PLAN COMMISSION STAFF REPORT

To:	Members of the Plan Commission
From:	Tom Vander Woude, Planning Director
Meeting Date:	October 12, 2021
Agenda Item:	PC Docket No. 21-016
Hearing:	**PUBLIC HEARING**
Application Type:	**SUBDIVISION – PRELIMINARY PLAT**
Summary:	Community Resources Inc. requesting approval of a preliminary plat for Community Resources, Inc Phase 2

Applicant:	Community Resources, Inc.
Property Address:	Approximately 10200 Old Dyer Rd.
Current Zoning:	CD-3.R1 Neighborhood – 70' Lot One Family Residence Character District
Adjacent Zoning:	North: CD-3.R2 South: CD-3.R2 East: CD-3.R2 West: CD-3.R2
Action Requested:	Approve preliminary plat
Additional Actions Required:	Approve final plat
Attachments:	Community Resources, Inc. Phase Two Engineering Plan Set dated 09.24.2021 Munster staff plan review memo dated 09.30.2021 Board of Parks and Recreation memo Re: Community Resources Phase 2 park land recommendation dated 10.05.2021

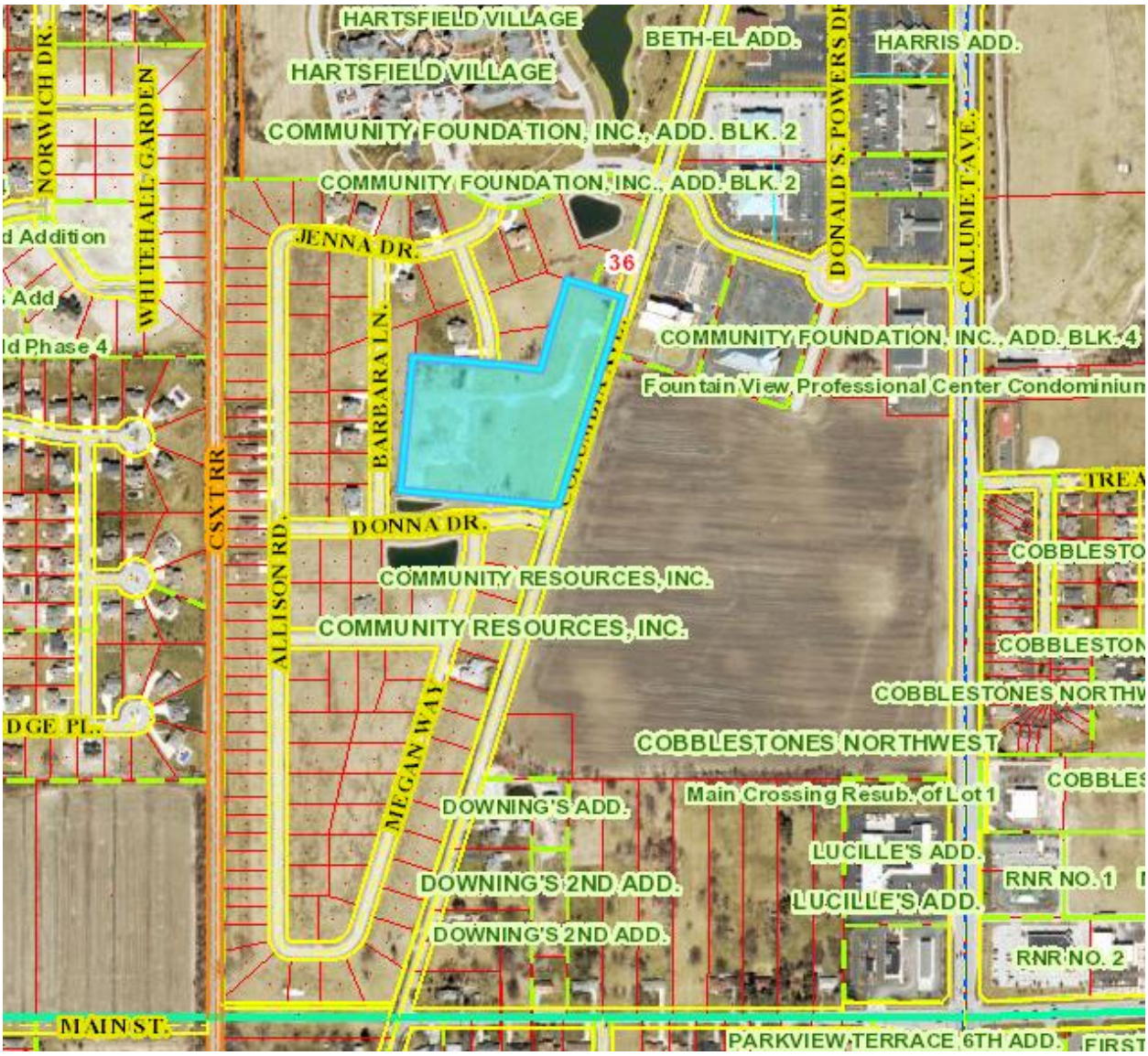


Figure 1 Subject property highlighted in blue.

BACKGROUND

The Town of Munster approved a preliminary plat for Community Resources, Inc. Phase 2 in February 2008. The plat included a portion of Phase 1 of the subdivision. The developer did not install public improvements and submit a final plat and the subdivision was never recorded. The property was not developed and the lots from Phase 1 that were to be incorporated into Phase 2 were sold.

Community Resources Inc. has now requested approval of a revised preliminary plat. The proposed plat modifies the geographic extent of the previous subdivision, eliminates one of the cul-de-sacs, reduces the number of lots from 16 to 12, expands the detention outlot, and designates an approximately 1.1-acre parcel of land at the northeast corner as a park.

Town legal counsel has advised that the attached plat is a new subdivision that requires a public hearing and approval by the Plan Commission.

Staff reviewed a plan set dated September 24, 2021 and provided the attached comments.

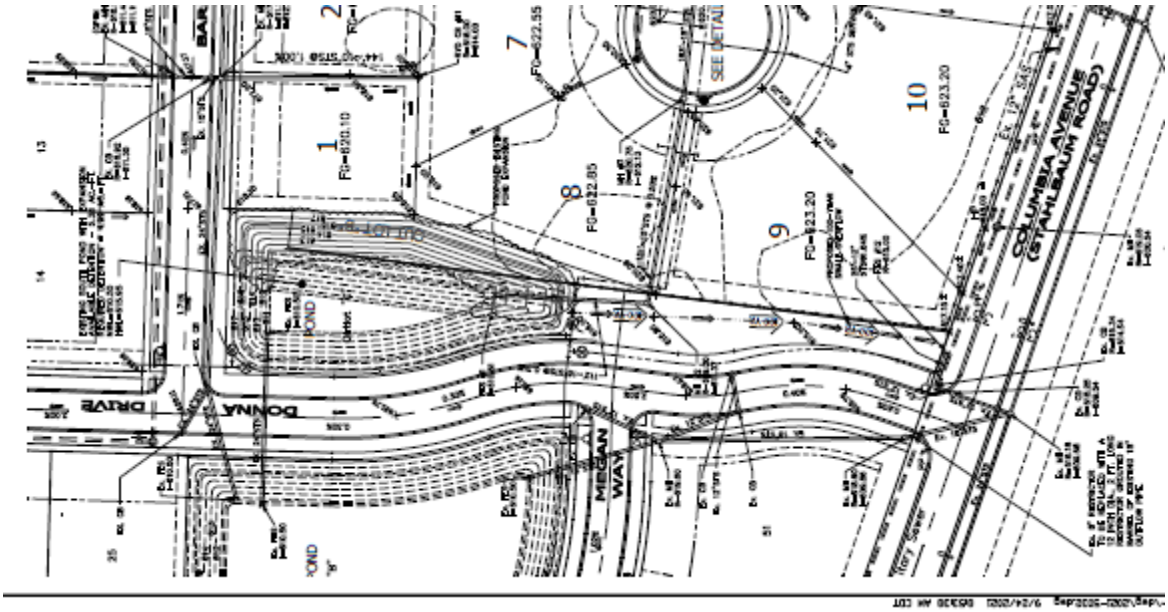
DISCUSSION

Staff notes that the following issues must be addressed by the Plan Commission in order to give direction to the applicant.

Detention Pond

The Town of Munster Infrastructure Standards, which have not been changed since 2003 and were in effect when Community Resources Phase 1 was developed, require retention ponds to be set back from the right-of-way ten feet plus two feet for every one foot of depth. The retention pond adjacent to Donna Drive in Outlot C appears to be approximately 7.5 feet deep and therefore should be set back approximately 25 feet, rather than installed directly adjacent to the right-of-way. The pond on the south side of Donna Drive also appears to not only be non-compliant with the standard but to encroach into the right-of-way.

In addition, the subdivision ordinance requires that sidewalks be installed at the edge of the right-of-way. Because it appears that when the developer planned and installed Donna Drive and the adjacent retention ponds, the required set back was not adhered to and the grading was done incorrectly - encroaching into the public right-of-way - there is no space for sidewalks and parkways with street trees. The area in question is shown in the images below. The top image is the proposed plan and the bottom image is an aerial of roughly the same area.



The developer has determined that it would not be possible to correct this noncompliance without buying back lots in Phase 1 and eliminating lots in Phase 2. As an alternative measure of meeting the requirement of providing safe sidewalks within the subdivision, the developer is proposing to install sidewalks closer to the curb line and include a railing on the pondside edge of the sidewalk. There would be no parkway along the south side of Donna Drive. There may be room for a parkway along the north side.

The Plan Commission is being asked whether this is an acceptable compromise.

Waiver of Subdivision Cul-de-sac Standard
Sec. 26-335.d.(1) of the Munster Subdivision Ordinance states:

A cul-de-sac shall not exceed 600 feet in length and shall have a turnaround not less than 125 feet in diameter of right-of-way and an outside curb diameter of 100 feet at the closed end.

Staff notes that the proposed amendment to the subdivision includes a 657-foot cul-de-sac. If the Plan Commission wishes to waive this requirement of the subdivision ordinance, it is required to specifically list the waiver in their approval.

The Plan Commission is being asked whether this waiver is acceptable.

Dedication of Parkland
An approximately 1.1-acre parcel of land is shown to be a "Park Area". The Munster Park Board has provided the attached letter proposing the conditions upon which the Board would accept the dedication of the parkland.

The Plan Commission is being asked to accept the Park Board recommendation.

RECOMMENDATION

The Plan Commission may wish to consider the following motion:

Motion to continue the public hearing for PC Docket No. 21-016 to the November 9, 2021 meeting of the Plan Commission.

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

INDEX	
PAGE	DESCRIPTION
COVER	TITLE PAGE
C–1.0	EXISTING TOPOGRAPHY & UTILITIES
C–2.0	LOT LAYOUT
C–3.0	STORM SEWERS AND GRADING PLAN
C–4.0	SANITARY SEWERS, WATER MAIN, & STREET LIGHT
C–4.1	PROFILE
C–5.0 TO C–5.2	STANDARD DETAILS & SPECIFICATIONS
C–6.0	STORM WATER POLLUTION PREVENTION PLAN (SWPPP)
C–7.0 TO C–7.1	SWPPP DETAILS & SPECIFICATIONS
1 OF 1	FINAL PLAT

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.

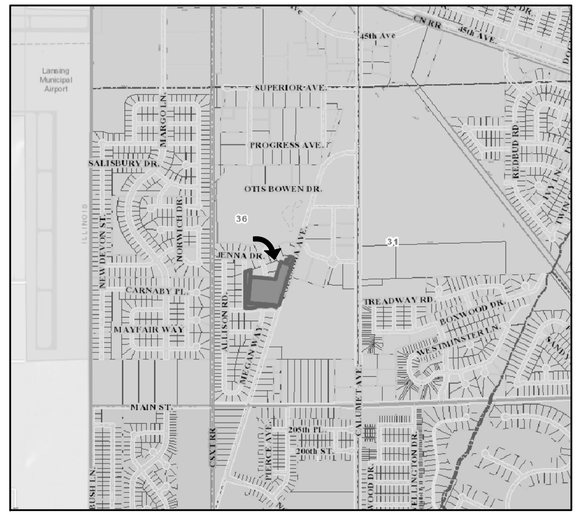
County: Lake

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

Township: North

Date and Revisions:

NO.	DATE	DESCRIPTION	BY
1	09–24–2021	1ST SUBMITTAL TO THE TOWN OF MUNSTER	DT/DM/SP/MH



VICINITY MAP

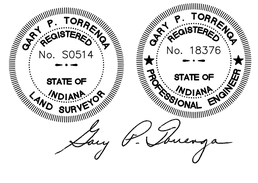
DRAWING SET PROGRESS:

- [x] PRELIMINARY ENGINEERING - FOR REVIEW / APPROVAL
- [ ] FINAL ENGINEERING - FOR CONSTRUCTION

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

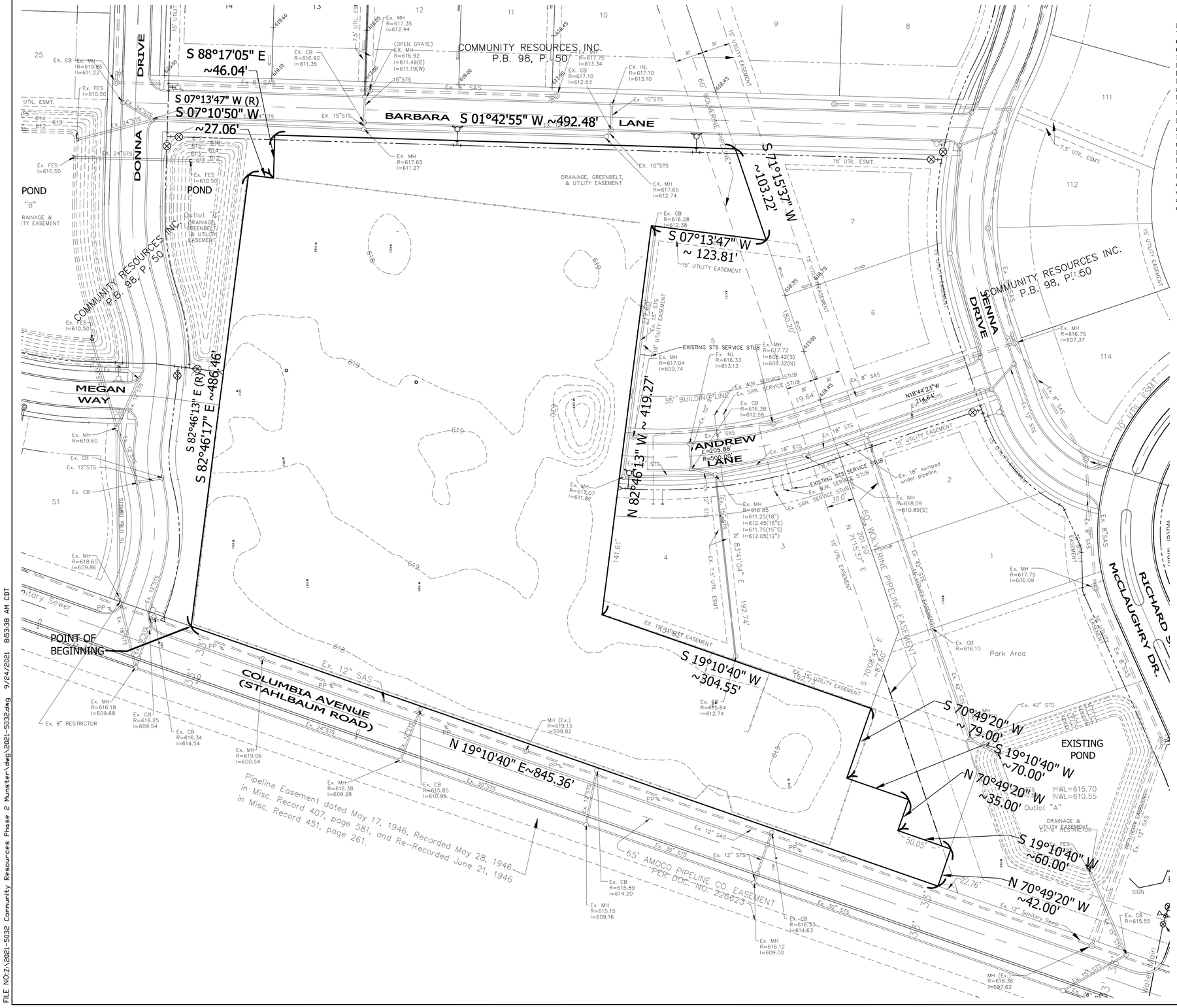
PREPARED BY:
Torrenga Engineering, Inc.
907 Ridge Road
Munster, Indiana 46321
(219)836–8918

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



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 part of 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 Resources, 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, to the Easterly most corner of Lot 3 in said Community Resources, Inc.; thence South 19°10'40" West along the Easterly line of Lots 3 and 4 in said Community Resources, Inc., a distance 304.55 feet to the Southeast corner of said Lot 4; thence North 82°46'13" West, a distance of 419.27 feet along the South line of Lots 4 and 5 in said Community Resources, Inc., to the Southwest corner of said Lot 5; thence North 07°13'47" West, a distance of 123.81 feet along the Westerly line of Lot 5 in said Community Resources, Inc., to the Northwest corner of said Lot 5, said line also lying on the Southerly line of Lot 7 in said Community Resources, Inc.; thence South 71°15'37" West, a distance of 103.22 feet along the Southerly line of Lot 7 in said Community Resources, Inc., to the Southwest corner of said Lot 7 also being 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°10'50" 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 7.348 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

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

REVISIONS:
DATE: 09-24-2021

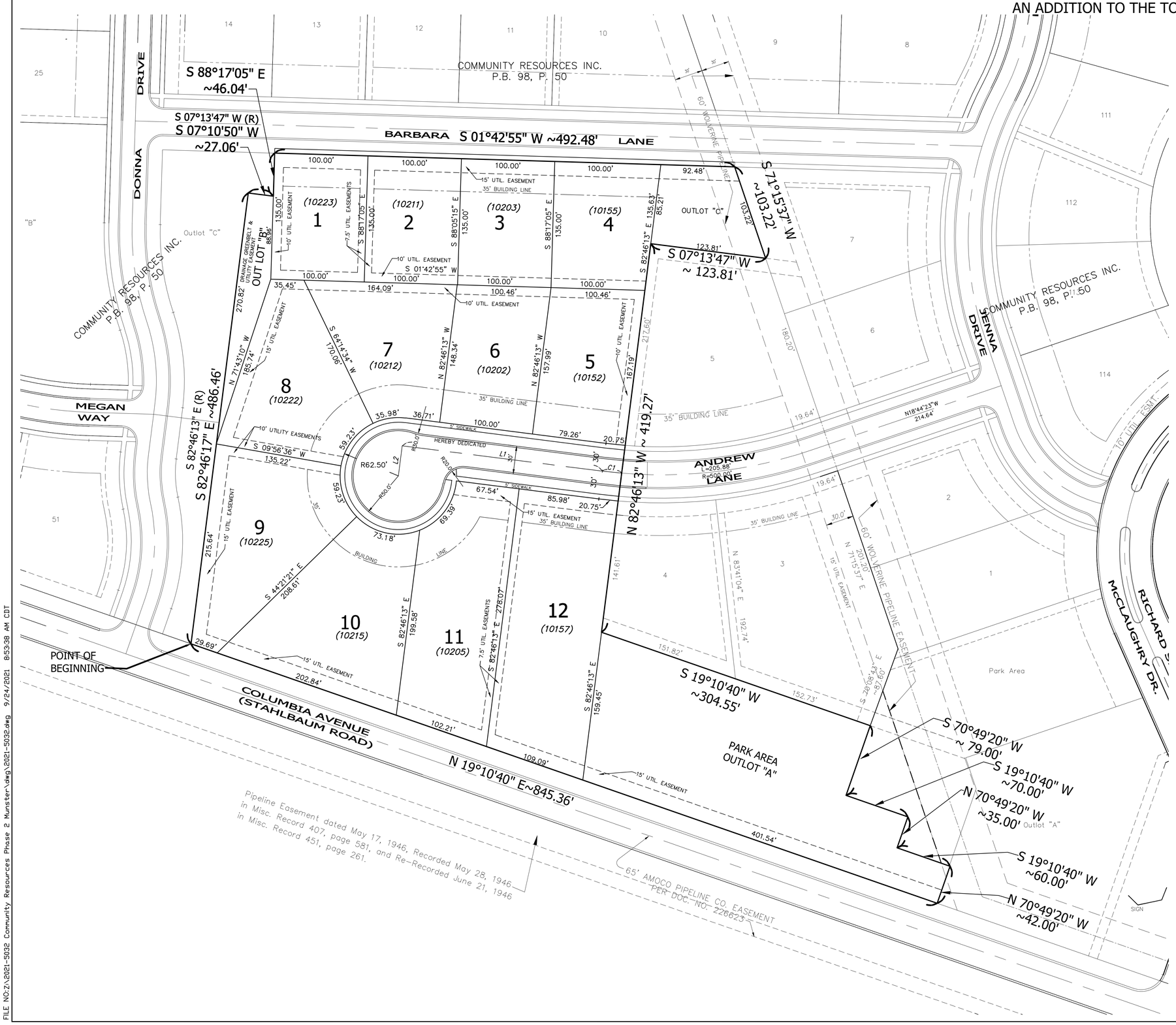
CLIENT:
Community Resrouces, Inc.
905 Ridge Road
Munster, Indiana 46321

JOB NO: 2021-5032
SCALE: 1"=50'

SHEET
C-1.0

FILE NO:Z:\2021-5032 Community Resources Phase 2 Munster\dwg\2021-5032.dwg 9/24/2021 8:53:38 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	32.50'	N 82°46'13" 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'

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

TORRENGA ENGINEERING, INC.
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Tel. No.: (219) 836-8918 website: www.torrenga.com

COMMUNITY RESOURCES, INC.
PHASE TWO
LOT LAYOUT

REVISIONS:
DATE: 09-24-2021

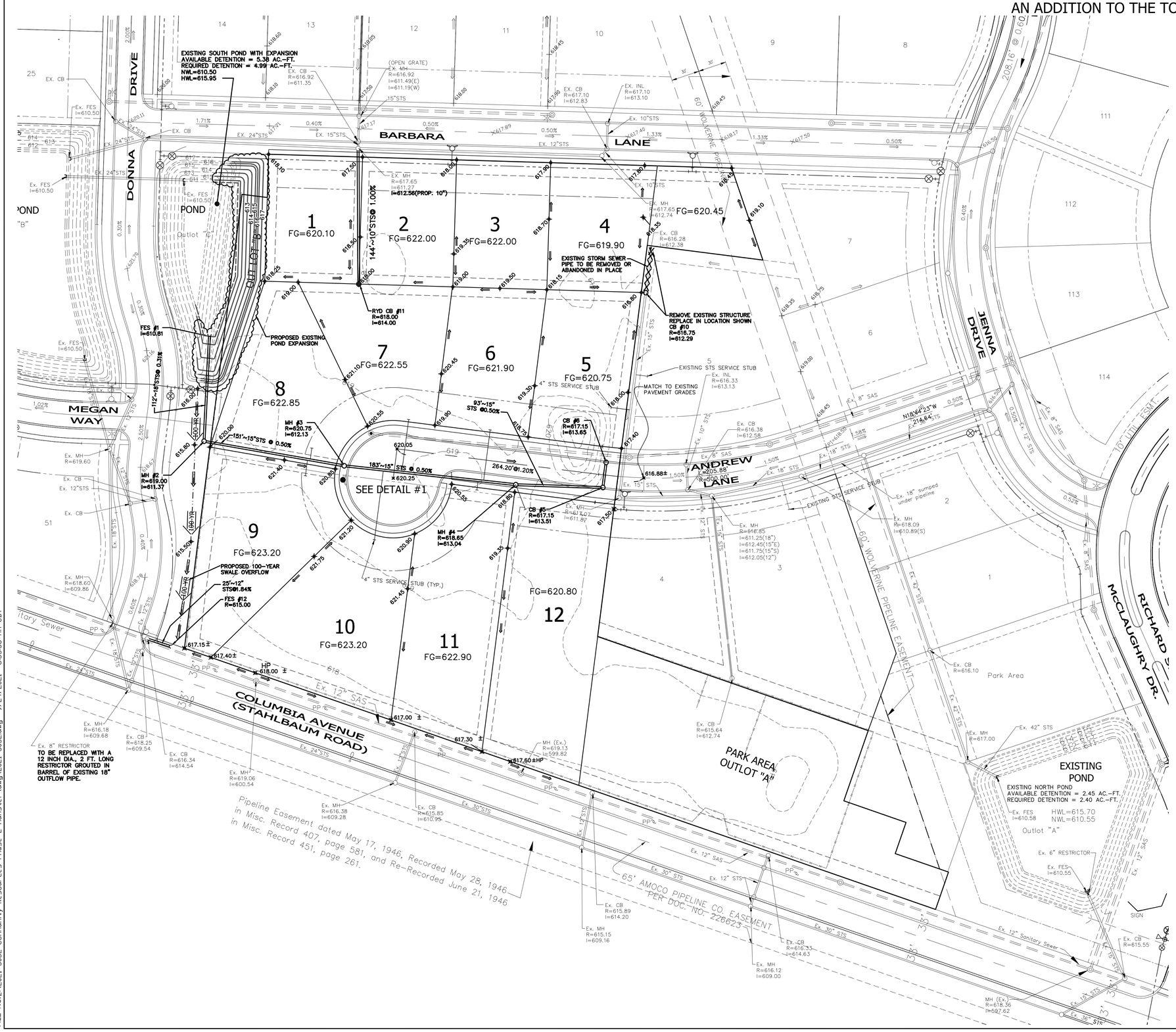
CLIENT:
Community Resrouces, Inc.
905 Ridge Road
Munster, Indiana 46321

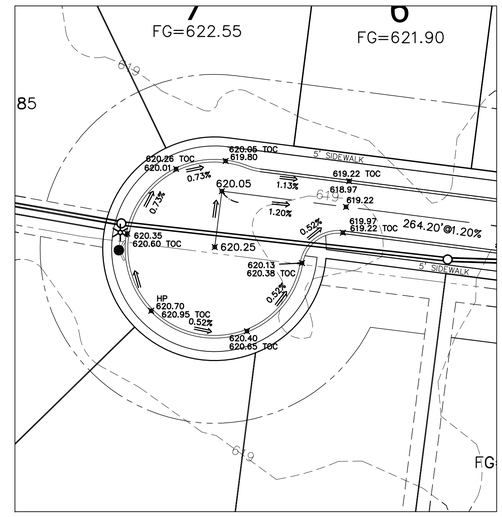
JOB NO: 2021-5032
SCALE: 1"=50'

SHEET
C-2.0

FILE NO:Z:\2021-5032 Community Resources Phase 2 Munster\dwg\2021-5032.dwg 9/24/2021 8:53:38 AM CDT

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





GRADING DETAIL #1
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 (900.00)
- FINISH GRADE (FG)
- CONTOUR (000)

LEGEND
EXISTING

- WATER MAIN
- WATER VALVE
- FIRE HYDRANT
- SANITARY SEWER
- SANITARY MH
- STORM SEWER
- STORM MH/CB/INL
- GRADES (×888.88)
- STREET LIGHT
- CONTOUR (000)

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.

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

REVISIONS:
DATE: 09-24-2021

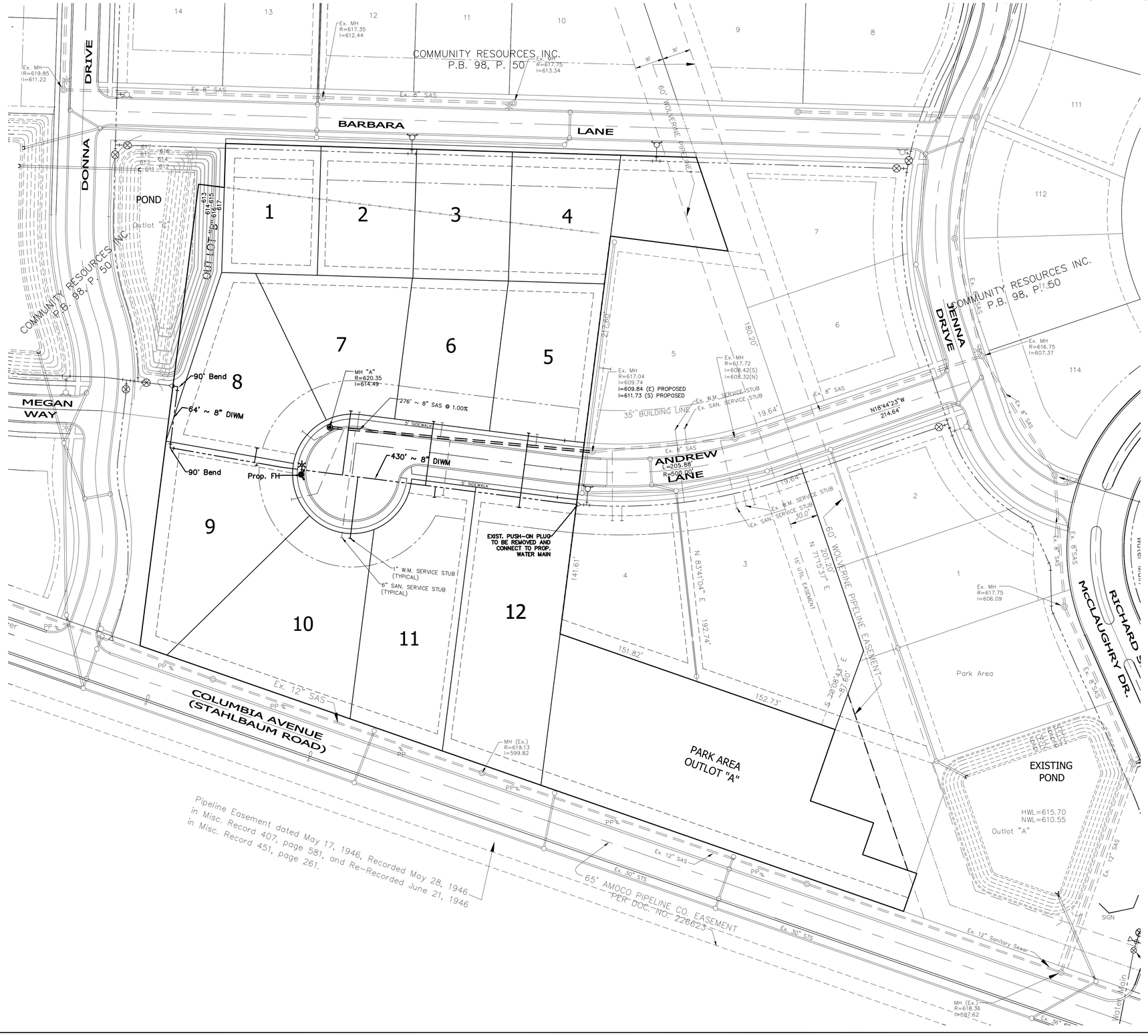
CLIENT:
Community Resrouces, Inc.
905 Ridge Road
Munster, Indiana 46321

JOB NO: 2021-5032
SCALE: 1"=50'

SHEET
C-3.0

FILE NO:Z:\2021-5032 Community Resources Phase 2 Munster\dwg\2021-503d.dwg 9/24/2021 8:53:38 AM CDT

COMMUNITY RESOURCES, INC.
PHASE TWO
AN ADDITION TO 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

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

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.

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

REVISIONS:
DATE: 09-24-2021

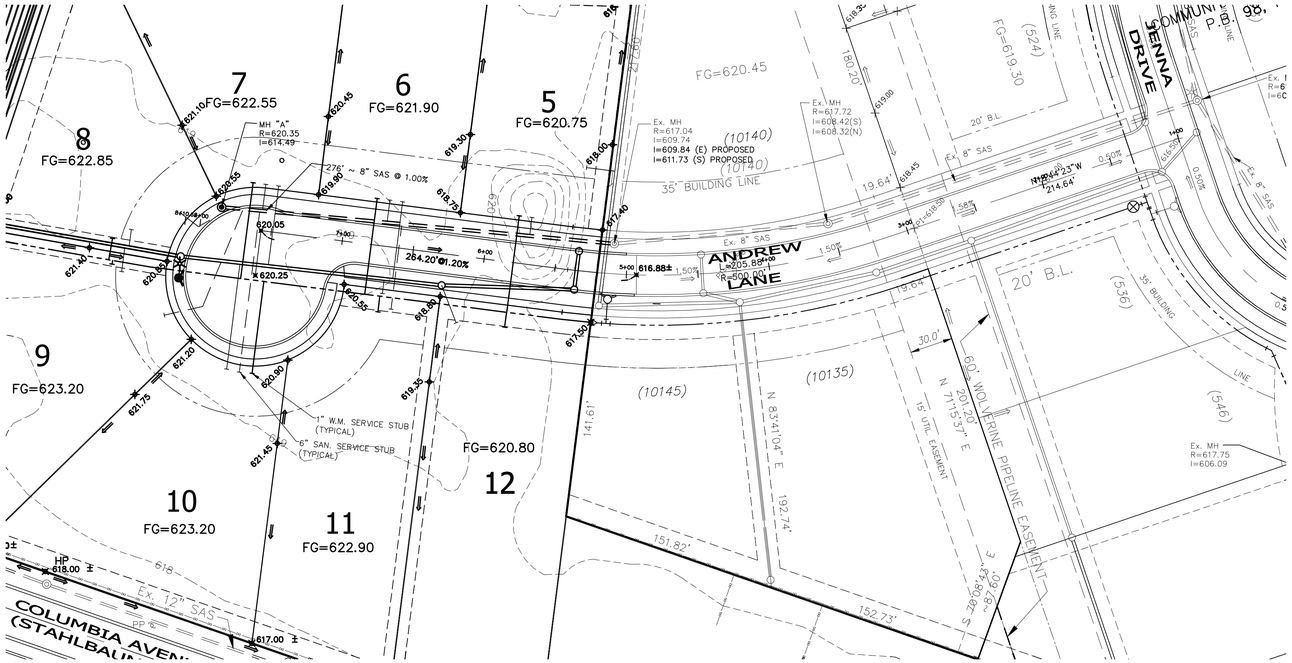
CLIENT:
Community Resrouces, Inc.
905 Ridge Road
Munster, Indiana 46321

JOB NO: 2021-5032

SCALE: 1"=50'

SHEET
C-4.0

FILE NO:Z:\2021-5032 Community Resources Phase 2 Munster\dwg\2021-5032.dwg 9/24/2021 8:53:38 AM CDT

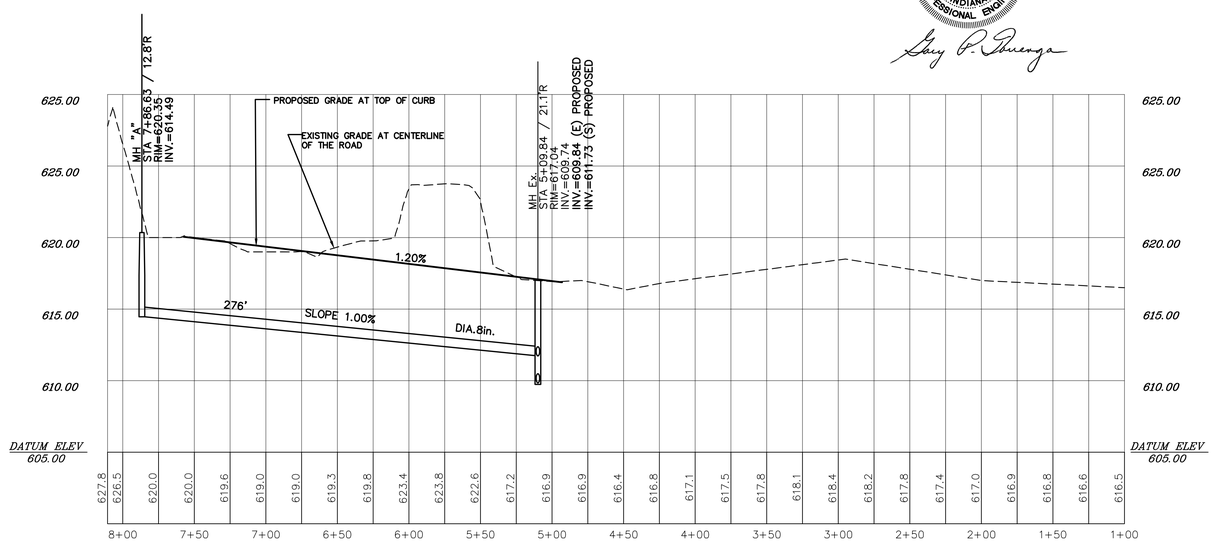


SCALE:
1" = 5' VERTICAL
1" = 50' HORIZONTAL

7+57.24 / 620.05 CL ANDREW LANE

4+93.04 / 616.88 MATCH EX. GRADE

264.20' @ 1.20 %



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website: www.torrenga.com

COMMUNITY RESOURCES, INC.
PHASE TWO
PROFILE

REVISIONS:
DATE: 09-24-2021

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

JOB NO: 2021-5032

SCALE: 1"=50'

SHEET
C-4.1

FILE N:\2021-5032 Community Resources Phase 2 Munster\dwg\2021-5032.dwg 9/24/2021 8:53:38 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 the 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.

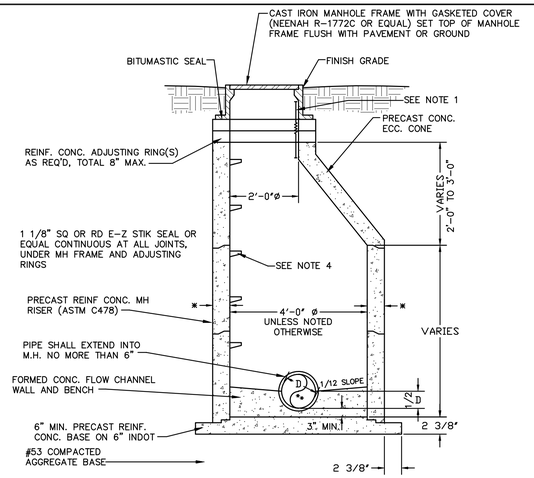
10. The Contractor is responsible for the preparation of "As Built" construction drawings showing actual sizes and lengths of pipe installed (i.e. from manhole to manhole or tee to valve, etc.), location of service taps and any structures added or omitted in comparison with these engineering plans. The 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.



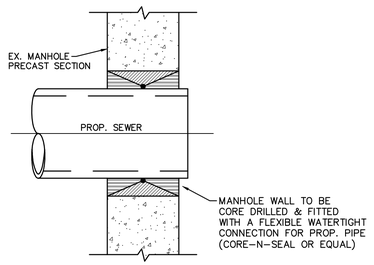
* MANHOLE WALL THICKNESS TABLE

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

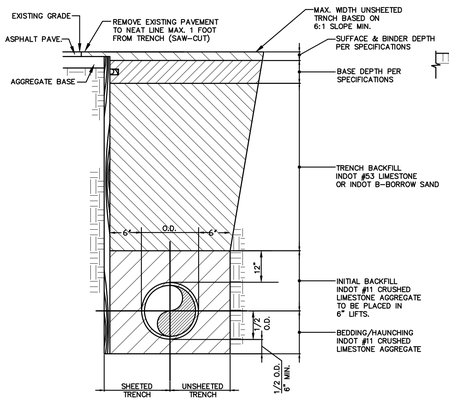
NOTES:
1. INTERNAL MH FRAME-CHIMNEY SEAL AS MANUFACTURED BY CRETEX SPECIALTY PRODUCTS OR EQUAL REQ'D FOR ALL MANHOLES IN PAVED AREAS ONLY.
2. WHERE DEPTH FROM TOP OF CASTING TO INVERT IS LESS THAN 5'-0", USE FLAT TOP MANHOLE TYPE "C" IN LIEU OF ECCENTRIC CONE
3. WATERTIGHT SEAL IS REQ'D BETWEEN PRECAST 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.

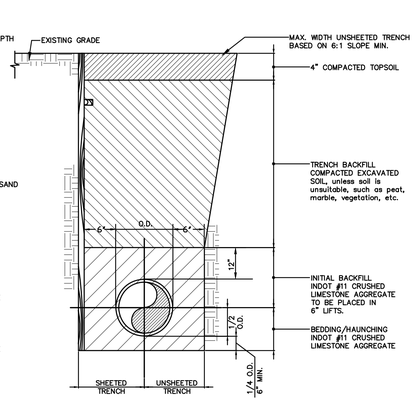
TYPE "A" MANHOLE
NOT TO SCALE



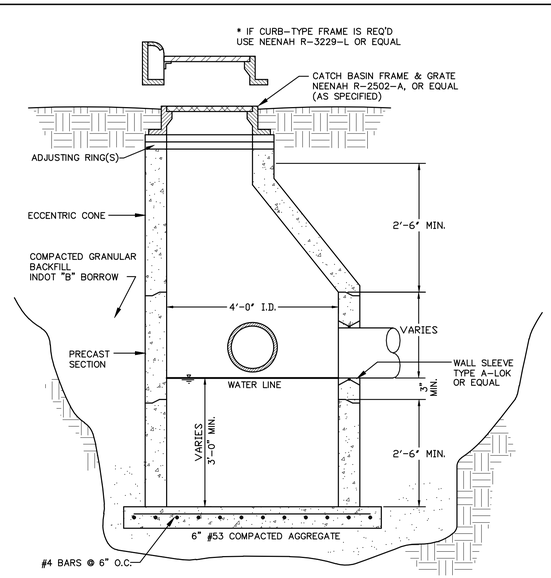
PIPE CONNECTION DETAIL
TO EXISTING MANHOLE
NOT TO SCALE



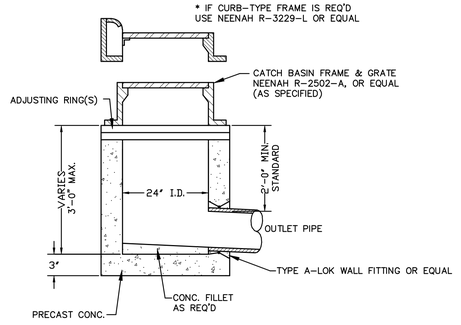
PIPE BEDDING DETAIL
FOR TRENCH IN PAVED AREAS
NOT TO SCALE



PIPE BEDDING DETAIL
FOR TRENCH IN GRASS AREAS
NOT TO SCALE

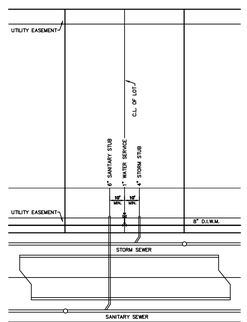


TYPE "A" CATCH BASIN
NOT TO SCALE



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

STANDARD INLET
NOT TO SCALE



TYPICAL UTILITY SERVICE DETAIL
NOT TO SCALE

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

Gary P. Torrenga

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

REVISIONS:
DATE: 09-24-2021

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

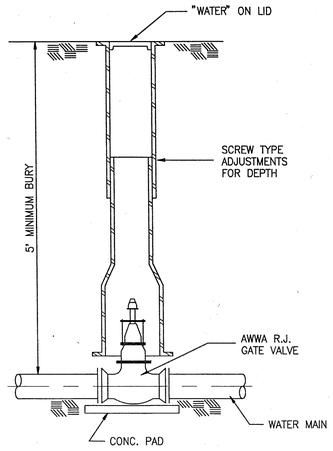
JOB NO: 2021-5032

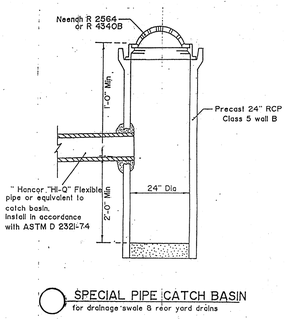
SCALE: NTS

SHEET
C-5.0

FILE NO:Z:\2021-5032 Community Resources Phase 2 Munster\dwg\2021-5032.dwg 9/24/2021 8:53:38 AM CDT

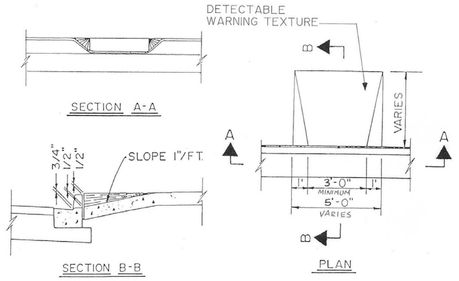
MAIN LINE WATER VALVE 10" or smaller



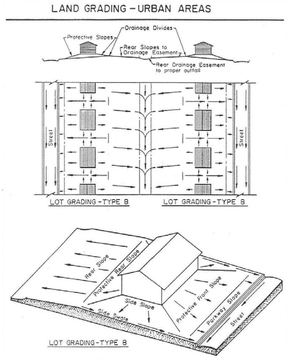


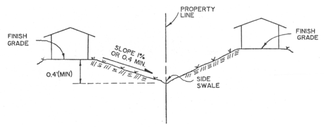
SPECIAL PIPE CATCH BASIN
for drainage swale & rear yard drains

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

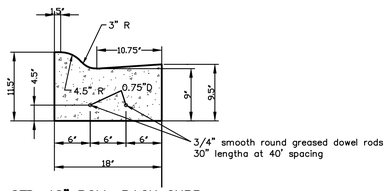


STANDARD WHEELCHAIR RAMP DETAIL
NOT TO SCALE



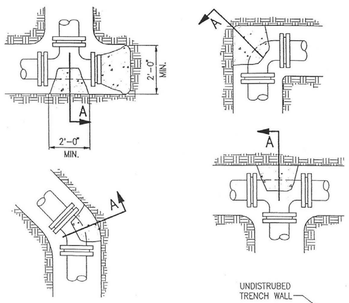


TYPICAL SIDE YARD GRADING DETAIL
(UNLESS SPECIFIED OTHERWISE ON PLANS)

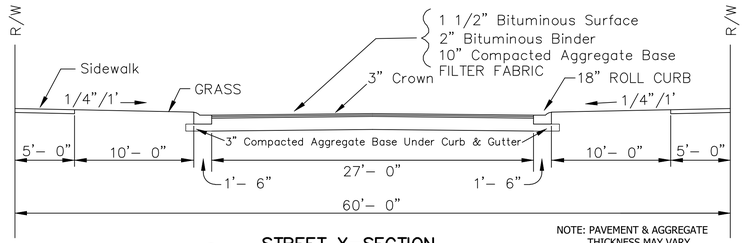


STD. 18" ROLL-BACK CURB
NOT TO SCALE

THRUST BLOCK INSTALLATIONS



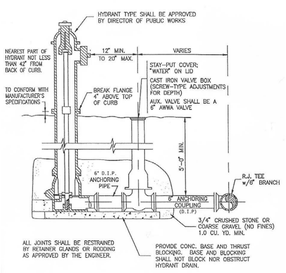
Thrust blocking to prevent movement of lines under pressure at bends, tees, caps, valves, hydrants, and at points specified by Engineer, shall be Class "A" concrete a minimum of 12" thick, placed between solid ground and fitting, and will be anchored in such a manner that pipe and fitting will be accessible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

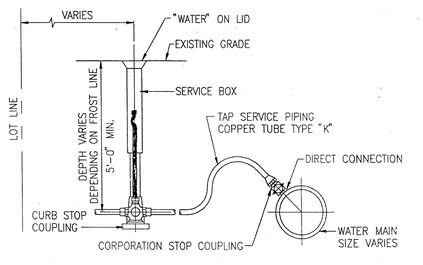


STREET X-SECTION
NOT TO SCALE

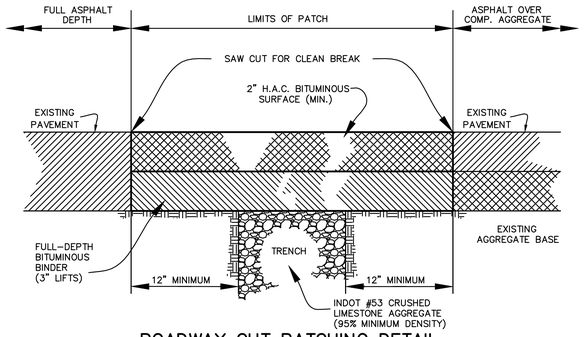
NOTE: PAVEMENT & AGGREGATE THICKNESS MAY VARY DEPENDING ON CBR SOIL TESTING RESULTS.

FIRE HYDRANT ASSEMBLY

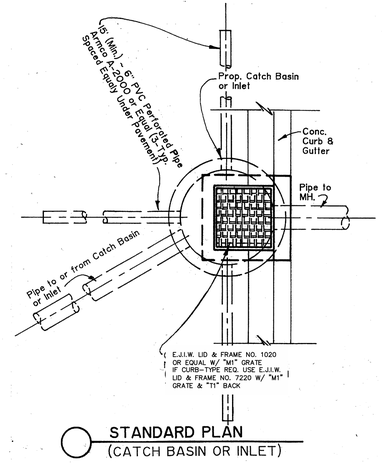




TYPICAL TAP SERVICE PIPING
(COPPER)



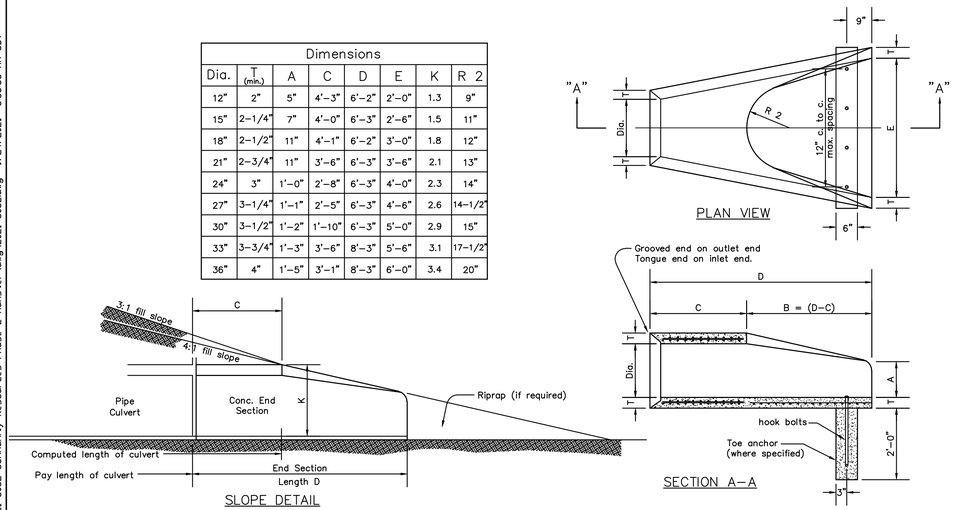
ROADWAY CUT PATCHING DETAIL
NOT TO SCALE



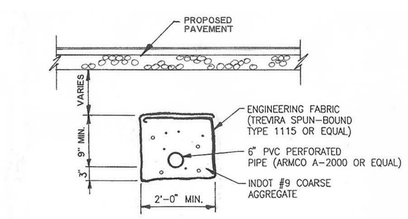
STANDARD PLAN
(CATCH BASIN OR INLET)

DIMENSIONS										
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"

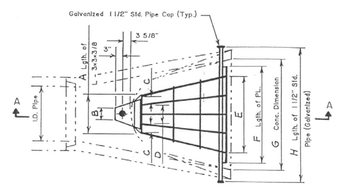
Dimensions							
Dia.	T (min.)	A	C	D	E	K	R 2
12"	2"	5"	4'-3"	6'-2"	2'-0"	1.3	9"
15"	2-1/4"	7"	4'-0"	6'-3"	2'-6"	1.5	11"
18"	2-1/2"	11"	4'-1"	6'-2"	3'-0"	1.8	12"
21"	2-3/4"	11"	3'-6"	6'-3"	3'-6"	2.1	13"
24"	3"	1'-0"	2'-8"	6'-3"	4'-0"	2.3	14"
27"	3-1/4"	1'-1"	2'-5"	6'-3"	4'-6"	2.6	14-1/2"
30"	3-1/2"	1'-2"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

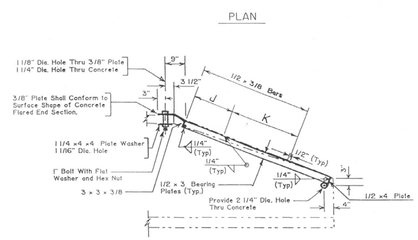


PRECAST CONCRETE END SECTION
NOT TO SCALE



SUBSURFACE DRAIN DETAIL





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

Gary P. Torrenga

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907 RIDGE ROAD, MUNSTER, INDIANA 46321
Tel. No.: (219) 836-8818 website: www.torrenga.com

COMMUNITY RESOURCES, INC.
PHASE TWO

STANDARD DETAILS & SPECIFICATIONS

REVISIONS:
DATE: 09-24-2021

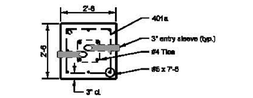
CLIENT:
Community Resrouces, Inc.
905 Ridge Road
Munster, Indiana 46321

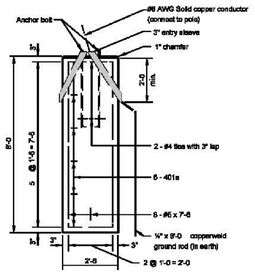
JOB NO: 2021-5032

SCALE: NTS

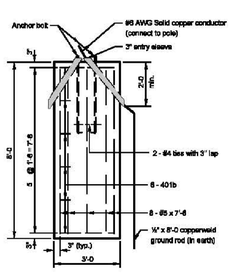
SHEET
C-5.1

FILE NO:\2021-5032 Community Resources Phase 2 Munster\dwg\2021-5032.dwg 9/24/2021 8:53:38 AM CDT





SQUARE FOUNDATION DETAIL



ROUND FOUNDATION DETAIL

401a x 8'-10

401b x 9'-4

Ordering Number Logic

M-250A2 Powr/Door™ with Cutoff Optics (M2AC)

M2AC _____ __ _ _ _ _ _ _ _ _ _

PROD. ID	WATTAGE	LIGHT SOURCE	VOLTAGE	BALLAST TYPE SELECTION	PE FUNCTION	LENS TYPE (PRISMATIC REFRACTOR)	IES DISTRIBUTION TYPE	FILTER	OPTIONS
M2AC= M-250A2 with Cutoff * Optics *= Previously IESNA Full Cutoff Optics	05 = 50 07 = 70 10 = 100 15 = 150 (ESG) 17 = 175 20 = 200 21 = 100/150 (ESG) 25 = 250 71 = 70/100 NOTE: Dual wattage connected for lower wattage	S = HPS Standard Lamp not included.	50Hz 0 = 120/208/240/277 Multivolt 1 = 120 2 = 208 3 = 240 4 = 277 5 = 480 7 = 120/240 8 = 2400 Ballast 120/PE Receptacle not accomodable D = 347 F = 120/347 T = 220 60Hz 6 = 220 R = 230 Y = 240	See Ballast Selection Table A = Autoreg G = Mag-Reg with Grounded Socket Shell H = HPF Reactor or Lag J = CWI M = Mag-Reg N = HPF Reactor or Lag P = CWI with Grounded Socket Shell S = Series In Top Housing	1 = None 2 = PE Receptacle NOTE: Receptacle connected same voltage as unit except as noted. Order PE Control separately.	See Photometric Selection Table A = Acrylic Clear Globe G = Pet Glass + Clear Globe L = Polycarbonate Clear Globe S = Sag Glass Clear Globe NOTE: 150 watt Maximum with Acrylic or Polycarbonate Clear Globes. * = Previously IESNA Full Cutoff Optics	See Photometric Selection Table S = Short M = Medium C = Cutoff* 2 = Type II 3 = Type III * = Previously IESNA Full Cutoff Optics	1 = Fiber gasket 2 = Charcoal with elastomer gasket	F = Fusing (Not available with multivolt or dual voltage) J = Line Surge Protector, (Expulsion Type) (UL not available) U = ¼ Slotted Set HPS up to 175W MH mod with glass or polycarbonate (50Hz only)

valmont STRUCTURES

28' to 33' ROUND TAPERED ALUMINUM 4-Bolt Anchor Base

Poles - Aluminum

RTA / 4-Bolt Anchor Base

28' to 33'

Job Name: _____ Client Name: _____

Job Location - City: _____ State: _____ Created By: _____ Date: _____

Product: _____ Quote: _____ Customer Approval: _____ Date: _____

valmont STRUCTURES

28' to 33' ROUND TAPERED ALUMINUM 4-Bolt Anchor Base

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RTA / 4-Bolt Anchor Base

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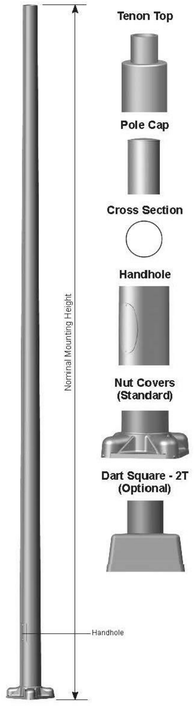


SPECIFICATIONS

Pole - The pole shaft is spun from seamless alloy aluminum.

Pole Top - A pole top tenon is provided for top mount luminaire and/or bracket. A removable pole cap is available for poles receiving drilling patterns for side-mount luminaire arm assemblies.

Handhole - A covered handhole with hardware and grounding provision are provided.

Base Cover - Optional Dart Square-2T cast and decorative base covers available as special order.

Anchor Base - The anchor base is cast from 356 alloy aluminum. The completed assembly is heat-treated to a T6 temper. Aluminum nut covers are included with anchor base unless otherwise specified.

Anchor Bolts - Anchor bolts conform to ASTM F1554 Grade 55 and are provided with two hex nuts and two flat washers. Bolts have an "L" bend on one end and are galvanized a minimum of 12" on the threaded end.

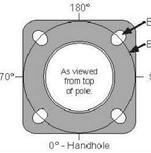
Finish - The standard finish for the pole assembly and components is satin brushed, natural anodize, duranodic or polyester powder applied coating in accordance with Valmont's Specifications. Additional finish options available upon request.

Design Criteria - Please reference Design Criteria Specification for appropriate design conditions.

ANCHORAGE DATA

POLE		BASE PLATE				ANCHOR BOLTS		
BASE OD (IN)	WALL THK (IN)	BOLT CIRCLE DIA (IN)	BOLT CIRCLE ± (IN)	SQUARE (IN)	THK (IN)	DIA X LENGTH X HOOK (in)	PROJECTION (IN)	+/- (IN)
7.00	0.156	10.56	0.43	11.26	0.750	1.00 x 36.00 x 4.00	4.13	N/A
8.00	0.156	11.63	0.37	12.05	0.750	1.00 x 36.00 x 4.00	4.13	N/A
8.00	0.188	11.63	0.37	12.05	0.750	1.00 x 36.00 x 4.00	4.13	N/A
8.00	0.250	11.63	0.37	12.05	0.750	1.00 x 36.00 x 4.00	4.13	N/A
9.00	0.156	13.25	0.75	12.48	1.250	1.00 x 36.00 x 4.00	4.13	N/A
9.00	0.188	13.25	0.75	12.48	1.250	1.00 x 36.00 x 4.00	4.13	N/A
10.00	0.188	14.25	0.75	13.19	1.250	1.00 x 36.00 x 4.00	4.75	N/A
10.00	0.250	14.50	0.50	14.00	1.250	1.25 x 42.00 x 6.00	5.25	N/A

Anchor Base Detail



LOAD AND DIMENSIONAL DATA

DESIGN INFORMATION										POLE DIMENSIONS					
	70 MPH wrt 3 GUST		80 MPH wrt 3 GUST		90 MPH wrt 3 GUST		100 MPH wrt 3 GUST		110 MPH wrt 3 GUST						
NOMINAL MOUNTING HEIGHT	MAX EPA* (SQ FT)	MAX WEIGHT (LBS)	MAX EPA* (SQ FT)	MAX WEIGHT (LBS)	MAX EPA* (SQ FT)	MAX WEIGHT (LBS)	MAX EPA* (SQ FT)	MAX WEIGHT (LBS)	MAX EPA* (SQ FT)	MAX WEIGHT (LBS)	POLE HEIGHT	BASE OD (IN)	TOP OD (IN)	WALL THK (IN)	STRUCTURE WEIGHT** (LBS)	MODEL NUMBER
28'-0"	10.5	150	7.1	150	5.0	150	3.7	150	2.8	150	27'-8"	7.00	4.00	0.156	92	•27084070S74
	15.5	150	11.1	150	8.3	150	6.5	150	5.1	150	27'-8"	8.00	4.50	0.156	105	27084580S74
	19.6	150	14.3	150	10.8	150	8.5	150	6.8	150	27'-8"	8.00	4.50	0.188	124	27084580T4
	27.4	150	20.2	150	15.5	150	12.3	150	9.9	150	27'-8"	8.00	4.50	0.250	161	27084580ST4
	21.4	150	15.7	150	12.0	150	9.4	150	7.5	150	27'-8"	9.00	4.50	0.156	116	27084590S74
	26.8	150	19.8	150	15.2	150	12.0	150	9.7	150	27'-8"					27084590T4
	34.5	200	26.0	200	20.2	200	16.0	200	12.9	200	27'-8"					27086010T4
	46.6	300	35.3	300	27.5	300	22.0	300	17.8	300	27'-8"					27086010ST4
30'-0"	8.8	150	5.7	150	3.8	150	2.7	150	2.0	150	29'-8"					•29084070S74
	13.3	150	8.3	150	6.9	150	5.3	150	4.1	150	29'-8"					•29084590S74
	17.1	150	12.3	150	9.3	150	7.1	150	5.6	150	29'-8"					29084580S74
	19.8	150	13.6	150	10.3	150	8.0	150	6.3	150	29'-8"	9.00	4.50	0.156	127	•29084590S74
	23.7	150	17.4	150	13.3	150	10.4	150	8.3	150	29'-8"	9.00	4.50	0.188	149	29084590T4
	24.2	150	17.7	150	13.6	150	10.7	150	8.6	150	29'-8"	9.00	4.50	0.250	174	29084580ST4
	30.9	200	23.2	200	17.9	200	14.1	200	11.3	200	29'-8"	10.00	6.00	0.188	175	29086010T4
	41.9	300	31.7	300	24.6	300	19.6	300	15.9	300	29'-8"	10.00	6.00	0.250	225	29086010ST4
33'-0"	10.4	150	7.1	150	5.1	150	3.8	150	2.9	150	32'-8"	8.00	4.50	0.156	124	•32084590S74
	13.8	150	9.7	150	7.1	150	5.5	150	4.2	150	32'-8"	8.00	4.50	0.188	147	32084580T4
	15.3	150	10.8	150	8.1	150	6.2	150	4.8	150	32'-8"	9.00	4.50	0.156	138	•32084590S74
	19.7	150	14.2	150	10.7	150	8.4	150	6.6	150	32'-8"	9.00	4.50	0.188	163	32084590T4
	20.1	150	14.5	150	11.0	150	8.6	150	6.8	150	32'-8"	8.00	4.50	0.250	199	32084580ST4
	26.0	200	19.4	200	14.9	200	11.7	200	9.2	200	32'-8"	10.00	6.00	0.188	191	32086010T4
	35.9	300	26.9	300	20.8	300	16.4	300	13.1	300	32'-8"	10.00	6.00	0.250	247	32086010ST4

1. EPA represents the Effective Projected Area of each luminaire. Designs are limited to top mount or side-mount luminaires. Variations from sizes above are available upon inquiry at the factory. Satisfactory performance of poles is dependent upon the pole being properly attached to a supporting foundation of adequate design.
2. Structure weight is a nominal value which includes the pole shaft and base plate.
   • Pole includes factory installed vibration damper.

PRODUCT ORDERING CODES

CROSS SECTION	MODEL NUMBER	FIXTURE MOUNTING	COLOR	OPTIONS
R		--	--	
R = Round	•27084070S74 27084580S74 27084580T4 27084580ST4 27084590S74 27084590T4 27086010S74 27086010T4 •29084070S74 •29084590S74 29084580T4 •29084590S74 29084590T4 29084580ST4 29086010T4 •32084590S74 32084580T4 32084590T4 32084580ST4 32086010T4 32086010ST4	**Drill Mounting** D1 = 1 Luminaire D2 = 2 @ 180° D3 = 3 @ 120° D4 = 4 @ 90° D5 = 2 @ 90° D6 = 3 @ 90° **Tenon Mounting** P2 = 2.38" OD x 4.00" P3 = 3.50" OD x 6.00" P4 = 4.00" OD x 6.00" P5 = 2.88" OD x 4.00" P7 = 2.38" OD x 5.00" PO = 2.38" OD x 12.00" PD = 3.00" OD x 3.00" -- = Plain Top P9 = Other Tenon (Contact Factory)	**Polyester Powder** DWH = White DSG = Sandstone BR = Burgundy HG = Hunter Green DNA = Natural Aluminum DCG = Charcoal Gray DMB = Medium Bronze SBN = Sanded Brown DNB = New Dark Bronze DDB = Dark Bronze SBK = Sanded Black DBL = Black DSB = Steel Blue DTG = Dark Green DBR = Red SC = Special Color (Contact Factory) **Anodized** 204 = Clear Natural 311 = Light Bronze* 312 = Medium Bronze* 313 = Dark Bronze* 335 = Black* *Duranodic Anodize **Brushed** SBF = Satin Brushed	See Accessories at valmontstructures.com (Please Specify with Code)

STREET LIGHT

NOT TO SCALE

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

COMMUNITY RESOURCES, INC.
PHASE TWO

STANDARD DETAILS & SPECIFICATIONS

REVISIONS:
DATE: 09-24-2021

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

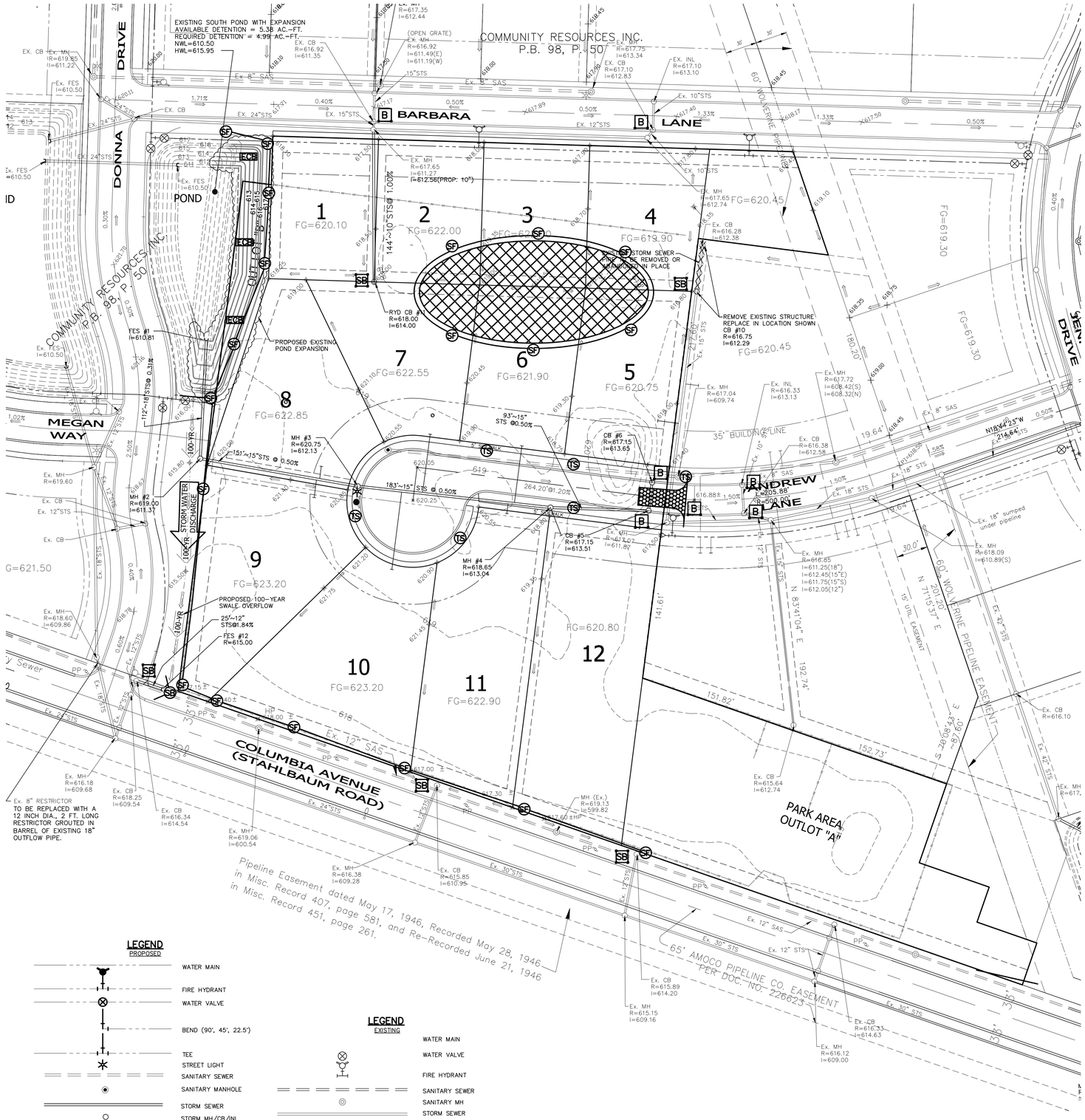
JOB NO: 2021-5032

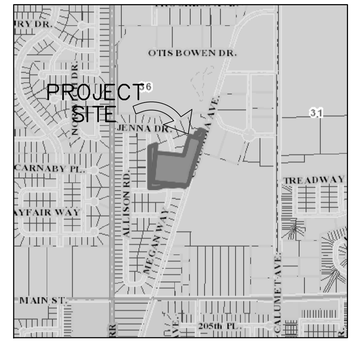
SCALE: NTS

SHEET C-5.2

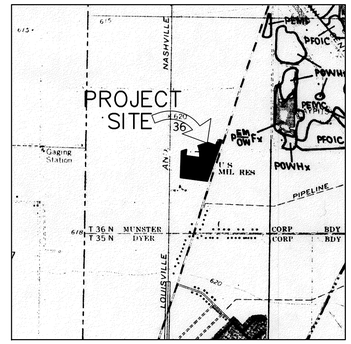
FILE NO:Z:\2021-5032 Community Resources Phase 2 Munster\dwg\2021-5032dwg 9/24/2021 8:53:38 AM CDT

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





VICINITY MAP
NOT TO SCALE



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

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

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
- 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

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

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

MAGNETIC

GRAPHIC SCALE

50 0 25 50 100 200

(IN FEET)
1 inch = 50 ft.

TORRENGA ENGINEERING, INC.
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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)

REVISIONS:
DATE: 09-24-2021

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

JOB NO: 2021-5032

SCALE: 1"=50'

SHEET
C-6.0

FILE NO:Z:\2021-5032 Community Resources Phase 2 Munster\dwg\2021-5032.dwg 9/24/2021 8:53:38 AM CDT

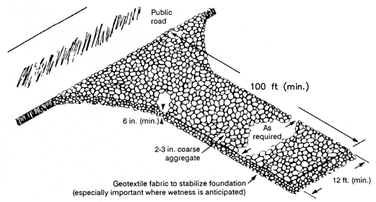
TEMPORARY CONSTRUCTION ENTRANCE/EXIT

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

"GRAVEL"
Requirements:
Width: 12 feet minimum or full width of entrance
Length: 100 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.

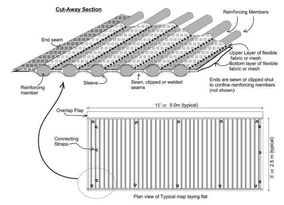


Plans of a temporary gravel construction entrance/exit pad.

"MAT"
Requirements:
Width: 12 feet minimum or full width of entrance
Length: 50 feet minimum
Material: Geotextile-Type mats, **AGES Mud Mat** or approved equal

Installation:
1. Install pipe under mat if needed to provide proper site drainage.
2. Install Geotextile-Type mat on the graded foundation area.
3. Divert all surface runoff and drainage from the mat to sediment trap.

Maintenance:
1. Inspect entrance mat for sediment deposits weekly and after storm of a minimum of 1/2 inch rainfall events or heavy use.
2. Reshape pad as needed for drainage and runoff control.
3. Repair or replace mats as needed.
4. Remove mud and sediment tracked or washed onto public road by brushing or sweeping. No flushing of sediment off the street.



PLANS OF TEMPORARY CONSTRUCTION INGRESS/EGRESS PAD

TEMPORARY SEEDING

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, 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: or sodding shall be done at the time of final landscaping.

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 (SEE PERMANENT SEEDING)
** Seeding done outside the optimum dates increases the chances of seeding failure.

PERMANENT SEEDING

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.

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: Permanent	Dormont or frost	Optimum soil pH
OPEN AND DISTURBED AREAS (REMAINING IDLE MORE THAN 1 YR.)			
1. Perennial ryegrass	35 to 50 lbs.	50 to 75 lbs.	5.6 to 7.0
+ white or ladino clover*	1 to 2 lbs.	1 ½ to 3 lbs.	
2. Kentucky bluegrass	20 lbs.	30 lbs.	5.5 to 7.5
+ smooth bromegrass	10 lbs.	15 lbs.	
+ switchgrass	3 lbs.	5 lbs.	
+ timothy	4 lbs.	6 lbs.	
+ perennial ryegrass	10 lbs.	15 lbs.	
+ white or ladino clover*	1 to 2 lbs.	1 ½ to 3 lbs.	
3. Perennial ryegrass	15 to 30 lbs.	22 to 45 lbs.	5.6 to 7.0
+ tall fescue**	15 to 30 lbs.	22 to 45 lbs.	
4. Tall fescue**	35 to 50 lbs.	50 to 75 lbs.	5.5 to 7.5
+ ladino or white clover*	1 to 2 lbs.	1 ½ to 3 lbs.	
STEEP BANKS AND CUTS, LOW MAINTENANCE AREAS (NOT MOWED)			
1. Smooth bromegrass	25 to 35 lbs.	35 to 50 lbs.	5.5 to 7.5
+ red clover*	10 to 20 lbs.	15 to 30 lbs.	
2. Tall fescue**	35 to 50 lbs.	50 to 75 lbs.	5.5 to 7.5
+ white or ladino clover*	1 to 2 lbs.	1 ½ to 3 lbs.	
3. Tall fescue**	35 to 50 lbs.	50 to 75 lbs.	5.5 to 7.5
+ red clover* (Recommended north of US 40)	10 to 20 lbs.	15 to 30 lbs.	
4. Orchardgrass	20 to 30 lbs.	30 to 45 lbs.	5.6 to 7.0
+ red clover*	10 to 20 lbs.	15 to 30 lbs.	
+ ladino clover*	1 to 2 lbs.	1 ½ to 3 lbs.	
5. Crownvetch*	10 to 12 lbs.	15 to 18 lbs.	5.6 to 7.0
+ tall fescue** (Recommended south of US 40)	20 to 30 lbs.	30 to 45 lbs.	
LAWNS AND HIGH MAINTENANCE AREAS			
1. Bluegrass	105 to 140 lbs.	160 to 210 lbs.	5.5 to 7.0
2. Perennial ryegrass (turf-type)	45 to 60 lbs.	70 to 90 lbs.	5.6 to 7.0
+ bluegrass	70 to 90 lbs.	105 to 135 lbs.	
3. Tall fescue (turf-type)**	130 to 170 lbs.	195 to 250 lbs.	5.6 to 7.5
+ bluegrass	20 to 30 lbs.	30 to 45 lbs.	
CHANNELS AND AREAS OF CONCENTRATED FLOW			
1. Perennial ryegrass	100 to 150 lbs.	150 to 225 lbs.	5.6 to 7.0
+ white or ladino clover*	1 to 2 lbs.	1 ½ to 3 lbs.	
2. Kentucky bluegrass	20 lbs.	30 lbs.	5.5 to 7.5
+ smooth bromegrass	10 lbs.	15 lbs.	
+ switchgrass	3 lbs.	5 lbs.	
+ timothy	4 lbs.	6 lbs.	
+ perennial ryegrass	10 lbs.	15 lbs.	
+ white or ladino clover*	1 to 2 lbs.	1 ½ to 3 lbs.	
3. Tall fescue**	100 to 150 lbs.	150 to 225 lbs.	5.5 to 7.5
+ ladino or white clover*	1 to 2 lbs.	1 ½ to 3 lbs.	
4. Tall fescue**	100 to 150 lbs.	150 to 225 lbs.	5.5 to 7.5
+ Perennial ryegrass	15 to 20 lbs.	22 to 30 lbs.	
+ Kentucky bluegrass	15 to 20 lbs.	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.

DORMANT AND FROST SEEDING

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 for temporary seeding or for permanent seeding.

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 temporary cover, especially if the area to be seeded will remain idle for more than a year.

MULCHING

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. Apply mulch at the recommended rate.
2. Spread uniformly by hand, hay fork, mulch blower, or hydromulcher with no more than 25% of the surface visible.
3. Anchor immediately if using straw or hay, using one of the folliwing methods:
- Crimp with mulch anchoring tool.
- Hydromulch with short cellulose fibers.
- Apply liquid tackifier.
- Cover with netting secured with metal staples..

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.

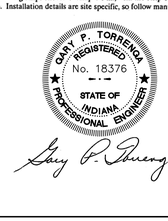
Exhibit 3.15–B. Mulch Materials, Rates, and Comments.

Material	Rate	Comments
Straw or hay	1½-2 tons/acre	Should be dry, unchopped, free of undesirable seeds. Spread by hand or machine. Must be crimped or anchored (see *Exhibit 3.15-D*).
Wood fiber or cellulose	1 ton /acre	Apply with a hydromulcher and use with tacking agent.
Long fiber wood (excelsior)	1/2-3/4 ton/acre	Anchor in areas subject to wind.

Exhibit 3.15–D. Mulch Anchoring Methods.

Anchoring method	How to apply
Mulch anchoring tool OR Farm disk (dull, serrated, and set straight)	Crimp or punch the straw or hay into the soil 2-4 in. Operate machinery on the contour of the slope.
Cleating with dozer tracks	Operate dozer up and down slope, not across, or else the tracks will form rills.
Wood hydromulch fibers	Apply 1-2 tons/acre using a hydromulcher at a rate of 750 lbs./acre with a tacking agent (or according to contractor specifications). Do not use in areas of concentrated flow.
Asphalt emulsion	Emulsified asphalt should conform to the requirements of ASTM Spec. #977. Apply with suitable equipment at a rate of 0.05 gal./sq. yd. Do not use in areas of concentrated flow.
Synthetic tackifier, binder or soil stabilizer	Apply according to manufacturer's recommendation.
Biodegradable netting (polypropylene or similar material)*	Apply over mulch and staple with 6-8 in. wire staples. Follow manufacturer's recommendations for installation. Best suited to slope application.

* Install the netting immediately after applying the mulch. In areas of concentrated water flow, lay it parallel to the direction of flow; on other slopes, lay it either parallel or perpendicular to direction of flow. Edges of adjacent netting strips should overlap 4-6 in., with the strip on the upgrade side of any lateral water flow on top. Installation details are site specific, so follow manufacturer's directions.



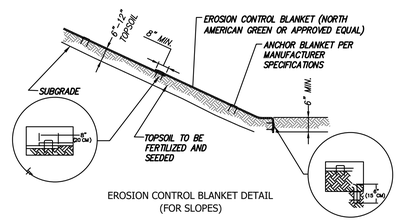
EROSION CONTROL BLANKET (SURFACE-APPLIED)

Purpose: To prevent erosion by protecting the soil from rainfall impact, overland water flow, concentrated runoff, or wind.
To conserve moisture and increase seed germination and seedling growth.

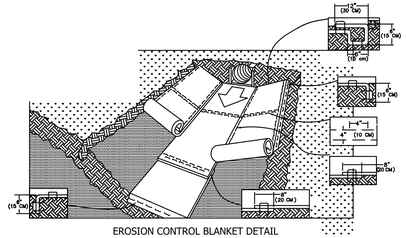
Requirements:
Material: Either an organic (straw, excelsior, woven paper, coconut, fiber, etc.) or a synthetic mulch incorporated into a polypropylene or similar netting material. It may be biodegradable, photodegradable or permanent. **North American Green** or approved equal.
Anchoring: Use of staples or stakes to prevent movement of displacement.

Installation:
1. Grade the site as specified in the construction plan.
2. Add topsoil where appropriate.
3. Prepare the seedbed, fertilize and seed the area immediately after grading.
4. Following manufacture's directions, lay the blankets on the seeded area such that they are in continuous contact with the soil and that the upslope or upstream ones overlap the lower ones by at least 8 inches.
5. Tuck the uppermost edge of the upper blankets into a check slot (slit trench), backfill with the soil, and tamp down.
6. Anchor the blankets as specified by the manufacturer by driving 6-8 in. metal staples into the ground in a pattern determined by the site conditions.

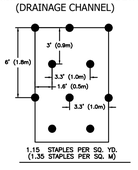
Maintenance:
1. During vegetative establishment, inspect after storm events for any erosion below the blanket.
2. If any area shows erosion, pull back that portion of the blanket covering it, add soil, re-seed the area, and re-lay and staple the blanket.
3. After vegetative establishment, check the treated area periodically.



EROSION CONTROL BLANKET DETAIL
(FOR SLOPES)



EROSION CONTROL BLANKET DETAIL
(DRAINAGE CHANNEL)



STAPLE PATTERN DETAIL

GRASS LINED CHANNEL

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 (Sheet C-6.1)

Seed:

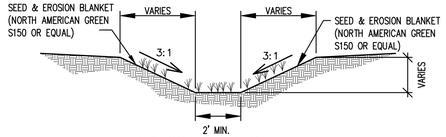
Turf type tall fescue	300-350 lbs/acre
Wheat	1/2 bushel/acre

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

Erosion Control Blanket:
North American Green or equal

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. Blanket sides and bottom of channel with Erosion Control Blanket North American Green or equal.

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.



GRASS-LINED CHANNEL
NOT TO SCALE

SELF-MONITORING PROGRAM

A self-monitoring program that includes the following must be implemented at all permitted project sites:

1. A trained individual shall perform a written evaluation of the project site a minimum of one (1) time per week and by the end of the next business day following each measurable storm event.
2. The evaluation must address the maintenance of existing storm water quality measures to ensure they are functioning properly and identify additional measures necessary to remain in compliance with all applicable statutes and rules.
3. Written evaluation reports must include:
   a. the name of individual performing the evaluation;
   b. the date of evaluation;
   c. problems identified at the project site; and
   d. details of corrective actions recommended and completed.
4. All evaluation reports for the project site must be made available to the MS4 Operator or other designated entity within forty-eight (48) hours of a request.
5. Evaluation reports must be maintained for a period of two (2) years from date of NOT.
6. All evaluation reports will be submitted to the Town of Munster when requested.

Date:
Project:
Inspected by:
Type of Inspection: ☐ Scheduled Weekly ☐ Rain Event

CONSTRUCTION SITE INSPECTION AND MAINTENANCE LOG
(To be Completed by Property Owner or Agent)

All stormwater pollution prevention BMP's shall be inspected and maintained as needed to ensure continued performance of their intended function during construction and shall continue until the entire site has been stabilized and a Notice of Termination has been issued. An inspection of the project site must be completed by the end of the next business day following each measurable storm event. If there are no measurable storm events within a given week, the site should be monitored at least once in that week. Maintenance and repair shall be conducted in accordance with the accepted site plans. This log shall be kept as a permanent record and must be made available to Town of Munster Engineer, in an organized fashion, within forty-eight (48) hours upon request.

Yes	No	N/A	
			1. Are all sediment control barriers, inlet protection and silt fences in place and functioning properly?
			2. Are all erodible slopes protected from erosion through the implementation of acceptable soil stabilization practices?
			3. Are all dewatering structures functioning properly?
			4. Are all discharge points free of any noticeable pollutant discharges?
			5. Are all discharge points free of any noticeable erosion or sediment transport?
			6. Are designated equipment washout areas properly sized, clearly marked, and being utilized?
			7. Are construction staging and parking areas restricted to areas designated as such on the plans?
			8. Are temporary soil stockpiles in approved areas and properly protected?
			9. Are construction entrances properly installed and being used and maintained?
			10. Are "no disturb" areas designated on plan sheets clearly marked on-site and avoided?
			11. Are ruts made at intersections with site access roads being kept clear of sediment, debris, and mud?
			12. Is spill response equipment on-site, logically located, and easily accessed in an emergency?
			13. Are emergency response procedures and contact information clearly posted?
			14. Is solid waste properly contained?
			15. Is a stable access provided to the solid waste storage and pick-up area?
			16. Are hazardous materials, waste or otherwise, being properly handled and stored?
			17. Have previously recommended corrective actions been implemented?

If you answered "no" to any of the above questions, describe any corrective action which must be taken to remedy the problem and when the corrective actions are to be completed.

REPORT SAMPLE

SPILL PREVENTION AND RESPONSE

Purpose: Procedures and practices to prevent and control spills in a manner that minimizes or eliminates the discharge of spilled material to the drainage system or watercourses.

Hazardous Waste Products:
- Petroleum Products,
- Asphalt Products,
- Concrete Curing Compounds,
- Pesticides,
- Acids,
- Paints,
- Stains,
- Solvents,
- Wood Preservatives,
- Roofing Tar, or

Other Waste Products:
- Soil stabilizers/binders
- Dust palliatives
- Herbicides
- Growth inhibitors
- Fertilizers
- Deicing/anti-icing chemicals
- Fuels
- Lubricants
- Other petroleum distillates

Any materials deemed a hazardous waste in 40 CFR Parts 110, 117, 261, or 302

Spill Prevention Practices:
The following are management practices used for reduction of spills and other accidental exposure of materials and substances to storm water runoff:
a. The contractors and subcontractors shall refer to the Material Safety Data Sheet (MSDS) for information on the proper storage, use, and clean-up methods for all materials anticipated being on the project site.
b. All required materials for spill clean up and disposal of all onsite materials shall be kept on site in a project trailer with easy access for all users of associated materials.
c. All disposals of spilled materials shall be done in accordance with Federal, State and Local waste disposal regulations. All contractors and subcontractors shall be responsible for any and all spills associated with their work.
d. Prompt cleanup of any spills that may occur of liquid or dry materials.
e. Cleanup of sediments that have been tracked by vehicles or have been transported by wind or storm water about the site or onto nearby roadways.

Response Practices:
In the event that a large spill occurs (that which requires extensive cleanup actions, refer to MSD sheets for information), the following procedures shall be followed to minimize exposure of the material.

a. Immediate action shall be taken to control and contain the spill to prevent it from entering any nearby storm sewer structures or open waters.
b. Notify the Town of Munster Fire Department at 911 for all combustible and flammable materials.
c. Notify: for local contact, the Lake County Emergency Management at Phone: 219-755-3549, and/or Fax: 219-755-3559; the Federal Emergency Spill Hotline at 1-800-424-8802 within 2 hours for spills above the reported allowable quantity, or if the material enters any nearby storm sewer structures or open waters.
d. Notify: for local contact, the Lake County Emergency Management at Phone: 219-755-3549, and/or Fax: 219-755-3559; the Indiana Emergency Response Hotline at 1-888-233-7745.
e. The spill area shall be isolated from all surrounding areas with absorbent pads, booms, and pillows designed for the use of spill containment and absorption.
f. The spill kits that are required to be on site shall be utilized.
g. Emergency Response teams shall be contacted for extensive spills above and beyond the containment by available methods.

Waste Disposal Management Practices:
All solid waste associated with the construction and development of this project shall be removed and disposed of properly with in all applicable state and federal laws associated with the waste generated. Developer and/or contractor are to provide on-site dumpsters, rented from a licensed solid waste management company, to ensure waste is collected and disposed of properly. All trash and construction debris from the site will be deposited in a dumpster. No construction waste will be buried onsite. All personnel will be instructed regarding the correct procedure for waste disposal.

a. Select a designated waste collection area onsite.
b. Provide an adequate number of containers with lids or covers throughout the site, and frequent pickups
c. Provide immediate cleanup of any container spills.
d. Make sure that construction waste is collected, removed, and disposed of only at authorized areas.

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

SWPPP DETAILS

REVISIONS:
DATE: 09-24-2021

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

JOB NO: 2021-5032

SCALE: NTS

SHEET
C-7.0

FABRIC DROP INLET PROTECTION

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

Requirements:

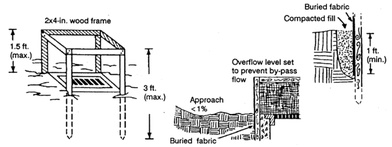
Contributing Area:	1 acre maximum.
Capacity:	Runoff from 2-yr, 24-hr. Storm without bypass flow.
Fabric material:	Geotextile fabric for filtration.
Height of fabric:	1 to 1-1/2 ft., measured from top of inlet.
Approach:	Pool area flat (less than 1 % slope) with sediment storage of 945 cu.ft./acre disturbed.
Stability:	Structure must withstand 1-1/2 ft. head of water and sediment without collapsing or undercutting.
Support posts:	Steel fence post or 2 x 2 in. or 2 x 4 in. hard wood post, 3 ft. min. length, 3 ft. max. spacing; top of frame support recommended. Cross bracing tops of posts to opposite corners greatly strengthens support.

Installation:

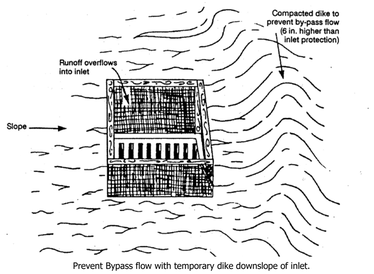
1. To prevent runoff from bypassing the inlet, set top of the fabric at least 6" below the downslope ground elevation, or build a temporary dike (compacted to 6" higher than the fabric) on the low side of the inlet. (See Exhibit 3.52-C).
2. Cut the fabric from a single roll to eliminate joints. (Provide at least 2' of overlap if a joint is needed)
3. Bury the bottom of the fabric at least 1 ft. deep, backfill, and compact the backfill (See Exhibit 3.52-B).
4. Space the support posts evenly against the inlet perimeter a maximum of 3 ft. apart, and drive the about 1-1/2 ft. into the ground. (Overflow must fall directly into the inlet and not on unprotected soil.

Maintenance:

1. Inspect the fabric barrier after storm events, and make needed repairs immediately.
2. Remove sediment from the pool area to provide storage for the next storm. Avoid damaging or undercutting the fabric during sediment removal.
3. When the contributing drainage area has been stabilized, remove and properly dispose of all construction material and sediment, grade area to the elevation on the top of the inlet, then stabilize.



Support frame and installation of fabric.



Prevent Bypass flow with temporary dike downslope of inlet.

ROCK CHUTE

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:

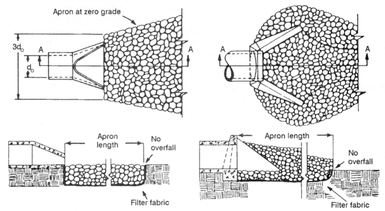
1. Immediately after installing the filter, add the riprap to full thickness in one operation to the design elevation, and extend riprap to the top of the bank.
2. Place smaller rock in voids to form a dense, uniform, well-graded mass.
3. Blend the riprap smoothly to the surrounding grade.
4. Stabilize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

Note:

1. At owner's discretion, oulet protection & grade stabilization Scour Stop TM may be substituted for this practice.



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

SILT FENCE

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

Requirements:

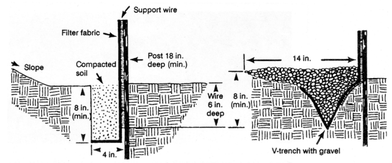
Trench:	8" minimum depth, flat bottom or v-shaped, filled with compacted soil or gravel to bury lower portion of support wire and/or fence fabric.
Support posts:	2" x 2" hardwood posts set at lease 1 foot deep.
Spacing of Posts:	8-foot maximum if fence supported by wire, otherwise 6 foot for extra strength 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:

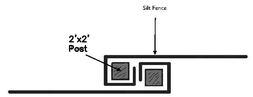
1. Along the entire intended fence line, maintain contour as much as possible, dig an 8" deep flat bottom or v-shaped trench.
2. On the downslope side of the trench, drive the post at least 1 foot into the ground. (Note: If the fence has pre-attached posts or stakes, drive them deep enough so the fabric 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.



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



Silt Fence Wrap Joint Detail

BASKET INLET / CATCH BASIN PROTECTION

Purpose: To prevent excessive sediment from entering storm sewers at inlet/catch basin, allowing full use of the storm drain system during the construction period.

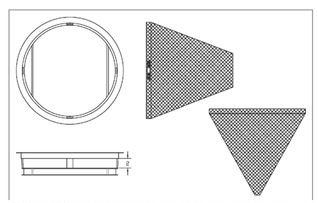
Requirements: Steel Frame with top width-length dimensions such that the basket fits into the inlet and/or catch basin (circular and/or rectangular), and a replaceable Geotextile fabric bag attached with a steel band locking cap that is suspended from the frame, **Catch -all Inlet Protector Hancor Flo-Gard bt Nyloplast** or approved equal.

Installation:

1. Install protection to existing and newly installed inlet/catch basin in a new development before land disturbing activities begin in a stabilized area.
2. Remove the grate, and place the basket assembly under the grate on the lip of the structure frame.
3. Replace the inlet/catch basin grate.

Maintenance:

1. Inspect weekly during construction and after each storm event of a minimum of 1/2 inch rainfall, and remove built-up sediment.
2. Replace bag every six (6) months.
3. Replace the Geotextile fabric bag if there is a hole and/or won't pass water.
4. Replace the Geotextile fabric bag after any oil, gasoline or solvent spill.



TYPICAL INLET/CATCH BASIN PROTECTION
INSERT DETAIL

CONCRETE WASHOUT

Purpose: To reduce the discharge of pollutants associated with concrete waste through consolidation of solids and retention of liquids.

Requirements:

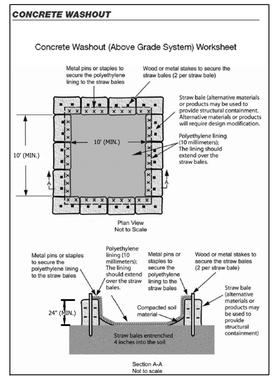
1.) Locate concrete washout systems at least 50 feet from any creeks, wetlands, ditches, karst features, or storm drains/manmade conveyance systems.
2.) Locate concrete washout systems in relatively flat areas with established vegetative cover and do not receive runoff from adjacent land areas.
3.) Locate in areas that provide easy access for concrete trucks and other construction equipment.
4.) Locate away from other construction traffic to reduce the potential for damage to the system.
5.) Minimum of ten millimeter polyethylene sheeting that is free of holes, tears, and other defects. The sheeting selected should be of an appropriate size to fit the washout system without seams or overlap of the lining.
6.) Signage.
7.) Orange safety fencing or equivalent.
8.) Straw bales, sandbags (bags should be ultraviolet-stabilized geotextile fabric), soil material, or other appropriate materials that can be used to construct a containment system (above grade systems).

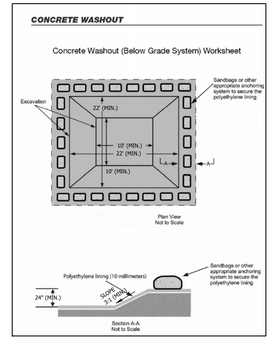
Installation:

1.) Dependent upon the type of system, either excavate the pit or install the containment system.
2.) A base shall be constructed and prepared that is free of rocks and other debris that may cause tears or punctures in the polyethylene lining.
3.) Install the polyethylene lining. For excavated systems, the lining should extend over the entire excavation. The lining for bermed systems should be installed over the pooling area with enough material to extend the lining over the berm or containment system. The lining should be secured with pins, staples, or other fasteners.
4.) Place flags, safety fencing, or equivalent to provide a barrier to construction equipment and other traffic.
5.) Place a non-collapsing, non-water holding cover over the washout facility prior to a predicted rainfall event to prevent accumulation of water and possible overflow of the system (optional).
6.) Install signage that identifies concrete washout areas.
7.) Post signs directing contractors and suppliers to designated locations.

Maintenance:

1.) Inspect daily and after each storm event.
2.) Inspect the integrity of the overall structure including, where applicable, the containment system.
3.) Inspect the system for leaks, spills, and tracking of soil by equipment.
4.) Inspect the polyethylene lining for failure, including tears and punctures.
5.) Once concrete wastes harden, remove and dispose of the material.
6.) Excess concrete should be removed when the washout system reaches 50 percent of the design capacity. Use of the system should be discontinued until appropriate measures can be initiated to clean the structure. Prefabricated systems should also utilize this criterion, unless the manufacturer has alternate specifications.
7.) Upon removal of the solids, inspect the structure. Repair the structure as needed or construct a new system.
8.) Dispose of all concrete in a legal manner. Reuse the material on site, recycle, or haul the material to an approved construction/demolition landfill site. Recycling of material is encouraged. The waste material can be used for multiple applications including but not limited to roadbeds and building. The availability for recycling should be checked locally.
9.) The plastic liner should be replaced after every cleaning; the removal of material will usually damage the lining.
10.) The concrete washout system should be repaired or enlarged as necessary to maintain capacity for concrete waste.
11.) Concrete washout systems are designed to promote evaporation. However, if the liquids do not evaporate and the system is near capacity it may be necessary to vacuum or remove the liquids and dispose of them in an acceptable method. Disposal may be allowed at the local sanitary sewer authority provided their National Pollutant Discharge Elimination System permits allow for acceptance of this material. Another option would be to utilize a secondary containment system or basin for further dewatering.
12.) Prefabricated units are often pumped and the company supplying the unit provides this service.
13.) Inspect construction activities on a regular basis to ensure suppliers, contractors, and others are utilizing designated washout areas. If concrete waste is being disposed of improperly, identify the violators and take appropriate action.
14.) When concrete washout systems are no longer required, the concrete washout systems shall be closed. Dispose of all hardened concrete and other materials used to construct the system.
15.) Holes, depressions and other land disturbances associated with the system should be backfilled, graded, and stabilized.





FILTER TUBE / FILTER SOCK

Purpose: To trap sediment by intercepting runoff and reducing the velocity of sheet flow or concentrated flow. Filter socks capture sediment by ponding water to allow settling and deposition.

Requirements:

Materials: Geotextile fabric sock or a non-biodegradable netting matrix.

Permeable Materials:

Compost / Mulch:

1. Feedstocks may include, but are not limited to, well-composted vegetable matter, leaves, yard trimmings, food scraps, composted manures, paper fiber, wood bark, Class A biosolids (as defined in federal regulations 40 CFR Part 503), or any combination thereof.
2. Compost shall be produced using an aerobic composting process meeting CFR 503 Regulations, including time and temperature data indicating effective weed seed, pathogen and insect larvae kill.
3. Compost shall be well decomposed, stable, and weed free.
4. Variable particle size with maximum dimensions of two inches in length, one-half inch in width, and one-half inch in depth.
5. Refuse free (less than one percent by weight).
6. Free of any contaminants and materials toxic to plant growth.
7. Inert materials not to exceed one percent by dry weight.
8. pH of 5.5 to 8.0.
9. Carbon-nitrogen ratio not to exceed 100.
10. Moisture content not to exceed 45 percent by dry weight.

Aggregate:

1. INDOT CA No. 5 or No. 8 aggregate.

Straw, Excelsior, etc.:

1. Premanufactured.

Anchoring Method: 2" x 2" hardwood or steel posts.

Bonding Agents (optional):

Tackifiers, flocculants, or microbial additives may be used to remove sediment and/or additional pollutants from storm water runoff. (All additives combined with compost materials should be tested for physical results at a certified erosion and sediment control laboratory and biologically tested for elevated beneficial microorganisms at a United States Compost Council, Seal of Testing Assurance approved testing laboratory.)

Installation:

1. Lay out the location of the filter sock barrier so that it is parallel to the contour of the slope and at least 10 feet beyond the toe of the slope to provide a sediment storage area. Turn the ends of the filter sock barrier up slope such that the barrier end terminates at a higher elevation than the top of the filter sock barrier at its lowest point.
2. Excavate a trench with a depth and width equal to at least one-fourth the diameter of the filter sock or follow the manufacturer's recommendations. Where applicable, the trench may also be excavated upslope of a curb or sidewalk. Placing product against the curb or sidewalk will provide additional stability and resistance to surface flow.
3. Construct the filter sock or utilize a pre-manufactured product. For compost use a pneumatic blower or similar device to provide adequate and consistent fill in the sock. (Seed or sod may be applied at the time of installation for permanent applications.)
4. If more than one sock is placed in a row, the socks should be overlapped; not abutted.
5. Anchor the filter sock barrier in place by driving posts through the barrier and into the underlying soil material. Posts should be spaced no more than five feet apart and driven through the middle of the sock. The posts should be driven a minimum of 18 inches deep into the soil. The stake should be flush with the top of the sock.
6. Backfill the trench with excavated soil placed against the filter sock barrier to ground level on the down-slope side and to two inches above the ground level on the up-slope side of the filter sock barrier. Compact the fill material to keep it in place.

Options for installation:

1. These products may be placed in a series on the contour at intervals on a slope.
2. Follow the manufacturer's recommendations for this application, including spacing and diameter of product.
3. This application will require careful layout and installation. Alternatives, including immediate stabilization, should be considered as the first alternative. This application also requires extensive maintenance and daily inspections.
4. Typical applications include:
   1. Slopes less than 20 percent (5:1). Place socks at a maximum interval of 20 feet (a closer spacing is more effective).
   2. Slopes between 20 percent (5:1) and less than 50 percent (2:1). Place socks at a maximum interval of 15 feet (a closer spacing is more effective).
   3. Slopes greater than 50 percent (2:1). Place socks at a maximum interval of 10 feet (a closer spacing is more effective).

Maintenance:

1. Inspect within 24 hours of a rain event and at least once every seven calender days. When installed in series at intervals on a slope, inspection should be done daily.
2. Remove accumulated sediment when it reaches one-quarter the height of the filter sock.
3. Inspect to ensure that the sock is maintaining its integrity and producing adequate flow.
4. Repair eroded and damaged areas.
5. If ponding becomes excessive, socks should be removed and either reconstructed or a new product installed.
6. Reseed, if applicable.
7. If the filter sock is not designed as a permanent filter or part of the natural landscape and the contributing drainage area has been stabilized, use a blade or knife to cut open sock and use a bulldozer, loader, rake, or other device to incorporate the organic material into the soil, or spread it over the top of the soil surface for final seeding. Remove and dispose of sock if necessary.

TOPSOIL SALVAGE & UTILIZATION

Purpose: To provide a method of preserving topsoil for use in establishing vegetation to achieve final site stabilization.

Specifications:

Material

Typically the darker, friable, loamy surface layer of soil found immediately below vegetation.

Storage Area

1. Free of stumps, rock, and construction debris.
2. Stockpile covered with vegetation or a tarp.
3. Surrounded by a sediment barrier or sediment filter.
4. Stockpile outside rooting zone of trees to be protected.

Application:

Salvaging and Stockpiling Topsoil

1. Determine depth and suitability of topsoil at site.
2. Prior to stripping topsoil, install any site-specific down slope measures needed to control storm water runoff and sedimentation.
3. Remove soil material no deeper than the "surface soil".
4. Stockpile the material in accessible locations that will not interfere with other construction activities or block drainage.
5. Stockpiled soil should be temporarily seeded and surrounded by a sediment control measure.

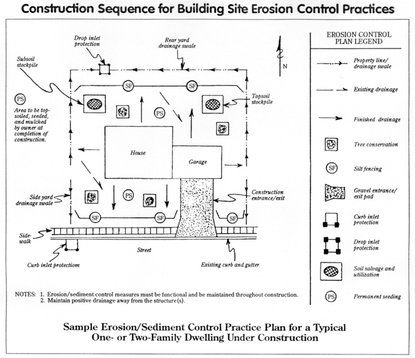
Spreading Topsoil

1. Prior to applying topsoil, grade the subsoil and roughen the top three to four inches by disking.
2. Apply topsoil evenly to a depth of a minimum of four inches, then compact slightly to improve contact with the subsoil.
3. Do not apply topsoil when the site is wet, muddy, or frozen.
4. After spreading the topsoil, grade and stabilize the site.

Maintenance:

1. Inspect daily.
2. Check for damage to perimeter barrier; repair immediately.
3. Check for erosion or damage to newly spread topsoil; repair immediately and revegetate.

Construction Sequence for Building Site Erosion Control Practices



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

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.

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, sidewalk, 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 roughgraded 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 the responsibility of the developer. Each lot builder will be responsible for proper implementation of these items. The developer , as the permit holder is responsible to ensure these measures are in place.

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

Gary P. Torrenga

TORRENGA ENGINEERING, INC.
CONSULTING ENGINEERS & LAND SURVEYORS
907 RIDGE ROAD, MUNSTER, INDIANA 46321
Tel. No.: (219) 836-8818
website: www.torrenga.com

COMMUNITY RESOURCES, INC.
PHASE TWO
SWPPP DETAILS

REVISIONS:
DATE: 09-24-2021

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

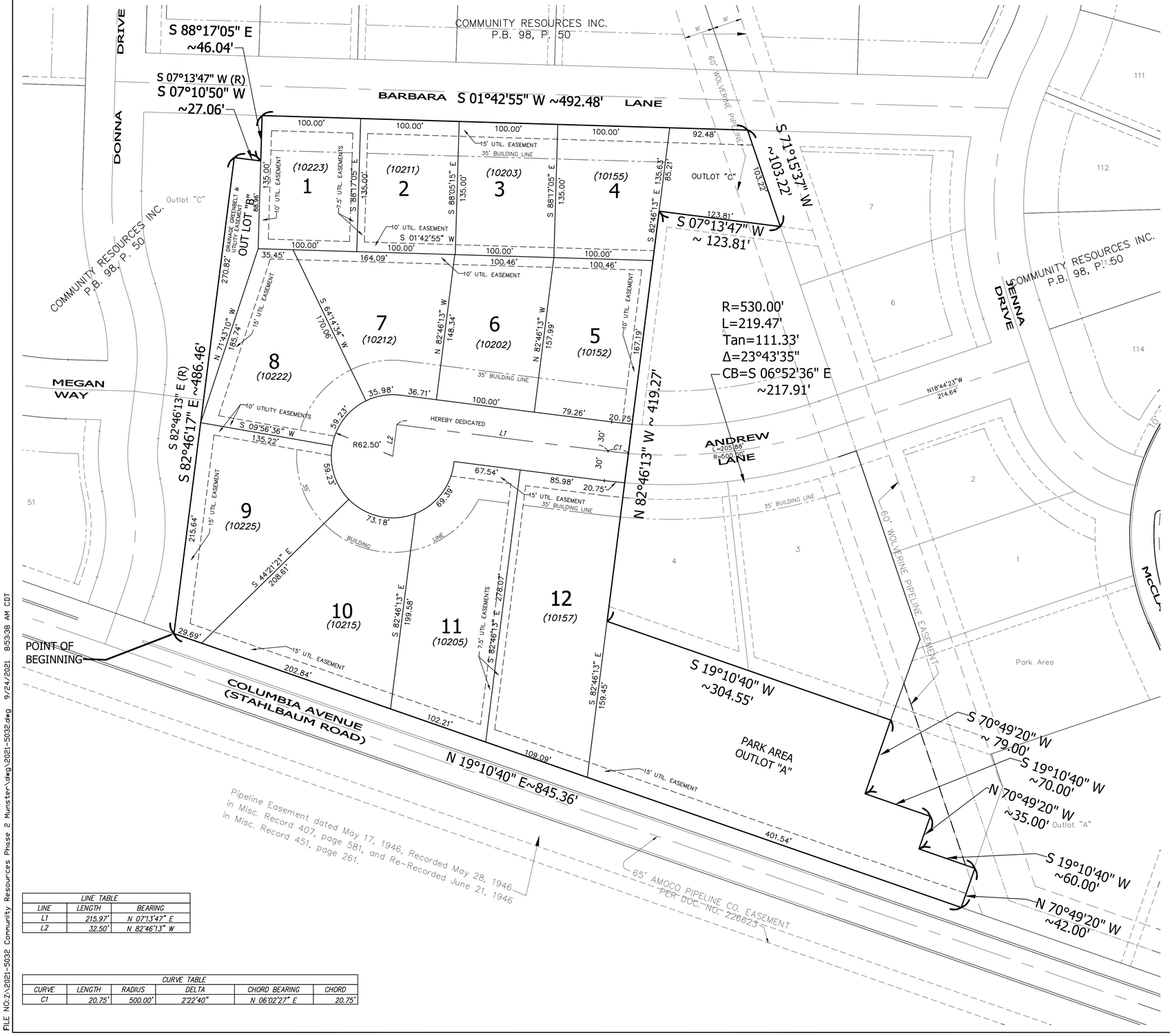
JOB NO: 2021-5032

SCALE: NTS

SHEET
C-7.1

FILE NO: Z:\2021-5032 Community Resources Phase 2 Munster\dwg\2021-5032_SWPPP Details.dwg 9/24/2021 8:53:02 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	32.50'	N 82°46'13" 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'

LEGAL DESCRIPTION:
That part of Fractional Section 36, Township 36 North, Range 10 West of the Second Principal Meridian and part of 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 Resources, 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, to the Easterly most corner of Lot 3 in said Community Resources, Inc.; thence South 19°10'40" West along the Easterly line of Lots 3 and 4 in said Community Resources, Inc., a distance 304.55 feet to the Southeast corner of said Lot 4; thence North 82°46'13" West, a distance of 419.27 feet along the South line of Lots 4 and 5 in said Community Resources, Inc., to the Southwest corner of said Lot 5; thence North 07°13'47" West, a distance of 123.81 feet along the Westerly line of Lot 5 in said Community Resources, Inc., to the Northwest corner of said Lot 5, said line also lying on the Southerly line of Lot 7 in said Community Resources, Inc.; thence South 71°15'37" West, a distance of 103.22 feet along the Southerly line of Lot 7 in said Community Resources, Inc., to the Southwest corner of said Lot 7 also being 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°10'50" 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 7.348 acres, more or less, all in the Town of Munster, Lake County, Indiana.

STATE OF INDIANA } §
COUNTY OF LAKE }

We, Community Resource, Inc., do hereby certify that we are the owner of the property herein above described, and that of our own free will and accord has caused said property to be surveyed and subdivided into lots, blocks and streets as hereon shown.

This subdivision shall be known and designated as Community Resource, Inc. Phase two, an Addition to the Town of Munster, Lake County, Indiana. All streets, alleys and crosswalks shown and not heretofore dedicated are hereby dedicated to the public.

Community Resource, Inc.

_____
_____, President

STATE OF INDIANA } §
COUNTY OF LAKE }

Before me, a Notary Public in and for said County and State, personally appeared _____ of Community Resource, Inc., known to me to be same person who signed the above certificate and acknowledged to me that he executed the same as their own free act and deed.

Witness my hand and Notarial Seal this _____ day of _____, ____

My Commission Expires:_____ _____
County of Residence : _____ Notary Public

STATE OF INDIANA } §
COUNTY OF LAKE }

Submitted to, approved and accepted by the Plan Commission of the Town of Munster, Lake County, Indiana, this _____ day of _____, _____

By:_____ Attest:_____
Plan Comm. President Plan Comm. Secretary

STATE OF INDIANA } §
COUNTY OF LAKE }

I, Gary P. Torrenga, hereby certify that I am a Registered Professional Land Surveyor licensed under the Laws of the State of Indiana; that I have made a survey of the land shown and described herein and subdivided same as shown on the plat hereon drawn; that this plat is correctly shown and that all monuments or markers shown thereon actually exist, and that their locations, size, type and description are accurately shown.

Witness my hand and Seal this ____ day of _____, ____

TORRENGA ENGINEERING, INC.

_____
Gary P. Torrenga - Registered L.S. #S0514

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

UTILITY EASEMENTS
An easement is hereby granted to the Town of Munster, Indiana, Ameritech, AT&T, Northern Indiana Public Service Company, and other companies identified by the Town of Munster, Indiana as supplying public service needs severally and their respective successors and assigns to install, lay, erect, construct, renew, operate, repair, replace and maintain sewers, water mains, gas mains, conduits, cables, poles and wires, underground with all necessary braces, guys, anchors and other appliances, in, upon, along and over the strip or strips of land designated by dashed lines on the plat and marked "utility easements" for the purpose of serving the public in general with sewer, water, gas, electric, telephone and cable television service, including aerial rights as to streets where necessary with aerial service wires to adjacent lots, together with the right to enter upon the said utility easements at all times for any and all of the purposes aforesaid and to trim and keep trimmed any trees, shrubs, or saplings that interfere with any such utility equipment. Any fences, trees, black tappings, vegetation improvements or other potential obstacles to the use of utility easements shown upon the subdivision plat shall be placed at the risk of the property owner and may be subject to removal in the event of any interference with the use of said utility easements or drainage of other lots. Changes of yard elevations in utility easements from those established upon the subdivision plat or noted on plats submitted and approved when building permits are issued that adversely impact drainage of adjoining lots shall be subject to regrading at the owner's expense. All designated utility easements are also hereby dedicated as drainage easements.

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
FINAL PLAT

REVISIONS:
DATE: 09-24-2021

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

JOB NO: 2021-5032
SCALE: 1" = 50'

SHEET
1 OF 1

FILE NO:Z:\2021-5032 Community Resources Phase 2 Munster\dwg\2021-5032.dwg 9/24/2021 8:53:38 AM CDT

To: Don Torrenga

From: Tom Vander Woude, Planning Director

Date: September 30, 2021

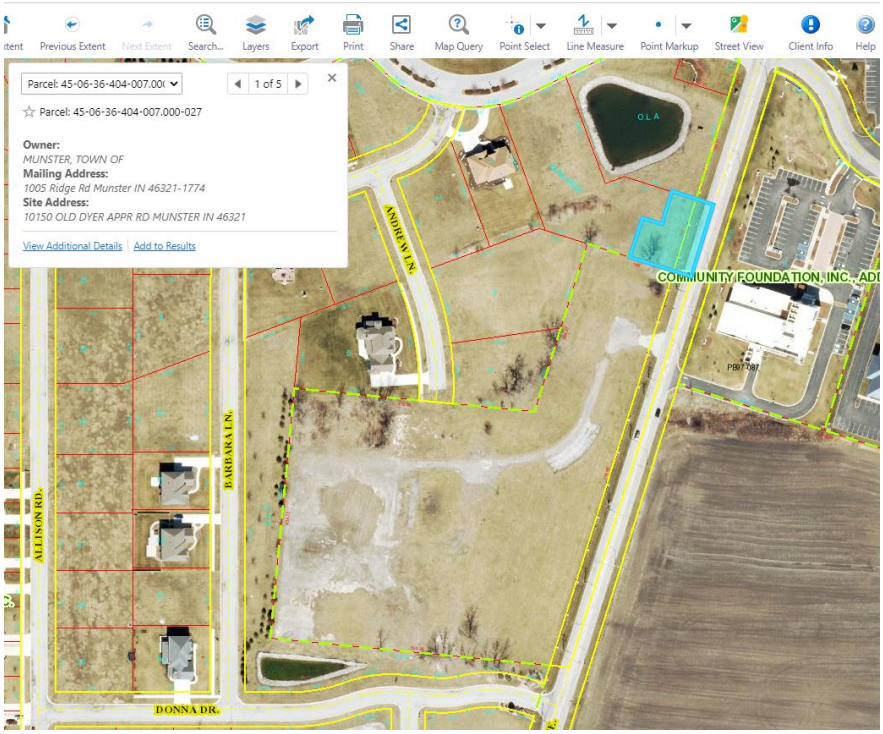
Re: Community Resources Phase 2 subdivision plans prepared by Torrenga Engineering dated 09.24.2021

Cc: Dustin Anderson, Town Manager
David Wickland, Attorney
Jill DiTommaso, Town Engineer

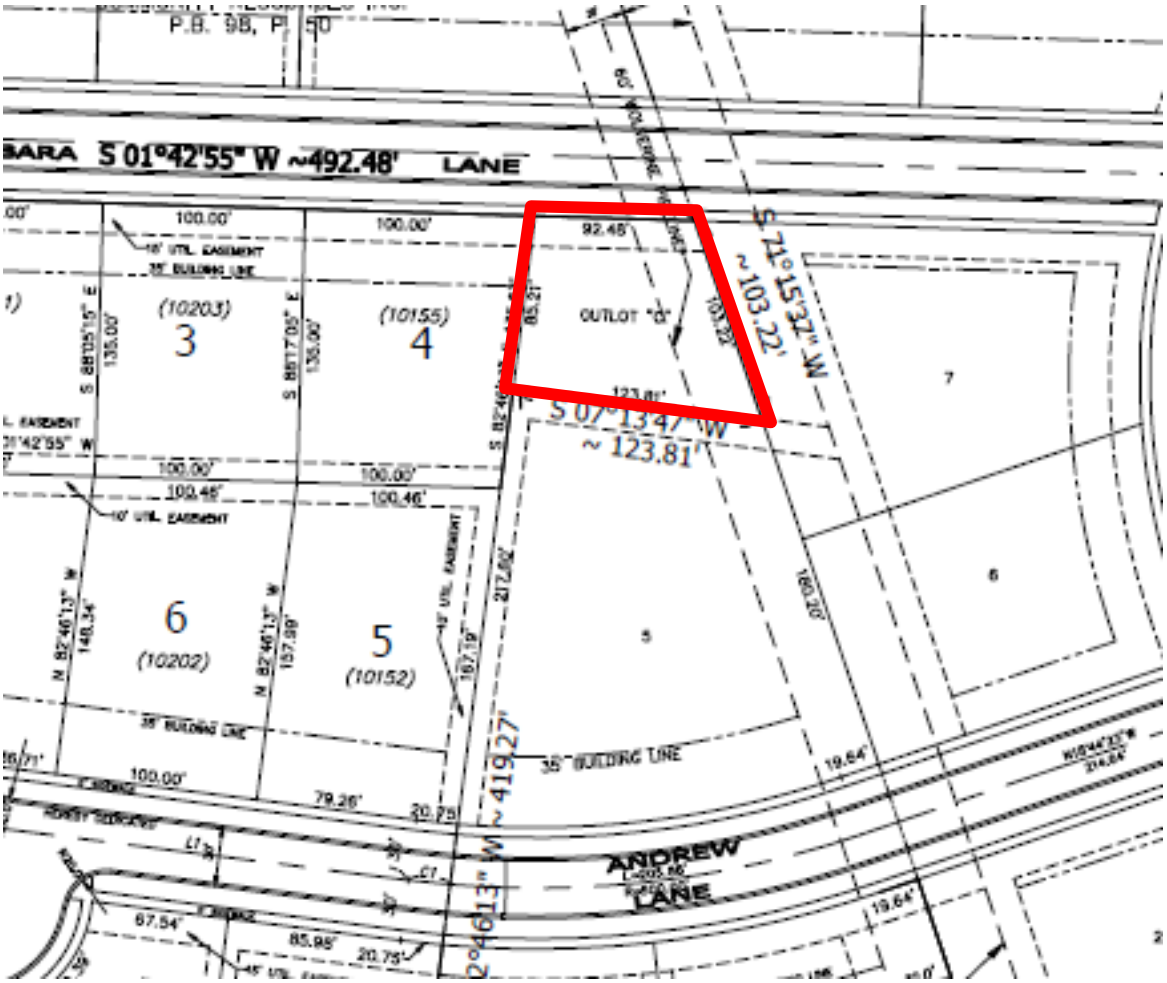
Town of Munster staff have reviewed the subject plans submitted with an application to the Munster Plan Commission for approval of a preliminary plat of the Community Resources, Inc. Phase Two subdivision.

Please be advised of the following:

1. A portion of the subdivision appears to be Town-owned property, per the Lake County GIS. Please remove from the subdivision or include the Town of Munster as signatory to the plat.



2. Provide a commitment for the ongoing maintenance of the portion of outlot C north of lot 4 that does not appear to have any proposed use. See below.



3. Provide confirmation from the Munster Parks Board whether the proposed Outlot A park is to be accepted as a land dedication or a fee-in-lieu of land is being proposed.
4. Provide a survey of existing trees on the proposed subdivision and plans to either remove and replace, remove and pay a fee in lieu of replacement, or preserve the trees.
5. Provide a street tree planting plan. Trees are to be planted in parkways at a rate of 1 every 30 feet.
6. Provide an additional streetlight mid-block along Andrew Lane.
7. Provide a copy of the environmental study documenting the contamination or lack thereof of the subject property.
8. Provide a Drainage Report that specifically addresses the following questions:
    a. What is the new capacity of the regraded pond in Outlot C?
    b. Is this adequate to detain runoff from the proposed development?

c. It appears that some of the runoff from the new development will be directed to other ponds in the subdivision. Is there adequate capacity in these ponds for additional runoff?

d. It appears that drainage from lots 9, 10, 11, and 12 will be directed to an existing swale along Columbia Avenue. How has this off site discharge been accounted for in the drainage calculations?

9. To be in compliance with the Town's Infrastructure Standards, retention ponds should be set back off the right-of-way ten feet plus two feet for every one foot of depth.
    a. The retention pond in Outlot C appears to be approximately 7.5 feet deep. Please bring this retention pond into compliance.
    b. The pond on the south side of Donna Drive also appears to be non-compliant and should be brought into compliance.
10. The proposed overflow route shown on the north side of Donna Drive will need to be reestablished as part of the grading work for the new development.
11. Sidewalks should be added along the pond on the west side of Barbara Lane, along Outlot C, and the north side of Donna Drive. In addition, sidewalks should be provided on the south side of Donna Drive in accordance with the original approved plans for Phase 1 of the subdivision.
12. There are several concrete structures – possibly storm inlets – present on the site that are not shown on the survey. I also observed an electrical outlet near these structures. Provide an explanation of their purpose and what the developer's plan is for them.
13. Proposed street cross section shall be 1½" HMA Surface, 2½" HMA Intermediate, 12" Aggregate Base.
14. Developer to confirm that underdrain is to be provided at proposed catch basins.

Please provide responses and/or plan revisions by Wednesday, October 6 so the Munster Plan Commission is adequately prepared to consider approval of the proposed plat of subdivision at their October 12 meeting.

To:	Plan Commission
From:	Board of Parks and Recreation
Date:	October 5, 2021
Re:	Community Resources Phase 2 park land recommendation

The Board of Parks and Recreation has discussed the current plan for Community Resources phase 2 development regarding park land donation for that subdivision. The following is our recommendation for accepting land for a park in that area.

1. The proposed park land parcels need to be cleared of any environmental concerns.
2. The donation of land for a park is desired from this area and was noted in the last Parks and Recreation master plan. It would be the only park land in an area bounded by Main St. on the south, NICTD tracks on the west, 45th Ave. on the north and Calumet Ave. on the east.
3. Accessible pedestrian route access to the park property is necessary.
4. We would prefer a centralized park property to best serve the residents of the new subdivision but would accept this parcel if additional fencing is placed along Columbia Avenue to have a physical barrier between the park and one of the busier streets in Town.
5. Besides the "Park Area Outlot A" shown in the current phase two plan, there is also a 'Park Area' shown in a parcel that is northwest of that lot. If possible, it is desired to have both parcels dedicated allowing for a larger park property for this area.
6. That all of the 'scrub trees' on any donated parcel be removed. Only trees that are 3" caliper (DBH) or larger should be left on site.
7. That the park land be graded and reseeded to allow for it to drain properly and not hold water in areas of the park.

Additionally, we offer some other input that we would ask to be aware of as the item is further considered.

1. Pedestrian easements between two residential parcels is not desired.
2. If pedestrian access is via a sidewalk from along Andrew Lane, to along Jenna Drive, to along McClaughry Drive, sidewalk will need to be required of the parcels from some of the phase 1 parcels. This would include the home at 546 Jenna Drive as it currently has sidewalk along Jenna Drive but does not along McClaughry Drive.
3. Additional fencing along Columbia Ave. should match the current decorative fence along Columbia Ave. at the Community Estates development. This should be added to close the entrance to the former Salyer property and should also be extended northeast paralleling Columbia Avenue from the current terminus for another 180' feet.
4. If a park visitor wants to drive their vehicle to the park, what street(s) can they park on? Keep in mind McClaughry Drive is a privately owned street. All Town of Munster parks of less than 5 acres do not include any on-site parking so on-street parking is the preferred option. Is there a possibility to make an agreement to allow for park visitors to park on McClaughry Drive?