



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-2014-303
Public Notice No.

November 9, 2015
Public Notice Date

December 9, 2015
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

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

Application No. SWT-2014-303

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.

The application is for the conversion of two on-channel ponds, one wetland, and portions of a stream channel into residential subdivision housing units, access roads, and installation of public utilities.

Name of Applicant:

Mr. Julius Puma
Double Eagle, LLC
10618 South Winston Court
Tulsa, OK 74137

Name of Agent:

Mr. Dan Tanner
Tanner Consulting, LLC
5323 South Lewis Avenue
Tulsa, OK 74105

Location: The proposal would be constructed in one wetland, two on-channel ponds, and in the unnamed tributary of the Arkansas River. The proposed project is in Section 4, Township 17 North, Range 14 East, Broken Arrow, Tulsa County, Oklahoma. The project site can be found on the Leonard, Oklahoma 7.5 Minute USGS Quadrangle map and at North Latitude 35.986522694 and West Longitude 95.826155967.

Purpose: The basic purpose of this work is to develop an 80-acre parcel into a single family residential subdivision.

A water dependency determination will be made upon consideration of the basic purpose and the impacts to a 0.08 acre emergent wetland from the placement of earthen fill material below the OHWM.

The overall purpose of this work is to provide housing for approximately 240 families in the community.

Table of Impact:

Original Proposal					
Water	Impact Activity	Type of Impact	Type of Fill Material	Quantity of Material (cys) below OHWM	Footprint (ac and/or lf)
Unnamed tributary of Arkansas River	Placement of fill material	Reinforced Concrete Pipe (RCP) 1	Concrete		41 lf *
Unnamed tributary of Arkansas River	Placement of fill material	RCP 2 – Includes road crossing and underground pipe	Concrete		159 lf**
North Pond	Placement of fill material	Residential Development	Earthen Material	2,400 cys	1.11 ac
South Pond	Placement of fill material	Residential Development	Earthen Material	7,500 cys	3.44 ac
Wetland	Placement of fill material	Residential Development	Earthen Material	100 cys	0.08 ac
			Total	10,000 cys	200 lf 4.63 ac
*Total lf of RCP 1 is approximately 64 lf of which 23 lf is located in the uplands.					
**Total lf of RCP 2 is approximately 732 lf of which 123 lf is located in the uplands and 450 lf within the south pond footprint.					
cubic yards (cys), ordinary high water mark (OHWM), acre (ac), liner feet (lf)					

Description of Work: The applicant’s proposal requires the placement of fill material into the 3.44-acre south pond, 1.11-acre north pond, and 0.08 acre wetland. The applicant has proposed the placement of approximately 7,500 cys of earthen material into the south pond, 2,400 cys of earthen material into the north pond, 100 cys of earthen material into the wetland, and 200 lf of stream channel (0.02 acre). The south pond and wetland area would be eliminated from the placement of fill material. Approximately, 39 lf and 120 lf, within the total 732 lf of RCP 2 (varies in size), would be constructed in the stream channel to channel flow and for a road crossing. The size of the north pond would be reduced from approximately 1.11 acres to a 0.01 acre (90 lf) stream channel

and approximately 41 lf of a twin 42 inch RCP would be constructed in the stream channel for a road crossing on RCP 1. All work will be performed utilizing earthmoving equipment.

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:

The Impact Property is located within an area of growth on along the Creek Turnpike Corridor on the south side of the City of Broken Arrow. The comprehensive plan for the community identifies the tract as suitable for low density residential development although the city planning staff has supported commercial development zoning applications along the arterial street frontage. The Applicant examined multiple development alternatives in an attempt to avoid and minimize the impacts that would result from the proposed discharge. The alternatives examined included options that would avoid discharge in whole or in part. Site planning was initiated in August 2013. Sketches for commercial retail development were prepared and evaluated for feasibility. The design team concluded that the potential presence of jurisdictional waters prohibited a customary approach to utilizing the Impact Property for retail development. Site plans were then developed for single family housing that progressively reserved more and more open space to account for the potential presence of jurisdictional waters. Hydrological calculations were undertaken to substantiate the impact to the developable project area when traditionally enclosed public storm drainage systems could not be constructed in the logical low point and hydraulic drainage way because the construction of drainage systems would displace the stream thread resources. Once Corps asserted jurisdiction over the potential jurisdictional waters, including open water resources (2 preexisting man made farm ponds) as well as the stream thread and a small wetlands area, the design team further modified the site plan to reduce the number of residential lots to avoid all impacts. Minimization and avoidance of the proposed discharge would have resulted in a substantial and impracticable loss of marketable residential lots, estimated to be on the order of 35 lots with a market value of 2.5 million dollars. This loss would have made development of the Impact Property impossible. Accordingly, the Applicant concluded that avoidance of project impacts was not practicable. Therefore, the Applicant has developed the Mitigation Plan to minimize adverse impacts on the Jurisdictional Waters of the discharge on the aquatic ecosystem.

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

The Applicant developed the following Mitigation Plan to offset and minimize unavoidable impacts on the aquatic ecosystem created by permitted discharges

into the Jurisdictional Waters on the Impact Property. Pursuant to the Mitigation Plan, there will be no net loss of aquatic resources (Enclosures 3 through 6).

Because the only mitigation possible on the Impact Property is preservation of stream thread resources not impacted by Applicant's development plan, the Applicant selected the Mitigation Property to perform off-site mitigation. Before selecting the Mitigation Property, the Applicant evaluated mitigation options on adjacent properties not under current ownership and on non-adjacent properties currently under control of the Applicant. It was determined that the adjacent properties were not available for acquisition. Therefore, the design team developed sketches and estimates for mitigating the impact on open water resources at the Mitigation Property, a remote location under Applicant's control.

The Mitigation Property is ecologically suitable for providing the desired self-sustaining aquatic resource functions due to its adjacency to the Arkansas River bed and location within the watershed. Additionally, the Mitigation Property is also only 5.0 miles from the Impact Property. The Applicant also controls the Mitigation Site and will be able to establish the requisite conservation easements on the Mitigation Property. The Applicant has identified approximately 14.995 acres on the south end of the Mitigation Property suitable for the Mitigation Plan (the "Mitigation Site").

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: The project is located within the Oklahoma ecoregion of the Central Irregular Plains. The Central Irregular Plains is a belt of prairie that separates the Cross Timbers from the forests of the Ozark Highlands. This ecoregion contains mostly tallgrass prairie, but forests and woodlands are native on stony hilltops. The occurrence of rangeland, cropland, riparian forests, and on rocky hills, oak woodlands are within this ecoregion.

Existing Condition: The 80-acre parcel of land is comprised mostly of mixed grasses, upland forest, and a riparian forest. The stream channel, on-channel ponds, and wetland, which are jurisdictional waters of the United States, are centrally located within the parcel. The site has been disturbed by various anthropogenic activities in the relatively recent past.

Plans and Data: Plans showing the location of the proposed activity and other data are enclosed with this notice (Enclosures 1 through 6). If additional information is desired, it may be obtained from U.S. Army Corps of Engineers, Tulsa District, ATTN: Mr. Rob

Hoffmann, Regulatory Office, 1645 South 101st East Avenue, Tulsa, OK 74128-4609, or telephone 918-669-7400.

Cultural Resources:

The DE has consulted the National Register of Historic Places regarding the potential effects from the proposed action. The DE will comply with the requirements of the National Historic Preservation Act of 1966 for any known or presently unknown historic or archeological resources that may exist in the project vicinity and which could be directly affected by the proposed work. This public notice is being sent to the State Historic Preservation Officer and to Native American Tribal governments to reveal if other known historic or archeological resources may be eligible for listing in the National Register exist in the project area and which could be directly affected by the proposed work. This coordination is being done to fulfill our requirements under the National Historic Preservation Act of 1966 (Public Law 89-665) and associated historic preservation laws. If we are made aware, as a result of comments received in response to this notice, or by other means, of specific archeological or other historic properties which may be affected by the proposed work, the DE will immediately take the appropriate action necessary pursuant to the National Historic Preservation Act of 1966, as amended, and 36 CFR Part 800, in accordance with implementing regulations 33 CFR 325, Appendix C.

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: interior least tern (*Sterna antillarum*), piping plover (*Charadrius melodus*), red knot (*Calidris canutus rufa*), American burying beetle (*Nicrophorus americanus*), and the northern long-eared bat (*Myotis septentrionalis*). 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.

We are currently assessing the potential effects of the proposed action on these species and will comply with the Endangered Species Act with regard to any affect of our decision on this permit application.

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.

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 30 days from the date of this public notice. 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.

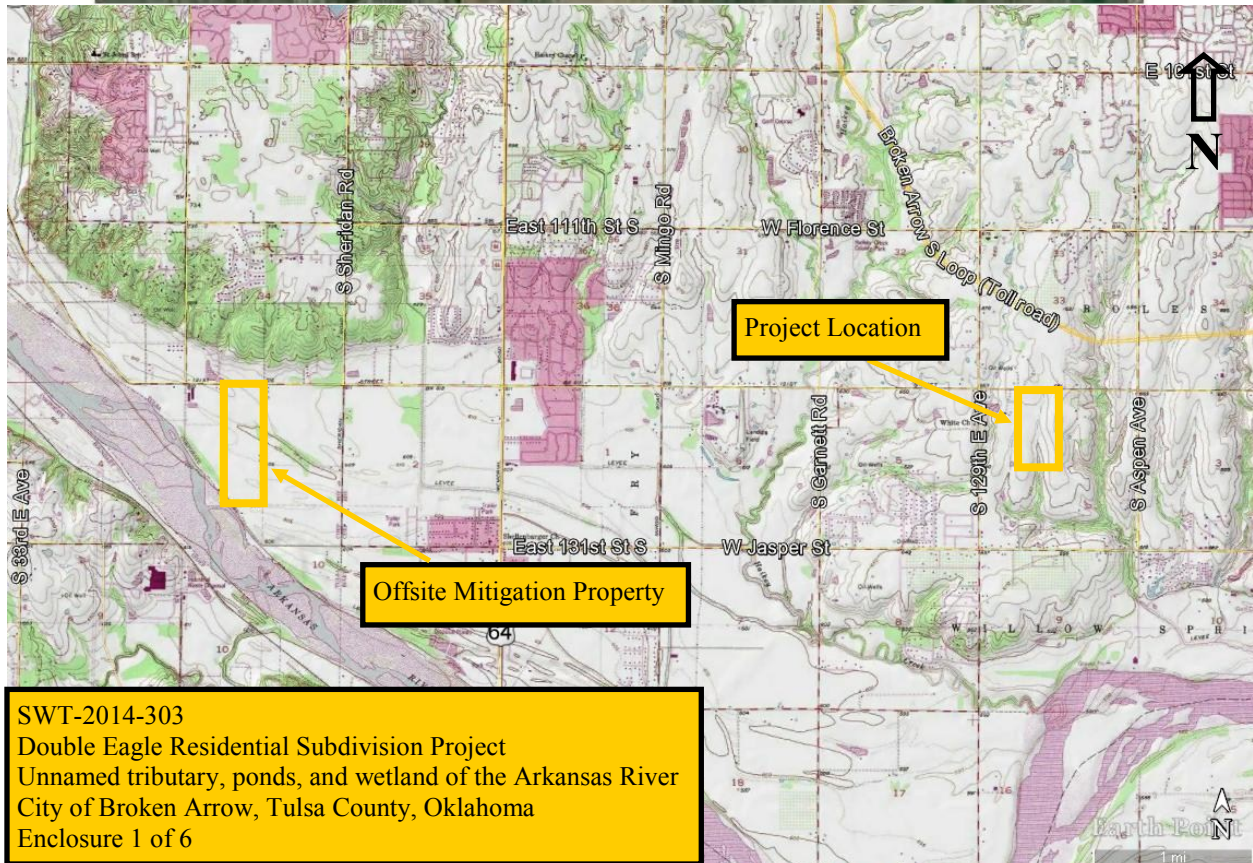
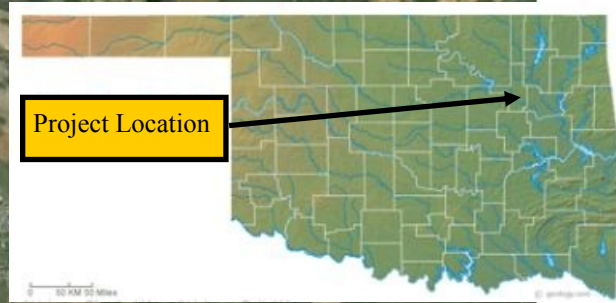
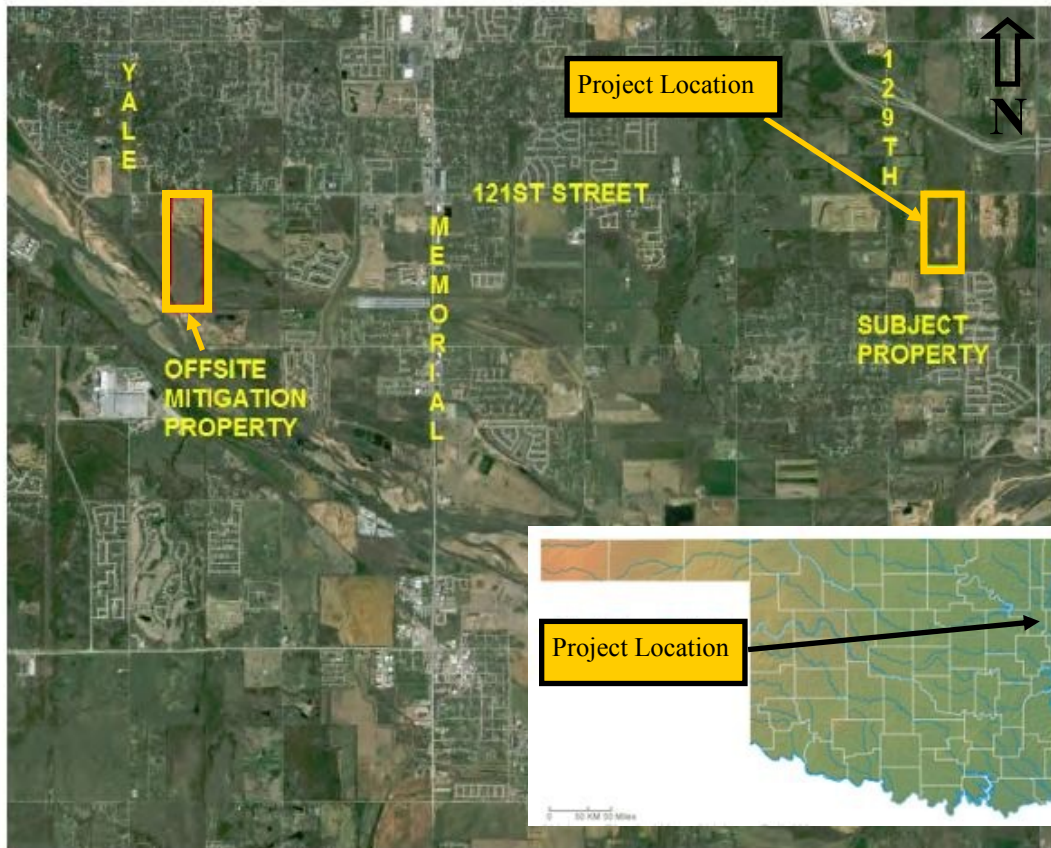
At the request of the Oklahoma Water Resources Board's National Flood Insurance Program State Coordinator, we are sending a copy of this notice to the local floodplain administrator to apprise the administrator of proposed development within their jurisdiction. In accordance with 44 CFR Part 60 (Criteria 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

Vicinity Map:



SWT-2014-303
Double Eagle Residential Subdivision Project
Unnamed tributary, ponds, and wetland of the Arkansas River
City of Broken Arrow, Tulsa County, Oklahoma
Enclosure 1 of 6



Tanner Consulting LLC
 13220 COUNTRY CLUB DRIVE
 SUITE 100
 TULSA, OKLAHOMA 74116
 (918) 438-1111
 TANNERCONSULTING.COM



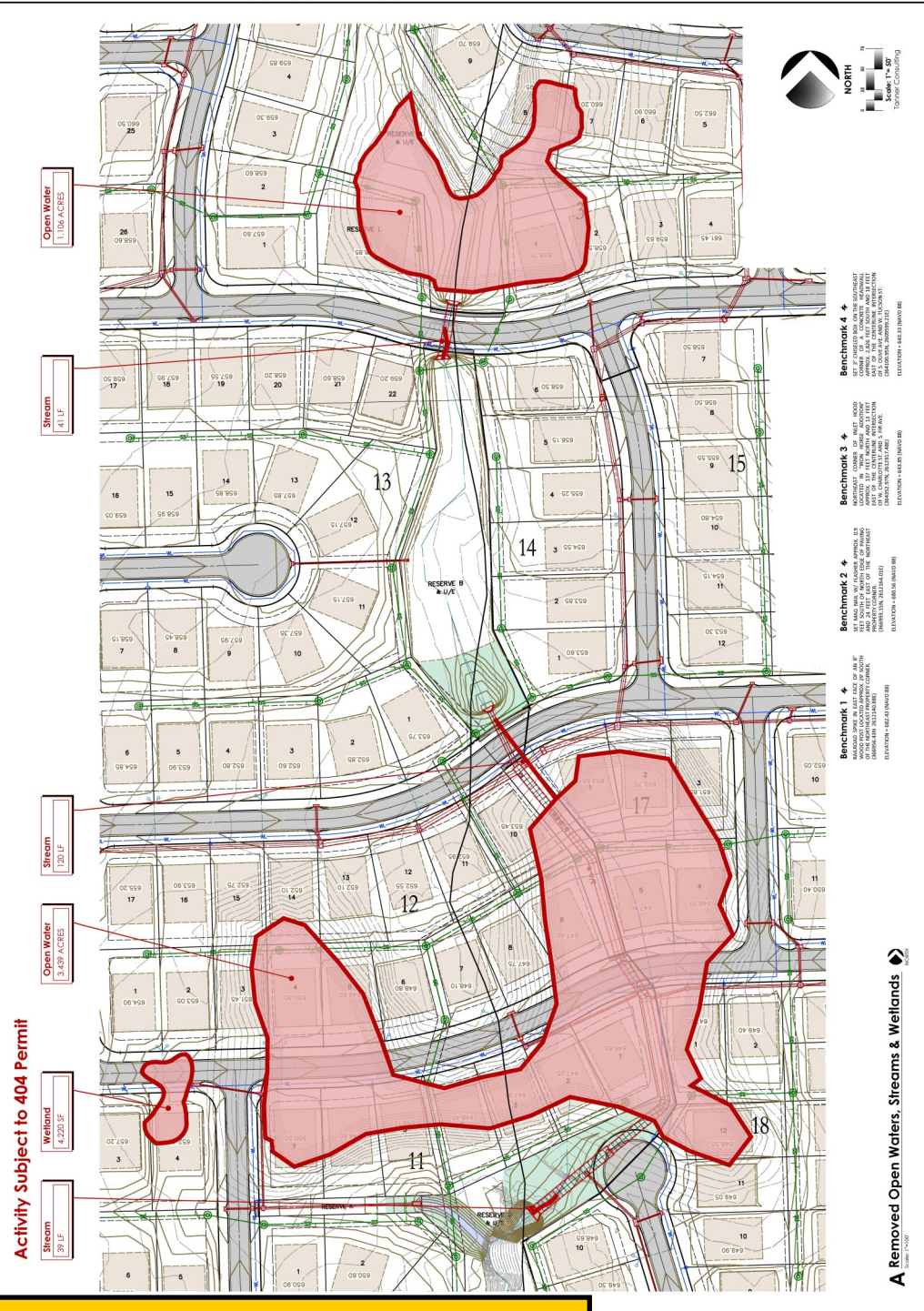
THIS PLAN IS THE PROPERTY OF TANNER CONSULTING LLC. IT IS TO BE USED ONLY FOR THE PROJECT AND SITE SPECIFICALLY IDENTIFIED HEREON. IT IS NOT TO BE REPRODUCED, COPIED, REPRODUCED, OR TRANSMITTED IN ANY FORM OR BY ANY MEANS, ELECTRONIC OR MECHANICAL, INCLUDING PHOTOCOPYING, RECORDING, OR BY ANY INFORMATION STORAGE AND RETRIEVAL SYSTEM, WITHOUT THE WRITTEN PERMISSION OF TANNER CONSULTING LLC. ANY UNAUTHORIZED USE OF THIS PLAN IS STRICTLY PROHIBITED. TANNER CONSULTING LLC SHALL NOT BE RESPONSIBLE FOR ANY DAMAGE TO PERSONS OR PROPERTY ARISING FROM THE USE OF THIS PLAN.

DATE: 06/27/2014
 PROJECT: 131306
 SHEET: 001
 SHEET NO.: 001 OF 001

Double Eagle
 West Tucson St. (121st) & South Olive Ave.
 Broken Arrow, Oklahoma

PROJECT: 131306
 SHEET: 001 OF 001
 DATE: 06/27/2014

Welland Mitigation Plan
WM4
 of 04



SWT-2014-303
 Double Eagle Residential Subdivision Project
 Unnamed tributary, ponds, and wetland of the Arkansas River
 City of Broken Arrow, Tulsa County, Oklahoma
 Enclosure 2 of 6

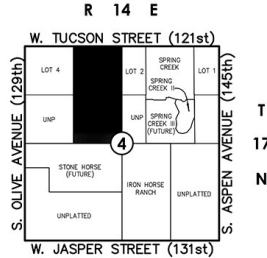
Wetland Mitigation Plan

Double Eagle

Part of the E/2 NW/4 Section 4, T 17 N, R 14 E
City of Broken Arrow, Tulsa County, Oklahoma



NORTH
Scale: 1"= 100'
Tanner Consulting



Location Map
Scale: 1"= 2000'

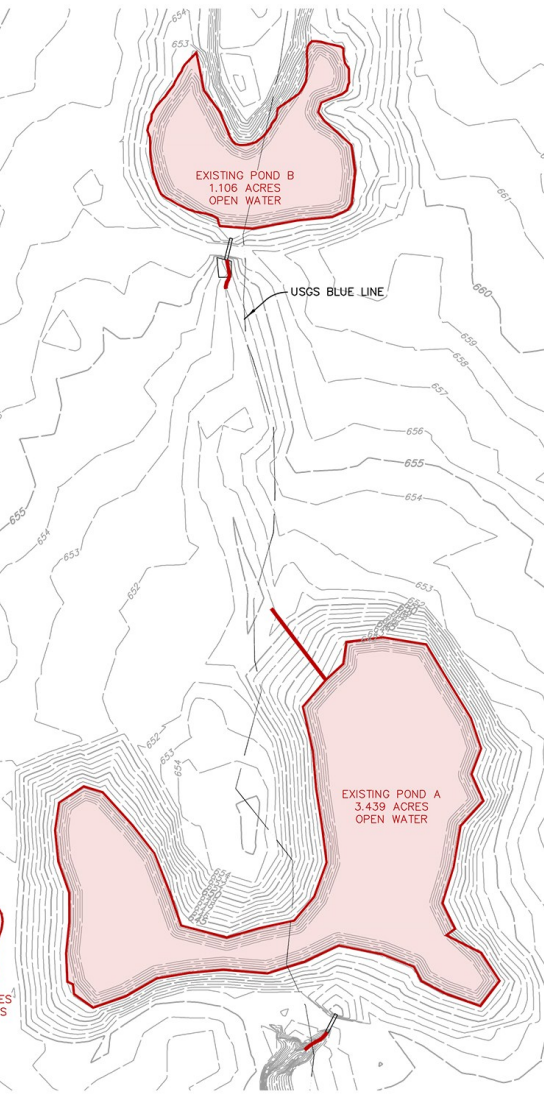
Mitigation Planting Notes:

- THE SOILS SUBSTRATE PLACED IN THE WETLAND BOTTOM SHALL BE A SUITABLE CLAY LOAM SOILS MATERIAL THAT IS IMPORTED FROM AN UPLAND SITE APPROVED BY TANNER CONSULTING. THE IMPORTED SOIL SHALL BE UNIFORMELY PLACED THROUGHOUT THE BOTTOM OF THE PROPOSED MITIGATION WETLAND TO A MINIMUM DEPTH OF 12".
- SOIL IN THE WETLAND BOTTOM MUST BE SATURATED WITH WATER TO ACHIEVE OPTIMAL PLANTING CONDITIONS. PLANTS SHOULD NOT BE PLACED IN STANDING WATER, BUT SHOULD BE PLANTED IN SATURATED SOIL AND THEN ALLOWED TO FLOOD NATURALLY DURING PLANTING SEASON. IF SUFFICIENT RAINFALL DOES NOT OCCUR NATURALLY WITHIN THE FIRST TWO WEEKS AFTER PLANTING, THE PLANTING AREA SHALL BE MANUALLY FLOODED TO A NOMINAL DEPTH OF TWO INCHES. THE WETLAND AREA SHOULD BE CAREFULLY MONITORED DURING THE PLANT ESTABLISHMENT PERIOD TO ASSURE THAT SUFFICIENT SATURATED SOIL CONDITIONS ARE ACHIEVED TO PERMIT NORMAL GROWTH OF TRANSPLANTED WETLAND PLANTS.
- WETLAND PERENNIALS: THE OPTIMUM SPRING PLANTING SEASON FOR WETLAND PERENNIALS ARE THE MONTHS OF MARCH, APRIL AND MAY. A SECONDARY SEASON FOR PLANTING MAY OCCUR IN SEPTEMBER AND EARLY OCTOBER. IF SUFFICIENT MOISTURE TO SATURATE THE SOIL IS PROVIDED BY NATURAL RAINFALL OR THROUGH MANUAL FLOODING.
- TREES AND SHRUBS: THE PLANTING SEASON FOR BARE ROOT OR BALLED AND BURLAPPED TREES AND SHRUBS IS DURING THE WINTER DORMANT SEASON OF THE PLANTS. THIS SEASON TYPICALLY OCCURS FROM ID-NOVEMBER THROUGH FEBRUARY. IF CONTAINER GROWN TREES AND SHRUBS ARE USED, THEY MAY BE PLANTED AT ANY TIME DURING THE YEAR. SUPPLEMENTAL WATERING MUST BE PROVIDED REGULARLY TO KEEP THE TREES AND SHRUBS ALIVE DURING THE FIRST TWO GROWING SEASONS.
- WETLAND PERENNIALS WILL BE MANUALLY COLLECTED FROM NATURAL WETLANDS OCCURRING ON NEARBY PROPERTIES WHERE PERMISSION HAS BEEN OBTAINED TO REMOVE SUCH PLANTS. THE AREAS TO BE HARVESTED WILL BE LOCATED, APPROVED, AND FLAGGED BY TANNER CONSULTING. COLLECTION SHALL BE CONDUCTED IN A CAREFUL MANNER THAT WILL NOT DAMAGE THE WETLAND SITE BEING USED AS A PLANT SOURCE. NO MOTORIZED EQUIPMENT OF ANY KIND MAY BE TAKEN INTO ANY NATURAL WETLAND AREA. SUITABLE CONTAINERS THAT ALLOW SATURATED SOIL CONDITIONS TO BE MAINTAINED BY ADDING WATER DURING THE HOLDING PRIOR PRIOR TO REPLANTING. NO PLANTS THAT HAVE BEEN ALLOWED TO DRY OUT WILL BE TRANSPLANTED INTO THE MITIGATION SITE.
- IF AN ACCEPTABLE LOCAL SOURCE FOR SPECIFIED WETLAND PLANT VARIETIES CANNOT BE LOCATED, SUITABLE PLANT VARIETIES APPROVED BY TANNER CONSULTING MAY BE SUBSTITUTED AND OBTAINED FROM A COMMERCIAL SOURCE.
- REGIONALLY GROWN NATIVE TREES AND SHRUB SPECIES SPECIFIED IN THE PLANTING SCHEDULE MAY BE PURCHASED FROM COMMERCIAL NURSERY SUPPLIERS.
- UNDER THE SUPERVISION OF TANNER CONSULTING, HARVESTED WETLAND PLANTS SHALL BE REPLANTED INTO SATURATED SOIL IN THE MITIGATION SITE ON THE SAME DAY THEY ARE COLLECTED. PLANTS WILL BE PLACED IN RANDOM GROUPS OF 3 TO 5 LIVING STEMS PER PLANTING LOCATION AS SHOWN ON THE MITIGATION PLAN SHEET.
- ALL PLANTINGS WILL BE CAREFULLY MONITORED THROUGHOUT THE FIRST TWO YEARS AFTER THE MITIGATION SITE IS COMPLETED. IF NATURAL RAINFALL DOES NOT OCCUR AT SUFFICIENT INTERVALS TO ASSURE FLOODING AND SOIL SATURATION WITHIN THE WETLAND MITIGATION AREAS AT LEAST TWO TIMES DURING EACH OF THE FIRST TWO SPRING GROWING SEASONS, SUPPLEMENTAL WATER MUST BE ADDED TO TEMPORARILY FLOOD THE MITIGATION AREA. PLANTS THAT DO NOT SURVIVE SHALL BE REPLANTED IN THE NEXT PLANTING SEASON, FOLLOWING THE SAME COLLECTION AND SUPERVISION REQUIREMENTS AS THE ORIGINAL PLANTING. TREES AND SHRUBS THAT DO NOT SURVIVE TRANSPLANTING SHALL ALSO BE REPLACED DURING THE NEXT PLANTING SEASON.
- ACCEPTABLE EROSION CONTROL MEASURES AS SPECIFIED AND APPROVED BY TANNER CONSULTING SHALL BE PLACED AROUND THE WETLAND MITIGATION SITE TO PROTECT THE AREA FROM DEPOSITION OF SILT OR SEDIMENT AND TO REDUCE EROSION OF THE NEWLY PLANTED AREAS. ALL MEASURES SUCH AS GRASS COVER, SILT FENCING, STRAW BALE BARRIERS, AND SEDIMENT TRAPS SHALL BE REGULARLY MAINTAINED WITH SPECIAL ATTENTION TO THE PERIOD AFTER EACH RAINFALL EVENT. ANY DAMAGE TO A SPECIFIED EROSION CONTROL MEASURE WILL BE REPAIRED WITHIN 72 HOURS. ALL EROSION CONTROL MEASURES WILL REMAIN IN PLACE UNTIL SUFFICIENT GRASS COVER IS OBTAINED ON OVERHEAD DRAINAGE AREAS TO ASSURE THAT SILT OR SEDIMENT PRODUCTION WILL BE MINIMAL.

Mitigation Area Table:

LINEAR FEET OF PROPOSED CHANNEL:	820 LF
TOTAL AREA OF PROPOSED WETLAND PLANTING:	0.368 ACRES
AREA OF PROPOSED CONSERVATION EASEMENT:	14.995 ACRES
AREA OF OPEN WATER TO BE FILLED/REMOVED:	4.545 ACRES
AREA OF PROPOSED OPEN WATER ON NEW SITE:	4.565 ACRES
PERCENT CHANGE IN OPEN WATER AREA:	0.4% INCREASE

0.08 ACRES WETLANDS



A Open Water to be Removed
Scale: 1"= 100'



Tanner Consulting LLC
PLANNING | SURVEYING
CIVIL ENGINEERING

5823 SOUTH LEWIS AVENUE
TULSA, OKLAHOMA 74103-6539
OFFICE: 918.745.9929
www.tannerbath.com

CERTIFICATE OF AUTHORIZATION NO.
OK CA 2661 EXP. 6/30/2017



THESE PLANS AND DRAWINGS ARE NOT TO BE REPRODUCED, CHANGED OR COPIED IN ANY FORM OR MANNER WHATSOEVER WITHOUT FIRST OBTAINING THE EXPRESS WRITTEN PERMISSION AND CONSENT OF TANNER CONSULTING, NOR ARE THEY TO BE ASSIGNED TO ANY THIRD PARTY WITHOUT OBTAINING THE WRITTEN PERMISSION AND CONSENT. ANY CHANGES MADE FROM THESE PLANS WITHOUT THE CONSENT OF TANNER CONSULTING ARE UNAUTHORIZED, AND SHALL RELIEVE TANNER CONSULTING OF RESPONSIBILITY FOR ALL CONSEQUENCES ARISING OUT OF SUCH CHANGES.

MILESTONE	DATE
MITIGATION EXHIBIT	08/13/2015
SHEET WM4	09/26/2015
LOT DATE:	10/12/15

ALL CONSTRUCTION TO BE IN STRICT ACCORDANCE WITH CURRENT CITY OF TULSA STANDARDS AND SPECIFICATIONS (INCLUDING O.D.O.T. 2009 EDITION).

Double Eagle
West Tucson St. (121st) & South Olive Ave.
Broken Arrow, Oklahoma

PROJECT: 13136
ISSUE DATE: 09/26/2015
ATLAS PAGE NO:

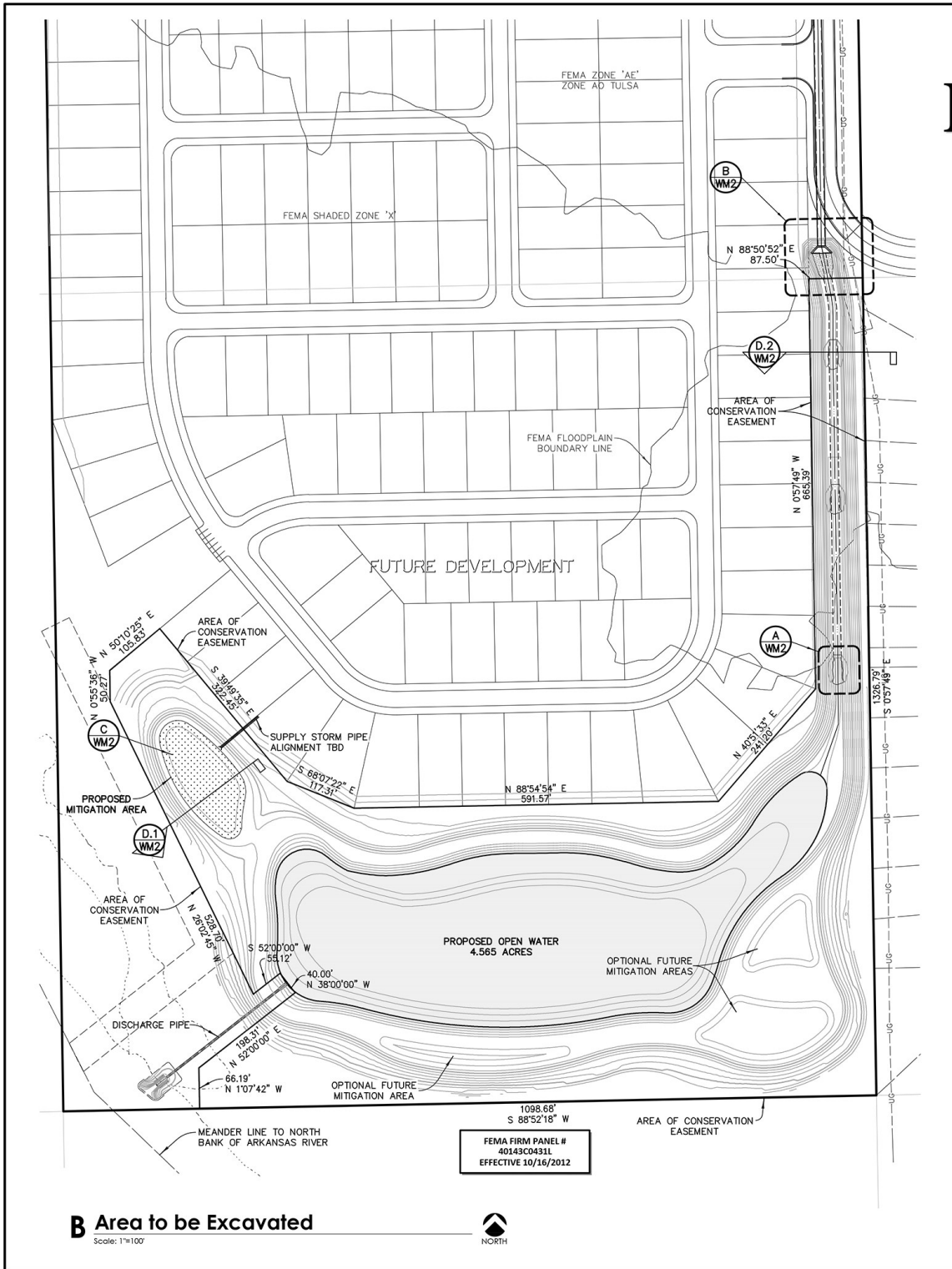
PLAN SCALE: (H) 1"=100'
(V) N/A

Wetland Mitigation Plan

WM1

OF 04

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Double Eagle Residential Subdivision Project
Unnamed tributary, ponds, and wetland of the Arkansas River
City of Broken Arrow, Tulsa County, Oklahoma
Enclosure 3 of 6



SWT-2014-303
 Double Eagle Residential Subdivision Project
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 City of Broken Arrow, Tulsa County, Oklahoma
 Enclosure 4 of 6

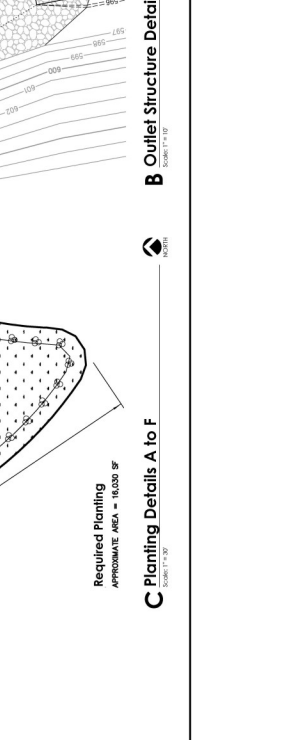
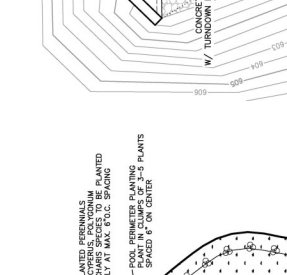
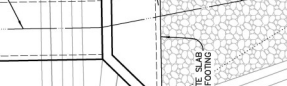
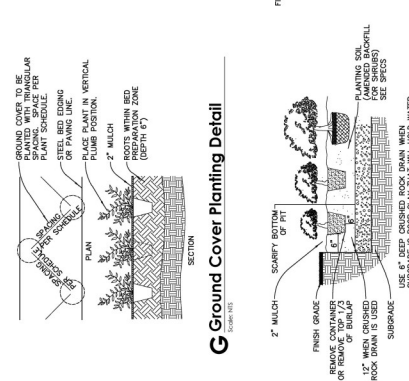
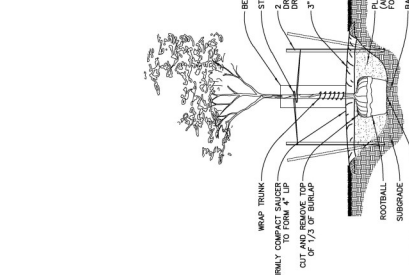
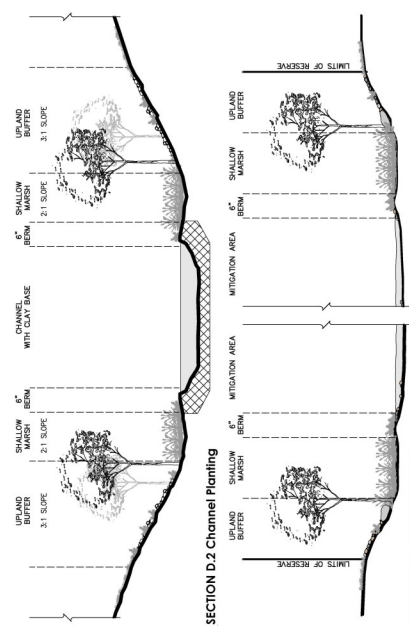
Mitigation Property Plan:
 The mitigation property is located southeast of the intersection of South Yale Avenue and East 121st Street South (NE/4, SW/4, Section 3, Township 17 North, Range 13 East), Tulsa County, Oklahoma



Tanner Consulting LLC
 13230 SOUTH GARDEN ROAD
 SUITE 100
 OKLAHOMA CITY, OKLAHOMA 73160
 PHONE: 405.733.8888
 FAX: 405.733.8899
 WWW.TANNERCONSULTING.COM



PROJECT NO.	13136
REV. DATE	06/20/2015
PROJECT NAME	Broken Arrow, Oklahoma
DATE	06/20/2015
PROJECT LOCATION	West Tucson St. (121st) & South Olive Ave.
PROJECT SHEET NO.	WM2
SHEET NO.	04
DATE	06/20/2015
PROJECT NAME	Double Eagle
PROJECT LOCATION	Broken Arrow, Oklahoma
PROJECT SHEET NO.	WM2
SHEET NO.	04
DATE	06/20/2015



SWT-2014-303
 Double Eagle Residential Subdivision Project
 Unnamed tributary, ponds, and wetland of the Arkansas River
 City of Broken Arrow, Tulsa County, Oklahoma
 Enclosure 5 of 6

Double Eagle
 West Tucson St. (121st) & South Olive Ave.
 Broken Arrow, Oklahoma

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 PROJECT SHEET NO.: WM2
 SHEET NO.: 04

PROFESSIONAL ENGINEER
 LAND SURVEYOR
 TANNER CONSULTING LLC

PROPOSED BOX CULVERT W/ CONC. WING WALLS
 CONCRETE SLAB
 W/ TURNDOWN FOOTING
 BRPPAP-LINED CHANNEL
 12" DEEP CHANNEL W/ CLAY BOTTOM

TRANSLANTED PERENNIALS & ELEGANT SPICES TO BE PLANTED RANDOMLY AT MAX. 6' C.C. SPACING
 POOL PERIMETER PLANTING PLANTS SPACED 4' ON CENTER

TYPICAL WETLAND TRANSPLANT SEE DETAIL SHEET 14
 1 SUGARBERRY
 6" EARTH BERM
 2 BITTON BUSH
 1 BURR OAK
 1 BLACKHAW
 1 SUGARBERRY

GROUND COVER TO BE PLANTING SPACING, SPACING PER PLANTING SPECIFICATION. SEE BED ELEVATIONS ON PAVING LINE.
 PLACE PLANT IN VERTICAL PLUMB POSITION.
 2" MULCH
 FINISH GRADE
 PREPARATION SOLE (DEPTH 6")

SWT-2014-303
 Double Eagle Residential Subdivision Project
 Unnamed tributary, ponds, and wetland of the Arkansas River
 City of Broken Arrow, Tulsa County, Oklahoma
 Enclosure 5 of 6



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THIS DRAWING WAS PREPARED BY AN ARCHITECTURAL FIRM OR ENGINEER UNDER THE CLOSE PERSONAL SUPERVISION AND DIRECTION OF A PROFESSIONAL ENGINEER LICENSED IN THE STATE OF OKLAHOMA. THE ARCHITECTURAL FIRM OR ENGINEER HAS CONDUCTED A VISUAL SURVEY OF THE PROJECT AND HAS FOUND THAT THE INFORMATION CONTAINED HEREIN IS TRUE AND ACCURATE TO THE BEST OF HIS OR HER KNOWLEDGE AND BELIEF. THE PROFESSIONAL ENGINEER'S LICENSE NUMBER IS 50007 AND HIS OR HER EXPIRES ON 12/31/2015.
 DATE: 06/26/2015
 DRAWN BY: [REDACTED]
 CHECKED BY: [REDACTED]
 PROJECT NO.: 147273
 SHEET NO.: [REDACTED]
 PROJECT DATE: 10/27/13
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Double Eagle
 West Tucson St. (121st) & South Olive Ave.
 Broken Arrow, Oklahoma

PROJECT: 13138
 ISSUE DATE: 06/26/2015
 ASY/PAGE NO.:
 PLAN SCALE(S): N/A
 TITLE: Wetland Mitigation Plan

Sugaberry
<http://www.kelco.org/magallery/w005e67m>

Blackhaw
<http://www.kelco.org/magallery/w005e67m>

Burr Oak Tree
<http://www.kelco.org/magallery/w005e67m>

Torrey's Bush
<http://www.kelco.org/magallery/w005e67m>

Strawcolored Flatsedge
<http://www.plantlife.org/wetland>

Frank's Seede
<http://www.plantlife.org/wetland>

Spike Rush
<http://www.plantlife.org/wetland>

Bog Smartweed
<http://www.plantlife.org/wetland>

Mitigation Planting Notes:

- THE SOILS SUBSTRATE PLACED IN THE WETLAND BOTTOM SHALL BE A SUITABLE MEDIUM GRADE SUBSTRATE. THE SUBSTRATE SHALL BE MANUALLY COLLECTED FROM NATURAL WETLANDS OCCURRING ON NEARBY PROPERTIES WHERE PERMISSION HAS BEEN OBTAINED FROM THE NEIGHBORING PROPERTY OWNERS. THE SUBSTRATE SHALL BE LOCATED, APPROVED, AND FLAGGED BY TANNER CONSULTING. COLLECTION SHALL BE CONDUCTED IN A MANNER THAT WILL NOT CAUSE DISTURBANCE TO THE WETLANDS SITE BEING USED AS A PLANT SOURCE. NO MOTORIZED EQUIPMENT OF ANY KIND MAY BE TAKEN INTO ANY NATURAL WETLAND AREA. SUITABLE SOILS SHALL BE MANUALLY COLLECTED FROM THE WETLANDS. THE SOILS SHALL BE PLACED IN A TRUCK AND TRANSPORTED TO THE MITIGATION SITE.
- SOL IN THE WETLAND BOTTOM MUST BE SATURATED WITH WATER TO ACHIEVE FLOOD NATURALLY DURING PLANTING SEASON. IF SUFFICIENT RAINFALL DOES NOT OCCUR, WATER SHALL BE MANUALLY APPLIED TO THE SOIL TO MAINTAIN A CONSTANT WATER TABLE THROUGHOUT THE PLANTING SEASON. PLANTING SHALL BE MANUALLY PERFORMED TO A NOMINAL DEPTH OF TWO FEET. PLANTING SHALL BE PERFORMED IN A MANNER THAT WILL PREVENT WETLANDS FROM BEING OVERSATURATED AND CAUSING DAMAGE TO THE WETLANDS. PLANT ESTABLISHMENT PERIOD TO ASSURE THAT SUFFICIENT SATURATED SOIL WILL BE MAINTAINED THROUGHOUT PLANTING SEASON TO PERMIT NORMAL GROWTH OF TRANSPLANTED WETLAND PLANTS.
- WETLAND PERENNIALS: THE OPTIMUM SPRING PLANTING SEASON FOR PERENNIALS SHALL BE APRIL THROUGH MAY. THE PLANTING SEASON FOR TREES AND SHRUBS: THE PLANTING SEASON FOR BARE ROOT OR BALLED AND PLANTED TREES AND SHRUBS SHALL BE SEPTEMBER THROUGH EARLY NOVEMBER. TREES AND SHRUBS PLANTED IN WETLANDS SHOULD BE MANUALLY WATERED THROUGHOUT PLANTING SEASON TO PERMIT NORMAL GROWTH OF TRANSPLANTED WETLAND PLANTS.
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15 WETLAND PERENNIALS SHALL BE MANUALLY COLLECTED FROM NATURAL WETLANDS OCCURRING ON NEARBY PROPERTIES WHERE PERMISSION HAS BEEN OBTAINED FROM THE NEIGHBORING PROPERTY OWNERS. THE PERENNIALS SHALL BE LOCATED, APPROVED, AND FLAGGED BY TANNER CONSULTING. COLLECTION SHALL BE CONDUCTED IN A MANNER THAT WILL NOT CAUSE DISTURBANCE TO THE WETLANDS SITE BEING USED AS A PLANT SOURCE. NO MOTORIZED EQUIPMENT OF ANY KIND MAY BE TAKEN INTO ANY NATURAL WETLAND AREA. SUITABLE SOILS SHALL BE MANUALLY COLLECTED FROM THE WETLANDS. THE SOILS SHALL BE PLACED IN A TRUCK AND TRANSPORTED TO THE MITIGATION SITE.

16 IF AN ACCEPTABLE LOCAL SOURCE FOR SPECIFIED WETLAND PLANT VARIETIES IS NOT AVAILABLE, LOCAL SOURCES SHALL BE REQUESTED AND APPROVED BY TANNER CONSULTING. THE LOCAL SOURCES SHALL BE REQUESTED AND APPROVED BY TANNER CONSULTING. THE LOCAL SOURCES SHALL BE REQUESTED AND APPROVED BY TANNER CONSULTING. THE LOCAL SOURCES SHALL BE REQUESTED AND APPROVED BY TANNER CONSULTING.

17 TANNER CONSULTING SHALL BE PLACED AROUND THE WETLAND MITIGATION MEASURES TO MONITOR THE PROGRESS OF THE WETLAND MITIGATION MEASURES. TANNER CONSULTING SHALL BE PLACED AROUND THE WETLAND MITIGATION MEASURES TO MONITOR THE PROGRESS OF THE WETLAND MITIGATION MEASURES. TANNER CONSULTING SHALL BE PLACED AROUND THE WETLAND MITIGATION MEASURES TO MONITOR THE PROGRESS OF THE WETLAND MITIGATION MEASURES.