

Tanya Ester (adpce.ad)

From: Jessica Sears (adpce.ad)
Sent: Thursday, April 17, 2025 10:54 AM
To: Tanya Ester (adpce.ad)
Cc: Terry Liu (adpce.ad)
Subject: FW: 20-2111 Cave Springs Sewer - Closure Plan for NPDES Permit 4893-WR-3
Attachments: Exhibits.zip

From: Shannon Jones <sjones@mce.us.com>
Sent: Thursday, April 17, 2025 10:11 AM
To: Tahir Haneef <Tahir.Haneef@arkansas.gov>
Cc: Richard Healey (adpce.ad) <Richard.Healey@arkansas.gov>; Jessica Sears (adpce.ad) <Jessica.Sears@arkansas.gov>; Daniel Barnes <dbarnes@mce.us.com>; Will Smith <will.smith@cavespringsar.gov>
Subject: RE: 20-2111 Cave Springs Sewer - Closure Plan for NPDES Permit 4893-WR-3

Exhibits attached.

Shannon Jones, PE
Senior Project Manager
W: (479) 443.2377
C: (479) 387.7223
1580 E. Stearns Street
Fayetteville, AR 72703

From: Shannon Jones
Sent: Thursday, April 17, 2025 10:10 AM
To: Tahir Haneef <Tahir.Haneef@arkansas.gov>
Cc: Richard Healey (adpce.ad) <Richard.Healey@arkansas.gov>; Jessica Sears (adpce.ad) <Jessica.Sears@arkansas.gov>; Daniel Barnes <dbarnes@mce.us.com>; Will Smith <will.smith@cavespringsar.gov>
Subject: 20-2111 Cave Springs Sewer - Closure Plan for NPDES Permit 4893-WR-3

Tahir,

Submitted on behalf of the City of Cave Springs is the wastewater closure plan for their NPDES Permit 4893-WR-3. The exhibits will follow in a separate email due to size.

Thank you.



Shannon Jones, PE
Senior Project Manager
W: (479) 443.2377
C: (479) 387.7223
1580 E. Stearns Street
Fayetteville, AR 72703

April 17, 2025

Via: Email

Mr. Richard Healey
Enforcement Branch Manager
Office of Water Quality
Division of Environmental Quality(DEQ)
Arkansas Department of Energy and Environment
5301 Northshore Drive
North Little Rock, Arkansas 72118-5317

RE: City of Cave Springs, Arkansas
NPDES Permit No. 4893-WR-3; AFIN 04-01642
Closure Plan

Dear Mr. Healey:

McClelland Consulting Engineers, Inc. has prepared a Wastewater Closure Plan for the above referenced permit and is submitting this plan on behalf of the City of Cave Springs, Arkansas..

The facility commissioned a new sewer lift station that discharges to the Northwest Arkansas Conservation Authority (NACA) on March 20, 2025. Upon starting the new lift station, wastewater operations were ceased at Plant #1 and Plant #2 and are no longer receiving wastewater from the city.

Please contact us at (479) 443 2377 if you have any questions or need further information.

Sincerely,

Shannon Jones, PE
Senior Project Manager
sjones@mce.us.com

Encl: Cave Springs Closure Plan (Electronic Document)

CC: City of Cave Springs

CAVE SPRINGS SEWER SYSTEM DESIGN

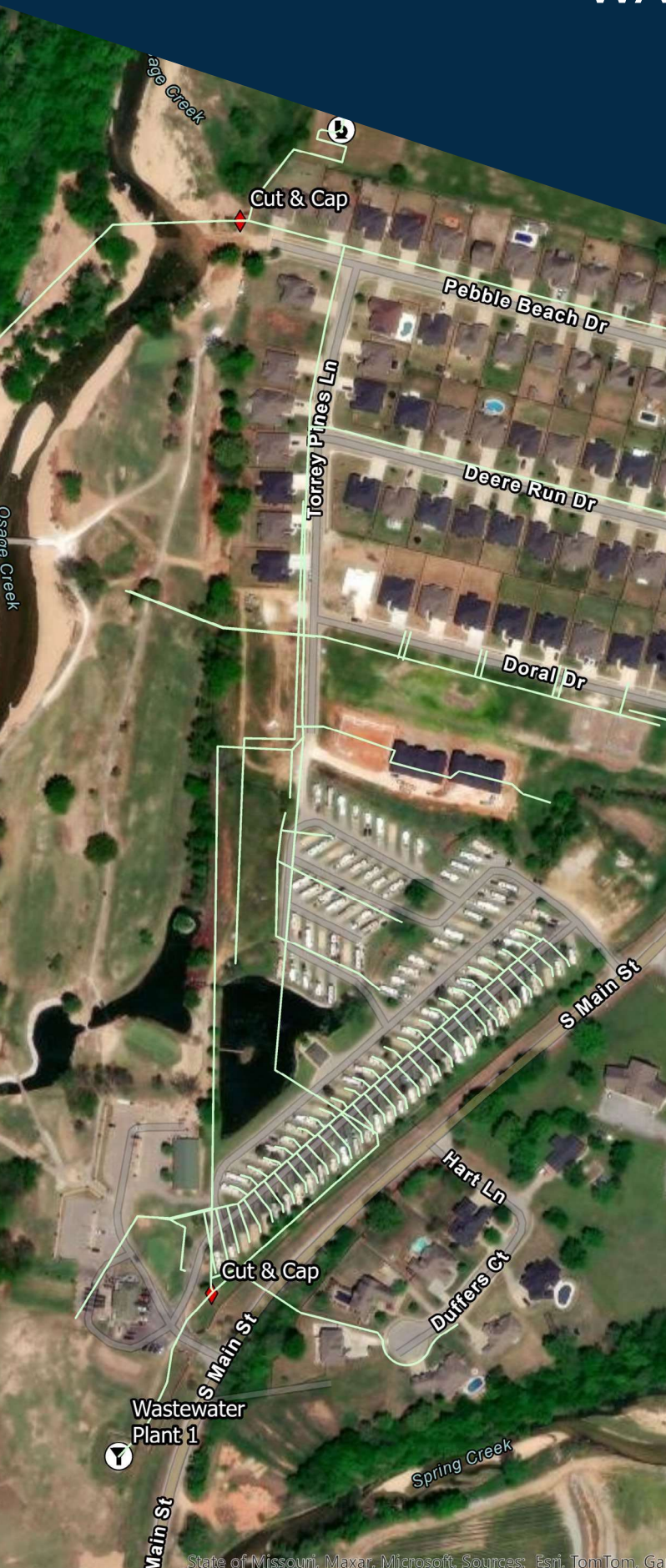
WASTEWATER CLOSURE PLAN

Cave Springs, Arkansas

Project Number: 20-2111

Permit No: 4893-WR-3

AFIN: 04-01642



4/17/25



City of
Cave Springs
Arkansas

April 2025

Prepared by:

MCE McCLELLAND
CONSULTING
ENGINEERS, INC.
DESIGNED TO SERVE

1580 East Stearns Street
Fayetteville, AR 72703

P: 479.443.2377

Closure Plan

Closure and Notification Requirements

Pursuant to NPDES Permit 4893-WR-3, Part II, Paragraph 17, the City of Cave Springs ceased WWTP operations on March 20, 2025. The City of Cave Springs is requesting approval of the following closure plan.

The City of Cave Springs entered into a Settlement Agreement with The Creeks Golf Course, LLC (CGC). The CGC hereby consents to the abandonment of all of the Improvements by City in their present locations, and the Improvements shall become the sole property and responsibility of CGC. Following the Connection Date, the City will remove any sludge present in the Drip Field tanks. The City will provide documentation to the Arkansas Department of Energy and Environment, Division of Environmental Quality that demonstrates that removal and affirmatively states that the system will be assigned to CGC, in mothball status, for a future determination of whether CGC will make future use of the system (collectively, the "Decommissioning Activities").

Record Keeping

A copy of the approved Closure Plan will be maintained at City Hall. The City will maintain the facility records until ADEQ authorized destruction of the records. Within 30 days of the facility closure, the City of Cave Springs shall submit a certification of closure to ADEQ and request termination of the permit as required.

Closure Procedures

The closure of the City of Cave Springs wastewater treatment facilities will be performed after the City of Cave Springs connects to the Northwest Arkansas Conservation Authority (NACA) collection system and wastewater treatment facility. Upon connection to the NACA system, the City's treatment facilities will be decommissioned as follows:

- Notify ADEQ of plans to close the facilities
- Cease WWTP operations (March 20, 2025) and pump wastewater to NACA
- Cut and cap force main sewer feeding Plant #1, refer to Exhibit 2.
- Cut and cap force main sewer feeding Plant #2, refer to Exhibit 3.
- Treatment Plant #1 (Exhibit 4)
 - Remove and dispose of wastewater in treatment components at Plant #1
 - Remove and dispose of solids remaining in treatment components at Plant #1
- Treatment Plant #2 (Exhibit 5)
 - Remove and dispose of wastewater in treatment components at Plant #2
 - Remove and dispose of solids remaining in treatment components at Plant #2
- Pump Tank 3 (Exhibit 6)
 - Disconnect power
 - Remove and dispose of wastewater in pump tank
 - Remove and dispose of solids remaining in pump tank
 - Fill pump tank with clean water to prevent floating
- Pump Tank 4A (Exhibit 6)
 - Disconnect power
 - Remove and dispose of wastewater in pump tank

Closure Plan

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 - Remove and dispose of wastewater in pump tank
 - Remove and dispose of solids remaining in pump tank
 - Fill pump tank with clean water to prevent floating
- Pump Tank 4A (Exhibit 6)
 - Disconnect power
 - Remove and dispose of wastewater in pump tank

- Remove and dispose of solids remaining in pump tank
 - Fill pump tank with clean water to prevent floating
- Pump Tank 4B (Exhibit 6)
 - Disconnect power
 - Remove and dispose of wastewater in pump tank
 - Remove and dispose of solids remaining in pump tank
 - Fill pump tank with clean water to prevent floating
- Pump Tank 5 (Exhibit 6)
 - Disconnect power
 - Remove and dispose of wastewater in pump tank
 - Remove and dispose of solids remaining in pump tank
 - Fill pump tank with clean water to prevent floating
- Transfer of Real Property: The City shall cause to be transferred to CGC by general warranty deed the following tracts of real property together with any improvements thereon:
 - Benton County Parcel No. 05-10218-000 consisting of .04 acres, more or less (Exhibit 7);
 - Benton County Parcel No. 05-10212-004 consisting of .29 acres, more or less (Exhibit 7); and
 - Benton County Parcel No. 05-10212-005 consisting of 5.01 acres, more or less (Exhibit 8).
 - The transfers shall be free and clear from any lien, claim or encumbrance except for easements granted pursuant to the Agreement.

Disposal

Liquid waste will be transported by a licensed hauler and disposed of at the new City of Cave Springs pump station. Solids from the treatment facilities and pump tanks will be disposed of in a Class 1 landfill.

Closure procedures, wastewater disposal, and solids disposal will be monitored and documented. All documentation will be submitted to ADEQ. Final closure of the sites will be complete upon the removal of all wastes and final closure certification has been submitted to ADEQ.

Closure Schedule

All work will be completed within 60 days of plan approval by ADEQ.

CONSTRUCTION DRAWINGS

CAVE SPRINGS WASTEWATER TRANSFER

AND TREATMENT SYSTEM - PHASE 1

CAVE SPRINGS, ARKANSAS

GENERAL NOTES:

A. TOPOGRAPHIC BOUNDARY SURVEY, INCLUDING PROPERTY LINES, LEGAL DESCRIPTION, EXISTING UTILITIES, SITE TOPOGRAPHY WITH SPOT ELEVATIONS, OUTSTANDING PHYSICAL FEATURES AND EXISTING STRUCTURE LOCATIONS WAS PROVIDED BY THE FOLLOWING COMPANY, AS A CONTRACTOR TO THE SELLER/OWNER:

GEOMATIC CONSULTANTS, INC.
134 N. MAIN STREET
CAVE SPRINGS, AR 72718
(479) 248-1466

CEI ENGINEERING AND ITS ASSOCIATES WILL NOT BE HELD RESPONSIBLE FOR THE ACCURACY OF THE SURVEY OR FOR DESIGN ERRORS OR OMISSIONS RESULTING FROM SURVEY INACCURACIES.

B. ALL PHASES OF SITE WORK FOR THIS PROJECT SHALL MEET OR EXCEED THE OWNER / DEVELOPER SITE WORK SPECIFICATIONS.

C. CONTRACTOR SHALL BE RESPONSIBLE FOR RAZING AND REMOVAL OF THE EXISTING STRUCTURES, RELATED UTILITIES, PAVING, UNDERGROUND STORAGE TANKS AND ANY OTHER EXISTING IMPROVEMENTS AS NOTED. SEE SITE WORK SPECIFICATIONS.

D. CONTRACTOR IS TO REMOVE AND DISPOSE OF ALL DEBRIS, RUBBISH AND OTHER MATERIALS RESULTING FROM PREVIOUS AND CURRENT DEMOLITION OPERATIONS. DISPOSAL WILL BE IN ACCORDANCE WITH ALL LOCAL, STATE AND/OR FEDERAL REGULATIONS GOVERNING SUCH OPERATIONS.

E. THE GENERAL CONTRACTOR WILL BE HELD SOLELY RESPONSIBLE FOR AND SHALL TAKE ALL PRECAUTIONS NECESSARY TO AVOID PROPERTY DAMAGE TO ADJACENT PROPERTIES DURING THE CONSTRUCTION PHASES OF THIS PROJECT.

F. **WARRANTY/DISCLAIMER:** THE DESIGNS REPRESENTED IN THESE PLANS ARE IN ACCORDANCE WITH ESTABLISHED PRACTICES OF CIVIL ENGINEERING FOR THE DESIGN FUNCTIONS AND USES INTENDED BY THE OWNER AT THIS TIME. HOWEVER, NEITHER THE ENGINEER NOR ITS PERSONNEL CAN OR DO WARRANT THESE DESIGNS OR PLANS AS CONSTRUCTED EXCEPT IN THE SPECIFIC CASES WHERE THE ENGINEER INSPECTS AND CONTROLS THE PHYSICAL CONSTRUCTION ON A CONTINUOUS BASIS AT THE SITE.

G. **SAFETY NOTICE TO CONTRACTOR:** IN ACCORDANCE WITH GENERALLY ACCEPTED CONSTRUCTION PRACTICES, THE CONTRACTOR SHALL BE SOLELY AND COMPLETELY RESPONSIBLE FOR CONDITIONS OF THE JOB SITE, INCLUDING SAFETY OF ALL PERSONS AND PROPERTY DURING PERFORMANCE OF THE WORK. THIS REQUIREMENT WILL APPLY CONTINUOUSLY AND NOT BE LIMITED TO NORMAL WORKING HOURS. ANY CONSTRUCTION OBSERVATION BY THE ENGINEER OF THE CONTRACTOR'S PERFORMANCE IS NOT INTENDED TO INCLUDE REVIEW OF THE ADEQUACY OF THE CONTRACTOR'S SAFETY MEASURES, IN, ON OR NEAR THE CONSTRUCTION SITE.

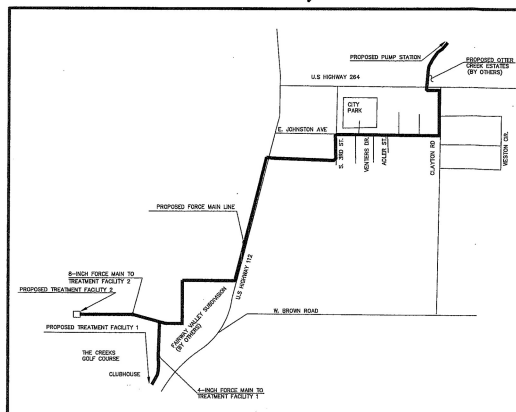
H. ALL CONSTRUCTION IN STATE HIGHWAY DEPARTMENT RIGHT-OF-WAY SHALL BE COORDINATED WITH THE HIGHWAY DEPARTMENT RESIDENT MAINTENANCE ENGINEER.

I. **WETLANDS NOTE:** ANY DEVELOPMENT, EXCAVATION, CONSTRUCTION, OR FILLING IN A U.S. CORPS OF ENGINEERS DESIGNATED WETLAND IS SUBJECT TO LOCAL, STATE AND FEDERAL APPROVALS. THE CONTRACTOR SHALL COMPLY WITH ALL PERMIT REQUIREMENTS AND/OR RESTRICTIONS AND ANY VIOLATION WILL BE SUBJECT TO FEDERAL PENALTY. THE CONTRACTOR SHALL HOLD THE OWNER/DEVELOPER, THE ENGINEER AND THE LOCAL GOVERNING AGENCIES HARMLESS AGAINST SUCH VIOLATION.

J. **RESIDENT ENGINEERING SERVICES:** WHEN REQUESTED BY THE OWNER, RESIDENT ENGINEERING SERVICES SHALL BE PROVIDED BY THE ENGINEERS (ON A TIME AND FREQUENCY BASIS) ACCEPTABLE TO THE CITY ENGINEER FOR IMPROVEMENTS TO PUBLIC WATER MAINS, PUBLIC SEWERS, AND CITY STREETS. AT THE COMPLETION OF CONSTRUCTION, THE ENGINEER SHALL CERTIFY THE CONSTRUCTION TO BE IN COMPLIANCE WITH THE PLANS AND SPECIFICATIONS. THIS WORK WILL BE AT THE OWNER/DEVELOPER'S DIRECT EXPENSE AND SHALL BE COORDINATED WITH CEI ENGINEERING ASSOCIATES, INC. IT WILL BE THE CONTRACTOR'S RESPONSIBILITY TO NOTIFY THE RESIDENT ENGINEER OF ANY PRECONSTRUCTION / CONSTRUCTION CONFERENCES AND ANY PUBLIC CONSTRUCTION 24 HOURS PRIOR TO SAID ACTION.

FLOOD CERTIFICATION:

A PORTION OF THIS SITE AS SHOWN IS IN THE "ZONE A" DESIGNATED FLOOD AREA (100-YEAR FREQUENCY FLOOD ZONE) AS DESIGNATED BY THE FEDERAL EMERGENCY MANAGEMENT AGENCY, FLOOD INSURANCE RATE MAP, COMMUNITY PANEL NUMBER 05007C 0145 E, FOR BENTON COUNTY, EFFECTIVE DATE SEPTEMBER 18, 1991.



Vicinity Map
NOT TO SCALE

APPROVED

DATE

CITY OF CAVE SPRINGS WASTEWATER DISTRICT

CITY OF CAVE SPRINGS

CARROLL ELECTRIC COOPERATIVE CORP.

ARKANSAS WESTERN GAS

COX COMMUNICATIONS

SOUTHWESTERN BELL

ARKANSAS DEPARTMENT OF HEALTH

ARKANSAS HIGHWAY AND TRANSPORTATION DEPARTMENT

ARKANSAS DEPARTMENT OF ENVIRONMENTAL QUALITY

ARKANSAS GAME AND FISH COMMISSION



ENGINEERING
ASSOCIATES, INC

ENGINEERS • PLANNERS • SURVEYORS

3317 S.W. 1 Street
Bentonville, AR 72712

(479) 273-9472
FAX (479) 273-0844

PLAN INDEX:

1. COVER SHEET	18. DRIP FIELD OVERALL LAYOUT	34. SITE PLAN
2. OVERALL LAYOUT 1	19. DRIP FIELD LAYOUT 1	35. TREATMENT PLANT 2
3. OVERALL LAYOUT 2	20. DRIP FIELD LAYOUT 2	36. TREATMENT PLANT 2
4. GRADING PLAN: PUMP STATION	21. DRIP FIELD LAYOUT 3	37. DETAIL SHEET 1
5. CAVE SPRINGS INTERCEPTOR #1	22. DRIP FIELD LAYOUT 4	38. DETAIL SHEET 2
6. CAVE SPRINGS INTERCEPTOR #2	23. DRIP FIELD LAYOUT 5	39. DETAIL SHEET 3
7. CAVE SPRINGS INTERCEPTOR #3	24. DRIP FIELD LAYOUT 6	40. DETAIL SHEET 4
8. CAVE SPRINGS INTERCEPTOR #4	25. DRIP FIELD LAYOUT 7	41. DETAIL SHEET 5
9. CAVE SPRINGS INTERCEPTOR #5	26. DRIP FIELD LAYOUT 8	42. DETAIL SHEET 6
10. CAVE SPRINGS INTERCEPTOR #6	27. DRIP FIELD LAYOUT 9	43. DETAIL SHEET 7
11. CAVE SPRINGS INTERCEPTOR #7	28. DRIP FIELD LAYOUT 10	
12. CAVE SPRINGS INTERCEPTOR #8	29. DRIP FIELD LAYOUT 11	
13. CAVE SPRINGS INTERCEPTOR #9	30. DRIP FIELD LAYOUT 12	
14. CAVE SPRINGS INTERCEPTOR #10	31. DRIP FIELD LAYOUT 13	
15. CAVE SPRINGS INTERCEPTOR #11	32. DRIP FIELD LAYOUT 14	
16. TREATMENT PLANT #2 INTERCEPTOR #1	33. DRIP FIELD LAYOUT 15	
17. TREATMENT PLANT #2 INTERCEPTOR #2		

ASSOCIATED PLANS:

- PLANS FOR WATER AND SEWER IMPROVEMENTS TO SERVE FAIRWAY VALLEY SUBDIVISION (ESI, INC.)

RESOURCE LIST:

CITY OF CAVE SPRINGS WATER DEPT.
WATER/STREET SUPERINTENDENT
479-248-1040 EXT. 17
MR. RICK SAYRE

CARROLL ELECTRICAL COOPERATIVE CORP.
U.S. HWY. 718
BENTONVILLE, AR 72712
(479) 273-2421
MR. MIKE PHILLIPS

AMERICAN ELECTRIC POWER CORP.
101 W. TOWNSHIP
FAVETTEVILLE, AR 72701
(479) 973-2333
MR. RONALD R. BERTRAM

ARKANSAS DEPT. OF HEALTH AND HUMAN SERVICES
4815 W. MARKHAM ST.
LITTLE ROCK, AR 72205-3867
(501) 661-2623
MR. ROY DAVIS, P.E.

ARKANSAS DEPT. OF ENVIRONMENTAL QUALITY
#1 STATE POLICE PLAZA DRIVE
LITTLE ROCK, AR 72209
(501) 682-0045
MS. CARA HILL, P.E.

ARKANSAS HWY. & TRANS. DEPT.
P.O. BOX 810
HIGHWAY 65 SOUTH
HARRISON, AR 72601
(870) 743-2100
MR. BOBBY KEETON

ARKANSAS WESTERN GAS COMPANY
P.O. BOX 13288
FAVETTEVILLE, AR 72703-1002
(479) 435-1753
MR. DERRY BIRDSONG

COX COMMUNICATIONS
4901 S. 48TH STREET
SPRINGDALE, AR 72762
(479) 717-3738
MR. RYAN BUTLER

ENGINEER
CEI ENGINEERING ASSOCIATES, INC.
3317 SW 1ST ST.
BENTONVILLE, AR 72712
(479) 273-9472
(479) 273-0844 (FAX)
FERDINAND FOURIE, P.E.

DEVELOPER
CAVE SPRINGS MUNICIPAL PROPERTY OWNERS
IMPROVEMENT DISTRICT #1 / THE CREEKS SPECIAL
SEWER DISTRICT
(479) 601-9867
MR. BRETT HASH

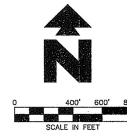
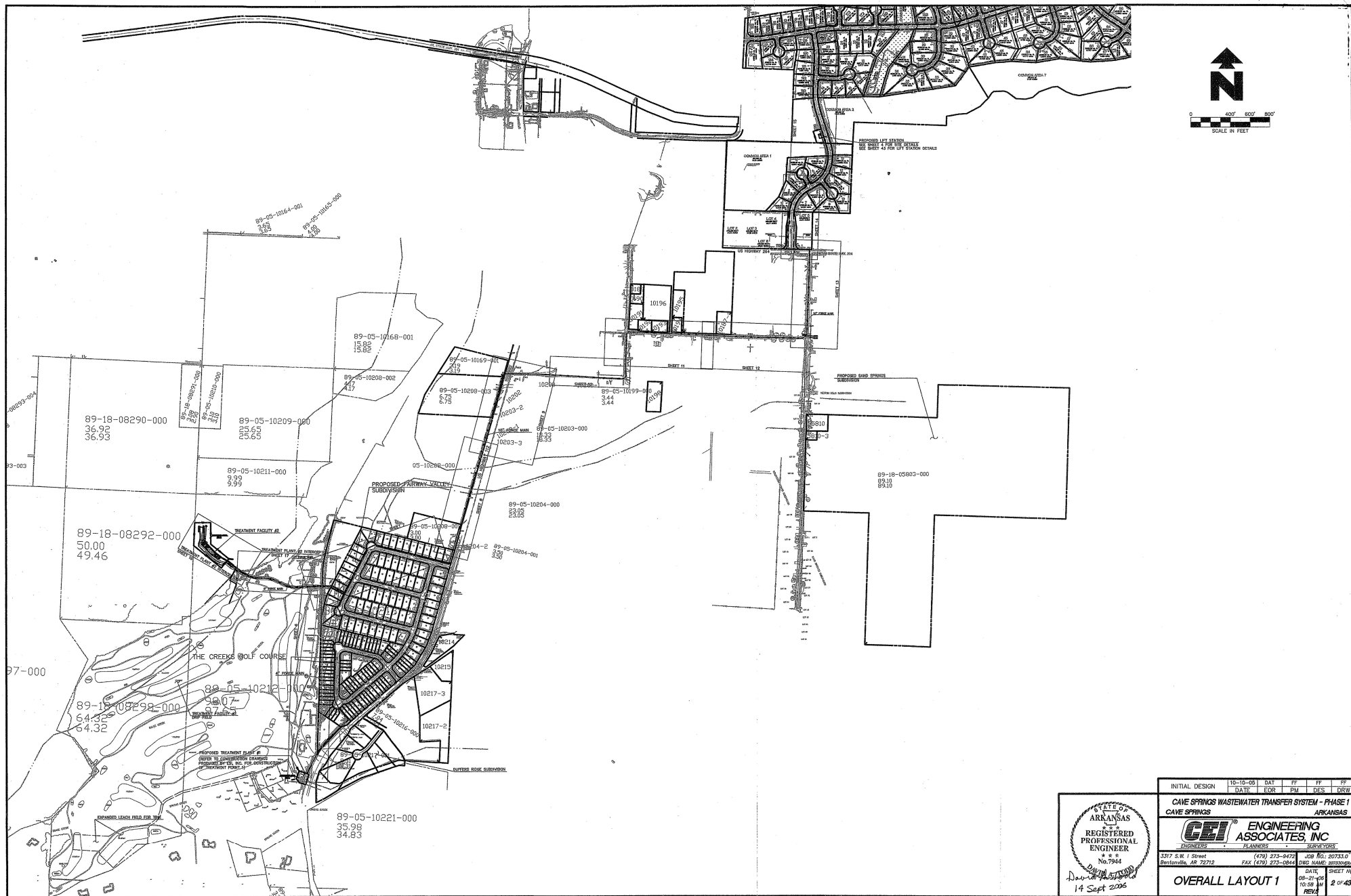


11-7-06

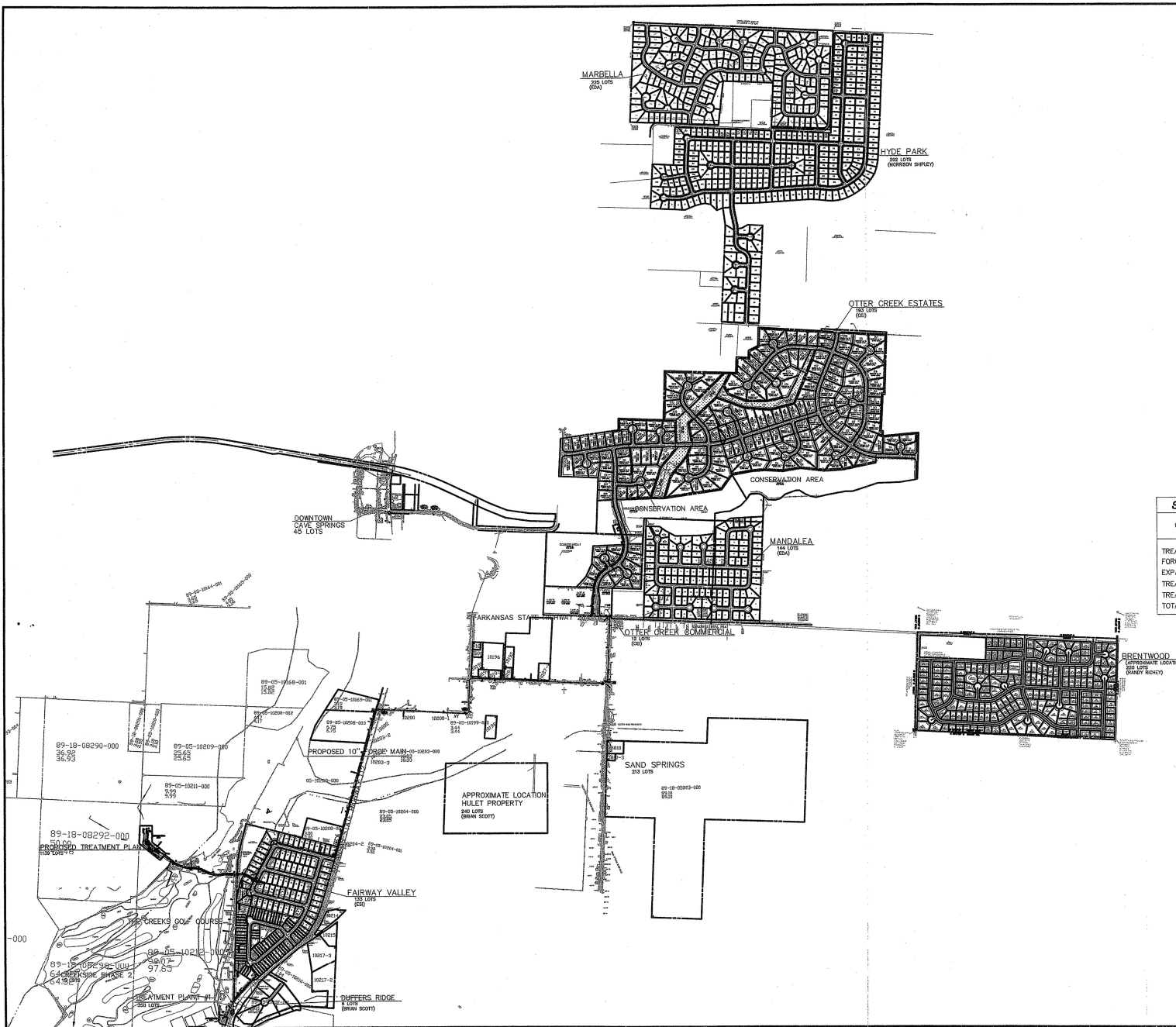
Arkansas * California * Florida * Georgia * Minnesota * Pennsylvania * Tennessee * Texas

JOB NO: 2073-000
DATE: 11-7-06
SHEET: 10
1 OF 43

© 2001 CEI ENGINEERING ASSOCIATES, INC.



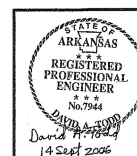
STATE OF ARKANSAS REGISTERED PROFESSIONAL ENGINEER No. 7944 <i>David H. Smith</i> 14 Sept 2006	INITIAL DESIGN 10-10-09 DAY 11 PM DATE EOR PM DES DRW	
	CAVE SPRINGS WASTEWATER TRANSFER SYSTEM - PHASE 1 CAVE SPRINGS ARKANSAS	
CEI ENGINEERING ASSOCIATES, INC. ENGINEERS PLANNERS SURVEYORS 3317 S.W. I Street Bentonville, AR 72712 (479) 273-0470 FAX (479) 273-0844		JOB NO: 207310 DWS NAME: 207310.dwg DATE: 09-27-09 10:59 AM REV: 1
OVERALL LAYOUT 1		SHEET NO: 2 OF 43



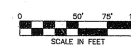
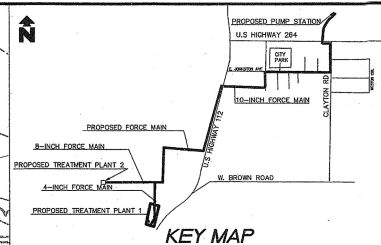
WASTEWATER DISTRICT SUMMARY			
DEVELOPMENT	EQ. #LOTS	AVG. DAILY WASTEWATER (G/DAY)	ENGINEER
MARBELLA	228	58,500	EDA
HYDE PARK	292	75,920	MORRISON SHIPLEY
OTTER CREEK ESTATES	193	50,180	CEI
MANDALEA	144	37,440	EDA
OTTER CREEK COMMERCIAL	12	3,120	CEI
BRENTWOOD	220	57,200	RANDY RICHEY
DOWNTOWN CAVE SPRINGS	45	11,700	—
FAIRWAY VALLEY	133	34,580	ESI
HULET PLACE	240	62,400	—
DUFFERS RIDGE	8	2,080	(COMPLETE)
CREEKSIDE PHASE 2	15	3,900	(COMPLETE)
TOTAL	1527	397,020	

SUMMARY OF WASTEWATER COMPONENT CAPACITIES		
COMPONENT	NO. LOTS	AVERAGE DAILY FLOW (G/DAY)
TREATMENT PLANT NO. 1	350	91,000
FORCE MAIN LINE	2600	676,000
EXPANDED DRIFTFIELD	250	66,000
TREATMENT PLANT #2	1231	320,000
TREATMENT PLANT #2 FIELD	1231	320,000
TOTAL SYSTEM CAPACITY	1584	412,000

350
1231
1581



INITIAL DESIGN	10-10-09	DAY	FF	FF	FF
DATE	COR	PM	DES	CHK	
CAVE SPRINGS WASTEWATER TRANSFER SYSTEM - PHASE I					
CAVE SPRINGS ARKANSAS					
<small>3377 S.W. 1 Street Bentonville, AR 72715</small> <small>(479) 273-8472 FAX (479) 273-0844</small> <small>JOB NO: 20723 DWG NAME: 207330167-ALL2</small>					
OVERALL LAYOUT 2					
DATE		SHEET NO.			
09-21-09		3 OF 43			
11:01 AM		REV 5			



LEGEND

EXISTING

- | SYMBOLS TO BE USED | BOUNDARY LINE |
|--------------------|---|
| — | RIGHT OF WAY LINE |
| --- | STORM DRAIN |
| —X— | GAS |
| —C— | OVERHEAD ELECTRIC |
| —ONE— | OVERHEAD ELECTRIC AND TELEPHONE |
| —TNT— | OVERHEAD TELEPHONE |
| —D— | OVERHEAD TV |
| —S— | SIDEWALK |
| —UG— | UNDERGROUND ELECTRIC |
| —UG&T— | UNDERGROUND ELECTRIC AND TELEPHONE |
| —UGT— | UNDERGROUND TELEPHONE |
| —UGTV— | UNDERGROUND TV |
| —A— | WATER |
| 5-10-17 50.5 | <p>5 = DIAMETER OF TRUNK IN FEET</p> <p>10 = DIST. OF TREE IN FEET</p> <p>17 = CANOPY DIAMETER IN FEET</p> <p>50.5 = ELEVATION AT BASE OF TREE</p> <p>EDGE OF ROADWAY</p> |

PROPOSED

- | | |
|----------|------------------------|
| ----- | PROPERTY LINE |
| ----- | RIGHT OF WAY LINE |
| ----- | EASEMENT |
| X'S----- | SANITARY SEWER SERVICE |
| X-W----- | WATER SERVICE |

GENERAL UTILITY NOTES

- A. ALL NEUTRONIZATION LINES OF THIS CONTRACT SHALL BE PVC (ATN 900) SHALL BE 3/4" DIA. WITH 10' MIN. COVER. ALL NEUTRONIZATION LINES SHALL BE INSTALLED WITHIN 60" OF THE EXISTING CURB.
- B. ALL SENTRY SEWER LINES IN CHIEFS AND ROAD CROSS SECTIONS SHALL BE 12" DIA. WITH 10' MIN. COVER.
- C. ALL WATER LINES SHALL BE 12" DIA. PVC (A-500) WITH 48" MIN. COVER.
- D. CONTRACTOR SHALL COORDINATE ANY PERMITS TO EXCAVATE WITH CITY ENGINEER AND CHIEF OF PUBLIC WORKS.
- E. CONTRACTOR SHALL NOT START ANY NEW PUBLIC UTILITY SYSTEMS UNTIL THE CITY ENGINEER HAS REVIEWED AND APPROVED THE PERMIT APPLICATION. THE APPROPRIATE CHARGING AUTHORITY AND CONTRACTOR HAS BEEN NOTIFIED.
- F. PRIOR TO THE CONSTRUCTION OF A CONNECTION TO ANY STORM DRAIN, CONTRACTOR SHALL OBTAIN A PERMIT FROM THE CHIEF OF PUBLIC WORKS. CONTRACTOR SHALL EXCAVATE, WELD, AND CALCULATE ALL POINTS OF CONNECTION TO THE CITY STORM DRAIN. CONTRACTOR SHALL OBTAIN THE CITY ENGINEER'S REVIEW AND APPROVAL OF THE PERMIT AND THE CITY ENGINEER'S REVIEW OF THE CONNECTION. CONTRACTOR SHALL BE HELD RESPONSIBLE IN THE EVENT THAT THE CONNECTION FAILS TO MEET THE CITY ENGINEER'S REVIEW.
- G. UNLESS OTHERWISE SHOWN, CALLED OUT OR SPECIFIED HEREON:
 - ALL SENTRY SEWER PIPE BIDDING SHALL BE INSTALLED PER A-500.
 - ALL SENTRY WATER PIPE BIDDING SHALL BE INSTALLED PER A-500.
 - ALL SENTRY WATER LINE FITTINGS SHALL BE INSTALLED WITHI BUREAU OF WATERWORKS SPECIFICATIONS.
 - ALL WATER LINE FITTINGS SHALL BE INSTALLED WITH DETAIL BUREAU OF WATERWORKS SPECIFICATIONS.
 - ALL WATER LINE PIPE BIDDING SHALL BE INSTALLED PER DETAIL A-500.

UTILITY NOTES

- | | | |
|----------|-----|---|
| | 19A | EXISTING TO REMAIN |
| + | 21C | M.I. ECONOMIC FLAT VALVE WITH ADJUSTABLE VALVE BOX (SEE SIZES THIS SHEET) |
| + | 21D | M.I. TEE WITH THRUST BLOKING (SEE SIZES THIS SHEET) |
| + | 22C | M.I. ECONOMIC REDUCER, FLAT RISE ON TOP (SEE SIZES THIS SHEET) |
| + | 22D | M.I. CAP PLUG WITH THRUST BLOKING (SEE SIZES THIS SHEET) |
| + | 22H | 45 DEG. W/END WITH THRUST BLOKING (SEE SIZES THIS SHEET) |
| | 51D | PROTECT EXISTING STRUCTURES AND/OR PIPES DURING DEMOLITION AND RECONSTRUCTION PHASES. |
| REVISION | 76A | ASPHALT PAVEMENT STRIP WITH FULL DEPTH CLASS 7 BINDER. |
| | 76B | CONNECT TO EXISTING PLANT TANK |
| | 76C | REFER TO CONSTRUCTION DRAWINGS PREPARED BY EEL INC.) |
| | 76D | FLUID CONTROL VALVE |
| | 76E | REDUCED VALVE |

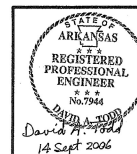
☐ UTILITY DETAILS


- | | |
|-----|--|
| 29A | ASPHALT DRIVE CUT/REPAIR |
| 29C | GRAVEL DRIVE CUT/REPAIR |
| 32B | JACK & BORE |
| 35A | #4/VACUUM RELIEF VALVE (SANITARY SEWER) |
| 76A | SANITARY SEWER FORCE MAIN CLEAN-OUT WITH CHECK VALVE |
| 76B | LIFT STATION |
| 76C | CONCRETE CHANNEL WITH DISSIPATORS |
| 30D | TRACER WIRE INSTALLATION |



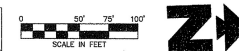
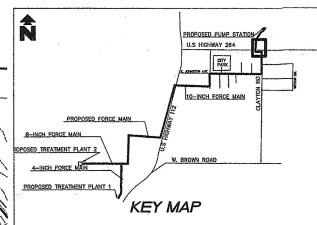
STA 0+00 TO STA 12+00

HORIZONTAL : 1" = 50'
VERTICAL : 1" = 5'



INITIAL DESIGN	4-28-03	DATE	FOR	PM	FF	FF	FF
	DATE	EOR	PM	DE'S	DRW		
CAVE SPRINGS WASTEWATER TRANSFER SYSTEM - PHASE I							
CAVE SPRINGS				ARKANSAS			
		ENGINEERING ASSOCIATES, INC					
ENGINEERS		PLANNERS		SURVEYORS			
3317 S.W. 1 Street Gainesville, FL 32612		(407) 231-0472 FAX (407) 232-0844		JOB NO: 20733.0 DATE: 04/28/03			
CAVE SPRINGS INTERCEPT #1				DATE: 09-13-09		SHEET NO.	
PLAN AND PROFILE #1				1:38 PM		5 of 43	

REV. 6



LEGEND

EXISTING

- BOUNDARY LINE**
 ROW OF WHY LINE
 STONY DRAIN
 GAS
 OVERHEAD ELECTRIC
 OVERHEAD ELECTRIC AND TELEPHONE
 OVERHEAD TELEPHONE
 OVERHEAD TV
 SERIES
 UNDERGROUND ELECTRIC
 UNDERGROUND ELECTRIC AND TELEPHONE
 UNDERGROUND TELEPHONE
 UNDERGROUND TV
 INLETS
- THREE INFO**
 IS = DIAMETER OF TRUNK IN FEET
 IS = HEIGHT OF TREE IN FEET
 IS = CANOPY DIAMETER IN FEET
 50.5 = INDIATOR AT BASE OF TREE

PROPOS

- | | |
|------------------------|------------------------|
| PROPERTY LINE | PROPERTY LINE |
| RIGHT OF WAY LINE | RIGHT OF WAY LINE |
| EASEMENT | EASEMENT |
| SANITARY SEWER SERVICE | SANITARY SEWER SERVICE |
| WATER SERVICE | WATER SERVICE |

GENERAL UTILITY NOTES

- A. ALL WATERWAYS LESS 4" AND SMALLER SHALL BE PVC (ASTM D3035) 60 IN. OR SMALLER. ALL WATERWAYS 4" AND LARGER SHALL BE 12" OR LARGER. ALL WATERWAYS SHALL BE 10' LONG.
- B. ALL SANITARY SEWER LINES AT EXISTING ROAD CROSSINGS SHALL BE 12" OR LARGER. ALL NEW SANITARY SEWER LINES SHALL BE 12" OR LARGER.
- C. ALL WATER LINES SHALL BE PVC (AWWA C-900) WITH 4" MAX. COVER.
- D. CONTRACTOR SHALL GUARANTEE ANY DISPROPTIONS TO EXISTING SYSTEMS OF SEWERAGE OR DRAINAGE.
- E. CONTRACTOR SHALL NOT EXIST ON AN PUBLIC UTILITY SYSTEMS OR EXISTING SEWERAGE OR DRAINAGE SYSTEMS.
- F. CONTRACTOR SHALL OBTAIN NECESSARY PERMITS FROM THE MISSOURI DEPARTMENT OF REVENUE, MISSOURI DEPARTMENT OF TRANSPORTATION AND CONTRACTOR HAS BEEN ADVISED THEREOF.
- G. PRIOR TO THE CONSTRUCTION OF OR CONNECTION TO ANY STORM DRAIN, CONTRACTOR SHALL OBTAIN A PERMIT FROM THE MISSOURI DEPARTMENT OF TRANSPORTATION.
- H. CONTRACTOR SHALL EXCAVATE, VENT AND CALCULATE ALL POINTS OF DISCHARGE OF ALL EXISTING AND NEW STORM DRAINAGE SYSTEMS FROM THE PUMP. CONTRACTOR SHALL BE RESPONSIBLE FOR ANY DAMAGES TO THE EXISTING STORM DRAINAGE SYSTEMS.
- I. CONTRACTOR SHALL BE RESPONSIBLE FOR ANY DAMAGES TO THE EXISTING STORM DRAINAGE SYSTEMS IN THE EVENT THAT THE CONTRACTOR FAILS TO MAINTAIN THE EXISTING STORM DRAINAGE SYSTEMS.
- J. UNLESS OTHERWISE SHOWN, CALLED OUT OR SPECIFIED HEREON OR HEREIN, CONTRACTOR SHALL:
- K. ALL SANITARY SEWER PIPING BEING BIDDING BE INSTALLED PER DETAIL 43A.
- L. ALL SANITARY FORCE MAIN FITTINGS SHALL BE INSTALLED WITH DETAIL 43B.
- M. ALL WATER LINE FITTINGS SHALL BE INSTALLED WITH DETAIL 43C.
- N. ALL WATER LINE PIPE BEING BIDDING BE INSTALLED PER DETAIL 43A.

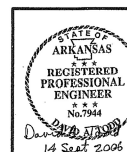
UTILITY NOTES


- | | | |
|----------|-----|--|
| | 19A | EXISTING TO REMAIN |
| | 22C | M.I. EXISTING PLUG VALVE WITH ADJUSTABLE VALVE BOX (SEE SIZES THIS SHEET) |
| + | 22B | M.I. 6" WREN THRUST BLOCKING (SEE SIZES THIS SHEET) |
| | 22E | M.I. EXISTING REDUCER, FLAT SIZE ON TOP (SEE SIZES THIS SHEET) |
| | 22F | M.I. CAP PLUG WITH THRUST BLOCKING (SEE SIZES THIS SHEET) |
| - | 22H | 45" M.I. BOND WREN THRUST BLOCKING (SEE SIZES THIS SHEET) |
| | 50D | PROVIDE EXISTING STRUCTURES AND/OR PIPES DURING DEMOLITION AND CONSTRUCTION PHASES |
| EXPANDED | 76A | ASPHALT PAVEMENT STRIP WREN FULL DEPTH CLASS 7 SHOVEL |
| | 76B | CONTRACT TO TREATMENT PLANT RANK |
| | 76C | REFURBISH CONSTRUCTION DRAININGS PREPARED BY E2B, INC. |
| | 76D | FLOW CONTROL VALVE |
| | 76E | REDUCED VALVE |

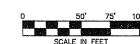
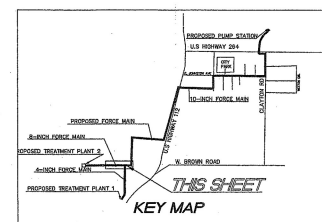
☐ UTILITY DETAILS

- | | |
|-----|--|
| 29A | ASPHALT DRIVE CUT/REPAIR |
| 29C | GRAVEL DRIVE CUT/REPAIR |
| 30B | JACK & BORE |
| 35A | AIR/VACUUM RELIEF VALVE (SANITARY SEWER) |
| 76A | SANITARY SEWER FORCE MAIN CLEAN-OUT WITH CHECK VALVE |
| 76B | LIFT STATION |
| 76C | CONCRETE CHANNEL WITH DISSIPATORS |
| 16D | TO AND FROM STREET AT DRIVE |

CONTRACTOR SHALL COORDINATE WITH OTHER CREEK CONTRACTOR DURING CONSTRUCTION.



INITIAL DESIGN	4-28-05	DATE	FF	FF	FF
	DATE	FOR	PM	DES	DRW
CAVE SPRINGS WASTEWATER TRANSFER SYSTEM - PHASE					
CAVE SPRINGS			ARKANSAS		
		ENGINEERING ASSOCIATES, INC.			
ENGINEERS		PLANNERS		SURVEYORS	
3317 S. J. Street Bentonville, AR 72712		(479) 273-9472 (479) 273-0044		DATE: 05/20/2033.10 SHEET NO: 000060	
CAVE SPRINGS INTERCEPTOR #1				DATE: 09-13-06	
PLAN AND PROFILE #10				1 of 43	



LEGEND

EXISTING

—	BOUNDARY LINE
—	ROUTE OF WAY LINE
—	SEWER DRAIN
—	GAS
—	OVERHEAD ELECTRIC
—	OVERHEAD ELECTRIC AND TELEPHONE
—	OVERHEAD TELEPHONE
—	OVERHEAD TV
—	SEWER
—	UNDERGROUND ELECTRIC
—	UNDERGROUND ELECTRIC AND TELEPHONE
—	UNDERGROUND TELEPHONE
—	UNDERGROUND TV
—	WATER
—	SEE INFO
—	10 = HEIGHT OF DIKKE IN FEET
—	15 = HEIGHT OF TIDE IN FEET
—	17 = GROUNDWATER IN FEET
—	SLS = AVALANCH AT BASE OF TIDE

PROPOSED

_____	PROPERTY LINE
_____	RIGHT OF WAY LINE
_____	EASEMENT
—X'S—	SANITARY SEWER SERVICE
—X'S—	WATER SERVICE

GENERAL UTILITY NOTES

- [illegible]

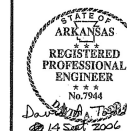
☐ UTILITY DETAILS

- | | |
|-----|---|
| 29A | ASPHALT DRIVE CUT/REPAIR |
| 29C | GRAVEL DRIVE CUT/REPAIR |
| 30B | JACK & BORE |
| 35A | AIR/VACUUM RELIEF VALVE (SANITARY SEWER) |
| 76A | SANITARY SENSER FORCE MAIN CLEAN-OUT WITH CHECK VALVE |
| 76B | LIFT STATION |
| 76C | CONCRETE CHANNEL WITH GISSPATORS |
| 38D | TRACER WIRE INSTALLATION |



TREATMENT PLANT #2 INTERCEPTOR LINE
STA 8+00 TO STA 14+35.41

HORIZONTAL : $1'' = 50'$
VERTICAL : $1'' = 5'$



INITIAL DESIGN	4-26-05	DAT	FF	FF	FF
	DATE	EOR	PM	DES	DRW

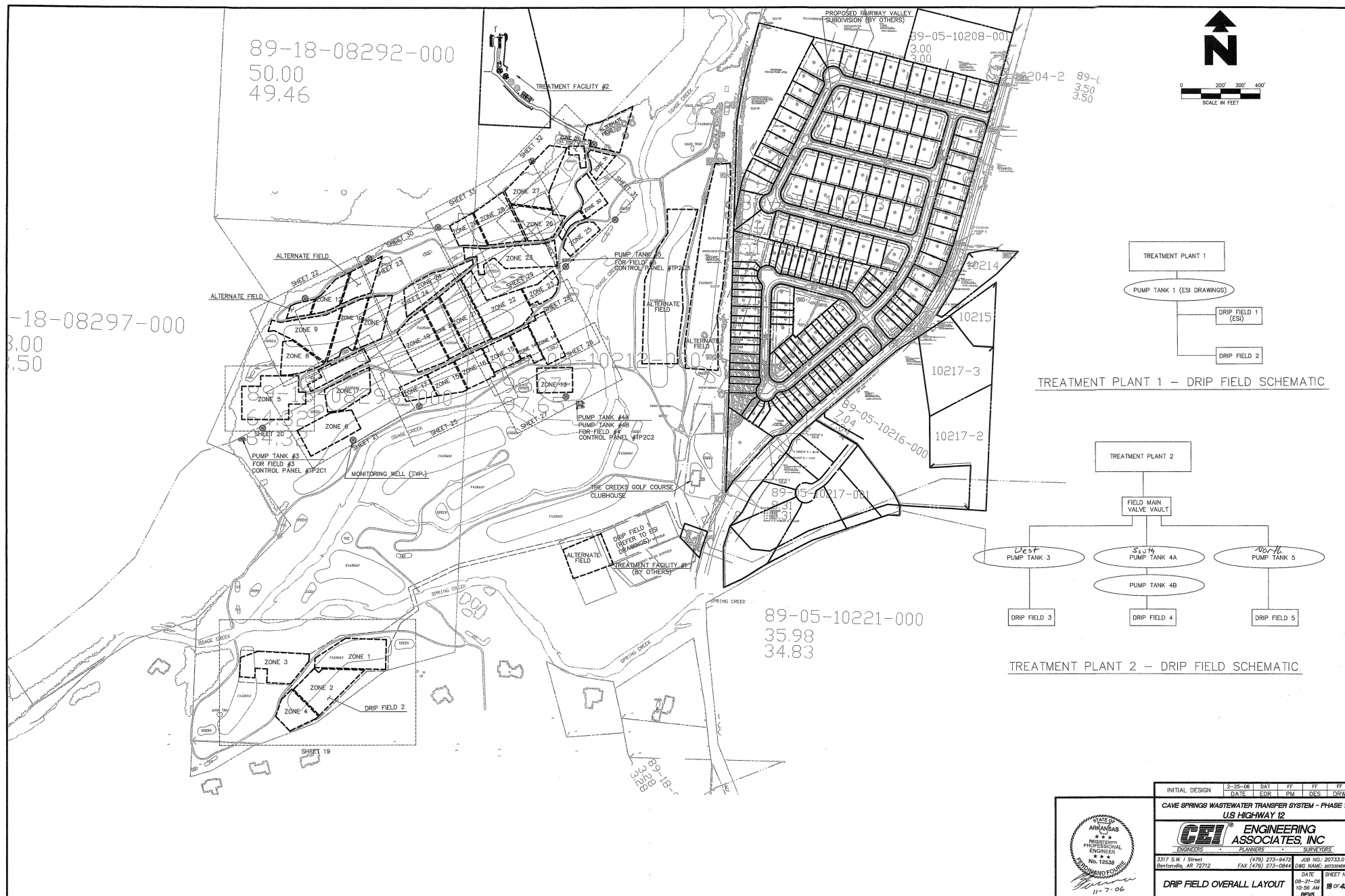
CAVE SPRINGS WASTEWATER
TRANSFER SYSTEM - PHASE 1

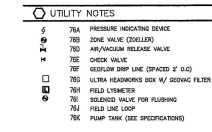
CEI® **ENGINEERING ASSOCIATES, INC.**

ENGINEERS	PLANNERS	SCRIVITORS
3317 S.W. 1 Street Bentonville, AR 72712	(479) 273-9472 FAX (479) 273-0844	JOB NO.: 2073310 DWG NAME: 207331PR

8-INCH INTERCEPTOR (TP2)	DATE	SHEET NO.
PLAN AND PROFILE 2	09-13-06	17 OF 43
	1:38 PM	

REV.6






INITIAL DESIGN	1-15-06	DAT	FF	FF	FF
	DATE	FOR	PM	DES	DRY

CAVE SPRINGS WASTEWATER TREATMENT SYSTEM-PHASE 2

CAVE SPRINGS **ARKANSAS**

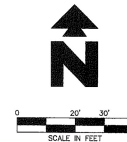
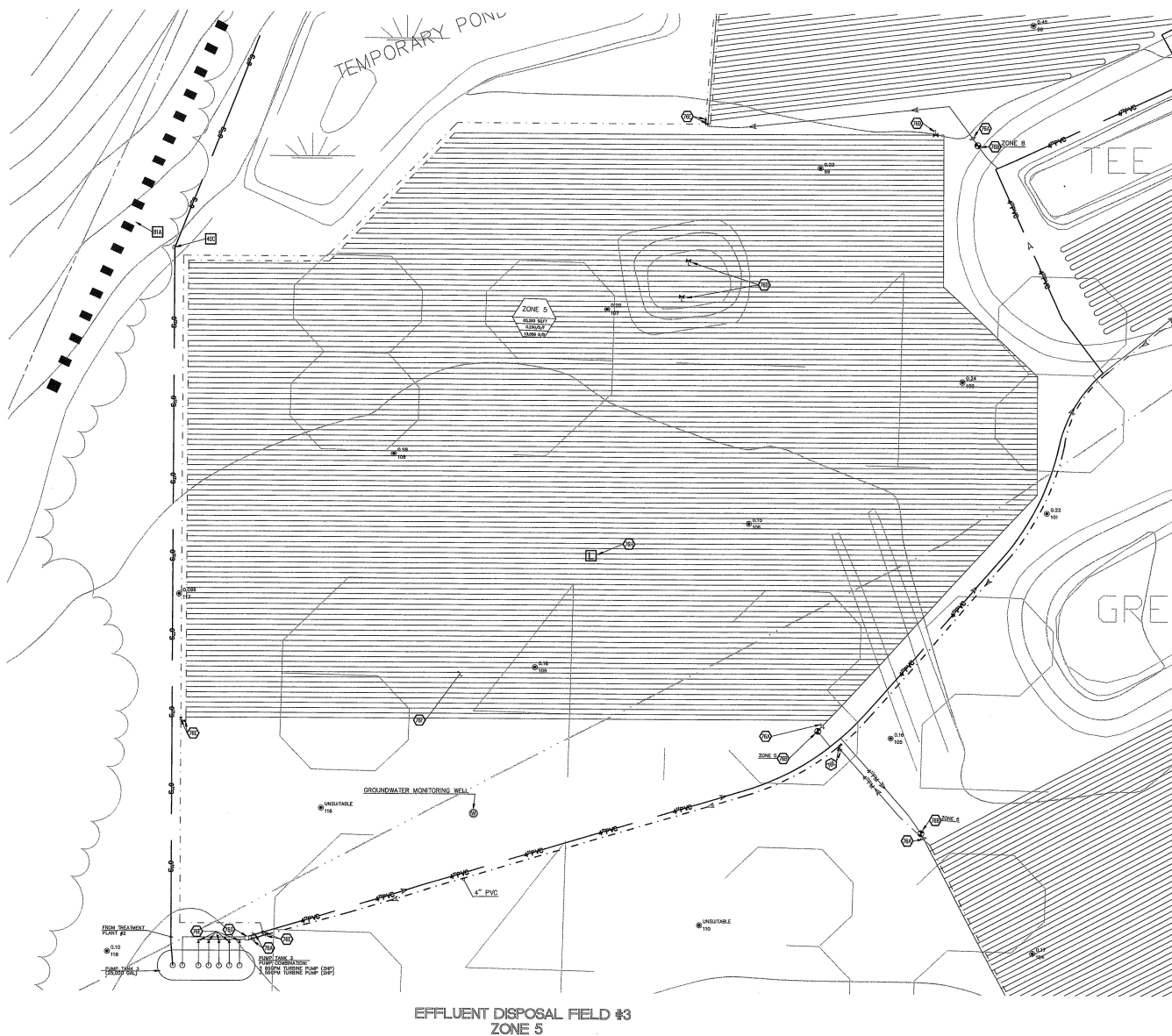

ENGINEERING ASSOCIATES, INC

ENGINEERS PLANNERS SURVEYORS

3317 S.W. / Street	(273) 743-7472	JOB NO: 207333
Bentonville, AR 72712	FAX (273) 273-0844	DWG NAME: SHEET

DATE	SHEET
11-05-06	11-05-06
10:57 PM	10:57 PM
REV#	REV#

DRIP FIELD LAYOUT 1



LEGEND

EXISTING	
---	BOUNDARY LINE
---	RIGHT OF WAY LINE
---	STORM DRAIN
---	OVERHEAD ELECTRIC
---	OVERHEAD ELECTRIC AND TELEPHONE
---	OVERHEAD TELEPHONE
---	OVERHEAD TV
---	SEWER
---	UNDERGROUND ELECTRIC
---	UNDERGROUND ELECTRIC AND TELEPHONE
---	UNDERGROUND TELEPHONE
---	UNDERGROUND TV
---	WATER
---	PIPE AND
---	2\"/>

PROPOSED	
---	BOUNDARY LINE
---	RIGHT OF WAY LINE
---	EXISTENT
---	PVC SUPPLY MANHOLE
---	PVC RETURN MANHOLE
---	DIRECTION OF FLOW
---	PIERS TEST LOCATION

GENERAL UTILITY NOTES

- A. ALL DISCHARGE SHALL BE 1/2\"/>

UTILITY DETAILS

- SEA TEMPORARY DISCHARGE ONE

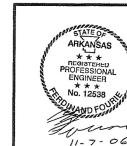
UTILITY NOTES

- 78A PRESSURE WASTEWATER BRANCH
- 78B ZONE VALVE (COILERS)
- 78C AIR/ANCAIR RELEASE VALVE
- 78D CHECK VALVE
- 78E GEOPOLYMER DRAIN LINE (SPACED 2' O.C.)
- 78F ULTRA WORKWORKS BOX W/ GEOPOLYMER FILTER
- 78G FIELD LYNCHER
- 78H SOLIDWORKS VALVE FOR FLUSHING
- 78I FIELD LINE LIFT
- 78J PUMP TRUNK (SEE SPECIFICATIONS)

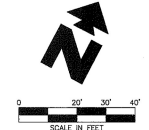
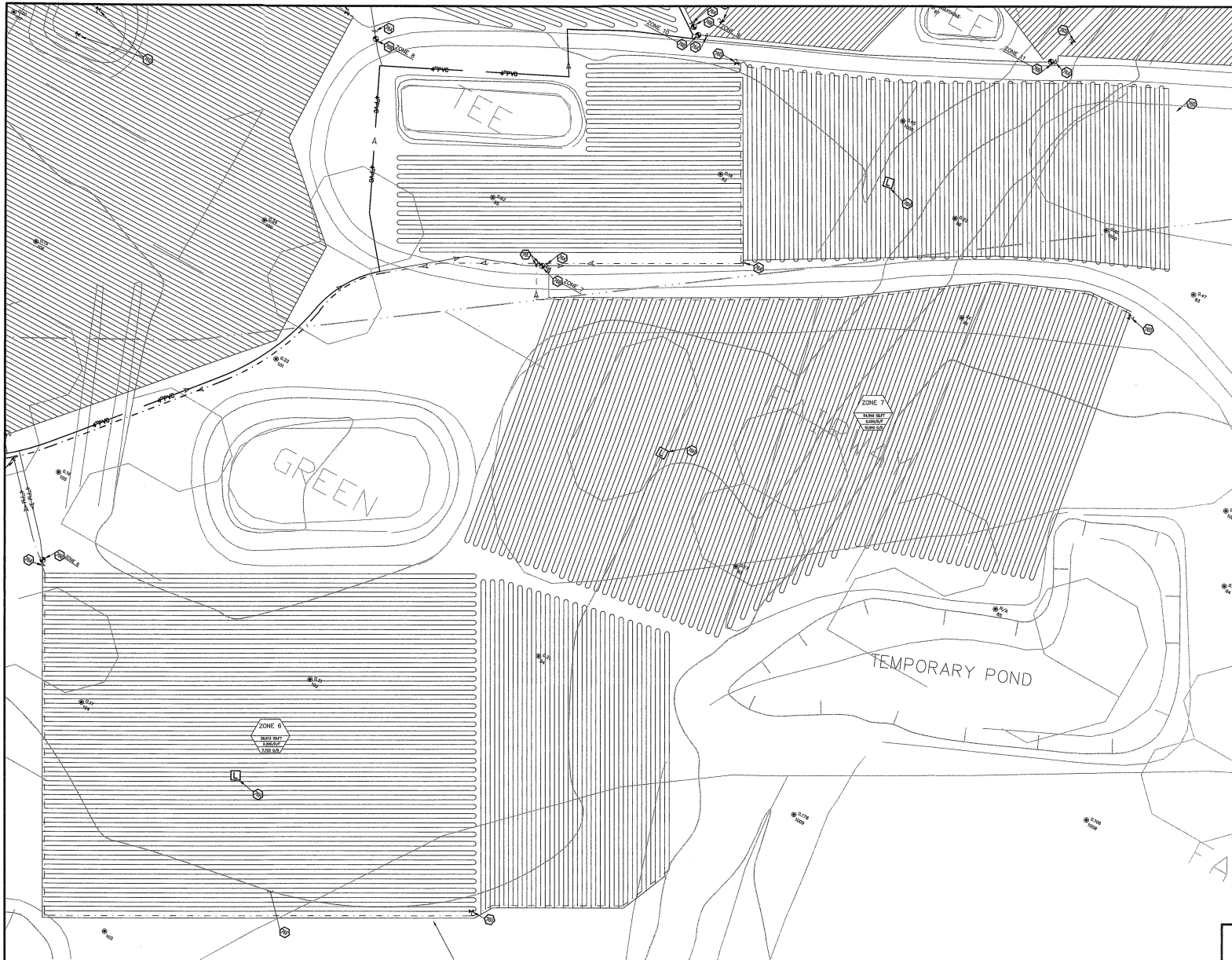
NOTE:
OVERALL EFFLUENT DISPOSAL FIELD
LAYOUT IS ON SHEET 19

TOTAL DRIFT FIELD REQUIRED (TREATMENT PLANT #3)
TOTAL ALTERNATE FIELD REQUIRED (TREATMENT PLANT #3)
ALTERNATE FIELD RATIO (TREATMENT PLANT #3)

BY/AS BUILT
DATE/DATE
2006



INITIAL DESIGN	DATE	DAY	PM	DES	DES
CAVE SPRINGS WASTEWATER SYSTEM - PHASE 1	11-06	20	PM	20	43
CAVE SPRINGS	11-06	20	PM	20	43
ENGINEERING ASSOCIATES, INC.	11-06	20	PM	20	43
3317 S.W. 1 Street	(479) 273-0472	JOB NO. 20733.0	DATE	SHEET NO.	REV'S
Bentonville, AR 72712	FAX (479) 273-0844	DRS NAME 20733.0	11-06	20	43
			11-06	20	43
			11-06	20	43



LEGEND

- EXISTING**
- BOUNDARY LINE
 - RIGHT OF WAY LINE
 - STORM DRAIN
 - GAS
 - OVERHEAD ELECTRIC
 - OVERHEAD ELECTRIC AND TELEPHONE
 - OVERHEAD TELEPHONE
 - OVERHEAD TV
 - SEWER
 - UNDERGROUND ELECTRIC
 - UNDERGROUND ELECTRIC AND TELEPHONE
 - UNDERGROUND TELEPHONE
 - UNDERGROUND TV
 - WATER
- 5-10-11 50.5**
- SEE MAP**
- 10 = ELEVATION OF TIE-IN IN FEET
 12 = ELEVATION OF PIPE IN FEET
 15 = ELEVATION OF MANHOLE IN FEET
 16.5 = ELEVATION AT BASE OF TIE

- PROPOSED**
- BOUNDARY LINE
 - RIGHT OF WAY LINE
 - EXISTENT
 - PVC SUPPLY MANHOLE
 - PVC RETURN MANHOLE
 - DIRECTION OF FLOW
 - PUMP TEST LOCATION

GENERAL UTILITY NOTES

- A. ALL DRAINAGE SHALL BE 1/2" GEOTEXTILE WASTEWATER PVC (MODEL NO. WPC08-3-24) WITH 6" SPACING SPACES 2'.
- B. DRAINAGE AND MANHOLES SHALL BE INSTALLED 10"-12" BELOW SOIL SURFACE.
- C. ALL CONNECTIONS WITH DRAINAGE SHALL BE MADE WITH LOCKUP ADAPTERS. USE OF ADAPTERS ON DRAINAGE IS NOT ALLOWED.
- D. DO NOT USE TOOLS ON LOCKUP ADAPTERS. HAND TIGHTEN ONLY.
- E. MINIMUM WIDTH FOR DRAINAGE SIGNAL SHALL NOT EXCEED 4".
- F. ALL GEOTEXTILES OF DRAINAGE AND RETURN MANHOLES NOT TIED DIRECTLY TO THE DRAINAGE SHALL BE ADJUSTED AT A MINIMUM OF 2" BELOW GROUND.
- G. UNCOMMON/UNUSUAL RELEASE VALVES SHALL BE INSTALLED AT ALL HIGH POINTS IN DRAINAGE AND RETURN MANHOLES.
- H. ALTERNATE IN DRAIN FIELD IS HEAVILY FLAT. LAY DRAIN TUBING AS CLOSE TO PARALLEL WITH CONTOUR AS POSSIBLE.
- I. ALL MANHOLES SHALL BE 4'-HIGH PVC, UNLESS OTHERWISE INDICATED.

UTILITY DETAILS

- BIA TEMPORARY DIVERSION DRAIN

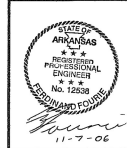
UTILITY NOTES

- 78A PRESSURE INDICATING DEVICE
- 78B ZONE VALVE (COLLIER)
- 78C AIR/VACUUM RELEASE VALVE
- 78E CHECK VALVE
- 78F GEOTEXTILE DRAIN LINE (SPACED 2' O.C.)
- 78G ULTRA HEADWORKS BOX W/ GEOTEXTILE FILTER
- 78H FIELD VENTILATOR
- 78I SOLIDIFIED VALVE FOR FLUSHING
- 78J FIELD LINE LOOP
- 78K PUMP TANK (SEE SPECIFICATIONS)

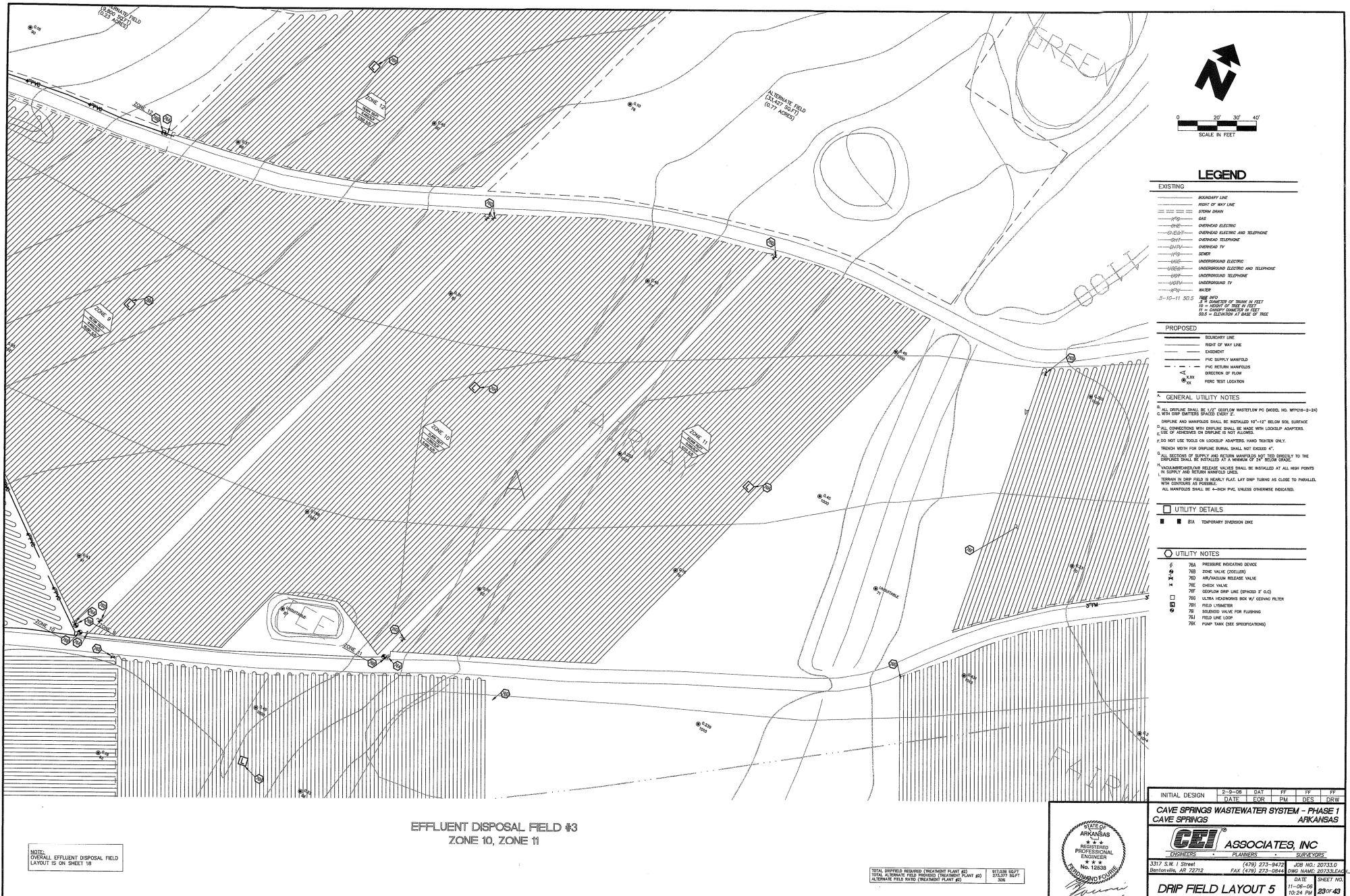
NOTE:
OVERALL EFFLUENT DISPOSAL FIELD
LAYOUT IS ON SHEET 18

EFFLUENT DISPOSAL FIELD #3 ZONE 6 AND ZONE 7

TOTAL DRAINAGE REQUIRED (TREATMENT PLANT #3)
 TOTAL ALTERNATE FIELD PROVIDED (TREATMENT PLANT #3)
 ALTERNATE FIELD RATIO (TREATMENT PLANT #3)



INITIAL DESIGN	2-8-06	DATE	FF	FF	FF
DATE	FOR	PM	DES	DRW	
CAVE SPRINGS WASTEWATER SYSTEM - PHASE 1					
CAVE SPRINGS					
CEI ENGINEERING ASSOCIATES, INC.					
ENGINEERS PLANNERS SURVEYORS					
3317 S.W. 1 Street Beebeville, AR 72712	(479) 273-8472 FAX (479) 273-8464	ARB NO. 20723.0 ONE NAME: 20723.0	DATE	SHEET NO.	
			11-06-06	21 OF 43	
			10-24 PM		
			REVS		
DRIP FIELD LAYOUT 3					



- LEGEND**
- EXISTING**
- BOUNDARY LINE
 - RIGHT OF WAY LINE
 - STONE DRAIN
 - GAS
 - OVERHEAD ELECTRIC
 - OVERHEAD ELECTRIC AND TELEPHONE
 - OVERHEAD TELEPHONE
 - OVERHEAD TV
 - SEWER
 - UNDERGROUND ELECTRIC
 - UNDERGROUND ELECTRIC AND TELEPHONE
 - UNDERGROUND TELEPHONE
 - UNDERGROUND TV
 - WATER
 - PIPE AND 2" DIAMETER OF TUBE IN FEET
 - 10" = 100' DIAMETER IN FEET
 - 10" = 100' DIAMETER IN FEET
 - 10" = 100' DIAMETER IN FEET
- PROPOSED**
- BOUNDARY LINE
 - RIGHT OF WAY LINE
 - EASEMENT
 - PVC SUPPLY MANHOLE
 - PVC RETURN MANHOLE
 - DIRECTION OF FLOW
 - MANHOLE
 - PIPING TEST LOCATION

GENERAL UTILITY NOTES

1. ALL UTILITIES SHALL BE 1" MIN. DEPTH UNLESS OTHERWISE NOTED. NO. 1000-2-24

2. ALL UTILITIES SHALL BE 1" MIN. DEPTH UNLESS OTHERWISE NOTED. NO. 1000-2-24

3. ALL UTILITIES SHALL BE 1" MIN. DEPTH UNLESS OTHERWISE NOTED. NO. 1000-2-24

4. ALL UTILITIES SHALL BE 1" MIN. DEPTH UNLESS OTHERWISE NOTED. NO. 1000-2-24

5. ALL UTILITIES SHALL BE 1" MIN. DEPTH UNLESS OTHERWISE NOTED. NO. 1000-2-24

6. ALL UTILITIES SHALL BE 1" MIN. DEPTH UNLESS OTHERWISE NOTED. NO. 1000-2-24

7. ALL UTILITIES SHALL BE 1" MIN. DEPTH UNLESS OTHERWISE NOTED. NO. 1000-2-24

8. ALL UTILITIES SHALL BE 1" MIN. DEPTH UNLESS OTHERWISE NOTED. NO. 1000-2-24

9. ALL UTILITIES SHALL BE 1" MIN. DEPTH UNLESS OTHERWISE NOTED. NO. 1000-2-24

10. ALL UTILITIES SHALL BE 1" MIN. DEPTH UNLESS OTHERWISE NOTED. NO. 1000-2-24

- UTILITY DETAILS**
- 1. 1" MIN. DEPTH UNLESS OTHERWISE NOTED. NO. 1000-2-24
 - 2. 1" MIN. DEPTH UNLESS OTHERWISE NOTED. NO. 1000-2-24
 - 3. 1" MIN. DEPTH UNLESS OTHERWISE NOTED. NO. 1000-2-24
 - 4. 1" MIN. DEPTH UNLESS OTHERWISE NOTED. NO. 1000-2-24
 - 5. 1" MIN. DEPTH UNLESS OTHERWISE NOTED. NO. 1000-2-24
 - 6. 1" MIN. DEPTH UNLESS OTHERWISE NOTED. NO. 1000-2-24
 - 7. 1" MIN. DEPTH UNLESS OTHERWISE NOTED. NO. 1000-2-24
 - 8. 1" MIN. DEPTH UNLESS OTHERWISE NOTED. NO. 1000-2-24
 - 9. 1" MIN. DEPTH UNLESS OTHERWISE NOTED. NO. 1000-2-24
 - 10. 1" MIN. DEPTH UNLESS OTHERWISE NOTED. NO. 1000-2-24

- UTILITY NOTES**
- 1. 1" MIN. DEPTH UNLESS OTHERWISE NOTED. NO. 1000-2-24
 - 2. 1" MIN. DEPTH UNLESS OTHERWISE NOTED. NO. 1000-2-24
 - 3. 1" MIN. DEPTH UNLESS OTHERWISE NOTED. NO. 1000-2-24
 - 4. 1" MIN. DEPTH UNLESS OTHERWISE NOTED. NO. 1000-2-24
 - 5. 1" MIN. DEPTH UNLESS OTHERWISE NOTED. NO. 1000-2-24
 - 6. 1" MIN. DEPTH UNLESS OTHERWISE NOTED. NO. 1000-2-24
 - 7. 1" MIN. DEPTH UNLESS OTHERWISE NOTED. NO. 1000-2-24
 - 8. 1" MIN. DEPTH UNLESS OTHERWISE NOTED. NO. 1000-2-24
 - 9. 1" MIN. DEPTH UNLESS OTHERWISE NOTED. NO. 1000-2-24
 - 10. 1" MIN. DEPTH UNLESS OTHERWISE NOTED. NO. 1000-2-24

EFFLUENT DISPOSAL FIELD #3
ZONE 10, ZONE 11

NOTE:
OVERALL EFFLUENT DISPOSAL FIELD
LAYOUT IS ON SHEET 18

TOTAL OFFSITE REQUIRED TREATMENT PLANT #1
TOTAL ALTERNATE FIELD PROVIDED TREATMENT PLANT #2
ALTERNATE FIELD WATER TREATMENT PLANT #3

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 15838
11-7-01

CEI ASSOCIATES, INC.
ENGINEERS PLANNERS SURVEYORS
3317 S.W. 1 Street
Bentonville, AR 72712
(479) 273-8472
FAX (479) 273-0844
DATE 11-08-05
10:24 PM
REV#

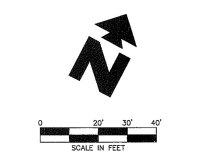
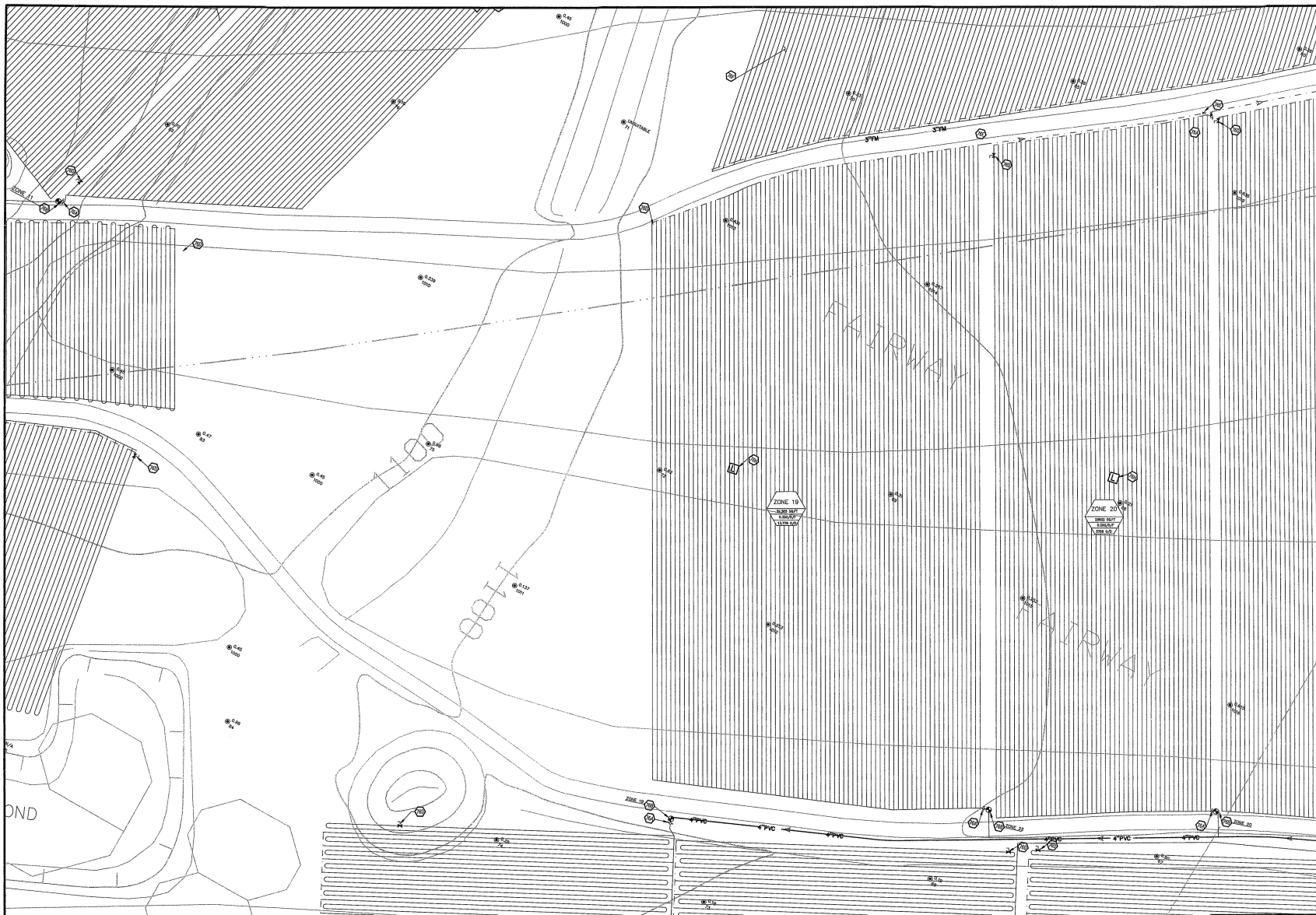
2-9-06 DAY
DATE FOR PM DES DRW
DATE FOR PM DES DRW

INITIAL DESIGN
DATE FOR PM DES DRW

CAVE SPRINGS WASTEWATER SYSTEM - PHASE 1
CAVE SPRINGS ARKANSAS

DRIP FIELD LAYOUT 5

23 of 43



LEGEND

EXISTING	
---	BOUNDARY LINE
---	RIGHT OF WAY LINE
---	STORM DRAIN
---	GAS
---	OVERHEAD ELECTRIC
---	OVERHEAD ELECTRIC AND TELEPHONE
---	OVERHEAD TELEPHONE
---	OVERHEAD TV
---	SEWER
---	UNDERGROUND ELECTRIC
---	UNDERGROUND ELECTRIC AND TELEPHONE
---	UNDERGROUND TELEPHONE
---	UNDERGROUND TV
---	WATER
3'-10"-11' 50.0 3' = DIAMETER OF TROUGH IN FEET 10' = CROSSLINKED POLYETHYLENE 50.0' = ELEVATION AT BASE OF TREE	

PROPOSED

---	BOUNDARY LINE
---	RIGHT OF WAY LINE
---	SEWER
---	PVC SUPPLY MANIFOLD
---	PVC REPAIR MANIFOLD
---	DIRECTION OF FLOW
---	PUMP TEST LOCATION

GENERAL UTILITY NOTES

- ALL UTILITY SHALL BE 1/2" DEEP LOW WATER FLOW (DWF) SHALL BE 1/2" DEEP LOW WATER FLOW (DWF) WITH DRIP SPACING SPACES EVERY 2'.
- DISPOSE AND MANIFOLD SHALL BE INSTALLED 10'-12" BELOW GROUND SURFACE.
- ALL CONNECTIONS WITH DISPOSE SHALL BE MADE WITH LOCKWIP ADAPTERS. USE OF ADAPTERS ON DISPOSE IS NOT ALLOWED.
- DO NOT USE TUBES OR LOCKWIP ADAPTERS, HAND WORK ONLY.
- MINIMUM WIDTH FOR DISPOSE SHALL NOT EXCEED 4'.
- ALL SECTIONS OF SUPPLY AND REPAIR MANIFOLD SHALL BE INSTALLED TO THE DISPOSE SHALL BE INSTALLED AT A MINIMUM OF 4' BELOW GROUND.
- WATERMANIFOLD RELEASE VALVES SHALL BE INSTALLED AT ALL HIGH POINTS IN SUPPLY AND REPAIR MANIFOLD LINES.
- TURNING IN DRIP FIELD IS NEARLY FLAT. LAY DRIP TUBING AS CLOSE TO PARALLEL WITH CONTIGUOUS OF PARALLEL.
- ALL MANIFOLDS SHALL BE 4'-HIGH PVC UNLESS OTHERWISE INDICATED.

UTILITY DETAILS

■	SEA TEMPORARY OVERFLOW ONE
---	----------------------------

UTILITY NOTES

1	SEA PRESSURE INDICATING DEVICE
2	SEA ZONE VALVE (EXPELLER)
3	SEA AIR/VAPOUR RELEASE VALVE
4	SEA CHECK VALVE
5	SEA DEEPLOW DRIP LINE (SPACED 2' 0.0)
6	SEA ULTRA HIGH-DENSITY POLYETHYLENE (UHDPE) FILTER
7	SEA FIELD LYNETER
8	SEA SOLDERED VALVE FOR PLUGGING
9	SEA FIELD LINE COOP
10	SEA PUMP TANK (SEE SPECIFICATIONS)

EFFLUENT DISPOSAL FIELD #4
ZONE 18, ZONE 19, ZONE 20

NOTE:
OVERALL EFFLUENT DISPOSAL FIELD
LAYOUT IS ON SHEET 18

TOTAL DRYFIELD REQUIRED (TREATMENT PLANT #1) 517,000 GPD
TOTAL ALTERNATE FIELD PROVIDED (TREATMENT PLANT #2) 213,777 GPD
ALTERNATE FIELD WITH TREATMENT PLANT #2 308

CEI ENGINEERING ASSOCIATES, INC.
ENGINEERS PLANNERS SURVEYORS

3377 S.W. 1 Street
Bentonville, AR 72712

(479) 273-8472
FAX (479) 273-0844

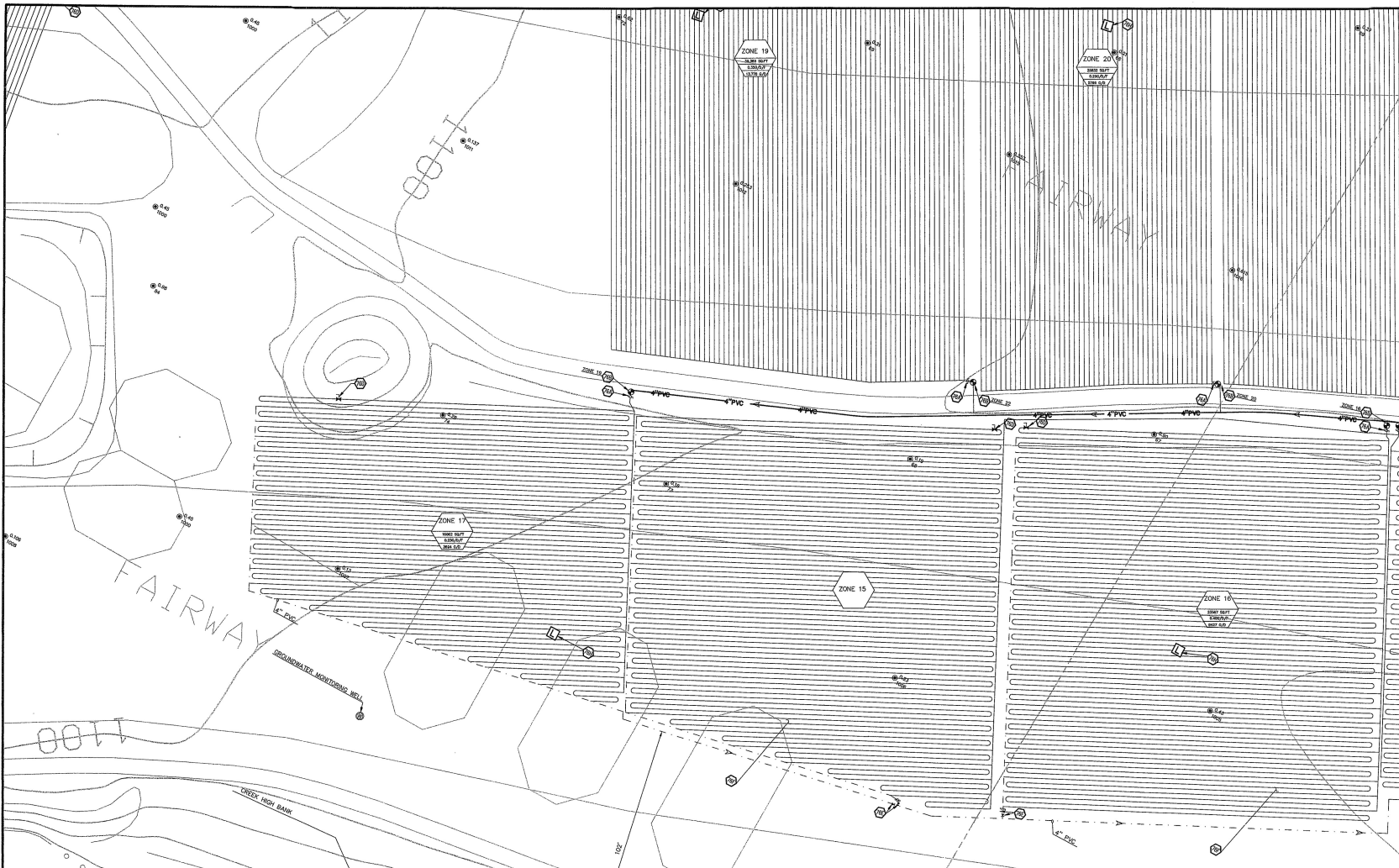
DATE 11-06-05
TIME 10:24 PM
REV 240-43

INITIAL DESIGN 5-8-05 DAY 11 PM DES DRW

DATE FOR PM DES DRW

CAVE SPRINGS WASTEWATER SYSTEM - PHASE 1
CAVE SPRINGS ARKANSAS

DRIP FIELD LAYOUT 6



- ### LEGEND
- EXISTING**
- BOUNDARY LINE
 - RIGHT OF WAY LINE
 - CROWN DRAIN
 - GAS
 - OVERHEAD ELECTRIC
 - OVERHEAD ELECTRIC AND TELEPHONE
 - OVERHEAD TELEPHONE
 - OVERHEAD TV
 - SEWER
 - UNDERGROUND ELECTRIC
 - UNDERGROUND ELECTRIC AND TELEPHONE
 - UNDERGROUND TELEPHONE
 - UNDERGROUND TV
 - WATER
- PROPOSED**
- BOUNDARY LINE
 - RIGHT OF WAY LINE
 - EASEMENT
 - PVC SUPPLY MANIFOLD
 - PVC RETURN MANIFOLD
 - DIRECTION OF FLOW
 - PVC TEST LOCATION
- GENERAL UTILITY NOTES**
1. ALL PRESSURE SHALL BE 1/2" (25.4mm) WATER TIGHT PVC (DIN 1500, NO. 1500-0-04) WITH DRIP ENTITIES SPACED EVERY 12"
 2. DRIPLINE AND MANIFOLDS SHALL BE INSTALLED 10"-12" BELOW SOIL SURFACE. CALL CONNECTIONS WITH DRIPLINE SHALL BE MADE WITH LOCKUP ADAPTERS. USE OF BRIDGES OR DRIPLINE IS NOT ALLOWED.
 3. DRIP NOT USE TOOLS ON LOCKUP ADAPTERS. HAND TIGHTEN ONLY. ETRONCH NOT FOR DRIPLINE SHALL NOT EXCEED 4".
 4. FULL SECTION OF DRIPLINE AND 1/2" (12.7mm) DRIP NOT EXCEED 10" TO THE IN SUPPLY AND RETURN MANIFOLDS LINES.
 5. VACUUM BREAKER/RELIEF VALVES SHALL BE INSTALLED AT ALL HIGH POINTS IN DRAINAGE IN DRAINAGE IS NEARLY FLAT. LAY DRIP TUBING AS CLOSE TO PARALLEL WITH CONTIGUOUS AS POSSIBLE.
 6. ALL MANIFOLDS SHALL BE 4-INCH PVC, UNLESS OTHERWISE INDICATED.

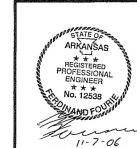
- UTILITY DETAILS**
- BIA TEMPORARY DIVERSION DRAIN
- UTILITY NOTES**
- 76A PRESSURE INDICATING DEVICE
 - 76B ZONE VALVE (DOWELL)
 - 76C AIR/ANOMALY RELEASE VALVE
 - 76D CHECK VALVE
 - 76E DRIPLINE DRIP LINE (SPACED 12" O.C.)
 - 76F ULTRA HEADWORKS BOX W/ 1/2" (12.7mm) FILTER
 - 76G FIELD LYSERATOR
 - 76H SLOWING VALVE FOR FLUSHING
 - 76I FIELD LINE LOOP
 - 76J PUMP TANK (SEE SPECIFICATIONS)

EFFLUENT DISPOSAL FIELD #4
ZONE 15B, ZONE 16, ZONE 17

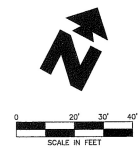
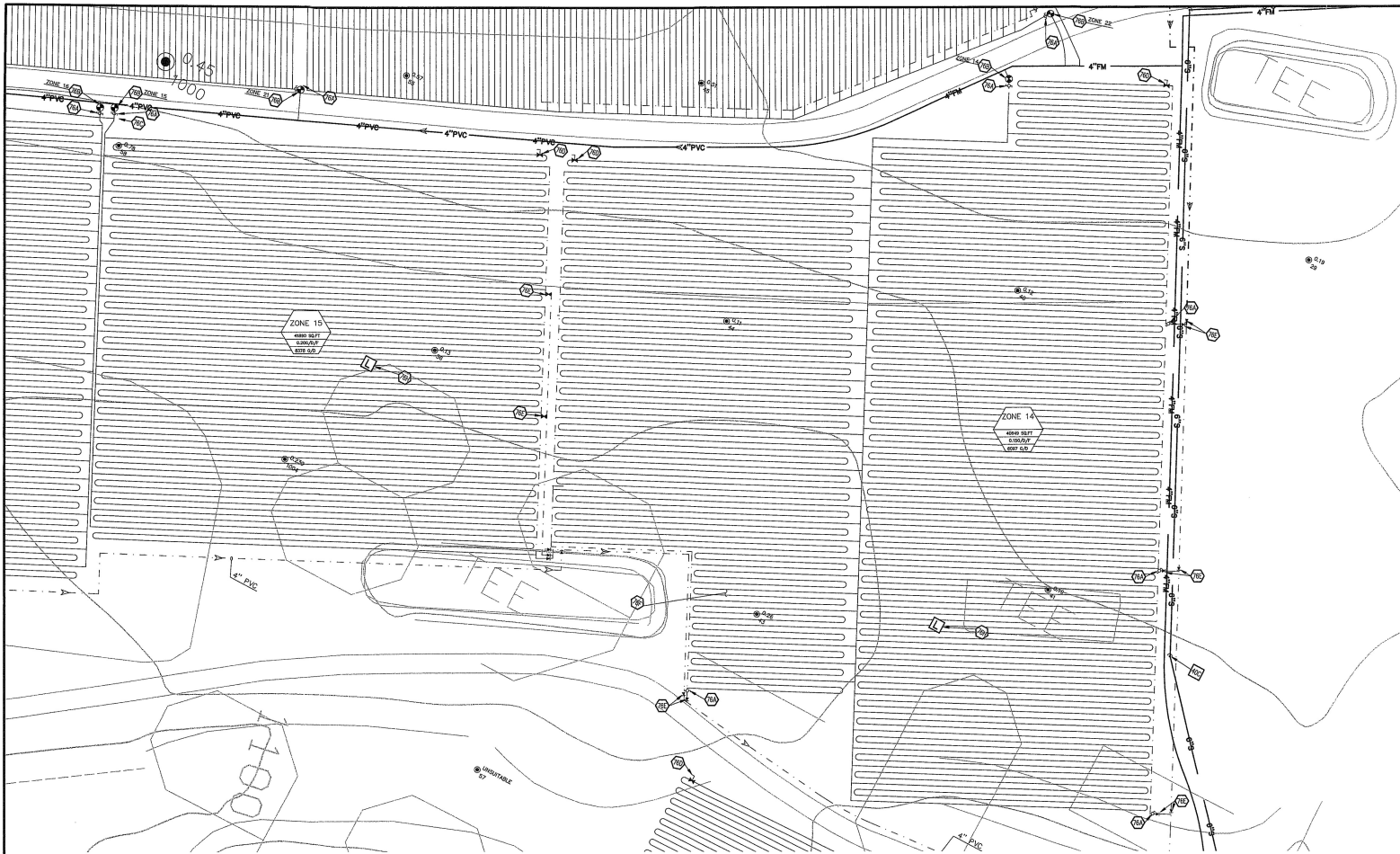
NOTE:
OVERALL EFFLUENT DISPOSAL FIELD
LAYOUT IS ON SHEET 16

TOTAL WASTEWATER TREATMENT PLANT #4
TOTAL ALTERNATE FIELD PROVIDED (TREATMENT PLANT #4)
ALTERNATE FIELD DATE (TREATMENT PLANT #4)

150,000 GPD
150,000 GPD
150,000 GPD



INITIAL DESIGN	2-9-08	DATE	PP	PP	PP
	DATE	FOR	PM	DES	DRW
CAVE SPRINGS WASTEWATER SYSTEM - PHASE I					
CAVE SPRINGS ARKANSAS					
CEI ®			ENGINEERING ASSOCIATES, INC		
ENGINEERS			PLANNERS		
SURVEYORS			JOB NO. 20733.0		
3317 S.W. 1 Street			(479) 273-9472		
Bentonville, AR 72712			FAX (479) 273-0844		
			CNC NAME: 20733.0		
			DATE		
			11-06-06		
			10:24 PM		
			REV		
			25 of 43		
DRIP FIELD LAYOUT 7					



LEGEND

- EXISTING**
- BOUNDARY LINE
 - ROOT OF WAY LINE
 - STORM DRAIN
 - GAS
 - OVERHEAD ELECTRIC
 - OVERHEAD TELEPHONE
 - UNDERGROUND ELECTRIC
 - UNDERGROUND TELEPHONE
 - UNDERGROUND TV
 - SEWER
 - UNDERGROUND ELECTRIC
 - UNDERGROUND ELECTRIC AND TELEPHONE
 - UNDERGROUND TELEPHONE
 - UNDERGROUND TV
 - MANHOLE
- PROPOSED**
- BOUNDARY LINE
 - ROOT OF WAY LINE
 - EASEMENT
 - PVC SUPPLY MANHOLE
 - PVC RETURN MANHOLE
 - DIRECTION OF FLOW
 - PERIC TEST LOCATION

5-10-11 50.5
 TREE INFO
 1/2" - DIAMETER OF TRUNK IN FEET
 10' - HEIGHT OF TREE IN FEET
 10' - CANOPY SPREAD IN FEET
 50.5 - ELEVATION AT BASE OF TREE

GENERAL UTILITY NOTES

- ALL DISPLACE SHALL BE 1/2" BELOW WATER/LOW PVC (MODEL NO. WPCO-3-34) WITH DRIP SPACERS SPACED EVERY 2'.
- DISPLACE AND MANIFOLD SHALL BE INSTALLED 10"-12" BELOW SOIL SURFACE. CALL CONNECTIONS WITH DISPLACE SHALL BE MADE WITH LOCKWELD ADAPTERS. USE OF JOINTS OR BRIDGES IS NOT ALLOWED.
- DO NOT USE TOOLS ON LOCKWELD ADAPTERS. HAND TIGHTEN ONLY.
- STRENGTH WITH FOR DISPLACE SHALL NOT EXCEED 1'.
- ALL DISPLACE OF SUPPLY AND RETURN MANIFOLD SHALL BE INSTALLED TO THE DISPLACE SHALL BE INSTALLED AT A MINIMUM 1' FROM THE DISPLACE.
- DISPLACE SHALL BE INSTALLED VALVES SHALL BE INSTALLED AT ALL HIGH POINTS IN SUPPLY AND RETURN MANIFOLD LINES.
- DISPLACE IN DRIP FIELD IS HEAVY FLAT LAY DRIP TUBING AS CLOSE TO PARALLEL WITH CONTIGUOUS AS POSSIBLE.
- ALL MANIFOLD SHALL BE 4-INCH PVC, UNLESS OTHERWISE INDICATED.

UTILITY DETAILS

- DIS - TEMPORARY DISCHARGE DRAIN

UTILITY NOTES

- 76A PRESSURE INDICATING DEVICE
- 76B ZONE VALVE (GLOBE)
- 76C AIR/ANODIC RELEASE VALVE
- 76D CHECK VALVE
- 76E ULTRASONIC DRY LINE (SPACED 2' O.C.)
- 76F ULTRASONIC HEADROOM BOX W/ 600VAC FILTER
- 76G FIELD LYSMETER
- 76H SOILING VALVE FOR FLUSHING
- 76I FIELD LINE LOOP
- 76J PUMP TANK (SEE SPECIFICATIONS)

EFFLUENT DISPOSAL FIELD #4 ZONE 14, ZONE 15A

NOTE:
 OVERALL EFFLUENT DISPOSAL FIELD
 LAYOUT IS ON SHEET 18

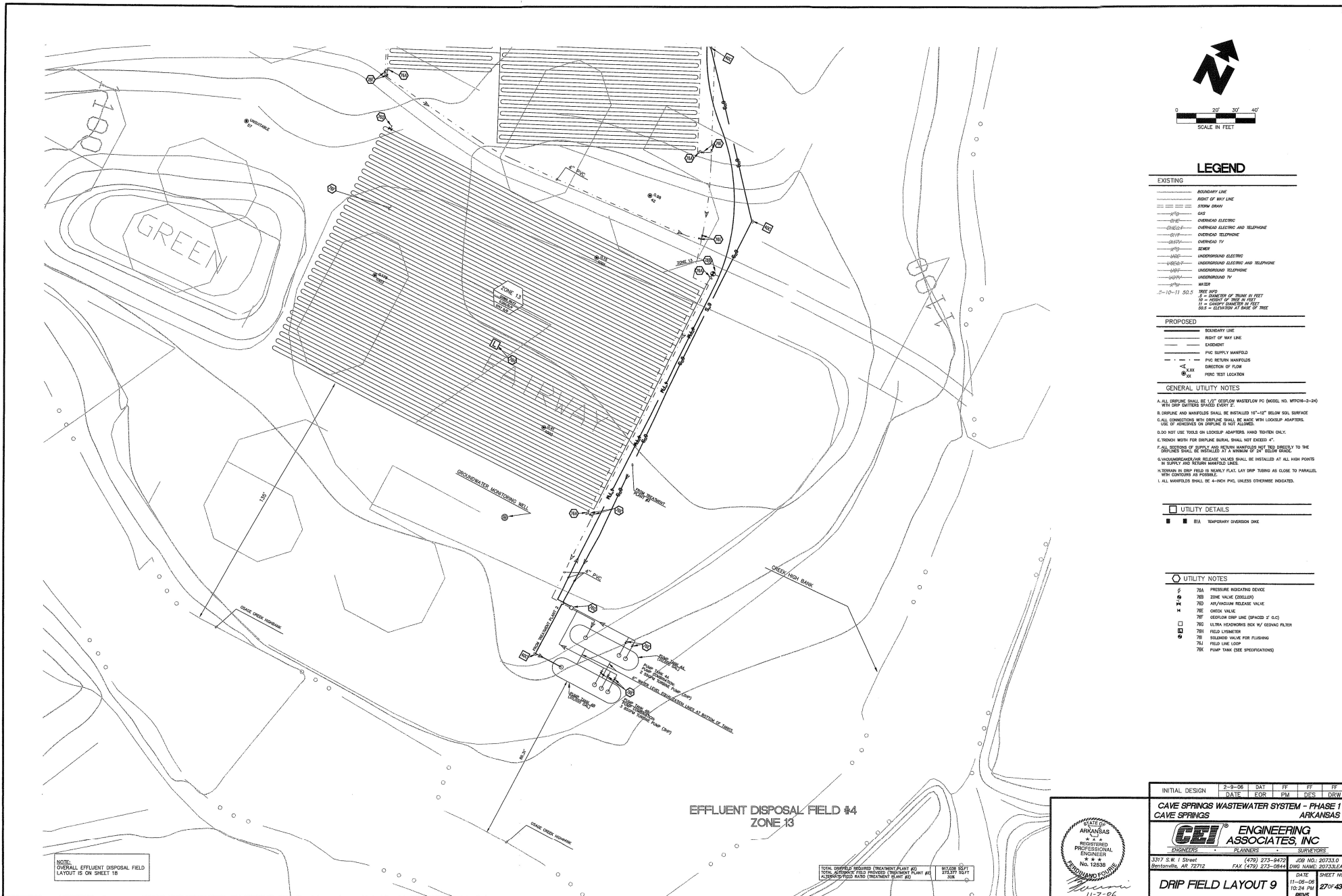
TOTAL PREPARED REQUIRED (TREATMENT PLANT #0)
 TOTAL ALTERNATE FIELD PROVIDED (TREATMENT PLANT #0)
 ALTERNATE FIELD RATIO (TREATMENT PLANT #0)

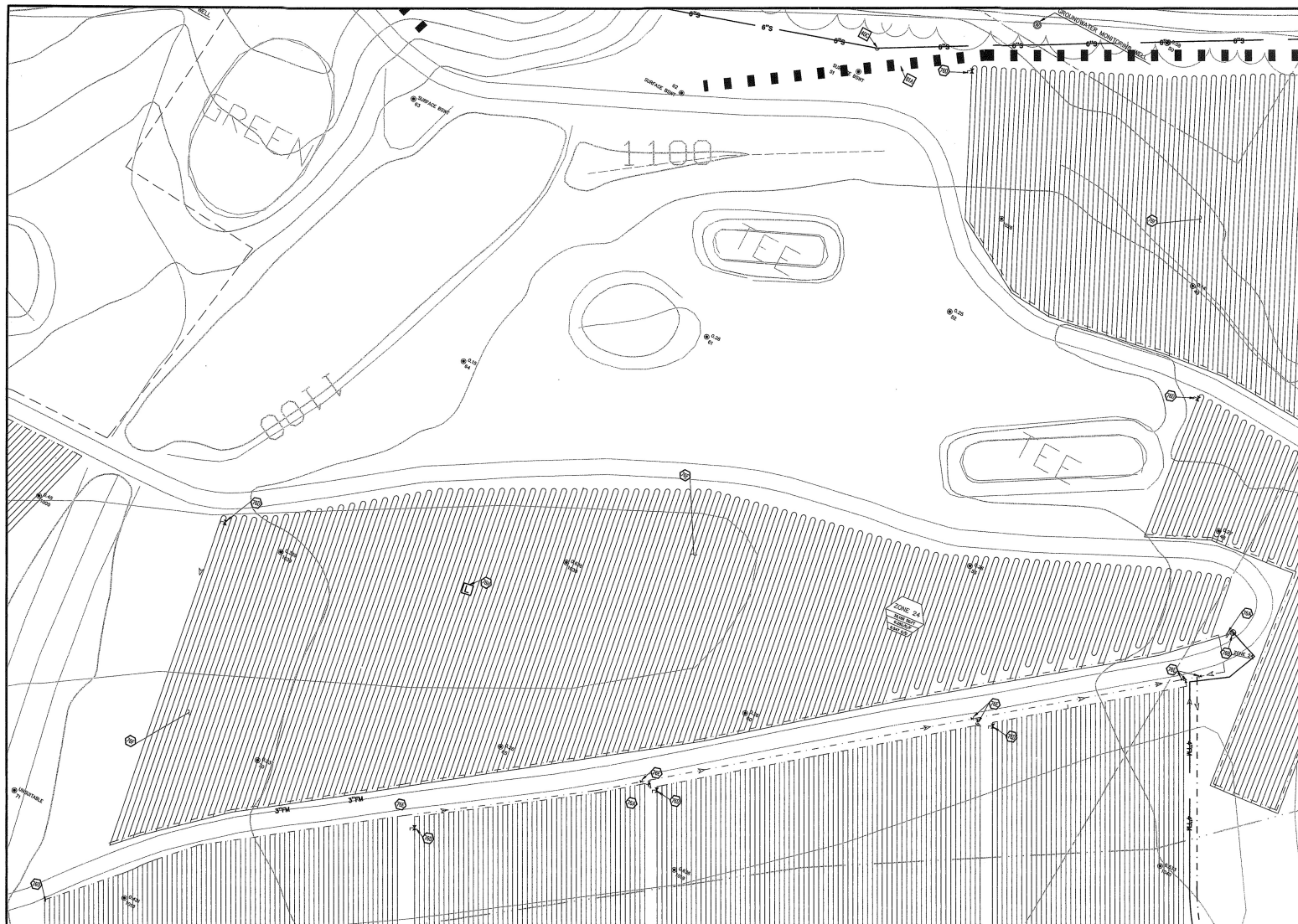


INITIAL DESIGN	2-3-06	DATE	11-7-06	FF	FF	FF	FF
DATE	11-7-06	COR	PM	DES	CHK		
CAVE SPRINGS WASTEWATER SYSTEM - PHASE 1 CAVE SPRINGS ARKANSAS							
CEI ENGINEERING ASSOCIATES, INC.				PLANNERS SURVEYORS			
3317 S.W. 8th Street (479) 273-9419 (479) 273-0624				JOB NO. 20733.2			
Bentonville, AR 72712				DWG. NAME: 20733.2A			
11-7-06				SHEET NO. 26 OF 43			
DATE				REV			
11-08-06				10:24 PM			
11-7-06				26 OF 43			

DRIP FIELD LAYOUT 8

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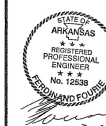




EFFLUENT DISPOSAL FIELD #4
ZONE 24

NOTE:
OVERALL EFFLUENT DISPOSAL FIELD
LAYOUT IS ON SHEET 12

TOTAL UNPAID PROJECT TREATMENT PLANT #1
TOTAL ALTERNATE FIELD PROVIDED TREATMENT PLANT #2
ALTERNATE FIELD BAYD TREATMENT PLANT #3



INITIAL DESIGN	2-9-06	DATE	FF	FF	FF
	DATE	FOR	PM	DES	DRW
CAVE SPRINGS WASTEWATER SYSTEM - PHASE 1					
CAVE SPRINGS					
ENGINEERING ASSOCIATES, INC.					
PLANNERS SURVEYORS					
1317 S.W. 1 Street	(479) 273-9472	JOB NO. 20733.0	DATE	SHEET NO.	
Bentonville, AR 72712	FAX (479) 273-2844	DRW NAME: 20733LEAD	DATE	SHEET NO.	
DRIP FIELD LAYOUT 12			11-08-06	300'x43'	
			10:24 PM	REV	

LEGEND	
EXISTING	
--- BOUNDARY LINE	
--- RIGHT OF WAY LINE	
--- STORM DRAIN	
--- GSP	
--- OVERHEAD ELECTRIC	
--- OVERHEAD ELECTRIC AND TELEPHONE	
--- OVERHEAD TELEPHONE	
--- OVERHEAD TV	
--- SEWER	
--- UNDERGROUND ELECTRIC	
--- UNDERGROUND ELECTRIC AND TELEPHONE	
--- UNDERGROUND TELEPHONE	
--- UNDERGROUND TV	
--- WATER	
--- PIPE AND	
--- 3-10-11 50.0	
--- DIAMETER OF TANK IN FEET	
--- DIAMETER OF TANK IN FEET	
--- DIAMETER OF TANK IN FEET	
--- DIAMETER OF TANK IN FEET	
--- DIAMETER OF TANK IN FEET	

PROPOSED	
--- BOUNDARY LINE	
--- RIGHT OF WAY LINE	
--- EXISTING	
--- PVC SUPPLY MANHOLE	
--- PVC RETURN MANHOLE	
--- DIRECTION OF FLOW	
--- PUMP TEST LOCATION	

GENERAL UTILITY NOTES

A. ALL DISCHARGE SHALL BE 1/2" DEEPEN WASTEWATER FC DRAIN NO. 10000-2-240 WITH DWP CAPTIVE STAGES EVERY 2'.

B. DISCHARGE AND MANHOLE SHALL BE INSTALLED 10"-12" BELOW SOIL SURFACE. USE OF ADAPTERS OR DISCHARGE IS NOT ALLOWED.

C. DDO NOT USE TOOLS OR LOCKS/ADAPTERS, HAND TIGHTEN ONLY.

D. THROUGH HOLES FOR DISCHARGE SHALL NOT EXCEED 4".

E. ALL DISCHARGE OF SUPPLY AND RETURN MANHOLE SHALL BE INSTALLED TO THE 10" DEEPEN DISCHARGE.

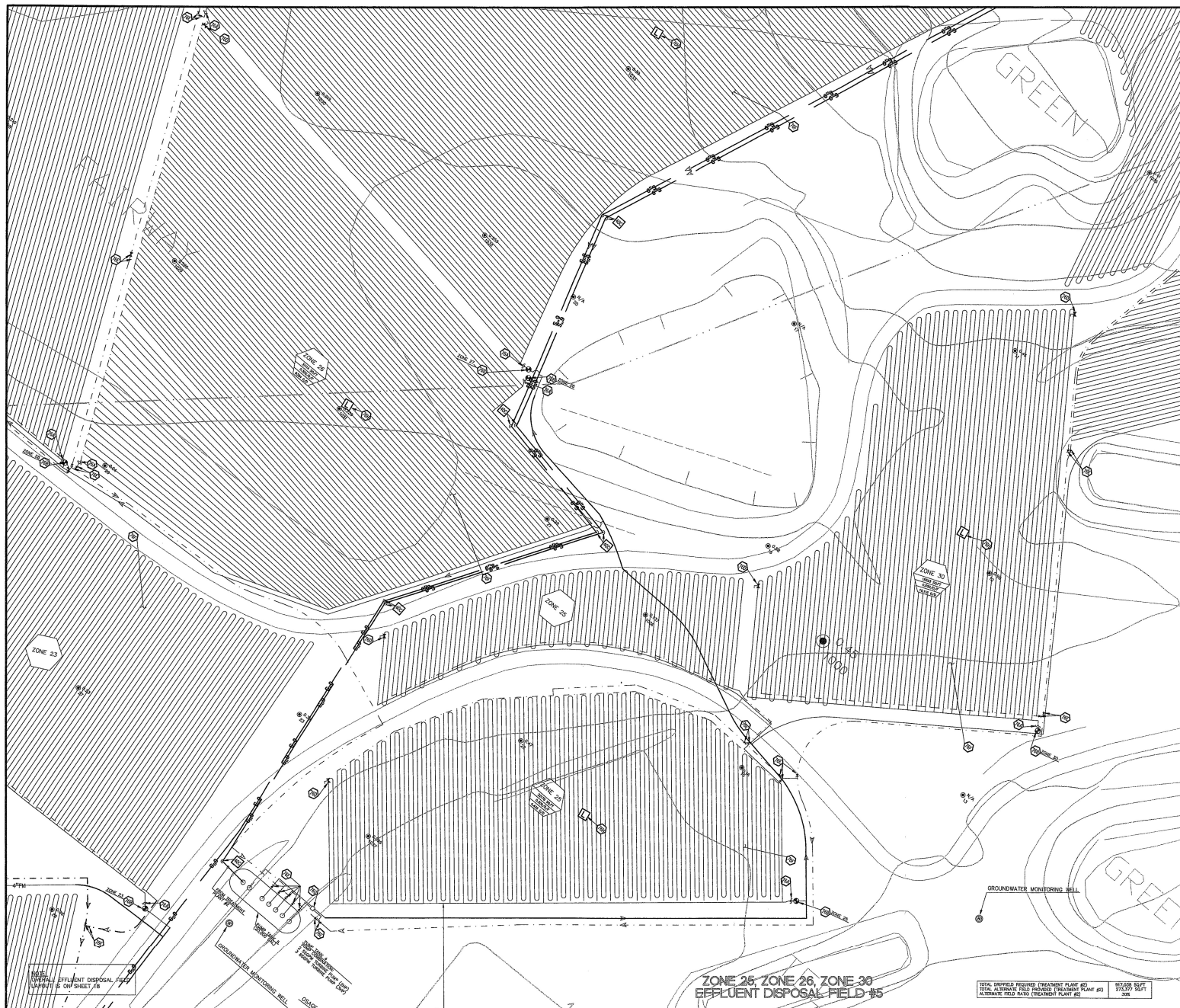
F. ALL DISCHARGE OF SUPPLY AND RETURN MANHOLE SHALL BE INSTALLED AT ALL HIGH POINTS IN SUPPLY AND RETURN MANHOLE LINES.

G. TANKS IN DWP FIELD IS INSTALLED FLAT LAY DWP TANKS AS CLOSE TO PARALLEL WITH CONTIGUOUS AS POSSIBLE.

H. ALL MANHOLE SHALL BE 4'-HIGH PVC, UNLESS OTHERWISE INDICATED.

UTILITY DETAILS	
■	UTILITY OVERLAP ONE

UTILITY NOTES	
76A	PRESSURE REGulating DEVICE
76B	ZONE VALVE (COILS)
76C	AR/ANODIZED RELEASE VALVE
76D	CHECK VALVE
76E	GEOPOLYMER DRAIN LINE (SPACED 2' O.C.)
76F	ULTRA HEADWORKS BOX W/ GEOPOLYMER
76G	FIELD WORKERS
76H	SOLENOID VALVE FOR FLUSHING
76I	FIELD LINE LOOP
76J	PUMP TANK (SEE SPECIFICATIONS)



LEGEND

EXISTING	
---	BOUNDARY LINE
---	RIGHT OF WAY LINE
---	SEWER DRAIN
---	GAS
---	OVERHEAD ELECTRIC
---	OVERHEAD ELECTRIC AND TELEPHONE
---	OVERHEAD TELEPHONE
---	OVERHEAD TV
---	SEWER
---	UNDERGROUND ELECTRIC
---	UNDERGROUND ELECTRIC AND TELEPHONE
---	UNDERGROUND TELEPHONE
---	UNDERGROUND TV
---	WATER
---	TRAIL
---	5-10-11 20.5
---	30 = ELEVATION OF TREE IN FEET
---	30 = ELEVATION OF TREE IN FEET
---	30 = ELEVATION OF TREE IN FEET
---	30 = ELEVATION AT BASE OF TREE

PROPOSED	
---	BOUNDARY LINE
---	RIGHT OF WAY LINE
---	SEWER DRAIN
---	GAS
---	OVERHEAD ELECTRIC
---	OVERHEAD ELECTRIC AND TELEPHONE
---	OVERHEAD TELEPHONE
---	OVERHEAD TV
---	SEWER
---	UNDERGROUND ELECTRIC
---	UNDERGROUND ELECTRIC AND TELEPHONE
---	UNDERGROUND TELEPHONE
---	UNDERGROUND TV
---	WATER
---	TRAIL
---	5-10-11 20.5
---	30 = ELEVATION OF TREE IN FEET
---	30 = ELEVATION OF TREE IN FEET
---	30 = ELEVATION OF TREE IN FEET
---	30 = ELEVATION AT BASE OF TREE

GENERAL UTILITY NOTES

- ALL UTILITIES SHALL BE LOCATED BY WATERFLOWS FC (MODEL NO. WFC-2-24) WITH LINE LOCATOR ATTACHED TO THE END.
- DISINFECTANT AND MANIFOLD SHALL BE INSTALLED 10'-12' BELOW GROUND SURFACE. ALL CONNECTIONS WITH DISINFECTANT SHALL BE MADE WITH LOCKWIP MANIFOLD. USE OF ADAPTERS OR DISINFECTANT IS NOT ALLOWED.
- DISINFECTANT SHALL BE INSTALLED IN A MINIMUM OF 24" BELOW GROUND SURFACE.
- DISINFECTANT SHALL BE INSTALLED IN A MINIMUM OF 24" BELOW GROUND SURFACE.
- DISINFECTANT SHALL BE INSTALLED IN A MINIMUM OF 24" BELOW GROUND SURFACE.
- DISINFECTANT SHALL BE INSTALLED IN A MINIMUM OF 24" BELOW GROUND SURFACE.
- DISINFECTANT SHALL BE INSTALLED IN A MINIMUM OF 24" BELOW GROUND SURFACE.
- DISINFECTANT SHALL BE INSTALLED IN A MINIMUM OF 24" BELOW GROUND SURFACE.
- DISINFECTANT SHALL BE INSTALLED IN A MINIMUM OF 24" BELOW GROUND SURFACE.
- DISINFECTANT SHALL BE INSTALLED IN A MINIMUM OF 24" BELOW GROUND SURFACE.

UTILITY DETAILS

- 1. UTILITY DETAILS
- 2. UTILITY DETAILS
- 3. UTILITY DETAILS
- 4. UTILITY DETAILS
- 5. UTILITY DETAILS
- 6. UTILITY DETAILS
- 7. UTILITY DETAILS
- 8. UTILITY DETAILS
- 9. UTILITY DETAILS
- 10. UTILITY DETAILS

UTILITY NOTES

- 78A PRESSURE INDICATING DEVICE
- 78B ZONE VALVE (DRAIN)
- 78C HYDRAULIC RELEASE VALVE
- 78D CHECK VALVE
- 78E DISINFECTANT MANIFOLD (DISINFECTANT)
- 78F ULTRAVIOLET RADIATION BOX W/ SEDIMENT FILTER
- 78G FIELD LIFTSTATION
- 78H SOLIDIFICATION VALVE FOR FLUSHING
- 78I FIELD LINE LOOP
- 78J PUMP TANK (SEE SPECIFICATIONS)

INITIAL DESIGN	DATE	DATE	DATE	DATE	DATE	DATE	DATE	DATE	DATE
2-9-06	2-9-06	2-9-06	2-9-06	2-9-06	2-9-06	2-9-06	2-9-06	2-9-06	2-9-06
DATE	DATE	DATE	DATE	DATE	DATE	DATE	DATE	DATE	DATE
DATE	DATE	DATE	DATE	DATE	DATE	DATE	DATE	DATE	DATE
DATE	DATE	DATE	DATE	DATE	DATE	DATE	DATE	DATE	DATE
DATE	DATE	DATE	DATE	DATE	DATE	DATE	DATE	DATE	DATE
DATE	DATE	DATE	DATE	DATE	DATE	DATE	DATE	DATE	DATE
DATE	DATE	DATE	DATE	DATE	DATE	DATE	DATE	DATE	DATE
DATE	DATE	DATE	DATE	DATE	DATE	DATE	DATE	DATE	DATE
DATE	DATE	DATE	DATE	DATE	DATE	DATE	DATE	DATE	DATE

CAVE SPRINGS WASTEWATER SYSTEM - PHASE 1
CAVE SPRINGS, ARKANSAS

CEI ENGINEERING ASSOCIATES, INC.
PLANNERS SURVEYORS

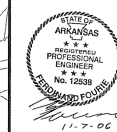
3317 S. W. 1 Street
Bentonville, AR 72712

(479) 273-9472 FAX (479) 273-9444

DATE 11-06-06
REV 10-24 PM

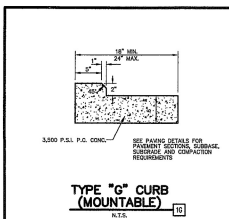
DRIP FIELD LAYOUT 13

SHEET NO. 31 OF 43

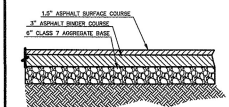


TOTAL DRIPFIELD REQUIRED (TREATMENT PLANT #1)
TOTAL ALTERNATE FIELD (TREATMENT PLANT #2)
ALTERNATE FIELD RATIO (TREATMENT PLANT #1)

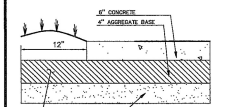
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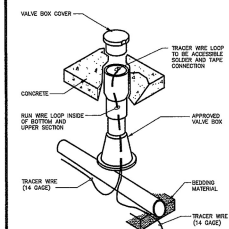
**TYPE "O" CURB
(MOUNTABLE)**
N.T.S.



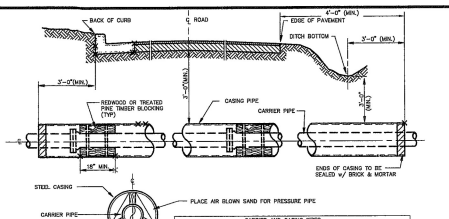
**REGULAR DUTY
ASPHALT PAVING**
N.T.S.



**REGULAR DUTY
CONCRETE PAVING**
N.T.S.



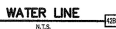
**TRACER WIRE INSTALLATION
FOR NON-FERROUS PIPE**
(AWAY FROM VALVE)
N.T.S.



	CARRIER AND CARRIER SIZES												
	CARRIER (O.D.)	4"	6"	8"	10"	12"	14"	16"	18"	20"	22"	24"	26"
	CASING (O.D.)	14"	16"	18"	20"	22"	24"	26"	28"	30"	32"	34"	36"
	CASING/WALL THICKNESS	209	219	219	219	250	261	261	261	281	281	281	344
	MAX LENGTH PVC PIPE W/OUT BLOCKING	4.7'	6.3'	7.4'	8.5'	9.6'	—	—	—	—	—	—	—
	MAX LENGTH OF PIPE W/OUT BLOCKING	—	—	—	—	—	—	15'	15'	15'	—	—	—

A. THE GENERAL CONTRACTOR SHALL PROVIDE THE SEGMENTAL RETAINING WALL SYSTEM DESIGN AND SUPPORTING SIGNED AND SEALED STRUCTURAL CALCULATIONS TO THE OWNER PRIOR TO THE START OF WORK. THE DESIGN SUBMITTED SHALL BE BASED ON SOIL PARAMETERS, FOUNDATION CONDITIONS, AND LOADING AS OUTLINED IN THE GEOTECHNICAL REPORT. GENERAL CONTRACTOR'S ENGINEER/MANUFACTURER SHALL PROVIDE WALL DESIGN AND ANALYSIS UTILIZING SOIL COMPUTER SOFTWARE.

- H. GENERAL CONTRACTOR ASSUMES ALL RESPONSIBILITY FOR THE DESIGN AND CONSTRUCTION OF ALL SEGMENTAL RETAINING WALLS AS SHOWN IN THE CONSTRUCTION DOCUMENTS. CEI ENGINEERING ASSOCIATES, INC. ASSUMES NO LIABILITY OR RESPONSIBILITY FOR DESIGN OR CONSTRUCTION OF ANY SEGMENTAL RETAINING WALL SYSTEM RELATED TO THESE SITE IMPROVEMENTS.



GENERAL NOTES



NOTE:
CASING SHALL BE LAID IN OPEN TRENCH, NOT
JACKED AND BORED. FORCE MAIN SHALL
THEN BE INSTALLED IN CASING PER DETAIL
304.

SUBGRADE

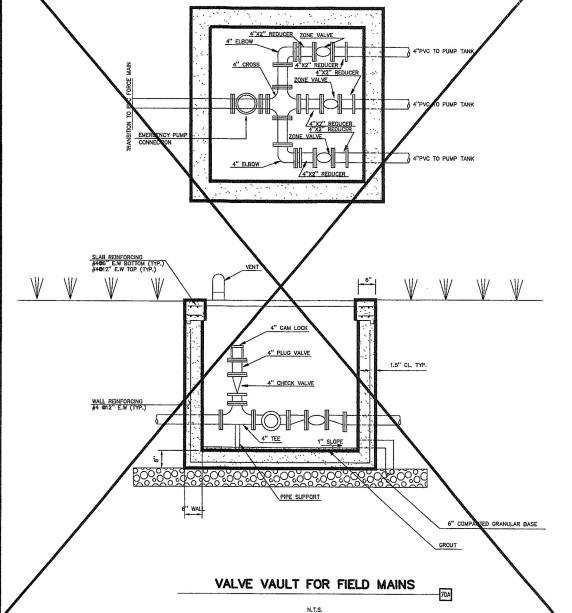
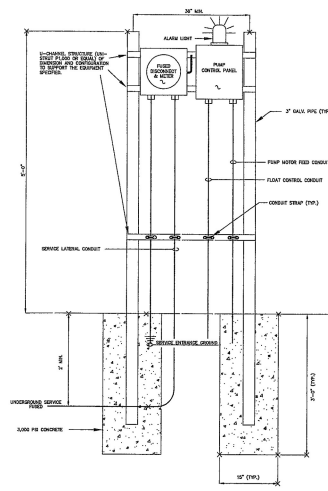
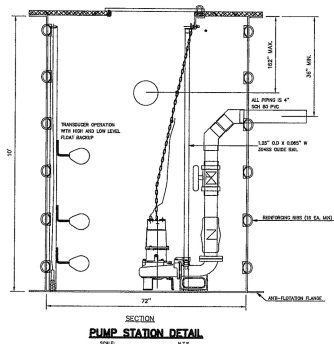
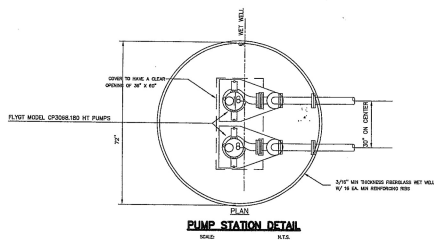
- CONCRETE**
1. COMPRESSIVE STRENGTH: 3,500 P.S.I. MINIMUM AT 28 DAYS, WITH 55-65 AIR
 2. REINFORCEMENT: WELDED WIRE FABRIC - 6"x9" - N 21 X W 21,
 3. WEAKENED - PLANE CONTROL JOINTS TO BE 15' O.C. AND FILLED/SEALED.
SEE SPECIFICATIONS FOR APPROVED FILLER / SEALER,
 4. CHAMFER ALL EXPOSED EDGES.



1. COMPACT TO 95% MAXIMUM DRY DENSITY AS DETERMINED BY A.S.T.M. D-698-78 (STANDARD PROCTOR) AT ± 2% OF PROCTOR OPTIMUM MOISTURE VALUE.
- CONCRETE**
1. COMPRESSIVE STRENGTH: 3,500 P.S.I. MINIMUM AT 28 DAYS, WITH 6%-8% AIR ENTRAINMENT.
2. REINFORCEMENT: WELDED WIRE FABRIC - 6"X6" - W 21 X M 21.
3. FINISHED - PLANE CONTROL JOINTS TO BE 15' O.C. AND FILLED/SEALED.
SEE SPECIFICATIONS FOR APPROVED FILLER / SEALER.
4. CHAMFER ALL EXPOSED EDGES.

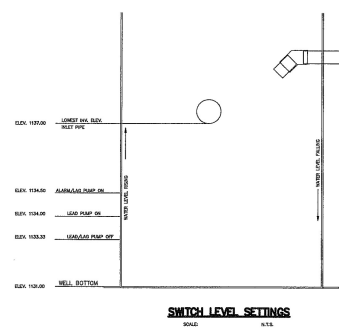
INITIAL DESIGN	10-10-88	DAY	11	11	11
	DATE	EOR	PM	DES	ORW

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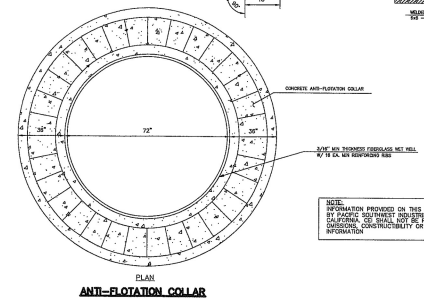
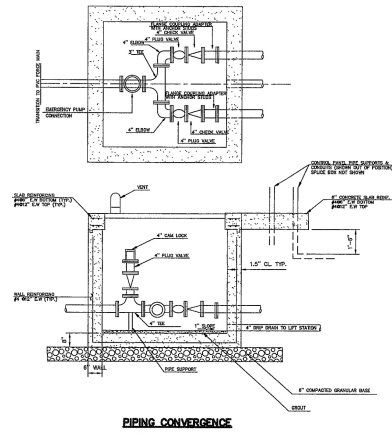


- ELECTRICAL NOTES:**
1. INSTALL METEER SOCKET IN ENCLOSURE IN ACCORDANCE WITH ELECTRIC COMPANY REQUIREMENTS AND THE NATIONAL ELECTRIC CODE.
 2. INSTALL SERVICE LATERAL CONDUIT SERVICE ENTRANCE CABLE, SERVICE ENTRANCE CONDUCTORS AND FUSED DISCONNECT IN ACCORDANCE WITH ELECTRIC COMPANY REQUIREMENTS AND THE NATIONAL ELECTRIC CODE.
 3. MAKE CONNECTIONS IN THE CONTROL PANEL IN ACCORDANCE WITH INSTRUCTIONS PROVIDED BY EQUIPMENT MANUFACTURER.
 4. ALL CONDUIT RUNNED IN EARTH OR UNDER EXISTING SLAB OR IN CONTACT WITH EARTH SHALL BE PVC SCHEDULE 40, 1/2" MINIMUM SIZE.
 5. ALL CONDUIT ABOVE GROUND SHALL BE RIGID GALVANIZED STEEL, 1/2" MINIMUM SIZE.
 6. POWER WIRE SHALL BE COPPER. MINIMUM SIZE SHALL BE #12 AWG. MINIMUM INSULATION RATING SHALL BE 600V TO 600C.
 7. CONTROL WIRE SHALL BE AS FURNISHED OR SPECIFIED BY THE CONTROLS MANUFACTURER.
 8. THE CONTRACTOR SHALL VERIFY AND CONFORM TO ANY ADDITIONAL ELECTRIC COMPANY REQUIREMENTS. ANY ELECTRIC COMPANY INSTALLATION COSTS AND LABORERS REMAIN WILL BE THE RESPONSIBILITY OF THE CONTRACTOR.
 9. THE COST OF ALL NECESSARY PERMITS, FEES AND INSPECTIONS REQUIRED BY ELECTRIC COMPANY OR ANY PUBLIC AGENCY SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR.
 10. ALL ELECTRIC MATERIALS AND WORK SHALL CONFORM TO THE LATEST EDITION OF THE NATIONAL ELECTRIC CODE FOR SERVICES IN CONTACT WITH FLAMMABLE GASES AND SHALL MEET LOCAL AND ELECTRIC COMPANY CODES AND REGULATIONS.

- PUMP STATION NOTES:**
1. SITE SHALL BE GRADED TO CHANNEL WATER AWAY FROM THE PUMP STATION.
 2. BACKFILL AROUND MET-WELL SHALL BE CLASS 1/2" OR 3/4" MATERIAL AS SPECIFIED BY ACHT JOINT. MATERIAL SHALL BE COMPACTED TO 95% MODIFIED PROCTOR. BACKFILL TO BE PLACED IN 6" LIFTS.
 3. ALL PIPE JOINTS ABOVE MET WELL TO BE FLANGED UNLESS OTHERWISE SPECIFIED. ALL BURIED PIPE JOINTS TO BE MECHANICAL JOINT.
 4. VERIFY ALL OPENINGS THROUGH FLOOR AND WALLS WITH MECHANICAL, ELECTRICAL, AND PUMP REQUIREMENTS.
 5. FORCE MAIN SHALL BE AIR TESTED BY THE CONTRACTOR AND WITNESSED BY VILLAGE WASTE WATER COMPANY.
 6. THIS EDITION SHALL BE A PRODUCT OF A MANUFACTURER'S REPRESENTATIVE AND REGIONAL VENDOR THAT HAS A MINIMUM OF FIVE YEARS EXPERIENCE IN BUILDING UNDERGROUND PUMP STATIONS.
 7. NO SUBSTITUTIONS OR CHANGES ARE TO BE MADE TO THIS DESIGN WITHOUT WRITTEN CONSENT OF CEI ENGINEERING ASSOCIATES TO INCLUDE USE OF SPECIFIC BRANDS AND MODELS, HANDED SPECIFIED ON THESE PLANS AND THE WRITTEN SPECIFICATIONS. ALL CONSTRUCTION SHALL BE IN STRICT ACCORDANCE WITH THE SPECIFICATIONS FOR THE MAN-MADE STONE, #1 JUNE, MODIFIED.



SUPERNATANT PUMP STATION
N.T.S.



NOTE:
INFORMATION PROVIDED ON THIS SHEET WAS PROVIDED BY THE CLIENT. CEI ENGINEERING ASSOCIATES, INC. ASSUMES NO RESPONSIBILITY FOR THE ACCURACY OF THIS INFORMATION.

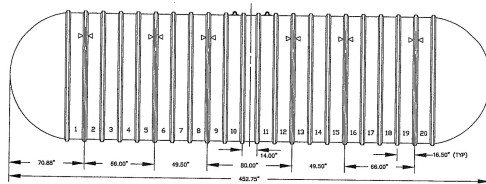
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		FOR	PM	DES	DRW

CAVE SPRINGS WASTEWATER TRANSFER SYSTEM - PHASE 1

CEI ENGINEERING ASSOCIATES, INC.
ENGINEERS PLANNERS SURVEYORS

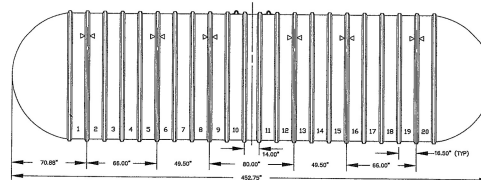
3317 SW 7th Street (478) 273-9472 JOB NO.: 20733
Bentonville, AR 72712 FAX (478) 273-0644 DWS NAME: arway

DATE: 03-14-06 SHEET NO.: 59 OF 43
REVIEW: DETAIL SHEET 4



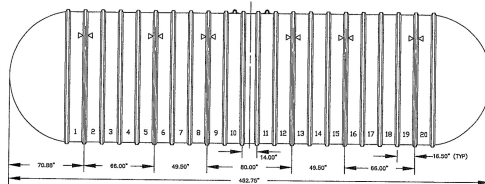
PUMP TANK 3
(25,000 GAL)

N.T.S.



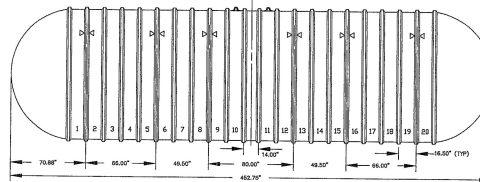
PUMP TANK 4A
(20,000 GAL)

N.T.S.



PUMP TANK 4B
(20,000 GAL)

N.T.S.

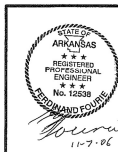
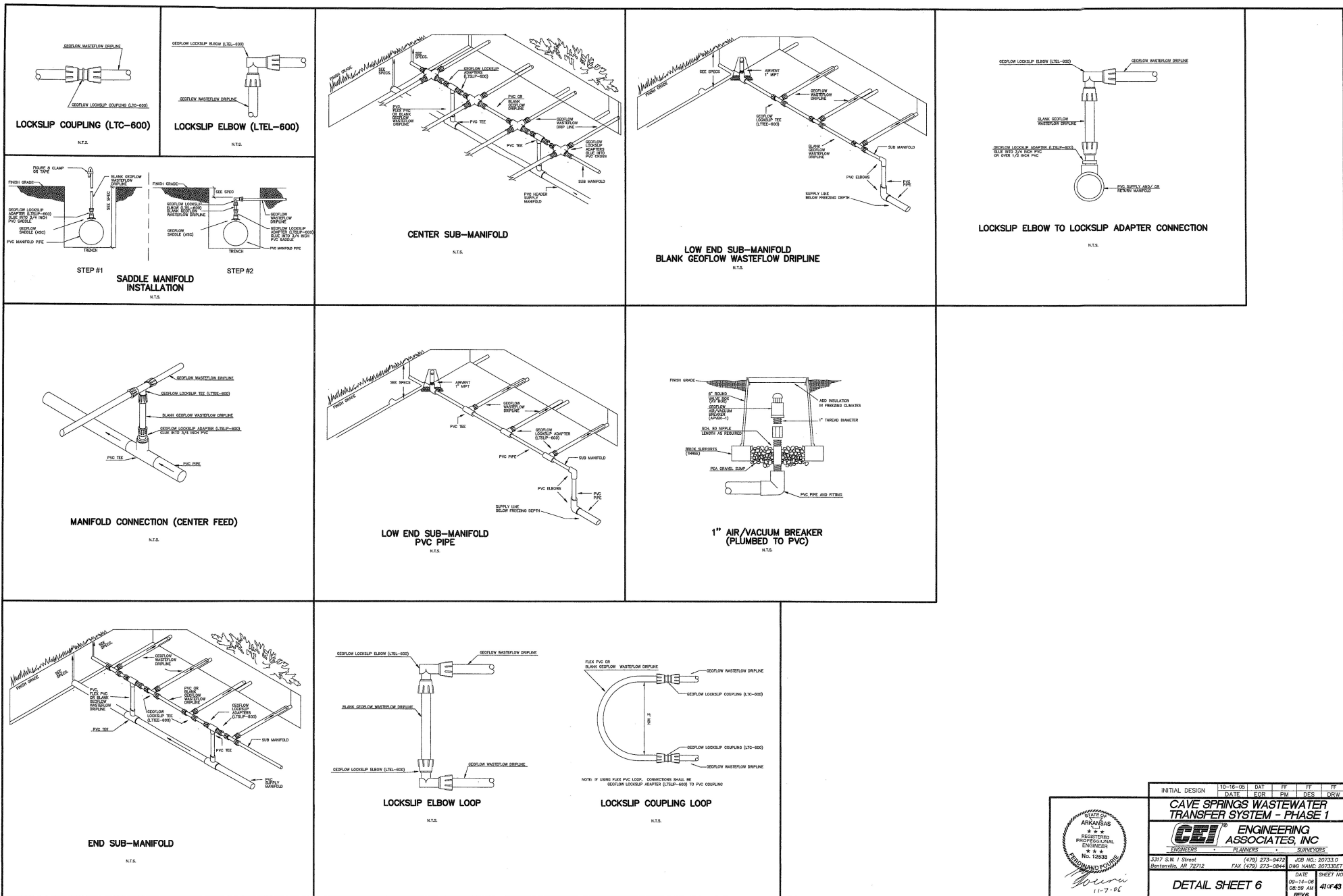


PUMP TANK 5
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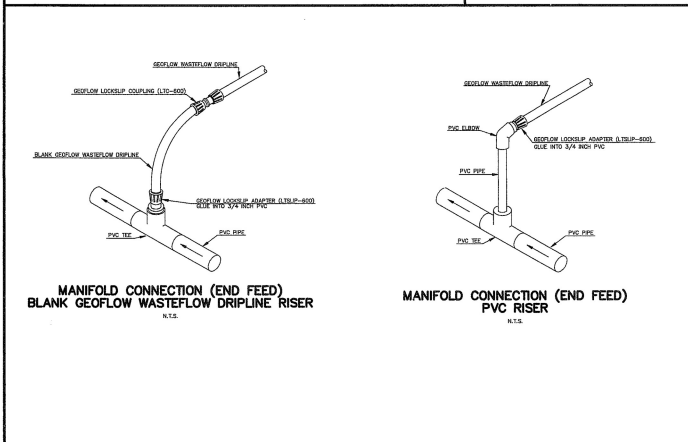
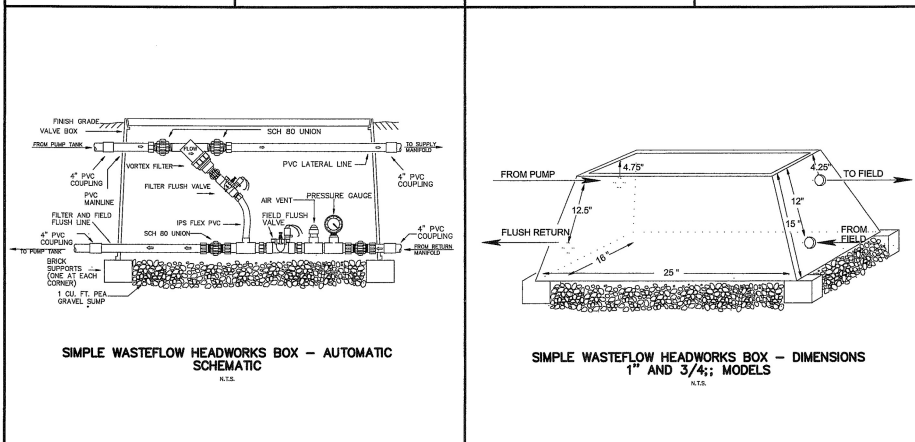
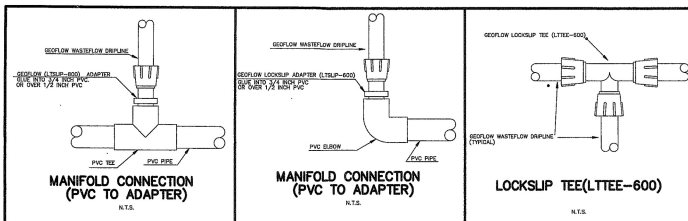
N.T.S.

NOTE:
PUMP TANK DRAWINGS WILL BE PRODUCED BY XEROX CORPORATION AFTER
PUMP TANK ORDER IS PLACED BY OWNER UNDER CONTRACT 1. THESE DRAWINGS
WILL BE UPDATED AFTER THIS INFORMATION BECOMES AVAILABLE.

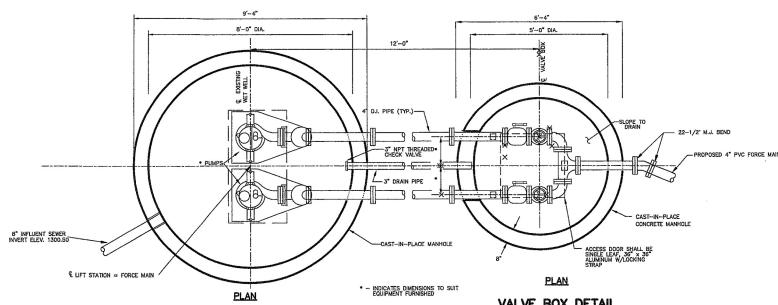
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	CAVE SPRINGS WASTEWATER TRANSFER SYSTEM - PHASE 1							
	CEI ENGINEERING ASSOCIATES, INC. ENGINEERS PLANNERS SURVEYORS							
	3317 S.W. 1 Street Bentonville, AR 72712		(479) 272-9472 FAX (479) 272-0844		JOB NO.: 20713.0 DWG NAME: 20713.001		DATE: 08-14-00 SHEET NO: 40 of 43	
DETAIL SHEET 5 11-7-06								



INITIAL DESIGN	10-16-05	DATE	FF	FF	FF
DATE	FOR	PM	DES	DRW	
CAVE SPRINGS WASTEWATER TRANSFER SYSTEM - PHASE 1					
CEI ENGINEERING ASSOCIATES, INC.			PLANNERS SURVEYORS		
3317 S.W. 1 Street Bentonville, AR 72712			JOB NO.: 20733.0 DWG. NAME: 00733001		
(478) 273-9472 FAX (478) 273-0644			DATE: 09-14-08 REVISED: 09-29-08		
DETAIL SHEET 6			SHEET NO. 41 of 43		

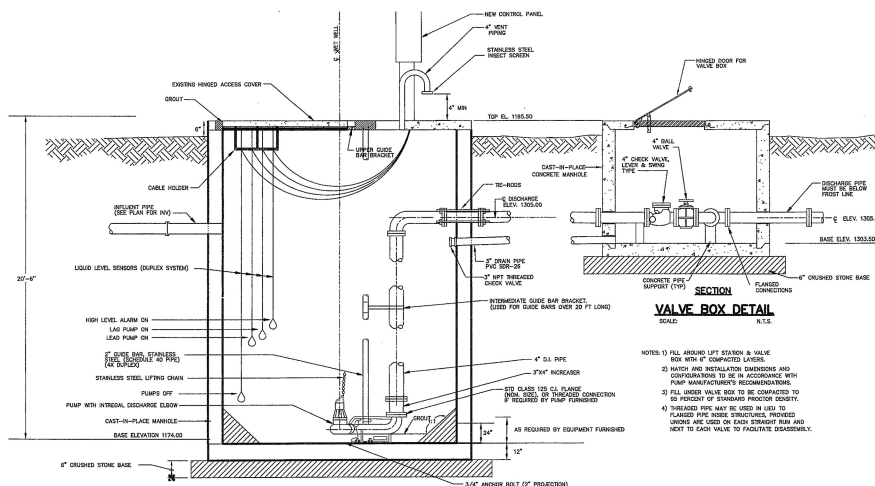


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CAVE SPRINGS WASTEWATER TRANSFER SYSTEM - PHASE 1					
3317 S.W. 1 Street Bentonville, AR 72712					
(479) 273-8472 FAX (479) 273-0844					
429 MO: 20723.0 DWS NAME: 20723BET					
DETAIL SHEET 7					
DATE: 08-16-09 DESIGNED BY: 11-7-06					
SHEET NO. 420 of 43					



LIFT STATION DETAIL
SCALE: N.T.S.

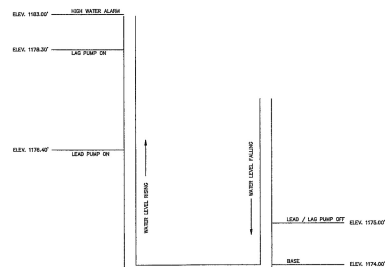
VALVE BOX DETAIL
SCALE: N.T.S.



**SECTION
LIFT STATION DETAIL**
SCALE: N.T.S.

NOTES:
1) FILL AROUND LIFT STATION & VALVE BOX WITH 4" COMPACTED LAYER.
2) MATCH AND INSTALLATION DIMENSIONS AND EQUIPMENT TO BE IN ACCORDANCE WITH PUMP MANUFACTURER'S RECOMMENDATIONS.
3) FILL AROUND VALVE BOX TO BE COMPACTED TO 95 PERCENT OF STANDARD PROCTOR DENSITY.
4) THICKNESS PIPE MAY BE USED IN LIFT TO PLACED PIPE WHERE STRUCTURES PROVIDED SHOWN ARE USED ON EACH STRAIGHT RUN AND NEXT TO EACH VALVE TO FACILITATE DISASSEMBLY.

SWITCH LEVEL SETTINGS



SANITARY SEWER LIFT STATION DETAIL
N.T.S.

LIFT STATION NOTES:

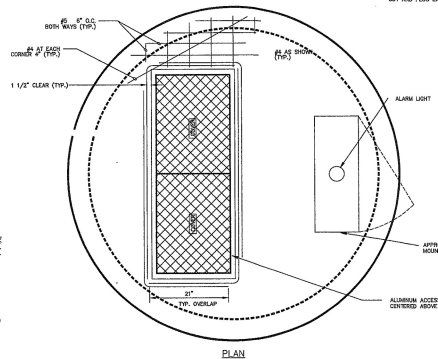
1. SITE SHALL BE GRADED TO CHANNEL WATER AWAY FROM THE PUMP STATION.
2. BACKFILL AROUND WETWELL SHALL BE CLASS 1, 1, OR 2 MATERIAL, AS SPECIFIED BY ASTM D697. MATERIAL SHALL BE COMPACTED TO 95 PERCENT PROCTOR DENSITY. SHOULDER TO BE PLACED IN 6" LIFTS.
3. ALL PIPE JOINTS INSIDE WETWELL TO BE FLANGED UNLESS OTHERWISE SPECIFIED. ALL FLANGED PIPE JOINTS TO BE MECHANICAL JOINT.
4. VERIFY ALL OPENINGS THROUGH FLOOR AND WALLS WITH MECHANICAL, ELECTRICAL, AND PIPING REQUIREMENTS.
5. WETWELL SHALL BE CAST-IN-PLACE CONCRETE.
6. FORCE MAIN SHALL BE AS TESTED BY THE CONTRACTOR AND WITNESSED BY THE CITY.
7. THIS STATION REINFORCING SHALL BE A PRODUCT OF A MANUFACTURER'S REPRESENTATIVE AND REMAIN VENDOR THAT HAS A MINIMUM OF FIVE YEARS EXPERIENCE IN BUILDING UNDERGROUND PUMP STATIONS.
8. NO SUBSTITUTIONS OR CHANGES ARE TO BE MADE TO THIS DESIGN WITHOUT WRITTEN CONSENT OF THE ENGINEERING ASSOCIATES TO INCLUDE USE OF SPECIFIC BRAND AND MODEL NUMBERS SPECIFIED ON THESE PLANS AND THE WRITTEN SPECIFICATIONS FOR THE REMAINING LIFT STATION. ALL CONSTRUCTION SHALL BE IN STRICT ACCORDANCE WITH THE WATER AND SEWER SPECIFICATIONS FOR THE BENTONVILLE, ARKANSAS.
9. LIQUID LEVEL SENSORS SHALL BE PER SPECIFICATIONS.
10. ELEMENTARY UNIT TO BE PURCHASED FROM CITY OF BENTONVILLE AND INSTALLED BY CONTRACTOR.
11. THE LEVEL CONTROLS SHALL BE SET BY THE VENDOR REPRESENTATIVE AND WITNESSED BY CITY AND CEI ENGINEERS REPRESENTATIVES.
12. THE EXISTING LEVEL CONTROLS, ELECTRICAL, CONTROL PANELS, AND ALL ASSOCIATED WIRES SHALL BE REMOVED AND REPLACED CONTRACT PROCEED. IF FORDHAM PARALLEL, AND WITHIN 5 FT OF EXISTING FORDHAM.
13. CUT AND FILL EXISTING FORDHAM.

CONCRETE NOTES:

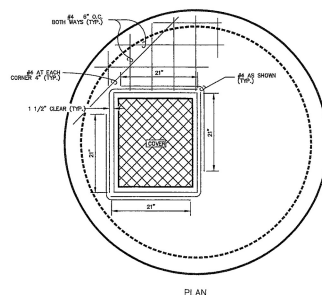
1. ALL CONCRETE UNLESS NOTED SHALL BE STONE AGGREGATE, TYPE 1 PORTLAND CEMENT WITH A COMPRESSIVE STRENGTH OF 3000 PSI AT 28 DAYS AND 40 TO 45 AIR ENTRAINED WITH A SLUMP RANGE OF 3" TO 4".
2. ALL REINFORCING NOT OTHERWISE NOTED SHALL BE HIGH STRENGTH DEFORMED BARS (ASTM A615 - GRADE 60).
3. ALL FORMS SHALL BE INSPECTED AND APPROVED FOR GRADE, ALIGNMENT, AND NONWARP BY THE ENGINEER PRIOR TO PLACING ANY CONCRETE.
4. THE STEEL REINFORCEMENT SHALL BE DEFORMED BARS FREE FROM SPOTS, SINKS, RUST, OR OIL CONTAMINANTS WHICH WILL REDUCE THE BOND OF THE CONCRETE. THE BARS SHALL BE ACCURATELY BENT AND PLACED AS INDICATED ON THE PLANS AND SECURELY SUPPORTED AND FASTENED TO PREVENT MOVEMENT DURING THE PLACEMENT OF CONCRETE.
5. CONCRETE SHALL BE ADJUVANTLY MIXED USING MECHANICAL MIXERS TO ENSURE THE PROPER DISTRIBUTION OF CONCRETE WITHIN THE FORMS. CONCRETE WHICH IS ADVERSELY MIXED/COMBINED SHALL BE REMOVED AS DIRECTED BY THE ENGINEER.
6. REINFORCEMENT PROTECTION UNLESS OTHERWISE NOTED:
(A) CONCRETE COVERED AGAINST EARTH, 2-INCHES.
(B) CONCRETE FINISHED IN FORM, BUT EXPOSED TO WEATHER OR EARTH, 2-INCHES.
(C) BARS LARGER THAN #6, 3-INCHES.
7. NO SPACES OF REINFORCEMENT SHALL BE MADE. EXCEPT AS DETAILS OR APPROVED BY ENGINEER, SPACES SHALL BE MADE BY CONTACT LAPS A MINIMUM OF 36 BAR DIAMETER, UNLESS NOTED OTHERWISE.
8. DETAIL BARS IN ACCORDANCE WITH CEI DETAILS MANUAL, AND ALL BUILDING CODE REQUIREMENTS FOR REINFORCED CONCRETE, LATEST EDITION ONLY.
9. PROVIDE ALL ACCESSORIES NECESSARY TO SUPPORT REINFORCING AT POSITIONS SHOWN ON PLANS.
10. SLAB SHALL NOT HAVE JOINTS IN A HORIZONTAL PLANE. ALL CONSTRUCTION JOINTS SHALL BE AS DETAILED OR AS APPROVED BY THE ENGINEER.
11. ALL REINFORCING CHAINS SHALL HAVE ALUMINUM BUSHES, OR THE LIDS SHALL BE RUBBER TYPED TO PREVENT RUST MARKS.
12. ALL CONCRETE IN DIRECT CONTACT WITH SERVICE SHALL BE COVERED WITH MASTER BUILDERS COVERS AND IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS (MASTER BUILDERS' PH-100-22-2202 OR SIX GUARD, MANUFACTURED BY THE SIX COMPANY).

ELECTRICAL NOTES:

1. WETWELL METER SERVICE IN ACCORDANCE WITH ELECTRIC COMPANY REQUIREMENTS AND THE NATIONAL ELECTRIC CODE.
2. SERVICE SERVICE LATERAL CONDUIT SERVICE ENTRANCE CONDUIT, SERVICE ENTRANCE CONDUIT AND FEEDS DISCONNECT IN ACCORDANCE WITH THE ELECTRIC UTILITY REQUIREMENTS AND THE NATIONAL ELECTRIC CODE.
3. MAKE CONNECTIONS IN THE CONTROL PANEL IN ACCORDANCE WITH INSTRUCTIONS PROVIDED BY EQUIPMENT MANUFACTURER.
4. ALL CONDUIT BURIED IN EARTH, IN OR UNDER CONCRETE SLABS OR IN CONTACT WITH EARTH SHALL BE PVC SCHEDULE 40, 1/2" MINIMUM.
5. ALL CONDUIT ABOVE GROUND SHALL BE RIGID GALVANIZED STEEL, 1/2" MINIMUM SIZE.
6. POWER WIRE SHALL BE COPPER. MINIMUM SIZE SHALL BE #12 AWG. MINIMUM INSULATION RATING SHALL BE R90 TO 90C.
7. CONTROL WIRE SHALL BE AS FURNISHED OR SPECIFIED BY THE EQUIPMENT MANUFACTURER.
8. THE CONTRACTOR SHALL SUBMIT PRIOR TO BEGINNING OF CONSTRUCTION ALL MATERIALS AND EQUIPMENT TESTS. THE CONTRACTOR SHALL FURNISH MANUFACTURER'S DESCRIPTIONS AND SUBMITTALS TO THE ENGINEER FOR REVIEW AND APPROVAL.
9. THE CONTRACTOR SHALL VERIFY AND CONFORM TO ANY ADDITIONAL ELECTRIC UTILITY REQUIREMENTS. ANY ELECTRIC UTILITY INSTALLATION COSTS AND REMEDIATION SERVICE WILL BE THE RESPONSIBILITY OF THE CONTRACTOR.
10. THE COST OF ALL NECESSARY PERMITS, FEES AND INSPECTIONS REQUIRED BY ELECTRIC UTILITY OR ANY PUBLIC AGENCY HAVING JURISDICTION SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR.
11. ALL ELECTRIC MATERIALS AND WORK SHALL CONFORM TO THE LATEST EDITION OF THE NATIONAL ELECTRIC CODE AND SHALL MEET LOCAL AND ELECTRIC UTILITY CODES AND REGULATIONS.



**SECTION
WETWELL TOP SLAB
REINFORCEMENT DETAIL**
SCALE: N.T.S.



**VALVE BOX
TOP SLAB
REINFORCEMENT DETAIL**
SCALE: N.T.S.

**UNDERGROUND SERVICE METER INSTALLATION
ONE PHASE - 240 VOLTS**
SCALE: N.T.S.



INITIAL DESIGN	9-18-04	DATE	FF	FF	FF
	DATE	FOR	PM	DES	DRY
CAVE SPRINGS WASTEWATER TRANSFER SYSTEM - PHASE 1					
		ENGINEERING ASSOCIATES, INC			
ENGINEERS		PLANNERS		SURVEYORS	
3317 SW 1 st Street Bentonville, AR 72712	(479) 273-0472 FAX (479) 273-0444	JOB NO: 20733 DWG NAME: 200707			
		DATE 02-14-06 08-28-06 REV#	SHEET 43 OF 43		
PUMP STATION DETAIL					