Construction Plans
Portion of Glenwood Estates
Mobile Home Community
City of Napoleon, Ohio
Addition of Lots 286 thru 304

SPECIFICATIONS

ALL WORK SHALL BE PERFORMED IN ACCORDANCE WITH THE PLANS AND SPECIFICATIONS AND REQUIREMENTS OF THE OHIO ENVIRONMENTAL PROTECTION AGENCY, THE OHIO DEPARTMENT OF TRANSPORTATION "CONSTRUCTION AND MATERIAL SPECIFICATIONS", AND THE OHIO DEPARTMENT OF HEALTH "MOBILE HOME PARK LAWS AND RULES."

THE CONCRETE RUNNER PADS OR PIERS FOR EACH LOT SHALL MEET THE REQUIREMENTS OF THE "MOBILE HOME PARK LAWS AND RULES" OF THE OHIO DEPARTMENT OF HEALTH. IN ADDITION EACH MOBILE HOME SHALL BE SECURED WITH TIE DOWNS IN ACCORDANCE WITH THE REQUIREMENTS OF THE INDIVIDUAL MOBILE HOME MANUFACTURER OR SHALL BE PROVIDED TO MEET THE REQUIREMENTS OF THE NORTHERN ZONE OF NATIONAL FIRE PROTECTION ASSOCIATION 1977 STANDARD NFPA 501A.

EXCESS EXCAVATED MATERIAL SHALL BE PLACED ON THE SITE AS DIRECTED BY THE ENGINEER OR OWNER OR AS SHOWN ON THE PLANS.

EXISTING UTILITIES INDICATED ON THE PLANS ARE BASED ON AVAILABLE INFORMATION AND ARE NOT GUARANTEED BY THE ENGINEER FOR ACCURACY OR COMPLETENESS. ANY WORK TO BE PERFORMED IN THE AREA OF EXISTING UTILITIES SHALL REQUIRE PRIOR NOTICE TO THE UTILITY OWNER.

SPECIFICATIONS FOR SANITARY PIPE AND FITTINGS SHALL BE:

PIPE MATERIAL	MATERIAL SPEC.	JOINT SPEC.
POLYVINYL CHLORIDE	ASTM D-3034	C-3212

MANHOLES SHALL BE FOUR FOOT INSIDE DIAMETER WITH STEPS CAST AT VERTICAL INTERVALS NOT TO EXCEED SIXTEEN INCHES NOR LESS THAN 12" BUT SPACED UNIFORM THROUGHOUT, PRE-CAST CONCRETE CONFORMING TO ASTM C-478 WITH O-RING JOINTS CONFORMING TO ASTM C-443. PRE-CAST MANHOLE ADJUSTING RINGS PROPERLY GROUTED SHALL BE USED TO BRING THE TOP OF MANHOLE TO PROPER GRADE. EXFILTRATION OF THE COMPLETED SEWER SHALL NOT EXCEED 100 GALLONS PER INCH OF DIAMETER PER MILE PER 24 HOURS. THE LEAKAGE TEST SHALL BE PERFORMED UNDER THE SUPERVISION OF THE OWNER'S ENGINEER. SEWER LINE CROSSINGS OF PAVEMENT SHALL BE BACKFILLED WITH 703.II TYPE 2 STONE MATERIAL PLACED IN LAYERS NOT TO EXCEED SIX (6) INCHES COMPACTED THICKNESS. A MINIMUM VERTICAL CLEARANCE OF 18 INCHES BETWEEN WATER AND SEWER PIPE SHALL BE MAINTAINED. IN AREAS WHERE THIS REQUIREMENT CANNOT BE MET, THE SEWER PIPE SHALL BE OF WATER MAIN TYPE PIPE (WHICH WILL WITHSTAND A 100 PSI PRESSURE TEST) FOR A DISTANCE OF TEN (10) FEET EACH SIDE OF THE WATER PIPE. ENDS OF SEWER SERVICES SHALL BE MARKED BY PLACING WOODEN MARKERS. THE WOODEN MARKERS SHALL EXTEND FOUR (4) FEET ABOVE THE TOP OF THE SEWER PIPE. WHENEVER THE WATER LINE CROSSES A SEWER TRENCH, #8'S SHALL BE INSTALLED FROM THE TOP OF THE SANITARY SEWER TO THE BOTTOM OF THE WATER MAIN.

Note: All sanitary manholes shall be provided with external chimney seals and be vacuum tested to 10 inches of Hg per ASTM C-1244.

ALL SANITARY SEWER TESTS SUCH AS DEFLECTION AND INFILTRATION TESTS SHALL BE PERFORMED UNDER THE SUPERVISION OF THE OWNER'S ENGINEER, WHO SHALL SUPPLY THE CITY OF NAPOLEON WITH A COPY OF THE CALCULATIONS TO DETERMINE THE INFILTRATION RATE, AND WHAT THE FINAL RATE WAS FOR EACH SECTION TESTED. THE TEST RESULT SHALL BE ON THE ENGINEER'S STATIONARY AND STAMPED BY A REGISTERED PROFESSIONAL ENGINEER IN THE STATE OF OHIO. THE CITY OF NAPOLEON SHALL BE NOTIFIED OF THE TESTING TIME, SO THAT A REPRESENTATIVE CAN REVIEW AND WITNESS THE RESULTS. ALL TESTS PERFORMED WITHOUT VILLAGE NOTIFICATION SHALL BE REPERFORMED IN THE PRESENCE OF THE CITY REPRESENTATIVE.

A SEWER LASER SHALL BE USED FOR GRADE ON ALL SEWERS.

THE WATER LINE PIPE SHALL BE POLYVINYL CHLORIDE CONFORMING TO AWWA C-900 DR 18 PIPE BARRELS SHALL BE SUPPORTED BY A MINIMUM OF SIX (6) INCHES OF #8 GRANULAR MATERIAL. WATER LINE CROSSING OF THE SEWER TRENCH SHALL BE BACKFILLED WITH #8'S FROM THE TOP OF THE SANITARY SEWER TO THE BOTTOM OF THE WATER MAIN. PAVEMENT CROSSINGS SHALL BE BACKFILLED WITH 703.II TYPE 2 STONE MATERIAL, SIX INCHES COMPACTED THICKNESS. WATER LINES SHALL BE CHLORINATED IN ACCORDANCE WITH THE PROVISIONS OF THE AWWA SPECIFICATIONS. THE LINE LEAKAGE SHALL BE AS PER AWWA STANDARDS AT A PRESSURE OF 150 PSI. LEAKAGE TEST SHALL BE PERFORMED UNDER THE SUPERVISION OF THE OWNER'S ENGINEER. SAMPLING TAPS ARE TO BE INSTALLED AS DIRECTED BY THE CITY OF NAPOLEON FOR THE BACTERIOLOGICAL TESTING. THE TAPS SHALL CONSIST OF MUELLER H-15000B CORP STOP WITH A 5' PIECE OF 1" TYPE "K" COPPER, GATE VALVES SHALL BE MUELLER OR KENNEDY RESILIENT SEATED GATE VALVES, WITH NON-RISING STEM MECHANICAL JOINTS, AND SHALL OPEN IN COUNTERCLOCKWISE DIRECTION.

IN ADDITION THE WATER LINES & TESTING MUST MEET THE FOLLOWING REQUIREMENTS:

AWWA WATER LINE SPECIFICATIONS:

PVC - AWWA C-900
HYDRANTS - AWWA C-502
SMALLER SIZES TO BE:
POLYBUTYLENE AWWA C-901-SDR-9 (200 PSI)
POLYETHYLENE AWWA C-901-SDR-9 (200 PSI)

FITTINGS - AWWA C-110
WATER LINE CHLORINATION - C-601
ALL NUTS AND BOLTS USED SHALL BE COR-TEN MATERIAL ONLY. NO DUCTILE IRON PERMITTED.

TRACING WIRE IS TO BE PLACED UNDER ALL WATER MAINS. THE TRACING WIRE SHALL BE SOLID NO. 12 COPPER ELECTRICAL WIRE (THW) WITH CONNECTIONS MADE WITH AN ELECTRICAL WIRE NUT ENCAPSULATED WITH 3M SCOTCHKOTE ELECTRICAL COATING. CONNECT TRACING WIRE TO HYDRANTS.

THE PRESSURE AND LEAKAGE TESTS SHALL BE PERFORMED UNDER THE SUPERVISION OF THE OWNER'S ENGINEER, WHO SHALL SUPPLY THE CITY OF NAPOLEON WITH A COPY OF THE CALCULATIONS TO DETERMINE THE AMOUNT OF LEAKAGE AND WHAT THE TEST RESULTS WERE FOR EACH SECTION. THE TEST RESULTS SHALL BE ON THE ENGINEER'S STATIONARY AND STAMPED BY A REGISTERED PROFESSIONAL ENGINEER IN THE STATE OF OHIO. THE CITY OF NAPOLEON SHALL BE NOTIFIED OF THE TESTING TIME SO THAT A REPRESENTATIVE CAN REVIEW AND WITNESS THE RESULTS. ALL TESTS PERFORMED WITHOUT CITY NOTIFICATION SHALL BE REPERFORMED IN THE PRESENCE OF THE CITY REPRESENTATIVE.

RESTRAINED JOINTS SHALL BE BY UNI-FLANGE SERIES 1300-C FOR MECHANICAL JOINTS AND SERIES 1350-C FOR PVC BELL JOINTS OR EBAA IRON, INC. SERIES 500 OR SERIES 1100 PV FOR MECHANICAL JOINTS AND SERIES 1500 OR 1100 HV FOR PVC BELL JOINTS. ALL BOLTS AND NUTS SHALL BE COR-TEN.

Utilities:

Water - Water supply will be provided by the City of Napoleon
Sewage - Sewage will be discharged into the City of Napoleon system
Refuse - Weekly refuse pick-up will be provided by the City of Napoleon
Electric - Electric power will be provided to each lot by the City of Napoleon
Street lighting of 0.3 foot candle will be provided by City of Napoleon
Telephone - Telephone service will be provided by UTS

UNDERGROUND UTILITIES

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OHIO UTILITIES PROTECTION
SERVICES
NONMEMBERS MUST
BE CALLED DIRECTLY

CITY OF NAPOLEON, OHIO

SEWER TESTING - All gravity sewers will be tested by the low pressure air infiltration leakage methods per ASTM ~~C828M~~ F-1417

A pressure adjustment shall be made where ground water is above the sewer line being tested. By adding 0.433 psi. pressure for each foot the ground water level is above the invert of the pipe.

Air shall be applied slowly to the test section until the pressure reaches 4 psig (pounds per square inch, gage), plus adjustment for ground water. The pressure inside the pipe shall not exceed 5 psig, plus adjustment for ground water. When the pressure inside the test section reaches 4.0 psig, the air pressure shall be throttled so that the internal pressure is maintained between 4.0 and 3.5 psig for at least two minutes to permit temperature stabilization.

Upon expiration of the two minute period, the air supply shall be shut off or disconnected and the pressure allowed to drop to exactly 3.0 psig. At the exact time 3.0 psig is reached, a stop watch shall be started and the time required for the pressure to drop to exactly 2.5 psig shall be determined.

If such equipment is not available, the deflection test can be run by use of mandrels having a diameter equal to 95% of the inside diameter of the pipe, pulled through the sewer line without mechanical pulling devices. Mandrels shall be constructed with at least nine (9) evenly spaced arms or prongs. A metal proving ring shall be provided to verify the accuracy of the mandrel to the Engineer. The length of the mandrel shall be 8" for 8" pipe, and 12" for 10" and 12" pipe.

If any section of conduit exceeds a deflection of five percent, it shall be the Contractor's responsibility to make the necessary corrections to the satisfaction of the Engineer. The costs of all materials, equipment, labor and all incidentals necessary for making the deflection test and for making any necessary corrections or replacement shall be included in the price of the pipe. The deflection test is required to conditional and final acceptance. At the discretion of the Engineer, it may be required that the PVC and ABS sewers be tested for deflection before expiration of the one year maintenance bond. Conduit which has deflected more than five percent, must be corrected to the satisfaction of the Engineer by the Contractor.

SPECIFICATION TIME REQUIRED FOR A 1.0 PSIG PRESSURE DROP FOR SIZE AND LENGTH OF PIPE INDICATED

Specified Minimum for Length (L) Shown (in minutes)

Pipe Diameter	100'	150'	200'	250'	300'	400'	500'
4	3:46	3:46	3:46	3:46	3:46	3:46	3:46
6	5:40	5:40	5:40	5:40	5:40	5:40	6:24
8	7:34	7:34	7:34	7:34	7:34	8:32	10:40
10	9:28	9:28	9:28	9:53	11:52	13:31	15:49
12	11:22	11:22	11:24	14:15	17:05	19:56	23:47
15	14:12	14:12	17:48	22:15	26:42	35:36	44:30
18	17:06	18:15	25:38	32:03	38:27	44:52	51:16
21	19:50	26:10	34:54	43:37	52:21	61:00	69:48
24	22:47	34:11	45:36	56:58	68:22	79:46	91:10
27	25:41	43:16	57:41	72:07	86:32	100:57	115:22
30	28:37	51:28	71:12	89:02	106:50	124:38	142:26
33	43:05	64:38	86:10	107:43	129:14	150:43	172:21
36	51:17	76:55	102:34	128:13	153:50	179:29	205:07
42	99:48	104:42	139:37	174:35	209:34	244:19	279:12
48	81:10	136:45	182:21	227:58	273:31	319:06	364:42

Time for intermediate lengths shall be interpolated.

DEFLECTION TEST - If PVC or ABS pipe is used, deflection tests will be run not less than 30 days after final full backfill has been placed. The test is required on all PVC and ABS pipe deeper than 10 feet at points between two manholes and at depths shallower than 10 feet if the pipe has a stiffness of less than 100 psi.

Where possible, electronic equipment shall be used to measure and record the deflection in flexible pipe. No pipe shall exceed a deflection of five percent.

OHIO EPA REQUIREMENTS

ROOF DRAINS, AND OTHER CLEAN WATER CONNECTIONS TO THE SANITARY SEWER SYSTEM ARE PROHIBITED.

THE OHIO ENVIRONMENTAL PROTECTION AGENCY REQUIRES CONFORMANCE TO THE 1987 EDITION OF "RECOMMENDED STANDARDS FOR WATER WORKS." THIS STANDARD SHALL BE EQUALLED OR EXCEEDED FOR WATER LINES. SPECIAL ATTENTION SHALL BE GIVEN TO THE FOLLOWING SECTIONS OF PART 8:

8.0.1. MATERIALS CONFORM TO AWWA STANDARDS
8.1.2. MINIMUM 6" FOR FIRE PROTECTION
8.5.3. MINIMUM 4' GROUND COVER
8.5.5. PRESSURE TESTING AWWA C-600-RESPONSIBILITY:
8.5.6. DISINFECTION AWWA C-651-RESPONSIBILITY:
8.6.2. 10' HORIZONTAL SEPARATION WATER MAIN/SEWER
8.6.3. 18" VERTICAL SEPARATION WATER MAIN/SEWER
8.6.6. NO ENTRY AND NO CONTACT WITH SEWER MANHOLE

KNOTE: IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO PERFORM THIS TEST PROPERLY. RESPONSIBILITY FOR SUPERVISION AND APPROVAL RESTS WITH THE WATER SUPPLIER OR LOCAL GOVERNMENTAL AGENCY.

IN CASES WHERE ONE OR MORE OF THE ABOVE MENTIONED OHIO EPA STANDARDS FALL SHORT OF LOCAL STANDARDS, THE LATTER SHALL GOVERN.

POGGEMEYER
ENGINEERS - ARCHITECTS
APR 20 1999
PRINTED

APPROVALS

THOMAS J. SHORT, OWNER — DATE 5/19/98

CERTIFICATION

KENNETH A. MAAG, P.E. — DATE 4-1-98

RICHARD E. WEAVER, P.E. — DATE 4-13-98

STATE OF OHIO KENNETH A. MAAG 53316 REGISTERED PROFESSIONAL ENGINEER

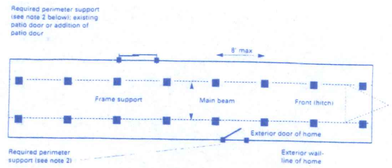
STATE OF OHIO RICHARD A. WEAVER 46957 REGISTERED PROFESSIONAL ENGINEER

SEWERAGE
APPROVED
OHIO ENVIRONMENTAL PROTECTION AGENCY
AS EVIDENCED BY LETTER OF APPROVAL HERETO ATTACHED

RECEIVED
MAY 1 1999
PAID
Amount $333.50 Date 5/18/99
Check # 2814 Date 5/19/99
OHIO E.P.A. N.W.D.O.

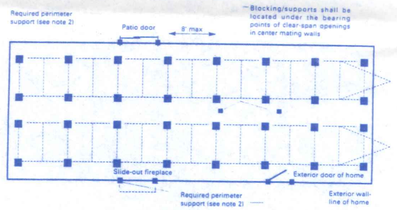
POGGEMEYER DESIGN GROUP, INC.
ARCHITECTS - ENGINEERS - PLANNERS PH. 419-782-3067
417 WAYNE AVENUE P.O. BOX 7040 DEFIANCE, OHIO 43512

6720-009



Typical blocking diagram for single-section home when manufacturer's instructions are not available

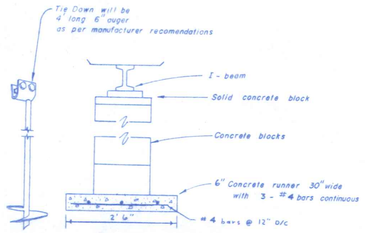
1. Blocking shall be located at a maximum of 2 feet from both ends.
2. Place blocking on both sides of entry doors and at any other openings greater than 4 feet in width, such as patio or atrium doors; under porch posts, fireplaces, and wood stoves; and under those places where heavy pieces of furniture such as pianos, organs, waterbeds, etc. may be placed.

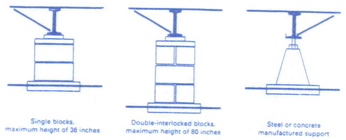


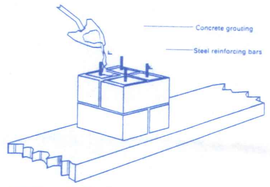
Typical blocking diagram for multisection home when manufacturer's installation instructions are not available

Blocking Diagrams

(Not to scale)







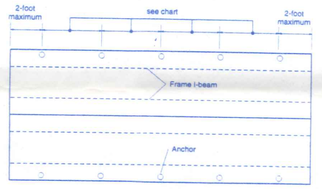
For blocking exceeding 80 inches in height, the concrete blocks must be filled with concrete grouting and steel reinforcing bars used.

Blocking Requirements

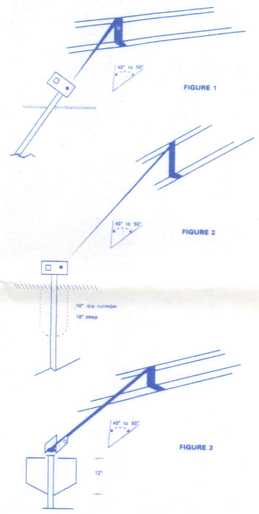
Not to scale

Strap Method	Anchor Min. Ultimate Load Capacity	Maximum Anchor Spacing: Zone II[1]	Zone III[1]	Zone III[2]
Single Strap	4725 lbs.	11' - 0"	6' - 0"	4' - 6"
Double Strap	4725 lbs.[1]	11' - 0"[3]	6' - 0"[3]	4' - 6"[3]

Note --
1. Unless listed/labeled for a higher capacity by the anchor manufacturer
2. Unless a greater spacing is specified by the anchor manufacturer
3. All homes located in Wind Zones II and III shall have a vertical tie installed at each diagonal tie location.

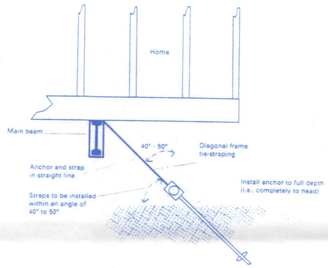


Number and location of straps and ground anchors



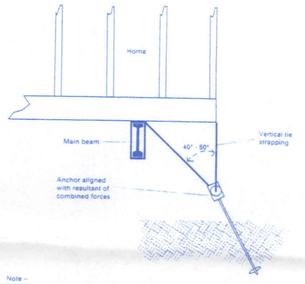
Anchor & Frame connection
Not to Scale

Diagonal anchors should be installed in line with the ties. (FIGURE 1) One method of restricting lateral deflection is shown in (FIGURE2.) To minimize the deflection or sliding through the soil by the anchor rod at ground level when frame ties are connected to provide a diagonal tension it is recommended that a concrete cylindrical "collar" (approximately 16" in diameter and 18" deep) be installed around the anchor shaft. Another accepted way to limit lateral deflection is by use of a tested and approved "Metal Stabilizing Device". This plate is driven in front of the anchor's direction of pull and will act to minimize rod deflection.



Note --
1. All anchoring parts must be certified to a 4,725-pound capacity.
2. The ground anchors must be sized in accordance with the direction of the load and the type of soil.
3. The ground anchors' augers must be installed below the frost line.
4. Ground anchors may be installed vertically if either a 10-inch x 18-inch (at a minimum) concrete collar or an approved metal stabilizing device is installed.

Diagonal ties
Not to Scale



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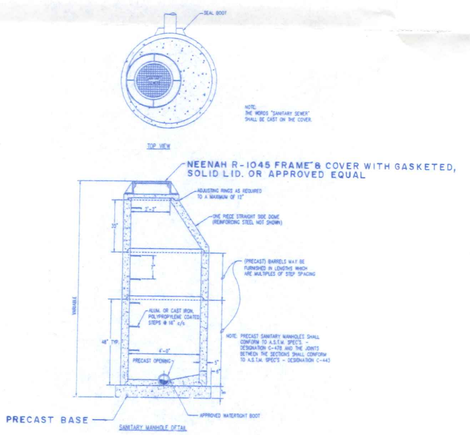
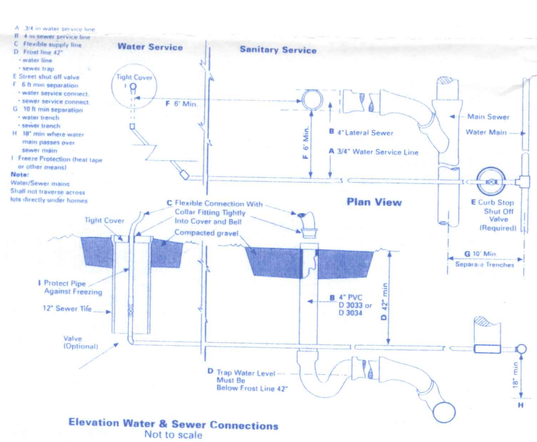
Diagonal and vertical ties
Not to Scale





Elevation Water & Sewer Connections

Not to scale

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OHIO ENVIRONMENTAL PROTECTION AGENCY
AS EVIDENCED BY COPY OF LETTER OF APPROVAL
~~HERETO ATTACHED~~

DETAILS

JOB FILE:
PRINTED:

POGGEMEYER DESIGN GROUP, INC.
ENGINEERS • ARCHITECTS • PLANNERS
1168 NORTH MAIN STREET • BOWLING GREEN, OHIO 43402

GLENWOOD ESTATES

DATE 3-30-98
CHECKED BY K.A.M.
DRAWN BY R.L.T.
REVISION

4/4

JOB NUMBER 6720-009