#### **Grading General Notes:**

- Contractor and materials shall comply with all local, state and federal codes, ordinances, rules, regulations, orders and other legal requirements of municipal authorities which bear on the performance of the work. The contractor is cautioned that the location, elevation, size and/or material type of existing utilities as shown
- on these plans is based on records of various utility companies and, where possible, measurements taken in the field. The information is not to be relied on as being exact or complete. The contractor is responsible for the accurate location elevation, size and/or material type of all utilities and hazards whether shown or not. The contractor must contact the appropriate utility company at least 48 hours before any excavation to request exact field location elevation, size and/or material type of utilities. Phone: 811
- Material and installation specifications shall be in conformance with applicable portions of the INDOT Standard Specifications, (latest edition), memorandums and supplements unless specifically stated otherwise on these plans, contract documents or local code.
- 3. All pipe lengths are measured center of structure to center of structure. Pipes ending in flared end sections shall be measured to the end of the pipe.
- 4. Design pipe slopes are calculated from the center of structure to the center structure, or end of pipe for flared end sections. Construction pipe slopes may vary slightly if the structure cross slope does not match the design pipe slope. Flared end section slopes shall match design pipe slopes.
- The contractor shall repair and/or replace all existing utilities damaged as a result of this project. 6. The contractor shall be responsible for notifying all occupants of interruption to their utilities that will be
- 7. The contractor shall maintain the road right-of-way which has been disturbed. Maintenance shall meet the
- approval of the governing engineer. 8. Erect and maintain all necessary barricades, detour signs, warning signals and lights (in conformance with the Manual on Uniform Traffic Control Devises - latest edition) and INDOT Standard Specifications. memorandums and supplements required to direct traffic safely over or around the place where work is
- being done, that in any way interferes with traffic or pedestrians 9. Areas exposed by excavation or stripping and on which subgrade preparations are to be performed shall be scarified to minimum depth of 8" and compacted to minimum of 95% of optimum density. in accordance with ASTM D 698 (or 92% of optimum density, in accordance with ASTM D 1557), at a moisture content of not less than 1% below and not more than 3% above the optimum moisture content. These areas shall then be proofrolled to detect any areas of insufficient compaction, soft and yielding material. Proofrolling shall be accomplished by making a minimum of two (2) complete passes with a fully-loaded tandem-axle dump truck,

of a field geotechnical engineer. Areas of failure shall be excavated and re-compacted as stated above. Fill materials used in preparation of subgrade shall be placed in lifts or layers not to exceed 8" loose measure and compacted to a minimum density of 95% of optimum density, in accordance with ASTM D 698, (or 92% of the optimum density, in accordance with ASTM D 1557) at a moisture content of not less than 1% below and not more than 3% above the optimum moisture content.

or approved equivalent, in each longitudinal and perpendicular directions under the supervision and direction

- 10. All dirt work graded slopes to be no greater than 4:1, unless otherwise noted on these drawings.
- 11. Preferred minimum pavement slope = 0.5% flow.
- 12. All surfaces shall be graded to drain
- 13. Local, state, and national laws and guidelines shall take precedence over design information if in conflict. Contractor shall inform client and Morley in writing if any conflicts arise.
- 14. Slope grades to direct water away from buildings and prevent ponding.
- 15. Any existing unconsolidated fill and/or utility trenches shall be tested for compaction prior to paving and/or slab construction. Excavation of unconsolidated material and compaction of new material in these areas may be required to prevent future settlement.
- 16. The contractor shall verify all measurements and elevations and be responsible for any mistakes they may make as a result. If the contractor discovers any discrepancies in figures on the drawings, he/she shall report same to the Engineer before proceeding with any work affected by the discrepancy, and shall be held responsible for results should he/she fail to make such effort

#### **Erosion Notes:**

- All details and practice standards are shown in the most current edition of the Indiana Storm Water Quality Manual. Contractor must obtain a copy of this handbook from the following website www.idem.in.gov/stormwater or contact IDEM directly.
- 2. Construct temporary gravel constr. entrance / exit pad before commencing construction.
- 3. All disturbed areas to have seeding, fertilizer and mulching upon completion of final grading.
- 4. Prior to initiating any land-disturbing activities, a representative for the project should walk the site with construction plans in hand and mark the limits of construction that were established during the planning phases. Areas to be protected should be marked with rope, safety fencing (commonly orange colored). or surveyor flags. Signage can also be used to identify and explain limits of construction and areas that are to be protected from construction activities.
- 5. Protect all drop inlets during construction with fabric drop inlet or gravel or straw bale protection.
- 6. The pollution prevention plans are general guidelines for the contractor to follow. The contractor is still required to keep all sediment off public roads and must follow all other guidelines as specified in the Indiana handbook. Provide a temporary gravel construction entrance/exit pad as specified in the Indiana Storm Water Quality Manual.
- 7. If any erosion control measure is not sufficient the contractor shall add additional control measures and then modify the plan to include those measures.
- 8. Grass-lined channels to be constructed to have 3:1 max. slopes and a grade restricted to slopes 5%%% or
- 9. Protect all inlets in paved roadways with bags filled with gravel or aggregate and placed around a storm drain curb inlet. Place a traffic barricade at each installed measure for safety and to protect measure
- 10. Straw bale filters and/or silt fence may be required at locations other than those indicated on this plan. The contractor shall install such filters as needed to insure that runoff from disturbed areas does not leave the site without being treated. Flow and erosion control for ditches: slopes of 0% to 0.8% shall have a concrete ribbon to preserve a smooth flow line. Slopes of 0.8% to 1% shall be seeded and mulched. Slopes 1% to 2% shall be sodded or stabilized with an erosion control mat. Slopes of 2% to 6% shall have staked sod or an approved staked erosion control mat. Slopes over 6% require rip rap or other approved stabilization.
- 11. Ditch slopes over 2% shall have erosion control mats on the side banks.
- 12. Swale flowlines, swale slopes, dry basin bottoms, and dry basin slopes shall use North American Green SC150 Straw Matting or approved equivalent to prevent soil erosion.
- 13. Topsoil shall be stockpiled and strategically located throughout the site. Silt fence shall be temporarily installed around all stockpiles to prevent runoff.
- 14. Bulk clearing of sediment from pavement by flushing with water shall "not" be permitted.
- 15. All unvegetated area left inactive for fifteen (15) days or more shall be temporarily or permanently stabilized with measures appropriate for season to minimize erosion potential.
- 16. Any improvements to existing swales or ditches shall not impede previous flow conditions.

# Site Grass Mix:

- Seeding from November 15 to February 29:
- > Seed mixture will be applied at a rate of 3 to 4 pounds of Bluegrass and 1 pound of Tall Fescue per 1000 square feet.
- > Mulch will be placed at a rate of 100 pounds per 1000 square feet and crimped into place.
- > Fertilizer having a composition of 12-12-12 will not be applied until the following March. Fertilizer will be applied at a rate of 19 pounds per 1000 square feet.
- Seeding from March 1 to November 14:
- > Seed mixture will be applied at a rate of 6 1/2 pounds of Kentucky 31 Fescue and 1 1/2 pounds of Perennial Rye per 1000 square feet.
- > Fertilizer having a composition of 12-12-12 will be applied at a rate of 19 pounds per 1000 square
- Mulch will be placed at a rate of 100 pounds per 1000 square feet and crimped into place. Schedule when each disturbed area will be stabilized.
- Dormant or Frost Seeding:
- > Seed mixture will be applied at a rate of 5 to 6 pounds of Tall Fescue and 1 pound of Bluegrass per
- > Fertilizer having a composition of 12-12-12 will be applied at a rate of 19 pounds per 1000 square
- Mulch will be placed at a rate of 100 pounds per 1000 square feet and crimped into place. Schedule

#### **EWSU Public Sanitary Main Extension Notes:**

- 1. Contractor shall comply with all local, state and federal codes, ordinances, rules, regulations, orders and other legal requirements of municipal authorities which bear on the performance of the work, which may not be recognized on the approved plan set.
- 2. The contractor is cautioned that the location and / or elevation of existing utilities, as shown on these plans, is based on records of various utility companies, and where possible measurements taken in the field. The information is not to be relied on as being exact or complete. The contractor must contact the appropriate utility company at least 48 hours before any excavation to request exact field location of utilities. Contractor shall locate existing utilities and establish elevations and clearances with proposed improvements prior to initiating construction. Indiana underground utility locate service (I.U.P.P.S.) phone: 811.
- 3. Material specifications shall be in conformance with applicable portions of the I.D.E.M.. standard specifications, (latest edition) unless specifically stated otherwise on these plans, contract documents, or EWSU water and sewer manual.
- 4. Applicant/owner/contractor shall secure construction permit and/or road cut permit through the City of Evansville engineer's office (812-436-4973) for the work to be performed in the road Right-of-Way.
- 5. All sanitary sewer extensions shall be witnessed by an EWSU appointed inspector. The contractor is to provide a minimum of 48 hour notice to Doug Ohning (812-421-2120 ext. 2217) for the assignment of the appointed inspector. Construction shall not commence prior to inspection arrangement.
- 6. Minimum of 18 inch vertical and 10 feet horizontal clearance to be maintained between water lines and sewer lines.
- Minimum depth of cover for sewer mains and laterals is 3 feet to top of pipe.
- 8. Easement width is to be 12' minimum. Except when adjacent to other easement or right of way
- 9. No taps to be made within 3 feet of any system component.
- 10. Developer responsibility for sanitary laterals ends with installation up to R/W or easement line, with cap and PVC marker pipe above surface. Cleanouts are not part of sanitary sewer extension.

#### **Sanitary Sewer General Notes:**

- 1. Lateral pipe to be 6" diameter PVC SDR-26, or PVC C900 where indicated.
- 2. The contractor is cautioned that the location and/or elevation of existing utilities as shown on these plans is based on records of various utility companies, and where possible measurements taken in the field. The information is not to be relied on as being exact or complete. The contractor must contact the appropriate utility company at least 48 hours before any excavation to request exact field location of utilities.
  - Indiana Underground Utility Locate Service
- Any sanitary sewer trunk lines installed within non-virgin fill material shall be backfilled with engineered fill.
- 4. All sanitary sewer pipes and laterals under and within 5 feet of a roadway or under a sidewalk shall have compacted stone backfill compacted to a minimum of 95% of optimum density.
- 5. Separation between water mains and sewer lines shall be 10' horizontally and 18" vertically measured from outside edge of pipe.
- All pipe lengths are measured center of structure to center of structure.
- Design pipe slopes are calculated from the center of structure to the center of structure.
- 8. Contractor shall comply with all local, state and federal codes, ordinances, rules, regulations, orders and other legal requirements of municipal authorities which bear on the performance of the work.
- 9. State rule 327 IAC 3-6-16 (b) requires that inlet or outlet pipes to sanitary sewer manholes be joined with a gasketed, flexible and watertight connection.
- 10. State rule 327 IAC 3-6-16 (g) requires that a flow channel that conforms to the shape of the connecting sanitary sewer shall be made through the bottom surface of the manhole and that the channel walls shall be formed or shaped to the full height of the crown of the outlet sewer. Also, 327 IAC 3-6-16 (h) requires that a bench shall be provided on each side of any flow channel if the pipe diameter is less than the manhole
- 11. Contractor is cautioned that some of the Sanitary Sewer Test may need to be performed under sanitary flow conditions.

diameter and that the flow channel shall have a surface slope of no less than four percent.

# **ADA Notes:**

- 1. Maximum cross slopes shall be 1:50 (2.0%)
- 2. Changes in level 1/4 in. or less may be vertical without edge treatment. Changes in level between 1/4 in. and 1/2 in. shall be beveled with a slope no greater than 1:2. Changes in level greater than 1/2 in. shall incorporate a "ramp". Maximum slope on ramp shall be 1:12.
- 3. Landings shall be incorporated in ramps so that the maximum vertical rise between landings is no greater than 30 inches. Landings shall be a minimum of 60 inches in length and as wide as the ramp (36
- Landings at a change in direction shall be 60 inches wide and 60 inches long (minimum).
- 5. All areas of new facilities and altered portions of existing facilities shall comply with the Americans with Disabilities Act (ADA) Accessibility Guidelines.

#### **EWSU Water Main Extension Notes:**

(Water Main Extension) The Evansville Water and Sewer Utility accepts for maintenance properly installed components, of an approved Water Extension application, located within public Right-of-Way or within an Evansville Water & Sewer Utility Water Easement.

(Notification to Start Job) Notify Ben Barnes (812-708-0502) with the Evansville Water and Sewer Utility 48 Hours prior to start of construction.

When extending a water main, the Contractor shall hydrostatically test against the existing water main valve (to 150psi for 15 minutes with no drop in pressure allowed) and be witnessed by an EWSU Inspector prior to any further installation of the Water Main Extension. If the Hydrostatic Test fails, the Contractor shall provide and install a new valve to be immediately adjacent to existing valve using proper anchor-coupling at Developers

All taps to the existing EWSU water main shall be witnessed by an EWSU Inspector, All 4" and larger Tapping Sleeves shall be Hydrostatically Tested to 150psi for 15 minutes with no drop in pressure allowed and witnessed by an EWSU Inspector prior to any further installation of the Water Main Extension. The Tapping Coupon shall be saved and turned over to the Evansville Water and Sewer Utility.

All Water Main Extensions shall be Hydrostatically Tested to 150psi for 2 Hours with only AWWA allowed drop in pressure and witnessed by an EWSU Inspector prior to chlorinating the line.

After chlorination, a Bacteriological Test from the existing EWSU water main to the designated Blow-off and Sampling locations is required. Bacteriological Testing shall be requested in writing along with a Sampling Exhibit, utilizing the Approved Plan as a base map, that clearly identifies installed components and locations for the isolation valves, the Chlorination Insertion Points and the Flushing/Sampling Points. The exhibit should contain sufficient narrative to describe the expected sampling layout. Modifications from the approved Plan should be clearly identified. Bacteriological Testing request shall be emailed to BTBARNES@EWSU.COM, DJONOHNING@EWSU.COM, KPOFF@EWSU.COM, and MBOCKSTRUCK@EWSU.COM. EWSU Engineering will review the sampling exhibit and, upon approval, forward the Sampling Request to EWSU Filtration Plant. CONTRACTORS SHALL NOT FORWARD SAMPLING REQUESTS BEYOND EWSU ENGINEERING

After passing the Bacteriological Test, an Activation Letter will be prepared by EWSU Filtration Plant and sent out by EWSU Engineering, at which time the line is required to be activated within 14 Days. The Activation Letter must be signed and dated then e-mailed to EWSU Engineering. The Water Main Extension shall remain off / inactive until after passing all Tests (Hydrostatic Tested & Bacteriological Test) and the Utility receives the signed Activation Letter back from the installation contractor. NO water services are allowed off of the water main without full activation of the main and appropriate service applications on file.

#### **Waterline General Notes:**

- 1. PVC pipe may be bent no more than 12.3 inches over a 20' joint. Use fittings as necessary to prevent over-deflection of pipe.
- 2. All restrained joints per Evansville Water Sewer Utility Specifications.
- 3. All dead end mains shall have pipe joints, prior to dead end, restrained with series 1500 restrainers, in
- accordance with the joint restraint manufacturers specifications.
- 4. All fire hydrants to be located so that they do not interfere with the sidewalks, (where required).
- 5. Contractor shall comply with all local, state and federal codes, ordinances, rules, regulations, orders and
- other legal requirements of municipal authorities which bear on the performance of the work.
- 6. The contractor is cautioned that the location and / or elevation of existing utilities as shown on these plans is based on records of various utility companies, and where possible measurements taken in the field. The information is not to be relied on as being exact or complete. The contractor must contact the appropriate utility company at least 48 hours before any excavation to request exact field location of utilities. Contractor shall locate existing utilities and establish elevations and clearances with proposed improvements prior to initiating construction. Indiana Underground Utility Locate Service (I.U.P.P.S.) Phone: 1-(800)-382-5544
- Material specifications shall be in conformance with applicable portions of the I.D.E.M. standard specifications, (latest edition) unless specifically stated otherwise on these plans, contract documents, or local code.
- 8. Minimum of 18 inch vertical and 10 feet horizontal clearance to be maintained between waterlines and
- 9. Remove all 2" temporary blow offs and replace 2" corp stop with plug prior to final activation.
- 10. All short nipples (16" or less) between fittings and valves to be anchor coupling or ductile iron pipe. 11. Minimum depth of cover for water mains is 4 feet.
- 12. Easement width is to be 12' minimum. Except when adjacent to other easement or right of way. Watermains to be 4' minimum from edge of easement that is not adjacent to other easement (P.U.E. or E.W.S.U) or right
- 13. Auto flushing valves to be installed only after passing bacteriological testing.
- Provide positive drainage to curb line or drainage easement for auto flushing valves. 15. No taps to be made within 2 feet of end of pipe joint.
- 16. For gate valve operating nuts that are going to be deeper than five feet, contractor shall provide extensions.
- 17. For new mains, sets of samples shall be collected every 1200 feet of the new water main, plus one set from the end of the line and at least one from each branch greater than one pipe length. (AWWA C651-14, Sec
- 18. Owner/developer/applicant/contractor shall secure construction permit and encroachment permit through the City of Evansville engineer's office (812-436-4973) for the work to be performed in the public road or alley

## **Bench Mark Data**

TBM #1: North rim of sanitary sewer manhole on southwest corner of Lot 273 in Stonecrest Section 3. Elevation = 406.14 (NAVD 1988)

TBM #2: Chiseled square on concrete pad on southwest corner of Lot 273 in Stonecrest Section 2. Elevation = 412.29 (NAVD 1988)

## Existing Legend

Ā	Area Drain	茶	Light Pole		Center Line
$\otimes$	Cleanout	$\Box$	Power Pole		Easement Line Flow Line
C	Communication Junction Box	<b>(3)</b>	Sanitary Sewer Manhole	OHU	Right-of-way Line Overhead Utilities
11111	Curb Inlet	0	Sign	uc	Property Boundary Line Underground Communica
E	Electric Junction Box	<b>(</b>	Storm Sewer Manhole	ng	Underground Electric Underground Gas
Trans	Electric Transformer	<b>®</b>	Utility Pole	U <b>W</b>	Underground Water
<u>a</u>	Fire Hydrant	•	Utility Pole with Drop	CPP Esm't I.E.	Corrugated plastic pipe Easement Invert Elevation
	Flared End Section		Utility Pole Transformer	RCP R/W	Reinforced Concrete Pipe
G	Gas Meter	W	Water Meter	SP	Right-of-Way Steel Pipe
$\overset{\circ}{\bowtie}$	Gas Valve	$\overset{\mathbf{w}}{\bowtie}$	Water Valve		
	Guy Wire				

### **Proposed Legend**

4" Rolled Curb Storm Pipe ⊕ ... → Drainage Swale and Flow Direction Curb Inlet Concrete Sidewalk Storm Structure

M.J. Bend M.J. Gate Valve M.J. Reducer **西** M.J. Tee ק 90 Degree M.J. Bend Sanitary Sewer Lateral L: Length of Lateral D: Distance from Centerline

--- Potable Water Main

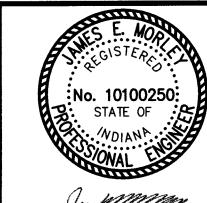
Flared End Section, FES or Headwall, HW

of Downstream Manhole

STRD

Sanitary Sewer Manhole, SSMF

Sanitary Sewer Main



6-14-19

MORLEY ARCHITECTS | ENGINEERS | SURVEYORS

All ideas, designs, calculations, and arrangement indicated or represented by this drawing are owned and are the property of Morley and Associates, Inc. and were created as instruments of service for use o and in connection with the specified project. Morle and Associates retains all common law, statutory law and other rights, including copyrights. No drawings ctronic files shall be reused for any purpose other than the project. They shall not be disclosed to or b used by any other person or firm without the writte or consent of Morley and Associates, Inc.

Written dimensions on these drawings shall ha ecedence over scale dimensions. Contractors sh verify and be responsible for all dimensions and conditions on the job and Morley and Associates. must be notified of any variations from the dimension and conditions shown by these drawings. If differences exist between electronic files and e signed and sealed hard copy drawings, the hard opy shall govern.

4800 Rosebud Ln., Newburgh, IN 47630 812,464,9585 Phone 812,464,2514 Fax morleycorp.com

Nevayah Place

Genera Notes

By Revisions

Scale: As shown 10390.4.001-B JEM 6/14/19

10390 Civil Base

