

SITE WORK GENERAL NOTES AND SPECIFICATIONS

GENERAL CONDITIONS

A. The Contractor shall be responsible for obtaining, or verifying that all permits and approvals are obtained from the respective city and state agencies prior to starting construction.

B. It shall be the Contractor's responsibility to determine the exact location of all existing utilities in the vicinity of the construction area prior to starting construction.

C. It shall be the Contractor's responsibility for notification and coordination of all construction with the respective utility companies.

D. The contractor shall verify that the elevations shown as existing conditions are as indicated on the construction plans. Any deviations from the indicated elevations shall be brought to the attention of the Engineer prior to construction.

E. Unless otherwise identified, the contractor is responsible for constructing the site to the indicated elevations and appropriate material exists on site to complete the construction to the indicated elevations. Borrow areas may need to be adjusted to grade the area to the indicated elevations.

F. It shall be the responsibility of the Developer and Contractor to maintain quality control throughout the project; failure to do so may result in removal and replacement of the defective work. It is recommended that the developer have a qualified Inspector on the job site at all times during construction.

G. It is essential that the work to be done in conjunction with this project shall be installed according to these specifications. The Engineer will be required to certify to certain portions of this project upon completion. Therefore, it is necessary to obtain approval and acceptance by the Town of Pendleton and Fall Creek Regional Waste District that construction was done in compliance with these plans and specifications.

H. The designation A.S.T.M. shall refer to the American Society of Testing and Materials standards. The latest revision of listed A.S.T.M. standards shall prevail.

I. The designation InDOT shall refer to the Indiana Department of Transportation Standard Specifications dated 2001 and all subsequent revisions.

CLEARING AND GRUBBING

A. Clearing and grubbing shall consist of cutting, removal and satisfactory disposal of all trees, down timber, brush, projecting roots, stumps, rubbish, boulders, broken concrete, fencing (as designated), and other material on the project site and within the boundary as shown on the Construction Documents and/or as designated by "construction limits".

B. Special care shall be taken to insure that trees to be left remaining in the project area shall not receive limb, bark or root injuries. When such injuries occur, all rough edges of scarred areas shall be removed in accordance with accepted horticultural practice and the scars coated thoroughly with an asphalt base tree paint.

C. All unsuitable material from clearing operations stated in Item A shall be removed to disposal area(s) off of the project site, unless a Bury Pit shall be utilized in an area where it shall not be beneath building areas and/or pavement areas and shall not be located in an area where storm drainage structures shall be located or where impoundment of surface drainage may occur. Written permission of project owner must be obtained for bury pit construction on site, including location.

TREE REMOVAL AND PROTECTION

A. Trees shall be removed from the project site only where the area is to be occupied by road and surfaced areas in accordance with specifications of the Town of Pendleton.

B. Trees shall be removed from the project site as directed by the Developer, and so designated.

C. Trees shall be removed from the project site where they interfere with the placement of storm or sanitary sewers.

D. The Contractor shall endeavor to save and protect trees of value and worth which do not impair construction of improvements as designated. In the event cut or fill exceeds 0.5 feet over the root area, the Developer shall be consulted with respect to protective measures to be taken, if any, to preserve such trees.

E. The Contractor shall be responsible for determining the method for protection of tops, trunks and roots of existing trees on the project site that are to remain. Existing trees subject to construction damage shall be boxed, fenced or otherwise protected before any adjacent work is started. Earth or material and equipment shall not be stockpiled or stored within the spread of branches. Branches which need to be removed or are broken shall be neatly trimmed and scars shall be covered with asphalt based tree paint.

STRIPPING OF TOPSOIL

A. The Contractor shall verify that all topsoil has been removed in the areas to be occupied by road, walks and designated building areas. Topsoil shall be removed to a depth of 8 inches or deeper, if necessary, to remove vegetative matter and top soils where required.

B. Topsoil shall be kept separated from suitable fill materials and shall not be used as fill material under pavement and/or building areas.

C. Topsoil shall be stored at a location where it does not interfere with construction operations. Excess topsoil shall be removed from the site or as otherwise directed by the Developer or Engineer. Topsoil storage areas shall be approved in writing by the Owner.

D. Topsoil that is to reused with the construction limits shall be reasonably free from subsoil debris and stones.

GRADING

A. The Contractor shall perform all grading operations to bring subgrade elevations, after final compaction, to the required grades and sections for site improvement.

B. Subgrade shall be proof-rolled with suitable equipment and all spongy and otherwise unsuitable material shall be removed and replaced with suitable material.

C. Subgrade for streets and pavement areas shall be prepared in compliance with the InDOT Standard Specifications, for all areas of street construction. Subgrade shall be compacted to 100 percent of Standard Proctor in the upper 6 inches of depth. Depths of embankment below the upper 6 inches shall be compacted to 95 percent of Standard Proctor.

D. Subgrade for building and pavement areas not identified above and an area in which floodplain is being reclaimed shall be compacted to 95% of Standard Proctor.

E. All fill material shall be formed from soil free of deleterious material. The fill material should be placed in layers not to exceed 8 inches in loose thickness and should be spread and dried to a moisture content which will permit proper compaction. The contractor shall be responsible for providing soils compaction tests certified by a Registered Engineer that the fill has been compacted to the proper level(s).

F. All fill material in areas outside of building and pavement areas shall be compacted lightly with each lift and protected from erosion. Areas of building construction and floodplain reclamation shall not have unsuitable material placed in that location and fill shall be compacted in accordance with the Soils Engineer's report (minimum of 95% of Standard Proctor). The Developer or his Representative shall determine these areas.

SANITARY SEWER CONSTRUCTION

A. Current Fall Creek Regional Waste District and State of Indiana; Departments of Health and Environmental Management specifications shall prevail as to materials and methods of construction.

B. The Contractor shall be responsible for obtaining or verifying all permits for all of portions of this project prior to starting construction. Contractor shall notify the City of office of the Fall Creek Regional Waste District a minimum of forty-eight (48) hours prior to commencement of sanitary construction. The Contractor shall notify the office of the Fall Creek Regional Waste District for scheduling all inspections during construction.

C. Sanitary sewers shown on the construction plans shall be in accordance with A.S.T.M. D-2680 (8 inch - 15 inch pipe and fittings), D-2751 (6 inch pipe and fittings), or P.V.C. A.S.T.M. D-3034 (S.D.R. 35) pipe.

D. All fittings and joints shall be premolded type and manufactured and installed in accordance with the pipe manufacturer's specifications.

E. Sanitary manholes shall be precast concrete in accordance with A.S.T.M. C-478, including concrete adjusting rings.

F. Manhole castings shall be Neenah R-1712-B with concealed pick holes, or equivalent.

G. See the sanitary sewer plan-profile sheets for location of lateral connections.

H. Water and sewer line crossings and separations shall be in accordance with Ten States Standards and local codes.

1. Where water lines and sewer lines cross and the water line cannot be placed above the sewer line a minimum of 18 inches with a minimum cover of 54 inches. The sewer line shall be constructed of waterworks grade cast iron pipe with mechanical joints.

2. Where water lines and sanitary sewer lines run parallel with one another, a minimum of 10 feet horizontal separation shall be maintained.

I. All future sewer installation, either connected to or extended from this system, shall be constructed in accordance with these specifications.

J. No footing drains, roof drains, and/or surface water drains may be connected to the sanitary sewer system, including a temporary connection during construction.

K. Buildings shall be serviced by a 6-inch minimum sanitary sewer lateral. The sewer lateral's termination shall be indicated on the surface with a metal fence post set immediately above said temporary termination point. The ends shall be plugged and sealed with a water tight clay or plastic disc. Wyes are to be tilted up to 45 degrees from the horizontal, with suitable fittings for all changes in direction.

L. All 6 inch sanitary sewer service laterals to buildings shall be in accordance with A.S.T.M. D-3034 P.V.C. (S.D.R. 35) pipe.

M. The Contractor shall provide the Engineer with "as-built" locations and information for all sanitary sewer laterals within ten days after completion. This information shall include the as-built stationing of the lateral or location or the wye measured from the immediate downstream manhole as well as the length of the lateral from the wye to its termination.

N. Concrete riser sections used on manholes shall have rubber "O" ring gaskets.

O. Manhole waterstops shall be installed at all connections to manholes, where flexible-type manhole connections are not used.

P. All precast manholes shall be bedded on a granular foundation as shown in the details. The granular foundation shall be compacted with vibratory tamping equipment.

Q. The Contractor shall remove by pumping or other suitable methods any water that may accumulate in trenches.

R. Pipe shall be laid in open trenches, except when conditions require and the appropriate reviewing agencies give written permission for tunneling or jacking of pipe.

S. Trench shall be opened sufficiently ahead of pipe laying to reveal obstructions, and shall be properly protected and/or barricaded when left unattended.

T. Contractor shall be responsible for sheeting and bracing of trenches as necessary to protect workmen and adjacent structures. All trenching shall be done in accordance with OSHA standards to protect workmen.

U. Manhole inverts shall be shaped for flow channels with concrete and smoothly finished by a semi-circular section conforming to the inside diameter of (the connecting sewers. Changes in size and grade shall be made by smooth true curves for all connecting sewers at each manhole.

V. Granular backfill shall be required for all street crossings. Granular backfill shall be required for sewer mains and laterals that cross under pavement and other structural fills. Granular backfill shall be used under and within five feet of pavement and structural fills. Granular backfill shall meet the requirements of Fall Creek Regional Waste District.

W. During installation of pipe in wet conditions, the contractor shall use de-watering pumps as well as 6 inches of #4 stone or larger granular material beneath the pipe and connection joints. During construction the trench should be dry and clean.

X. The Contractor shall be responsible for all tests for leakage, infiltration and deflection as established by the Fall Creek Regional Waste District and the Indiana State Departments of Health and Environmental Management. The requirements are generally as follows:

1. Mandrel Tests: A five (5) percent "GO-NO-GO" Mandrel Deflection Tests shall be performed on all PVC, HDPE, and PVE Composite gravity sanitary sewer pipe. These pipes shall be mandrelled with a rigid device sized to pass five percent (5%) or less deflection (or deformation) of the base inside diameter of the pipe. The mandrel test shall be conducted no earlier than thirty (30) days after reaching final trench backfill grade, provided that in the opinion of the utility having jurisdiction and/or the Engineer sufficient water densification or rainfall has occurred to thoroughly settle the soil throughout the entire trench depth.

2. Infiltration Tests: The gravity sanitary sewers shall be tested for infiltration using low-pressure air test methods. The rate of infiltration into the sanitary sewer system between any two adjacent manholes and the entire system shall not be in excess of 100 gallons per inch of pipe diameter per mile per day (100 gpd/in./mi.). The contractor shall be required to repair all visible leaks to the satisfaction of the utility having jurisdiction and/or the Engineer, even is the infiltration requirements are met.

3. Video Inspection: The gravity sanitary sewers and laterals shall be televised for visual imperfections and a video tape of the inspection shall be provided to the Town of Anderson for record purposes.

4. Manhole / Vacuum Testing: The manholes shall be air tested in accordance with ASTM C1244-93, Standard Test Method for Concrete Sewer manholes by Negative Air Pressure (Vacuum) Test.

The contractor shall bear the complete costs and supply all equipment necessary to perform the test required. Any portions not passing said tests for acceptance shall be repaired or replaced at the Contractor's expense, including re-excavation and backfill. All testing shall be completed within forty days of completion and observed by a Professional Engineer for certification.

EROSION PROTECTION DURING CONSTRUCTION

A. The Contractor shall provide adequate erosion protection measures during construction. Measures may include but may not be necessarily be limited to the following:

1. Riprap at locations designated on the plans.

2. Combinations of seeding mixtures, mulching, mulching and fertilizers and/or mulching blankets.

3. Sandbag barriers, silt fencing, straw bale dams, temporary swales, diversions ditches, and/or siltation basins.

B. Refer to the Erosion Control Plan for locations specific measures and details. Erosion Control Measures shall be in accordance with the Indiana Standard Handbook for Erosion Control, latest edition.

C. The contractor is responsible for establishing and maintaining erosion control throughout the construction period and until the grass mixtures, as outlined in the erosion control plan are established. The contractor shall indemnify the Owner and/or the Developer for his actions, or lack of actions during this period with regards to complying with Rule 5.

FINISH GRADING AND SEEDING (Developer shall designate location if required.)

A. Over the approved rough grade (see Section V) spread 4 inches minimum of topsoil or approved fill to such depth as will finish to the required finish grades and contours after rolling and natural settlement. New grades shall slope uniformly between levels established on the plans, and intersections of new grades with existing grades shall be uniform and smooth.

B. Fertilizer and Agricultural Limestone. Fertilizer and agricultural limestone shall be spread uniformly over the area to be seeded. They shall be mixed into the top two inches of soil with a disk harrow, rotary tiller, or other approved equipment. Fertilizer shall be spread at the rate of 800 pounds per acre and agricultural limestone at the rate of one-half ton per acre, unless otherwise specified.

C. A seeding mixture in the areas where stripping, cuts, or fills have been graded shall be seeded for silt and erosion protection at a rate of 90 pounds per acre with

STORM SEWER CONNECTION

A. Storm sewer structures shall comply with current specifications of the Town of Pendleton and all agencies in respect to design and quality of construction.

B. All storm sewer construction inside public right-of-way, either existing or to be dedicated, shall be in accordance with the Standard Specifications of the Town of Pendleton. The Contractor shall notify the Office of the Town of Pendleton forty-eight (48) hours prior to commencement of storm sewer construction.

C. Where reinforced concrete pipe is shown on the construction plans, it shall be in accordance with A.S.T.M. C-76, Class III, Wall "B", unless otherwise specified on the plans.

D. Where corrugated metal pipe is shown on the construction plans, it shall be 16 gauge unless otherwise specified and shall have the connecting bands and seals as specified by the manufacturer. C.M.P. may be either aluminum pipe or zinc coated steel sheets in accordance with A.S.T.M. A 444. All C.M.P. shall be helical C.S.P. or equivalent. Any corrugated metal pipe used under pavement areas shall be fully bituminous coated in accordance with the standards of InDOT.

E. Where polyethylene (PE) pipe is shown on the construction plans, it shall be in either Hancor Hi-Q or ADS N-12 or equal as may approved by the Town of Pendleton.

F. Manholes, catchbasins, inlets and riser rings shall be precast or poured-in-place concrete. No brick or block inlets are permitted.

G. Precast concrete and steel for manholes and inlets shall be in accordance with A.S.T.M. C-478.

H. Castings shall be as shown on the Structure Data Table or Storm Sewer Plan-Profile for manufacturer, type and model number. The specified castings may be substituted with another manufacturer's equal model upon written permission from the Engineer and the agency having authority.

I. Granular backfill shall be required for all street crossings. Granular backfill shall be required for water mains and appurtenances that cross under pavement and other structural fills. Granular backfill shall be used under and within five feet of pavement and structural fills. Granular backfill shall meet the requirements of Town of Pendleton.

WATERLINE CONSTRUCTION

A. All water lines shall be constructed in accordance with the Standards and Specifications of the Indiana State Departments of Health and Environmental Management and the Town of Pendleton, Water Utility.

B. The Town of Pendleton provides the tap for the extension of the dedicated waterline system. The contractor shall coordinate his construction activity of the waterline with the tapping of the water main by the Town of Pendleton, Water Utility, so that construction of the Contractor's portion of the waterline will proceed immediately upon completion of the tap by the Town of Pendleton, Water Utility.

C. See Sanitary Sewers for vertical and horizontal separations.

D. Sterilization of water mains shall be in accordance with the Indiana State Boards of Health and Environmental Management and as outlined in ANSI/AWWA Standard C651-92. This does not however, relieve the Contractor from following prudent installation practices that affect the disinfecting procedure.

E. Hydrostatic testing for ductile iron pipe and polyvinyl chloride pipe (P.V.C.) for the water system shall be performed in accordance with ANSI/AWWA Standard C600-93 and the Handbook of PVC Pipe respectively.

F. Granular backfill shall be required for all street crossings. Granular backfill shall be required for water mains and appurtenances that cross under pavement and other structural fills. Granular backfill shall be used under and within five feet of pavement and structural fills. Granular backfill shall meet the requirements of Town of Pendleton, Water Utility.

G. All construction materials and procedures within the existing or proposed right-of-way or easements shall be in accordance with the requirements of the Town of Pendleton, Water Utility.

H. Thrust blocks shall be installed in accordance with the details contained in the plans, or in accordance with the requirements of the Town of Pendleton, Water Utility.

I. Felt material not to exceed 3/8 inch thick shall be placed between pipes and concrete thrust blocks.

J. All valves and appurtenances for domestic and fire protection water mains shall be approved by the Underwriters Laboratories and Factory Mutual for critical use

UTILITIES

Electric, Telephone, CATV, Street lighting

A. Conduit shall be required for all crossings under pavement areas. The contractor shall coordinate the locations of the conduit / utility crossings with the respective utility.

B. Granular backfill shall be required for all street crossings. Granular backfill shall be required for water mains and appurtenances that cross under pavement and other structural fills. Granular backfill shall be used under and within five feet of pavement and structural fills. Granular backfill shall meet the requirements of Town of Pendleton.

C. Concrete pads for electric and telephone transformers shall be set at the approximate ground grade as shown on the Site Development Grading Plans for the respective locations.

PAVEMENT CONSTRUCTION

A. All street and pavement construction shall be in accordance with the plans and specifications and conform to the minimum standards of the Town of Pendleton.

B. Subgrade shall be prepared in compliance with Section 207.02 of the Standard specifications of InDOT. No traffic shall be permitted on the prepared subgrade prior to paving.

C. Granular backfill shall be required for all street crossings. Granular backfill shall be required for water mains and appurtenances that cross under pavement and other structural fills. Granular backfill shall be used under and within five feet of pavement and structural fills. Granular backfill shall meet the requirements of Town of Pendleton.

D. Contractor shall notify the Office of the Town of Pendleton (48) forty-eight hours prior to commencement of street construction within any existing or proposed right-of-way.

North

Scale: none

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Date 6/12/2006

Revision

Date

Project: **MapleWood at Huntzinger Farms**
Section 2
Town of Pendleton, Madison County, Indiana
Sheet Title: **General Notes and Specifications**

PER INDIANA STATE LAW IS-69-1891, IT IS AGAINST THE LAW TO EXCAVATE WITHOUT NOTIFYING THE UNDERGROUND LOCATION SERVICE TWO (2) WORKING DAYS BEFORE COMMENCING WORK.



WITHIN INDIANA:
1-800-362-5844
FROM OUTSIDE INDIANA:
1-800-428-5200

ELECTRIC _____ RED
GAS-OIL _____ YELLOW
COMMUNICATIONS _____ ORANGE
WATER _____ BLUE
SEWER _____ GREEN
PROPOSED _____ WHITE
EXISTING _____ WHITE

THE INFORMATION NEEDED WHEN CALLING INDIANA UNDERGROUND PLANT PROTECTION SERVICES, INC. IS AS FOLLOWS:

COUNTY AND TOWNSHIP
STREET ADDRESS
TYPE OF WORK
EXTENT OF WORK
NAME OF CALLER AND TITLE
TELEPHONE NUMBER
BEST TIME TO CALL
START DATE AND START TIME
CONTRACTOR NAME AND ADDRESS

Sheet No.

2
20 Sheets