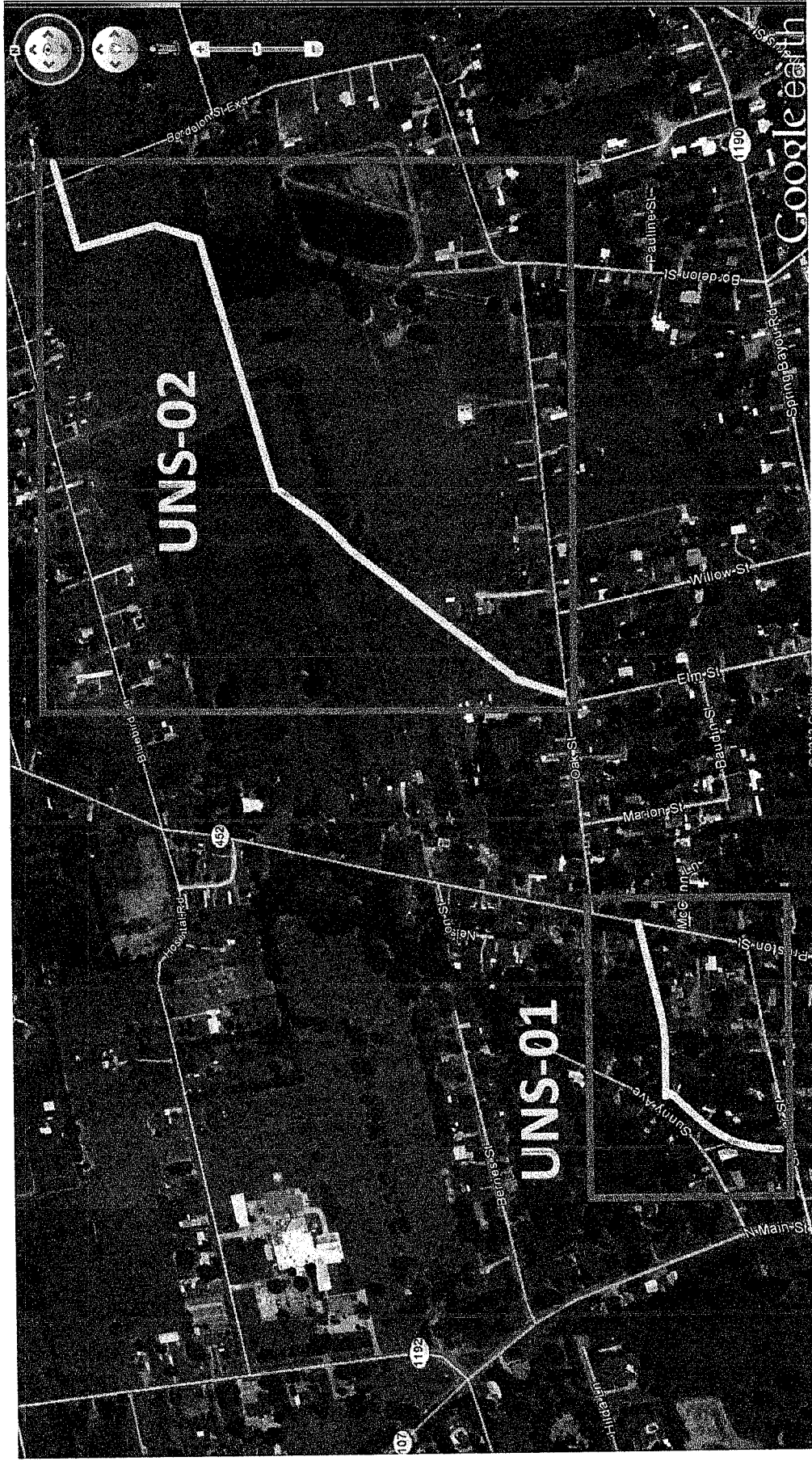


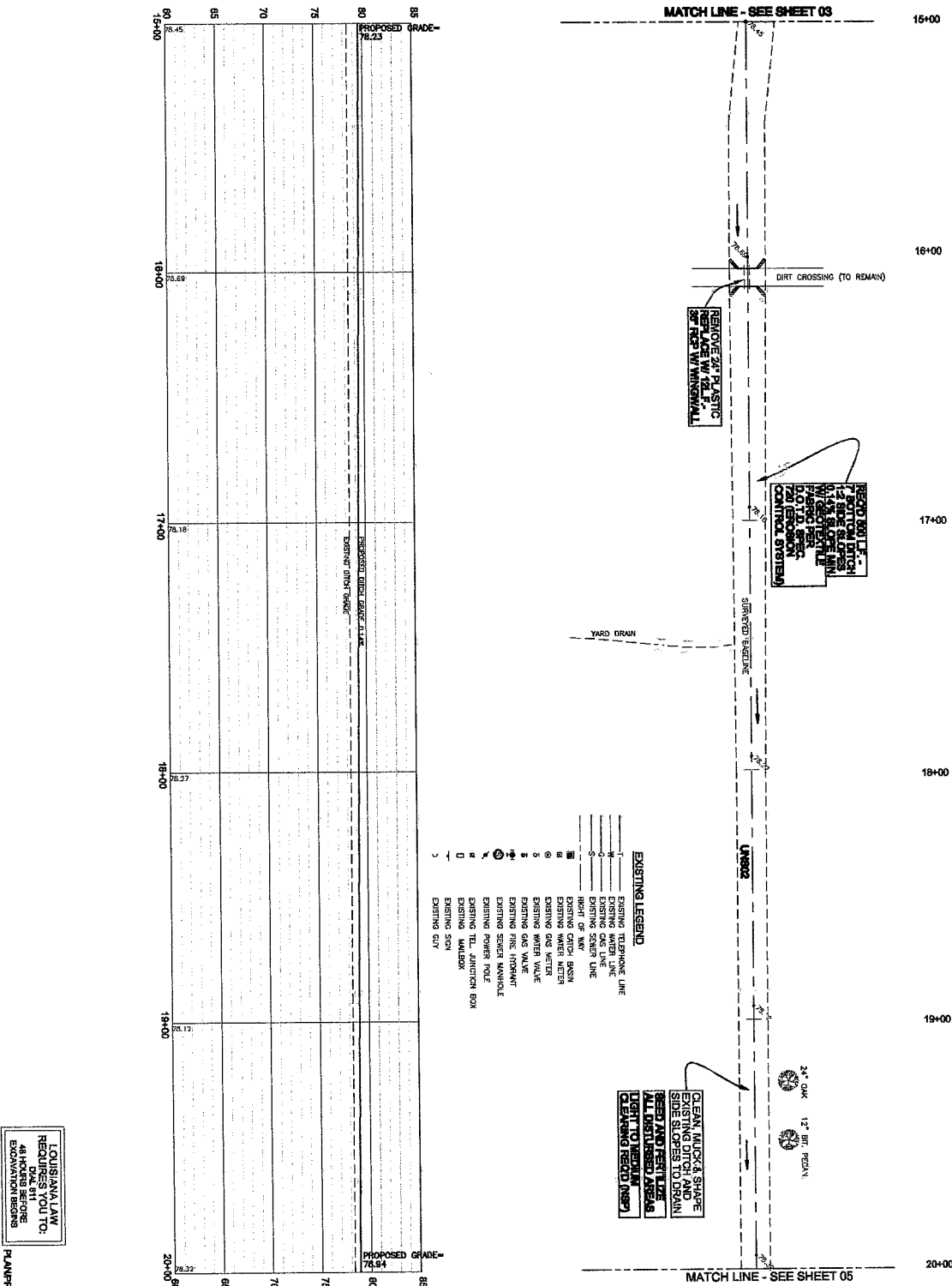


BORREL
ENGINEERING, LLC

Vicinity Map of Bayou Pierite Drainage Project



Yellow notates location of UNS-01 and UNS-02



- EXISTING LEGEND**
- 1. EXISTING TELEPHONE LINE
 - 2. EXISTING WATER LINE
 - 3. EXISTING GAS LINE
 - 4. EXISTING SEWER LINE
 - 5. RIGHT OF WAY
 - 6. EXISTING CATCH BASIN
 - 7. EXISTING MANHOLE
 - 8. EXISTING GAS VALVE
 - 9. EXISTING WATER VALVE
 - 10. EXISTING FUEL TANK
 - 11. EXISTING SEWER MANHOLE
 - 12. EXISTING POWER POLE
 - 13. EXISTING TELL JUNCTION BOX
 - 14. EXISTING MANHOLE
 - 15. EXISTING SIGN
 - 16. EXISTING CULVERT

AREA 1

LOUISIANA LAW
REQUIRES YOU TO:
48 HOURS BEFORE
EXAMINATION

PLAN PROFILE FOR DITCH NO. 2 FROM OAK STREET

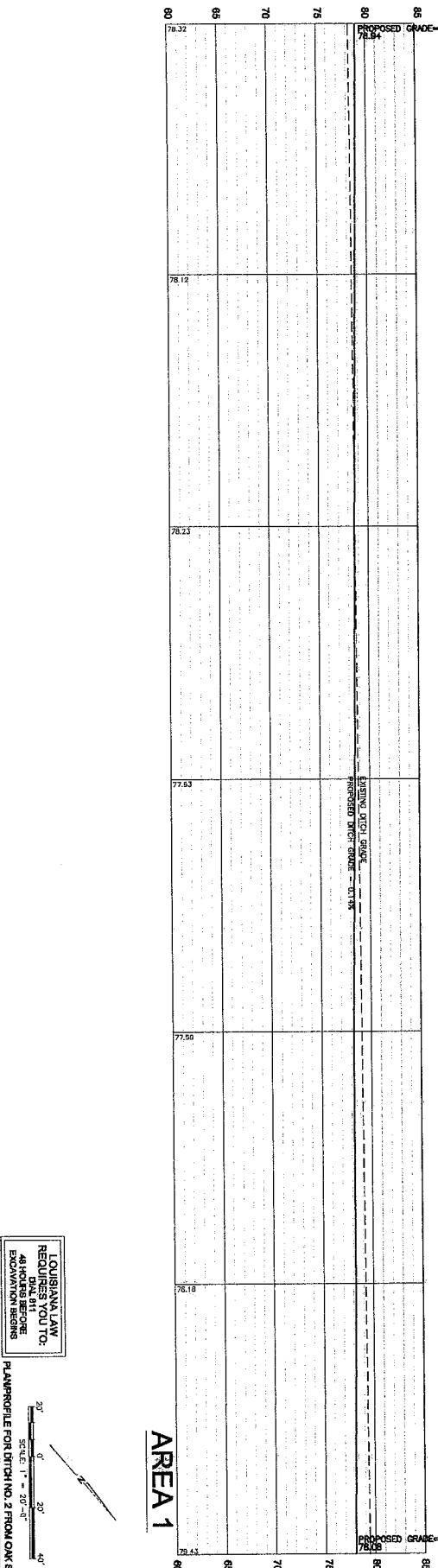
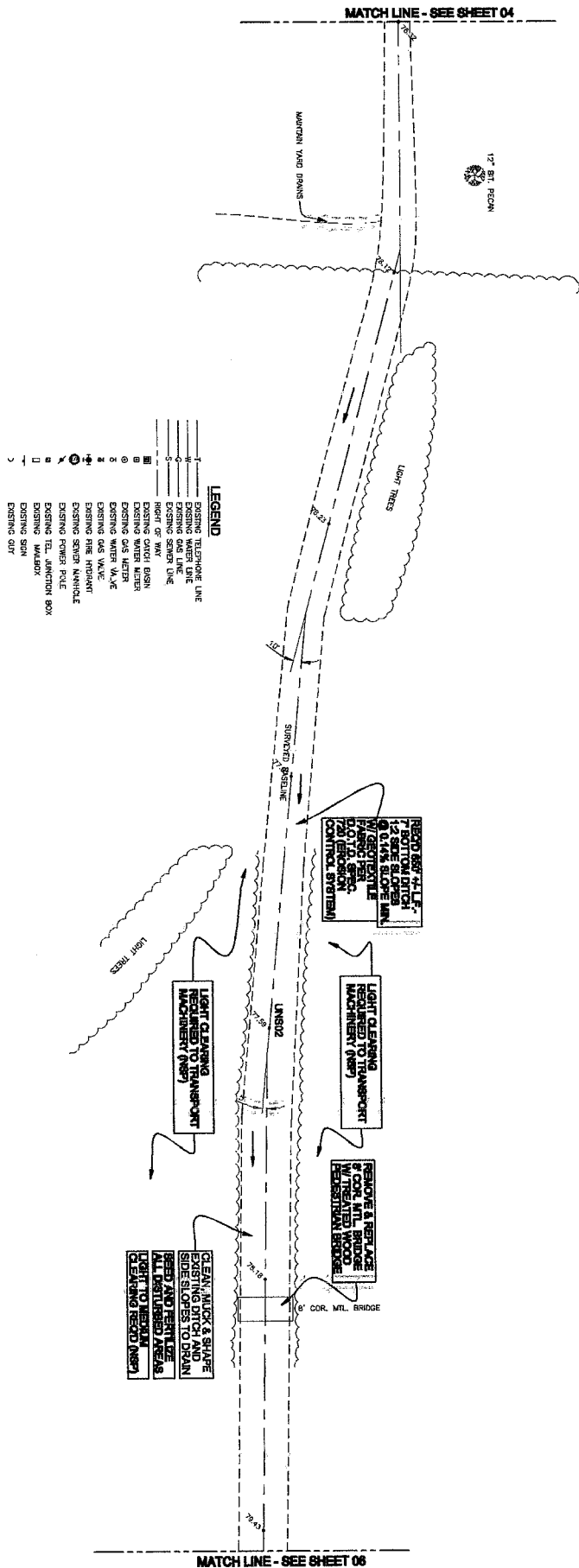
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PROJECT NO. MKV-2011-01
DRAWN BY: R.COPE
APPROVED BY: R.BORREL
ISSUE DATE: MAY 2013
SCALE: AS SHOWN

CITY OF MARKSVILLE, LOUISIANA
BAYOU PIERITE DRAINAGE IMPROVEMENTS

BORREL ENGINEERING, LLC
SEVEN • INTERSTATE 55
MARKSVILLE • LOUISIANA
406 N. MONROE STREET
MARKSVILLE, LOUISIANA 71361
TELEPHONE: (318) 263-0166
FAX: (318) 263-0166

REVISIONS:		
NO.	DESCRIPTION	DATE
1	ISSUED FOR REVIEW	05/20/13



LOUISIANA LAW
REQUIRES YOU TO:
48 HOURS BEFORE
EXCAVATION BEGINS

PLAN PROFILE FOR DITCH NO. 2 FROM OAK STREET

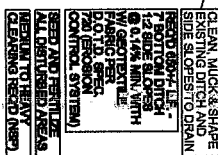
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PROJECT NO. MKV-2011-01
DRAWN BY: R. COPE
APPROVED BY: R. BORREL
ISSUE DATE: MAY 2013
SCALE: AS SHOWN

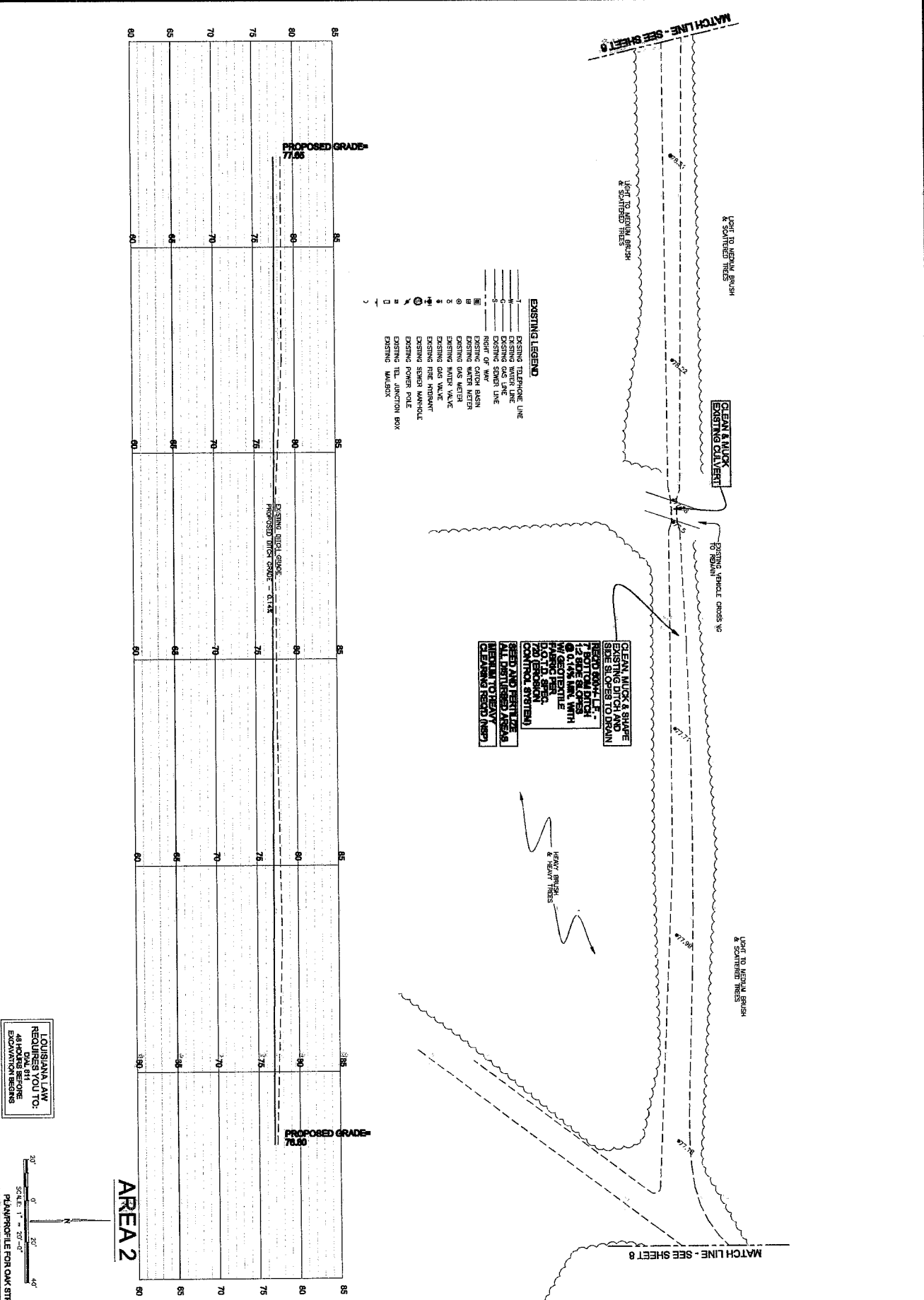
CITY OF MARKSVILLE, LOUISIANA
BAYOU PIERRE DRAINAGE IMPROVEMENTS

BORREL ENGINEERING, LLC
OWNER: MARKSVILLE, LOUISIANA
406 N. MONROE STREET
MARKSVILLE, LOUISIANA 71351
TELEPHONE: (518) 253-0186

REVISIONS:		
NO.	DESCRIPTION	DATE
1	ISSUED FOR REVIEW	05/20/13



AREA 2



LOUISIANA LAW
REQUIRES YOU TO:
DUL, RTI
48 HOURS BEFORE
EXAMINATION

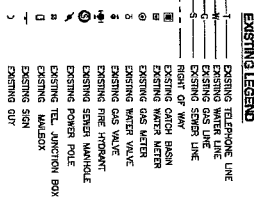
20' 0' 20' 40'
SCALE: 1" = 20'-0"
PLAN/PROFILE FOR OWN STREET

PROJECT NO. MKV-2011-01
DRAWN BY: JSTROTHER
APPROVED BY: R. BORREL
ISSUE DATE: MAY 2013
SCALE: AS SHOWN
SHEET NUMBER
07

CITY OF MARKSVILLE, LOUISIANA
BAYOU PIERRE DRAINAGE IMPROVEMENTS

BORREL ENGINEERING, LLC
OWNER: MARKSVILLE, LOUISIANA
PROJECT: BAYOU PIERRE DRAINAGE IMPROVEMENTS
408 N. MONROE STREET
MARKSVILLE, LOUISIANA 71351
TELEPHONE: (318) 253-0196
FAX: (318) 253-0197

REVISIONS:		
NO.	DESCRIPTION	DATE
1	REQUIRED FOR REVIEW	05/03



<p>CLEAN, MUCK & SHAPE EXISTING DITCH AND SIDE SLOPES TO DRAIN</p>	<p>REED 6004, L.F. - 1" BOTTOM DITCH 12 SIDE SLOPES @ 0.14% MIN. WITH W/ GEOTEXTILE FABRIC PER D.O.T. SPEC. 723 (GEOBON CONTROL SYSTEM)</p>
<p>SEED AND FERTILIZE ALL DISTURBED AREAS RETURN TO HEAVY CLEARING REED (N87)</p>	

REVISIONS:		
APP. NO.	DESCRIPTION	DATE
1	ISSUED FOR REVIEW	5/20/13



PLAN/PROFILE FOR OAK

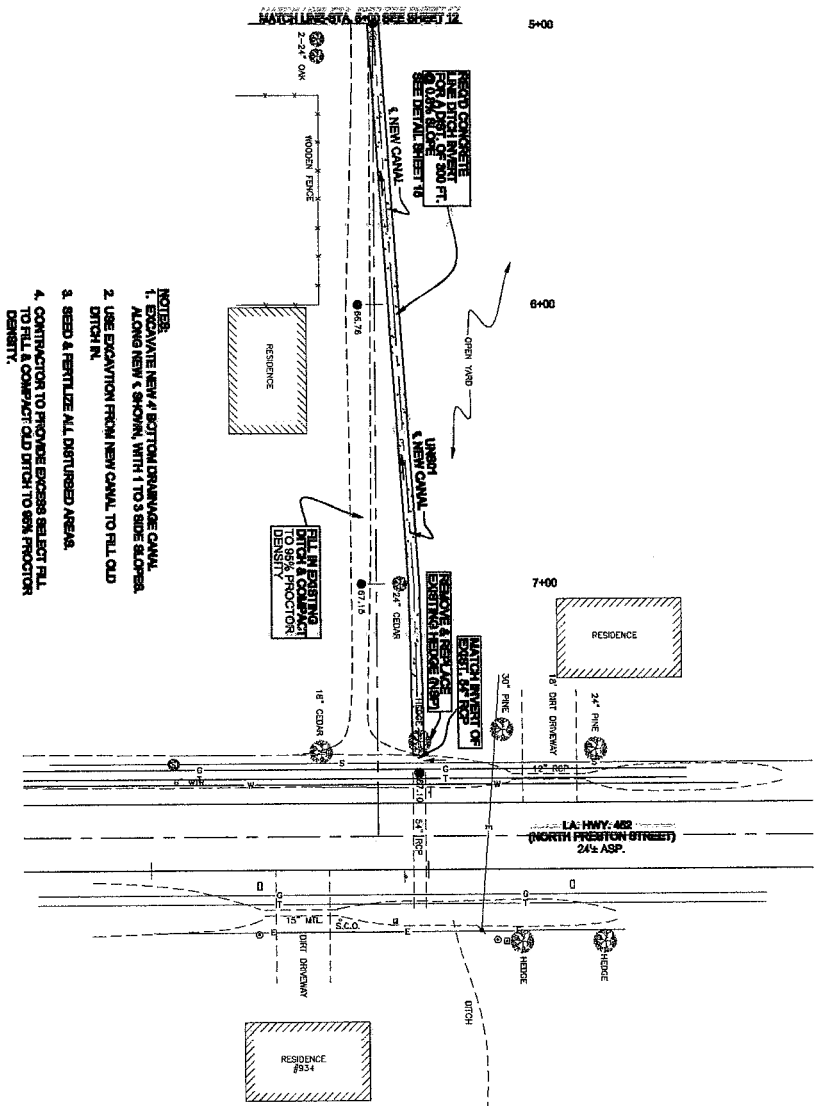


09
Of 20

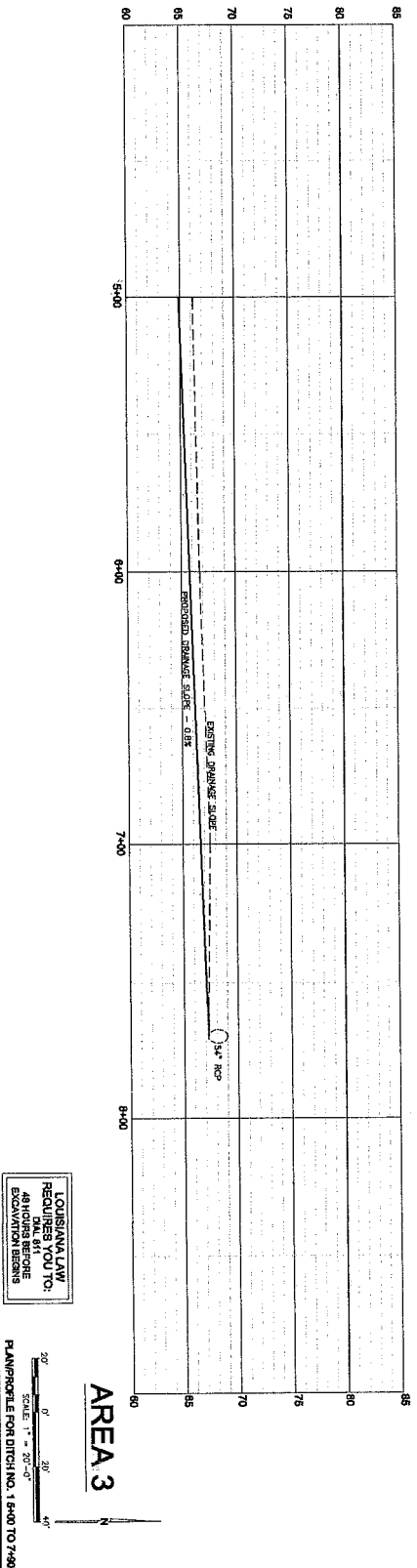
BORREL ENGINEERING, LLC
CIVIL • ENVIRONMENTAL
STRUCTURAL • PROCESS
406 N. MONROE STREET
MARKSVILLE, LOUISIANA 71351
TELEPHONE: (318) 253-0196

REVISIONS:		
NO.	DESCRIPTION	DATE
1	ISSUED FOR REVIEW	5/20/13

- EXISTING LEGEND**
- EXISTING TELEPHONE LINE
 - EXISTING GAS LINE
 - EXISTING WATER LINE
 - EXISTING SEWER LINE
 - EXISTING CATCH BASIN
 - EXISTING GAS METER
 - EXISTING WATER METER
 - EXISTING GAS VALVE
 - EXISTING WATER VALVE
 - EXISTING SEWER MANHOLE
 - EXISTING POWER POLE
 - EXISTING TEL. JUNCTION BOX
 - EXISTING MAILBOX
 - EXISTING SIGN
 - EXISTING DIRT



- NOTES:**
1. EXCAVATE NEW 4' BOTTOM DRAINAGE CANAL ALONG NEW 1:1 SLOPE, WITH 1 TO 3 SIDE SLOPE.
 2. USE EXCAVATION FROM NEW CANAL TO FILL OLD DITCH IN.
 3. SEED & FERTILIZE ALL DISTURBED AREA.
 4. CONTRACTOR TO PROVIDE EXCESS SELECT FILL TO FILL & COMPACT OLD DITCH TO NEW PROPORTION DENSITY.

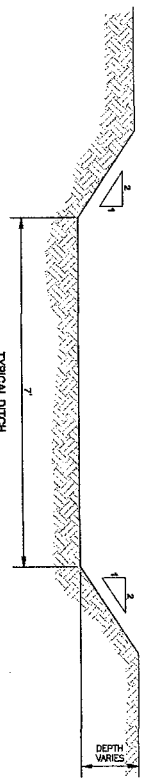


LOUISIANA LAW
REQUIRES YOU TO
48 HOURS BEFORE
EXCAVATION BEGINS

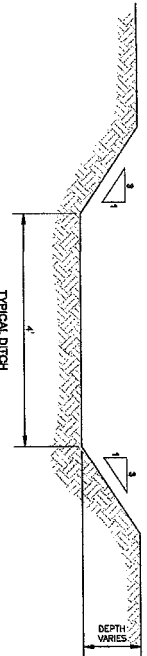
SCALE: 1" = 20'-0"
PLAN/PROFILE FOR DITCH NO. 1 5+00 TO 7+00

PROJECT NO. MKV-2011-01 DRAWN BY: R. COPE APPROVED BY: R. BORREL ISSUE DATE: MAY 2013 SCALE: AS SHOWN	CITY OF MARKSVILLE, LOUISIANA BAYOU PIERITE DRAINAGE IMPROVEMENTS	BORREL ENGINEERING, LLC CIVIL & ENVIRONMENTAL 406 N. MONROE STREET MARKSVILLE, LOUISIANA 71351 TELEPHONE: (318) 253-0186 FAX: (318) 253-0157	REVISIONS:	
			NO. DESCRIPTION DATE 1 ISSUED FOR REVIEW 5/20/13	

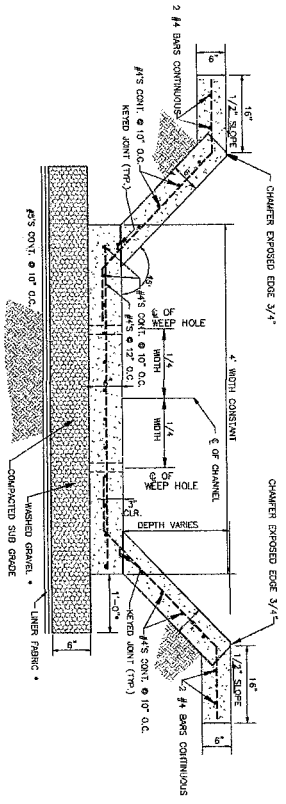
SHEET NUMBER
13
OF 20



TYPICAL DITCH SECTION DETAIL
N.T.S.



TYPICAL DITCH SECTION DETAIL
N.T.S.



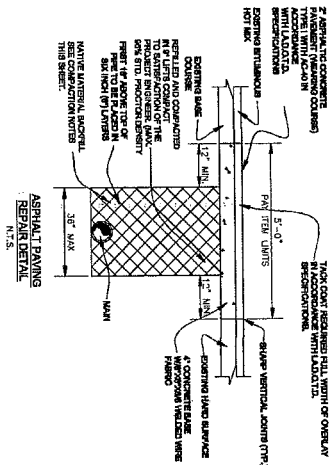
SECTION
SCALE 1" = 1'-0"

NOTES:

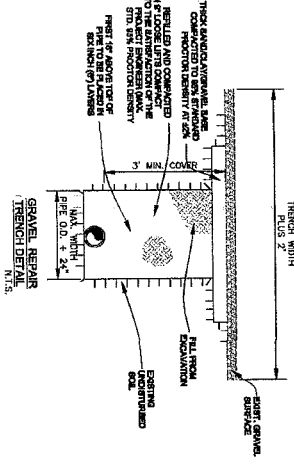
1. REQUIRED 2" - 3" DIAMETER WEIR HOLES @ 10' - 0" O.C. PERFORMED AS SHOWN IN THE SECTION. DIRECTLY BELOW THE WEIR HOLES, BETWEEN THE CONCRETE AND FILTER CLOTH PER SECTION 10B.13 OF THE LATEST STANDARD SPECIFICATIONS FOR ROADS AND BRIDGES, LATEST EDITION.
2. THE WALLS OF THE REINFORCED CONCRETE CHANNEL HAVE BEEN DESIGNED FOR THE LATEST STANDARD SPECIFICATIONS FOR ROADS AND BRIDGES, LATEST EDITION. ALSO THE 16' LONG 4' WIDE CHANNEL HAS NOT BEEN DESIGNED FOR LOADING OF ANY KIND SUCH AS TRAFFIC ALONG THE SIDE OF THE CHANNEL. DESIGN LOADS ARE NOT TO BE APPLIED TO THE CHANNEL.
3. 2" - 4" LAYER OF WASHED GRAVEL AND 1 LAYER OF LINER FABRIC SHALL BE PLACED UNDER ALL DRAINAGE STRUCTURES AND EXTEND 1' - 0" PAST THE OUTER EDGE OF EACH DRAINAGE STRUCTURE.

GENERAL NOTES:

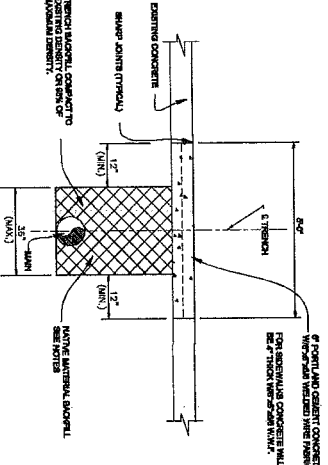
1. TRENCH BACKFILL SHALL BE PLACED IN LIFTS NOT TO EXCEED 6" IN COMPACTED THICKNESS. MATERIAL SHALL BE COMPLETELY COMPACTED WITH APPROVED EQUIPMENT BEFORE THE NEXT LAYER IS ADDED. BACKFILL SHALL BE COMPACTED TO THE SAME DENSITY OF THE ADJACENT EXISTING MATERIAL. LA D.O.T. METHOD TR-418 & THE IN PLACE DENSITY DETERMINED BY THE LA D.O.T. METHOD TR-401.
2. THE TOP OF THE TRENCH BACKFILL SHALL BE COMPACTED TO 95% OF MAX. DENSITY. MAXIMUM DENSITY SHALL BE DETERMINED IN ACCORDANCE WITH THE LA D.O.T. METHOD TR-418 & THE IN PLACE DENSITY DETERMINED BY LA D.O.T. METHOD TR-401.
3. AT THE TIME OF BACKFILL, ALL TRENCH BACKFILL MATERIAL SHALL BE AS CLOSE AS POSSIBLE TO OPTIMUM MOISTURE BEFORE COMPACTION.



TRENCH WITH R.O.G. 2'
N.T.S.



GRAVEL REPAIR TRENCH DETAIL
N.T.S.



CONCRETE SURFACE REPAIR TRENCH DETAIL
N.T.S.

LOUISIANA LAW
REQUIRES YOU TO:
48 HOURS BEFORE
EXAMINATION BEGINS

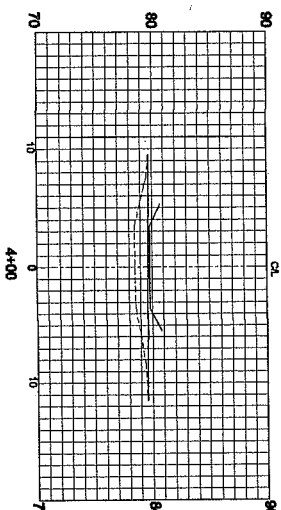
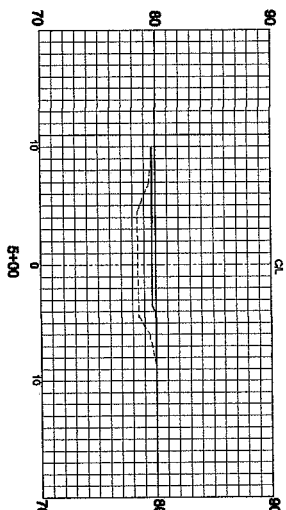
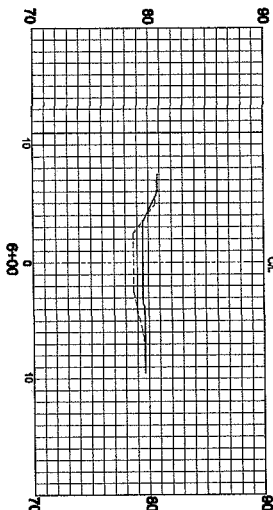
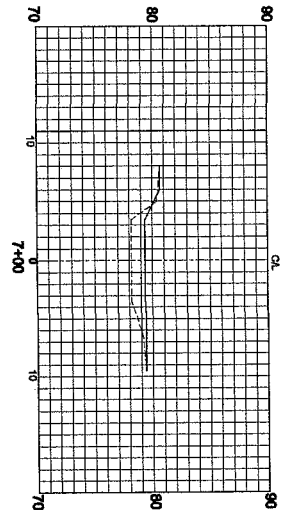
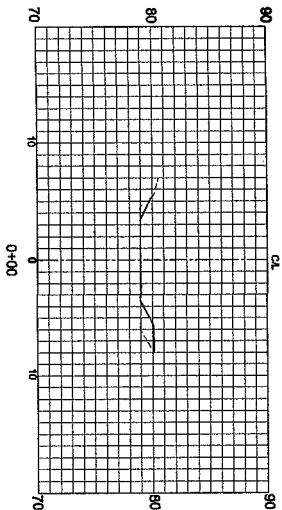
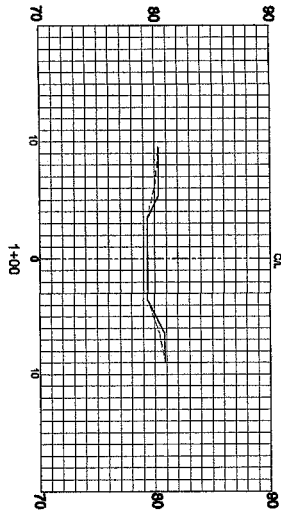
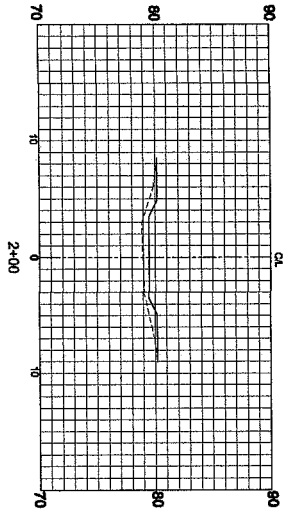
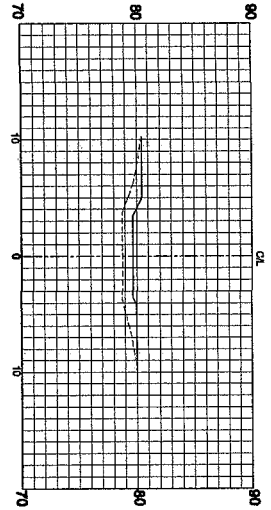
PROJECT NO. 2011-04-01
DRAWN BY: J. STROTHER
APPROVED BY: R. BORREL
ISSUE DATE: MAY 2013
SCALE: AS SHOWN

CITY OF MARKSVILLE, LOUISIANA
BAYOU PIERRE DRAINAGE IMPROVEMENTS

BORREL ENGINEERING, LLC
406 N. MONROE STREET
MARKSVILLE, LOUISIANA 71351
TELEPHONE: (518) 253-0198
FAX: (318) 253-0157

REVISIONS:		
NO.	DESCRIPTION	DATE
1	ISSUED FOR REVIEW	6/2013

NOTE:
 1. ALL ELEVATIONS ARE BASED ON AN ASSUMED TBM ELEVATION OF 100.00 TOP OF 48" CULVERT ON OAK ST. (SH. 3)
 2. CROSS SECTIONS START AT OAK ST. SHEET 3 AND CONTINUE FOR 1500 FEET.



LOUISIANA LAW
 REQUIRES YOU TO
 OBTAIN A LICENSE
 AS A PROFESSIONAL
 ENGINEER BEFORE
 EXERCISING THESE
 FUNCTIONS

REVISIONS:		
NO.	DESCRIPTION	DATE
1	ISSUED FOR REVIEW	5/20/13

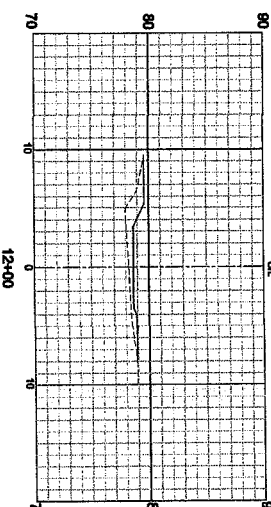
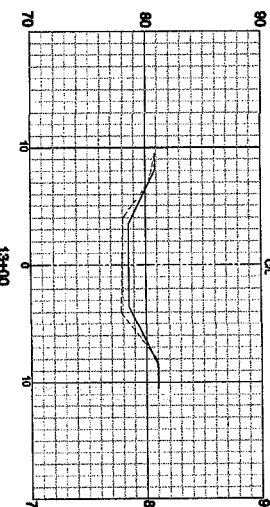
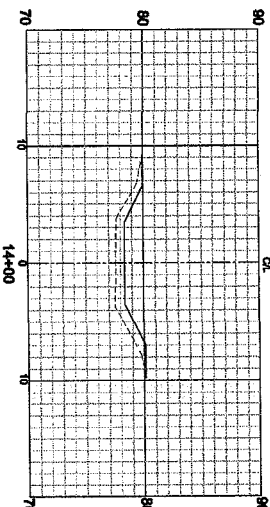
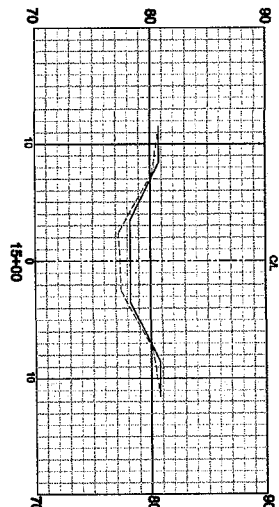
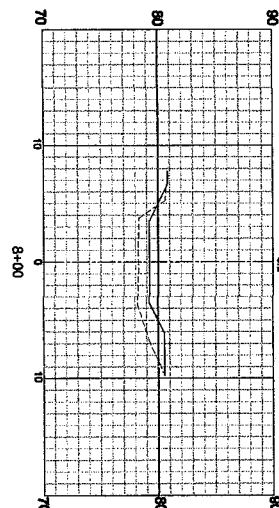
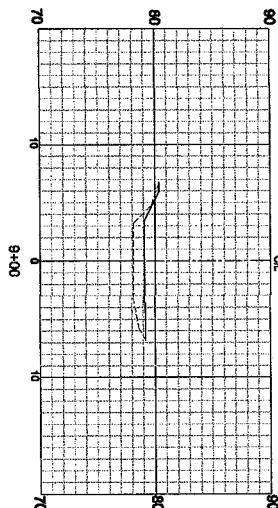
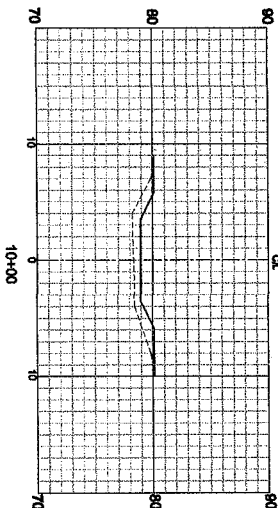
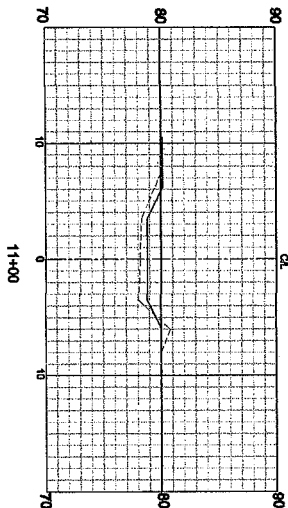
RENE BORREL
 CONSULTING ENGINEER, LLC
 406 N. MONROE STREET
 MARKSVILLE, LOUISIANA 71351
 TELEPHONE: (516) 253-0186
 FAX: (516) 253-0157

CITY OF MARKSVILLE, LOUISIANA
 BAYOU PIERRE DRAINAGE IMPROVEMENTS

PROJECT NO. MKV-2011-01
 DRAWN BY: J. STROTHER
 APPROVED BY: R. BORREL
 ISSUE DATE: 03/2013
 SCALE: AS SHOWN

XS-1
 SHEET NUMBER
 OF 25

NOTE:
 1. ALL ELEVATIONS ARE BASED ON AN ASSUMED TBM ELEVATION OF 100.00
 TOP OF 48" CULVERT ON OAK ST. (SH. 3)
 2. CROSS SECTIONS START AT OAK ST.
 SHEET 3 AND CONTINUE FOR 1500 FEET.



LOUISIANA
 REGISTERED PROFESSIONAL ENGINEER
 NO. 48104
 EXPIRATION DATE 12/31/2011

REVISIONS:		
NO.	DESCRIPTION	DATE
1	ISSUED FOR REVIEW	6/20/13

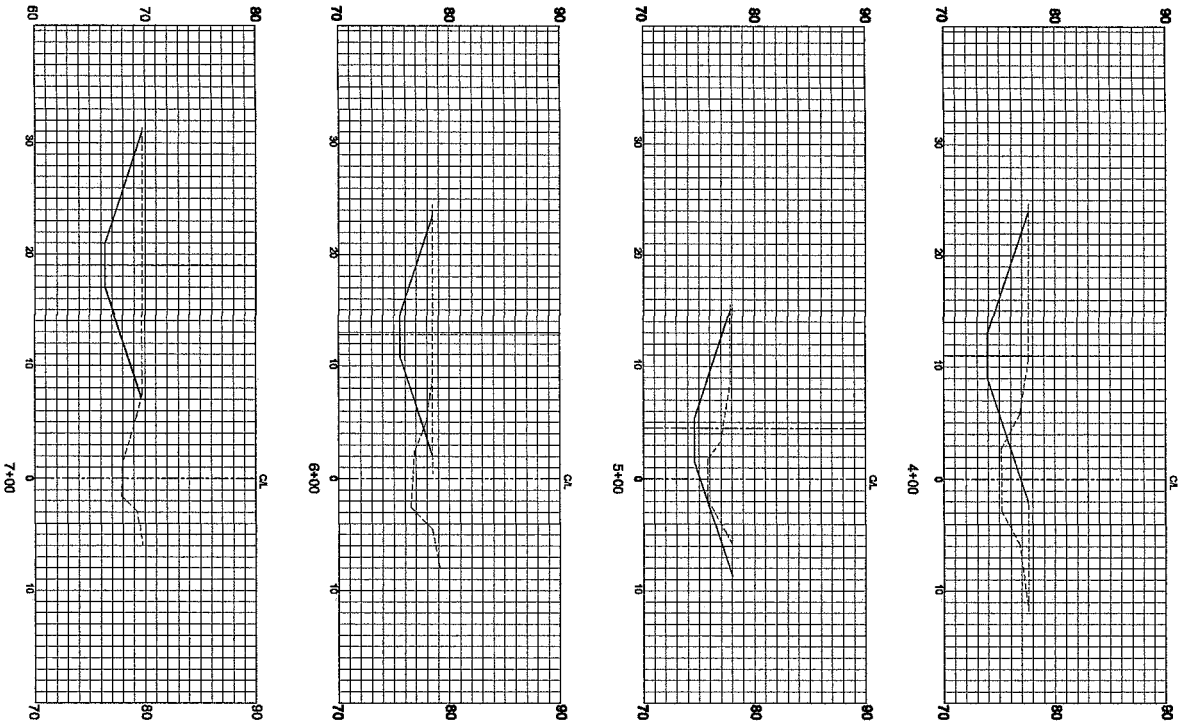
RENE BORREL
CONSULTING ENGINEER, LLC
 408 N. MONROE STREET
 MARKSVILLE, LOUISIANA 71351
 TELEPHONE: (318) 253-0196
 FAX: (318) 253-0157
www.reneborrel.com

CITY OF MARKSVILLE, LOUISIANA
 BAYOU PIERRE DRAINAGE IMPROVEMENTS

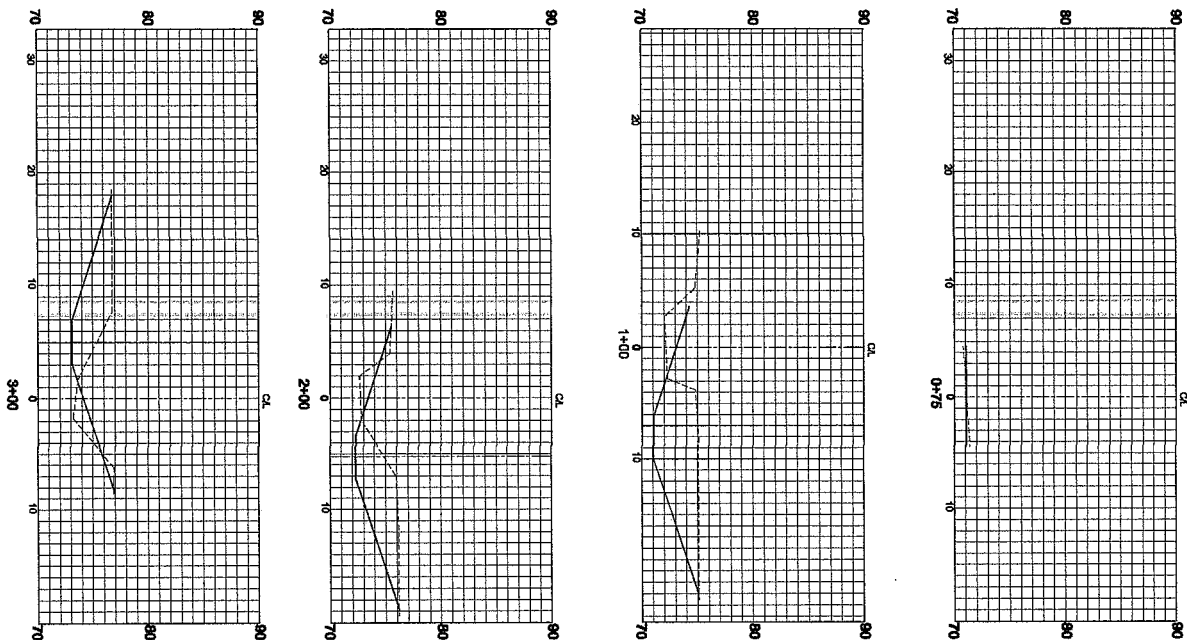
PROJECT NO. MKV-2011-01
 DRAWN BY: J. STROTHER
 APPROVED BY: R. BORREL
 ISSUE DATE: XXXXXXXX
 SCALE: AS SHOWN

XS-2
 SHEET NUMBER
 OF 25

NOTE:
 1. ALL ELEVATIONS ARE BASED ON AN ASSUMED TBM ELEVATION OF 100.00 TOP OF 18" CULVERT ON OAK ST. (SH. 3).
 2. CROSS SECTIONS START AT HWY 452 (SHEET 13) AND CONTINUE FOR 700 FEET TO SUNNY AVE. TO STA. 0+75.



LOUISIANA LAW
 REQUIRES YOU TO
 48 HOURS BEFORE
 EXCAVATION BEGINS



XS-3
 SHEET NUMBER
 OF 25

PROJECT NO. MKV-2011-01
 DRAWN BY: JSTROTHER
 APPROVED BY: R.BORREL
 ISSUE DATE: 05/2013
 SCALE: AS SHOWN

CITY OF MARKSVILLE, LOUISIANA
 BAYOU PIERRE DRAINAGE IMPROVEMENTS

RENE BORREL
 CONSULTING ENGINEER, LLC
 406 N. MONROE STREET
 MARKSVILLE, LOUISIANA 71351
 TELEPHONE: (318) 253-0166
 FAX: (318) 253-0167
 www.borrelengineering.com

REVISIONS:		
NO.	DESCRIPTION	DATE
1	ISSUED FOR REVIEW	02/03