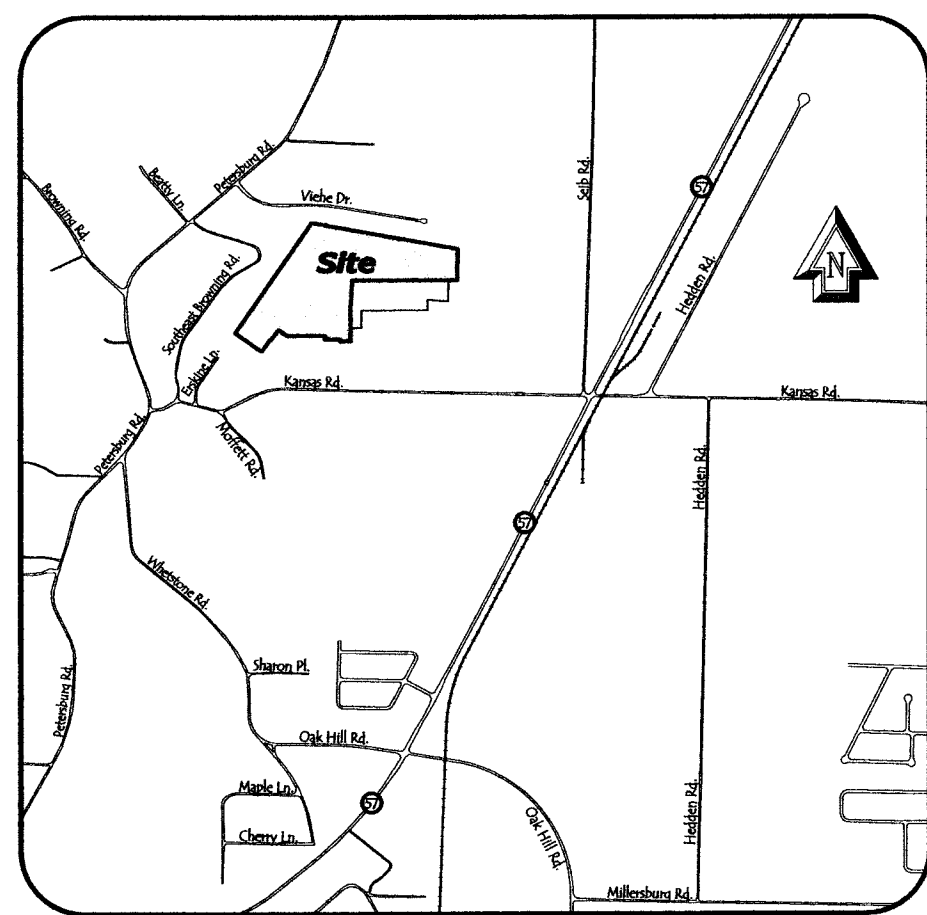


CONSTRUCTION/STORMWATER POLLUTION PREVENTION PLAN (SWP3) NARRATIVE

<p>A. CONSTRUCTION PLAN ELEMENTS</p> <p>A1. PLAN INDEX</p> <p>A2. BY 17-INCH PLAT SHOWING BUILDING LOT NUMBERS/BOUNDARIES AND ROAD LAYOUT/NAMES:.....ATTACHMENTS</p> <p>A3. NARRATIVE DESCRIBING NATURE AND PURPOSE:.....THIS SHEET</p> <p>A4. VICINITY MAP SHOWING PROJECT LOCATION:.....THIS SHEET</p> <p>A5. LEGAL DESCRIPTION OF THE PROJECT SITE:.....ATTACHMENTS</p> <p>A6. LOCATION OF ALL LOTS AND PROPOSED SITE IMPROVEMENTS:.....SEE SHEET C-115</p> <p>A7. HYDROLOGIC UNIT CODE (14 DIGIT):.....THIS SHEET</p> <p>A8. NOTATION OF ANY STATE OR FEDERAL WATER QUALITY PERMITS:.....THIS SHEET</p> <p>A9. SPECIFIC POINTS WHERE STORM WATER DISCHARGE WILL LEAVE THE SITE:.....THIS SHEET</p> <p>A10. LOCATIONS AND NAME OF ALL WETLANDS, LAKES AND WATERCOURSES ON AND ADJACENT TO THE SITE:.....THIS SHEET & ATTACHMENTS</p> <p>A11. IDENTIFICATION OF ALL RECEIVING WATERS:.....THIS SHEET</p> <p>A12. IDENTIFICATION OF POTENTIAL DISCHARGES TO GROUND WATER:.....THIS SHEET</p> <p>A13. 100 YEAR FLOODPLAINS, FLOODWAYS, AND FLOODWAY FRINGES:.....THIS SHEET & ATTACHMENTS</p> <p>A14. PRE-CONSTRUCTION AND POST CONSTRUCTION ESTIMATE OF PEAK DISCHARGE (10 YEAR EVENT):.....THIS SHEET & ATTACHMENTS</p> <p>A15. ADJACENT LAND USE, INCLUDING UPSTREAM WATERSHED:.....THIS SHEET</p> <p>A16. LOCATIONS AND APPROXIMATE BOUNDARIES OF ALL DISTURBED AREAS:.....THIS SHEET & C-115</p> <p>A17. IDENTIFICATION OF EXISTING VEGETATIVE COVER:.....THIS SHEET</p> <p>A18. SOILS MAP INCLUDING SOIL DESCRIPTIONS AND LIMITATIONS:.....THIS SHEET & ATTACHMENTS</p> <p>A19. LOCATIONS, SIZE AND DIMENSIONS OF PROPOSED-STORM WATER SYSTEMS:.....SHEET C-115</p> <p>A20. PLANS FOR ANY OFF-SITE CONSTRUCTION ACTIVITIES ASSOCIATED WITH THIS PROJECT :.....THIS SHEET</p> <p>A21. LOCATIONS OF PROPOSED SOIL STOCKPILES AND/OR BORROW/DISPOSAL AREAS:.....THIS SHEET & C-115</p> <p>A22. EXISTING SITE TOPOGRAPHY AT AN INTERVAL APPROPRIATE TO INDICATE DRAINAGE PATTERNS:.....SHEET C-115</p> <p>A23. PROPOSED FINAL TOPOGRAPHY AT AN INTERVAL APPROPRIATE TO INDICATE DRAINAGE PATTERNS:.....SHEET C-115</p>	<p>LOCATION</p>
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<p>B. STORMWATER POLLUTION PREVENTION PLAN</p> <p>B1. DESCRIPTION OF POTENTIAL SOURCES ASSOCIATED WITH CONSTRUCTION ACTIVITIES:.....THIS SHEET</p> <p>B2. SEQUENCE DESCRIBING STORMWATER QUALITY MEASURE IMPLEMENTED RELATIVE TO LAND DISTURBING ACTIVITIES:.....THIS SHEET</p> <p>B3. STABLE CONSTRUCTION ENTRANCE LOCATIONS AND SPECIFICATIONS:.....THIS SHEET</p> <p>B4. SEDIMENT CONTROL MEASURES FOR SHEET FLOW AREAS:.....THIS SHEET</p> <p>B5. SEDIMENT CONTROL MEASURES FOR CONCENTRATED FLOW:.....THIS SHEET</p> <p>B6. STORM SEWER INLET PROTECTION MEASURE LOCATION AND SPECIFICATION:.....THIS SHEET</p> <p>B7. RUNOFF CONTROL MEASURES:.....THIS SHEET</p> <p>B8. STORMWATER OUTLET PROTECTION SPECIFICATIONS:.....THIS SHEET</p> <p>B9. GRADE STABILIZATION STRUCTURE LOCATIONS AND SPECIFICATIONS:.....THIS SHEET</p> <p>B10. LOCATION, DIMENSIONS, SPECIFICATION, AND CONSTRUCTION DETAILS OF EACH STORMWATER QUALITY MEASURE:.....THIS SHEET</p> <p>B11. TEMPORARY SURFACE STABILIZATION METHODS APPROPRIATE FOR EACH SEASON:.....THIS SHEET</p> <p>B12. PERMANENT SURFACE STABILIZATION SPECIFICATIONS:.....THIS SHEET</p> <p>B13. MATERIAL HANDLING AND SPILL PREVENTION:.....THIS SHEET</p> <p>B14. MONITORING AND MAINTENANCE GUIDELINES FOR POLLUTION PREVENTION MEASURES:.....THIS SHEET</p> <p>B15. EROSION & SEDIMENT CONTROL SPECIFICATIONS FOR INDIVIDUAL BUILDING LOTS:.....THIS SHEET</p>	<p>LOCATION</p>
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<p>C. POST CONSTRUCTION STORMWATER POLLUTION PREVENTION PLAN</p> <p>C1. DESCRIPTION OF POLLUTANTS AND THEIR SOURCES ASSOCIATED WITH THE PROPOSED LAND USE:.....THIS SHEET</p> <p>C2. SEQUENCE DESCRIBING STORMWATER QUALITY MEASURE IMPLEMENTATION:.....THIS SHEET</p> <p>C3. DESCRIPTION OF PROPOSED POST CONSTRUCTION STORMWATER QUALITY MEASURES:.....THIS SHEET</p> <p>C4. LOCATION, DIMENSIONS, SPECIFICATIONS & CONSTRUCTION DETAILS OF EACH STORMWATER QUALITY MEASURE:.....THIS SHEET & C-117</p> <p>C5. DESCRIPTION OF MAINTENANCE GUIDELINES FOR PROPOSED POST CONSTRUCTION WATER QUALITY MEASURES:.....THIS SHEET</p>	<p>LOCATION</p>
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Location Map (Not to Scale)

<p>A. CONSTRUCTION PLAN ELEMENTS</p> <p>A1. PLAN INDEX SHOWING LOCATIONS OF REQUIRED ITEMS: - This sheet.</p> <p>A2. BY 17-INCH PLAT SHOWING BUILDING LOT NUMBERS/BOUNDARIES AND ROAD LAYOUT/NAMES: - See attached primary plat.</p> <p>A3. NARRATIVE DESCRIBING NATURE AND PURPOSE: - Develop a single-family residential subdivision. The earthwork, utilities and streets for the subdivision will be constructed in multiple phases. The existing detention basin located at the northeast corner of the property will be utilized as a sediment basin during all phases of construction.</p> <p>A4. VICINITY MAP SHOWING PROJECT LOCATION: - See lower left hand corner of this sheet.</p> <p>A5. LEGAL DESCRIPTION OF THE PROJECT SITE: - The site is located in the SE 1/4 and SW 1/4 of Sec. 22, Township 5-S, Range 10 West; Center Township. Approximate coordinates: Latitude = 38-deg 04' 03" N; Longitude = 87-deg 31' 04" W.</p> <p>A6. LOCATION OF ALL LOTS AND PROPOSED SITE IMPROVEMENTS: - This project will consist of 108 single-family residential lots and their associated road and utility improvements.</p> <p>A7. HYDROLOGIC UNIT CODE (14 DIGIT): - 05140202040070; Bluegrass Creek - Firlick Creek</p> <p>A8. NOTATION OF ANY STATE OR FEDERAL WATER QUALITY PERMITS: - None anticipated</p> <p>A9. SPECIFIC POINTS WHERE STORM WATER DISCHARGE WILL LEAVE THE SITE: - All stormwater runoff will travel to the existing detention basin located at the northeast corner of the project before leaving the site. The primary spillway of the detention basin then discharges into an existing ditch that flows east thru Stoner Creek PUD then discharges into Firlick Creek.</p> <p>A10. LOCATIONS AND NAME OF ALL WETLANDS, LAKES AND WATERCOURSES ON AND ADJACENT TO THE SITE: - No wetlands are located within the project boundaries (See attached exhibit)</p> <p>A11. IDENTIFICATION OF ALL RECEIVING WATERS: - Firlick Creek.</p> <p>A12. IDENTIFICATION OF POTENTIAL DISCHARGES TO GROUND WATER: - There is no apparent potential for direct discharge to ground water via sinkholes, abandoned wells or drywells.</p> <p>A13. 100 YEAR FLOODPLAINS, FLOODWAYS, AND FLOODWAY FRINGES: - A portion of the project boundary lies within the Special Flood Hazard Area, Zone 'AE', as said tract plots on the National Insurance Program's Flood Insurance Rate Map for Vanderburgh County, Indiana, Community Panel Map No. 18163C0109D, dated March 17, 2011.</p> <p>A14. PRE-CONSTRUCTION AND POST CONSTRUCTION ESTIMATE OF PEAK DISCHARGE (10 YEAR EVENT): - Calculations by the Rational Method indicate a Pre-Construction Q(10) = 47.96-cfs and a Post-Construction Q(10) = 62.48-cfs.</p> <p>A15. ADJACENT LAND USE, INCLUDING UPSTREAM WATERSHED: - Immediately adjacent properties are residential to the north, south, east and west.</p> <p>A16. LOCATIONS AND APPROXIMATE BOUNDARIES OF ALL DISTURBED AREAS: - The entire site will be disturbed during construction of this project.</p> <p>A17. IDENTIFICATION OF EXISTING VEGETATIVE COVER: - The proposed site is a cleared field.</p> <p>A18. SOILS MAP INCLUDING SOIL DESCRIPTIONS AND LIMITATIONS: - According to the USDA's Soil Survey of Vanderburgh County Indiana, the following soils exist on-site:</p>	<p>LOCATION</p>
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<p>SOILS RATINGS</p> <table border="1"> <thead> <tr> <th></th> <th>Shallow Excavations</th> <th>Local Roads & Streets</th> </tr> </thead> <tbody> <tr> <td>He</td> <td>Very limited</td> <td>Very limited</td> </tr> <tr> <td>HoB2</td> <td>Very limited</td> <td>Very limited</td> </tr> <tr> <td>HoC2</td> <td>Very limited</td> <td>Very limited</td> </tr> <tr> <td>HoC3</td> <td>Very limited</td> <td>Very limited</td> </tr> <tr> <td>Wa</td> <td>Very limited</td> <td>Very limited</td> </tr> <tr> <td>Wm</td> <td>Very limited</td> <td>Very limited</td> </tr> <tr> <td>ZaD3</td> <td>Very limited</td> <td>Very limited</td> </tr> </tbody> </table>		Shallow Excavations	Local Roads & Streets	He	Very limited	Very limited	HoB2	Very limited	Very limited	HoC2	Very limited	Very limited	HoC3	Very limited	Very limited	Wa	Very limited	Very limited	Wm	Very limited	Very limited	ZaD3	Very limited	Very limited	<p>He Henshaw Silt Loam</p> <p>HoB2 Hosmer Silt Loam, 2 - 6 percent slopes, eroded</p> <p>HoC2 Hosmer Silt Loam, 2 - 6 percent slopes, eroded</p> <p>HoC3 Hosmer Silt Loam, 6 - 12 percent slopes, severely eroded</p> <p>Wa Wakeland Silt Loam</p> <p>Wm Wilbur Silt Loam</p> <p>ZaD3 Zanesville Silt Loam, 12 - 18 percent slopes, severely eroded</p>
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ZaD3	Very limited	Very limited																							

<p>A19. LOCATIONS, SIZE AND DIMENSIONS OF PROPOSED-STORM WATER SYSTEMS: - A drainage swale and an storm sewer network will be installed within the development to capture storm runoff and convey it to the detention basin. The detention basin primary spillway discharges to an existing ditch that flows east and discharges into Firlick Creek. See Sheet C-115 for locations, size and dimensions.</p> <p>A20. PLANS FOR ANY OFF-SITE CONSTRUCTION ACTIVITIES ASSOCIATED WITH THIS PROJECT: - No off-site construction is anticipated for this project.</p> <p>A21. LOCATIONS OF PROPOSED SOIL STOCKPILES AND/OR BORROW/DISPOSAL AREAS: - Proposed soil stockpile location is shown on sheet C-115.</p> <p>A22. EXISTING SITE TOPOGRAPHY AT AN INTERVAL APPROPRIATE TO INDICATE DRAINAGE PATTERNS: - See the SWP3 drawing, Sheet C-115, for existing contours and/or spot elevations.</p> <p>A23. PROPOSED FINAL TOPOGRAPHY AT AN INTERVAL APPROPRIATE TO INDICATE DRAINAGE PATTERNS: - See the SWP3 drawing, Sheet C-115, for proposed contours and/or spot elevations.</p>	<p>LOCATION</p>
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MAINTENANCE NOTES

SILT FENCE MAINTENANCE REQUIREMENTS

- INSPECT THE SILT FENCE PERIODICALLY AND AFTER EACH STORM EVENT.
- IF FENCE FABRIC TEARS, STARTS TO DECOMPOSE, OR IN ANY WAY BECOMES INEFFECTIVE, REPLACE THE AFFECTED PORTION IMMEDIATELY.
- REMOVE DEPOSITED SEDIMENT WHEN IT REACHES HALF THE HEIGHT OF THE FENCE AT ITS LOWEST POINT OR CAUSING THE FABRIC TO BULGE.
- TAKE CARE TO AVOID UNDERMINING THE SILT FENCE DURING CLEAN OUT.
- AFTER THE CONTRIBUTING DRAINAGE AREA HAS BEEN STABILIZED, REMOVE THE FENCING AND SEDIMENT DEPOSITS, BRING THE DISTURBED AREA TO GRADE AND STABILIZE.

TEMPORARY SEDIMENT BASIN MAINTENANCE REQUIREMENTS

- INSPECT TEMPORARY SEDIMENT TRAPS AFTER EACH STORM EVENT AND IMMEDIATELY REPAIR ANY EROSION AND PIPING HOLES.
- REMOVE SEDIMENT WHEN IT HAS ACCUMULATED TO ONE-HALF THE DESIGN DEPTH.
- REPLACE SPILLWAY GRAVEL FACING IF CLOGGED.
- INSPECT VEGETATION AND RE-SEED IF NECESSARY.
- CHECK THE SPILLWAY DEPTH PERIODICALLY TO INSURE A MINIMUM OF 1.5 FT. DEPTH FROM THE LOWEST POINT OF THE SETTLED EMBANKMENT TO HIGHEST POINT OF THE SPILLWAY CREST AND FILL ANY LOW AREA TO MAINTAIN DESIGN ELEVATION.
- PROMPTLY REPLACE ANY DISPLACED RIPRAP BEING CAREFUL THAT NO STONES IN THE SPILLWAY ARE ABOVE DESIGN GRADE.
- AFTER ALL DISTURBED AREAS HAVE BEEN STABILIZED, REMOVE THE STRUCTURE AND SEDIMENT. SMOOTH THE SITE TO BLEND WITH ADJOINING AREAS, AND STABILIZE.

TEMPORARY GRAVEL CONSTRUCTION ENTRANCE MAINTENANCE REQUIREMENTS

- INSPECT ENTRANCE PAD AND SEDIMENT DISPOSAL AREA WEEKLY AND AFTER STORM EVENTS OR HEAVY USE.
- RESHAPE PAD AS NEEDED FOR DRAINAGE AND RUNOFF CONTROL.
- TOPDRESS WITH CLEAN STONE AS NEEDED.
- IMMEDIATELY REMOVE MUD AND SEDIMENT TRACKED OR WASHED ONTO PUBLIC ROADS BY BRUSHING OR SWEEPING. BULK CLEARING OF ACCUMULATED SEDIMENT SHALL NOT INCLUDE FLUSHING WITH WATER.
- REPAIR ANY BROKEN ROAD PAVEMENT IMMEDIATELY.

RIPRAP MAINTENANCE REQUIREMENTS

- INSPECT PERIODICALLY FOR DISPLACED ROCK MATERIAL, SLUMPING, AND EROSION AT EDGES ESPECIALLY DOWN STREAM OR DOWN SLOPE.

<p>B. STORMWATER POLLUTION PREVENTION PLAN - CONSTRUCTION COMPONENT</p> <p>B1. DESCRIPTION OF POTENTIAL POLLUTANT SOURCES ASSOCIATED WITH CONSTRUCTION ACTIVITIES: - Fuel and lubricants from machinery, waste from concrete truck washout, sanitary waste from latrines, construction waste, domestic garbage, sedimentation from storm water runoff and vehicle tracking, windborne dust, and fertilizers from seeding operations.</p> <p>B2. SEQUENCE DESCRIBING STORMWATER QUALITY MEASURE IMPLEMENTED RELATIVE TO LAND DISTURBING ACTIVITIES:</p>	<p>CONSTRUCTION SEQUENCE FOR EROSION & SEDIMENT CONTROL</p> <table border="1"> <thead> <tr> <th>CONSTRUCTION PHASE (SPECIFIC ACTIVITIES OR EROSION CONTROL PRACTICES)</th> <th>CONSTRUCTION SCHEDULE CONSIDERATIONS</th> </tr> </thead> <tbody> <tr> <td>PRE-CONSTRUCTION ACTIONS (EVALUATION/PROTECTION OF IMPORTANT SITE CHARACTERISTICS)</td> <td>BEFORE CONSTRUCTION, EVALUATE, MARK, AND PROTECT VEGETATION SUITABLE FOR FILTER STRIPS, ESPECIALLY IN PERIMETER AREAS.</td> </tr> <tr> <td>INSTALL PERIMETER BMPs * (CONSTRUCTION EXITS, FILTER STRIPS, SILT FENCE, DROP INLET PROTECTION, EQUIPMENT PARKING AREAS)</td> <td>INSTALL GRAVEL ENTRANCE/EXIT; INSTALL SILT FENCE ON THE SOUTH, EAST AND A PORTION OF THE NORTH PROPERTY LINES TO PREVENT SEDIMENT FROM EXITING THE SITE. UTILIZE A 15' FILTER STRIP ALONG THE WEST AND NORTH PROPERTY LINES TO PREVENT SEDIMENT FROM EXITING THE SITE.</td> </tr> <tr> <td>PREPARE SITE FOR CONSTRUCTION * (SOIL STOCKPILES AND TEMPORARY SEDIMENT BASIN)</td> <td>INFORM ALL CONTRACTORS OF AREAS TO BE PROTECTED. IF STOCKPILING, IMMEDIATELY AFTER TEMPORARY SEED AND INSTALL SEDIMENT BARRIERS AROUND THE PERIMETER. THE PROPOSED DETENTION BASIN WILL BE UTILIZED AS TEMPORARY SEDIMENT BASIN DURING CONSTRUCTION.</td> </tr> <tr> <td>RUNOFF CONTROL * (ROCK CHECK DAMS, DIVERSIONS, PERIMETER DIKES, OUTLET PROTECTION)</td> <td>INSTALL ENERGY DISSIPATORS AT THE OUTLETS OF ALL FES STRUCTURES IMMEDIATELY AFTER INSTALLATION. INSTALL ROCK CHECK DAMS IMMEDIATELY AFTER SWALES HAVE BEEN CONSTRUCTED.</td> </tr> <tr> <td>RUNOFF CONVEYANCE SYSTEMS * (STABILIZE SWALES, STORM DRAINS, INLET AND OUTLET PROTECTION, CHANNELS)</td> <td>STABILIZE SWALES IMMEDIATELY AFTER CONSTRUCTION WITH PERMANENT SEEDING. INSTALL INLET AND OUTLET PROTECTION PRIOR TO CONSTRUCTION OF STORM SEWER STRUCTURES.</td> </tr> <tr> <td>LAND CLEARING AND GRADING * (CUTTING/FILLING, GRADING DRAINS, SEDIMENT TRAPS, BARRIERS, DIVERSIONS, SURFACE ROUGHENING)</td> <td>BEGIN MAJOR CLEARING AND GRADING AFTER INSTALLING THE KEY SWALES, STORM DRAINS, AND SEDIMENT MEASURES. CLEAR BORROW AND DISPOSAL AREAS AS NEEDED. 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REMOVE TEMPORARY CONSTRUCTION MEASURES AND STABILIZE.</td> </tr> </tbody> </table> <p>*MAINTENANCE - (1) INSPECT PRACTICES AT LEAST ONCE A WEEK, & (2) MAKE REPAIRS IMMEDIATELY AFTER PERIODS OF RAINFALL.</p>	CONSTRUCTION PHASE (SPECIFIC ACTIVITIES OR EROSION CONTROL PRACTICES)	CONSTRUCTION SCHEDULE CONSIDERATIONS	PRE-CONSTRUCTION ACTIONS (EVALUATION/PROTECTION OF IMPORTANT SITE CHARACTERISTICS)	BEFORE CONSTRUCTION, EVALUATE, MARK, AND PROTECT VEGETATION SUITABLE FOR FILTER STRIPS, ESPECIALLY IN PERIMETER AREAS.	INSTALL PERIMETER BMPs * (CONSTRUCTION EXITS, FILTER STRIPS, SILT FENCE, DROP INLET PROTECTION, EQUIPMENT PARKING AREAS)	INSTALL GRAVEL ENTRANCE/EXIT; INSTALL SILT FENCE ON THE SOUTH, EAST AND A PORTION OF THE NORTH PROPERTY LINES TO PREVENT SEDIMENT FROM EXITING THE SITE. UTILIZE A 15' FILTER STRIP ALONG THE WEST AND NORTH PROPERTY LINES TO PREVENT SEDIMENT FROM EXITING THE SITE.	PREPARE SITE FOR CONSTRUCTION * (SOIL STOCKPILES AND TEMPORARY SEDIMENT BASIN)	INFORM ALL CONTRACTORS OF AREAS TO BE PROTECTED. IF STOCKPILING, IMMEDIATELY AFTER TEMPORARY SEED AND INSTALL SEDIMENT BARRIERS AROUND THE PERIMETER. THE PROPOSED DETENTION BASIN WILL BE UTILIZED AS TEMPORARY SEDIMENT BASIN DURING CONSTRUCTION.	RUNOFF CONTROL * (ROCK CHECK DAMS, DIVERSIONS, PERIMETER DIKES, OUTLET PROTECTION)	INSTALL ENERGY DISSIPATORS AT THE OUTLETS OF ALL FES STRUCTURES IMMEDIATELY AFTER INSTALLATION. INSTALL ROCK CHECK DAMS IMMEDIATELY AFTER SWALES HAVE BEEN CONSTRUCTED.	RUNOFF CONVEYANCE SYSTEMS * (STABILIZE SWALES, STORM DRAINS, INLET AND OUTLET PROTECTION, CHANNELS)	STABILIZE SWALES IMMEDIATELY AFTER CONSTRUCTION WITH PERMANENT SEEDING. INSTALL INLET AND OUTLET PROTECTION PRIOR TO CONSTRUCTION OF STORM SEWER STRUCTURES.	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NO.	DATE	BY	DESCRIPTION

<p>B15. EROSION & SEDIMENT CONTROL SPECIFICATIONS FOR INDIVIDUAL BUILDING LOTS: - Individual lot Owners/Developers shall comply with Best Management Practices (BMPs) outlined in this plan. In addition, lot Owners/Developers shall be responsible for implementing and maintaining BMPs for their respective lots including, but not limited to: - Install/maintain a stable construction site access. - Install/maintain appropriate perimeter BMPs prior to land disturbance. (i.e. silt fence, straw bales, vegetated filter strips, etc) - Clean-up of sediment that may get tracked or washed onto roads. - Stabilize all areas outside the lot which were disturbed as a result of the subject lot development.</p>
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<p>C. STORMWATER POLLUTION PREVENTION PLAN - POST CONSTRUCTION COMPONENT</p> <p>C1. DESCRIPTION OF POLLUTANTS AND THEIR SOURCES ASSOCIATED W/ THE PROPOSED LAND USE: - Oil, grease, antifreeze, brake fluid, brake dust, rubber fragments, gasoline, diesel fuel, and other hydrocarbons, and metals from vehicular sources. - Grit (sediment) from wearing of the road surface and falling off vehicular sources. - Trash, bacteria and biological agents in trash, from littering or improper disposal or storage. - Pesticides, herbicides, and fertilizers from lawn/landscaping maintenance applications. - Elevated receiving water temperatures from stormwater runoff contact with impervious surfaces.</p> <p>C2. SEQUENCE DESCRIBING STORMWATER QUALITY MEASURE IMPLEMENTATION: - Site monitoring for trash, debris, and deposited pollutants shall be a daily routine. - Once construction is complete, permanent seeding will be applied to the entire disturbed area excluding the asphalt roadways. - The use of grass lined swales and vegetated filter strips are existing and will remain a permanent aspect of the site. - Absorption materials used to clean up hydrocarbon puddles shall be approved by the EPA. - Disposal of all trash, debris, and pollutants shall be in a manner approved by their respective governmental agencies.</p> <p>C3. DESCRIPTION OF PROPOSED POST CONSTRUCTION STORMWATER QUALITY MEASURES: - The lot owner shall monitor the pavement for pollutants deposited from vehicular sources. - The lot owner shall provide absorption materials to clean up such hydrocarbon pollutants. - The lot owner shall periodically monitor the site for trash, debris, and grit deposited on site. - The lot owner shall pick up debris and dispose of in an approved manner. - The lot owner shall minimize lawn/landscaping chemical applications. - The detention basin will allow sediment in the runoff entering the basin time to settle out prior to being discharged. - The existing & proposed vegetated areas will cause infiltration of runoff and trap pollutants before they leave the site. - The vegetated swales and detention basin will be utilized to filter pollutants, reduce runoff velocities, and help lower the temperature of the runoff before it reaches the receiving water. - The storm sewer pipe network will help lower the temperature of the storm water runoff before it discharges into the receiving water. - The combination of grass lawns, vegetated swales and detention basin will be utilized to meet the minimum requirement of 80% Total Suspended Solids (TSS) removal prior to leaving the site. (See attached literature)</p> <p>C4. LOCATION, DIMENSIONS, SPECIFICATIONS & CONSTRUCTION DETAILS OF EACH STORMWATER QUALITY MEASURE: - Refer to the Sheet C-116 for locations of the respective control measures. Dimensions, specifications, and details of the measures are depicted in the Indiana Storm Water Quality Manual and Sheet C-117. Other practices which may be implemented shall be utilized and installed in accordance with the manufacturer's instructions.</p> <p>C5. DESCRIPTION OF MAINTENANCE GUIDELINES FOR PROPOSED POST CONSTRUCTION WATER QUALITY MEASURES: - Site monitoring for trash, debris, and deposited pollutants shall be a daily routine and shall be the responsibility of the lot owners. - The use of grass-lined swales and vegetated filter strips are existing and will remain a permanent aspect of the site. The lot owners shall monitor these areas for trapped pollutants and erosion. - The respective lot owners shall maintain all storm drainage features (i.e. storm sewers, swales, detention basin, etc.) in accordance with the recorded plat covenants.</p>
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Table 1. Permanent Seeding Recommendations

Open Low-Maintenance Areas (remaining idle more than six months)

Seed Mixtures	Rate/acre Pure Live Seed	Optimum Soil pH
1. Perennial ryegrass - white clover *	70 lbs. 2 lbs.	5.6 to 7.0
2. Perennial ryegrass - tall fescue **	70 lbs. 50 lbs.	5.6 to 7.0
3. Tall fescue ** - white clover *	70 lbs. 2 lbs.	5.5 to 7.5

Steep Banks and Cuts, Low-Maintenance Areas (not mowed)

Seed Mixtures	Rate/acre Pure Live Seed	Optimum Soil pH
1. Smooth bromegrass - red clover **	35 lbs. 20 lbs.	5.5 to 7.0
2. Tall fescue ** - white clover *	50 lbs. 2 lbs.	5.5 to 7.5
3. Tall fescue ** - red clover **	50 lbs. 20 lbs.	5.5 to 7.5
4. Orchard grass - red clover * - white clover *	30 lbs. 20 lbs. 2 lbs.	5.6 to 7.0
5. Crownvetch * - tall fescue **	12 lbs. 30 lbs.	5.6 to 7.0

Lawns and High-Maintenance Areas

Seed Mixtures	Rate/acre Pure Live Seed	Optimum Soil pH
1. Bluegrass	140 lbs.	5.5 to 7.0
2. Perennial ryegrass (turf type)	60 lbs. 90 lbs.	5.6 to 7.0
3. Tall fescue (turf type) ** - bluegrass	170 lbs. 30 lbs.	5.6 to 7.5

Channels and Areas of Concentrated Flow

Seed Mixtures	Rate/acre Pure Live Seed	Optimum Soil pH
1. Perennial ryegrass - white *	150 lbs. 2 lbs.	5.5 to 7.0
2. Kentucky bluegrass - smooth bromegrass - switchgrass - timothy - perennial ryegrass - white clover **	20 lbs. 10 lbs. 3 lbs. 4 lbs. 10 lbs. 2 lbs.	5.5 to 7.5
3. Tall fescue * - white clover **	150 lbs. 2 lbs.	5.5 to 7.5
4. Tall fescue ** - perennial ryegrass - Kentucky bluegrass	150 lbs. 20 lbs. 20 lbs.	5.5 to 7.5

* 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 such as buffalograss, orchardgrass, smooth bromegrass, and switchgrass. The IDNR, in conjunction with demonstration areas, should focus on erosion control characteristics, wildlife toxicity, turf durability and drought resistance.

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Written dimensions shown herein shall take precedence over scaled dimensions. Contractors shall calculate and measure required dimensions. Notify Cash Wagner & Associates, PC with any variations in dimensions or conditions from those indicated on these drawings. This drawing was based on available information. Commencement of work constitutes verification and acceptance of existing conditions.

Application of a material or equipment to work installed by others constitutes acceptance of that work and assumption of responsibility for satisfactory installation.

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11 Mar 15

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CASH WAGNER & ASSOCIATES, PC

CONSULTING ENGINEERS • LAND SURVEYORS

PROJECT NO.: 14-1948

DESIGNED BY: G.A.M.

DRAWN BY: G.A.M.

FILENAME: SWP3 Narrative

LAYOUT TAB: SWP3 Narr

SCALE: None

PROJECT: CAYMAN RIDGE - SECT. 4, PH. 2

ADDRESS: KANSAS ROAD EVANSVILLE, IN

SWP3 NARRATIVE

DATE: 03.11.15

DRAWING NO.: C-114

SHEET TITLE: C-114

DATE: 03.11.15