay fill, high plastic clay fill

CONSOLIDATED MATERIAL

sandstone Ss., shale Sh., siltstone Ms, limestone Ls., Sandstone, Shale, claystone Cs

OTHER SYMBOLS

- Hole Logged Only
- 2011 Hole Sampled
- 2018 Hole Sampled
- CPT – Cone Penetration Test
- Strike and Dip
- Pit or Trench
- Piezometer
- Filter Pack
- Screened Interval
- Groundwater Level at Time of Drilling
- Delayed Groundwater (24–hr in boreholes or piezometer reading)

ABBREVIATIONS

bld.	boulders (>12")	mas.	massive
calc.	calcareous	med.	medium
cav.	cavities	mod.	moderately
cmt.	cemented	n.r.	no recovery
cse.	coarse	per.	permeable
cbl.	cobbles (3"–12")	po.	poorly
c.t.	caved to	resid.	residual
ds.	dense	sl/.	slightly
d.s.	downstream	sft.	soft
fn.	fine	stf.	stiff
frm.	firm	s/.	some
frac.	fractured	t.b.	thin–bedded
frg.	fragments	tr.	trace
fri.	friable	uad	unable to auger deeper
int.	interbedded	u.s.	upstream
grn.	grain	v/.	very
gyp.	gypsic/gypsum	w/.	with
hd.	hard	wea.	weathered
h.	highly	S.W.L.	static water level (date)
lam.	laminated	w.l.	water level (date) during drilling
lse.	loose		

C	clay, clayey	O	organic
G	gravel, gravelly	P	poorly graded
M	silt, silty	S	sand, sandy
		W	well graded

UNIFIED SOIL CLASSIFICATION SYSTEMS SYMBOLS

GW Well graded gravels; gravel–sand mixtures
GP Poorly graded gravels
GM Silty gravels; gravel–sand–silt mixtures
GC Clayey gravels; gravel–sand–clay mixtures
SW Well graded sands; sand–gravel mixtures
SP Poorly graded sands
SM Silty sand
SC Clayey sands; sand–clay mixtures
ML Silts with liquid limit (LL) of 50 or less
MH Silts with LL above 50
CL Clays with LL of 50 or less
CH Clays with LL above 50
OL Organic silts and clays with LL of 50 or less
OH Organic silts and clays with LL above 50

The soil classification shown on this sheet are those made by the operations geologist. They do not in all cases agree with the classification made by the Soil Mechanics Laboratory.

Additional soil and foundation investigation data together with laboratory test data are available in NRCS field construction office for review by prospective bidders.

TEST HOLE NUMBERING SYSTEM	
Centerline of Dam	1–99
Borrow Area	101–199
Auxiliary Spillway	201–299
Principal Spillway	301–399
Stream Channels	401–499
Relief Wells	501–599
Foundation Drain	601–799
Hand Auger	1001–1999
Trench or Pit	2001–2999
Outcrops	3001–3999

90% DESIGN
NOT FOR CONSTRUCTION
FOR REVIEW PURPOSES ONLY

SWT-2022-00563
Fourche Maline Creek Watershed,
Multi-Purpose Structure No. 7M
Latimer County, Oklahoma
Enclosure 3 of 13

PLAN FOR GEOLOGIC INVESTIGATION

MULTI–PURPOSE STRUCTURE NO. 7M
FOURCHE MALINE CREEK WATERSHED
LATIMER COUNTY, OKLAHOMA

Designed L. FINNEFROCK Date 07–20
Drawn CAD Date 07–20
Revised Date
Approved Date

United States Department of Agriculture
Natural Resources Conservation Service

Filename: FM7M – 40–47 GI Sheets.dwg
Drawing No. OK–425
Sheet 40 of 58

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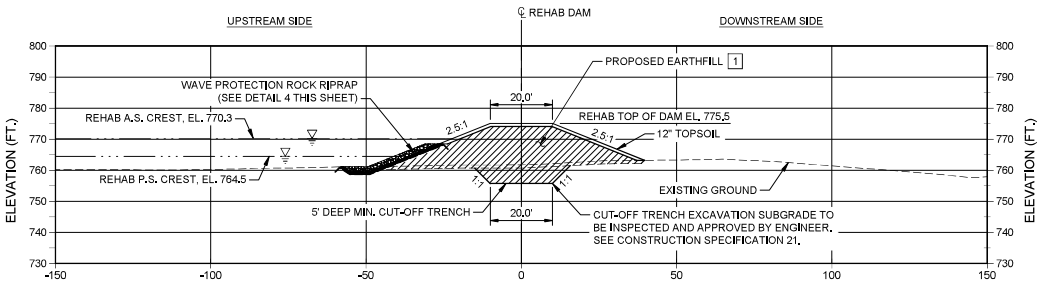
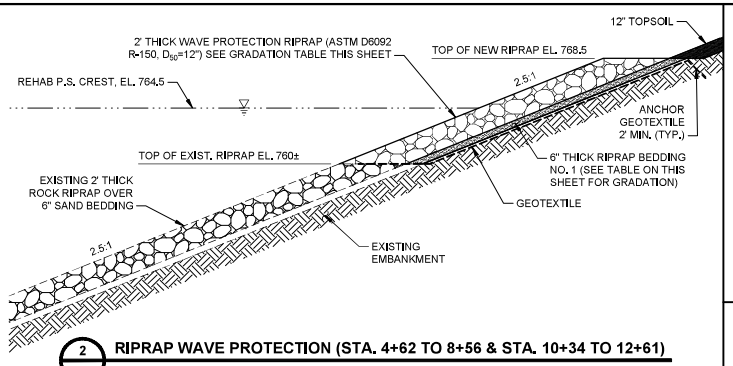


1 TYPICAL REHAB EMBANKMENT SECTION (STA. 1+89.4 TO STA. 4+57.6 AND STA. 12+27.6 TO STA. 13+55.2)

SCALE IN FEET

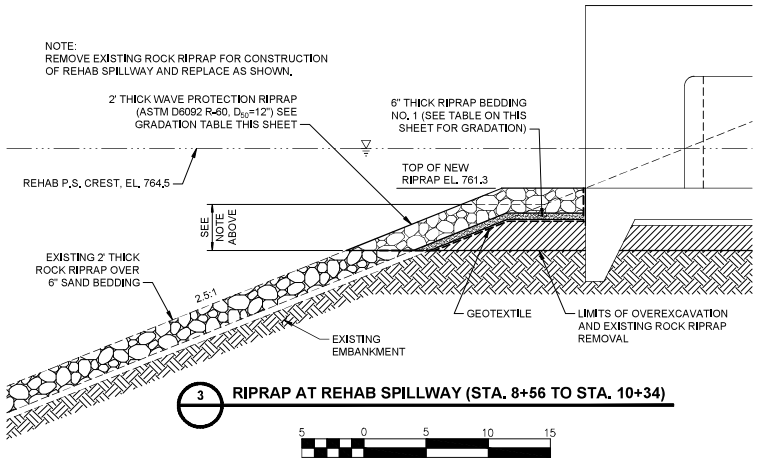
NOTES:

1. SEE MATERIAL PLACEMENT DATA TABLE ON SHEET 6.



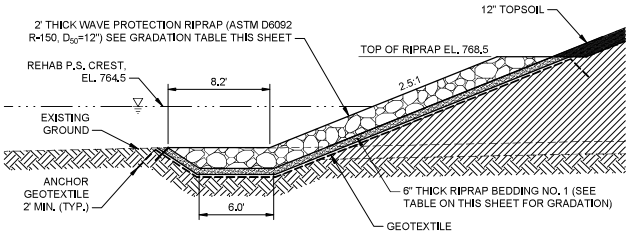
2 RIPRAP WAVE PROTECTION (STA. 4+62 TO 8+56 & STA. 10+34 TO 12+61)

SCALE IN FEET



3 RIPRAP AT REHAB SPILLWAY (STA. 8+56 TO STA. 10+34)

SCALE IN FEET



4 RIPRAP WAVE PROTECTION (STA. 1+74 TO STA. 4+62)

SCALE IN FEET

RIPRAP BEDDING NO. 1 GRADATION (UPSTREAM WAVE PROTECTION)	
PARTICLE SIZE (INCHES)	% SMALLER
3	100
2.5	95 - 100
2	35 - 70
1.5	0 - 15
0.75	0 - 5

RIPARAP NO. 1 ASTM D6092 R-60 RIPRAP GRADATION	
SIZE (POUNDS)	% LIGHTER
150	100
60	50 - 100
30	15 - 50
10	0 - 15

RIPRAP NOTES:

1. ROCK RIPRAP FOR THE WAVE BERM SHALL MEET THE GRADATION REQUIREMENTS OF ASTM D6092 FOR R-60 ROCK RIPRAP AS SHOWN IN THE TABLE ON THIS SHEET.
2. ALL ROCK RIPRAP SHALL COMPLY WITH CONSTRUCTION SPECIFICATION 61, AND MATERIAL SPECIFICATION 523.
3. SPALLS AND ROCK DUST THAT PASS A 3" SIEVE SHALL CONSIST OF LESS THAN 5 PERCENT BY WEIGHT.
4. RIPRAP BEDDING SHALL CONFORM TO THE GRADATION FOR AS SHOWN IN THE TABLE ON THIS SHEET.
5. ROCK PLACED AGAINST CONCRETE WORKS SHALL BE PLACED CAREFULLY TO AVOID DAMAGE.

SWT-2022-00563
Fourche Maline Creek Watershed,
Multi-Purpose Structure No. 7M
Latimer County, Oklahoma
Enclosure 4 of 13

Designed M. LEHERR 07-20
Drawn M. LEHERR 07-20
Revised
Approved

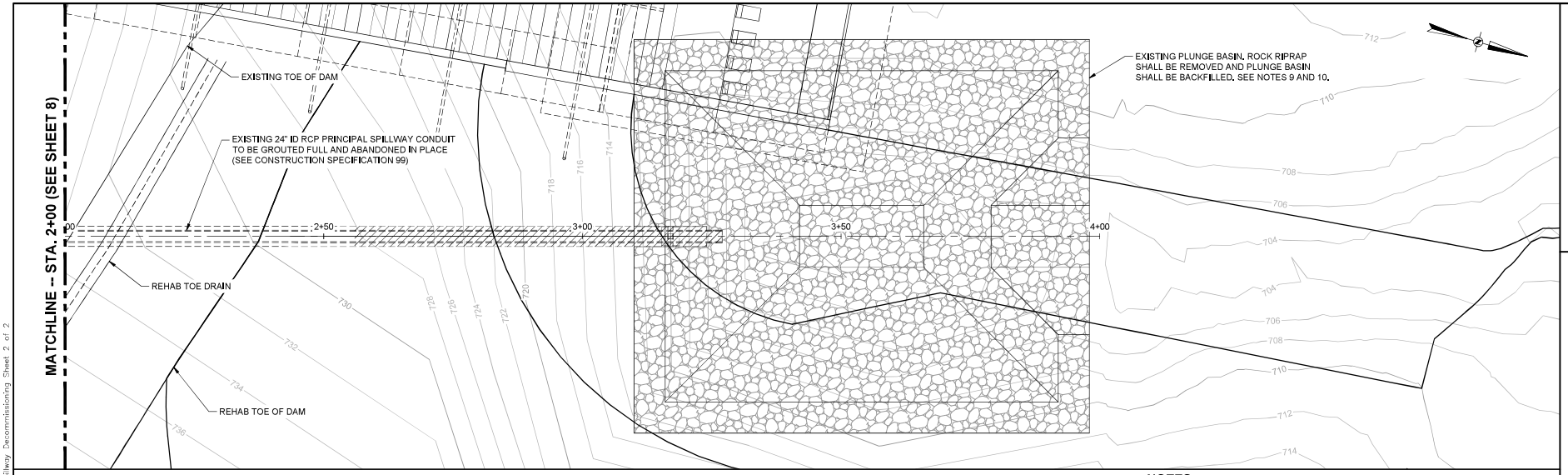
EMBANKMENT SECTIONS AND DETAILS SHEET 2 OF 2

MULTI-PURPOSE STRUCTURE NO. 7M
FOURCHE MALINE CREEK WATERSHED
LATIMER COUNTY, OKLAHOMA

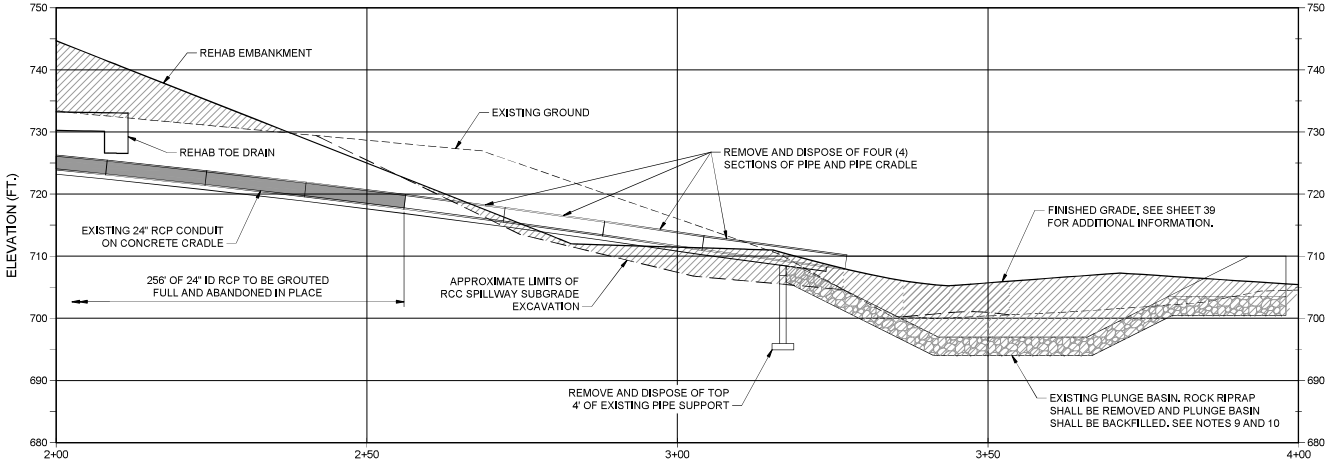
United States Department of Agriculture
Natural Resources Conservation Service

Filename: 7M – 06-07 Embankment Sections and Details.dwg
Drawing No. OK-425
Sheet 7 of 58

File: C:\CIVIL 3D PROJECTS\FWTM_ACTIVE DESIGN\PLAN SHEETS\FWTM – 06-07 EMBANKMENT SECTIONS AND DETAILS.DWG Layout: 7 Embankment Sections and Details Sheet 2 of 2



PLAN - EXISTING PRINCIPAL SPILLWAY DECOMMISSIONING (2 OF 2)



PROFILE - EXISTING PRINCIPAL SPILLWAY DECOMMISSIONING (2 OF 2)

SCALE IN FEET: 10 0 10 20 30

NOTES:

1. CONDUIT ABANDONMENT AND GROUTING SHALL NOT BE INITIATED UNTIL CONSTRUCTION OF THE NEW SPILLWAY IS COMPLETE AND ADEQUATE TO REMOVE WATER FROM THE EXISTING POOL IN ACCORDANCE WITH THE WRITTEN PLAN FOR REMOVING WATER IN THE POOL, AND AS APPROVED BY THE ENGINEER.
2. DRAWINGS OF EXISTING STRUCTURES WERE DEVELOPED FROM THE AS-BUILT DRAWINGS. AS A RESULT, THE DIMENSIONS OF EXISTING FACILITIES ARE APPROXIMATE. ACTUAL DIMENSIONS COULD VARY FROM DIMENSIONS AND THICKNESSES SHOWN. CONTRACTOR SHALL FIELD VERIFY ACTUAL DIMENSIONS PRIOR TO THE START OF WORK. A COPY OF THE AS-BUILT DRAWINGS ARE AVAILABLE FROM THE CONTRACTING OFFICER.
3. REINFORCEMENT AND EMBEDDED METALWORK NOT SHOWN. AS-BUILT DRAWINGS INDICATE THAT ALL CONCRETE, EXCEPT FOR THE PIPE CRADLE, IS REINFORCED. HOWEVER, THE AS-BUILT DRAWINGS ALSO INDICATE THAT THE LAST 29' OF PIPE CRADLE (DOWNSTREAM END) IS ALSO REINFORCED.
4. DEMOLITION OF CONCRETE STRUCTURES, EXCLUDING INLET STRUCTURE, SHALL INCLUDE REMOVAL AND DISPOSAL OF ALL CONCRETE, MISCELLANEOUS METALWORK, AND EQUIPMENT INCLUDING, BUT NOT LIMITED TO, ALL CONCRETE REINFORCEMENT, METAL GRATING, AND TRASHRACKS IN ACCORDANCE WITH THE REQUIREMENTS OF CONSTRUCTION SPECIFICATION 3.
5. EXISTING INLET STRUCTURE TO BE CUT-OFF AT ELEVATION 740±. THE REMOVED TOP PORTION OF STRUCTURE SHALL BE DISPOSED OF IN ACCORDANCE WITH THE REQUIREMENTS OF CONSTRUCTION SPECIFICATION 3. THE REMAINING PORTION OF THE INLET STRUCTURE MAY BE USED TO DEWATER THE SITE DURING CONSTRUCTION. AFTER CONSTRUCTION OF THE NEW SPILLWAY IS COMPLETE AND OPERATIONAL, THE REMAINING PORTION OF THE INLET STRUCTURE AND THE EXISTING CONDUIT SHALL BE GROUTED AS SHOWN ON THE DRAWINGS.
6. THE LIMITS OF EXCAVATION SHOWN ARE APPROXIMATE. FINAL EXCAVATION LIMITS SHALL BE DETERMINED BY THE CONTRACTOR AND APPROVED BY THE ENGINEER.
7. REMOVE AND DISPOSE OF EXISTING RCP CONDUIT AND CONCRETE CRADLE IN ACCORDANCE WITH CONSTRUCTION SPECIFICATION 3. THE BOTTOM OF THE EXISTING CONCRETE CRADLE SHALL BE THE LOWER LIMIT OF EXCAVATION ALONG THE LENGTH OF THE CONDUIT AT THE AREAS OF CONDUIT REMOVAL.
8. GROUT EXISTING RCP FROM THE DOWNSTREAM END FOLLOWING REMOVAL OF SPECIFIED PORTIONS OF EXISTING RCP. GROUT RCP FROM DOWNSTREAM END OF RCP TO REMAIN IN-PLACE. GROUT REMAINING PORTION OF THE EXISTING INLET STRUCTURE. SEE CONSTRUCTION SPECIFICATION 3 AND CONSTRUCTION SPECIFICATION 99 FOR REQUIREMENTS REGARDING REMOVAL OF EXISTING STRUCTURES AND GROUTING OF EXISTING PRINCIPAL SPILLWAY CONDUIT RESPECTIVELY.
9. EXISTING ROCK RIPRAP IN PLUNGE BASIN SHALL BE REMOVED AND DISPOSED OF ONSITE.
10. AREAS OF EXISTING PLUNGE BASIN LOCATED UNDER AND WITHIN AN IMAGINARY 45-DEGREE LINE PROJECTED DOWN FROM THE BACK OF THE PROPOSED OVERTOPPING SPILLWAY STRUCTURE SHALL BE BACKFILL WITH RCC. THE REMAINDER OF THE PLUNGE BASIN EXCAVATION SHALL BE BACKFILLED WITH EARTHFILL IN ACCORDANCE WITH CONSTRUCTION SPECIFICATION 23 AND MEETING THE REQUIREMENTS OF THE MATERIAL PLACEMENT TABLE ON SHEET 6. EXCAVATION SUBGRADE SHALL BE INSPECTED AND APPROVED BY THE ENGINEER PRIOR TO PLACEMENT OF EARTHFILL.
11. CONTRACTOR IS RESPONSIBLE FOR DESIGN OF COFFERDAM AND DEWATERING SYSTEM AS NEEDED TO ACCOMPLISH UPSTREAM EXCAVATION FOR SPILLWAY DECOMMISSIONING. REFER TO CONSTRUCTION SPECIFICATION 1.

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Fourche Maline Creek Watershed,
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Revised
Approved

EXISTING PRINCIPAL SPILLWAY DECOMMISSIONING SHEET 2 OF 2

MULTI-PURPOSE STRUCTURE NO. 7M
FOURCHE MALINE CREEK WATERSHED
LATIMER COUNTY, OKLAHOMA

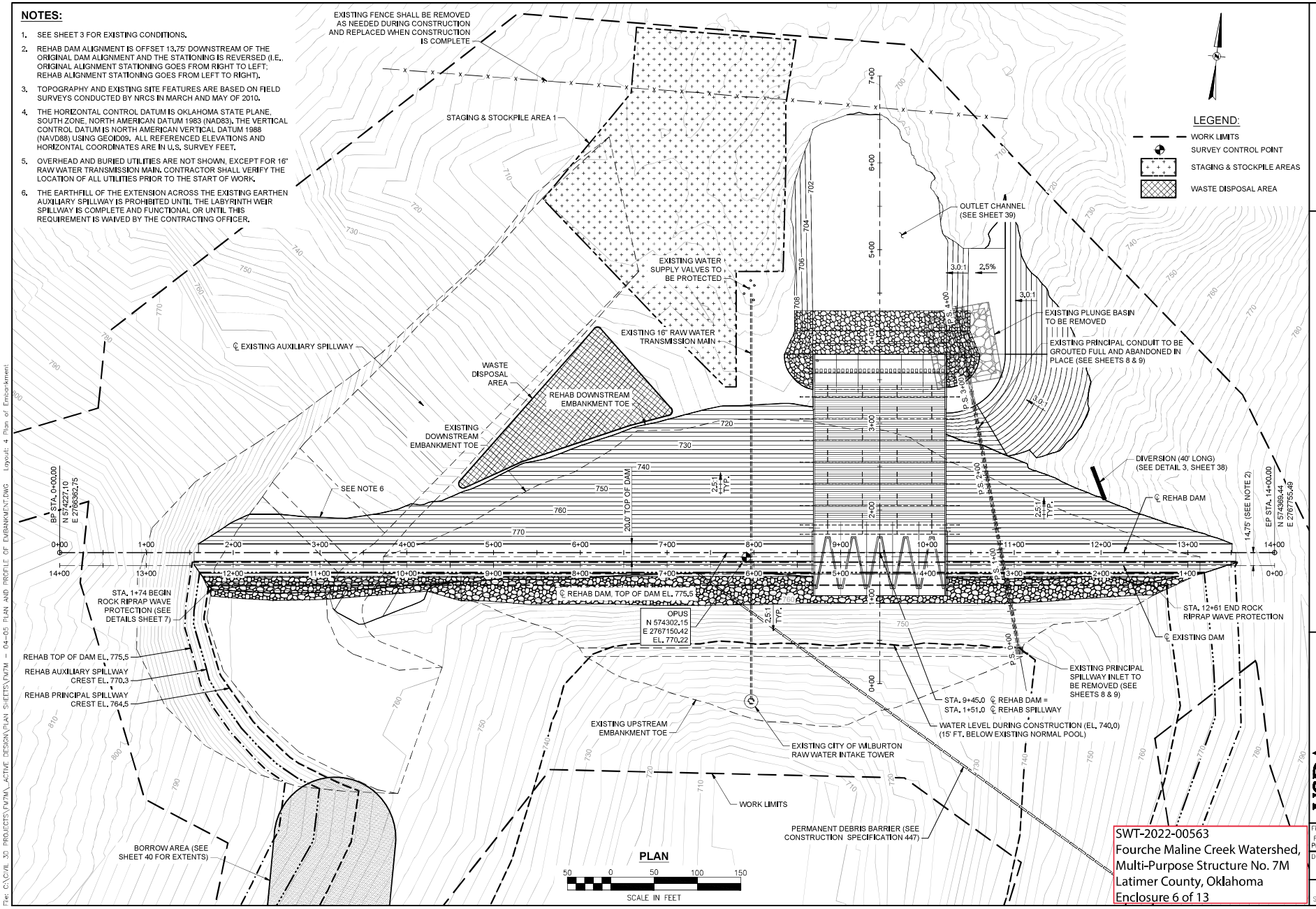
United States Department of Agriculture
Natural Resources Conservation Service

Filename: FM7M – 08-09 Existing PS Abandonment.dwg
Drawing No. OK-425
Sheet 9 of 58

File: C:\CIVIL 3D PROJECTS\FM7M_ACTIVE DESIGN\PLAN SHEETS\FM7M – 08-09 EXISTING PS ABANDONMENT.DWG Layout: 9 Existing Principal Spillway Decommissioning Sheet 2 of 2

NOTES:

1. SEE SHEET 3 FOR EXISTING CONDITIONS.
2. REHAB DAM ALIGNMENT IS OFFSET 13.75' DOWNSTREAM OF THE ORIGINAL DAM ALIGNMENT AND THE STATIONING IS REVERSED (I.E., ORIGINAL ALIGNMENT STATIONING GOES FROM RIGHT TO LEFT; REHAB ALIGNMENT STATIONING GOES FROM LEFT TO RIGHT).
3. TOPOGRAPHY AND EXISTING SITE FEATURES ARE BASED ON FIELD SURVEYS CONDUCTED BY NRCS IN MARCH AND MAY OF 2010.
4. THE HORIZONTAL CONTROL DATUM IS OKLAHOMA STATE PLANE, SOUTH ZONE, NORTH AMERICAN DATUM 1983 (NAD83). THE VERTICAL CONTROL DATUM IS NORTH AMERICAN VERTICAL DATUM 1988 (NAVD88) USING GEOID09. ALL REFERENCED ELEVATIONS AND HORIZONTAL COORDINATES ARE IN U.S. SURVEY FEET.
5. OVERHEAD AND BURIED UTILITIES ARE NOT SHOWN, EXCEPT FOR 16" RAW WATER TRANSMISSION MAIN. CONTRACTOR SHALL VERIFY THE LOCATION OF ALL UTILITIES PRIOR TO THE START OF WORK.
6. THE EARTHFILL OF THE EXTENSION ACROSS THE EXISTING EARTHEN AUXILIARY SPILLWAY IS PROHIBITED UNTIL THE LABYRINTH WEIR SPILLWAY IS COMPLETE AND FUNCTIONAL OR UNTIL THIS REQUIREMENT IS WAIVED BY THE CONTRACTING OFFICER.



SWT-2022-00563
Fourche Maline Creek Watershed,
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Latimer County, Oklahoma
Enclosure 6 of 13

Designed M. LEHERR 07-20
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PLAN OF EMBANKMENT

MULTI-PURPOSE STRUCTURE NO. 7M
FOURCHE MALINE CREEK WATERSHED
LATIMER COUNTY, OKLAHOMA

United States Department of Agriculture
Natural Resources Conservation Service

Filename: FM7M - 04-05 Plan and Profile of Embankment.dwg
Drawing No. OK-425
Sheet 4 of 58

File: C:\CIVIL 3D PROJECTS\FM7M_ACTIVE DESIGN\PLAN SHEETS\FM7M - 04-05 PLAN AND PROFILE OF EMBANKMENT.DWG Layout: 4 Plan of Embankment

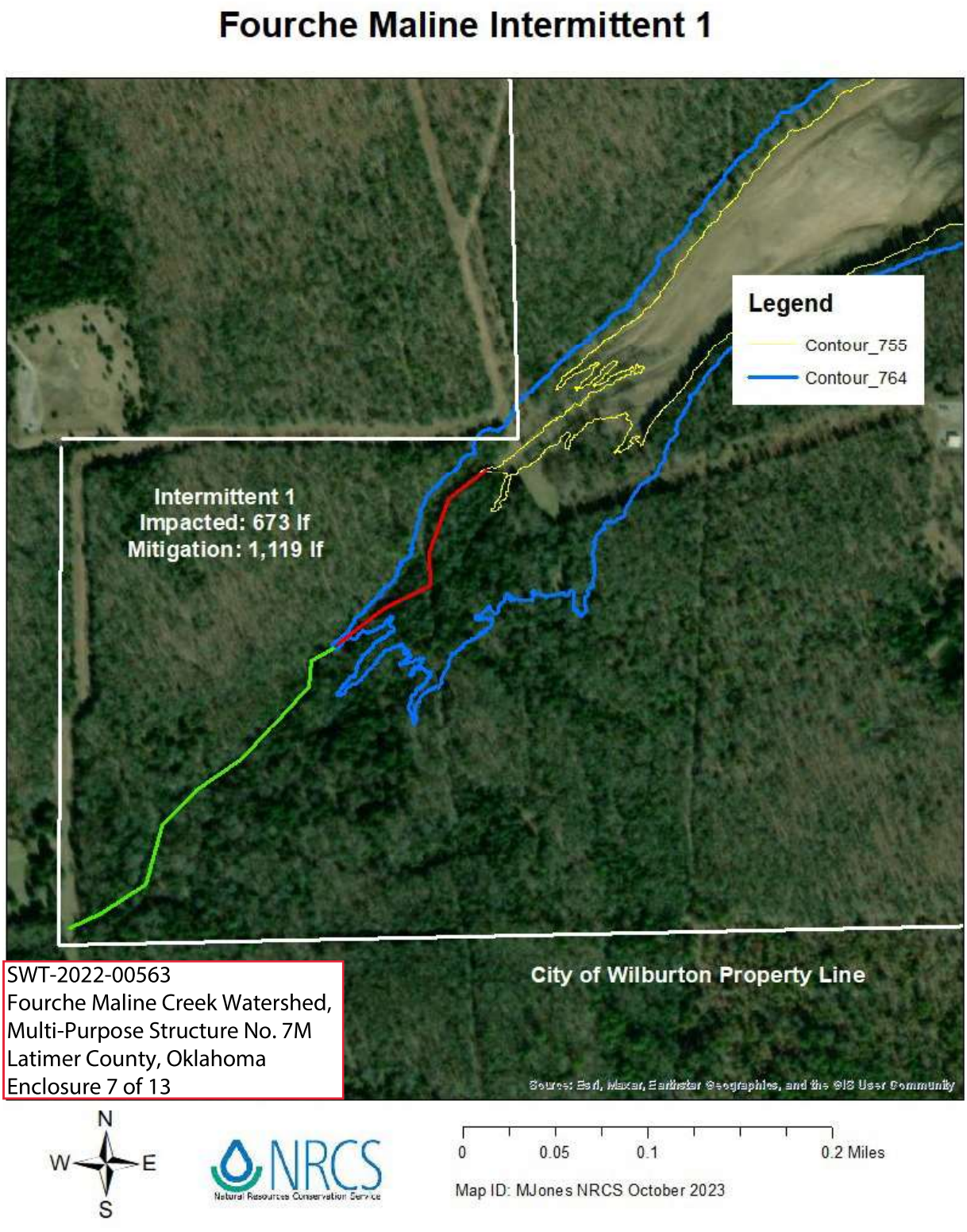

Figure 2: Stream length (Intermittent Stream 1) impacted by the proposed rehabilitation project. Impacted length was measured from existing pool elevation (contour 755) to proposed elevation (contour 764). Red is the impacted segment of stream and green is the mitigation segment of stream.

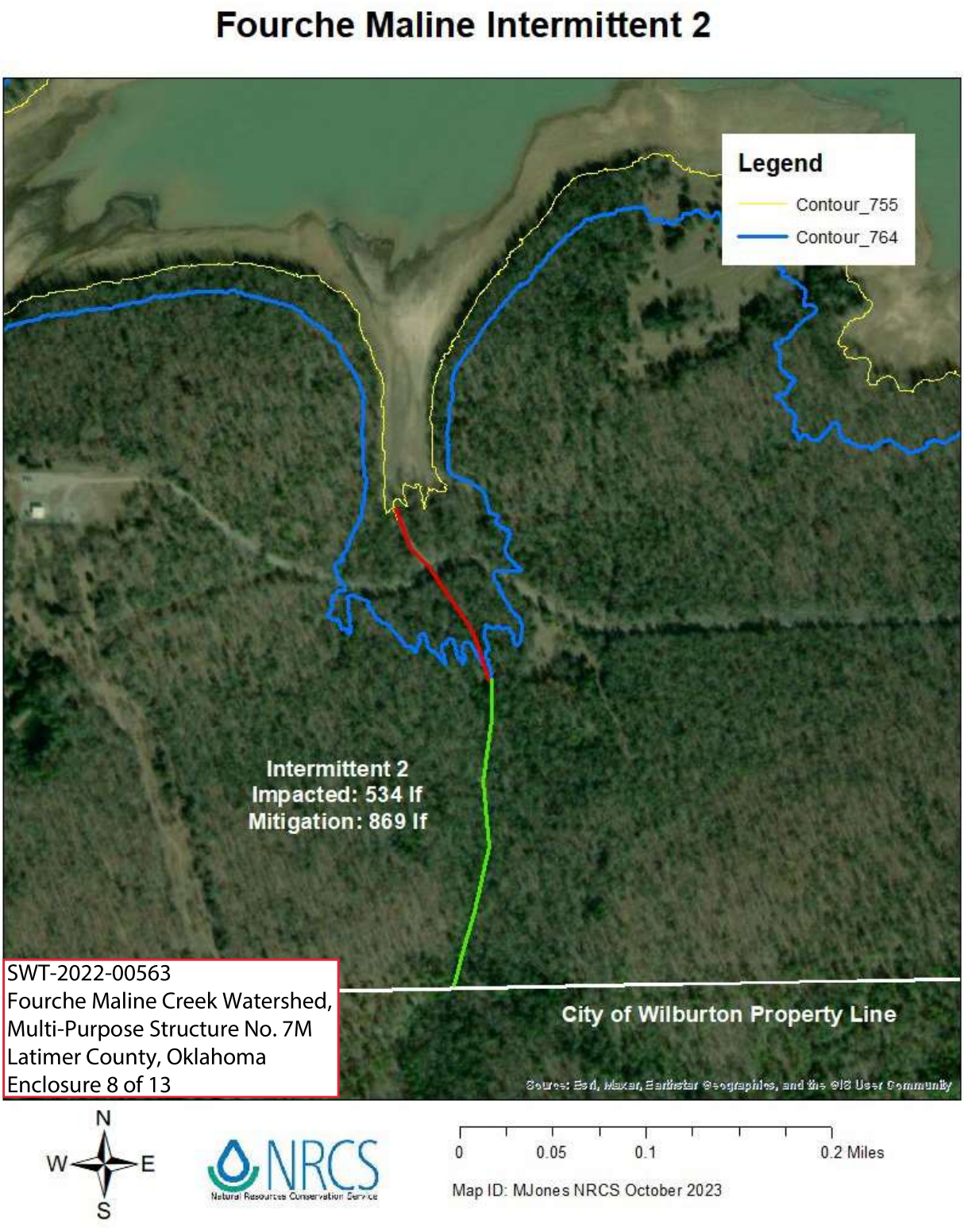

Figure 3: Stream length Intermittent 2. Impacted length was measured from existing pool elevation (contour 755) to proposed elevation (contour 764). Red is the impacted segment of stream and green is the mitigation segment of stream.

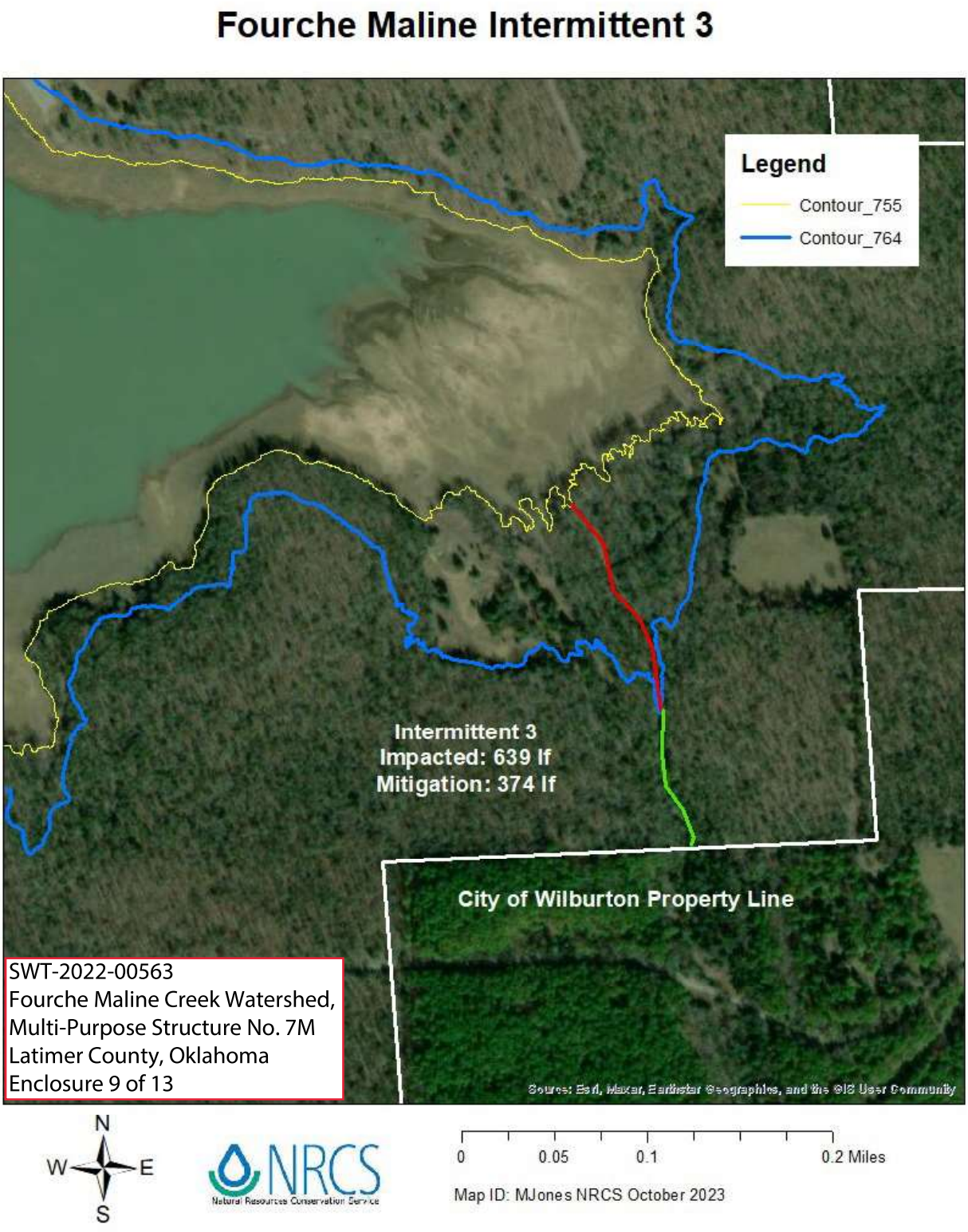

Figure 4: Intermittent stream 3. Impacted stream length was measured from existing pool elevation (contour 755) to proposed elevation (contour 764). Red is the impacted segment of stream and green is the mitigation segment of stream.

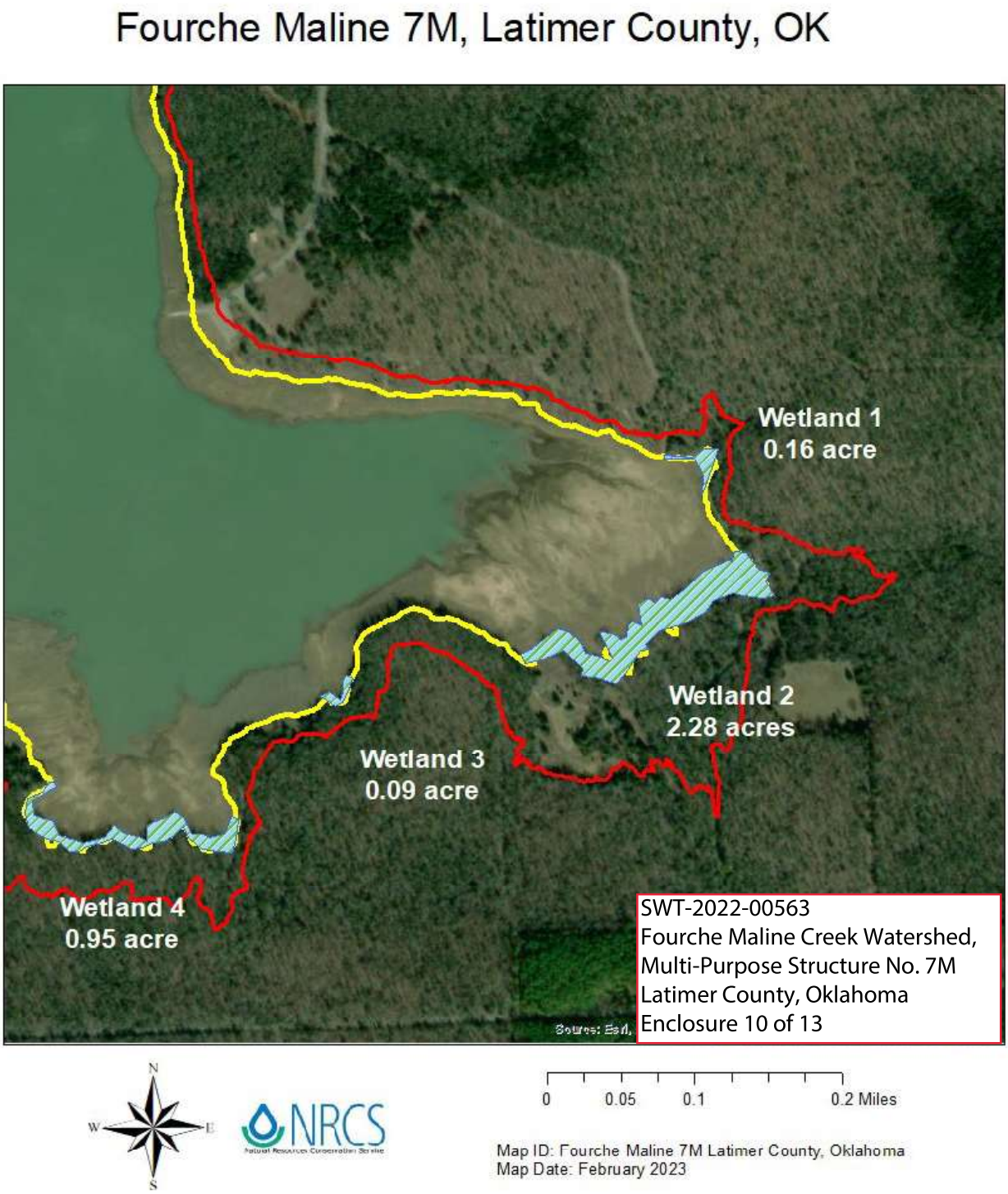

Figure 5: Four wetlands were identified and measured. A total of 3.48 acres of wetlands will be impacted by the raise in conservation pool elevation. Yellow line is the current HWM and Red line is the proposed HWM.

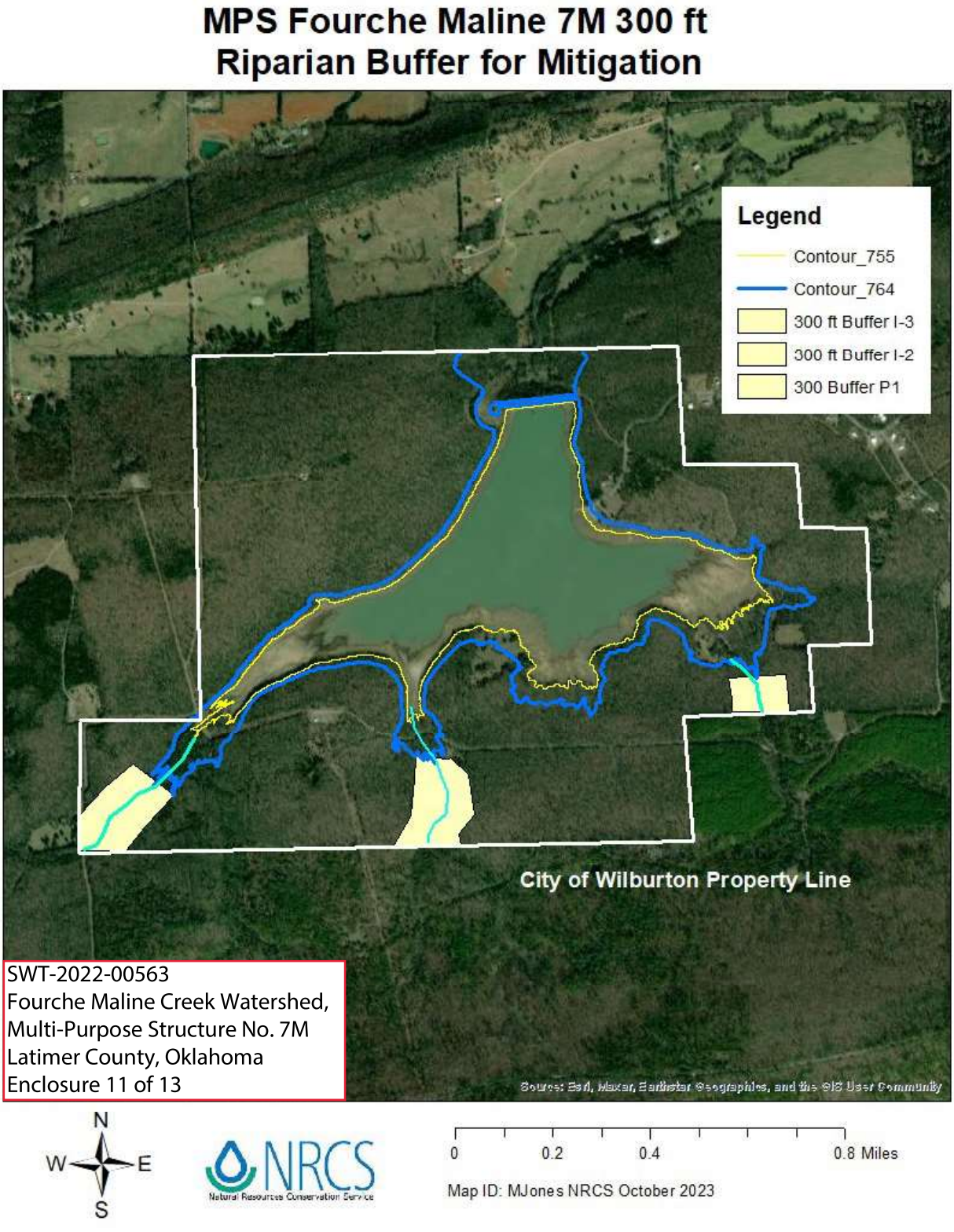

Figure 6: Approximate 300 ft Riparian Buffer areas for each impacted stream. Yellow contour line identifies the current conservation pool high water mark (HWM). Blue contour identifies proposed HWM. White border is the property line for the City of Wilburton.

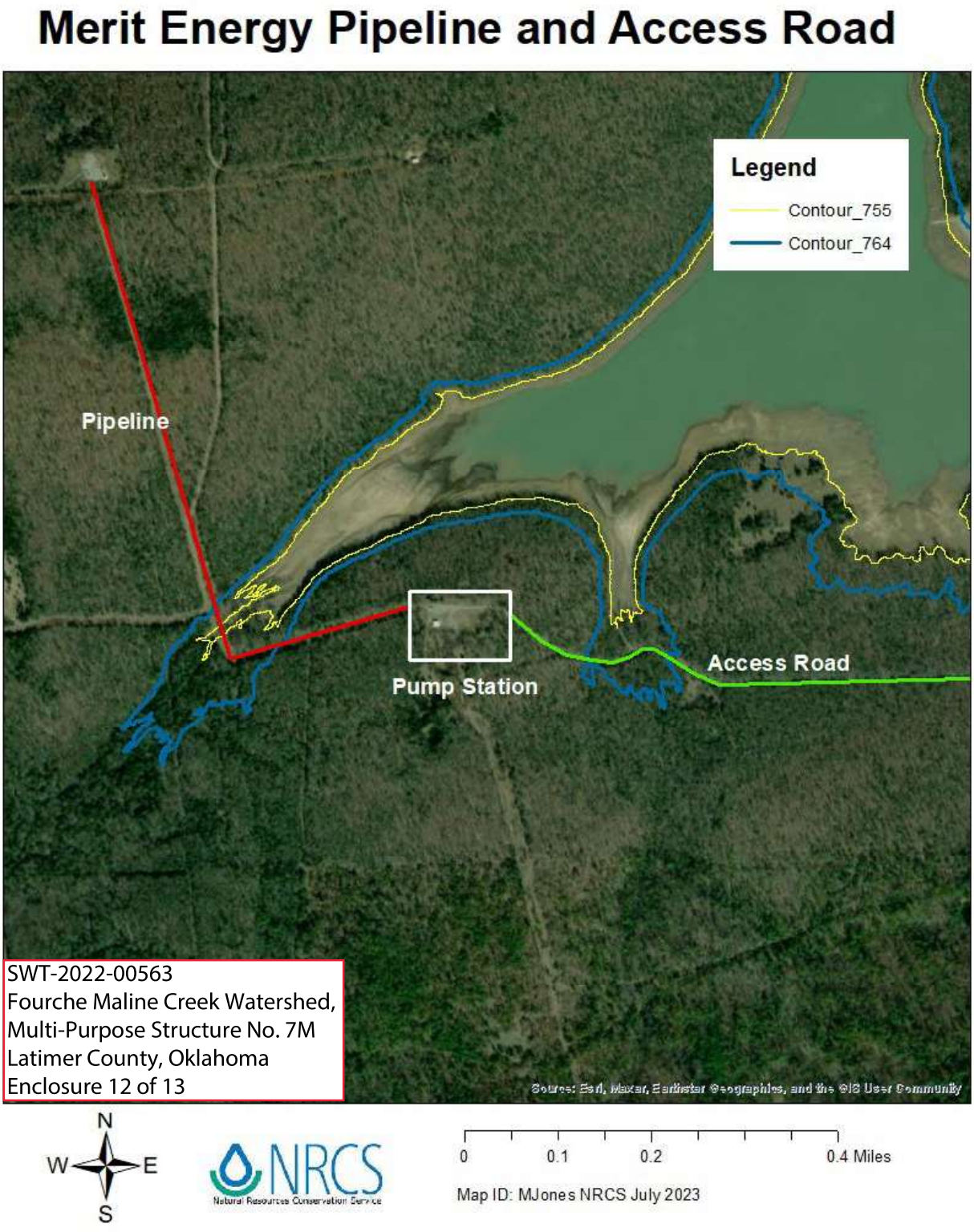

Figure 7: Location of Merit Energy pipeline and current access road location. Blue line represents proposed HWM of dam rehabilitation project.

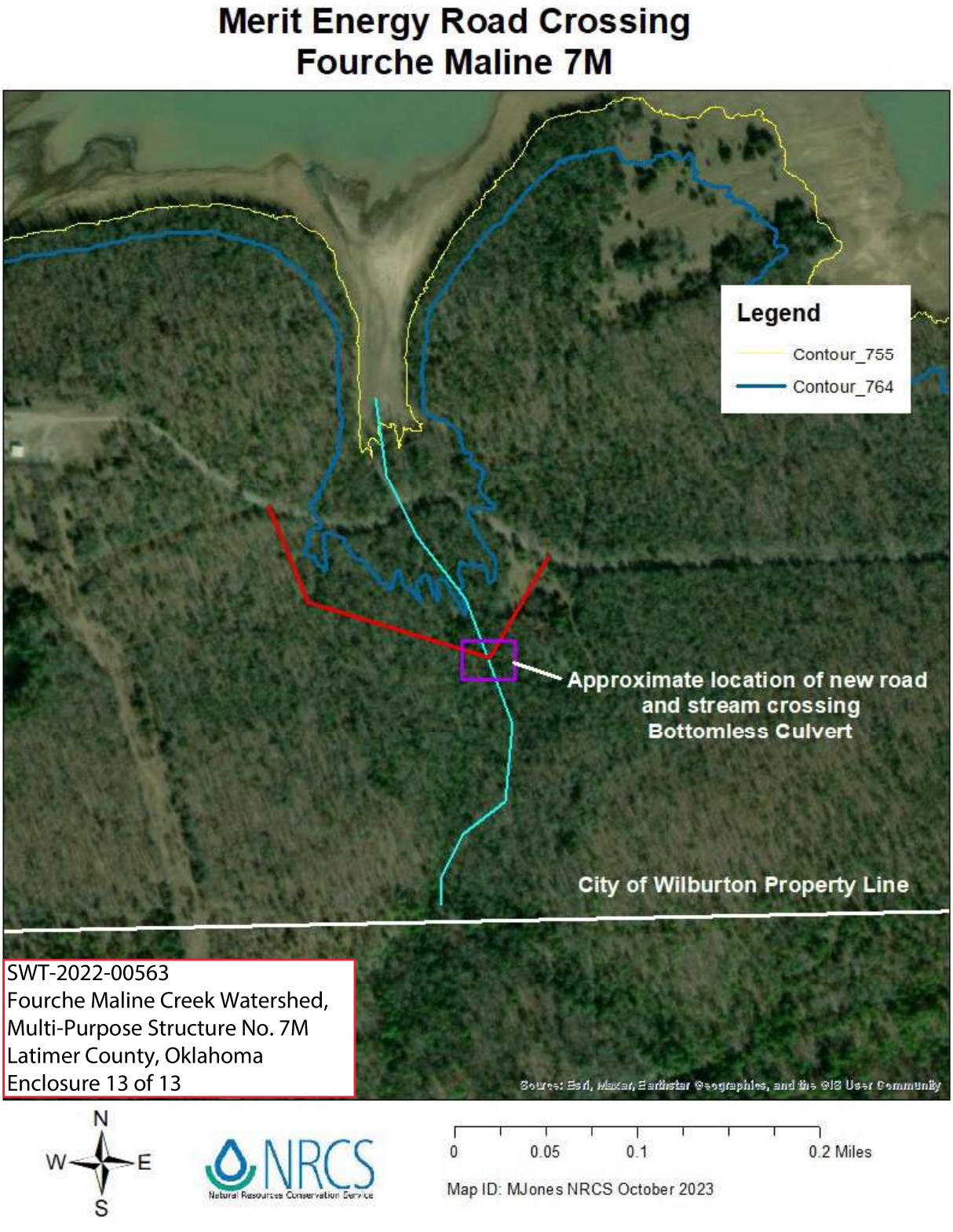

Figure 8: Potential location for moved section of road for Merit Energy access. This crossing will be designed with bottomless culverts and will reduce erosion and sedimentation to Intermittent Stream 2.