



Section 18 – Reclaimed Water Discharge Plan

Content

- a. Map of existing LAS and discharge pipelines.
- b. Map of proposed discharge pipelines.
- c. Map of Canyon Lake discharge system.
- d. Presentation and report on modeling results for discharge of reclaimed water (pending).

The City of Lubbock has set a goal to complete improvements at the Southeast Water Reclamation Plan (SEWRP) so that all effluent will meet stream discharge standards in order to: (1) cease land application site operations, (2) enable reuse of reclaimed water, and (3) eliminate environmental concerns about wastewater reuse. As part of the process, the City must have a plan for the discharge of wastewater effluent. Permits are required for each discharge site. Modeling is required for each discharge site. Separate standards may be required at each site. The alternatives must therefore be identified and evaluated, modeled and permitted before discharge can actually take place.

The plan would involve the following phases.

Phase I - Immediate Plan within the next few years.

- Add Canyon Lake System – 4 MGD.
- Add SEWRP – 15 MGD.
- Continue at Intersection of FM 400 and the North Fork (Outfall 001) – 9 MGD.
- Total discharge capacity of about 28 MGD.

Phase II - Intermediate Plan within the next 30 years.

- Continue at Canyon Lake System – 4 MGD.
- Continue at SEWRP – 15 MGD.
- Continue at Intersection of FM 400 and the North Fork (Outfall 001) – 9 MGD.
- Add South Fork tributary to supplement Lake Alan Henry – 9 MGD.
- Total discharge capacity of about 37 MGD.

Phase III – Long Term Plan – within the next 50 years.

- Continue at Canyon Lake System – 4 MGD.
- Continue at Intersection of FM 400 and the North Fork (Outfall 001) – 9 MGD.
- Continue at South Fork tributary to supplement Lake Alan Henry – 9 MGD.
- Add Lake #7 and reduce or eliminate discharge at SEWRP.
- Add 2nd 14 mile line from SEWRP to intersection of North Fork and FM 400 – 9+ MGD as needed.
- Total discharge capacity – 31 MGD.

As part of the plan, cost estimates for each of the different phases need to be developed. The above alternatives provide opportunities to send water to Post Reservoir, Lake Alan Henry, and eventually to Canyon Lake #7. This will provide an opportunity for the City of Lubbock to design, plan for, and then increase the amount of water available for annual use by over 40,000 acre-feet and increase peak day supply by 70 to 80 MGD or more.

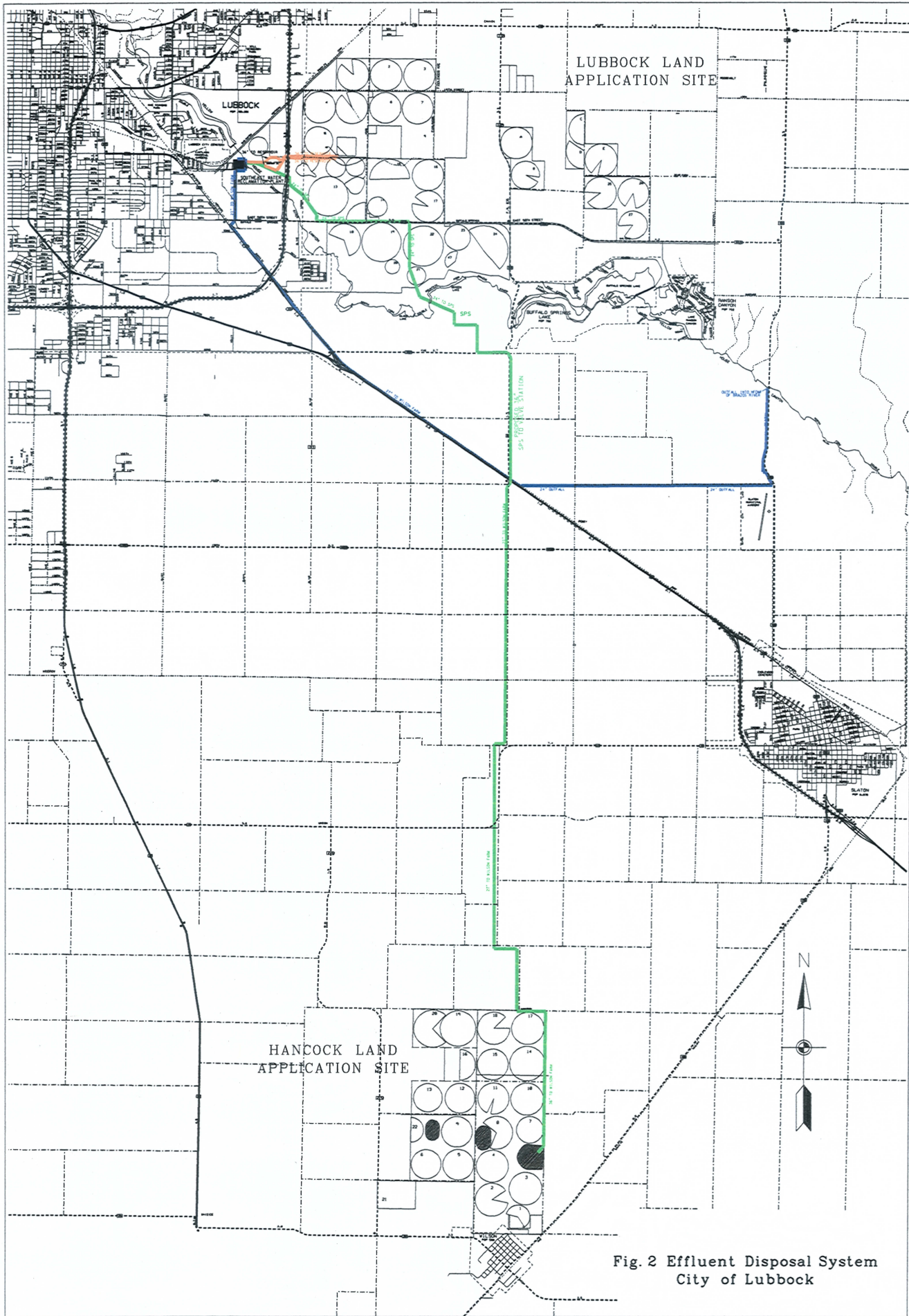
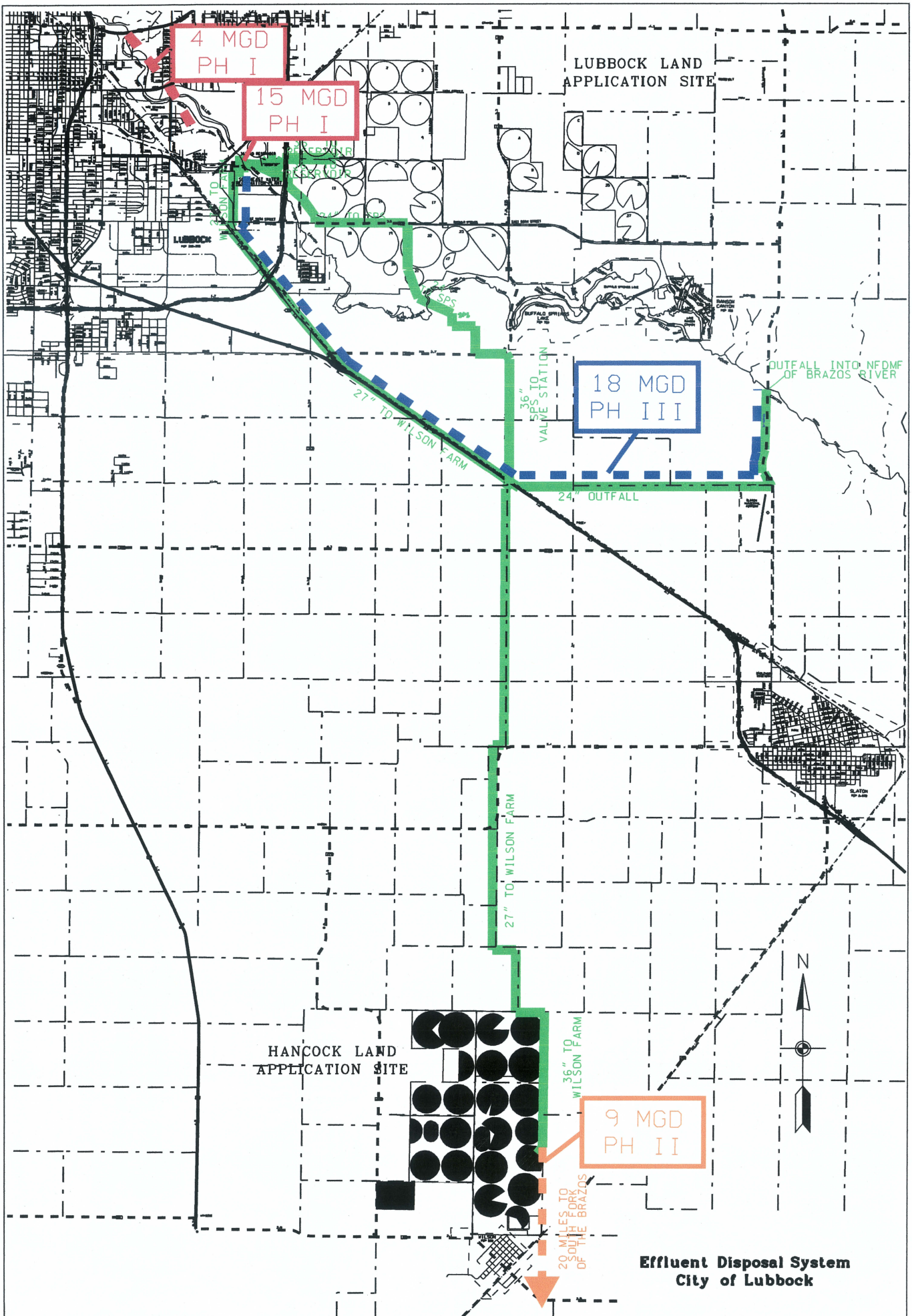


Fig. 2 Effluent Disposal System
City of Lubbock



4 MGD
PH I

15 MGD
PH I

LUBBOCK LAND
APPLICATION SITE

18 MGD
PH III

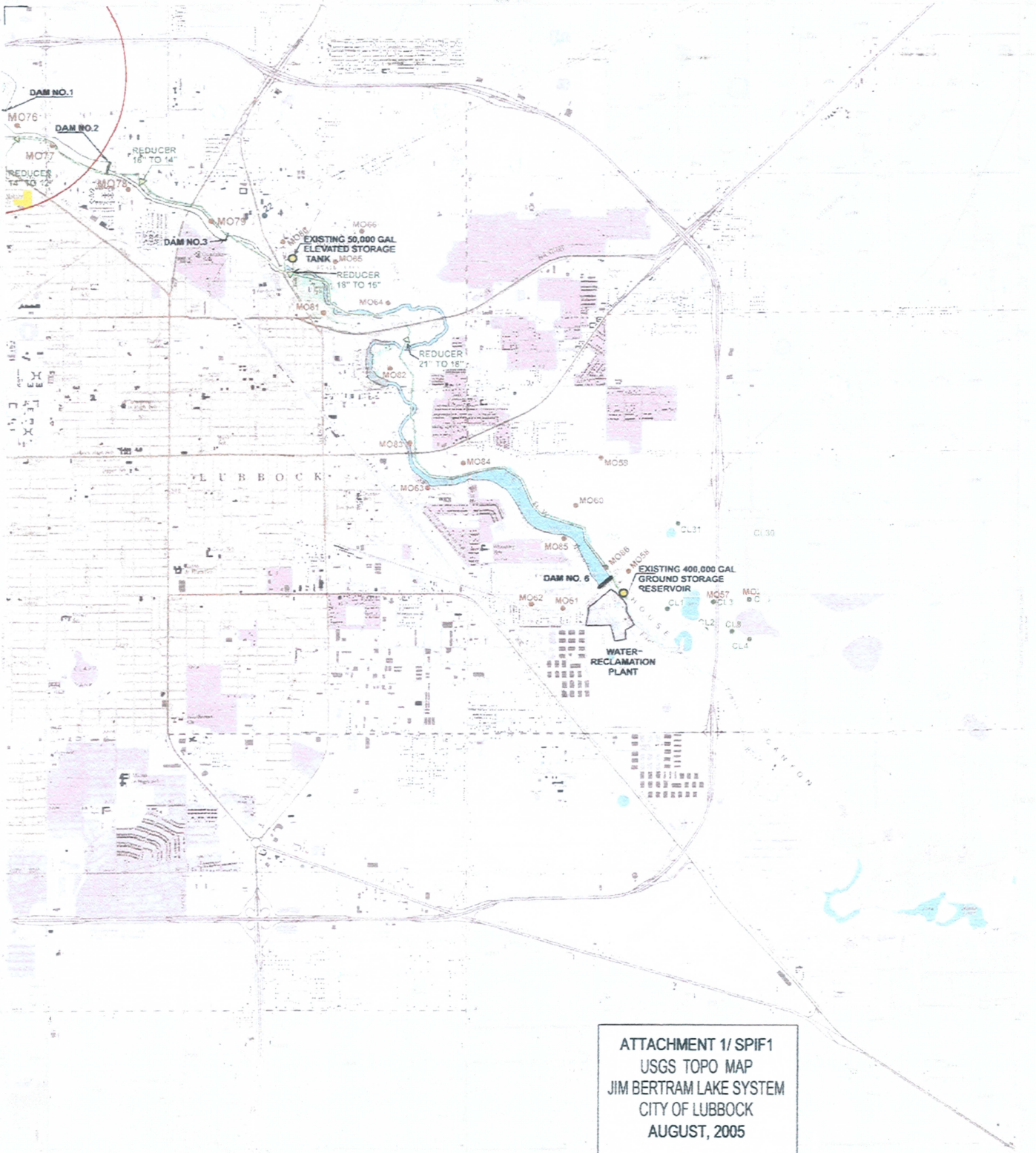
OUTFALL INTO NEDMF
OF BRAZOS RIVER

HANCOCK LAND
APPLICATION SITE

9 MGD
PH II

20 MILES TO
SOUTH FORK
OF THE BRAZOS

**Effluent Disposal System
City of Lubbock**



ATTACHMENT 1/ SPIF1
USGS TOPO MAP
JIM BERTRAM LAKE SYSTEM
CITY OF LUBBOCK
AUGUST, 2005

LEGEND

PUBLIC WATER SUPPLY WELL (air gap pool - not in use)	②3	3 MILES DOWNSTREAM FROM OUTFALL POINT	②3
MONITORING WELL	MO62	JIM BERTRAM LAKE DISTRIBUTION LINE (supply line)	②3
JIM BERTRAM LAKE PRODUCTION WELL	PO62	PUBLIC WATER STORAGE	②3
JIM BERTRAM LAKE SYSTEM BOUNDARY	②3	HIGHLIGHTED SCHOOL AREA	②3
1 MILE RADIUS FROM OUTFALL POINT	②3	HIGHLIGHTED PARK AREA	②3
JIM BERTRAM LAKE GROUND AND ELEVATED STORAGE	②3	CITY PROPERTY	②3



Section 19 – Pending Water Right Permits

Content

- a. Proposed Amendment for Water Use Permit No. 3985 (Application No. 4340)
- b. Water Rights Application for WRPERM 5921

Summary

The City has two water rights permit applications pending. An outline on each one is provided for your information.

The pending applications are designed to make use of the City's developed water and any flows that are not yet permitted. "Developed water" is water that would not be found in a stream without the actions of the City.

The City's reclaimed water is the largest source of developed water. The City now has about 18 MGD of reclaimed water that leaves the SEWRP. Since the 1930's, this water was "disposed" of at the land application sites. Now that the City views this water as a valuable resource, it is proposed to discharge the water into a stream, the North Fork of the Double Mountain Fork of the Brazos River, and then capture, store and divert the water for reuse.

The second major source of developed water is storm water. The City has constructed and continues to construct storm drainage systems to take water from playa lakes to the North Fork in order to eliminate flooding problems inside the City. This storm water is also available for capture and reuse.

The third source of developed water is the groundwater that is being pumped from under the Lubbock Land Application Site (LLAS) and discharged at the head of the Canyon Lakes System. While this source may not be permanent, it is a source of developed water at the present time. On May 11, 2007, the City received the authority to use this water pursuant to Certificate of Adjudication No. 12-3705, as amended.

The City is modeling the flow of water down the North Fork to determine water availability and reservoir feasibility. All proposed permits assume that the North Fork will be used for the discharge of developed water. A shift to discharge reclaimed water, storm water and groundwater to a South Fork tributary will require a change to the proposed permits and significant capital outlays. The North Fork is the natural drainage stream for Lubbock. Moving the developed waters to the South Fork will require extensive water transmission pipes and pumps.

One major change, discussed previously, is to drop Lake #8 from the permit applications and keep Lake #7. If approved, Council will be asked to approve this change so that the permits can move forward.

City of Lubbock
Water Utility Department
Water Rights and Permits
August 29, 2006

Proposed Amendment to Water Use Permit No. 3985 (Application No. 4340)
Designated Water Use Permit No. 3985A (Application No. 4340A)

Status: Draft permit language being finalized.

Next Steps: (1) finalize the amended permit language, (2) draft permit sent to protestants, (3) negotiate withdrawal of protests or matter sent to Commissioners for consideration.

Permit No. 3985 is a secondary use permit that authorizes the City to use, 22,910 acre-feet of treated effluent per year of which total 4,480 acre-feet can be used by Jones Power Plant, and 18,430 can be used for irrigation of 10,000 acres.

Proposed Amendment seeks to authorize the diversion and use of all historic and future discharges of treated effluent originating from developed surface water supplies from CRMWA and groundwater.

Discharge point authorized by TPDES Permit No. 10353-002 is located at FM 400 & NF.

Authorize Use proposed up to 32,991 acre feet of effluent from CRMWA surface water and groundwater for agricultural, municipal, industrial and recreational purposes. All permitted surface water rights included, not just CRMWA. Bed and banks authorized.

Diversion Rate not to exceed discharge rate less carriage losses, with proposed diversion location at C.R. 7300 & NF. Carriage loss estimated at 0.47 percent.

Priority Date for the surface water-based effluent diversion is May 23, 1983, but not subject to call by senior permit holders. Priority date for groundwater based effluent is October 12, 2004, but not subject to call by senior permit holders.

Conservation Plan required.

Special Conditions include: (1) measuring device for diversion, (2) accounting plan, (3) amendment required for discharge and diversion of future increase in flows.

City of Lubbock
Water Utility Department
Water Rights and Permits
August 29, 2006

Proposed Water Rights Application for WRPERM 5921.

Status: Notice published for proposed water right permit application.

Next Steps: (1) respond to questions/requirements during technical review of application by TCEQ staff, (2) negotiate draft permit with TCEQ (3) negotiate withdrawal of hearing requests or matter will be sent to Commissioners for consideration.

Water Right Permit Application No. 5921 would authorize the City of Lubbock to (1) construct two dams and reservoirs on the North Fork (Lakes #7 and #8), (2) divert and use up to 50,000 acre-feet of water from the reservoirs, (3) impound developed storm water, (4) impound unappropriated state water, (5) impound any and all wastewater return flows discharged upstream of the reservoirs by third parties, and (6) use the bed and banks of the North Fork for conveyance.

Proposed Permit seeks to secure recognition of privately developed water and rights to discharge, convey, and divert same, in addition to any available state water, from the North Fork for use by the City of Lubbock in conjunction with regional water planning and use for area communities.

Discharge point authorized under a variety of separate permits.

Authorize Use proposed not to exceed 50,000 acre feet per year for municipal, agricultural and industrial purposes. Authorizes bed and banks use of the North Fork.

Diversion authorized from the perimeters of Reservoirs Nos. 7 not to exceed 7.20 cfs (3,230 gpm) and 8 not to exceed 44.56 cfs (20,000 gpm).

Priority Date is set as of April 17, 2006 on the date the application was determined to be administratively complete.

Conservation Plan (existing) submitted with application.

Special Conditions to be developed by TCEQ during technical review.

City of Lubbock
Water Utility Department
Water Rights and Permits
August 29, 2006

Proposed Amendment to Certificate of Adjudication No. 12-3705

Status: Draft permit language being finalized.

Next Steps: (1) finalize the amended permit language, (2) receive final permit.

Certificate of Adjudication No. 12-3705, as amended authorizes the city to maintain six dams and reservoirs (Jim Bertram Lake System) on the Yellow House Draw, a tributary to the North Fork, and to impound therein 577 acre-feet of water, and to convey and divert from specified points up to 1,162 acre-feet per annum of groundwater for irrigation purposes.

Proposed Amendment seeks to increase the total combined diversion from 1,162 acre feet to 4,816 acre-feet of water per year, or as much as is allowed by TPDES Permit No. 04599 for the same purposes, and to authorize the diversion from the perimeter of Reservoir Nos. 1, 2 and 6.

Discharge point authorized by TPDES Permit No. 04599 located at the head of the Canyon Lake System.

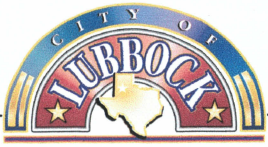
Authorize Use proposed not to exceed 4,816 acre feet per year for agricultural (irrigation), municipal, recreational and industrial purposes less carriage losses. Authorizes bed and banks use of Yellow House Draw in North Fork.

Diversion authorized from the perimeters of Reservoirs Nos. 1, 2, and 6, at a maximum combined rate of 11.565 cfs or 5,180 gpm.

Priority Date is August 19, 2006, but not subject to call by senior permit holders.

Conservation Plan required.

Special Conditions include: (1) divert only amount discharged less carriage losses, (2) daily electronic records of permitted discharges, and flow meters for all other groundwater discharges, (3) if used for industrial or mining, a conservation plan for such is required, (4) Owner required to apply for future increases of groundwater discharged.



Section 20 – Summary of Project Cost Estimates and Timing

Content

No documentation.

Summary

Cost estimates are essential for determining project feasibility and priority for implementation. Cost estimates have different levels of reliability. Even the estimates provided by engineers are subject to change due to inflation, bidding factors, and contractor interest. For that reason, even engineers are reluctant to give cost estimates for projects. With this in mind, the estimates provided here are estimates. Until the project is designed, bid and constructed, the exact cost will not be known.

Cost estimates have varying degrees of reliability. I would offer the following list with #1 being the most reliable on down to the least reliable.

1. Bids by contractors after final design and specifications are prepared.
2. Final design cost estimates.
3. Preliminary engineering cost estimates.
4. Regional Water Plan cost estimates.
5. General engineering estimates.
6. Staff estimates.

With this in mind, the following estimates are provided as a summary for the various projects now under consideration:

1. Lake Alan Henry – Year 2012 - \$200 million (General engineering estimates)
 - Project includes raw water transmission line, right-of-way, pump stations, water treatment plant, property for the stations and plant, distribution system improvements to connect the new source to the City's system, engineering and other services.
2. Post Reservoir Project to Supplement Lake Alan Henry – Year 2030 - \$40 million (Region O Plan plus 33%)
3. South Fork Option to Supplement Lake Alan Henry – Year 2030 - \$40 to \$70 million (staff estimate)
4. Scalping Operation Option to Supplement Lake Alan Henry – Year 2030 - \$75 million (Region O Plan plus 33%)
5. Lake #7 for Future Peak Day Demand – Year 2040 - \$50 million (staff modified Region O Plan plus 33%)
 - Project includes property, dam, transmission line, right-of-way, and pumps.
6. CRMWA II – Year 2050 or later - \$400 to \$600 million (staff estimate)
 - Project includes groundwater rights, well field infrastructure, right-of-way, water transmission line and pump stations.
7. Water Reclamation Plant Improvements – Begin in 2008 - \$125 million (Final design and general engineering estimates)



2007 Lubbock Water Supply Plan

- Project is proposed in phases with Phase one beginning in 2008. Phase 1 construction project estimated at \$50 million.