COMMUNITY RESOURCES, INC.
PHASE TWO
AN ADDITION TO THE TOWN OF MUNSTER, LAKE COUNTY, INDIANA

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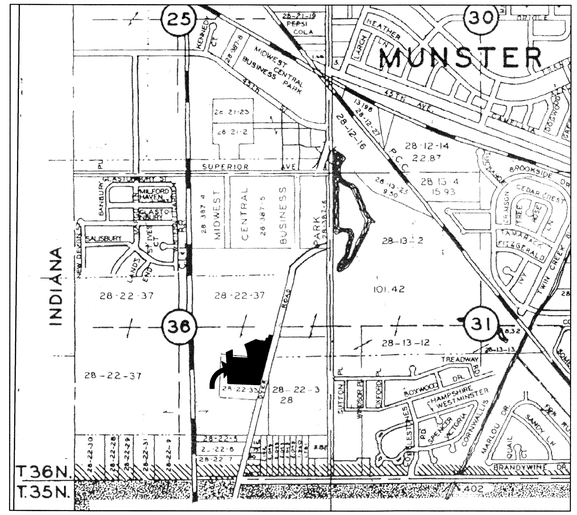

VICINITY MAP

HOLEY MOLEY SAYS

"DIG SAFELY"

"IT'S THE LAW"

CALL 2 WORKING DAYS BEFORE YOU DIG

1-800-382-5544

CALL TOLL FREE

PER INDIANA STATE LAW IC8-1-26, IT IS AGAINST THE LAW TO EXCAVATE WITHOUT NOTIFYING THE UNDERGROUND LOCATION SERVICE TWO (2) WORKING DAYS BEFORE COMMENCING WORK.

County: *Lake*

Part of Fractional, Sec. *36* **, T.** *36* **N, R.** *10* **W.**

Township: *North*

DRAWING SET PROGRESS:

- ☒ PRELIMINARY ENGINEERING - FOR REVIEW / APPROVAL
- ☐ FINAL ENGINEERING - FOR CONSTRUCTION

Date and Revisions:

NO.	DATE	DESCRIPTION	BY
2	03-13-2008	SUBMITTAL TO THE TOWN ENGINEER	LP/EM/AA
1	01-10-2008	1ST SUBMITTAL TO THE TOWN OF MUNSTER	DT/LP/EM/AA

CLIENT/DEVELOPER:
COMMUNITY RESOURCES, INC.
905 Ridge Road
Munster, Indiana 46321

PREPARED BY:
Torrenga Engineering, Inc.
907 Ridge Road
Munster, Indiana 46321
(219)836-8918

CERTIFIED BY: GARY P. TORRENGA
P.E. # 18376
L.S. # S0514

GARY P. TORRENGA REGISTERED No. S0514 STATE OF INDIANA LAND SURVEYOR

GARY P. TORRENGA REGISTERED No. 18376 STATE OF INDIANA PROFESSIONAL ENGINEER

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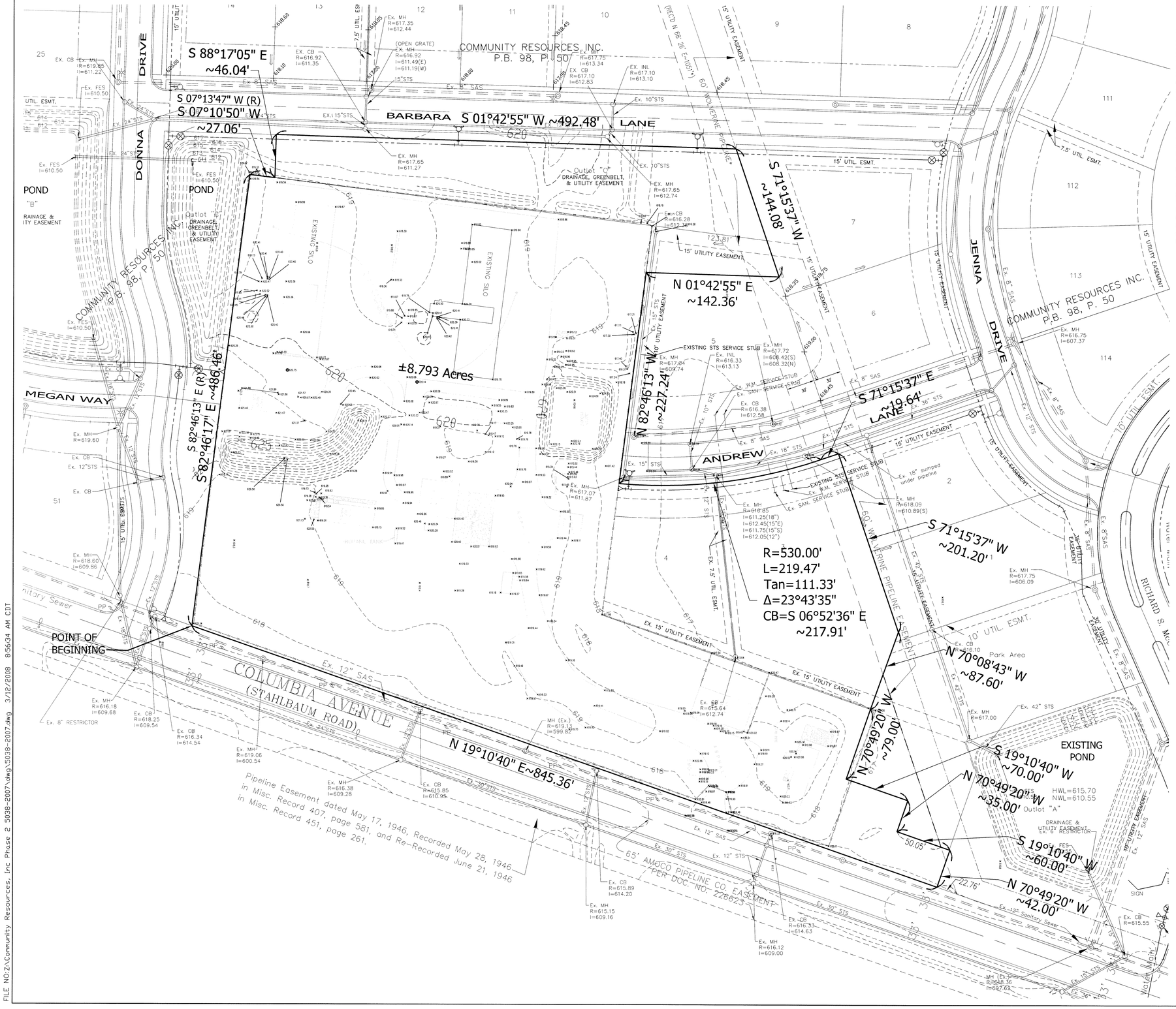
COMMUNITY RESOURCES, INC.
PHASE TWO
AN ADDITION TO THE TOWN OF MUNSTER, LAKE COUNTY, INDIANA

LEGAL DESCRIPTION:
That part of Fractional Section 36, Township 36 North, Range 10 West of the Second Principal Meridian, and also Lots 3, 4 and part of Lot 5 and Outlot "C" in Community Resources, Inc. an Addition to the Town of Munster as shown in Plat Book 98, page 50 in the Office of the Recorder of Lake County, Indiana, more particularly described as follows: Beginning at the Northeasterlymost corner of Outlot "C" in said Community Resource, Inc., and also being a point on the Westerly Right-of-Way line of Columbia Avenue (66 feet wide); thence North 19°10'40" East along said Westerly Right-of-Way line of Columbia Avenue, a distance of 845.36 feet to the Southeast corner of Outlot "A" in said Community Resource, Inc.; thence North 70°49'20" West along the South line of said Outlot "A", a distance of 42.00 feet; thence continuing along the South line of Park Area in said Community Resources, Inc. as described in the next four (4) calls, South 19°10'40" West, a distance 60.00 feet; North 70°49'20" West, a distance 35.00 feet; South 19°10'40" West, a distance 70.00 feet; North 70°49'20" West, a distance 79.00 feet; thence North 70°08'43" West along the South line of said Park Area and Lot 1 in said Community Resources, Inc., a distance 87.60 feet to a point of deflection on said South line of Lot 1; thence South 71°15'37" West along the South line of said Lot 1 and Lot 2 in said Community Resources, Inc., a distance 201.20 feet to a point on the West Right-of-Way line of Andrew Lane (60 feet wide) as shown in said Community Resources, Inc.; thence South 18°44'23" East along said West Right-of-Way line, a distance of 19.64 feet to a point of curve on said West Right-of-Way line of Andrew Lane; thence Southerly along said West Right-of-Way line along a curve which is concave to the West, having a radius of 530.00 feet (the chord of which bears South 06° 52' 36" East, a chord distance of 217.91 feet) an arc distance of 219.47 feet to a point on the extended South line of Lot 5 in said Community Resources, Inc.; thence North 82°46'13" West along said South line of Lot 5, a distance of 227.24 feet; thence North 01°42'55" East, a distance of 142.36 feet to a point on the South line of Lot 7 in said Community Resource, Inc.; thence South 71°15'37" West along said South line of Lot 7, a distance of 144.08 feet to a point on the East Right-of-Way line of Barbara Lane (60 feet wide) as shown in said Community Resources, Inc.; thence South 01°42'55" West along said East Right-of-Way line of Barbara Lane, a distance of 492.48 feet; thence South 88°17'05" East, a distance of 46.04 feet to a point on the East line of Outlot "C" in said Community Resources, Inc.; thence South 07°13'47" West (South 07°13'47" West Recorded) along said East line of Outlot "C", a distance of 27.06 feet; thence South 82°46'17" East (South 82°46'13" East Recorded) along the North line of said Outlot "C", a distance of 486.46 feet to the point of beginning, containing 8.793 acres, more or less, all in the Town of Munster, Lake County, Indiana.



LEGEND
EXISTING

- WATER MAIN
- WATER VALVE
- FIRE HYDRANT
- SANITARY SEWER
- SANITARY MH
- STORM SEWER
- STORM MH/CB/INL
- GRADES
- STREET LIGHT
- CONTOUR

MAGNETIC

GRAPHIC SCALE

50 0 25 50 100 200

(IN FEET)
1 inch = 50 ft.

GARY P. TORRENGA REGISTERED No. S0514 STATE OF INDIANA LAND SURVEYOR

GARY P. TORRENGA REGISTERED No. 18376 STATE OF INDIANA PROFESSIONAL ENGINEER

TORRENGA ENGINEERING, INC.
CONSULTING ENGINEERS & LAND SURVEYORS
907 RIDGE ROAD, MUNSTER, INDIANA 46321
Tel. No.: (219) 836-8918 website: www.torrenga.com

COMMUNITY RESOURCES, INC.
PHASE TWO
EXISTING TOPOGRAPHY & UTILITIES

03-13-2008 REVISIONS:
DATE: 01-10-2008

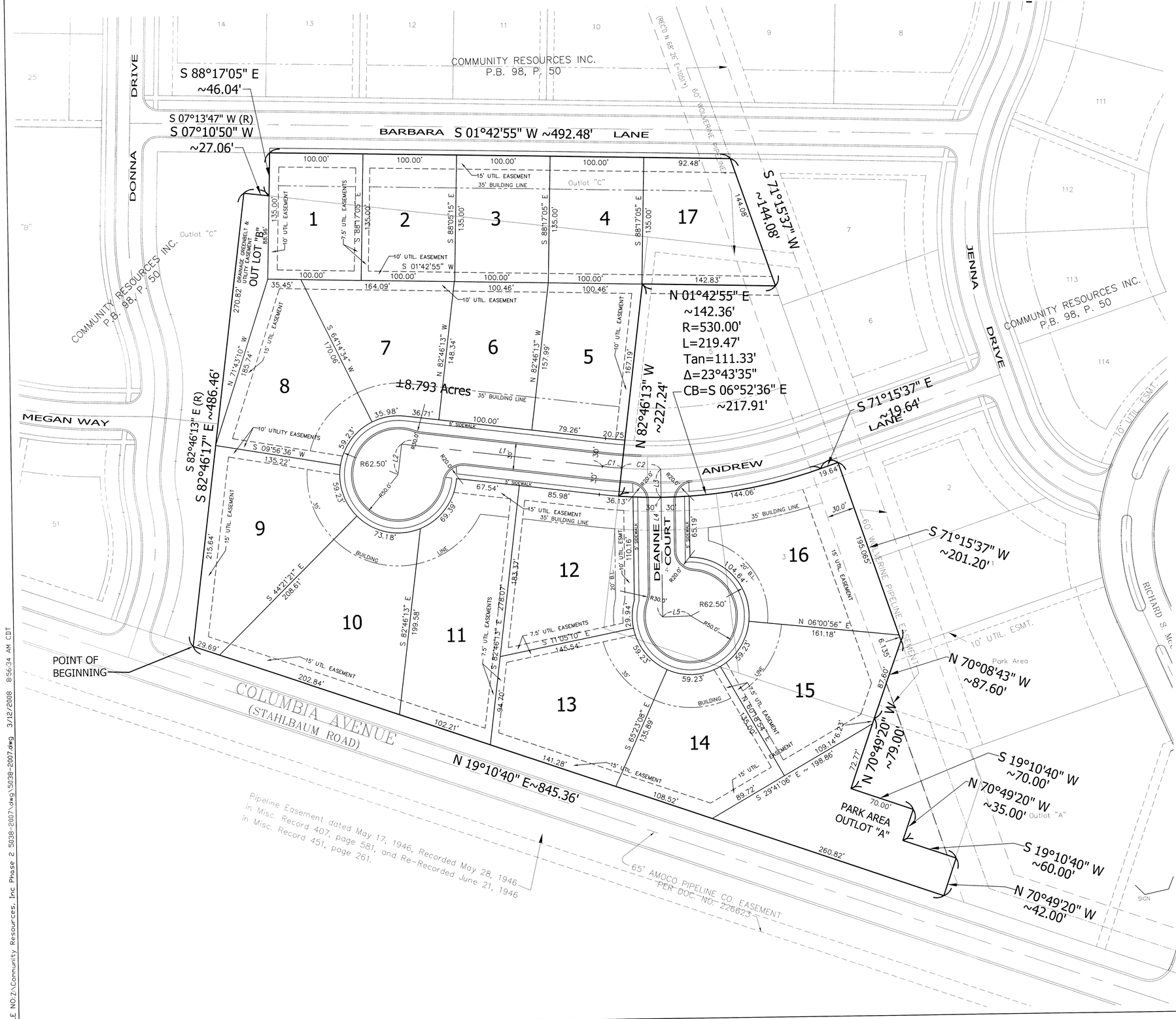
CLIENT:
Community Resources, Inc.
905 Ridge Road
Munster, Indiana 46321

JOB NO: 5038-2007
SCALE: 1" = 50'

SHEET
2 OF 11

FILE NO:Z:\Community Resources, Inc Phase 2 5038-2007\dwg\5038-2007.dwg 3/12/2008 8:56:34 AM CDT

COMMUNITY RESOURCES, INC.
PHASE TWO
AN ADDITION TO THE TOWN OF MUNSTER, LAKE COUNTY, INDIANA



LINE TABLE		
LINE	LENGTH	BEARING
L1	215.97'	N 07°13'47" E
L2	31.50'	N 82°46'13" W
L3	30.00'	N 89°55'15" W
L4	127.52'	N 89°55'15" W
L5	30.00'	N 01°13'41" W

CURVE TABLE					
CURVE	LENGTH	RADIUS	DELTA	CHORD BEARING	CHORD
C1	20.75'	500.00'	2°22'40"	N 06°02'27" E	20.75'
C2	41.65'	500.00'	4°46'22"	N 02°27'56" E	41.64'

MAGNETIC

GRAPHIC SCALE

50 0 25 50 100 200

(IN FEET)

1 inch = 50 ft.

TORRENGA ENGINEERING, INC.
CONSULTING ENGINEERS & LAND SURVEYORS
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Tel. No.: (219) 836-8918
website: www.torrenga.com

COMMUNITY RESOURCES, INC.
PHASE TWO
LOT LAYOUT

03-13-2008
REVISIONS:
DATE: 01-10-2008

GARY P. TORRENGA REGISTERED No. 18376 STATE OF INDIANA PROFESSIONAL ENGINEER

CLIENT:
Community Resources, Inc.
905 Ridge Road
Munster, Indiana 46321

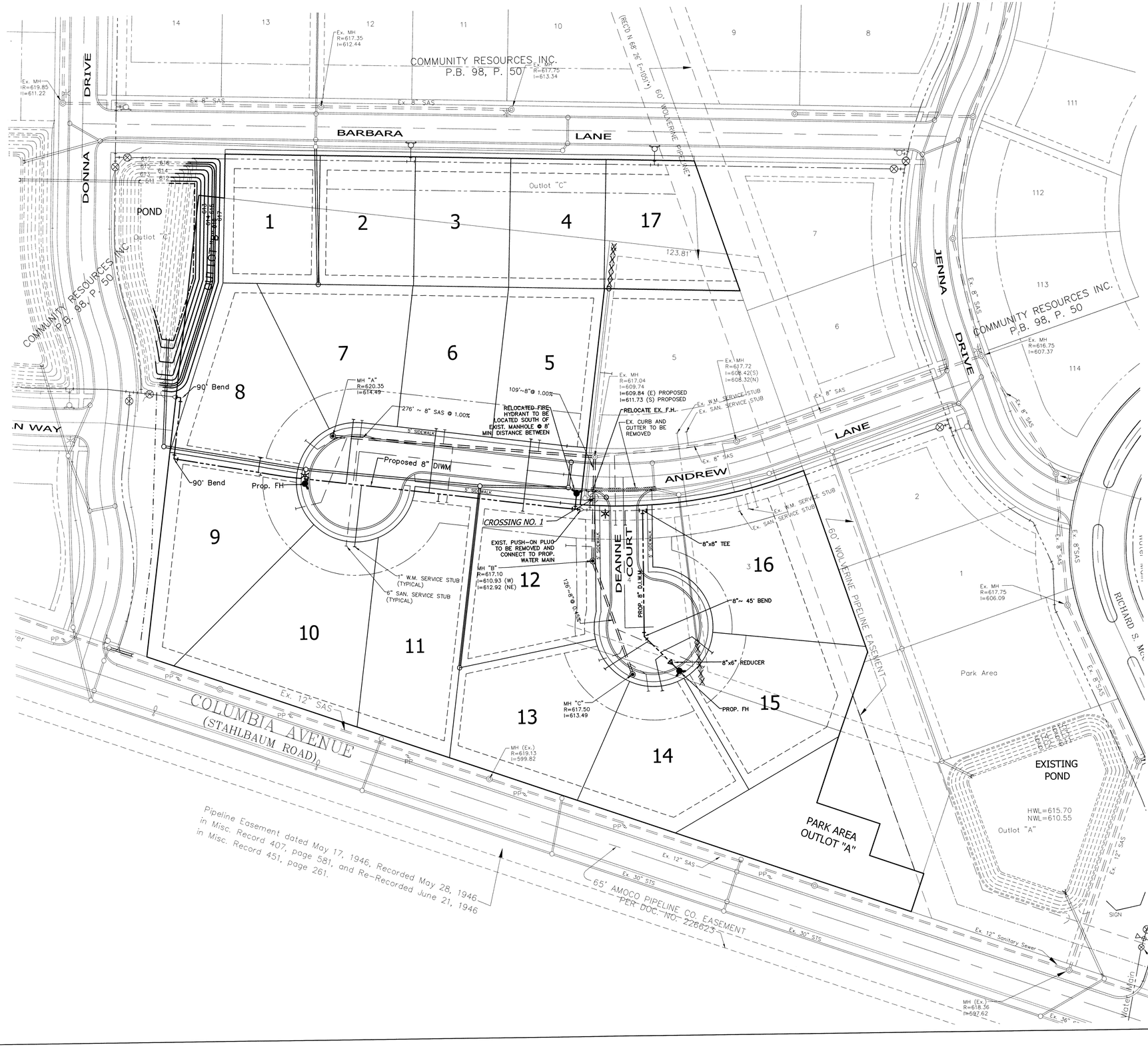
JOB NO: 5038-2007

SCALE: 1" = 50'

SHEET
3 OF 11

FILE NO:Z:\Community Resources, Inc Phase 2 5038-2007\dwg\5038-2007.dwg 3/12/2008 8:56:34 AM CDT

COMMUNITY RESOURCES, INC.
PHASE TWO
AN ADDITION TO THE TOWN OF MUNSTER, LAKE COUNTY, INDIANA



PIPE CROSSING SCHEDULE

CROSSING NO.	PIPE & TYPE SIZE	TOP OF PIPE	BOTTOM OF PIPE	PIPE & TYPE SIZE	TOP OF PIPE	BOTTOM OF PIPE	CLEARANCE BETWEEN PIPES
1	8" SAS I=610.28	610.97	610.26	15" STS I=611.86	613.36	611.61	0.64'

LEGEND
EXISTING

- WATER MAIN
- WATER VALVE
- FIRE HYDRANT
- SANITARY SEWER
- SANITARY MH
- STORM SEWER
- STORM MH/CB/INL
- GRADES
- STREET LIGHT

LEGEND
PROPOSED

- WATER MAIN
- FIRE HYDRANT
- WATER VALVE
- BEND (90°, 45°, 22.5°)
- TEE
- STREET LIGHT
- SANITARY SEWER
- SANITARY MANHOLE
- STORM SEWER
- STORM MH/CB/INL

MAGNETIC

GRAPHIC SCALE

50 0 25 50 100 200

(IN FEET)
1 inch = 50 ft.

GARY P. TORRENGA
REGISTERED
No. 18376
STATE OF INDIANA
PROFESSIONAL ENGINEER

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Tel. No.: (219) 836-8918
website: www.torrenga.com

COMMUNITY RESOURCES, INC.
PHASE TWO
SANITARY SEWERS, WATER MAIN
AND STREET LIGHT

03-13-2008 REVISIONS: DATE: 01-10-2008

CLIENT:
Community Resources, Inc.
905 Ridge Road
Munster, Indiana 46321

JOB NO: 5038-2007

SCALE: 1" = 50'

SHEET
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FILE NO:Z:\Community Resources, Inc Phase 2 5038-2007\dwg\5038-2007.dwg 3/12/2008 8:56:34 AM CDT

COMMUNITY RESOURCES, INC.
PHASE TWO
AN ADDITION TO THE TOWN OF MUNSTER, LAKE COUNTY, INDIANA

EXISTING SOUTH POND WITH EXPANSION
AVAILABLE DETENTION = 5.38 AC.-FT.
REQUIRED DETENTION = 4.99 AC.-FT.
NWL=610.50
HWL=615.95

PROPOSED EXISTING POND EXPANSION

PROPOSED 100-YEAR SWALE OVERFLOW

25'~12" STS@1.84%

FES #12 R=615.00

FES #1 I=610.81

RYD CB #11 R=618.00 I=614.00

EXISTING STORM SEWER PIPE TO BE REMOVED OR ABANDONED IN PLACE

REMOVE EXISTING STRUCTURE REPLACE IN LOCATION SHOWN CB #10 R=616.75 I=612.29

EXISTING STS SERVICE STUB

MATCH TO EXISTING PAVEMENT GRADES

EX. CURB AND GUTTER TO BE REMOVED

REMOVE EXISTING STRUCTURE REPLACE IN LOCATION SHOWN CB #8 R=616.55 I=611.65±

EXISTING STORM SEWER PIPE TO BE REMOVED OR ABANDONED IN PLACE

EXISTING POND
EXISTING NORTH POND
AVAILABLE DETENTION = 2.45 AC.-FT.
REQUIRED DETENTION = 2.40 AC.-FT.
Ex. FES I=610.58 HWL=615.70 NWL=610.55
Outlot "A"

PARK AREA OUTLOT "A"

SEE DETAIL #1

SEE DETAIL #2

Ex. 8" RESTRICTOR TO BE REPLACED WITH A 12 INCH DIA., 2 FT. LONG RESTRICTOR GROUTED IN BARREL OF EXISTING 18" OUTFLOW PIPE.

Pipeline Easement dated May 17, 1946, Recorded May 28, 1946 in Misc. Record 407, page 581, and Re-Recorded June 21, 1946 in Misc. Record 451, page 261.

65' AMOCO PIPELINE CO. EASEMENT PER DOC. NO. 226623

60' WOLVERINE PIPELINE EASEMENT

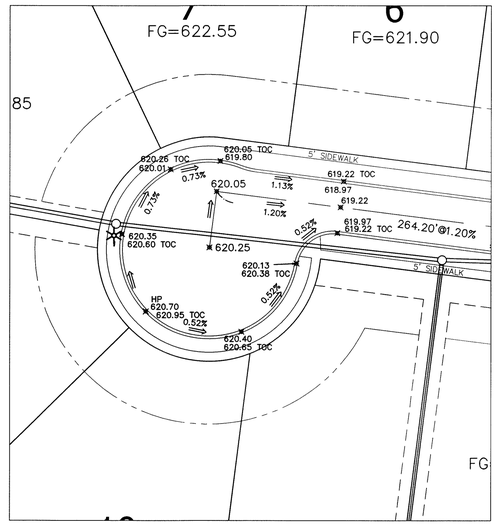
10' UTIL. ESMT.

Park Area

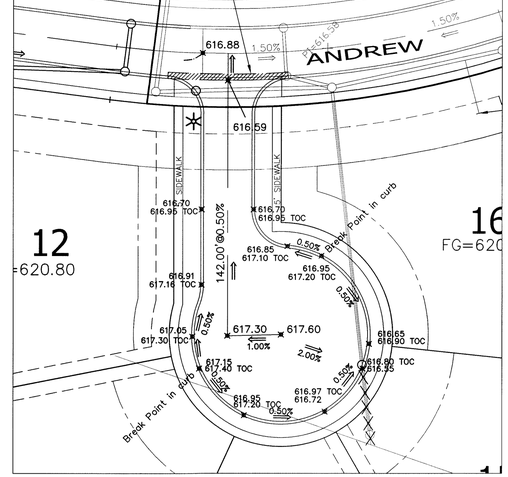
DONNA DRIVE · BARBARA LANE · JENNA DRIVE · MEGAN WAY · ANDREW LANE · DEANNE COURT · RICHARD S. McC...

COLUMBIA AVENUE (STAHLBAUM ROAD)

Outlot "B" · Outlot "C"



GRADING DETAIL #1
SCALE: 1" = 40'



GRADING DETAIL #2
SCALE: 1" = 40'

LEGEND
PROPOSED

- WATER MAIN
- FIRE HYDRANT
- WATER VALVE
- BEND (90°, 45°, 22.5°)
- TEE
- STREET LIGHT
- SANITARY SEWER
- SANITARY MANHOLE
- STORM SEWER
- STORM MH/CB/INL
- DRAINAGE ARROWS
- GRADES
- FG FINISH GRADE
- CONTOUR

LEGEND
EXISTING

- WATER MAIN
- WATER VALVE
- FIRE HYDRANT
- SANITARY SEWER
- SANITARY MH
- STORM SEWER
- STORM MH/CB/INL
- GRADES
- STREET LIGHT
- CONTOUR

MAGNETIC

GRAPHIC SCALE
50 0 25 50 100 200
(IN FEET)
1 inch = 50 ft.

GARY P. TORRENGA
REGISTERED
No. 18376
STATE OF INDIANA
PROFESSIONAL ENGINEER

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COMMUNITY RESOURCES, INC.
PHASE TWO
STORM SEWERS & GRADING PLAN

REVISIONS:	DATE:
03-13-2008	

CLIENT:
Community Resources, Inc.
905 Ridge Road
Munster, Indiana 46321

JOB NO: 5038-2007
SCALE: 1" = 50'

SHEET
5 OF 11

FILE NO:Z:\Community Resources, Inc Phase 2 5038-2007\dwg\5038-2007.dwg 3/12/2008 8:56:34 AM CDT

GENERAL SPECIFICATIONS FOR SANITARY SEWER

1. All work shall be performed in accordance with the Codes, Ordinances and Standards of the Town of Munster, Lake County, and the State of Indiana.

2. All sanitary sewer pipe, branches and fittings shall conform to one of the following: (a) Extra strength vitrified clay pipe (ASTM C-700) with push on rubber gasket joints (ASTM C-425). (b) Poly-vinyl chloride (PVC), SDR 26 (ASTM D-3034), with push-on rubber gasket joints (ASTM C-3212). Six inch service pipes shall be in accordance with the infrastructure improvement codes of the Town of Munster.

3. All sanitary sewer manholes shall be standard 48" diameter precast concrete units (ASTM C-478) conforming with the Standard Detail sheet of these plans.

4. The sanitary manhole base shall be precast with a minimum of 2 foot section, trough, ect.

5. Sanitary manholes shall be provided with a watertight gasketed cover

6. All improvements installed across paved or future paved areas shall be backfilled with sand or graded stone aggregate to the subgrade.

7. All sanitary sewer manholes with rim elevations below Flood Protection Elevation shall be provided with water tight locking lids.

8. Each lot in this subdivision shall be provided with a 6" PVC (SDR 23.5) sanitary sewer service tap extended from the main sewer to the street right of way line (or easement line) and located as near as possible to the center of each lot.

9. The competed sanitary sewer system shall be air tested for infiltration and shall have a maximum infiltration of 100 GPD/inch/diameter/mile of sewer pipe. The completed sanitary sewer system shall be air pressure tested for infiltration/exfiltration with 4 lbs. of pressure for 4 minutes. The testing shall conform to the procedure described in ASTM C-838-86 for clay pipe, ASTM C 924 for concrete pipe, ASTM F-1417 for poly-vinyl chloride pipe, and for other materials test procedures approved by the regulatory agency. The Contractor shall be responsible for supplying all testing materials and appurtenances. The Town of Munster shall be notified when the system (or portion thereof) is ready for testing.

10. Deflection tests shall be performed on all flexible pipe materials placed. The contractor shall be responsible for supplying testing materials and appurtenances. The tests shall be conducted after the final backfill has been in place at least 30 days. No pipe shall exceed a deflection of 5%. If the deflection test is to be run using a rigid ball or mandrel, it shall have a diameter equal to 95% of the inside diameter of the pipe. The test shall be performed without mechanical pulling devices. The Town of Munster shall be notified when the system (or portion thereof) is ready for testing.

11. Care should be taken in parkway areas to assure compaction acceptable for the future stability of driveways and sidewalks. While special backfill material is not required, it shall be the responsibility of the Contractor to protect against substantial future settlement of backfilled areas. The contractor shall provide special backfill material across driveways and sidewalks in the event that a sewer or main is installed underneath.

12. All sewers shall be laid at least 10 feet (3.0m) horizontally from any existing or proposed water main. The distance shall be measured edge to edge. All sewers crossing water mains shall be laid to provide a minimum vertical distance of 18 inches (46 cm) between the outside of the water main and the outside of the sewer. This shall be the case where the water main is either above or below the sewer. The crossing shall be arranged so that the sewer joints will be equidistant and as far as possible from the water main joints. Where a water main crosses under a sewer, adequate structural support shall be provided for the sewer to prevent damage to the water main. When it is impossible to obtain proper horizontal and vertical separation as stipulated above, the sewer shall be designed and constructed equal to water pipe.

13. The Contractor is responsible for the preparation of "As Built" construction drawings showing actual sizes and lengths of pipe installed (i.e. from manhole to manhole or tee to valve, etc.), location of service taps and any structures added or omitted in comparison with these engineering plans. The Contractor shall supply the Developer (through the Project Engineer) with one set of reproducible original "As-Built" Plans and shall supply the Town of Munster with 2 copies thereof prior to and as a condition of the final acceptance.

GENERAL SPECIFICATIONS FOR WATER MAINS

1. All work shall be performed in accordance with the Codes, Ordinances and Standards of the Town of Munster, and the State of Indiana.

2. All water main pipe shall be Ductile Iron Pipe (AWWA C151 C-52) with bell and spigot push-on rubber gasket joints (AWWA CIII). All water main pipe shall be installed with a minimum cover of 5.0 feet from top of curb to top of pipe. All fire hydrants, tees, bends and fittings shall be suitably harnessed or thrust blocked with concrete.

3. All improvements installed across paved or future paved areas shall be backfilled with sand or graded stone aggregate to the subgrade.

4. All water valves 12" or larger shall be placed in vaults.

5. On 12" water main bends, restrained joints shall be used, megalug or equal. At 90º bends, the water main shall be additionaly restrained at 1 joint in each direction.

6. All fire hydrants shall be WB-67 Waterous Pacer hydrant with 5¼" valve openings and shall be backfilled with 3/4" stone for drainage purposes.

7. All water mains shall be laid at least 10 feet (3.0m) horizontally from any existing or proposed sewer. The distance shall be measured from outside of pipe to outside of pipe. All sewers crossing water mains shall be laid to provide a minimum vertical distance of 18 inches (46 cm) between the outside of the water main and the outside of the sewer. This shall be the case where the water main is either above or below the sewer. The crossing shall be arranged so that the sewer joints will be equidistant and as far as possible from the water main joints. Where a water main crosses under a sewer, adequate structural support shall be provided for the sewer to prevent damage to the water main. When it is impossible to obtain proper horizontal and vertical separation as stipulated above, the sewer shall be designed and constructed equal to water pipe.

8. Care should be taken in parkway areas to assure compaction acceptable for the future stability of driveways and sidewalks. While special backfill material is not required, it shall be the responsibility of the Contractor to protect against substantial future settlement of backfilled areas. The Contractor shall provide special backfill material across driveways and sidewalks in the event that a water main is installed underneath.

9. Each lot in this subdivision shall be provided with a 1" diameter copper water service tap extended from the water main to the street right of way line (or easement line) and ending with an approved Buffalo Box. Water main service lines shall be installed with a minimum cover of 5.0 feet from the top of the curb to the top of the service line.

10. The Buffalo Boxes shall be arch pattern box style and shall be located in parkways, if possible. No Buffalo Boxes shall be located in concrete areas, and they shall have AWWA approved shut offs and corporation valves.

11. All water main pipe shall be disinfected by the use of liquid chlorine. The Contractor shall notify the town of Munster when the water main system (or portion thereof) is ready for testing.

12. The Contractor is responsible for water quality tests done by a State Certified Laboratory. The Town of Munster Water Department staff shall be notified and be present while tests are being performed. The approved water system shall be turned on by the Water Department Staff, only after the water quality reports have been approved.

13. The newly installed water main (or portions thereof) shall be subjected to a pressure and leakage test, using hydrostatic testing. Test pressure shall not be less than 1.5 times the working pressure or exceed pipe design pressure. Pressure shall not vary by more than ± 5 PSI for a minimum of a 2 hour duration test. The exposed pipe and joints shall be examined carefully during the test and any damaged or defective pipe or joints shall be replaced, and the test shall be repeated. The allowable leakage shall not exceed 11.65 gpd/mi/in of nominal pipe diameter at a pressure of 150 PSI.
All visible leaks are to be repaired regardless of the amount of leakage. The contractor shall be responsible for supplying all testing materials and appurtenances. The Town of Munster shall be notified when the water main (or portion thereof) is ready for testing.

14. The contractor is responsible for the preparation of "As Built" construction drawings showing actual sizes and lengths of pipe installed (i.e. from manhole to manhole or tee to valve, etc.), location of service taps and any structures added or omitted in comparison with these engineering plans. The Contractor shall supply the Developer (through the Project Engineer) with one set of reproducible original "As-Built" Plans and shall supply the Town of Munster with 2 copies thereof prior to and as a condition of final acceptance.

GENERAL SPECIFICATIONS FOR STORM SEWERS

1. All work shall be performed in accordance with the Codes, Ordinances and Standards of the Town of Munster, Lake County, Indiana.

2. Each Lot in this Subdivision shall be provided with a 4" diameter storm sewer service tap extended from the main sewer to the street right of way line (or utility easement line) and located as nearly as possible to the center of each lot.

3. All storm sewer pipe, branches and fittings shall conform to either of the following: (A) Poly-vinyl chloride SDR 35 or SDR 26 (ASTM D-3034) with push on rubber gasket joints (ASTM C-3212) for pipe 15" in diameter or under or: (B) High Density Polyethylene corrugated pipe with an integrally formed smooth interior (ASTM D-1248) for pipe 18" or over or: (C) Reinforced concrete pipe (ASTM C-76) with bell and spigot or tongue and groove push-on mastic joints. Class V reinforced concrete pipe shall be used for lines 15" diameter or under and Class III shall be used for lines 18" and over.

4.Gasketed joints shall be used on all storm sewers.

5. Storm sewers 18" to 27" with less than 3' cover shall be Class IV pipe.

6. All storm sewer manholes shall be standard precast concrete units (ASTM C-478) conforming with the standard details sheet of these plans.

7. All improvements installed across paved or future paved areas shall be backfilled with sand or graded stone aggregate to the subgrade line.

8.Dumped Rip-Rap will be provided at all end sections, to produce a surface of approximate regularity. The finished surface shall not vary by more than 9 inches and the depth of Rip-Rap shall not be less than 12 inches nor more than 24 inches.

9. All sewers shall be laid at least 10 feet (3.0m) horizontally from any existing or proposed water main. The distance shall be measured edge to edge. All sewers crossing water mains shall be laid to provide a minimum vertical distance of 18 inches (46 cm) between the outside of the water main and the outside of the sewer. This shall be the case where the water main is either above or below the sewer. The crossing shall be arranged so that the sewer joints will be equidistant and as far as possible from the water main joints. Where a water main crosses under a sewer, adequate structural support shall be provided for the sewer to prevent damage to the water main. When it is impossible to obtain proper horizontal and vertical separation as stipulated above, the sewer shall be designed and constructed equal to water pipe.

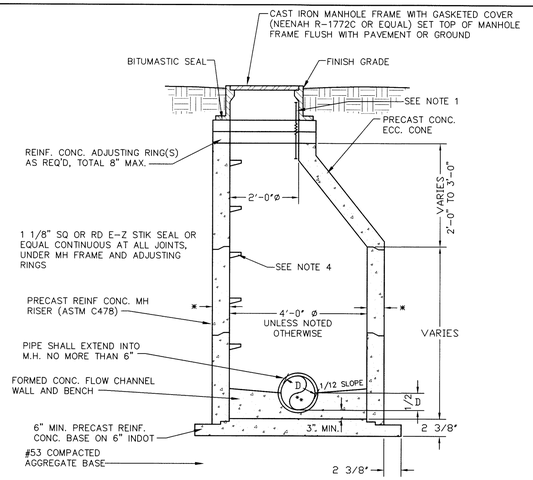
10. The Contractor is responsible for the preparation of "As Built" construction drawings showing actual sizes and lengths of pipe installed (i.e. from manhole to manhole or tee to valve, etc.), location of service taps and any structures added or omitted in comparison with these engineering plans. The Contractor shall supply the Developer (through the Project Engineer) with one set of reproducible original "As-Built" and shall supply the Town of Munster with 2 copies thereof prior to and as a condition of final acceptance.

CURB NOTE:
1. Concrete Curb and Gutter shall be constructed in accordance with the state specifications except as herin modified.

a) Expansion joints shall be 3/4" in thickness, using premolded joint filler material and two 3/4" diameter smooth round dowel bars 30" long fully greased, placed in pairs at the ends of all radii, at roadway intersections, at the junction of new and existing curb, at all cold joints, at a minimum 40' interval between said radii locations.

b) Said dowel shall be placed so that half their length is in either side of the joint. On the same end of each bar, there shall be placed a plastic, premolded expansion tip, which will allow lateral and expansion movement. The dowel bars shall be placed such that they shall be encased in concrete, a minimum of 3" in any direction.

INFRASTRUCTURE NOTE:
1. All infrastructures being constructed shall be in accordance with the Town of Munster Proposed Infrastructure Specifications. Any difference Munster's Specification and these engineering drawings shall be brought to the attention of the Engineer immediatelty for review.



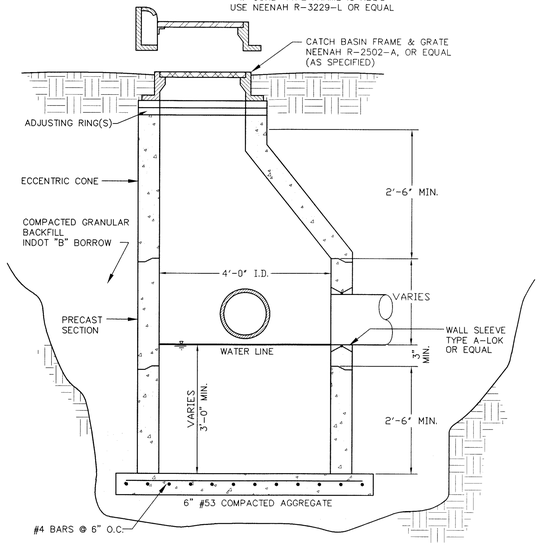
* MANHOLE WALL THICKNESS TABLE

MH I.D.	WALL THICKNESS
48"	5"
60"	6"
72"	7"

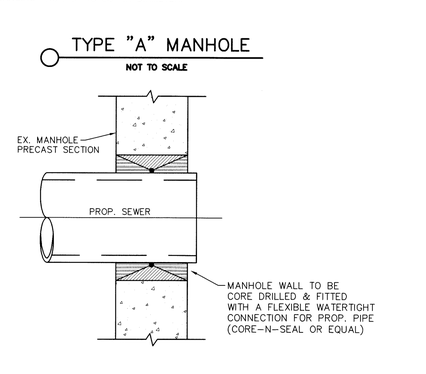
NOTES:
1. INTERNAL MH FRAME-CHIMNEY SEAL AS MANUFACTURED BY CRETEX SPECIALTY PRODUCTS OR EQUAL REQ'D FOR ALL MANHOLES IN PAVED AREAS ONLY.
2. WHERE DEPTH FROM TOP OF CASTING TO INVERT IS LESS THAN 5'-0", USE FLAT TOP MANHOLE TYPE "C" IN LIEU OF ECCENTRIC CONE
3. WATERTIGHT SEAL IS REQ'D BETWEEN PRECAST RISER AND SEWER PIPE, TYPE A-LOK OR EQUAL.
4. COPOLYMER/STEEL MH STEPS AS MANUFACTURED BY M.A. INDUSTRIES, INC., OR EQUAL, AT 16" O.C.

** FOR PIPE SIZES RANGING FROM 8" TO 30" IN DIAMETER.

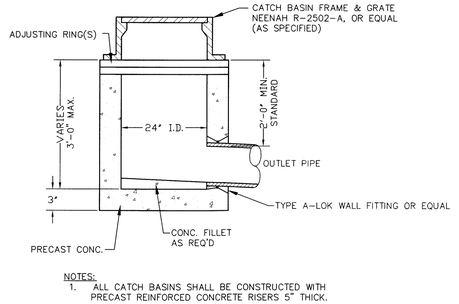
TYPE "A" MANHOLE
NOT TO SCALE



TYPE "A" CATCH BASIN
NOT TO SCALE

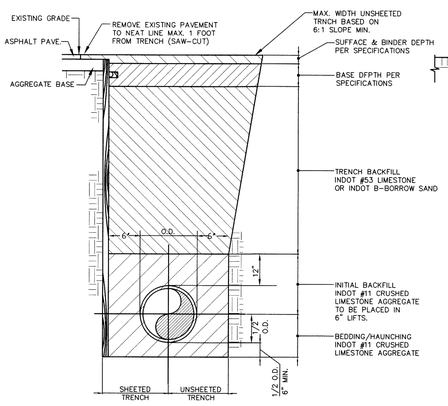


PIPE CONNECTION DETAIL
TO EXISTING MANHOLE
NOT TO SCALE

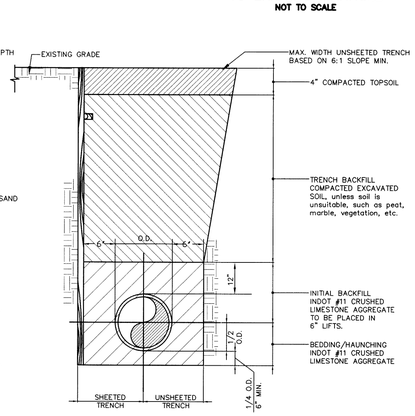


NOTES:
1. ALL CATCH BASINS SHALL BE CONSTRUCTED WITH PRECAST REINFORCED CONCRETE RISERS 5" THICK.

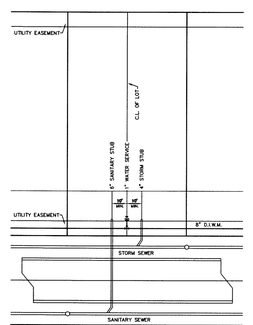
STANDARD INLET
NOT TO SCALE



PIPE BEDDING DETAIL
FOR TRENCH IN PAVED AREAS
NOT TO SCALE



PIPE BEDDING DETAIL
FOR TRENCH IN GRASS AREAS
NOT TO SCALE



TYPICAL UTILITY SERVICE DETAIL
NOT TO SCALE

GARY P. TORRENGA REGISTERED No. 18376 STATE OF INDIANA PROFESSIONAL ENGINEER

TORRENGA ENGINEERING, INC.
CONSULTING ENGINEERS & LAND SURVEYORS
907 RIDGE ROAD, MUNSTER, INDIANA 46321
Tel No.: (219) 836-8918
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COMMUNITY RESOURCES, INC.
PHASE TWO
STANDARD DETAILS & SPECIFICATIONS

03-13-2008
REVISIONS:
DATE: 01-10-2008

CLIENT:
Community Resources, Inc.
905 Ridge Road
Munster, Indiana 46321

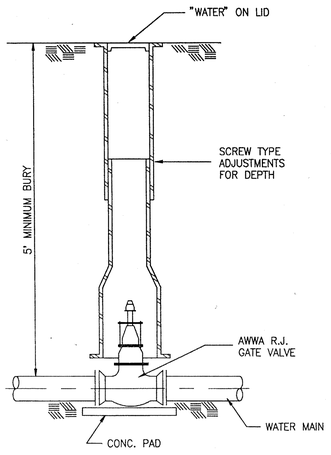
JOB NO: 5038-2007

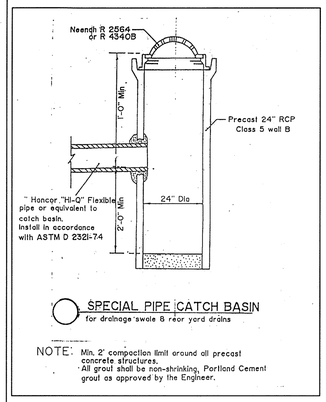
SCALE: NTS

SHEET
6 OF 11

FILE NO:Z:\Community Resources, Inc Phase 2 5038-2007\dwg\5038-2007.dwg 3/12/2008 8:56:34 AM CDT

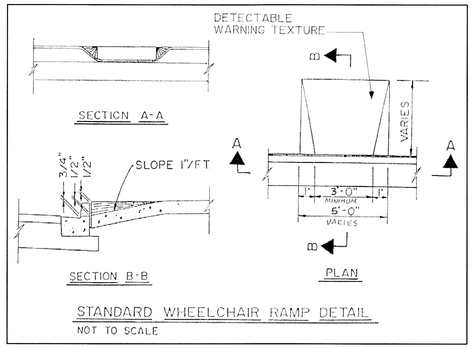
MAIN LINE WATER VALVE 10" or smaller



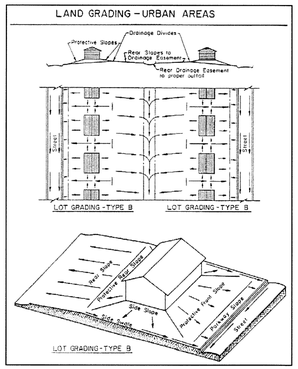


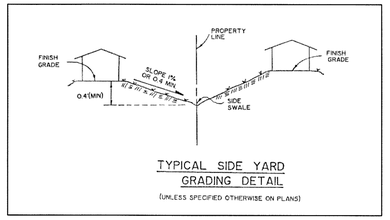
SPECIAL PIPE CATCH BASIN
for drainage swale & rear yard drains

NOTE: Min. 2" compaction limit around all precast concrete structures.
All grout shall be non-shrinking, Portland Cement grout as approved by the Engineer.

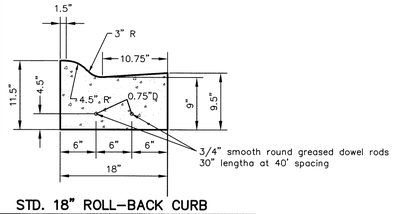


STANDARD WHEELCHAIR RAMP DETAIL
NOT TO SCALE



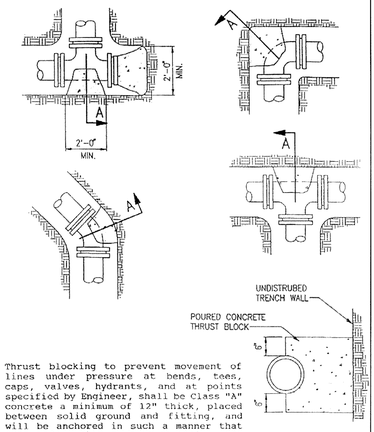


TYPICAL SIDE YARD GRADING DETAIL
(UNLESS SPECIFIED OTHERWISE ON PLANS)

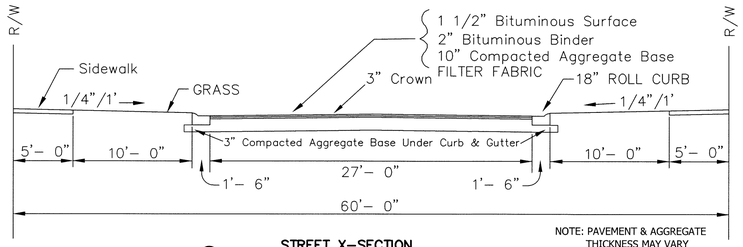


STD. 18" ROLL-BACK CURB
NOT TO SCALE

THRUST BLOCK INSTALLATIONS



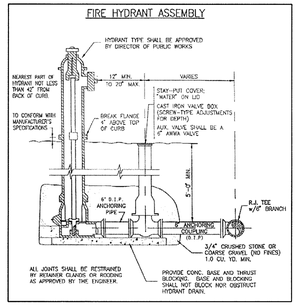
Thrust blocking to prevent movement of lines under pressure at bends, tees, caps, valves, hydrants, and at points specified by Engineer, shall be Class "A" concrete a minimum of 12" thick, placed between solid ground and fitting, and will be anchored in such a manner that pipe and fitting will be accessible for repairs. Thrust block shall be placed at bends of 11 1/4 degree.

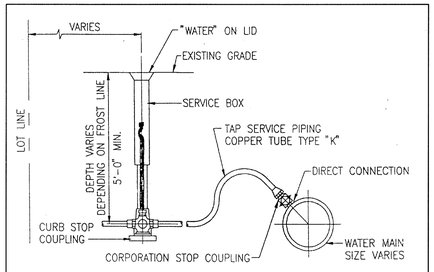


STREET X-SECTION
NOT TO SCALE

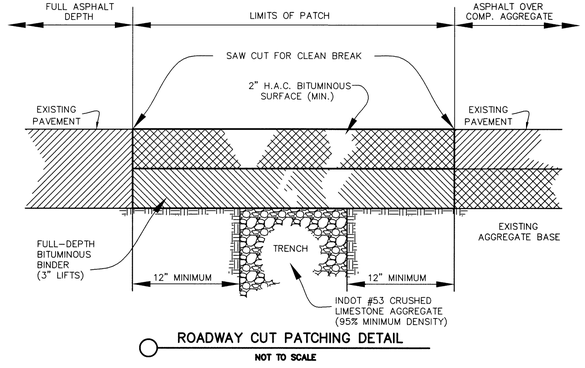
NOTE: PAVEMENT & AGGREGATE THICKNESS MAY VARY DEPENDING ON CBR SOIL TESTING RESULTS.

FIRE HYDRANT ASSEMBLY

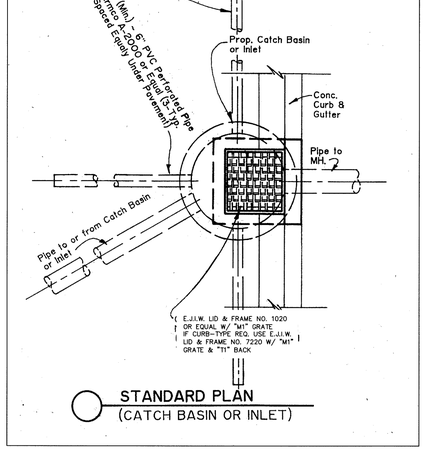




TYPICAL TAP SERVICE PIPING
(COPPER)

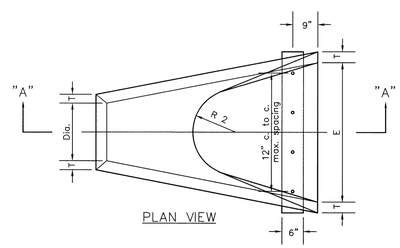


ROADWAY CUT PATCHING DETAIL
NOT TO SCALE

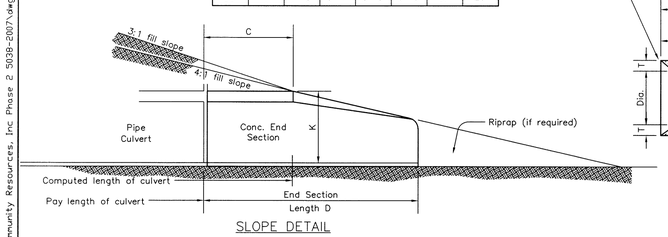


STANDARD PLAN
(CATCH BASIN OR INLET)

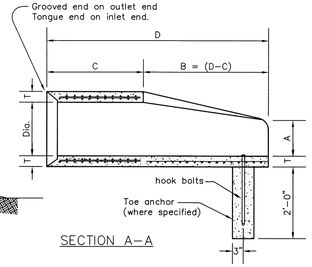
Dimensions							
Dia.	T (min.)	A	C	D	E	K	R 2
12"	2"	5"	4'-3"	6'-2"	2'-0"	1.3	9"
15"	2-1/4"	7"	4'-0"	6'-3"	2'-6"	1.5	11"
18"	2-1/2"	11"	4'-1"	6'-2"	3'-0"	1.8	12"
21"	2-3/4"	11"	3'-6"	6'-3"	3'-6"	2.1	13"
24"	3"	1'-0"	2'-8"	6'-3"	4'-0"	2.3	14"
27"	3-1/4"	1'-1"	2'-5"	6'-3"	4'-6"	2.6	14-1/2"
30"	3-1/2"	1'-2"	1'-10"	6'-3"	5'-0"	2.9	15"
33"	3-3/4"	1'-3"	3'-6"	8'-3"	5'-6"	3.1	17-1/2"
36"	4"	1'-5"	3'-1"	8'-3"	6'-0"	3.4	20"



PLAN VIEW

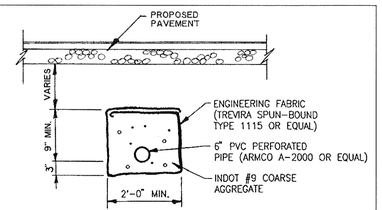


SLOPE DETAIL



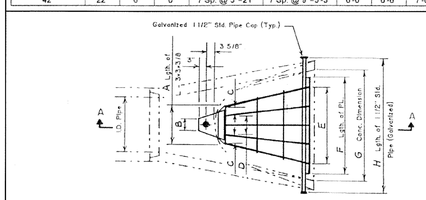
SECTION A-A

PRECAST CONCRETE END SECTION

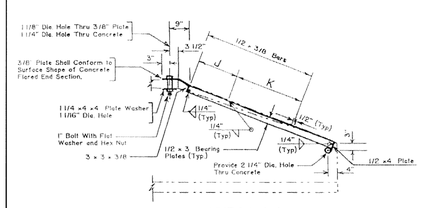


SUBSURFACE DRAIN DETAIL

DIMENSIONS										
Pipe Diameter	A	B	C	D	E	F	G	H	J	K
18"	15"	5"	3"	2 Sp. @ 4"=8"	3 Sp. @ 9"=27"	2'-6"	3'-0"	3'-10"	13"	1 Sp. @ 12"=12"
24"	17"	5"	0"	4 Sp. @ 4"=16"	4 Sp. @ 9"=36"	3'-6"	4'-0"	4'-10"	15"	1 Sp. @ 12"=12"
27"	18"	5"	2.5"	3 Sp. @ 4"=12"	4 Sp. @ 9"=36"	4'-0"	4'-6"	5'-4"	15"	1 Sp. @ 15"=15"
30"	19"	5"	3"	3 Sp. @ 4"=12"	5 Sp. @ 9"=3'-9"	4'-6"	5'-0"	5'-10"	15"	2 Sp. @ 12"=24"
36"	21"	5"	2"	4 Sp. @ 4"=16"	6 Sp. @ 9"=4'-6"	5'-6"	6'-0"	7'-0"	18"	2 Sp. @ 15"=30"
42"	22"	6"	0"	7 Sp. @ 3"=21"	7 Sp. @ 9"=5'-3"	6'-0"	6'-6"	7'-6"	13"	3 Sp. @ 13"=39"



PLAN



SECTION A-A

GRATING DETAIL

TORRENGA ENGINEERING, INC.
CONSULTING ENGINEERS & LAND SURVEYORS
907 RIDGE ROAD, MUNSTER, INDIANA 46321
Tel. No.: (219) 836-8918
website: www.torrenga.com

COMMUNITY RESOURCES, INC.
PHASE TWO

STANDARD DETAILS & SPECIFICATIONS

03-13-2008 | REVISIONS: | DATE: 01-10-2008

CLIENT: Community Resources, Inc. 6015 Ridge Road Munster, Indiana 46321

JOB NO: 5038-2007

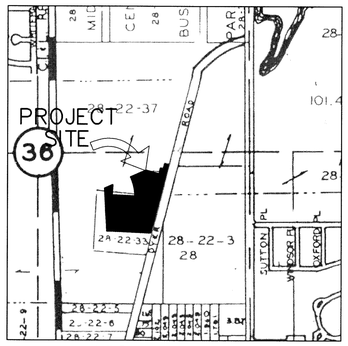
SCALE: NTS

GARY P. TORRENGA REGISTERED No. 18376 STATE OF INDIANA PROFESSIONAL ENGINEER

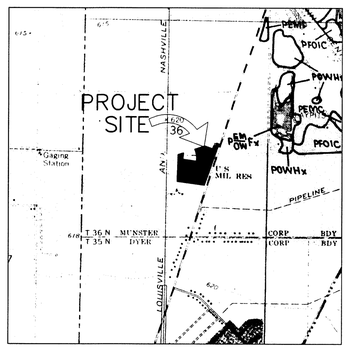
SHEET 7 OF 11

FILE NO:Z:\Community Resources, Inc Phase 2 5038-2007\dwg\5038-2007.dwg 3/12/2008 8:56:34 AM CDT

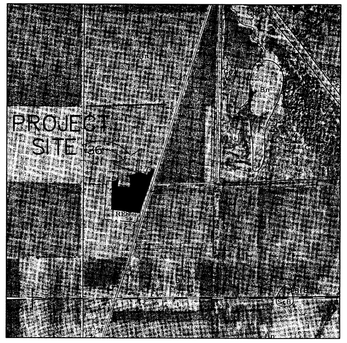
COMMUNITY RESOURCES, INC.
PHASE TWO
AN ADDITION TO THE TOWN OF MUNSTER, LAKE COUNTY, INDIANA



VICINITY MAP
* LAKE COUNTY TOWNSHIP MAPS
2003 ISSUE, SHEET 5



WETLAND MAP
* NATIONAL WETLANDS INVENTORY
1981 ISSUE, MAP PG. 10



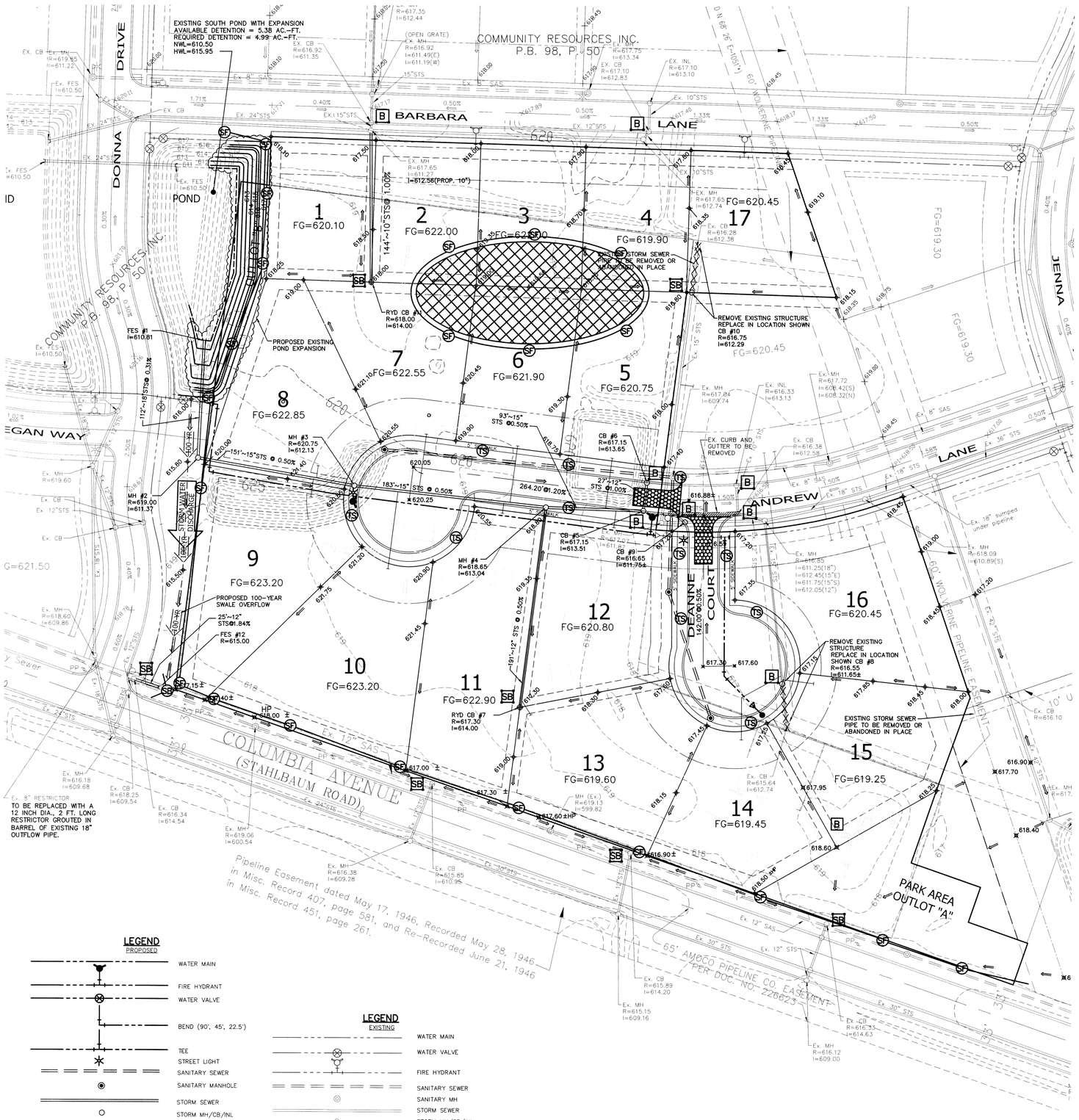
SOIL MAP
* LAKE COUNTY SOIL SURVEY, USDA
1992 REISSUE, MAP PG. 15

SOIL TYPE LEGEND

Bn Bono Silty Clay (0 to 2 Percent Slopes)

NOTES:

1. THIS PROPERTY IS LOCATED IN FLOODPLAIN ZONE "B", AREA BETWEEN THE 100-YEAR AND 500-YEAR FLOOD. THERE ARE NO FLOODWAYS AND FLOODWAY FRINGES ON THIS PROPERTY, AS PER FLOOD INSURANCE RATE MAP (FIRM) DATED MAY 16, 1983 IN COMMUNITY PANEL NUMBER 180139 0003 B.
2. HYDROLOGIC UNIT CODE: 07120003030030 HART DITCH (PLUM CREEK)-DYER DITCH
3. NO STATE OR FEDERAL WATER QUALITY PERMIT ARE REQUIRED FOR THE PROJECT SITE.
4. AT PRESENT THE SITE IS PRIMARILY COMMERCIAL AREA, WITH EXISTING VEGETATIVE BUILDING, ASPHALT DRIVE AND PARKING, AND WELL MANICURED LAWN.
5. THERE IS NO PRESENCE OF HYDRIC SOILS ON THIS PROPERTY.
6. THERE ARE NO EXISTING WETLAND AREAS ON THIS PROPERTY, AND ITS SURROUNDING AREAS AS CLASSIFIED BY THE UNITED STATES DEPARTMENT OF THE INTERIOR U.S. FISH AND WILDLIFE SERVICE, NATIONAL WETLANDS INVENTORY.
7. THE PROPOSED DETENTION POND ARE A POTENTIAL SOURCE OF STORMWATER DISCHARGE ENTERING THE GROUNDWATER.
8. SOIL STOCKPILES, BORROW AND DISPOSAL AREAS FOR THIS PROJECT ARE LOCATED WITHIN THE PROJECT SITE.
9. AREA WHERE THE PROPOSED DETENTION POND, ROADS, STORM SEWERS, SANITARY SEWERS, WATER MAINS AND OTHER UTILITIES WILL BE DISTURBED DURING CONSTRUCTION. IN ALL OTHER AREAS, EXISTING VEGETATIVE COVER WILL BE PRESERVED.
10. AN EROSION CONTROL AND GEOSYNTHETIC MATERIAL SUPPLIES LIST IS AVAILABLE AT THE SCS OFFICE AND SHALL BE CONSULTED BEFORE PURCHASING THE REQUIRED EROSION CONTROL ITEMS.
11. PERMANENTLY SEED ALL FINE GRADE AREAS (e.g., LANDSCAPE BERMS, DRAINAGE BERMS, DRAINAGE SWALES, EROSION CONTROL STRUCTURES, ETC.) AS EACH IS COMPLETED AND ALL AREAS WHERE ADDITIONAL WORK IS NOT SCHEDULED FOR A PERIOD OF MORE THAN A YEAR. SEEDING: OPTIMUM SEEDING DATED ARE MARCH 1 - MAY 10 AND AUGUST 10 - SEPTEMBER 30. SEEDING DATES BETWEEN MAY 10 AND AUGUST 10, MAY NEED TO BE IRRIGATED. FOR SEEDING RECOMMENDATIONS SEE PRACTICE 3.12, INDIANA HANDBOOK FOR EROSION CONTROL.
12. A TREE CONSERVATION AND PROTECTION PLAN SHOULD BE IN PLACE TO INSURE SURVIVAL OF DESIRABLE TREES FROM THE EFFECTS OF COMPACTION, GRADING DAMAGE, WOUND PREVENTION AND A PLAN FOR TREE REPAIRS FROM CONSTRUCTION ACTIVITIES. SEE THE SOIL CONSERVATION SERVICE OR THE STATE FORESTER FOR ASSISTANCE.



LEGEND

- SF – TEMPORARY GRAVEL ENTRANCE/EXIT
- SF – SILT FENCE (SEDIMENT FENCE)
- TS – TEMPORARY SEEDING
- ECB – EROSION CONTROL BLANKET (SURFACE-APPLIED)
- SB – STRAW BALE DROP INLET PROTECTION
- SP – SOIL STOCK PILE
- B – BASKET CURB INLET PROTECTION

GARY P. TORRENGA REGISTERED No. S0514 STATE OF INDIANA LAND SURVEYOR

GARY P. TORRENGA REGISTERED No. 18376 STATE OF INDIANA PROFESSIONAL ENGINEER

MAGNETIC

GRAPHIC SCALE

50 0 25 50 100 200

(IN FEET)
1 inch = 50 ft.

TORRENGA ENGINEERING, INC.
CONSULTING ENGINEERS & LAND SURVEYORS
907 RIDGE ROAD, MUNSTER, INDIANA 46321
Tel No.: (219) 836-8918
website: www.torrenga.com

COMMUNITY RESOURCES, INC.
PHASE TWO
STORM WATER POLLUTION PREVENTION PLAN (SWPPP)

03-13-2008 REVISIONS:
DATE: 01-10-2008

CLIENT:
Community Resources, Inc.
905 Ridge Road
Munster, Indiana 46321

JOB NO: 5038-2007
SCALE: 1" = 50'

SHEET
8 OF 11

FILE NO: Z:\Community Resources, Inc Phase 2 5038-2007\dwg\5038-2007.dwg 3/12/2008 8:56:34 AM CDT

TEMPORARY GRAVEL CONSTRUCTION ENTRANCE/EXIT

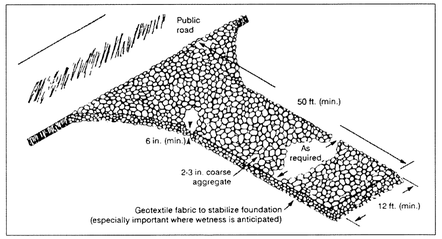
(Practice 3.01)

Purpose: To provide a stable entrance/exit condition from the construction site, and to keep mud and sediment off public roads.

Requirements:
Width: 12 feet minimum or full width of entrance
Length: 50 feet minimum
Material: 2-3 inch diameter washed stone (INDOT CA No. 2), with Geotextile Fabric Underliner.
Thickness: 6 inch minimum

Installation:
1. Remove all vegetation and other objectionable material from the foundation area.
2. Install pipe under the stone if needed to provide proper public road drainage.
3. Install Geotextile fabric on the graded foundation area prior to stone placement.
4. Divert all surface runoff and drainage from the stone to sediment trap.

Maintenance:
1. Inspect entrance pad for sediment deposits weekly and after storm events or heavy use.
2. Reshape pad as needed for drainage and runoff control.
3. Topdress with clean stone as needed.
4. Remove mud and sediment tracked or washed onto public road by brushing or sweeping. No flushing of sediment off the street
5. Repair any broken road pavement immediately.



Plans of a temporary gravel construction entrance/exit pad.

TEMPORARY SEEDING

(Practice 3.11)

Purpose: To stabilize disturbed areas especially along both sides of the streets and courts after final grading work is completed and where additional work is not scheduled.

Requirements:
Site and seedbed preparation: Graded, and lime and fertilizer applied

Seed Selected:
Selected on the basis of quick germination, growth, and time of year, see Table for temporary seeding recommendations.

Fertilize: According to soil test or use 600 lbs/acre 12-12-12 analysis or equivalent.

Mulch: 1.5 - 2 tons/acre straw. Straw must be dry, unchopped and free of undesirable seeds.

Application:
1. Fertilize and lime as recommended by the soil test.
2. Till the soil to obtain a uniform seedbed, working the fertilizer and lime into the soil 2-4" deep with a disk or rake operated across the slope.
3. Apply seed uniformly with a drill or cultipacker-seeder, or by broadcasting, and cover to a depth as shown on Table for temporary seeding recommendations.
4. If drilling or broadcasting, firm the seedbed with a roller or cultipacker.
5. Mulch all seeded areas. (Note: If seeding is done with a hydroseeder, fertilizer and mulch can be applied with the seed in a slurry mixture.)

Maintenance:
1. Inspect periodically after planting to see that vegetative stands are adequately established; re-seed if necessary.
2. Check for erosion damage after storm events and repair; re-seed and mulch if necessary.

Notes:
1. Vegetative Filter Strip: permanent or temporary, (in accordance with Practice 3.73) shall be done on all disturbed areas along both sides of the streets and courts to reduce erosion where additional work is not scheduled.
2. Permanent Seeding: (in accordance with Practice 3.12) or sodding (in accordance with Practice 3.14) shall be done by individual homeowners at the time of final landscaping of their individual lots.

Exhibit 3.11-B. Temporary Seeding Recommendations.

Seed species*	Rate/acre	Planting depth	Optimum dates**
Wheat or rye	150 lbs.	1 to 1½ in.	9/15 to 10/30
Spring oats	100 lbs.	1 in.	3/1 to 4/15
Annual ryegrass	40 lbs.	1/4 in.	3/1 to 5/1
			8/1 to 9/1
German millet	40 lbs.	1 to 2 in.	5/1 to 6/1
Sudangrass	35 lbs.	1 to 2 in.	5/1 to 7/30

* Perennial species may be used as a temporary cover, especially if the area to be seeded will remain idle for more than a year (Practice 3.12).
** Seeding done outside the optimum dates increases the chances of seeding failure.

PERMANENT SEEDING

(Practice 3.12)

Purpose: To stabilize disturbed areas especially along both sided of the streets and courts after final grading work is completed and where additional work is not scheduled.

Requirements:
Site and seedbed preparation: Graded, and lime and fertilizer applied.

Seed Selected:
Selected on the basis of Site Conditions, Soil PH, intended land use, and expected level of maintenance see Table for permanent seeding recommendations.

Fertilize: According to soil test or use 600 lbs/acre 12-12-12 analysis or equivalent.

Mulch: 1.5 - 2 tons/acre straw. Straw must be dry, unchopped and free of undesirable seeds.

Application:
1. Fertilize and line as recommended by soil test.
2. Till the soil to obtain a uniform seedbed, working the fertilizer and lime into the soil 2-4" deep with a disk or rake operated across the slope.
3. Apply seed uniformly with a drill or cultipacker-seeder, or broadcasting, and cover to a depth of ¼ to ½ inch.
4. If drilling or broadcasting, firm the seedbed with a roller or cultipacker.
5. Mulch all seeded areas. (Note: If seeding is done with a hydroseeder, fertilizer and mulch can be applied with the seed in a slurry mixture.)

Maintenance:
1. Inspect periodically, especially after storm events, until the stand is successfully established. (Characteristics of a successful stand include: vigorous dark green or bluish-green seedling; uniform density with nurse plants, legumes, and grasses well intermixed; green leaves; and the perennials remaining green throughout the summer, at least at the plant base.)
2. Plan to add fertilizer the following seasons according to soil test recommendations.
3. Repair damaged, bare or sparse areas by filling any gullies, refertilizing, over- or re-seeding, and mulching.
4. If plant cover is sparse or patchy, review the plant materials chosen, soil fertility, moisture condition, and mulching; then repair the affected area either by over-seeding or by re-seeding, and mulching.
5. If vegetation fails to grow, consider soil testing to determine acidity or nutrient deficiency problems. (Contact your SWCD or Cooperative Extension office for assistance.)
6. If additional fertilization is needed to get a satisfactory stand, do so according to soil test recommendations.

Notes:
1. Permanent seeding optimum dates are March 1 to May 10 and August 10 to September 30, seeding done between May 10 to August 10 may require irrigation. Temporary seeding may be used as an alternative until preferred date for Permanent Seeding.
2. Retention/Detention area walls and base will be seeded as soon as possible using permanent seeding when possible, mulch or erosion control blankets are to be used on seeded areas to protect the soil from wind and water impact. Install silt fences around Retention/Detention area until seed is established.

Exhibit 3.12-C. Permanent Seeding Recommendations.

This table provides several seeding options. Additional seed species and mixtures are available commercially. When selecting a mixture, consider site conditions, including soil properties (e.g., soil pH and drainage), slope aspect and the tolerance of each species to shade and droughtiness.

Seed species and mixtures	Rate per acre	Optimum soil pH
OPEN AND DISTURBED AREAS (REMAINING IDLE MORE THAN 1 YR.)		
1. Perennial ryegrass	35 to 50 lbs.	5.6 to 7.0
+ white or ladino clover*	1 to 2 lbs.	
2. Kentucky bluegrass	20 lbs.	5.5 to 7.5
+ smooth bromegrass	10 lbs.	
+ switchgrass	3 lbs.	
+ timothy	4 lbs.	
+ perennial ryegrass	10 lbs.	
+ white or ladino clover*	1 to 2 lbs.	
3. Perennial ryegrass	15 to 30 lbs.	5.6 to 7.0
+ tall fescue**	15 to 30 lbs.	
4. Tall fescue**	35 to 50 lbs.	5.5 to 7.5
+ ladino or white clover*	1 to 2 lbs.	
STEEP BANKS AND CUTS, LOW MAINTENANCE AREAS (NOT MOWED)		
1. Smooth bromegrass	25 to 35 lbs.	5.5 to 7.5
+ red clover*	10 to 20 lbs.	
2. Tall fescue**	35 to 50 lbs.	5.5 to 7.5
+ white or ladino clover*	1 to 2 lbs.	
3. Tall fescue**	35 to 50 lbs.	5.5 to 7.5
+ red clover*	10 to 20 lbs.	
(Recommended north of US 40)		
4. Orchardgrass	20 to 30 lbs.	5.6 to 7.0
+ red clover*	10 to 20 lbs.	
+ ladino clover*	1 to 2 lbs.	
5. Crownvetch*	10 to 12 lbs.	5.6 to 7.0
+ tall fescue**	20 to 30 lbs.	
(Recommended south of US 40)		
LAWNS AND HIGH MAINTENANCE AREAS		
1. Bluegrass	105 to 140 lbs.	5.5 to 7.0
2. Perennial ryegrass (turf-type)	45 to 60 lbs.	5.6 to 7.0
+ bluegrass	70 to 90 lbs.	
3. Tall fescue (turf-type)**	130 to 170 lbs.	5.6 to 7.5
+ bluegrass	20 to 30 lbs.	
CHANNELS AND AREAS OF CONCENTRATED FLOW		
1. Perennial ryegrass	100 to 150 lbs.	5.6 to 7.0
+ white or ladino clover*	1 to 2 lbs.	
2. Kentucky bluegrass	20 lbs.	5.5 to 7.5
+ smooth bromegrass	10 lbs.	
+ switchgrass	3 lbs.	
+ timothy	4 lbs.	
+ perennial ryegrass	10 lbs.	
+ white or ladino clover*	1 to 2 lbs.	
3. Tall fescue**	100 to 150 lbs.	5.5 to 7.5
+ ladino or white clover*	1 to 2 lbs.	
4. Tall fescue**	100 to 150 lbs.	5.5 to 7.5
+ Perennial ryegrass	15 to 20 lbs.	
+ Kentucky bluegrass	15 to 20 lbs.	

* For best results: (a) legume seed should be inoculated; (b) seeding mixtures containing legumes should preferably be spring-seeded, although the grass may be fall-seeded and the legume frost-seeded (Practice 3.13); and (c) if legumes are fall-seeded, do so in early fall.
** Tall fescue provides little cover for, and may be toxic to, some species of wildlife. The IDNR recognizes the need for additional research on alternatives to tall fescue, such as buffalograss, orchardgrass, smooth bromegrass, and switch-grass. This research, in conjunction with demonstration areas, should focus on erosion control characteristics, wildlife toxicity, turf durability, and drought resistance.

NOTE: An oat or wheat companion or nurse crop may be used with any of the above permanent seeding mixtures. If so, it is best to seed during the fall seeding period, especially after Sept. 15, and at the following rates: spring oats--1/4 to 3/4 bu./acre; wheat--no more than 1/2 bu./acre.

DORMANT AND FROST SEEDING

(Practice 3.13)

Purpose:
1. To provide early germination and soil stabilization in the spring.
2. To reduce sediment runoff to downstream areas.
3. To repair previous seedings.

Requirements:
Site and seedbed preparation: Graded, lime and fertilizer applied.

Seed Selected:
Selected on the basis of Site Conditions, Soil PH, intended land use, and expected level of maintenance. See Table for dormant or frost seeding recommendations.

Fertilize: According to soil test or use 400-600 lbs/acre 12-12-12 analysis or equivalent.

Application:
Dormant seeding is a temporary or permanent seeding application at a time when soil temperatures are too low for germination to occur (less than 50 °F) Frost seeding is a temporary or permanent seeding application in early spring when soils are in the freeze-thaw stage.

For Dormant Seeding: (Seeding dates: Dec. 1-Feb. 28)
1. Site preparation and mulching can be done months ahead of actual seeding, apply mulch upon completion of grading (Practice 3.15)
2. Broadcast fertilizer as recommended by soil test.
3. Broadcast seeding on top of the mulch and/or into existing ground cover at the rate shown on table. (if site preparation occurs within the recommended dates, fertilize and lime, seed, and mulch at the time.)

For Frost Seeding: (Seeding dates: Feb. 28 - Mar. 28)
1. Broadcast fertilizer as recommended by a soil test.
2. Select an appropriate seed species or mixture from table for temporary seeding or table for permanent seeding, and broadcast on to the seedbed or into the existing ground cover at the rate shown. (Do not work the seed into the soil.)

Maintenance:
1. Apply 200-300 lbs./acre of 12-12-12 or equivalent fertilizer between Apr. 15 and May 10 or during periods of vigorous growth.
2. Re-seed and mulch any areas that have inadequate cover by mid- to late April. For best results, re-seed within the recommended dates shown in Practices 3.11 for temporary seeding or 3.12 for permanent seeding.

Exhibit 3.13-B. Temporary Dormant or Frost Seeding Recommendations.

Seed species*	Rate per acre
Wheat or rye	150 lbs.
Spring oats	150 lbs.
Annual ryegrass	60 lbs.

* Perennial species may be used as a temporary cover, especially if the area to be seeded will remain idle for more than a year (Practice 3.12).

Exhibit 3.13-C. Permanent Dormant or Frost Seeding Recommendations.

This table provides several seeding options. Additional seed species and mixtures are available commercially. When selecting a mixture, consider site conditions, including soil properties (e.g., soil pH and drainage), slope aspect and the tolerance of each species to shade and droughtiness.

Seed species and mixtures	Rate per acre	Optimum soil pH
OPEN AND DISTURBED AREAS (REMAINING IDLE MORE THAN 1 YR.)		
1. Perennial ryegrass	50 to 75 lbs.	5.6 to 7.0
+ white or ladino clover*	1½ to 3 lbs.	
2. Kentucky bluegrass	30 lbs.	5.5 to 7.5
+ smooth bromegrass	15 lbs.	
+ switchgrass	5 lbs.	
+ timothy	6 lbs.	
+ perennial ryegrass	15 lbs.	
+ white or ladino clover*	1½ to 3 lbs.	
3. Perennial ryegrass	22 to 45 lbs.	5.6 to 7.0
+ tall fescue**	22 to 45 lbs.	
4. Tall fescue**	50 to 75 lbs.	5.5 to 7.5
+ ladino or white clover*	1½ to 3 lbs.	
STEEP BANKS AND CUTS, LOW MAINTENANCE AREAS (NOT MOWED)		
1. Smooth bromegrass	35 to 50 lbs.	5.5 to 7.5
+ red clover*	15 to 30 lbs.	
2. Tall fescue**	50 to 75 lbs.	5.5 to 7.5
+ white or ladine clover*	1½ to 3 lbs.	
3. Tall fescue**	50 to 75 lbs.	5.5 to 7.5
+ red clover*	15 to 30 lbs.	
(Recommended north of US 40)		
4. Orchardgrass	30 to 45 lbs.	5.6 to 7.0
+ red clover*	15 to 30 lbs.	
+ ladino clover*	1½ to 3 lbs.	
5. Crownvetch*	15 to 18 lbs.	5.6 to 7.0
+ tall fescue**	30 to 45 lbs.	
(Recommended south of US 40)		
LAWNS AND HIGH MAINTENANCE AREAS		
1. Bluegrass	160 to 210 lbs.	5.5 to 7.0
2. Perennial ryegrass (turf-type)	70 to 90 lbs.	5.6 to 7.0
+ bluegrass	105 to 135 lbs.	
3. Tall fescue (turf-type)**	195 to 250 lbs.	5.6 to 7.5
+ bluegrass	30 to 45 lbs.	
CHANNELS AND AREAS OF CONCENTRATED FLOW		
1. Perennial ryegrass	150 to 225 lbs.	5.6 to 7.0
+ white or ladino clover*	1½ to 3 lbs.	
2. Kentucky bluegrass	30 lbs.	5.5 to 7.5
+ smooth bromegrass	15 lbs.	
+ switchgrass	5 lbs.	
+ timothy	6 lbs.	
+ perennial ryegrass	15 lbs.	
+ white or ladino clover*	1½ to 3 lbs.	
3. Tall fescue**	150 to 225 lbs.	5.5 to 7.5
+ ladino or white clover*	1½ to 3 lbs.	
4. Tall fescue**	150 to 225 lbs.	5.5 to 7.5
+ Perennial bluegrass	22 to 30 lbs.	
+ Kentucky bluegrass	22 to 30 lbs.	

* For best results: (a) legume seed should be inoculated; (b) seeding mixtures containing legumes should preferably be spring-seeded, although the grass may be fall-seeded and the legume frost-seeded; and (c) if legumes are fall-seeded, do so in early fall.
** Tall fescue provides little cover for, and may be toxic to, some species of wildlife. The IDNR recognizes the need for additional research on alternatives to tall fescue, such as buffalograss, orchardgrass, smooth bromegrass, and switch-grass. This research, in conjunction with demonstration areas, should focus on erosion control characteristics, wildlife toxicity, turf durability, and drought resistance.

NOTE: If using mixtures other than those listed here, increase the seeding rate by 50% over the conventional rate.

MULCHING

(Practice 3.15)

Purpose: To promote seed germination and seedling growth, a temporary surface stabilization, and protecting the soil from wind and water impact.

Requirements:
Material: Straw, hay, wood fiber or excelsior, see table for Mulch Materials, Rates, and comments.
Comments:
Coverage: 75% of the soil surface
Anchoring: Required to prevent displacement by wind or water, see table for Mulch Anchoring Methods.

Application:
1. Spread uniformly by hand, hay fork, mulch blower, or hydromulcher with no more than 25% of the surface visible.
2. Anchor immediately if using straw or hay.

Maintenance:
1. Inspect after storm events to check for movement of mulch or for erosion.
2. If washout, breakage, or erosion is present, repair the surface, then re-seed, re-mulch.
3. Continue inspections until vegetation is firmly established.

RIPRAP

(Practice 3.16)

Purpose: To protect slopes, stream banks and channels, which are subject to erosion by water.

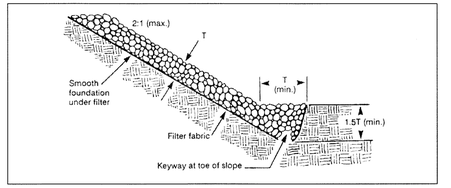
Requirements:
Rock: Hard, angular, weather-resistant and well graded stone, the largest pieces should not exceed two times the specified stone diameter.
Thickness: Two times the specified stone diameter but not greater than 3 inches.
Filter: Under permanent riprap install geotextile fabric for stabilization and filtration.

Installation:
Subgrade Preparation:
1. Remove brush, trees, stumps, and other debris.
2. Excavate only deep enough for both filter and riprap.
3. Cut a keyway in stable material at the base of the slope to reinforce the toe;

Filter Placement:
1. Place geotextile fabric on a smoothed foundation, overlap the edges at least 12 inches and secure with anchor pins spaced every 3 feet along the overlap.

RipRap Placement:
1. Immediately after installing the filter, add the riprap to full thickness in one operation.
2. If fabric is damaged, remove the riprap and repair by adding another layer of fabric, overlapping the damaged area by 12 inches.
3. Place smaller rock in voids to form a dense, uniform, well-graded mass.

Maintenance:
1. Inspect periodically for displaced rock material, slumping, and erosion at edges, especially downstream or downslope.



Proper riprap installation on a slope.

GRASS LINED CHANNEL

(Practice 3.31)

Purpose: To carry concentrated runoff from a small watershed area to a stable outlet without damage from erosion or flooding.

Requirements:
See Channel Cross Section Detail

Seed:

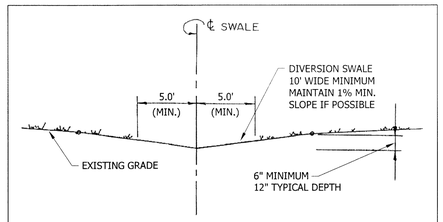
Turf type tall fescue	300-350 lbs/acre
Wheat	1/2 bushel/acre

Fertilizer:
Fertilize according to soil test. If testing is not done, use 600 lbs./acre of 12-12-12 analysis or equivalent fertilizer.

Mulch:
Straw - 1.5-2 tons/acre: Should be dry, unchopped, free of undesirable seeds. Must be crimped or anchored, and cover 75% of the soil surface.

Installation:
1. Remove all vegetation, brush, trees and other debris from the channel area and dispose of property.
2. Excavate and shape the channel to dimensions shown on the plans, dispose of excess soil so surface can enter the channel freely.
3. Add topsoil where the soils exposed during excavation would be unsuitable for grass species.
4. Till the soil to obtain uniform seedbed, working the fertilizer into the soil.
5. Sod or apply seed uniformly with a drill or cultipacker-seeder or by broadcasting, and cover to a depth of 1/4 inch.
6. Mulch sides of channel with straw, as required by Practice 3.15.

Maintenance:
1. Inspect the channel following storm events during and after vegetative establishment, repair and reseed as needed.
2. Check the channel outlet for blockage, sediment and make repairs.
3. Remove significant sediment and debris from the channel to maintain design cross section and grade.



TYPICAL SWALE X-SECTION

TORRENGA ENGINEERING, INC.
CONSULTING ENGINEERS & LAND SURVEYORS
907 RIDGE ROAD, MUNSTER, INDIANA 46321
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COMMUNITY RESOURCES, INC.
PHASE TWO

SWPPP DETAILS & SPECIFICATIONS

03-13-2008 REVISIONS:
DATE: 01-10-2008

CLIENT:
COMMUNITY RESOURCES, INC.
635 Ridge Road
Munster, Indiana 46321

JOB NO: 5038-2007

SCALE: NTS

DARY P. TORRENGA REGISTERED No. 18376 STATE OF INDIANA PROFESSIONAL ENGINEER

SHEET 9 OF 11

FILE NO: Z:\Community Resources, Inc Phase 2 5038-2007\dwg\SWPPP Details.dwg 3/13/2008 9:51:36 AM CDT

ROCK CHUTE

(Practice 3.41)

Purpose: To protect slopes, stream banks and channels, which are subject to erosion. Where run off velocity is great, at the outlet pipe of a detention basin, channel or culvert.

Requirements:

Rock: Hard angular, weather-resistant and well graded stone, the largest pieces should not exceed two times the specified stone diameter.

Thickness: 12" minimum or two times the specified stone diameter, which ever is greater.

Filter: Under permanent riprap install geotextile fabric for stabilization and filtration

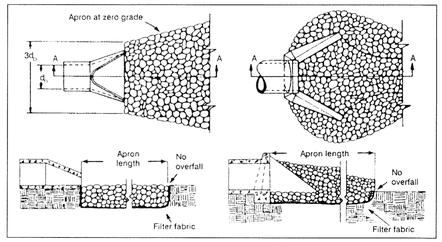
Installation:

Subgrade Replacement:
1. Remove brush, trees, stumps, and other debris.
2. Excavate only deep enough for both filter and riprap.

Filter Placement:
1. Place geotextile fabric on a smoothed foundation, overlap the edges at least 12 inches and secure with anchor pins spaced every 3 feet along the overlap.
2. If fabric is damaged, remove the riprap and repair damaged area by 12 inches.

RipRap Replacement:
1. Immediately after installing the filter, add the riprap to full thickness in one operation to the design elevation, and extend riprap to the top of the bank.
2. Place smaller rock in voids to form a dense, uniform, well-graded mass.
3. Blend the riprap smoothly to the surrounding grade.
4. Stabilize all disturbed areas immediately following installation.

Maintenance:
1. Inspect periodically for displaced rock material, slumping, and erosion at edges, especially down stream or down slope.



Pipe outlet aprons for a channel (left) that is not well defined and (right) that is well defined.

STRAW BALE DROP INLET PROTECTION

(Practice 3.54)

Purpose: To trap sediment at the inlet to a storm drain, allowing full use of the drain system during the construction period.

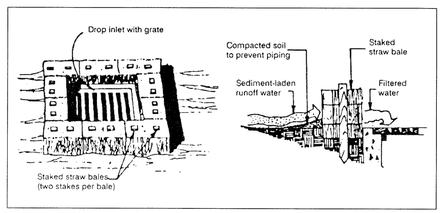
Requirements:

Bale dimensions:	14 inch x 18 inch x 36 inch
Height of bales above inlet:	14 inches
Anchoring:	Two 36-inch long (Minimum) steel rebars or 2x2 inch hardwood stakes driven through each bale.

Installation:
1. To reduce by-pass flow, ensure that the top of the bales will be at least 6 in. below ground elevation on the downslope side of the inlet. This may require constructing below the inlet a temporary dike (compacted to 6 in. higher than the top of the bales).
2. Place the bales lengthwise in the trench so the bindings are oriented around the sides, rather than top and bottom, to minimize deterioration of the bindings.
3. Allow the bales to overlap at the corners, and abut them tightly against each other.
4. Anchor the bales by driving two 36-inch long steel rebars or 2.2-in. hardwood stakes through each bale until nearly flush with the top. Drive the first stake at an angle towards the previously laid bale to force the bales together.
5. Chink (i.e. tightly wedge) straw into any gaps between bales to prevent sediment-laden water from flowing directly into the inlet.

Maintenance:
1. Inspect the drop inlet protection after each storm event, and make needed repairs immediately.
2. Remove sediment from the pool area to ensure adequate runoff storage for the next rain, taking care to not damage or undercut the bales.
3. When the contributing drainage area has been stabilized, remove all bales, construction material, and sediment and dispose of properly, grade the disturbed area to the elevation of the top of the inlet and stabilize.

Note:
1. At owner's discretion Fabric Drop Inlet Protection (in accordance with Practice 3.52) may be substituted for this practice.



Oblique view of a properly installed straw bale drop inlet protection.

BASKET CURB INLET PROTECTION

(Practice 3.63)

Purpose: To prevent excessive sediment from entering storm sewers at curb inlets, allowing full use of the storm drain system during the construction period.

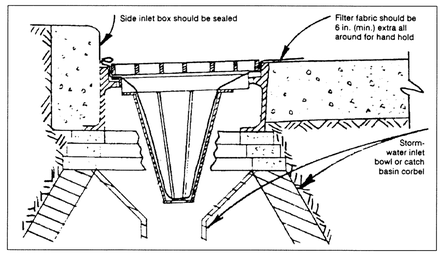
Requirements:

Basket: Fabricated metal with top width-length dimensions such that the basket fits into the inlet without gaps, and line it with Geotextile fabric for filtration.

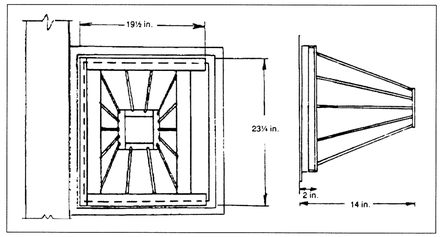
Installation:
1. Install basket curb inlet protections as soon as inlet boxes are installed in a new development or before land disturbing activities begin in a stabilized area.
2. Remove the grate, and place the basket in the inlet.
3. Cut and install a piece of filter fabric large enough to line the inside of the basket and extend at least 6 in. beyond the frame.
4. Replace the inlet grate, which also serves to anchor the fabric.

Maintenance:
1. Inspect after each storm event
2. Remove built-up sediment and replace the Geotextile fabric after each storm event.

Note:
1. At owner's discretion, Sandbag Curb Inlet Sediment Barriers (in accordance with Practice 3.64) may be substituted for this practice.



Cross-sectional view of a basket curb inlet protection.



Top view (left) and front view (right) of a basket curb inlet protection.

SILT FENCE

(Practice 3.74)

Purpose: To retain sediment from small sloping disturbed areas by reducing the velocity of sheet flow.

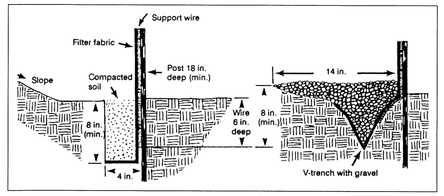
Requirements:

Trench:	8" minimum depth, flat bottom or v-shaped, filled with compacted soil or gravel to bury lower portion of support wire and/or fence fabric.
Support posts:	2" x 2" hardwood posts set at lease 1 foot deep.
Spacing of Posts:	8-foot maximum if fence supported by wire, otherwise 6 foot for extra strength fabric without wire backing.
Fence height:	A 3 feet minimum or high enough so depth of impounded water does not exceed 1.5 feet at any point along fence line.
Support wire : (optional)	14 gauge, 6" mesh wire fence. (needed if using standard-strength fabric
Fence Fabric:	Woven or non-woven Geotextile fabric with specified filtering efficiency and tensile strength and containing UV inhibitors and stabilizers to ensure 6 months minimum life at temperatures 0-120 degrees F.

Installation:
1. Along the entire intended fence line, maintain contour as much as possible, dig an 8" deep flat bottom or v-shaped trench.
2. On the downslope side of the trench, drive the post at least 1 foot into the ground. (Note: If the fence has pre-attached posts or stakes, drive them deep enough so the fabric is satisfactorily in the trench per step 6)
3. Fasten support wire fence to the upslope side of the posts, extending it 8" into trench. (use only if required by manufacturer)
4. Run a continuous length of Geotextile fabric along upslope side of posts.
5. If a joint is necessary, nail the overlap to the nearest post with a wood lath.
6. Place the bottom 1' of fabric in the 8" deep trench, extending the remaining 4" of fabric toward the upslope side.
7. Backfill the trench with compacted earth.

Maintenance:
1. Inspect silt fence periodically and after each storm event.
2. If fence fabric tears, starts to decompose, or becomes ineffective, replace the affected portion.
3. Remove deposited sediment when it reaches half the height of the fence at its lowest point or is causing the fabric to bulge.
4. Take care to avoid undermining the fence during clean out.
5. After watershed has been stabilized, remove fence and sediment deposits, bring the disturbed area to grade and stabilize.

Note:
1. At owner's discretion, Straw Bale Dam (straw bale filter) (in accordance with Practice 3.75) may be substituted for this practice.)



Detailed example of silt fence installation (showing flat-bottom and v-shaped trenches).

STEP 1. EVALUATE THE SITE.

Before construction, evaluate the entire site, marking for protection any important trees and associated rooting zones, unique areas to be preserved, on-site septic system absorption fields, and vegetation suitable for filter strips, especially in perimeter areas.

Identify Vegetation To Be Saved.

- Select and identify the trees, shrubs, and other vegetation that you want to save (*see "Vegetative Filter Strips" under Step 2 below*).

Protect Trees and Sensitive Areas.

- To prevent root damage, do not grade, burn, place soil piles, or park vehicles near trees or in areas marked for preservation.
- Place plastic mesh or snow fence barriers around the tree's dripline to protect the area below their branches.
- Place a physical barrier, such as plastic fencing, around the area designated for a septic system absorption field (if applicable).

STEP 2. INSTALL PERIMETER EROSION AND SEDIMENT CONTROLS.

Identify the areas where sediment-laden runoff could leave the construction site, and install perimeter controls to minimize the potential for off-site sedimentation. It's important that perimeter controls are in place before any other earth-moving activities begin.

Protect Down-Slope Areas.

With Vegetative Filter Strips

- On slopes of less than 6 percent, preserve a 20- to 30-foot wide vegetative buffer strip around the perimeter of the property, and use it as a filter strip for trapping sediment.
- Do not mow filter strip vegetation shorter than 4 inches.

With Silt Fence

- Use silt fencing along the perimeter of the lot's downslope side(s) to trap sediment

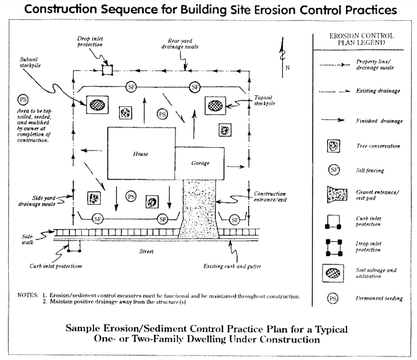
Install Gravel Drive.

- Restrict all lot access to this drive to prevent vehicles from tracking mud onto roadways

Protect Storm Sewer Inlets.

- Protect nearby storm sewer curb inlets with stone-filled or gravel-filled geotextile bags or equivalent measures before disturbing soil.
- Protect on-site storm sewer drop inlets with silt fence material , straw bales, or equivalent measures before disturbing soil.

Construction Sequence for Building Site Erosion Control Practices



NOTES 1. Erosion/sediment control measures must be functional and be maintained throughout construction.
2. Maintain positive drainage away from the structure(s).

Sample Erosion/Sediment Control Practice Plan for a Typical One- or Two-Family Dwelling Under Construction

STEP 3. PREPARE THE SITE FOR CONSTRUCTION.

Prepare the site for construction and for installation of utilities. Make sure all contractors (especially the excavating contractor) are aware of areas to be protected.

Salvage and Stockpile the Topsoil/Subsoil.

- Remove topsoil (typically the upper 4 to 6 inches of soil material) and stockpile.
- Remove subsoil and stockpile separately from the topsoil.
- Locate the stockpiles away from any downslope street, driveway, stream, lake, wetland, ditch, or drainageway.
- Immediately after stockpiling, temporary-seed the stockpiles with annual rye or winter wheat and/or place sediment barriers around the perimeter of the piles.

STEP 4. BUILD THE STRUCTURE(S) AND INSTALL THE UTILITIES.

Construct the home and install the utilities; also install the sewage disposal system and drill the water well (if applicable); then consider the following:

Install Downspout Extenders.

- Although not required, downspout extenders are highly recommended as a means of preventing lot erosion from roof runoff.
- Add the extenders as soon as the gutters and downspouts are installed
- Be sure the extenders have a stable outlet, such as the street, sub-walk, or a well vegetated area.

STEP 5. MAINTAIN THE CONTROL PRACTICES.

Maintain all erosion and sediment control practices until construction is completed and the lot is stabilized.

- Inspect the control practices a minimum of twice a week and after each storm event, making any needed repairs immediately.
- Toward the end of each work day, sweep or scrape up any soil tracked onto roadways. *Do not flush areas with water.*
- By the end of the next work day after a storm event, clean up any soil washed off-site.

STEP 6. REVEGETATE THE BUILDING SITE.

Immediately after all outside construction activities are completed, stabilize the lot with sod, seed, and/or mulch.

Redistribute the Stockpiled Subsoil and Topsoil.

- Spread the stockpiled subsoil to rough grade.
- Spread the stockpiled topsoil to a depth of 4 to 6 inches over rough-graded areas.
- Fertilize and lime according to soil test results or recommendations of a seed supplier or a professional landscaping contractor

Seed or Sod Bare Areas.

- Contact local seed suppliers or professional landscaping contractors for recommended seeding mixtures and rates.
- Follow recommendations of a professional landscaping contractor for installation of sod.
- Water newly seeded/sodded areas every day or two to keep the soil moist. Less watering is needed once grass is 2 inches tall.

Mulch Newly Seeded Areas.

- Spread straw mulch on newly seeded areas, using 1½ to 2 bales of straw per 1,000 square feet.
- On flat or gently sloping land, anchor the mulch by crimping it 2 to 4 inches into the soil. On steep slopes, anchor the mulch with netting or tackifiers. An alternative to anchored mulch would be the use of erosion control blankets.

STEP 7. REMOVE REMAINING TEMPORARY CONTROL MEASURES.

Once the sod and/or vegetation is well established, remove any remaining temporary erosion and sediment control practices, such as:

- Downspout extenders. (Or shorten to outlet onto the vegetated areas, allowing for maximum infiltration)
- Storm sewer inlet protection measures.

EROSION CONTROL PRACTICES

FOR INDIVIDUAL LOT

NOTE: Erosion control measures shown on this detail are not the responsibility of the developer. Each builder will be responsible for proper implementation of these items.

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COMMUNITY RESOURCES, INC.
PHASE TWO

SWPPP DETAILS & SPECIFICATIONS

03-13-2008
REVISIONS:
DATE: 01-10-2008

CLIENT:
COMMUNITY RESOURCES, INC.
905 Ridge Road
Munster, Indiana 46321

JOB NO: 5038-2007

SCALE: NTS

GARY P. TORRENGA REGISTERED No. 18376 STATE OF INDIANA PROFESSIONAL ENGINEER

SHEET 10 OF 11

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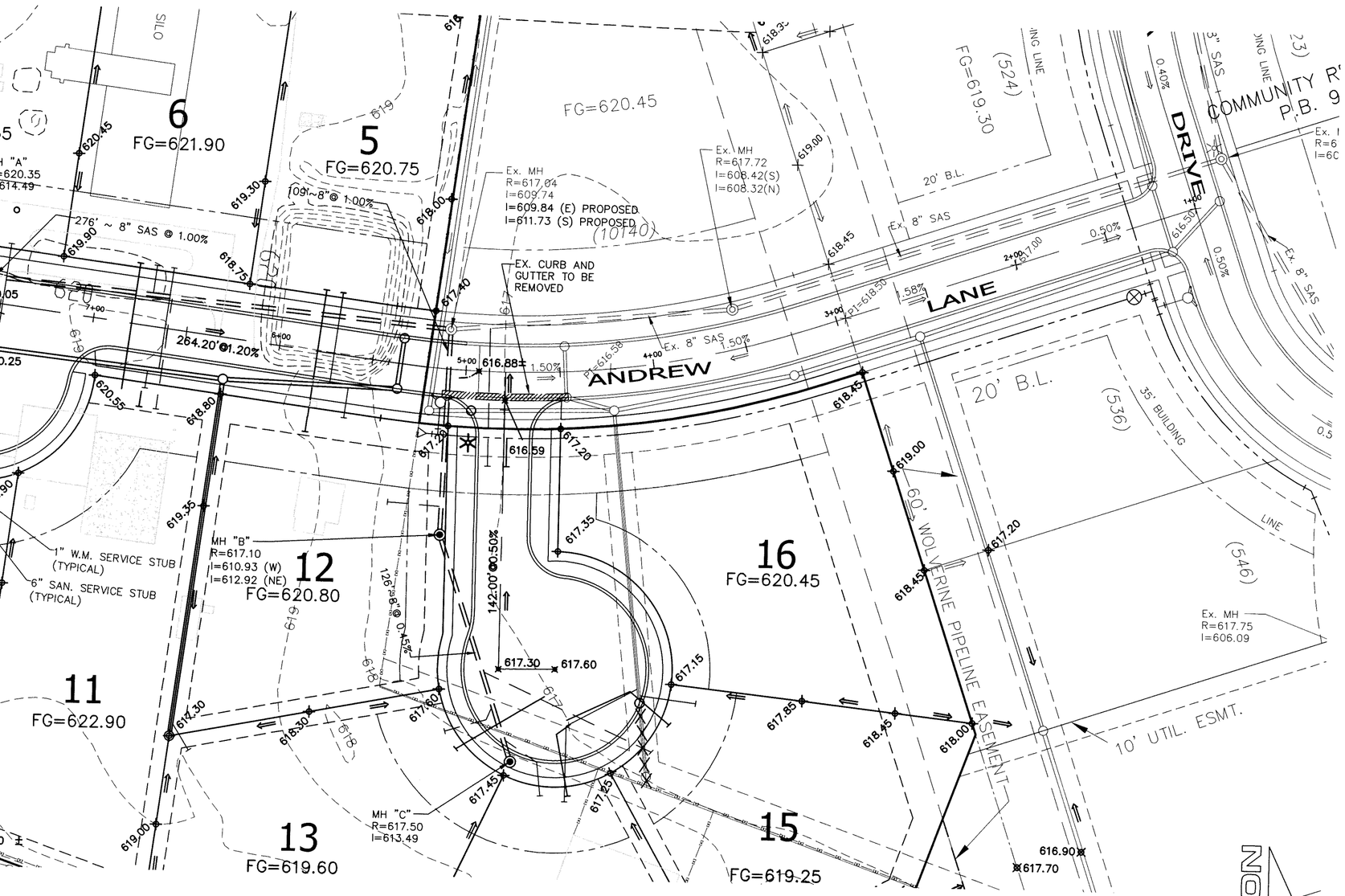
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FG=621.90
5
FG=620.75
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(524)
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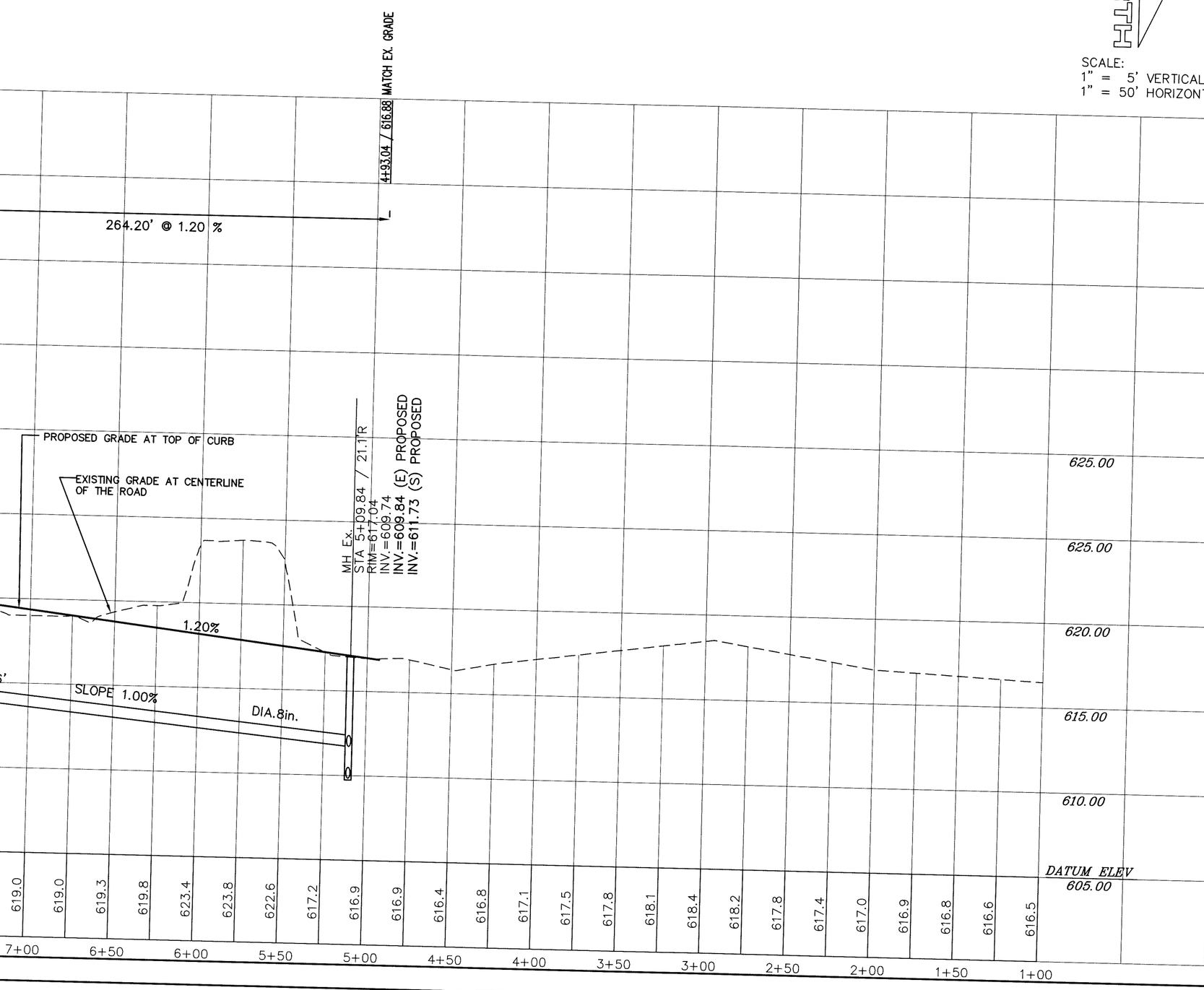
(546)
16
FG=620.45
12
FG=620.80
11
FG=622.90
13
FG=619.60
15
FG=619.25
276' ~ 8" SAS @ 1.00%
264.20'@1.20%
142.00'@0.50%
Ex. MH
R=617.04
I=609.74
I=609.84 (E) PROPOSED
I=611.73 (S) PROPOSED
Ex. MH
R=617.72
I=608.42(S)
I=608.32(N)
EX. CURB AND GUTTER TO BE REMOVED
ANDREW LANE
DRIVE
20' B.L.
35' BUILDING
60' WOLVERINE PIPELINE EASEMENT
10' UTIL. ESMT.
Ex. 8" SAS
Ex. MH
R=617.75
I=606.09
MH "B"
R=617.10
I=610.93 (W)
I=612.92 (NE)
1" W.M. SERVICE STUB (TYPICAL)
6" SAN. SERVICE STUB (TYPICAL)
MH "C"
R=617.50
I=613.49
616.88±
616.59
PI=616.58
PI=618.50
1.50%
0.40%
0.50%
1.58%

NORTH

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



COMMUNITY RESOURCES, INC. – PHASE TWO
ANDREW LANE ||| DEANNE COURT PROFILES

DATE: 01-10-2008
REVISED: 03-13-2008

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