

HAMILTON COUNTY ENGINEER'S

SCOPE OF SERVICE

1. PROJECT IDENTIFICATION:

Road Name: Fields Ertel Road and Butler Warren Road Road No: 4 (Ham); 1 & 4 (War)

Project No. 501708

2. PROJECT INFORMATION:

Limits: Improvement of the intersection by the construction of turn lanes or a roundabout.

Length: To be determined based upon recommendation of the consultant. See additional information.

3. AGREEMENT BETWEEN CONSULTANT AND:

Hamilton County

ADDITIONAL PARTIES INVOLVED IN PROJECT:

Sycamore Township, City of Sharonville and Warren County

4. METHOD OF FINANCING:

Engineering: Hamilton County, Sycamore Township, City of Sharonville and Warren County funds

Construction: Undecided at this time. See additional information.

5. WORK PHASES INCLUDED IN AGREEMENT:

PHASE A Plan Submission: Line, grade and typical sections on Base Sheets to be used in final plans.

Critical cross sections are to be plotted. Potential design problem areas are to be identified.

PHASE B Plan Submission: To conform to Phase A recommendations. Final review submission is to

include Special General Notes and Specifications and quantities.

6. PLAN SCALES:

PLAN: 1" = 20' Min.

PROFILE: Hor. 1" = 20' Min. Vert. 1" = 5' Min.

CROSS SECTIONS: Hor. 1" = 5' Min. Vert. 1" = 5' Min.

7. JOURNALIZED SPEED LIMIT:

Fields Ertel Road – 35 mph

8. NUMBER OF LANES/ TYPICAL SECTION:

FOR TRADITIONAL INTERSECTION:

Number of Lanes:

Three lanes on both legs of Fields Ertel to provide a left turn lane on the west leg and a right turn lane on the east leg; three lanes on Butler Warren to provide two southbound lanes.

Lane Widths:

Unless otherwise directed by the Engineer, left-turn lanes will be a minimum width of eleven (11) feet.

The width of the outside, traveled lanes will be determined by the edge treatment recommended by the Consultant. If curbs are not recommended, the traveled lane will be a minimum width of twelve (12) feet and the adjacent, paved berm(s) will be a minimum width of three (3) feet. If a rolled curb and gutter section is recommended, the lane width adjacent to the curb section will be a minimum width of eleven (11) feet. If a vertical curb section is recommended, the lane width adjacent to the curb will be a minimum width of twelve (12) feet.

Interior, traveled lanes will be a minimum width of twelve (12) feet.

FOR ROUNDABOUT:

Number of Lanes:

To be determined by roundabout requirements.

Lane Widths:

To be determined by roundabout requirements.

Pavement Section:

For areas of new roadway pavement and/or widening, the anticipated typical pavement section is nine (9) inches of Bituminous Aggregate Base, one and one-half (1 1/2) inches of Asphalt Concrete (Leveling course) and one and one-half (1 1/2) inches of Asphalt Concrete (Surface course). As part of the Phase A report, the Consultant shall utilize the information obtained from the geotechnical report and the ODOT L&D manual to verify that this typical section is adequate for the soil conditions present.

Salvage Existing Pavement: X

In those areas where the existing pavement is to be salvaged, the Consultant shall recommend the pavement treatment necessary to rehabilitate/improve the existing pavement to a sufficient typical section based upon the pertinent design factors, such as the soil conditions of the area, traffic volumes, etc.

Curbs: Report to Recommend: X

Type: As part of the Phase A submittal, the Consultant is to make a recommendation to the Engineer regarding curbs, i.e. whether the curbs are desired or may be necessitated by the detention requirements. If curbs are recommended, the Consultant shall also recommend the type of curb, i.e. vertical, curb & gutter, etc.

Shoulders/Berms: _____ Report to Recommend: _____

Type: _____

Safety Grading Criteria: _____ Partial: _____

Guardrail: _____ Type: _____

Median: _____

Clear Zone Grading: _____

Fencing: _____

Lighting: _____

9. ALIGNMENT:

Existing alignment to be basically followed or to be modified as required by the selected alternative.

10. PROFILE:

Existing profile is to be followed as much as possible. Slight adjustments in profile may be required to establish/maintain drainage patterns.

11. SIGNAGE:

Phase A: X

Phase B: X

12. SIGNALS:

Proposed (New) Signals:

A traffic signal is to be installed if the traditional intersection improvement is chosen.

Signal Warrants: X

Phase A: X

Phase B:

Unless otherwise specified by the Engineer, ALL traffic signal improvements shall utilize Light Emitting Diode (LED) signal heads, signal lamp units and pedestrian units.

The County intends to utilize video detection, thermal image cameras or radar detection at all signalized intersections. The traffic signal(s) shall be designed with single-arm overhead signal supports. As part of the Phase A submittal, the Consultant will determine if an intersection is suitable for video detection cameras and, if not, determine the reasons why it is not. The Engineer will review the Phase A plans and the Consultant's recommendations and the Engineer will then determine if video detection cameras or detector loops are to be utilized at the particular intersection.

13. STRIPING:

Phase A:

Phase B: X

Type: Thermoplastic pavement markings are to be used.

14. DELINEATION:

Delineators:

RPMs:

15. DRAINAGE:

Drainage Criteria: State _____ County X

HC Planning & Design _____ Other _____
(Public Works)

Phase A Preliminary Plan: X

Existing: Surface X Closed X

Proposed: Surface X Closed X

Special Flood Hazard Area (SFHA): None

Storm Water Pollution Prevention Plan: _____

Flood Plain Study Required: _____

Channel Change Study Required: _____

16. MISCELLANEOUS DESIGN CONSIDERATIONS:

Sidewalks: _____

Curb Ramps: _____

Bikeways: _____

Railroads: _____

Mass Transit: _____

Service Roads: _____

Wherever there are existing walks that will be affected by the proposed improvements, the plans shall include the modification and/or relocation of the walks as necessary to accommodate the proposed improvements. Unless otherwise directed by the Engineer, new walks are to be constructed in accordance with the latest ODOT Location and Design criteria. In cases where only defective portions of an existing walk are to be replaced as a part of the project, the new walk is to be designed to match the existing walk as to width, cross-slope, etc.

Wherever existing walks meet an intersection without a handicapped ramp or wherever proposed walks meet an intersection, the plans shall include the installation/construction of a handicap ramp in compliance with the latest ADA requirements. Wherever there is an existing handicap ramp and the existing ramp is not compliant with the latest ADA requirements, the plans shall include the modification of the existing ramp or the construction of a new ramp in compliance with the latest ADA requirements.

17. RETAINING WALLS:

Number of Retaining Walls: No retaining walls are foreseen at this time.

Type(s) of Retaining Walls: _____

Phase A: _____ Wall Justification: _____

Phase B: _____

If the Engineer determines that a retaining wall is necessary, any wall over three (3) feet in height, as measured from the top of the footer to the top of the wall, **MUST** be engineered and a wall profile, indicating the height of the wall and other pertinent wall details, **MUST** be included in the plans.

ALL pre-manufactured/modular unit walls, i.e. Keystone walls, **MUST** be designed in strict accordance with the Manufacturer's requirements. **ALL** details for the construction of these walls **MUST** be in strict accordance with the Manufacturer's requirements.

The plan view(s) and detail(s) for a wall **MUST** indicate the length of any tie-back systems that are required for the construction of the wall.

The Consultant shall use the geotechnical information to determine if the Contractor will be required to employ measures to ensure the stability of the hillside during construction of the wall.

If the project involves the construction of new retaining wall(s) or involves any work on existing retaining wall(s) along an existing drainage channel, i.e. major creek, stream or river, and the work may impact the cross-sectional area of the drainage channel and/or the flow capacity of the channel, the Consultant **MUST** complete the computations necessary for HC Planning & Development (Public Works) "No Rise Certificate" and **MUST** complete the form and submit the form with the Final Plans.

18. MAINTENANCE OF TRAFFIC:

Maintenance of Pedestrian Traffic: _____

Maintenance of Railroad Traffic: _____

Maintenance of Vehicular Traffic: X

Temporary Road(s): _____ Phase A to Recommend: _____

Temporary Road Plans & Notes by: County _____ Consultant _____

Detour Plan Prepared by: County _____ Consultant _____

FOR TRADITIONAL IMPROVEMENT:

During the construction of the improvements, it is currently presumed that the road(s) are to remain open to through and local traffic and that the construction is to be completed under traffic.

FOR THE ROUNDABOUT:

During the construction of the improvements, it is currently presumed that the intersection will be closed to traffic for a limited time period.

To the satisfaction of and subject to the Engineer's review and approval, a tentative outline for the sequence of construction, a maintenance of traffic plan and/or maintenance of traffic notes in sufficient detail for the proper control of traffic through the project, especially involving ingress to and egress from the abutting properties within the project area shall be prepared.

As may be applicable during the preparation of the plans, the Consultant shall work with the Engineer to determine if alternative methods of handling traffic would be warranted and desirable during the construction of the project. These measures may include, but not be limited to, the detouring of all through traffic while maintaining local traffic or the maintaining of through traffic on a one-way only basis. If the Engineer authorizes other methods, the Consultant will work with the Engineer to determine if special restrictions are to be enforced during the implementation of the alternate measure(s), i.e. a total time duration, a daily time/hour restriction, etc. The Consultant will also work with the Engineer's Traffic Department to determine the detour route and prepare the necessary detour plan(s). As necessary for the alternative measures, the Consultant is to prepare a tentative outline for the sequence of construction, a maintenance of traffic plan and/or maintenance of traffic notes in sufficient detail for the proper control of traffic through the project, especially involving ingress to and egress from the abutting properties within the project area.

This item of work shall also include the preparation of any necessary plans that indicate temporary work zone pavement markings and/or signs that are to be included in the project, especially where the number of traveled lanes and/or the width of traveled pavement are to be decreased during construction.

All items of work relating to the maintenance of traffic are to be submitted with the final plan review submission.

19. UTILITIES AND OTHER AGENCIES:

Water	(X)	Sanitary	(X)
Electric	(X)	Gas	(X)
Telephone	(X)	Cable TV	(X)
ODOT	()	HC Planning & Development	(X)
		(Public Works)	

Others: _____

ALL utility companies and other agencies, including any that may have facilities within the project limits and **ARE NOT** listed above, shall be contacted in writing. **ALL** existing facilities and utilities, including house connections, shall be indicated on the plans as required by Section 153.64 O.R.C. (H.B.538).

As part of the **Phase A plan submission**, the Consultant shall furnish copy/copies of the preliminary plans to **ALL** utilities and other agencies so that utility or agency may indicate and/or verify the location of any facility.

In cases where the abutting properties are **NOT** served by public utilities, e.g. water treatment is provided by septic system or water is supplied through a cistern system, contact **ALL** pertinent agencies, i.e. Board of Health, to determine the possible location of the private systems and **FIELD** locate and indicate on the plans these systems.

As part of the **Phase B plan submission**, the Consultant shall furnish copy/copies of the plans to **ALL** utilities and other agencies so that the utility may review the plans and suggest changes in the proposed design so as to protect and/or lessen the impact on their facility or to determine if special precautions will be required during construction to protect their facility. The Engineer will invite the utility companies to the Phase B review meeting.

As part of the **final plan submission**, the Consultant shall furnish copy/copies of the plans to **ALL** utilities and other agencies so that the utility may determine the final impacts on their facilities.

A copy of **ALL** transmittal letters and a copy of **ALL** responses must be submitted to the Engineer.

20. ESTIMATED QUANTITIES:

Phase A: X
Phase B: _____
Quantity Splits: X

Quantities may have to be split between the jurisdictional areas of Hamilton County, Sycamore Township, the City of Sharonville and Warren County.

Approximate Number of Parcels _____

Preparation of Right-of-way, easement and Establishment descriptions and plans will be handled by an Amendment to the Agreement. As may be pertinent to the project, the preparation of the right-of-way and establishment plans and descriptions shall include clearing title to the Public Road Occupied (PRO) unless otherwise directed by the Engineer.

24. TRAFFIC DATA:

State _____ County X Consultant X

The County will supply information on existing counts if this information is currently on file. The Consultant shall determine if adjustments to these counts are warranted or if additional counts are required. The Consultant will be responsible for the adjustments or for the additional counts. The Traffic Department must approve all traffic data prior to use in design.

25. GEOTECHNICAL/SUBSURFACE INVESTIGATION:

State _____ County X Consultant X
Other _____

The County will hire a geotechnical firm to complete the necessary geotechnical work on the project.

In conjunction with the Engineer, the Consultant is to determine the amount and type of work that is to be performed. The Consultant shall work with the geotechnical firm to ensure that the geotechnical information necessary for the design of the various components of the improvements, i.e. pavement section, retaining walls, is obtained. This information may include the determination of the CBR, the Atterburg limits and the moisture content of the soil. The Consultant will be responsible for establishing the required field control and for field locating the boring locations.

26. PRIOR STUDIES:

Fields Ertel Road Corridor Study completed by KZF Transportation and Municipal Group in 2010.

27. PUBLIC INFORMATION MEETINGS:

See additional information.

28. The project will include all office and field work necessary to a) prepare final construction plans, b) write general and special notes, c) calculate quantities, and d) determine existing right-of-way and property lines.

Unless otherwise noted in this Scope, proposed right-of-way plans and descriptions and the establishment plat and descriptions shall be handled on an as necessary basis by amendment to the original agreement.

County will prepare bid document, prints, etc. for bidding process.

29. At a minimum, plan development will require the following submittals and each submittal will be subject to a review by the Engineer:

A. Submittal of **Phase A** plans

Includes line, grade and typical sections; plotting of critical cross sections; plotting of critical driveway profiles; preliminary drainage plans; preliminary drainage calculations; preliminary plans/details for any special project features, i.e. bridge modifications, retaining walls; information regarding the location of all existing underground utilities, either public or private.

B. Submittal of **Phase B** plans

Includes detailed plans and cross sections; specifications and special notes; driveway modification plans/profiles; detailed plans/details for any special project features, i.e. bridge modifications, retaining walls; preliminary maintenance of traffic plans/notes; preliminary quantities; final drainage calculations.

C. Submittal of **Final** revised plans and **Preliminary right-of-way** plans

Includes final detailed plans and cross sections, revised in accordance with Engineer's review comments; final quantities, revised in accordance with Engineer's review comments; quantity calculations for the required items; final specifications and special notes, revised in accordance with Engineer's review comments; final maintenance of traffic plans/notes, revised in accordance with Engineer's review comments; preliminary right-of-way plans.

D. Submittal of **Final** right-of-way plans and **Preliminary** establishment plats

Includes final right-of-way plans, revised in accordance with Engineer's review comments; preliminary right-of-way/easement descriptions; preliminary right-of-way/easement closures; preliminary establishment plats; preliminary establishment descriptions; preliminary establishment closures.

E. Submittal of **Final** establishment plats

Includes final right-of-way/easement descriptions, revised in accordance with Engineer's review comments; final right-of-way/easement closures; final establishment plats, revised in accordance with Engineer's review comments; final establishment descriptions, revised in accordance with Engineer's review comments; final establishment closures.

In addition to these reviews, the County may also require **MONTHLY** progress reports.

30. The **Phase A** submission is to be approved by the Engineer **PRIOR** to the preparation of the final, detailed construction plans and the preparation of the preliminary right-of-way plans. No written report is required.

AFTER the Phase B submittal and **PRIOR** to the Phase B review meeting, the Engineer will schedule a field walk of the project to visually verify the existing features indicated on the plans. The Consultant will be required for this field walk.

31. Using the methodology outlined within AASHTO'S "Geometric Design of Highways and Streets" and the current edition of the Highway Capacity Manual, the Consultant shall determine the Level of Service (LOS) of the existing roadway and/or the existing intersection under the existing traffic volumes. The Consultant shall also determine the LOS with the proposed improvements under the existing traffic counts, under the projected ten (10) year traffic volumes and under the projected twenty (20) year traffic volumes.

If the proposed LOS is not "C" or better for the proposed improvements under the projected ten year and twenty year traffic counts, the Consultant **MUST** submit a statement as to why a LOS "C" cannot be reasonably achieved.

The preliminary calculations and the other information regarding the LOS are to be submitted with the **Phase A** review plans. The final calculations and the other information regarding the LOS are to be submitted with the final plans.

32. The addresses, i.e. house numbers, shall be indicated on the plan and right-of-way sheets.
33. The necessary fieldwork shall be completed and the plans prepared so as to have the stationing for the project increase from South to North or from West to East, as may be applicable, unless otherwise approved by the Engineer.
34. Project Survey Control shall have the following Horizontal and Vertical Parameters:

Vertical Positioning

NAVD 29

Horizontal Positioning

Reference Frame: NAD 83 (86 Adj.)

Ohio South Zone (3402)

Units are in U.S. Survey Feet. Use the following conversion factor: 1 Meter = 3.280833333 U.S. Survey Feet.

The construction and right-of-way plans are to be referenced to the **Ohio South State Plane Grid Coordinate System**.

A **Table** listing the **Grid** coordinates for the following shall be included in the plans;

- all project survey control, including elevation, station and offset and the monument type of each control point;
- proposed PC, PI, and PT of each curve on the centerline of construction and the centerline of right-of-way;
- all angle points on the centerline of construction and the centerline of right-of-way;
- road intersections on the centerline of construction and the centerline of right-of-way: and
- termination points on the proposed centerline of right-of-way.

Where a baseline has been established and utilized in place of the right-of-way centerline, the plans **MUST** indicate the relationship between the baseline and the centerline of proposed right-of-way.

The plans **MUST** also include a schematic indicating the baseline and the centerline.

For the centerline, right-of-way lines, subdivision lines, property corners and/or civil boundaries, the construction and right-of-way plans shall indicate all existing survey monuments that are found or survey monuments that are set within the project limits. The monuments shall be located, identified and shown on the plans.

A **Table** listing the **Grid** coordinates, monument type and station and offset for each monument shall be included in the plans.

Ties (check in) to the nearest Hamilton County Engineer benchmarks must also be shown on the plans noting which benchmark number was used. If traditional ground surveying methods are used, the Consultant **MUST** tie to a **minimum of (2) two** Hamilton County benchmarks.

The Hamilton County Engineer Survey Department can be reached at 513-946-4265 to obtain the information regarding the nearest established benchmarks.

- 35.** The journalized speed limit (design speed) shown is to be used as a guideline in determining the criteria to be followed in the design of the profile/alignment of the road. Exceptions to the design criteria may be made as determined by the Engineer during the Phase A or Final Plan review stages.
- 36.** When the Scope of Service indicates that the project is to include profile modifications, the creation of new intersections or as may otherwise be required by the Engineer, various elements of the proposed design such as the stopping sight distances and intersection sight distances for each leg of the intersection shall be calculated, verified or checked.

These calculations, distances, etc, **MUST** be submitted as part of the Phase A submittal. Based upon the Engineer's review of these distances, the proposed alignment and/or profile of the road(s) as shown in the Phase A submittals may be modified in order to achieve adequate distances.

Unless otherwise approved by the Engineer, in making the above calculations, use the current AASHTO requirements for height of eye, for the height of object and for the distances that should be obtained.

37. When the Scope of Service indicates that the project is to include improvements to an existing public road intersection(s), the creation of new public road intersection(s) or the modification of the profile and/or alignment of private driveways, the Consultant **MUST** determine if the design of the proposed intersection or the proposed driveway, i.e. the radii, the profile, the width, is sufficient to adequately accommodate the vehicles utilizing the facility, i.e. semi-trucks, buses, trailers. These determinations **MUST** be made and submitted as part of the Phase A submittal.

Unless otherwise directed by the Engineer, existing driveways shall be modified so as to be in accordance with the current County standards, i.e. the width of the driveway at the throat, the profile of the driveway through the right-of-way limits, the conformance of the driveway with the County's Access Management requirements. The Consultant **MUST** determine the potential impacts of reducing the width of the existing driveway(s) and/or the relocation of the driveway(s), especially regarding the traffic flow through the parking area. The Consultant **MUST** suggest mitigation measures that may be necessary if the driveway modifications are incorporated into the plans.

Based upon the Engineer's review of these determinations, the Engineer may modify the proposed design guidelines for the driveway or make other revisions that are to be included in the preparation of the final plans.

38. When proposed improvements impact existing parking areas, the Consultant **MUST** field locate and indicate on the plans the existing parking stall layout; prepare, in accordance with applicable standards and in sufficient detail, a new parking stall layout that will accommodate the proposed improvements and the traffic flow pattern(s) of the business; and indicate the overall impact(s) on the parking area, i.e. net loss of parking places, decrease in stall width, decrease in aisle width. These determinations **MUST** be made and submitted as part of the Phase A submittal.

The Consultant may suggest other mitigation measures regarding the parking stalls/areas that could mitigate the impacts on the parking stalls and could be incorporated into the plans.

As applicable, the revised parking stall layout **MUST** be included in the Phase B plans.

39. At an intersection with a State highway or another County road, a **MINIMUM** radius of fifty (50) feet at the proposed back of curb or the proposed edge of pavement shall be used. At an intersection with a Township road, a **MINIMUM** radius of thirty-five (35) feet at the proposed back of curb or the proposed edge of pavement shall be used.

40. When the Scope of Service includes the modification of existing traffic signals, the total replacement of existing traffic signals and/or the installation of traffic signals at new locations, the project shall include all plans, notes, details and other information necessary to completely modify or install the traffic signal and place the signal in use. For each signal, this information shall include, but not be limited to, the signal timing sequence, the signal timing pattern/pattern chart, the signal timing, the phasing diagram. Unless otherwise specified in the Scope of Service, the project shall include obtaining all required data, e.g. turning movements, necessary to provide the signal programming information.

41. As required by the design of the proposed improvements, the existing drainage systems are to be left in place, modified, replaced and/or new systems are to be installed.

A **FIELD VISUAL INSPECTION** of **ALL** of the existing systems/conduits shall be completed so as to determine the type and size of the conduit(s) and to evaluate the condition of the conduit(s). This shall require that, at a minimum, a visual inspection of the existing conduits at the inlet end, at the outlet end and at each catch basin, manhole, or other junction point.

After the Phase A submittal, the Engineer will also field inspect the existing systems/conduits and will determine which conduits are to remain in place or are to be replaced under the project. The Engineer will supply this information to the Consultant as quickly as possible. The Phase B plans shall be prepared so as to be in accordance with this information.

42. During the initial phases of the preparation of the Phase A plans, the Consultant **MUST** contact **ALL LOCAL** agencies that may have jurisdiction over and/or regulations covering storm water, storm water facilities and/or other drainage features, such as Special Flood Hazard Areas (SFHA). These local agencies will include, but not be limited to, the Metropolitan Sewer District (MSD) and HC Planning & Development (Public Works). The Consultant **MUST** determine if any special design considerations/issues/restrictions, e.g. detention, will have to be addressed during the preparation of the plans. The Consultant **MUST** report these special design considerations/issues/restrictions to the Engineer as a part of the Phase A submittal.

During the initial phases of the preparation of the Phase A plans, the Consultant **MUST** also contact **ALL STATE** and/or **FEDERAL** agencies that may have jurisdiction over and/or regulations covering any creeks, streams, rivers or other drainage areas that may be impacted by the improvements. These agencies will include, but not be limited to, the Ohio Department of Natural Resources (ODNR), the Ohio EPA, the Army Corps of Engineers and FEMA. The Consultant **MUST** determine if any special design considerations/issues/restrictions, e.g. flood mitigation, will have to be addressed during the preparation of the plans; whether these other agencies will require a review of the plans and whether any of these agencies will require any special permits, e.g. 401/404 permits, for the project. The Consultant **MUST** report these special design considerations/issues/restrictions to the Engineer as a part of the Phase A submittal.

43. Unless otherwise directed by the Engineer, the improvements/modifications shall be designed to meet all current, applicable regulations/requirements for storm water quality, control of sedimentation, erosion, etc. The regulations/requirements may include, but not be limited to, those of OEPA, the local Storm Water District and/or HC Planning & Development (Public Works). As part of the Phase A submittal, the Consultant is to make a recommendation to the Engineer concerning the most practical and cost effective best management practice (BMP) or practices that could be included in the final plans in order to meet the applicable regulations/requirements either during construction activities and/or post-construction.

After reviewing the recommendations made in the Phase A submittal, the Engineer will determine which, if any, of the BMP's are to be designed and included in the final improvement plans.

44. The capacity of any existing storm sewer system that is to remain in place shall be determined/calculated and the Consultant shall determine if an increase in capacity, i.e. a larger conduit, is required.

Unless otherwise directed by the Engineer or as may be modified below, when the project includes the construction/installation of new storm drainage facilities, the replacement/modification of existing storm drainage facilities or the construction of open channels/ditches and the Scope of Service indicates that the design of these facilities is to be in conformance with the Design Criteria of the County and/or HC Planning & Development (Public Works), the design of the storm drainage facilities shall be in general conformance with the **guidelines** of the latest editions of “The Ohio Department of Transportation, Location and Design Manual, Volume Two, Drainage Design” and/or “The Rules and Regulations of the Pubic Works Department Governing the Design, Construction, Operation Maintenance & Use in the County of Hamilton Storm Drainage System”.

Closed Storm Sewers:

The design of a closed storm sewer shall be based upon a ten (10) year storm.

The design of the closed storm sewer system shall also include the determination of spread of the flow on the pavement and the volume of by-pass at each catch basin. Unless otherwise directed by the Engineer, the maximum spread and the maximum by-pass permitted shall be in accordance with “The Rules and Regulations of the Pubic Works Department Governing the Design, Construction, Operation Maintenance & Use in the County of Hamilton Storm Drainage System”.

OUTSIDE of Consoer/Townsend (CT) areas or Special Flood Hazard Areas (SFHA), the hydraulic gradient for a fifty (50) year storm shall be calculated and plotted. **WITHIN** CT or SFHA areas, the hydraulic gradient for a one hundred (100) year storm shall be calculated and plotted.

Unless otherwise directed and/or approved by the Engineer, the closed storm system shall be designed so as to contain the hydraulic gradient for the pertinent storm within the facility. The hydraulic gradient **MAY NOT BE HIGHER** than six (6) inches below the elevation of the catch basin grate or the elevation of a manhole rim.

Cross Culverts (opening width less than ten feet):

The design of the facility shall be based upon a twenty-five (25) year storm.

Unless otherwise directed and/or approved by the Engineer, the cross culvert shall be designed so that the headwater for the design storm does **NOT** exceed the most restrictive elevation of the following:

- a) two (2) feet below the near, low edge of pavement;
- b) two (2) feet above the inlet crown of the culvert;
- c) above a tailwater elevation that would submerge the inlet crown.

The hydraulic gradient for a one hundred (100) year storm is to be calculated and plotted.

Unless otherwise directed and/or approved by the Engineer, the cross culvert shall be designed so that the headwater for the one hundred (100) year storm does **NOT** exceed the most restrictive elevation of the following:

- a) one (1) foot below the lowest ground elevation adjacent to an occupied building;
- b) a headwater depth twice the diameter or the rise of the cross culvert;
- c) **NO** overtopping of the pavement;
- d) **NO** significant increase in headwater elevation.

Bridges (opening width ten foot and greater):

The design of the bridge opening shall be based upon a fifty (50) year storm.

The hydraulic gradient for a one hundred (100) year storm shall be calculated and plotted.

The width of the opening of the existing bridge is to be the **MINIMUM** width to be maintained; **NO DECREASE** in the waterway opening of the bridge will be permitted unless approved by the Engineer.

The above are to be considered as **guidelines only**.

In areas where special conditions may be applicable, the Scope of Service and/or the Engineer may specify that criteria different from the above be followed in the design of the facility.

Prior to or in conjunction with the Phase B plan submittal, all drainage calculations, drainage maps, gradient profiles, etc. **MUST** be submitted to the Engineer.

45. The Consultant shall note that provision for detention of storm water is to be a facet of this project.

For projects that involve major impacts on storm water, i.e. a land addition, construction of new roads, realignment of an existing road, installation of curbs or curbs and gutters, the Consultant shall calculate the required detention volumes so that the post-construction discharge for a 25-year storm is **EQUAL TO OR LESS THAN** the pre-construction discharge for a 25-year storm. For rehabilitation projects that involve only minor impacts on storm water, i.e. a minor widening, the Consultant shall make recommendations to the Engineer regarding possible designs for the storm sewer system that could alleviate or eliminate existing or potential flooding problems.

As part of the Phase A submission, the Consultant is to recommend the methods that are to be utilized to meet the detention requirements, i.e. in-line storage, etc.

It shall also be determined if any additional runoff will cause problems in the immediate downstream area. This will require that the potential impact of the additional runoff be determined/calculated in the existing conduit to which a new system is connected **OR** in the open flow area(s) to the first major culvert **AND** in the major culvert itself, both as to headwater condition and tailwater condition, whichever is the controlling condition.

The necessary calculations **MUST** be made for each storm sewer outfall and for each proposed connection to an existing storm sewer system.

Unless otherwise directed by the Engineer, in those cases that the detention requirements of other agencies having jurisdiction of the storm sewer system may be **MORE** restrictive than the above, the **MORE** restrictive requirements **MUST** be met in the design of the improvements.

46. All underground facilities shall be located. These underground facilities are to include, but to not be limited to, storage tanks, septic tanks/systems, leach beds, utilities, including service lines (in accordance with Section 153.64 ORC), drain pipes and exposed field tiles shall be located and identified as to the size and type.

Special attention shall be given to any commercial/industrial property having underground storage tanks in current use or which may have previously utilized underground storage tanks, e.g. service stations, print shops, dry cleaners, etc., to identify any potential environmental problems.

47. When the Scope of Service includes cross sections, the sections are to be taken every twenty-five (25) feet. If the Aerial Method is utilized, cross sections are to be field checked every three hundred (300) feet. Critical driveway profiles to be plotted at a scale of 1" = 2' (Horizontal and Vertical). The **location** and **approximate depth** of **underground utilities**, i.e. storm sewers, sanitary sewers, gas lines and water lines, shall also be shown on the cross sections.

48. When the Scope of Service includes pavement salvage sections, the pavement is to be salvaged to the greatest extent possible. Pavement salvage sections are to be plotted at a scale of 1" = 5' (Horizontal) and 1" = 1' (Vertical). Pavement salvage sections may be combined on the normal cross section sheets or shown separately.

49. When the profile of a driveway is adjusted, i.e. raised or lowered, by two (2) feet or more, the Consultant shall prepare a grading plan for the driveway. The grading plan shall indicate the existing and the proposed contours on each side of the driveway in question. The plan shall use a minimum of two (2) foot contours. The grading plan will not become part of the final plan package but will be considered as supplemental information. The Consultant **MUST** submit the grading plan(s) with the initial Phase B review submittal.

NO grading plan will be required for driveways where the adjustment is less than two (2) feet.

50. Right-of-way and Establishment plans and descriptions:

The project will include the researching of all right-of-way information and ownership information from all available sources including but not limited to County road records, Commissioners' journals and records of other County offices to the extent necessary to provide an accurate basis for the right-of-way plans.

Property ownership data for the right-of-way plan development shall be based on a search of County records conducted no more that six (6) months prior to preliminary right-of-way plan submission.

Within fourteen (14) days prior to the submission of the final right-of-way tracings, an in-depth field review of the plan shall be conducted to assure that no topographic features, structures or utilities have been changed or omitted.

In addition, no more than fourteen (14) days prior to the submission of the final right-of-way tracings, the property ownership data shall be checked and verified and copies of the deeds for any new ownership transactions that impact the project shall be submitted to the Engineer. The actual date that the ownership data was checked and verified shall be contained in the submittal letter.

Descriptions shall be prepared on 8 1/2" x 11" letter size sheets, using letter quality printing on the final submissions. Descriptions shall be written so as to conform to the format designated by the County, samples to be furnished by the Engineer upon request. Descriptions shall be written so as to read in a clockwise direction, unless otherwise approved by the Engineer. Parcel designations for parcels to be acquired shall conform to the Engineer's requirements. The descriptions must also be formatted in accordance with the latest Hamilton County Recorder's requirements, e.g. a minimum margin of 1 1/2" at the top of each page and a minimum margin of 1" along the bottom and each side of the page.

The right-of-way plans shall indicate/contain the following information for each parcel: Owner's name, Property Address, Auditor's information, Deed reference, Project Parcel number and Area of tract to be acquired. In cases where an Owner's Summary Sheet is to be prepared, the Auditor's information, Deed reference and Area of tract to be acquired may be shown on the Summary Sheet instead of the plans.

The name(s) of the owner(s) shall be shown on the above items **EXACTLY** as indicated on the pertinent deeds. Unless otherwise approved by the Engineer, each parcel, as indicated by the Auditor's plats or Auditor's tax information, shall be treated as a separate, individual parcel in the preparation of the right-of-way/easement documents and plans.

In cases where the deed distance on a property line is different than the calculated project distance on that line, the right-of-way plans and the descriptions shall indicate/contain both the deed distance and the calculated distance. The area(s) calculated for the proposed right-of-way take or easement shall be based upon the deed distance.

In cases where the affected property is a Registered Land parcel, the right-of-way plans and the descriptions shall indicate/contain both the Registered Land bearings and the project bearings. All plat(s) and description(s) of the parcel(s) **MUST** be prepared in accordance with the Hamilton County Registered Land rules, regulations and requirements, including the preparation of a plat and description(s) for the residue parcel.

The project parcel reference; the current property owner's name(s); the deed book/registered land certificate number whereby the owner(s) acquired title and the area of the take/easement, shown in square feet and in acres shall be indicated. The Consultant may show this information on the descriptions, i.e. before or after the description of the property OR in a separate table to be submitted to the Engineer with the final right-of-way package.

The right-of-way plans **MUST** indicate station and offset at each point where the **proposed right-of-way take** or **proposed permanent easement take** intersects the property line and at **each angle point** on each line within the property boundaries.

Unless **otherwise approved** by the Engineer, the construction plans and the right-of-way plans **MUST** be separate plans. Unless **otherwise approved** by the Engineer, the right-of-way plans shall consist of screened mylars of the construction plans on which the necessary right-of-way and/or easement information has been indicated.

A copy of **ALL** deeds, surveys, record plats and/or other documents that were used to determine the existing right-of-way and/or property lines and were used as the basis for the preparation of the project descriptions **MUST** be furnished to the Engineer.

51. Along with the **FINAL** submission of the project plans and documents, a copy of **ALL** field notes; a listing of point coordinates and point descriptions for **ALL** points on the existing **AND** proposed centerline, baseline and right-of-way line; a closure for **EACH** easement or right-of-way take; and a copy of **ALL** quantity calculations **MUST** be furnished to the Engineer.
52. Calculations for the **Excavation quantity, the Embankment quantity, all the pavement quantities/items and all driveway quantities/items** **MUST** be prepared and submitted to the Engineer.

A calculation for the **area disturbed by construction** **MUST** also be made and submitted to the Engineer for the NOI permit application.

The calculations may be submitted separately on normal sheets and do not have to be made an integral part of the plans. Preliminary quantity calculations shall be submitted with the Phase B plan submittal. The final calculation sheets **MUST** be submitted with the final plan submittals.

53. Calculations for the signal pole designs and signal head calculations **MUST** be prepared and submitted to the Engineer. The Consultant **MUST** also run and submit to the Engineer Synchro, Swiss and/or HCS files as necessary.
54. All reports and calculations, e.g. drainage calculations, signal phasing/timing, pole designs, **MUST** be prepared by or under the direct supervision of a Professional Engineer who is registered in the State of Ohio. A Professional Engineer **MUST** stamp and sign the reports and calculations.
55. All construction plans **MUST** be prepared by or under the direct supervision of a Professional Engineer who is registered in the State of Ohio. A Professional Engineer **MUST** stamp and sign the Construction Improvement plans.
56. Along with the **FINAL** submission of the project plans and documents, the Consultant **MUST** submit a "Useful Life" statement for the project. The useful life **MUST** be a minimum of twenty (20) years. A Professional Engineer who is registered in the State of Ohio **MUST** stamp and sign the Useful Life statement.
57. The drainage calculations **MUST** be prepared by or under the direct supervision of a Professional Engineer who is registered in the State of Ohio. A Professional Engineer **MUST** stamp and sign the final drainage calculations.
58. All surveying and/or fieldwork **MUST** be done by or under the direct supervision of a Professional Surveyor who is registered in the State of Ohio. All right-of-way plans and descriptions, establishment plats and descriptions and registered land plats and descriptions **MUST** be prepared by or under the direct supervision of a Professional Surveyor who is registered in the State of Ohio. A Professional Surveyor who is registered in the State of Ohio **MUST** stamp and sign **ALL** Right-of-way plans and Registered Land plats.
59. Construction plans and right-of-way plans shall be separate plans. Plan sheets shall be 22" x 34" trimmed size. **EACH** sheet of the final approved plans shall have **ONLY** the date of final approval by the Engineer shown on the sheet, i.e. no Consultant revision dates are to be indicated on the final plan sheets.

60. A computer disk or disks containing all the project information **MUST** be furnished to the Engineer. Unless otherwise directed by the Engineer, the electronic files shall be in a format compatible with “Autocad”. The project files **MUST** be stored in a manner that will allow the Engineer to recall all line types, wording and layers and make prints of the plans that will be the same as the approved plans received from the Consultant.

A hard copy of all the project information, including the notes, quantities, descriptions, **MUST** be furnished to the Engineer. A computer disk or disks containing all the project information **MUST** also be furnished to the Engineer. Unless otherwise approved by the Engineer, the electronic files shall be in a format compatible with the Engineer’s software, i.e. Microsoft Word, Microsoft Excel, Microsoft PowerPoint, Adobe Acrobat.

61. Additional Information

- a) The study by KZF recommended turn lanes to be constructed at the intersection in conjunction with the installation of a new traffic signal. A preliminary study by StructurePoint indicated that the same benefits could be derived by the construction of a roundabout. In the initial stages of the design, the consultant is to review the alternatives as to the respective benefits and detriments of each and make a recommendation to the Counties. In conjunction with the consultant, the County Engineers will select the alternative that is to be designed.
- b) As noted above, funds for the construction of the improvements have not been obtained. In order to allow all funding options to remain available, the consultant **MUST** follow the NEPA requirements regarding the public notifications, meetings, etc. ODOT will not be able to coordinate the efforts regarding the public meetings, but the consultant **MUST** keep ODOT informed of all activities and representatives from ODOT will attend all scheduled meetings.

The consultant will prepare all of the exhibits necessary for the public meetings.

- c) As noted above, the fiscal year for any funds allocated to construction has not been determined. Therefore, the NEPA requirements regarding environmental factors cannot be followed at this time. However, the consultant **MUST** complete a record search to determine if any historic or other design considerations may be eventually flagged by the NEPA process. The consultant **MUST** also work with the Engineer and the geotechnical firm to determine if there are potentially contaminated soils/areas that might be identified through the NEPA process and that must be either avoided or mitigated by the improvements.
- d) Unless otherwise directed by the Engineer, the Consultant **MUST** use ODOT L&D standards for the improvements.
- e) The Consultant is to use existing traffic volumes and increase these volumes based upon standard increase percentages.
- f) As part of the Phase A submittal, the Consultant is to determine if additional right-of-way/easements are required. If additional right-of-way/easements are required, an environmental document may be required by ODOT.

g) As part of this project, the following drainage issues are to be addressed:

- 1) The Consultant shall determine if the existing 24” conduit crossing Fields Ertel Road approximately 725 feet east of Butler Warren Road is the correct size and, if not, the improvement plans will include the replacement of the conduit with the proper size conduit.
- 2) If ditches, either existing or proposed, are to be utilized to accommodate drainage, the Consultant shall properly size the ditches and design the ditches in accordance with the pertinent County criteria.

62. Required Consultant Insurance:

Consultant Insurance Provisions:

It shall be the responsibility of the Consultant to insure the protection of all life and/or property. It shall be the responsibility of the Consultant to protect itself; its employees and/or its agents; the employees and/or agents of any and all sub-consultants; and the County, its officers, employees and/or agents, from any and all liability claims that may arise from operations carried out in the performance of the services involved in the project.

During the term of the Agreement, the Consultant will provide, pay for and maintain in full force and effect the insurance outlined here for coverage at not less than the prescribed minimum limits of liability covering the Consultant’s activities.

Certificate of Insurance:

The Consultant shall provide the County with certificates of insurance, completed by a duly authorized representative, evidencing that at least the minimum coverage and limits herein required are in effect.

Should any of the policies be cancelled before the expiration thereof, notice will be delivered in accordance with the policy provisions. The Consultant shall provide notice to the County’s representatives named below at any time Consultant becomes aware of any cancellation or material change in the above insurance policies.

Hamilton County Risk Manager
Room 707, County Administration Building
138 East Court Street
Cincinnati, OH 45202

and

Hamilton County Engineer
Room 700, County Administration Building
138 East Court Street
Cincinnati, OH 45202

The Consultant shall maintain all required coverage without interruption during the entire term of the Agreement.

Failure of the County to demand such a certificate or other evidence of full compliance with these requirements or failure of the County to identify a deficiency from evidence provided will not be construed as a waiver of the Consultant’s obligation to maintain such insurance.

The acceptance of delivery by the County of any certificate of insurance evidencing the required coverage and limits does not constitute approval by the County or agreement by the County that the insurance requirements have been met or that the insurance policies shown in the certificates of insurance are in compliance with the requirements.

The certificates of insurance shall be submitted by the Consultant to the Engineer in conjunction with the original documents of the Agreement that have been signed by the Consultant. The further processing of the Agreement by the County will be dependent upon the Consultant submitting and the County approving the necessary certificates of insurance.

If the Consultant fails to maintain the insurance as set forth here, the County will have the right, but not the obligation, to, at the County's option, either purchase said insurance at the Consultant's expense or terminate the Agreement.

Insurer Qualifications:

All insurance must be provided through companies authorized to do business in the State of Ohio and rated at least A-:VII by the A. M. Best Company.

Insurance Primary:

All coverage required of the Consultant will be primary over any insurance or self-insurance program carried by the County, but only to the extent caused wholly or in part by the Consultant's negligent acts, errors or omissions.

No Reduction or Limit of Obligation:

By requiring insurance, the County does not represent that the coverage and limits will necessarily be adequate to protect the Consultant. Insurance effected or procured by the Consultant will not reduce or limit the Consultant's contractual obligation to indemnify and defend the County for claims or suits that result from or are connected with the performance of the services involved in the project.

Insured & Additional Insured:

The general liability and automobile policy or policies shall endorse "The Hamilton County Board of County Commissioners, Hamilton County and the Hamilton County Engineer, their officers, employees and agents" as insured.

Where the Scope of Service indicates that additional parties will be involved in the project, i.e. another County, a Township, a City or a Village, the policy or policies shall endorse as additional insured the Board of County Commissioners of the pertinent County, the Board of Trustees of the pertinent Township, the City Council of the pertinent City and/or the Village Council of the pertinent Village, and their respective engineers, officers, employees, agents and volunteers.

A Waiver of Subrogation shall be endorsed on the policy.

If sub-consultants are to be utilized on the Project, the Consultant's policy or policies shall endorse the sub-consultants as additional insured or separate policies, meeting all the requirements herein, shall be furnished by the Consultant or the sub-consultant(s) to the Engineer for each of the sub-

consultants.

The form of the additional insured endorsement will be ISO CG 20 33 03 97 (Form B) or its equivalent. The amount of Consultant's insurance will not be reduced by evidence of such other insurance.

Retroactive Date and Extended Reporting Period:

If any insurance herein required is to be issued or renewed on a claims-made form, as opposed to the occurrence form, the retroactive date for coverage will be no later than the commencement date of the project.

Joint Ventures:

If the project is to be completed as a joint venture involving two (2) or more entities, then each independent entity will satisfy the limits and coverage specified herein or the joint venture will be a named insured under each policy specified.

Sub-consultants:

If the Consultant engages sub-consultant(s) for the performance of any portion of the services involved in the project, the Consultant shall be responsible for guaranteeing that the portion of the project that is to be accomplished by the sub-consultant(s) is adequately covered by the insurance as specified herein.

The Consultant will cause each sub-consultant employed by the Consultant to purchase and maintain insurance of the type specified herein. When requested by the County, the Consultant will furnish copies of certificates of insurance evidencing coverage for each sub-consultant.

Cooperation:

The Consultant and the County agree to fully cooperate, participate and comply with all reasonable requirements and recommendations of the Consultant's insurers and insurance brokers issuing or arranging for issuance of policies required here, in all areas of safety, insurance program administration, claim reporting, investigating and audit procedures.

Insurance Limits and Coverage:

To the extent applicable, the amounts and types of insurance will conform to the minimum terms, conditions, and coverage of Insurance Service Office (ISO) policies, forms and endorsements.

All self-insured retention or deductible will be the Consultant's or the sub-consultant's responsibility.

Commercial General Liability:

The Consultant will maintain commercial general liability insurance covering all operations by or on behalf of the Consultant on an occurrence basis against claims for personal injury (including bodily injury and death) and property damage (including loss of use). Such insurance will have these limits and coverage:

Minimum limits: \$1,000,000 each occurrence;
 \$2,000,000 general aggregate;
 \$1,000,000 products and completed operations aggregate.

Automobile Liability:

The Consultant will maintain business auto liability covering liability arising out of the Consultant's use of any auto (including owned, hired, and non-owned autos).

Minimum limit: \$1,000,000 combined single limit each accident.

Workers' Compensation:

The Consultant will maintain workers' compensation insurance.

Minimum limits: 1. Workers' compensation - statutory limit.

Umbrella/Excess Liability:

The Consultant will maintain umbrella/excess liability insurance on an occurrence basis in excess of the underlying insurance herein described. The amounts of insurance required herein may be satisfied by the Consultant purchasing coverage for the limits specified or by any combination of underlying and umbrella limits so long as the total amount of insurance is not less than the limits specified herein.

Minimum limits: \$2,000,000 combined single limit per occurrence and aggregate limit.

Professional Liability (Errors & Omissions):

The Consultant will purchase and maintain professional liability insurance.

Minimum limits: \$1,000,000 each claim and annual aggregate.

Coverage: 1. Retroactive date prior to work.

Valuable Papers:

The Consultant will purchase valuable papers and records coverage for plans, specifications, drawings, reports, maps, books, blueprints, and other printed documents in an amount sufficient to cover the cost of recreating or reconstructing valuable papers or records related to this project.

Indemnification of Hamilton County:

The Consultant shall save, protect, defend, indemnify and hold harmless the Board of County Commissioners of Hamilton County, Ohio; the Hamilton County Engineer; and their respective officers, employees, and agents from and against any and all liabilities, penalties, damages, settlements, costs or losses of every kind and character to the extent they arise out of or in connection with the intentional, wrongful, or negligent acts, errors or omissions of the Consultant, its employees officers, agents or sub-consultant(s) in the performance of the services involved in the project.

The Consultant agrees to pay all damages, costs and expenses of the said Board of County Commissioners of Hamilton County, Ohio; the Hamilton County Engineer; and their officers, employees, and agents in defending any action arising out of the aforementioned wrongful, intentional or negligent acts, errors or omissions.

Indemnification of Additional parties:

Where the Scope indicates that additional parties will be involved in the project, i.e. another County, a Township, a City or a Village, the Consultant shall also save, protect, defend, indemnify and hold harmless the Board of County Commissioners of the pertinent County, the Board of Trustees of the pertinent Township, the City Council of the pertinent City and/or the Village Council of the pertinent Village, and their respective engineer(s), officers, employees, and agents, from and against any and all liabilities, penalties, damages, settlements, costs or losses of every kind and character, to the extent they arise out of or in connection with the intentional, wrongful, or negligent acts, errors or omissions of the Consultant, its employees officers, agents or sub-consultant(s), in the performance of the services involved in the project.

The Consultant shall also agree to pay all damages, costs and expenses of the Board of County Commissioners of the pertinent County, the Board of Trustees of the pertinent Township, the City Council of the pertinent City and/or the Village Council of the pertinent Village, and their engineer(s), officers, employees, and agents in defending any action arising out of the aforementioned wrongful, intentional or negligent acts, errors or omissions.

The Consultant **MUST** submit **ONE** copy of those portions of the insurance policy in which Hamilton County, the Township and/or any other party to the Agreement is named as an additional insured, i.e. the General Liability Policy or the Automobile Policy. The Consultant **MUST** also submit **TWO CERTIFICATES** indicating the insurance coverage for all other portions of the insurance policy. The Consultant **MUST** submit these documents to the Engineer when returning the Agreement for the project.

In the event of the Consultant, the County, the Township and/or any other party to this Agreement is named in litigation related to the **PROJECT**, the Consultant also agrees to provide to the Engineer, within ten (10) business days of the Consultant receiving the lawsuit, one certified copy of the **ENTIRE** insurance policy or policies and associated endorsements.

63. The Engineering Agreement will be a **LUMP SUM AGREEMENT**.