



Public Notice

U.S. Army Corps
of Engineers
Tulsa District

Reply To:

U.S. Army Corps of Engineers
ATTN: Regulatory Office
1645 South 101st East Avenue
Tulsa, Oklahoma 74128-4609

SWT-2017-055
Public Notice No.

March 30, 2017
Public Notice Date

April 30, 2017
Expiration Date

PURPOSE

The purpose of this public notice is to inform you of a proposal for work in which you might be interested and to solicit your comments and information to better enable us to make a reasonable decision on factors affecting the public interest.

SECTION 10

The U.S. Army Corps of Engineers is directed by Congress through Section 10 of the Rivers and Harbors Act of 1899 (33 U.S.C. 403) to regulate all work or structures in or affecting the course, condition, or capacity of navigable waters of the United States. The intent of this law is to protect the navigable capacity of waters important to interstate commerce.

SECTION 404

The U.S. Army Corps of Engineers is directed by Congress through Section 404 of the Clean Water Act (33 U.S.C. 1344) to regulate the discharges of dredged and fill material into all waters of the United States. These waters include lakes, rivers, streams, mudflats, sandflats, sloughs, wet meadows, natural ponds, and wetlands adjacent to other waters. The intent of the law is to protect these waters from the indiscriminate discharge of material capable of causing pollution and to restore and maintain their chemical, physical, and biological integrity.

NOTICE TO PUBLISHERS

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.



DEPARTMENT OF THE ARMY
CORPS OF ENGINEERS, TULSA DISTRICT
1645 SOUTH 101ST EAST AVENUE
TULSA, OKLAHOMA 74128-4609

Application No. SWT-2017-55

JOINT PUBLIC NOTICE
U.S. ARMY CORPS OF ENGINEERS
AND
OKLAHOMA DEPARTMENT OF ENVIRONMENTAL QUALITY (ODEQ)
(30-DAY COMMENT PERIOD)

Interested parties are hereby notified that the District Engineer (DE) has received an application for a Department of the Army 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.

Applicant: Mr. H. Dewayne Henderson, P.E.
City of Owasso (City)
301 West 2nd Avenue
Owasso, OK 74055

Location: The proposed project is in the Southeast 1/4 of Section 20, Township 21 North, Range 14 East, in Owasso, Tulsa County, Oklahoma. The project site can be found on the Collinsville, Oklahoma 7.5 Minute USGS Quadrangle map at North Latitude 36.27889 and West Longitude 95.83644 Decimal Degrees.

Project Description: The application is for stream channelization to align the stream channel back into the existing drainage easement.

Purpose: The basic purpose of this work is to stabilize the stream channel. The project is not a water dependent activity.

The overall purpose of this work is to realign the channel back into the drainage easement and to stabilize the eroded stream channel and streambank below the ordinary high water mark of the unnamed tributary of Elm Creek. The stream channel is currently threatening private property and utility line infrastructure within the project area.

Table of Impacts:

Original Proposal					
Number or Location	Impact Activity	Type of Water	Type of Fill Material	Qty of Material cys below OHWM	Footprint (ac and/or lf)
Sta. 9+71 to 20+00	Bank stabilization	Stream	Articulated Block Revetment System (ABRS), Capstone Block, and associated materials*	14,293 sq ft	1,029 lf
Sta. 20.00 to 30+32	Placement of Fill Material	Stream	Earthen Materials	7,925 cys	1,165 lf
cubic yards (cys), ordinary high water mark (OHWM), acre (ac), linear feet (lf), square feet (sq ft)					
* associated materials are described in the Description of Work					

Description of Work: The applicant proposes the placement of fill material into the unnamed tributary of Elm Creek using earthen material and install the ABRS for approximately 2,194 lf. The proposed new stream channel would be constructed using an ABRS for approximately 1,382 lf that transition into an earthen grass trapezoidal channel for approximately 633 lf using 2:1 ratio side slopes. Fill material would consist of approximately 14,293 sq ft of fill material for bank stabilization would consist of four 16- by 24-inch (in) Capstone Block, 4 or 8 by 16 ft ABRS Block, and articulated mattress. The stream channel bottom and sidewall base is layered into earthen work for 7,625 cys, Type A topsoil for 611 cys, aggregated base for 555 cys, Class A concrete for 23 cys, Class C concrete for 40 cys, 9 lf for 18 in corrugated polyethylene pipe Type S, 55 lf for 18 in Reinforced Concrete Pipe (RCP) Class III, and 321 lf for 24 in RCP Class III.

The ABRS concrete bottom is designed to be 8 to 21 ft wide, with the sidewalls varying from 1 to 4 ft in height. The channel bottom and sidewall base is layered with 5.5 in thick washed 1.5 in rock wrapped with filter fabric. The work performed in the stream channel and uplands would be completed using conventional earthmoving equipment. All dredged material would be hauled off-site to an upland disposal area.

Avoidance and Minimization Information: The applicant provided the following statement with regard to how avoidance and minimization of impacts to aquatic resources was incorporated into the project plan:

Four alternatives configurations were considered during the preliminary design of the project.

Alternative 1: No Action

Alternative 2: Leave channel in existing location (outside easement and on private property) and stabilize slopes so that no further movement of the channel will occur.
Alternative 3: Realign channel back into easement using the articulated block mattress system to maintain the stream channel and construct a new vegetative trapezoidal in the upland. (Current Proposal)

The City has chosen Alternative 3 to align the channel back into the drainage easement.

Mitigation: Furthermore, the applicant proposes the following as compensatory mitigation for the unavoidable impacts to aquatic resources expected from the proposed project:

The City is proposing to use the ABRS in lieu of concrete-lining the stream channel. The City believes that compensatory mitigation should not be required for the proposal.

This mitigation plan is the applicant's proposal. The Corps has made no determination at this time with regard to the adequacy of the proposed mitigation relative to the federal mitigation rules and guidance, including Tulsa District's Mitigation and Monitoring Guidelines. The Corps is accepting comments on the need for and nature of the proposed mitigation in addition to comments on the applicant's primary proposal. The Corps bears the final decision on the need for and extent of mitigation required if the project proposed herein is authorized.

Project Setting: This project is located within the developed city limits of Owasso, in the Oklahoma ecoregion of Osage Cuestas, which is part of the Central Irregular Plains geomorphic province. The Transition is characterized by a series of tall grass prairie and oak-hickory forests that are native to eastern areas. The project is located within a sparse riparian corridor that provides shading for an intermittent stream channel.

Existing Condition: The site is primarily located within the floodplain of the unnamed tributary of Elm Creek. The stream channel has a dense riparian area on one side adjacent to a residential development.

Cultural Resources: The DE is responsible to ensure compliance with the National Historic Preservation Act of 1966 (NHPA) (Public Law 89-665), as amended and other cultural resources laws and Executive Orders. A preliminary review of the state's records has been completed for the presence of sites included in, or eligible for inclusion in the National Register of Historic Places, as well as the Oklahoma Landmark Inventory Database. There are no known historic properties, as defined by the NHPA, in or within the vicinity of the proposed permit area.

This notice has been provided to the Oklahoma State Historic Preservation Office, Oklahoma Archaeological Survey, Native American Tribal governments, and other interested parties. If you have information pertaining to cultural resources within the permit area, please notify the Corps project manager identified within this notice to assist in a complete evaluation of potential effects. The DE will evaluate any input received and may require further investigations within the permit area, if warranted.

Threatened and Endangered Species: The following federally listed species are known to occur in the vicinity or are listed for the county in which the proposed action is located: American burying beetle (*Nicrophorus americanus*), interior least tern (*Sterna antillarum*), and piping plover (*Charadrius melodus*). A copy of this notice is being furnished to the U.S. Fish and Wildlife Service and appropriate state agencies. This notice constitutes a request to those agencies for information on whether any other listed or proposed-to-be-listed endangered or threatened species may be present in the area which would be affected by the proposed activity.

Environmental Considerations: 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 DE determines that it would be contrary to the public interest.

Plans and Data: Plans showing the location of the proposed activity and other data are enclosed with this notice. If additional information is desired, it may be obtained from Marcus Ware, Tulsa District Corps of Engineers, ATTN: Regulatory Office, 1645 South 101st East Avenue, Tulsa, OK 74128, or telephone 918-669-7400.

Comments: In order to consider and evaluate the impacts of this proposed activity the Corps is soliciting comments from the public, federal, state, and local agencies and officials, Indian tribes, and other interested parties. Comments concerning the issuance of this permit should be received by the DE no later than the expiration date of this public notice. You may submit comments to mailing address Tulsa District Corps of Engineers, ATTN: Regulatory Office, 1645 South 101st East Avenue, Tulsa, OK 74128; or email CESWT-RO@usace.army.mil, please include the public notice number SWT-2017-55 in the subject line of the message.

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 decision, comments are used to assess impacts on 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. Any person may request in writing, within the comment period specified in this notice, that a public hearing be held to consider this application. Requests for public hearings shall state, with particularity, the reasons for holding a public hearing.






At the request of the Oklahoma Water Resources Board's National Flood Insurance Program State Coordinator, we are sending a copy of this notice to the local floodplain administrator to apprise the administrator of proposed development within their jurisdiction. In accordance with 44 CFR Part 60 (Criteria for Land Management and Use), participating communities are required to review all proposed development to determine if a floodplain development permit is required. The local floodplain administrator is required to perform this review for all proposed development and maintain records of such review.

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.








































Andrew R. Commer
Chief, Regulatory Office

Enclosures

DRAWING REFERENCE LEGEND

-  REFERS TO A SECTION
-  REFERS TO A DETAIL
-  REFERS TO A PROFILE OR ELEVATION
-  SECTION, DETAIL OR PROFILE NUMBER
SHEET NUMBER ON WHICH IT IS LOCATED
-  **DETAIL DESCRIPTION**
SCALE: 1"=XX'

SYMBOL LEGEND

-  Electric Meter
-  Electric Box
-  Electric Transformer
-  Junction Box
-  Gas Meter
-  Gas Valve
-  Irrigation Control Valve
-  Water Meter
-  Water Valve
-  Sprinkler Head
-  Fire Hydrant
-  Sanitary Sewer Manhole
-  Storm Water Manhole
-  Cleanout
-  Power Pole
-  Guy Anchor
-  Light Pole
-  Telephone Pedestal
-  Sign
-  Mailbox
-  Deciduous Tree
-  Coniferous Tree
-  Bush
-  Fence Line (All Types)
-  Overhead Electric
-  Underground Electric
-  Overhead Telephone
-  Underground Telephone
-  Underground Cable Television
-  Natural Gas Line
-  Fiber Optic Cable
-  Water Line
-  Stormwater Line
-  Sanitary Sewer Line
-  Proposed Fence (Like-Kind)
-  Catchline
-  Bench Mark
-  Single Grade Drop Inlet
-  Manhole

APPLICABLE SPECIFICATIONS:

CURRENT OKLAHOMA DEPARTMENT OF TRANSPORTATION LATEST EDITION (O.D.O.T.) STANDARD SPECIFICATIONS FOR HIGHWAY CONSTRUCTION SHALL BE USED FOR THE TECHNICAL SPECIFICATIONS.

CITY OF OWASSO STANDARD SPECIFICATIONS FOR CONSTRUCTION.

OKLAHOMA DEPARTMENT OF ENVIRONMENTAL QUALITY (DEQ) REGULATIONS SHALL APPLY FOR ALL WASTE AND SEWER RELATED WORK.

DATUM INFORMATION

HORIZONTAL DATUM
NAD '83 (2011)

VERTICAL DATUM
NAVD '88

CONTACT INFORMATION

AFP-RSO
LONNY RICKS
5223 S. GARNETT RD.
TULSA, OK 74147
(918) 250-6211

WEC
KEITH DELOZIER
P.O. BOX 219
COLLINSVILLE, OK 74021
(918) 371-2584

QNG
JONATHAN MEADOWS/
DEWAYNE HALLMAN
5848 E. 15th ST.
TULSA, OK 74112
(918) 949-5735

AT&T
ALFORD NICHOLS
5305 E. 71st ST
TULSA, OK 74135
(918) 596-4237

RND#3
JERRY GAMMILL
17227 N. 129th E. AVE.
COLLINSVILLE, OK 74021
(918) 371-2055

COX
LOYDA MERCADO
11811 E. 51st S.
TULSA, OK 74145
(918) 286-4542

CITY OF OWASSO
P.O. BOX 180
OWASSO, OK 74055
(918) 272-4959

CITY OF OWASSO, OKLAHOMA

CONSTRUCTION PLANS

FOR

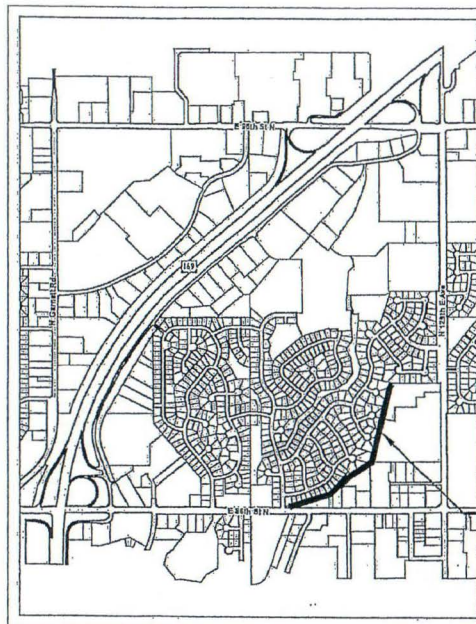
CENTRAL PARK CHANNEL

REHABILITATION

THE CITY OF OWASSO

TULSA COUNTY

R 14 E



LOCATION MAP

SECTION 20

T-21-N, R-14-E

DRAWING INDEX

- 1 - COVER SHEET
- 2 - NOTES & QUANTITIES
- 3 - TYPICAL SECTIONS
- 4-7 - DETAILS
- 8 - SURVEY DATA SHEET
- 9 - GEOMETRIC ALIGNMENT SHEET
- 10 - EROSION CONTROL
- 11 - STORM WATER MANAGEMENT PLAN
- 12 - RIGHT OF WAY MAP
- 13 - POND GRADING PLAN
- 14-18 - PLAN & PROFILES
- 19 - STORM SEWER PROFILES
- 20-39 - CROSS SECTIONS

APPLICABLE ODOT STANDARDS:

- SSS-1-1 - SOLID SLAB SODDING
- TSC1-3-2 - TEMPORARY SEDIMENT CONTROLS
- TSC2-3-2 - TEMPORARY SEDIMENT CONTROLS
- CET4S-3-2 - CULVERT END TREATMENT
- SPB-1-4 - STANDARD PIPE BEDDING
- SPI-4-1 - STANDARD PIPE INSTALLATION

PRELIMINARY

DATE: October 21/2016

This document is preliminary in nature and is not a final, signed and sealed document.

Approved:

PUBLIC WORKS DEPARTMENT
CITY OF OWASSO, OKLAHOMA

ROGER STEVENS, DIRECTOR
PUBLIC WORKS DEPARTMENT

DWAYNE HENDERSON, PE
CITY ENGINEER

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

BENJAMIN W. FLETCHER, P.E.
MESHEK & ASSOCIATES

DATE

DATE

DATE

ENGINEER'S CERTIFICATION

I HEREBY CERTIFY THAT I AM FAMILIAR WITH THE ADOPTED ORDINANCES AND REGULATIONS OF THE CITY OF OWASSO GOVERNING WATER FACILITIES, SEWER FACILITIES, STREETS, AND DRAINAGE FACILITIES; THAT THESE PLANS HAVE BEEN PREPARED UNDER MY DIRECT SUPERVISION; THE ABOVE AND THE FOREGOING PLANS COMPLY WITH ALL GOVERNING ORDINANCES AND THE ADOPTED STANDARDS OF THE CITY OF OWASSO TO THE BEST OF MY KNOWLEDGE, INFORMATION, AND BELIEF.



MESHEK & ASSOCIATES, P.L.C.

C.A. 1487 EXPIRES 6/30/17
1437 S. BOULDER AVE., STE. 1550
TULSA, OK
(PH) 918-392-5620
(FAX) 918-392-5621

SHEET 1 OF 39 SHEETS

SWT-2017-55

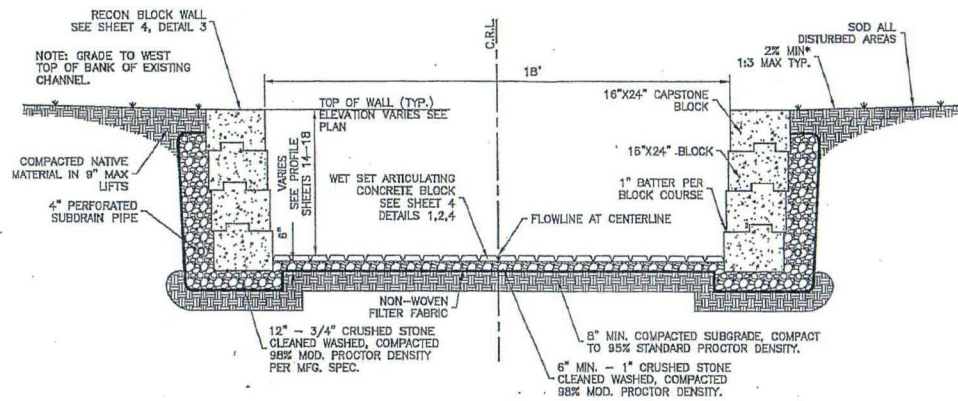
Stream Channelization - Central Park Project

City of Owasso

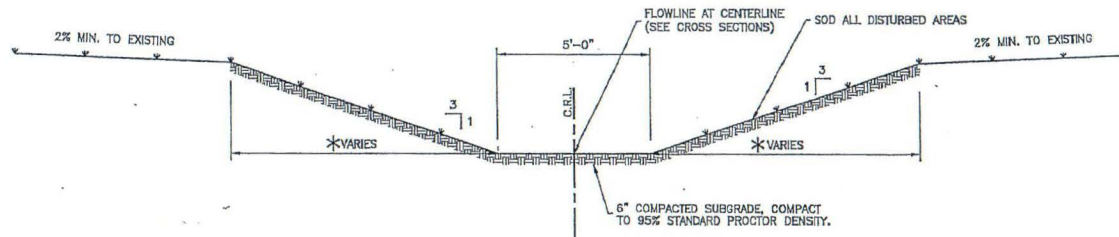
Unnamed tributary of Elm Creek

Owasso, Tulsa County, Oklahoma

Enclosure 2 of 12



1 ARTICULATED BLOCK REVETMENT SYSTEM WITH RECON BLOCK
SCALE: NONE
STATION: 10+00.00 TO 24+00.00

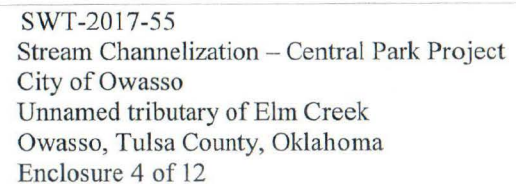


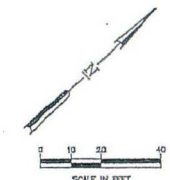
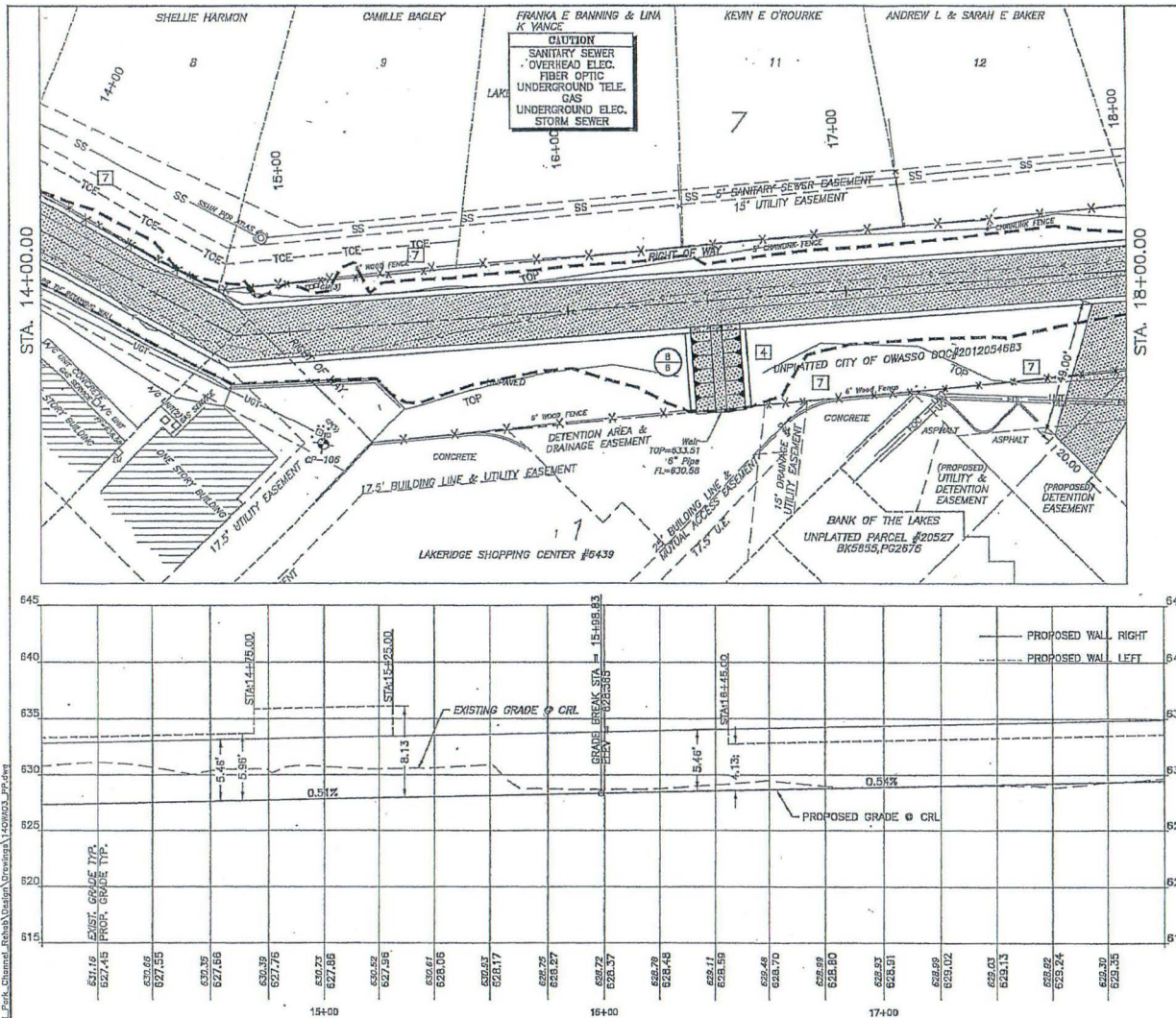
2 GRASS LINED CHANNEL
SCALE: NONE
STATION: 24+00.00 TO 30+12.66
* SEE CROSS SECTIONS

NOTES:
ALL CONSTRUCTION SHALL BE IN STRICT ACCORDANCE WITH CURRENT CITY OF OWASSO PUBLIC WORKS DEPARTMENT STANDARDS AND SPECIFICATIONS.

TYPICAL SECTION									
CENTRAL PARK CHANNEL REHABILITATION									
CITY OF OWASSO									
PLANS AND ESTIMATES PREPARED BY:									
Meshek & Associates, P.L.C.									
1437 S. Boulder Avenue, Suite 1050 Tulsa, OK 74116 (918)392-5820									
REVISION	BY	DATE	PLAN SCALE	DRAWN	JTP	05/16	APPROVED:		
			N/A	DESIGNED	DPF	05/16			
				SURVEY	BLM	02/16			
			PROFILE SCALE	RECOMMENDED					
			HORIZONTAL:	RECOMMENDED					
			VERTICAL:	RECOMMENDED					
			N/A	RECOMMENDED					
			FIELD:	RECOMMENDED					
			ATLAS PAGE NO.	RECOMMENDED					

SWT-2017-55
Stream Channelization – Central Park Project
City of Owasso
Unnamed tributary of Elm Creek
Owasso, Tulsa County, Oklahoma
Enclosure 3 of 12





CONSTRUCTION NOTES:

- 1 REMOVE EXISTING STORM PIPE
- 2 GRADE TO DRAIN
- 3 ADJUST MANHOLE TO GRADE
- 4 REMOVE RIP-RAP
- 5 INSTALL RIP-RAP
- 6 FILL IN EXISTING CHANNEL
- 7 REMOVE & REPLACE EXISTING FENCE (LIKE-KIND)
- 8 PROTECT EXISTING RAIL ROAD TIES
- 9 ENCASE SANITARY SEWER, SEE SHEET 4, DETAIL 4
- 10 REMOVE EXISTING STORM STRUCTURE

LEGEND

- X---X---X---X--- PROPOSED FENCE (LIKE-KIND)
- - - - - TCE - - - - - TCE- TEMPORARY CONSTRUCTION EASEMENT
- - - - - PROPOSED TOP OF SLOPE
- [Hatched Box] PROPOSED GRASS LINED CHANNEL
- [Stippled Box] PROPOSED ARTICULATED BLOCK REVERTMENT SYSTEM

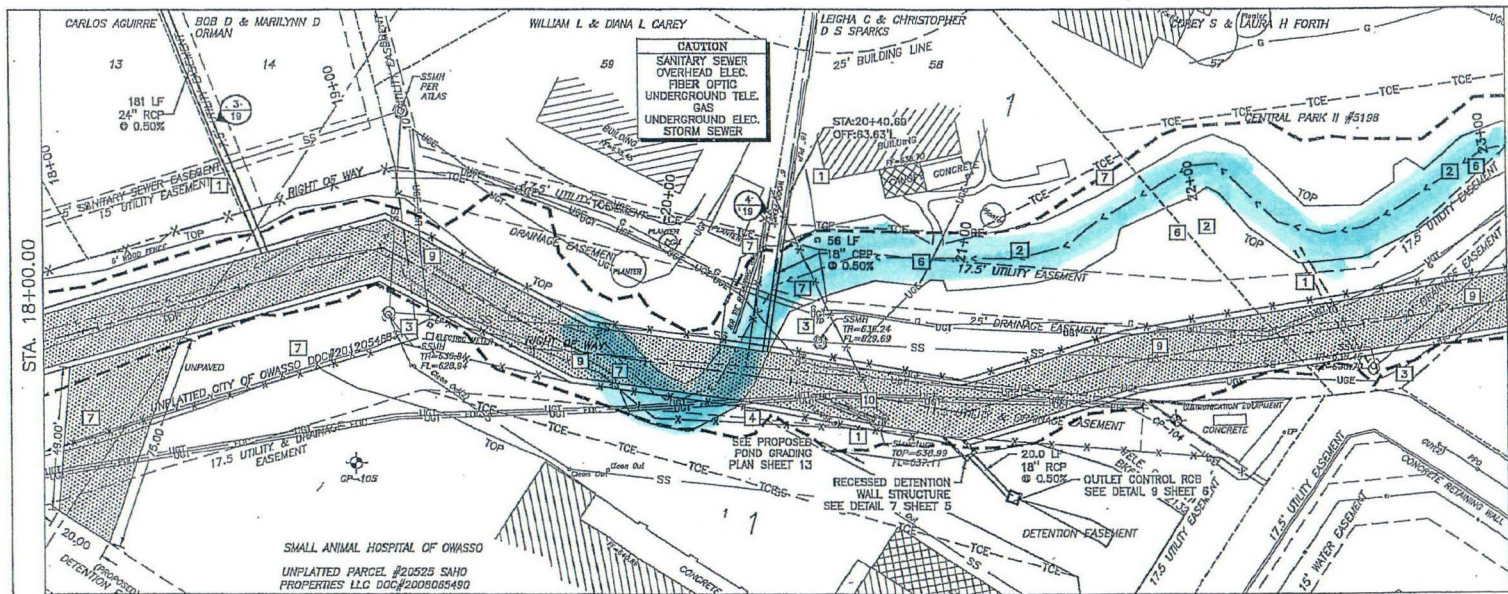
BENCHMARK
 CP-106
 MAG NAIL IN CONC.
 N=472718.85
 E=2806495.37
 EL=635.37

CHANNEL PLAN & PROFILE
CENTRAL PARK CHANNEL
REHABILITATION
CITY OF OWASSO

PLANS AND ESTIMATES PREPARED BY:
Meshek & Associates, P.L.C.
 1437 S. Boulder Avenue, Suite 1000 Tulsa, OK 74119 (918)365-5000

REVISION	BY	DATE	PLAN SCALE	DRAWN	APP.	APPROVED
			1" = 20'		02/18	
			PROFILE SCALE		02/18	
			HORIZONTAL			
			1" = 20'			
			VERTICAL			
			1" = 5'			
			FILE			
			ATLAS PAGE NO.			

SWT-2017-55
 Stream Channelization – Central Park Project
 City of Owasso
 Unnamed tributary of Elm Creek
 Owasso, Tulsa County, Oklahoma
 Enclosure 5 of 12



CONSTRUCTION NOTES:

- 1 REMOVE EXISTING STORM PIPE
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- 3 ADJUST MANHOLE TO GRADE
- 4 REMOVE RIP-RAP
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- 6 FILL IN EXISTING CHANNEL
- 7 REMOVE & REPLACE EXISTING FENCE (LIKE-KIND)
- 8 PROTECT EXISTING RAIL ROAD TIES
- 9 ENCASE SANITARY SEWER, SEE SHEET 4, DETAIL 4
- 10 REMOVE EXISTING STORM STRUCTURE

LEGEND

- X---X---X--- PROPOSED FENCE (LIKE-KIND)
- TCE---TCE---TCE--- TEMPORARY CONSTRUCTION EASEMENT
- PROPOSED TOP OF SLOPE
- PROPOSED GRASS LINED CHANNEL
- PROPOSED ARTICULATED BLOCK REVETMENT SYSTEM

BENCHMARK	
CP-104	3/8" REBAR W/ RED CAP
N=473149.92	
E=280870.30	
EL=940.60	

BENCHMARK	
CP-105	3/8" REBAR W/ RED CAP
N=472878.23	
E=280874.78	
EL=938.47	

CHANNEL PLAN & PROFILE

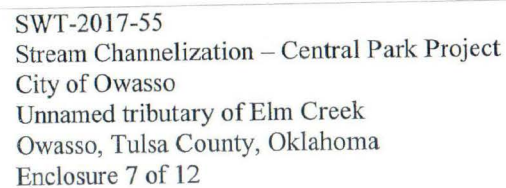
CENTRAL PARK CHANNEL REHABILITATION

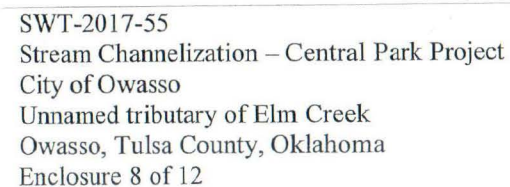
CITY OF OWASSO

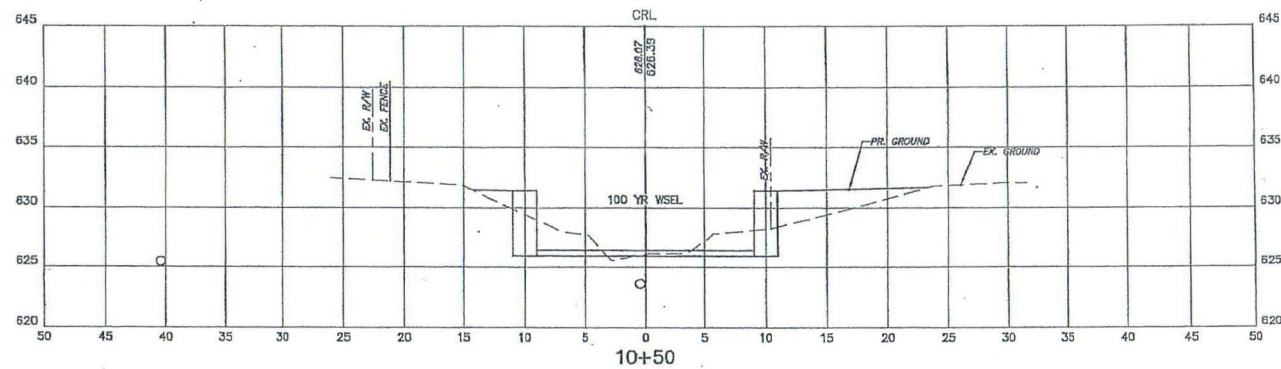
PLANS AND ESTIMATES PREPARED BY:
Meshek & Associates, P.L.C.
 1457 S. Boulder Avenue, Suite 1500 Tulsa, OK 74110 (918) 595-8820

REVISION	BY	DATE

SWT-2017-55
 Stream Channelization – Central Park Project
 City of Owasso
 Unnamed tributary of Elm Creek
 Owasso, Tulsa County, Oklahoma
 Enclosure 6 of 12



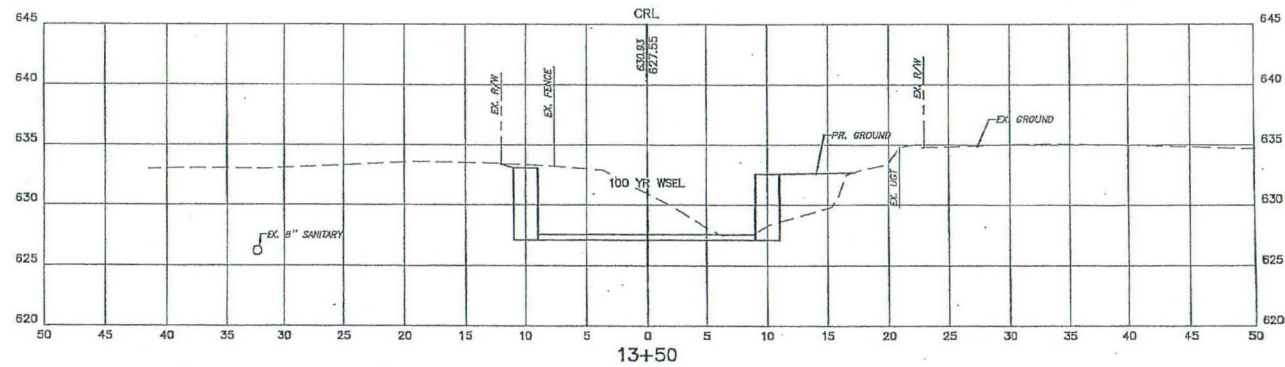
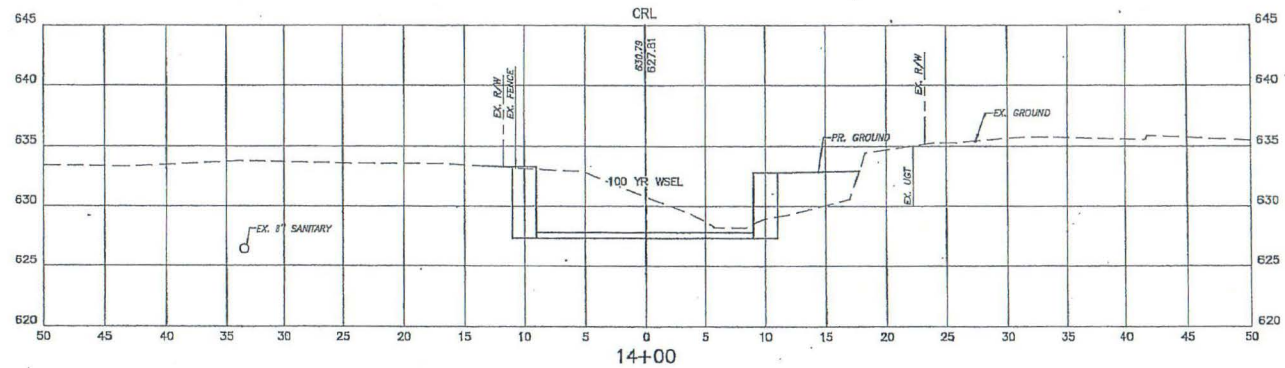




CROSS SECTIONS			
CENTRAL PARK CHANNEL REHABILITATION			
CITY OF OWASSO			
PLANS AND ESTIMATES PREPARED BY: Meshek & Associates, P.C. 1437 S. Taylor Avenue, Suite 1000 Tulsa, Ok. 74119 (918)992-5626			
DATE	PLAN SCALE	DRAWN	APPROVED:
		JEP 03/16	
	N/A	DESIGNED RWP 03/16	
		SKALI 02/18	
	PROFILE SCALE	RECOMMENDED	
	HORIZONTAL:	DEVELOPMENT SERVICES	
	1" = 5'	RECOMMENDED	
	VERTICAL:	1" = 5'	
		DISPLAY ORIGINATOR	PUBLIC WORKS DIRECTOR
	FILED:	DRAWING:	DATE:
	ATLAS SCALE 1/4" = 1'		SHEET 20 OF 39 SHEETS

SWT-2017-55
Stream Channelization – Central Park Project
City of Owasso
Unnamed tributary of Elm Creek
Owasso, Tulsa County, Oklahoma
Enclosure 9 of 12

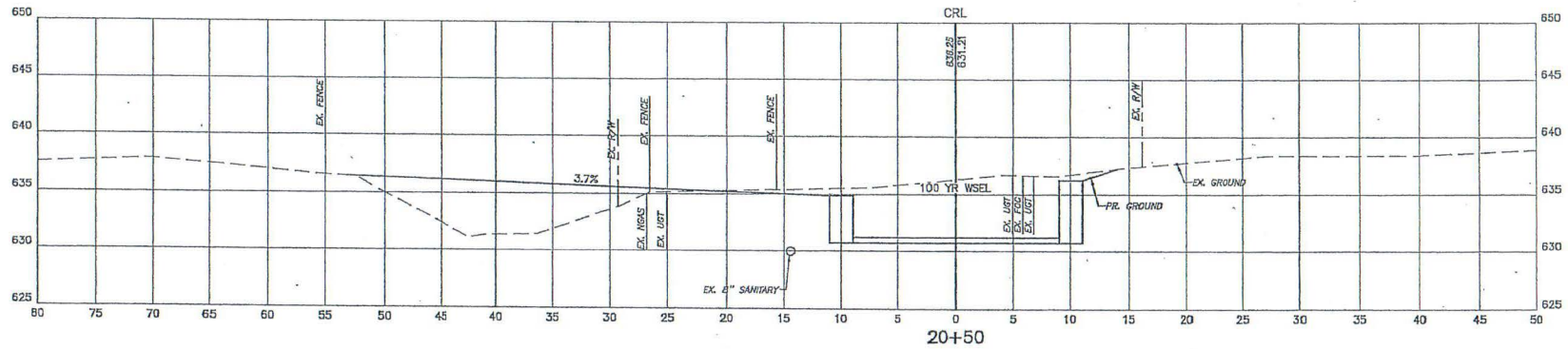
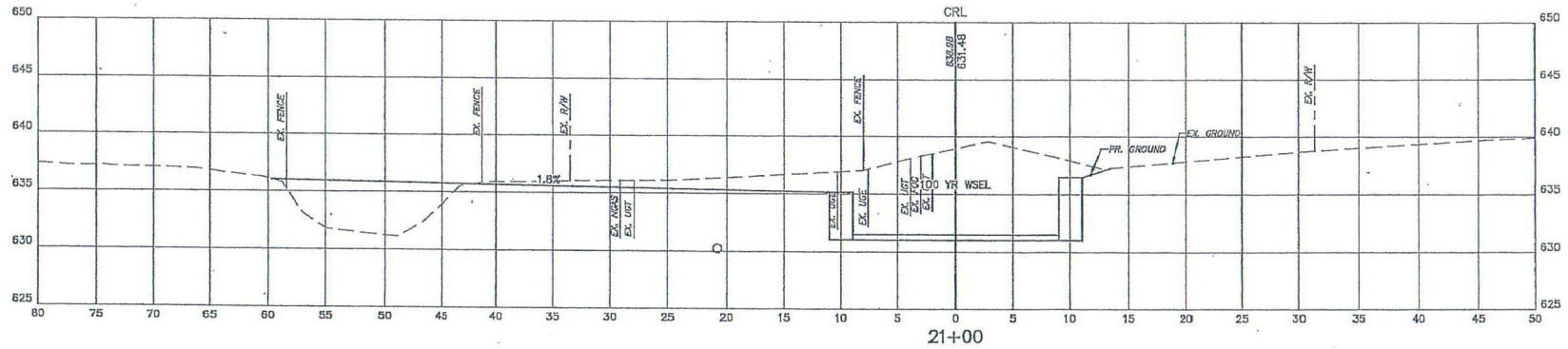
10/21/2016 M:\City-of-Owasso\Central_Park_Channel_Rehab\Design\Drawings\140WAZ1_SECTIONS_VERTICAL_CHANNEL.dwg



CROSS SECTIONS									
CENTRAL PARK CHANNEL REHABILITATION									
CITY OF OWASSO									
PLANS AND ESTIMATES PREPARED BY:									
Meshek & Associates, P.L.C.									
1437 S. Boulder Avenue, Suite 1050 Tulsa, OK 74119 (918)392-5020									
REVISION	BY	DATE	PLAN SCALE	DRAWN	JTP	02/18	APPROVED:		
			N/A	DESIGNED	BNP	05/18			
				SURVEY	ROM	07/18			
PROFILE SCALE				RECOMMENDED					
HORIZONTAL:				RECOMMENDED					
1" = 5'				RECOMMENDED					
VERTICAL:				RECOMMENDED					
1" = 5'				RECOMMENDED					
FILED				DRAWING				FIELD WORKS DIRECTOR	
ATLAS PAGE NO.				DRAWING				DATE	
								SHEET 23 OF 25 SHEETS	

SWT-2017-55
Stream Channelization – Central Park Project
City of Owasso
Unnamed tributary of Elm Creek
Owasso, Tulsa County, Oklahoma
Enclosure 10 of 12

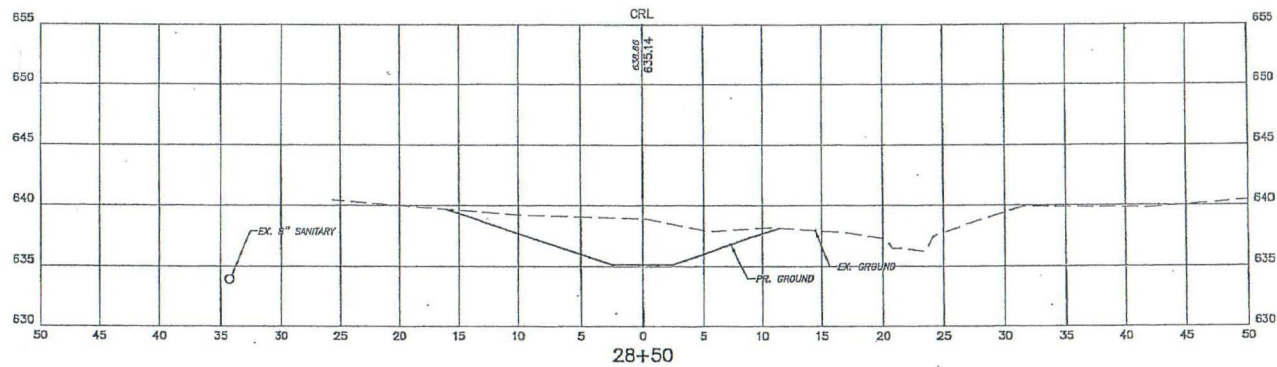
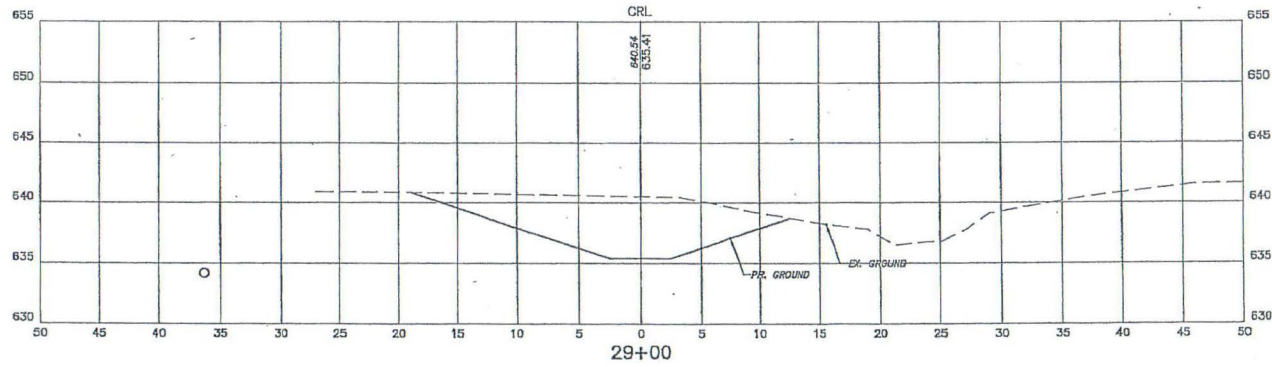
10/21/2016 M:\City of Owasso\140WAO3_Central_Park_Channel_Rehab\Design\Drawings\140WAO3_SECTIONS_VERTICAL_CHANNEL.dwg



CROSS SECTIONS									
CENTRAL PARK CHANNEL REHABILITATION									
CITY OF OWASSO									
PLANS AND ESTIMATES PREPARED BY:									
Meshek & Associates, P.L.C.									
1437 S. Boulder Avenue, Suite 1500 Tulsa, OK 74119 (918)322-5520									
PLAN SCALE		DESIGNED		JTP		05/16		APPROVED:	
N/A		SURVEY		DMJ		02/16			
PROFILE SCALE		RECOMMENDED							
HORIZONTAL:		DEVELOPMENT SERVICES							
1" = 5'		RECOMMENDED							
VERTICAL:		DEPUTY DIRECTOR							
1" = 8'		PUBLIC WORKS DIRECTOR							
FILED		DRAWING							
ATLAS PAGE NO.		DATE							
		SHEET 30 OF 39 SHEETS							

SWT-2017-55
Stream Channelization – Central Park Project
City of Owasso
Unnamed tributary of Elm Creek
Owasso, Tulsa County, Oklahoma
Enclosure 11 of 12

10/21/2016 I:\City_of_Owasso\1409431_Central_Park_Channel_Rehab\Drawings\1409431_SECTIONS_VERTICAL_CHANNEL.dwg



CROSS SECTIONS			
CENTRAL PARK CHANNEL REHABILITATION			
CITY OF OWASSO			
PLANS AND ESTIMATES PREPARED BY:			
Meshek & Associates, P.L.C.			
1437 S. Boulder Avenue, Suite 1000 Tulsa, OK 74119 (918)292-5622			
REVISION	BY	DATE	APPROVED
PLAN SCALE	DESIGN	BMF 05/16	
N/A	SURVEY	RM 02/16	
PROFILE SCALE	RECOMMENDED		
HORIZONTAL	RECOMMENDED		
VERTICAL	RECOMMENDED		
FILED	DRAWING		
ATLAS PAGE NO.			

SWT-2017-55
Stream Channelization – Central Park Project
City of Owasso
Unnamed tributary of Elm Creek
Owasso, Tulsa County, Oklahoma
Enclosure 12 of 12