ADDENDUM NO. 1

March 12, 2026

Hamilton Southeastern High School Bus Lot Improvements – Phase A
12499 Olio Road
Fishers, IN 46037

TO: ALL BIDDERS OF RECORD

This Addendum forms a part of and modifies the Bidding Requirements, Contract Forms, Contract Conditions, the Specifications and the Drawings dated February 13, 2026, by Context Design. Acknowledge receipt of the Addendum in the space provided on the Bid Form. Failure to do so may subject the Bidder to disqualification.

This Addendum consists of Pages ADD 1_-_1__ through ADD 1_- 2, Geo Tech Report, A201-2017- HSE General Conditions, Guideline Schedule, and Logistics Plan, and attached Context Addendum No. 1, dated March 12, 2026, consisting of: 260500 Common Work Results for Electrical 260519 Low-voltage Electrical Power Conductors and Cables 260526 Grounding and Bonding for Electrical Systems 260529 Hangers and Supports for Electrical Systems 260533 Raceways and Boxes for Electrical Systems 260543 Underground Ducts and Raceways for Electrical Systems 260544 Sleeves and Sleeve Seals for Electrical Raceways and Cabling 260553 Identification for Electrical Systems 262200 Low-Voltage Transformers 262416 Panelboards 262726 Wiring Devices 264313 Surge Protection for Low-voltage Electrical Power Circuits 265600 Exterior Lighting 265668 Exterior Athletic Lighting – Bus Lot, and Addendum No. 1 Drawings.

A. <u>SPECIFICATION SECTION 00 20 00 INFORMATION AVAILABLE TO BIDDERS</u>

1. Reference geotechnical report included herein.

B. **<u>SPECIFICATION SECTION 00 70 00 AMENDED GENERAL CONDITIONS</u>**

1. Reference A201 General Conditions included herein.

C. **<u>SPECIFICATION SECTION 01 32 00 SCHEDULES AND REPORTS</u>**

1. Reference guideline schedule and logistics plan included herein.

D. **SPECIFICATION SECTION 01 53 10 FENCES (Temporary Security)**

1. Reference logistics plan included herein.

E. **SPECIFICATION SECTION 01 12 00 MULTIPLE CONTRACT SUMMARY**

3.03 Bid Categories

A. BID CATEGORY NO. 1 – DEMO, EARTHWORK, CONCRETE, ELECTRICAL & SITE AMENITIES

Add the following specification sections:

Section	26 05 00	Common Work Results for Electrical
Section	26 05 19	Low Voltage Electrical Power Conductors and Cables
Section	26 05 26	Grounding and Bonding for Electrical Systems
Section	26 05 29	Hangers and Supports for Electrical Systems
Section	26 05 33	Raceways and Boxes for Electrical Systems
Section	26 05 43	Underground Ducts and Raceways for Electrical Systems
Section	26 05 44	Sleeves and Sleeve Seals for Electrical Raceways & Cabling
Section	26 05 53	Identification for Electrical Systems
Section	26 22 00	Low Voltage Transformers
Section	26 24 16	Panelboards
Section	26 27 26	Wiring Devices
Section	26 43 13	Surge Protection for Low Voltage Electrical Power Circuits
Section	26 56 00	Exterior Lighting
Section	26 56 68	Exterior Athletic Lighting – Bus Lot

Alt & Witzig Engineering, Inc.
4105 West 99th Street • Carmel, Indiana • 46032
Ph (317) 875-7000 • Fax (800) 875-6028

March 6th, 2026

The Skillman Corporation
3834 South Emerson Avenue
Indianapolis, Indiana 46203
ATTN: Mr. Tim Funston

Report of Pavement and Subsurface Investigation and Geotechnical Recommendations

RE: Proposed Bus Lot Improvements
Hamilton Southeastern (HSE) High School
12499 Olio Road
Fishers, Indiana 46037
Alt & Witzig Project No.: **26IN0067**

Dear Mr. Funston:

In compliance with your request, we have completed a pavement and subsurface investigation for the proposed reconstruction of the parking lot and drive lanes at Hamilton Southeastern (HSE) High School located in Fishers, Indiana. It is our pleasure to transmit herewith our report.

The results of our test borings and laboratory tests completed to date are presented in the appendix of the report. Our recommendations for the project are presented in the "Pavement Analysis and Recommendations" section of the report. If you have any questions or comments regarding this matter, please contact us at your convenience.

Sincerely,
ALT & WITZIG ENGINEERING, INC.

Joshua W. Tinkle, P.E.
Sr. Geotechnical Engineer

Jacob L. Rankin, M.Eng., P.E.
Sr. Geotechnical Engineer

JACOB L. RANKIN
REGISTERED
No. PE11900847
STATE OF
INDIANA
PROFESSIONAL ENGINEER

PAVEMENT AND SUBSURFACE INVESTIGATION & GEOTECHNICAL RECOMMENDATIONS

PROPOSED BUS LOT IMPROVEMENTS – HSE HIGH SCHOOL
FISHERS, INDIANA
A&W PROJECT NO. 26IN0067

PREPARED FOR:
THE SKILLMAN CORPORATION
3834 SOUTH EMERSON AVENUE
INDIANAPOLIS, INDIANA

PREPARED BY:
ALT & WITZIG ENGINEERING, INC.
GEOTECHNICAL DIVISION

MARCH 6TH, 2026

TABLE OF CONTENTS

1.0 GENERAL INFORMATION 1

1.1 Project Description 1
1.2 Purpose 1
1.3 Scope of Work 1
1.4 Incorporations by Reference 1
1.5 Report Reliance 1
1.6 Site Location 1
1.7 Regional Setting 2

2.0 WORK PERFORMED 3

2.1 Field Reconnaissance 3
2.2 Pavement & Subsurface Investigation 3
2.3 Laboratory Analyses 3
2.4 Groundwater Elevations 3
2.5 Ground Surface Elevations 3

3.0 INVESTIGATION RESULTS 4

3.1 Pavement & Subsurface Investigation Results 4
3.2 Existing Groundwater Conditions 4

4.0 PAVEMENT ANALYSIS AND RECOMMENDATIONS 5

4.1 Pavement Reconstruction Recommendations 5

5.0 STATEMENT OF LIMITATIONS 7

APPENDIX A

Site Location Map
Boring Location Plan
Core Report Summary
Core Report
Borings Logs
General Notes
Custom Soil Resource Report

1.0 GENERAL INFORMATION

1.1 Project Description

Based on our correspondence with the client, it is our understanding that the west parking lot and drive lanes at Hamilton Southeastern (HSE) High School located in Fishers, Indiana will be reconstructed as a heavy-duty pavement to accommodate bus traffic.

1.2 Purpose

The purpose of this investigation was to determine the various pavement and soil profile components, determine the engineering characteristics of the foundation materials, and to provide recommendations and design parameters for use by design engineers in preparing the proposed pavement reconstruction plans and bid documents.

1.3 Scope of Work

This investigation was performed for The Skillman Corporation. The proposed statement of objectives and scope of work were outlined in the form of A&W Proposal Number *2602G004* duly authorized by The Skillman Corporation on February 2nd, 2026.

Per request, our scope of work included sixteen (16) sampling locations including the collection of pavement cores (if present), subbase material (if present), and soil subgrade for the proposed pavement improvements. Our investigation includes, but is not limited to, recommendations for the proposed pavement reconstruction based on client provided traffic information.

1.4 Incorporations by Reference

Our subsurface investigation was conducted in accordance with guidelines set forth in the scope of services and applicable industry standards.

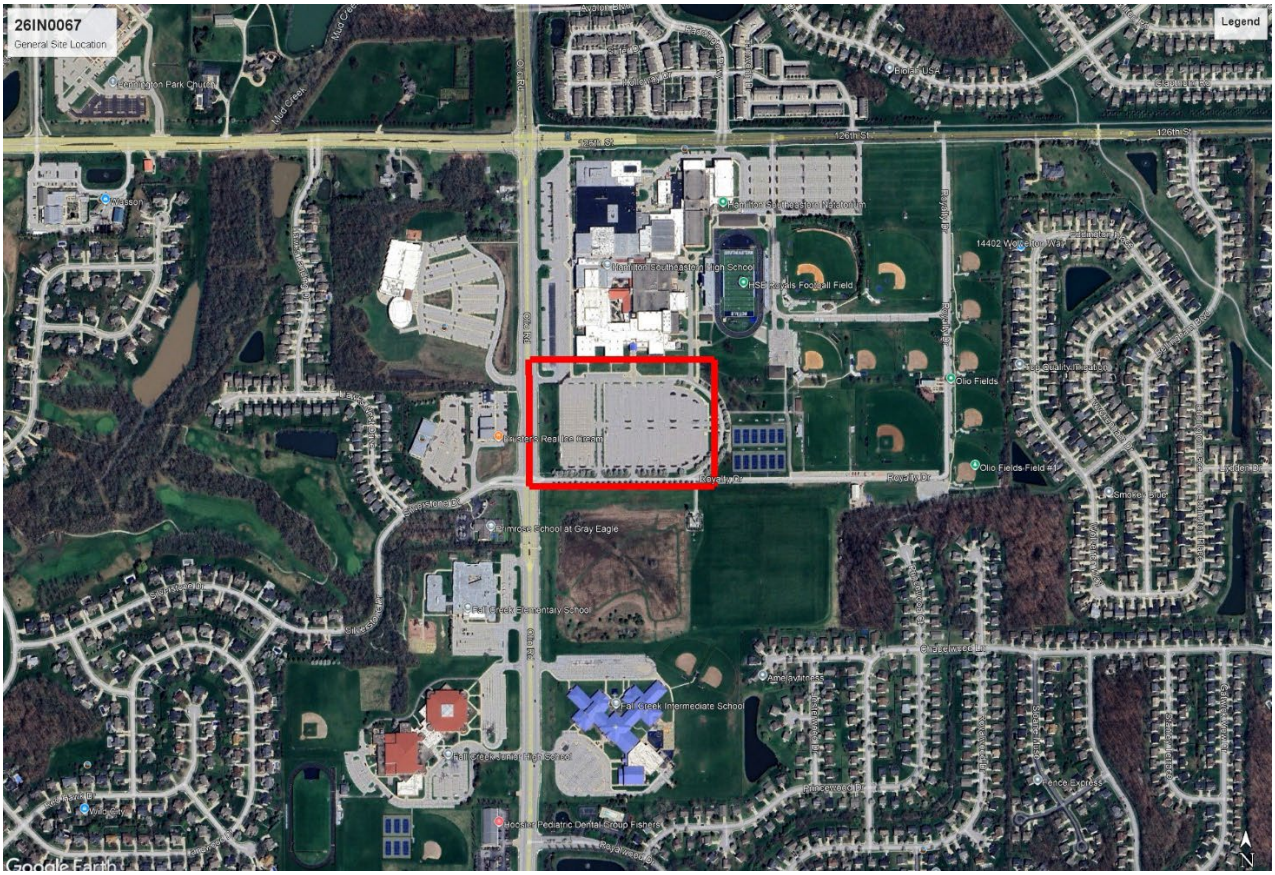
1.5 Report Reliance

This report shall only be presented in full and may not be used to support any other objectives than those set out in the scope of work, except where written approval and consent are provided by The Skillman Corporation and Alt & Witzig Engineering, Inc.

1.6 Site Location

The project site is located at the street address of 12499 Olio Road in Fishers, Indiana. The site is also located on the McCordsville Quadrangle in Section 36, Township 18 North, and Range 5 East of the USGS Topographic Map. An aerial photograph of the general site location provided by Google Earth is presented in *Exhibit 1* below.

Exhibit 1: General Site Location, Google Earth (2025)



1.7 Regional Setting

The project site lies in the New Castle Till Plains and Drainageways section of the Central Till Plains physiographic region of Indiana. Based upon information compiled and presented by the United States Department of Agriculture (USDA), the shallow soils for the project site are identified as Brookston silty clay loam-Urban land complex (YbvA), Crosby silt loam-Urban land complex (YclA), and Miami silt loam-Urban land complex (YmsB2) type soils. The site is generally characterized as poorly drained to moderately well drained with depths to a seasonal-high water table estimated between 0 to 36 inches below existing ground level. The *Custom Soil Resource Report for Hamilton County* is provided in the appendix for reference.

Based on our site reconnaissance and review of available map data, the existing surface elevations of the site range between 835 to 840 feet. Based on the information compiled from indianamap.org, bedrock for the project site is estimated at an elevation of 750 to 800 feet and consists of limestone and dolomite from the Wabash formation group of the Silurian age.

2.0 WORK PERFORMED

2.1 Field Reconnaissance

Per request, sixteen (16) sampling locations were performed including the collection of pavement cores (if present), subbase material (if present), and soil subgrade for the proposed pavement improvements. The Google Earth website was utilized to approximate the proposed locations, allowing for the correlation of the approximate latitude and longitude coordinates with each location. These coordinates were then assigned as waypoints and uploaded into a handheld GPS unit. Each location was then marked in the field with paint. The finalized locations are included in the *Boring Location Plan* presented in the Appendix of this report. Prior to mobilizing drilling personnel and equipment, utility locate requests were submitted to Indiana 811. Private utility clearing of our boring locations was also conducted by a subcontractor prior to our field work.

2.2. Pavement & Subsurface Investigation

The pavement sampling process was performed by core drilling the existing pavement with a four (4) inch outside diameter diamond studded, water cooled core barrel attached to our coring trailer. The core barrel was advanced through the pavement section. Each core sample and underlying subbase material (if present) were removed. Each thickness layer was measured, labeled, and packaged separately for transport to our laboratory. Immediately below the pavement section, soil samples were obtained using a truck mounted GeoProbe® rig with direct push technology. Sampling was completed to a prescribed depth of approximately twelve (12) feet utilizing thin-walled plastic tubing. Soil samples were stored in the plastic tubing for transport back to the laboratory for further analysis.

2.3 Laboratory Analyses

A supplementary laboratory investigation was conducted to ascertain additional pertinent engineering characteristics of the subsurface materials necessary in analyzing the behavior of the proposed pavement reconstruction. The laboratory-testing program for the soil samples collected included moisture content of soils in general accordance with ASTM D 2216 and visual classification of soils in general accordance with ASTM D 2488.

2.4 Groundwater Elevations

The apparent groundwater level at each boring location was measured during and upon completion of the drilling operations. These water level measurements consisted of observing the depth at which water was encountered on the direct push tubing during the soil sampling procedure and measuring the depth to the top of any water following removal of the direct push tubing. It should be noted that the groundwater level measurements recorded on the individual *Boring Logs* in the Appendix of this report are accurate only for the specific dates on which the measurements were performed. It must be understood that the groundwater levels will fluctuate throughout the year, and the *Boring Logs* do not indicate these fluctuations.

2.5 Ground Surface Elevations

Based on our site reconnaissance and review of available map data, the existing surface elevations of the site range between 835 to 840 feet. All depths and elevations referred to in this report are referenced from the ground surface existing at the time of this report.

3.0 INVESTIGATION RESULTS

3.1 Pavement & Subsurface Investigation Results

The existing pavement section consisted of Hot Mix Asphalt (HMA) with thicknesses ranging from approximately 3.25 to 5.25 inches followed by a crushed stone subbase with thicknesses ranging from approximately 3 to 4 inches.

Below the pavement materials, our borings typically encountered cohesive soils consisting of sandy and silty clays to the termination depth at approximately twelve (12) feet below existing ground level. The natural (in-situ) moisture contents of these shallow cohesive soils generally ranged from as low as ten (10) percent to as high as twenty-seven (27) percent. It should be noted that granular sand and gravel seams were encountered within the shallow cohesive soil layers at most boring locations. Specific soil information for the individual boring locations is summarized on the *Boring Logs* included in the Appendix of this report.

3.2 Existing Groundwater Conditions

As noted previously, the *Custom Soil Resource Report for Hamilton County* indicates the site is generally characterized as poorly drained to moderately well drained with depths to a seasonal-high water table estimated between 0 to 36 inches below existing ground level. Dry conditions were recorded to termination depth at all boring locations both during drilling and at completion of the drilling operations. The exact location of the water table should be anticipated to fluctuate somewhat depending upon normal seasonal variations in precipitation and surface runoff. It should be noted that the groundwater level measurements recorded on the individual *Boring Logs,* included in Appendix A of this report, are accurate only for the dates on which the measurements were performed.

4.0 GEOTECHNICAL ANALYSIS AND RECOMMENDATIONS

4.1 Pavement Reconstruction Recommendations

Based on our correspondence with the client, it is our understanding that the west parking lot and drive lanes at the Hamilton Southeastern High School located in Fishers, Indiana will be reconstructed as a heavy-duty pavement to accommodate bus traffic. Bus volumes provided by the client for the heavy-duty pavement section are expected to consist of approximately 85 loaded buses in the morning and afternoon for 180 days of school each year as well as approximately 15 buses per week for athletics, bands, or other extra-curricular activities.

The following heavy-duty pavement section was determined based on these assumed traffic conditions, utilizing a 20-year design life, a CBR value of 3.0, and the American Association of State Highway and Transportation Officials (AASHTO) design method.

Table 1: Heavy-Duty Pavement Section

Heavy Duty Pavement Section
1.5 in. HMA Surface (12.5 mm)
2.5 in. HMA Intermediate (19.0 mm)
4 in. HMA Base (25.0 mm)
12 in. INDOT No. 53 Crushed Limestone

The design for the new pavement includes a new 12 in. INDOT No. 53 Crushed Limestone section with a uniform thickness and proper gradation. “Commercial Grade” #53 coarse aggregate is typically not held to gradation and quality requirements of INDOT and is therefore considered unsuitable for this application. If “commercial grade” #53 coarse aggregate is desirable, it is recommended that a sample of the material be submitted to Alt & Witzig Engineering, Inc. for laboratory gradation analysis. Field sampling during placement may also be necessary to ensure that significant material changes are not encountered during construction.

The asphalt shall be placed in accordance with INDOT Standard Specification Section 400.

Based on our investigation, the foundation soils consisted of predominantly cohesive soils. A proof roll inspection is critical to determine the stability of these shallow soil conditions for placement of new pavements. These soils should be inspected to determine if undercuts or modifications are necessary. Based on the results of our testing, some of the shallow soils appear to be above the expected optimum moisture content. Therefore, some areas of failed proofroll should be expected. Modifications will be determined at the time of the proof roll inspection. Depending on the size of the area, modification could include disking, aeration, and recompaction, undercutting and replacement, or chemical modification. A geogrid may also be advantageous, depending on remediation.

Cohesive soils tend to pump and rut easily when they are at or near saturation. If construction begins during the wetter portions of the year, remediation of the subgrade may be necessary to achieve the above referenced CBR value. Subgrade treatment options including but not limited to; undercutting and replacement, or chemical-soil modification / stabilization may be considered if remediation is necessary.

All paved areas should be designed to prevent water from collecting or ponding immediately beneath the pavement structure. This can be accomplished by sloping the subgrade soils and providing a well-draining granular layer beneath the pavement that is properly outletted to drainage ditches, underdrains, or other drainage structures capable of removing trapped water from the pavement section. Long-term drainage is critical to overall pavement performance and service life, as excess moisture within the subgrade or base layers can lead to softening, loss of support, and accelerated deterioration such as rutting and cracking. To mitigate these risks, the installation of underdrains is recommended to minimize potential saturation of the soils encountered across the site. At a minimum, underdrains should be considered around storm structures, at asphalt-to-concrete interfaces, and beneath pavements where adjacent slopes may drain toward the pavement surface. An underdrain system installed in a grid pattern would provide more uniform and effective long-term drainage performance, particularly in areas of poor natural drainage or lower-permeability soils.

For underdrains to be effective, a minimum installation depth of eighteen (18) inches is recommended. The system should consist of 4-inch perforated plastic pipe encased in clean, washed No. 8 stone, with the stone extending up to the bottom of the pavement stone layer to facilitate proper drainage. For preliminary planning purposes, a maximum underdrain spacing of approximately forty (40) feet is recommended across the pavement areas.

5.0 STATEMENT OF LIMITATIONS

An inherent limitation of any geotechnical engineering study is that conclusions must be drawn based on data collected at a limited number of discrete locations. The geotechnical parameters provided in this report were developed from the information obtained from the test borings that depict subsurface conditions only at these specific locations and on the particular date indicated on the boring logs. Soil conditions at other locations may differ from conditions encountered at these boring locations and groundwater levels shall be expected to vary with time. The nature and extent of variations between the borings may not become evident until the course of construction.

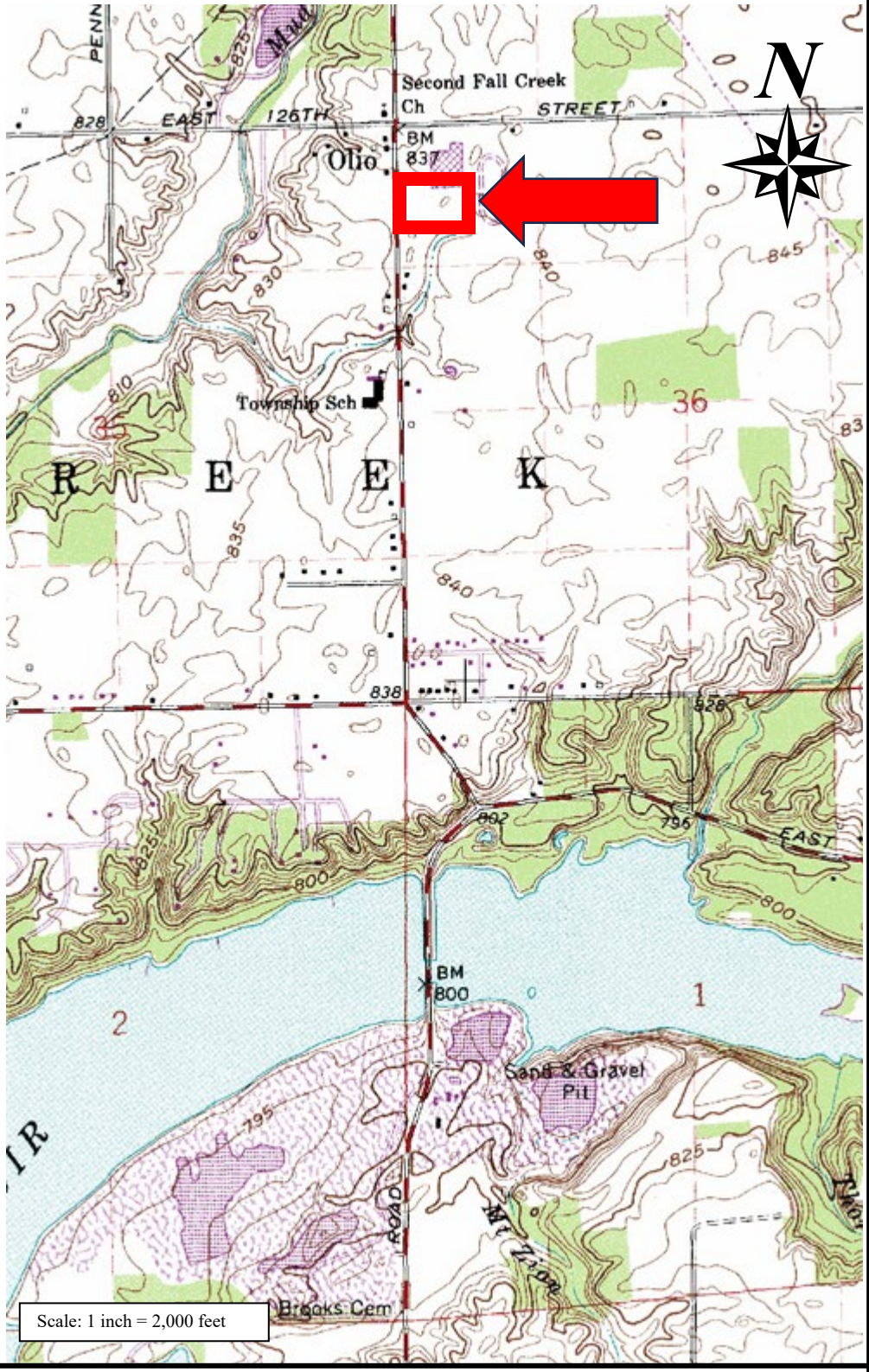
We appreciate the opportunity to work with you on this project. Often, because of design and construction details that occur, questions arise concerning the soils conditions. If we can give further service in these matters, please contact us at your convenience.

ALT & WITZIG ENGINEERING, INC.

APPENDIX A

Site Location Map
Boring Location Plan
Core Report Summary
Core Report
Borings Logs
General Notes
Custom Soil Resource Report

SITE LOCATION MAP





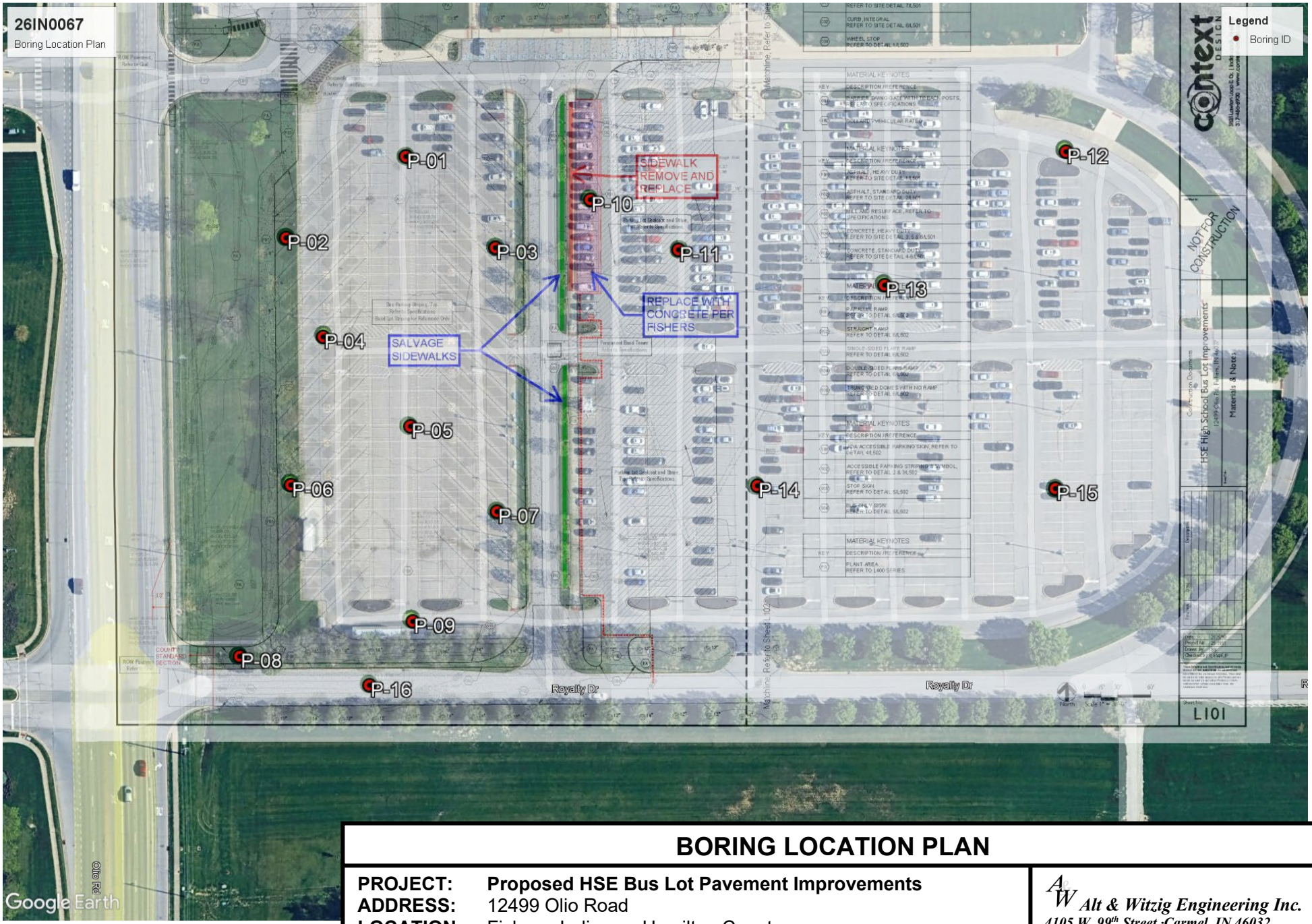
USGS Topographic Map:
McCordsville Quadrangle

Township: T 18 N.
Range: R 5 E.
Section: 36

PROJECT: **Proposed HSE Bus Lot Pavement Improvements**
LOCATION: Fishers, Indiana – Hamilton County
CLIENT: **The Skillman Corporation**
A&W File No.: 26IN0067

Alt & Witzig Engineering Inc.
4105 W. 99th Street ·Carmel, IN 46032
TEL (317)875-7000 · FAX (317) 876-3705
www.altwitzig.com

Last Modified: 2/5/2026 8:22 AM



BORING LOCATION PLAN

PROJECT: **Proposed HSE Bus Lot Pavement Improvements**
ADDRESS: 12499 Olio Road
LOCATION: Fishers, Indiana – Hamilton County
CLIENT: **The Skillman Corporation**
A&W File No.: 26IN0067

Alt & Witzig Engineering Inc.
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Pavement Core Summary
Proposed HSE Bus Lot Pavement Improvements
Fishers, Indiana - Hamilton County
ALT & WITZIG Project No.: 26IN0067

Boring ID	Date	Pavement Thickness (in)	Pavement Type	Subbase Thickness (in)	Subbase Type
P-01	2/18/2026	4.00	HMA	3.00	Cr. Stone
P-02	2/18/2026	N/A, Performed in Existing Grass Area			
P-03	2/18/2026	3.75	HMA	3.00	Cr. Stone
P-04	2/18/2026	3.25	HMA	3.00	Cr. Stone
P-05	2/18/2026	3.75	HMA	3.00	Cr. Stone
P-06	2/18/2026	N/A, Performed in Existing Grass Area			
P-07	2/18/2026	3.75	HMA	3.00	Cr. Stone
P-08	2/18/2026	N/A, Performed in Existing Grass Area			
P-09	2/18/2026	4.50	HMA	4.00	Cr. Stone
P-10	2/18/2026	4.50	HMA	4.00	Cr. Stone
P-11	2/18/2026	4.75	HMA	4.00	Cr. Stone
P-12	2/18/2026	5.25	HMA	4.00	Cr. Stone
P-13	2/18/2026	5.00	HMA	3.00	Cr. Stone
P-14	2/18/2026	3.75	HMA	3.00	Cr. Stone
P-15	2/18/2026	4.00	HMA	3.00	Cr. Stone
P-16	2/18/2026	5.00	HMA	3.00	Cr. Stone

Pavement Core Report

Proposed HSE Bus Lot Pavement Improvements

Boring ID
P-01

Pavement Core Photograph



Pavement Type	Pavement Thickness	Notes
Hot Mix Asphalt (HMA)	4.00 in.	N/A
Subbase Type	**Subbase Thickness**	**Notes**
Crushed Stone	3.00 in.	N/A

Pavement Core Report

Proposed HSE Bus Lot Pavement Improvements

Boring ID
P-03

Pavement Core Photograph



Pavement Type	Pavement Thickness	Notes
Hot Mix Asphalt (HMA)	3.75 in.	N/A
Subbase Type	**Subbase Thickness**	**Notes**
Crushed Stone	3.00 in.	N/A

Pavement Core Report

Proposed HSE Bus Lot Pavement Improvements

Boring ID
P-04

Pavement Core Photograph



Pavement Type	Pavement Thickness	Notes
Hot Mix Asphalt (HMA)	3.25 in.	N/A
Subbase Type	**Subbase Thickness**	**Notes**
Crushed Stone	3.00 in.	N/A

Pavement Core Report

Proposed HSE Bus Lot Pavement Improvements

Boring ID
P-05

Pavement Core Photograph



Pavement Type	Pavement Thickness	Notes
Hot Mix Asphalt (HMA)	3.75 in.	N/A
Subbase Type	**Subbase Thickness**	**Notes**
Crushed Stone	3.00 in.	N/A

Pavement Core Report

Proposed HSE Bus Lot Pavement Improvements

Boring ID
P-07

Pavement Core Photograph



Pavement Type	Pavement Thickness	Notes
Hot Mix Asphalt (HMA)	3.75 in.	N/A
Subbase Type	**Subbase Thickness**	**Notes**
Crushed Stone	3.00 in.	N/A

Pavement Core Report

Proposed HSE Bus Lot Pavement Improvements

Boring ID
P-09

Pavement Core Photograph



Pavement Type	Pavement Thickness	Notes
Hot Mix Asphalt (HMA)	4.50 in.	N/A
Subbase Type	**Subbase Thickness**	**Notes**
Crushed Stone	4.00 in.	N/A

Pavement Core Report

Proposed HSE Bus Lot Pavement Improvements

Boring ID
P-10

Pavement Core Photograph



Pavement Type	Pavement Thickness	Notes
Hot Mix Asphalt (HMA)	4.50 in.	N/A
Subbase Type	**Subbase Thickness**	**Notes**
Crushed Stone	4.00 in.	N/A

Pavement Core Report

Proposed HSE Bus Lot Pavement Improvements

Boring ID
P-11

Pavement Core Photograph



Pavement Type	Pavement Thickness	Notes
Hot Mix Asphalt (HMA)	4.75 in.	N/A
Subbase Type	**Subbase Thickness**	**Notes**
Crushed Stone	4.00 in.	N/A

Pavement Core Report

Proposed HSE Bus Lot Pavement Improvements

Boring ID
P-12

Pavement Core Photograph



Pavement Type	Pavement Thickness	Notes
Hot Mix Asphalt (HMA)	5.25 in.	N/A
Subbase Type	**Subbase Thickness**	**Notes**
Crushed Stone	4.00 in.	N/A

Pavement Core Report

Proposed HSE Bus Lot Pavement Improvements

Boring ID
P-13

Pavement Core Photograph



Pavement Type	Pavement Thickness	Notes
Hot Mix Asphalt (HMA)	5.00 in.	N/A
Subbase Type	**Subbase Thickness**	**Notes**
Crushed Stone	3.00 in.	N/A

Pavement Core Report

Proposed HSE Bus Lot Pavement Improvements

Boring ID
P-14

Pavement Core Photograph



Pavement Type	Pavement Thickness	Notes
Hot Mix Asphalt (HMA)	3.75 in.	N/A
Subbase Type	**Subbase Thickness**	**Notes**
Crushed Stone	3.00 in.	N/A

Pavement Core Report

Proposed HSE Bus Lot Pavement Improvements

Boring ID
P-15

Pavement Core Photograph



Pavement Type	Pavement Thickness	Notes
Hot Mix Asphalt (HMA)	4.00 in.	N/A
Subbase Type	**Subbase Thickness**	**Notes**
Crushed Stone	3.00 in.	N/A

Pavement Core Report

Proposed HSE Bus Lot Pavement Improvements

Boring ID
P-16

Pavement Core Photograph



Pavement Type	Pavement Thickness	Notes
Hot Mix Asphalt (HMA)	5.00 in.	N/A
Subbase Type	**Subbase Thickness**	**Notes**
Crushed Stone	3.00 in.	N/A

BORING LOG

Alt & Witzig Engineering, Inc.

CLIENT **The Skillman Corporation**
PROJECT NAME **Proposed Bus Lot Improvements - HSE**
PROJECT LOCATION **Fishers, IN**

BORING # **P-01**
ALT & WITZIG FILE # **26IN0067**

DRILLING and SAMPLING INFORMATION

Date Started **2/18/26**
Date Completed **2/18/26**
Boring Method **Direct Push**
Driller **W. Ellis**

Hammer Wt. _____ lbs.
Hammer Drop _____ in.
Spoon Sampler OD _____ in.
Rig Type **Geoprobe**

TEST DATA

STRATA ELEV.	SOIL CLASSIFICATION / SURFACE ELEVATION	Strata Depth	Depth Scale	Sample No.	Sample Type	Sampler Graphics / Recovery Graphics	Ground Water	Standard Penetration Test, N - blows/foot	Qu-tsf Unconfined Compressive Strength	PP-tsf Pocket Penetrometer	Moisture Content % / *Dry Unit Weight (pcf)*	Remarks
	4" Asphalt	0.3										
	3" Crushed Stone	0.6		1	MC						17.4	
	Brown and Gray Silty CLAY w/ Sand Seams		5	2	MC						19.0	
		8.6		3	MC						12.1	
	Brown Sandy Silty CLAY		10									
		12.6										
	End of Boring at 12.58 feet											

Sample Type
SS - Driven Split Spoon
ST - Pressed Shelby Tube
CA - Continuous Flight Auger
RC - Rock Core
CU - Cuttings
CT - Continuous Tube

Groundwater
○ During Drilling _____ *Dry ft.*
▽ At Completion _____ *Dry ft.*

Boring Method
HSA - Hollow Stem Augers
CFA - Continuous Flight Augers
DC - Driving Casing
MD - Mud Drilling

BORING LOG

Alt & Witzig Engineering, Inc.

CLIENT **The Skillman Corporation**
PROJECT NAME **Proposed Bus Lot Improvements - HSE**
PROJECT LOCATION **Fishers, IN**

BORING # **P-02**
ALT & WITZIG FILE # **26IN0067**

DRILLING and SAMPLING INFORMATION

Date Started **2/18/26**
Date Completed **2/18/26**
Boring Method **Direct Push**
Driller **W. Ellis**

Hammer Wt. _____ lbs.
Hammer Drop _____ in.
Spoon Sampler OD _____ in.
Rig Type **Geoprobe**

STRATA ELEV.	SOIL CLASSIFICATION / SURFACE ELEVATION	Strata Depth	Depth Scale	Sample No.	Sample Type	Sampler Graphics / Recovery Graphics	Ground Water	Standard Penetration Test, N - blows/foot	Qu-tsf Unconfined Compressive Strength	PP-tsf Pocket Penetrometer	Moisture Content % / *Dry Unit Weight (pcf)*	Remarks
	TOPSOIL	0.3		1	MC						15.6	
	Brown and Gray Silty CLAY w/ Sand and Gravel Seams	4.3	5	2	MC						23.5	
	Dark Brown and Gray Silty CLAY w/ Trace Organics	8.3		3	MC						12.7	
	Brown Sandy Silty CLAY	12.3	10									
	End of Boring at 12.25 feet											

TEST DATA

Sample Type
SS - Driven Split Spoon
ST - Pressed Shelby Tube
CA - Continuous Flight Auger
RC - Rock Core
CU - Cuttings
CT - Continuous Tube

Groundwater
○ During Drilling _____ *Dry ft.*
▽ At Completion _____ *Dry ft.*

Boring Method
HSA - Hollow Stem Augers
CFA - Continuous Flight Augers
DC - Driving Casing
MD - Mud Drilling

BORING LOG

Alt & Witzig Engineering, Inc.

CLIENT **The Skillman Corporation**
PROJECT NAME **Proposed Bus Lot Improvements - HSE**
PROJECT LOCATION **Fishers, IN**

BORING # **P-03**
ALT & WITZIG FILE # **26IN0067**

DRILLING and SAMPLING INFORMATION

Date Started **2/18/26**
Date Completed **2/18/26**
Boring Method **Direct Push**
Driller **W. Ellis**

Hammer Wt. _____ lbs.
Hammer Drop _____ in.
Spoon Sampler OD _____ in.
Rig Type **Geoprobe**

STRATA ELEV.	SOIL CLASSIFICATION / SURFACE ELEVATION	Strata Depth	Depth Scale	Sample No.	Sample Type	Sampler Graphics / Recovery Graphics	Ground Water	Standard Penetration Test, N - blows/foot	Qu-tsf Unconfined Compressive Strength	PP-tsf Pocket Penetrometer	Moisture Content % / *Dry Unit Weight (pcf)*	Remarks
	3.75" Asphalt	0.3										
	3" Crushed Stone	0.6		1	MC						22.1	
	Brown and Gray Silty CLAY w/ Some Gravel	4.6	5	2	MC						12.9	
	Brown and Gray Sandy Silty CLAY		10	3	MC						14.1	
	End of Boring at 12.56 feet	12.6										

TEST DATA

Sample Type
SS - Driven Split Spoon
ST - Pressed Shelby Tube
CA - Continuous Flight Auger
RC - Rock Core
CU - Cuttings
CT - Continuous Tube

Groundwater
○ During Drilling _____ *Dry ft.*
▽ At Completion _____ *Dry ft.*

Boring Method
HSA - Hollow Stem Augers
CFA - Continuous Flight Augers
DC - Driving Casing
MD - Mud Drilling

BORING LOG

Alt & Witzig Engineering, Inc.

CLIENT **The Skillman Corporation**
PROJECT NAME **Proposed Bus Lot Improvements - HSE**
PROJECT LOCATION **Fishers, IN**

BORING # **P-04**
ALT & WITZIG FILE # **26IN0067**

DRILLING and SAMPLING INFORMATION

Date Started **2/18/26**
Date Completed **2/18/26**
Boring Method **Direct Push**
Driller **W. Ellis**

Hammer Wt. _____ lbs.
Hammer Drop _____ in.
Spoon Sampler OD _____ in.
Rig Type **Geoprobe**

STRATA ELEV.	SOIL CLASSIFICATION / SURFACE ELEVATION	Strata Depth	Depth Scale	Sample No.	Sample Type	Sampler Graphics / Recovery Graphics	Ground Water	Standard Penetration Test, N - blows/foot	Qu-tsf Unconfined Compressive Strength	PP-tsf Pocket Penetrometer	Moisture Content % / *Dry Unit Weight (pcf)*	Remarks
	3.25" Asphalt	0.3										
	3" Crushed Stone	0.5		1	MC						15.2	
	Brown and Gray Silty CLAY w/ Sand and Gravel Seams	4.5	5	2	MC						16.1	
	Gray Silty CLAY	8.5	10	3	MC						12.0	
	Brown Sandy Silty CLAY	12.5										
	End of Boring at 12.52 feet											

TEST DATA

Sample Type
SS - Driven Split Spoon
ST - Pressed Shelby Tube
CA - Continuous Flight Auger
RC - Rock Core
CU - Cuttings
CT - Continuous Tube

Groundwater
○ During Drilling _____ *Dry ft.*
▽ At Completion _____ *Dry ft.*

Boring Method
HSA - Hollow Stem Augers
CFA - Continuous Flight Augers
DC - Driving Casing
MD - Mud Drilling

BORING LOG

Alt & Witzig Engineering, Inc.

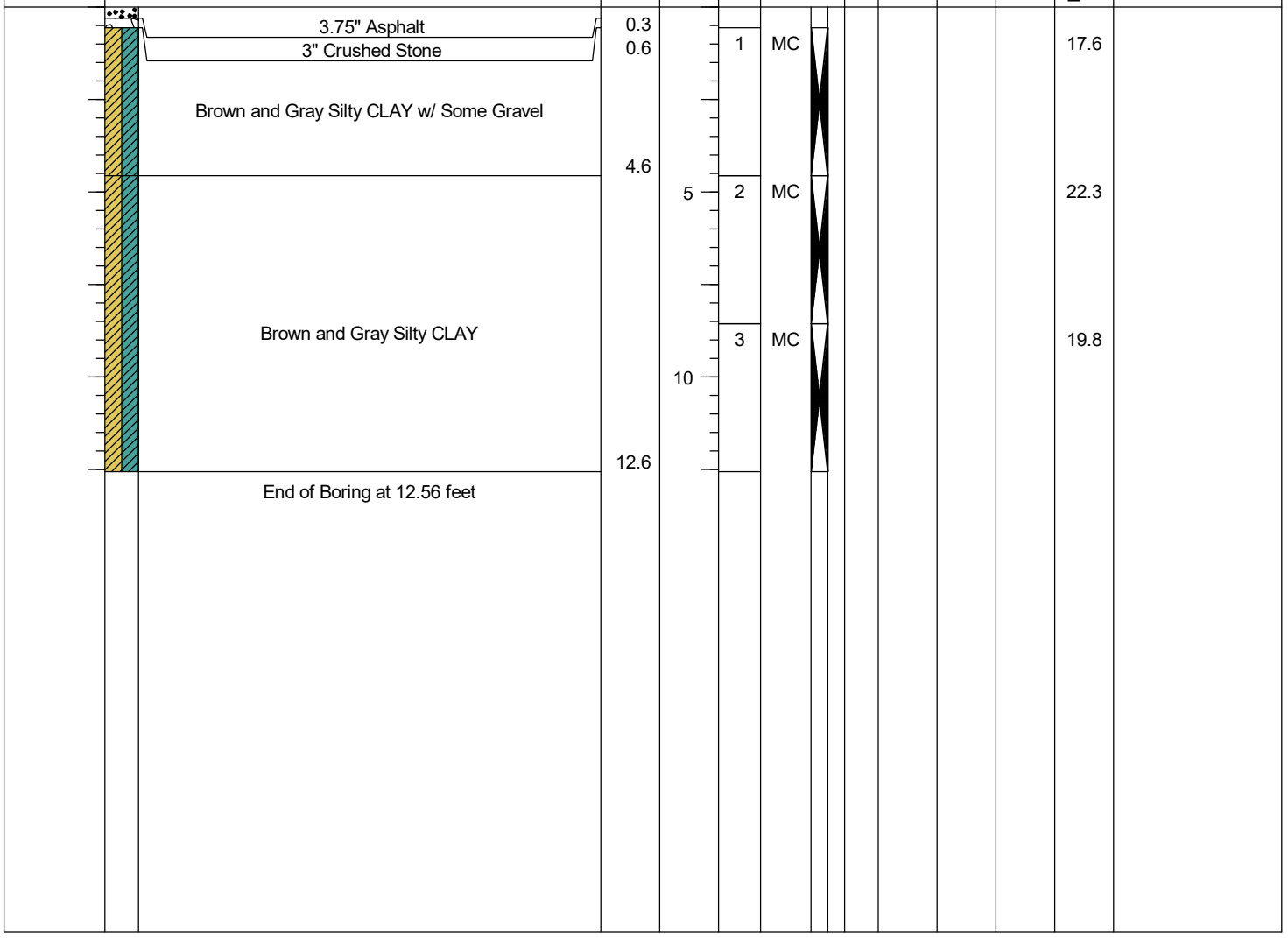
CLIENT **The Skillman Corporation**
PROJECT NAME **Proposed Bus Lot Improvements - HSE**
PROJECT LOCATION **Fishers, IN**

BORING # **P-05**
ALT & WITZIG FILE # **26IN0067**

DRILLING and SAMPLING INFORMATION

Date Started **2/18/26**
Date Completed **2/18/26**
Boring Method **Direct Push**
Driller **W. Ellis**

Hammer Wt. _____ lbs.
Hammer Drop _____ in.
Spoon Sampler OD _____ in.
Rig Type **Geoprobe**



TEST DATA

Sample Type
SS - Driven Split Spoon
ST - Pressed Shelby Tube
CA - Continuous Flight Auger
RC - Rock Core
CU - Cuttings
CT - Continuous Tube

Groundwater
○ During Drilling _____ *Dry ft.*
▽ At Completion _____ *Dry ft.*

Boring Method
HSA - Hollow Stem Augers
CFA - Continuous Flight Augers
DC - Driving Casing
MD - Mud Drilling

BORING LOG

Alt & Witzig Engineering, Inc.

CLIENT **The Skillman Corporation**
PROJECT NAME **Proposed Bus Lot Improvements - HSE**
PROJECT LOCATION **Fishers, IN**

BORING # **P-06**
ALT & WITZIG FILE # **26IN0067**

DRILLING and SAMPLING INFORMATION

Date Started **2/18/26**
Date Completed **2/18/26**
Boring Method **Direct Push**
Driller **W. Ellis**

Hammer Wt. _____ lbs.
Hammer Drop _____ in.
Spoon Sampler OD _____ in.
Rig Type **Geoprobe**

STRATA ELEV.	SOIL CLASSIFICATION / SURFACE ELEVATION	Strata Depth	Depth Scale	Sample No.	Sample Type	Sampler Graphics / Recovery Graphics	Ground Water	Standard Penetration Test, N - blows/foot	Qu-tsf Unconfined Compressive Strength	PP-tsf Pocket Penetrometer	Moisture Content % / *Dry Unit Weight (pcf)*	Remarks
	TOPSOIL	0.3		1	MC						18.0	
	Brown and Gray Silty CLAY		5	2	MC						23.6	
			10	3	MC						24.4	
	End of Boring at 12.25 feet	12.3										

Sample Type
SS - Driven Split Spoon
ST - Pressed Shelby Tube
CA - Continuous Flight Auger
RC - Rock Core
CU - Cuttings
CT - Continuous Tube

Groundwater
○ During Drilling _____ *Dry ft.*
▽ At Completion _____ *Dry ft.*

Boring Method
HSA - Hollow Stem Augers
CFA - Continuous Flight Augers
DC - Driving Casing
MD - Mud Drilling

BORING LOG

Alt & Witzig Engineering, Inc.

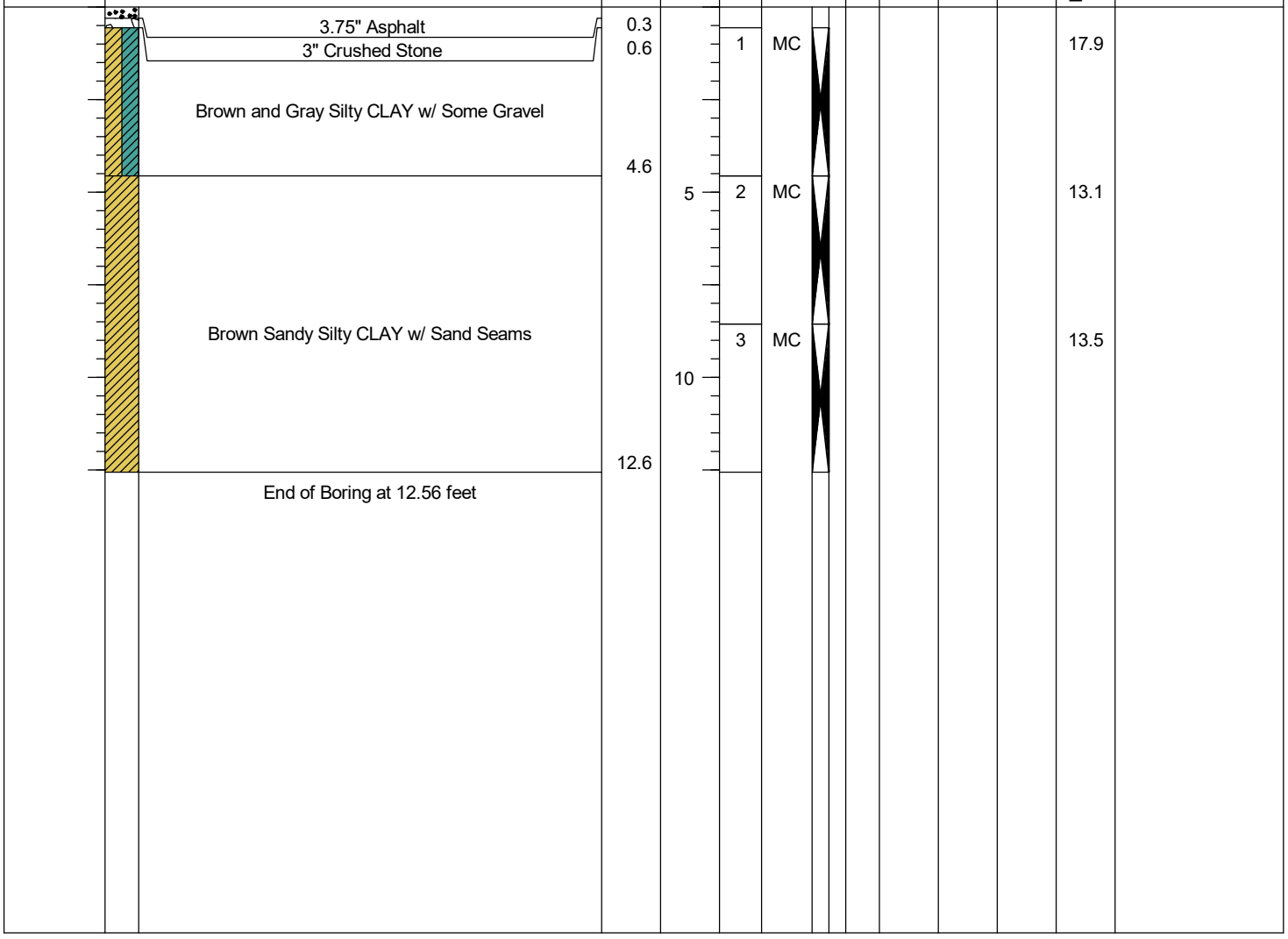
CLIENT **The Skillman Corporation**
PROJECT NAME **Proposed Bus Lot Improvements - HSE**
PROJECT LOCATION **Fishers, IN**

BORING # **P-07**
ALT & WITZIG FILE # **26IN0067**

DRILLING and SAMPLING INFORMATION

Date Started **2/18/26**
Date Completed **2/18/26**
Boring Method **Direct Push**
Driller **W. Ellis**

Hammer Wt. _____ lbs.
Hammer Drop _____ in.
Spoon Sampler OD _____ in.
Rig Type **Geoprobe**



Sample Type
SS - Driven Split Spoon
ST - Pressed Shelby Tube
CA - Continuous Flight Auger
RC - Rock Core
CU - Cuttings
CT - Continuous Tube

Groundwater
○ During Drilling _____ *Dry ft.*
▽ At Completion _____ *Dry ft.*

Boring Method
HSA - Hollow Stem Augers
CFA - Continuous Flight Augers
DC - Driving Casing
MD - Mud Drilling

BORING LOG

Alt & Witzig Engineering, Inc.

CLIENT **The Skillman Corporation**
PROJECT NAME **Proposed Bus Lot Improvements - HSE**
PROJECT LOCATION **Fishers, IN**

BORING # **P-08**
ALT & WITZIG FILE # **26IN0067**

DRILLING and SAMPLING INFORMATION

Date Started **2/18/26**
Date Completed **2/18/26**
Boring Method **Direct Push**
Driller **W. Ellis**

Hammer Wt. _____ lbs.
Hammer Drop _____ in.
Spoon Sampler OD _____ in.
Rig Type **Geoprobe**

STRATA ELEV.	SOIL CLASSIFICATION / SURFACE ELEVATION	Strata Depth	Depth Scale	Sample No.	Sample Type	Sampler Graphics / Recovery Graphics	Ground Water	Standard Penetration Test, N - blows/foot	Qu-tsf Unconfined Compressive Strength	PP-tsf Pocket Penetrometer	Moisture Content % / *Dry Unit Weight (pcf)*	Remarks
	TOPSOIL	0.3		1	MC						20.4	
	Brown and Gray Silty CLAY	4.3	5	2	MC						12.0	
	Brown Sandy Silty CLAY		10	3	MC						13.4	
		12.3										
	End of Boring at 12.25 feet											

TEST DATA

Sample Type
SS - Driven Split Spoon
ST - Pressed Shelby Tube
CA - Continuous Flight Auger
RC - Rock Core
CU - Cuttings
CT - Continuous Tube

Groundwater
○ During Drilling _____ *Dry ft.*
▽ At Completion _____ *Dry ft.*

Boring Method
HSA - Hollow Stem Augers
CFA - Continuous Flight Augers
DC - Driving Casing
MD - Mud Drilling

BORING LOG

Alt & Witzig Engineering, Inc.

CLIENT **The Skillman Corporation**
PROJECT NAME **Proposed Bus Lot Improvements - HSE**
PROJECT LOCATION **Fishers, IN**

BORING # **P-09**
ALT & WITZIG FILE # **26IN0067**

DRILLING and SAMPLING INFORMATION

Date Started **2/18/26**
Date Completed **2/18/26**
Boring Method **Direct Push**
Driller **W. Ellis**

Hammer Wt. _____ lbs.
Hammer Drop _____ in.
Spoon Sampler OD _____ in.
Rig Type **Geoprobe**

TEST DATA

STRATA ELEV.	SOIL CLASSIFICATION / SURFACE ELEVATION	Strata Depth	Depth Scale	Sample No.	Sample Type	Sampler Graphics / Recovery Graphics	Ground Water	Standard Penetration Test, N - blows/foot	Qu-tsf Unconfined Compressive Strength	PP-tsf Pocket Penetrometer	Moisture Content % / *Dry Unit Weight (pcf)*	Remarks
	4.5" Asphalt	0.4										
	4" Crushed Stone	0.7		1	MC						20.2	
	Brown and Gray Silty CLAY w/ Sand and Gravel Seams		5	2	MC						18.0	
		8.7		3	MC						10.9	
	Brown Sandy Silty CLAY		10									
		12.7										
	End of Boring at 12.71 feet											

Sample Type
SS - Driven Split Spoon
ST - Pressed Shelby Tube
CA - Continuous Flight Auger
RC - Rock Core
CU - Cuttings
CT - Continuous Tube

Groundwater
○ During Drilling _____ *Dry ft.*
▽ At Completion _____ *Dry ft.*

Boring Method
HSA - Hollow Stem Augers
CFA - Continuous Flight Augers
DC - Driving Casing
MD - Mud Drilling

BORING LOG

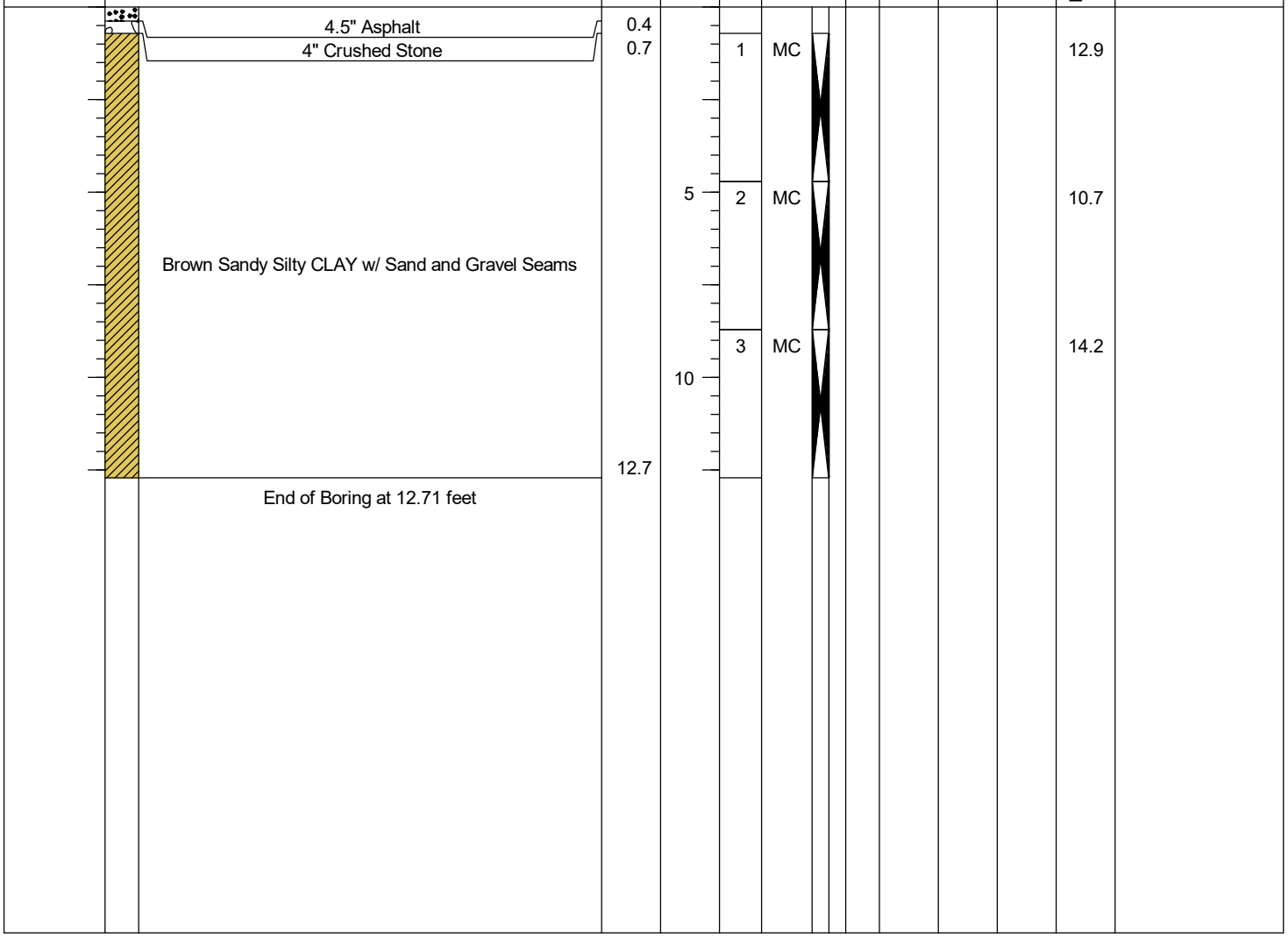
Alt & Witzig Engineering, Inc.

CLIENT **The Skillman Corporation**
PROJECT NAME **Proposed Bus Lot Improvements - HSE**
PROJECT LOCATION **Fishers, IN**

BORING # **P-10**
ALT & WITZIG FILE # **26IN0067**

DRILLING and SAMPLING INFORMATION

Date Started **2/18/26** Hammer Wt. _____ lbs.
Date Completed **2/18/26** Hammer Drop _____ in.
Boring Method **Direct Push** Spoon Sampler OD _____ in.
Driller **W. Ellis** Rig Type **Geoprobe**



Sample Type
SS - Driven Split Spoon
ST - Pressed Shelby Tube
CA - Continuous Flight Auger
RC - Rock Core
CU - Cuttings
CT - Continuous Tube

Groundwater
○ During Drilling _____ *Dry ft.*
▽ At Completion _____ *Dry ft.*

Boring Method
HSA - Hollow Stem Augers
CFA - Continuous Flight Augers
DC - Driving Casing
MD - Mud Drilling

BORING LOG

Alt & Witzig Engineering, Inc.

CLIENT **The Skillman Corporation** BORING # **P-11**

PROJECT NAME **Proposed Bus Lot Improvements - HSE** ALT & WITZIG FILE # **26IN0067**

PROJECT LOCATION **Fishers, IN**

DRILLING and SAMPLING INFORMATION

Date Started **2/20/26** Hammer Wt. _____ lbs.

Date Completed **2/20/26** Hammer Drop _____ in.

Boring Method **Direct Push** Spoon Sampler OD _____ in.

Driller **W. Ellis** Rig Type **Geoprobe**

TEST DATA

STRATA ELEV.	SOIL CLASSIFICATION / SURFACE ELEVATION	Strata Depth	Depth Scale	Sample No.	Sample Type	Sampler Graphics / Recovery Graphics	Ground Water	Standard Penetration Test, N - blows/foot	Qu-tsf Unconfined Compressive Strength	PP-tsf Pocket Penetrometer	Moisture Content % / *Dry Unit Weight (pcf)*	Remarks
	4.75" Asphalt	0.4										
	4" Crushed Stone	0.7		1	MC						11.4	
	Brown Sandy Silty CLAY w/ Sand and Gravel Seams	4.7	5	2	MC						10.9	
	Brown Sandy Silty CLAY		10	3	MC						10.7	
		12.7										
	End of Boring at 12.73 feet											

Sample Type

SS - Driven Split Spoon
ST - Pressed Shelby Tube
CA - Continuous Flight Auger
RC - Rock Core
CU - Cuttings
CT - Continuous Tube

Groundwater

○ During Drilling _____ *Dry ft.*
▽ At Completion _____ *Dry ft.*

Boring Method

HSA - Hollow Stem Augers
CFA - Continuous Flight Augers
DC - Driving Casing
MD - Mud Drilling

BORING LOG

Alt & Witzig Engineering, Inc.

CLIENT **The Skillman Corporation**
PROJECT NAME **Proposed Bus Lot Improvements - HSE**
PROJECT LOCATION **Fishers, IN**

BORING # **P-12**
ALT & WITZIG FILE # **26IN0067**

DRILLING and SAMPLING INFORMATION

Date Started **2/20/26** Hammer Wt. _____ lbs.
Date Completed **2/20/26** Hammer Drop _____ in.
Boring Method **Direct Push** Spoon Sampler OD _____ in.
Driller **W. Ellis** Rig Type **Geoprobe**

STRATA ELEV.	SOIL CLASSIFICATION / SURFACE ELEVATION	Strata Depth	Depth Scale	Sample No.	Sample Type	Sampler Graphics / Recovery Graphics	Ground Water	Standard Penetration Test, N - blows/foot	Qu-tsf Unconfined Compressive Strength	PP-tsf Pocket Penetrometer	Moisture Content % / *Dry Unit Weight (pcf)*	Remarks
	5.25" Asphalt	0.4										
	4" Crushed Stone	0.8		1	MC						10.5	
	Brown Sandy Silty CLAY w/ Sand and Gravel Seams		5	2	MC						12.4	
			10	3	MC						10.4	
	End of Boring at 12.77 feet	12.8										

TEST DATA

Sample Type
SS - Driven Split Spoon
ST - Pressed Shelby Tube
CA - Continuous Flight Auger
RC - Rock Core
CU - Cuttings
CT - Continuous Tube

Groundwater
○ During Drilling _____ *Dry ft.*
▽ At Completion _____ *Dry ft.*

Boring Method
HSA - Hollow Stem Augers
CFA - Continuous Flight Augers
DC - Driving Casing
MD - Mud Drilling

BORING LOG

Alt & Witzig Engineering, Inc.

CLIENT **The Skillman Corporation**
PROJECT NAME **Proposed Bus Lot Improvements - HSE**
PROJECT LOCATION **Fishers, IN**

BORING # **P-13**
ALT & WITZIG FILE # **26IN0067**

DRILLING and SAMPLING INFORMATION

Date Started **2/20/26**
Date Completed **2/20/26**
Boring Method **Direct Push**
Driller **W. Ellis**

Hammer Wt. _____ lbs.
Hammer Drop _____ in.
Spoon Sampler OD _____ in.
Rig Type **Geoprobe**

TEST DATA

STRATA ELEV.	SOIL CLASSIFICATION / SURFACE ELEVATION	Strata Depth	Depth Scale	Sample No.	Sample Type	Sampler Graphics / Recovery Graphics	Ground Water	Standard Penetration Test, N - blows/foot	Qu-tsf Unconfined Compressive Strength	PP-tsf Pocket Penetrometer	Moisture Content % / *Dry Unit Weight (pcf)*	Remarks
	5" Asphalt	0.4										
	3" Crushed Stone	0.7		1	MC						12.2	
	Brown Sandy Silty CLAY w/ Sand and Gravel Seams		5	2	MC						9.7	
			10	3	MC						11.7	
	End of Boring at 12.67 feet	12.7										

Sample Type
SS - Driven Split Spoon
ST - Pressed Shelby Tube
CA - Continuous Flight Auger
RC - Rock Core
CU - Cuttings
CT - Continuous Tube

Groundwater
○ During Drilling _____ *Dry ft.*
▽ At Completion _____ *Dry ft.*

Boring Method
HSA - Hollow Stem Augers
CFA - Continuous Flight Augers
DC - Driving Casing
MD - Mud Drilling

BORING LOG

Alt & Witzig Engineering, Inc.

CLIENT **The Skillman Corporation**
PROJECT NAME **Proposed Bus Lot Improvements - HSE**
PROJECT LOCATION **Fishers, IN**

BORING # **P-14**
ALT & WITZIG FILE # **26IN0067**

DRILLING and SAMPLING INFORMATION

Date Started **2/20/26**
Date Completed **2/20/26**
Boring Method **Direct Push**
Driller **W. Ellis**

Hammer Wt. _____ lbs.
Hammer Drop _____ in.
Spoon Sampler OD _____ in.
Rig Type **Geoprobe**

STRATA ELEV.	SOIL CLASSIFICATION / SURFACE ELEVATION	Strata Depth	Depth Scale	Sample No.	Sample Type	Sampler Graphics / Recovery Graphics	Ground Water	Standard Penetration Test, N - blows/foot	Qu-tsf Unconfined Compressive Strength	PP-tsf Pocket Penetrometer	Moisture Content % / *Dry Unit Weight (pcf)*	Remarks
	3.75" Asphalt	0.3										
	3" Crushed Stone	0.6		1	MC						23.4	
	Brown and Gray Silty CLAY w/ Some Gravel		5	2	MC						26.8	
		8.6										
	Brown Sandy Silty CLAY w/ Sand Seams		10	3	MC						15.1	
		12.6										
	End of Boring at 12.56 feet											

TEST DATA

Sample Type
SS - Driven Split Spoon
ST - Pressed Shelby Tube
CA - Continuous Flight Auger
RC - Rock Core
CU - Cuttings
CT - Continuous Tube

Groundwater
○ During Drilling _____ *Dry ft.*
▽ At Completion _____ *Dry ft.*

Boring Method
HSA - Hollow Stem Augers
CFA - Continuous Flight Augers
DC - Driving Casing
MD - Mud Drilling

BORING LOG

Alt & Witzig Engineering, Inc.

CLIENT **The Skillman Corporation**
PROJECT NAME **Proposed Bus Lot Improvements - HSE**
PROJECT LOCATION **Fishers, IN**

BORING # **P-15**
ALT & WITZIG FILE # **26IN0067**

DRILLING and SAMPLING INFORMATION

Date Started **2/20/26**
Date Completed **2/20/26**
Boring Method **Direct Push**
Driller **W. Ellis**

Hammer Wt. _____ lbs.
Hammer Drop _____ in.
Spoon Sampler OD _____ in.
Rig Type **Geoprobe**

TEST DATA

STRATA ELEV.	SOIL CLASSIFICATION / SURFACE ELEVATION	Strata Depth	Depth Scale	Sample No.	Sample Type	Sampler Graphics / Recovery Graphics	Ground Water	Standard Penetration Test, N - blows/foot	Qu-tsf Unconfined Compressive Strength	PP-tsf Pocket Penetrometer	Moisture Content % / *Dry Unit Weight (pcf)*	Remarks
	4" Asphalt	0.3										
	3" Crushed Stone	0.6		1	MC						25.6	
	Brown and Gray Silty CLAY w/ Sand and Gravel Seams	4.6	5	2	MC						12.8	
	Brown Sandy Silty CLAY w/ Sand Seams		10	3	MC						11.7	
	End of Boring at 12.58 feet	12.6										

Sample Type
SS - Driven Split Spoon
ST - Pressed Shelby Tube
CA - Continuous Flight Auger
RC - Rock Core
CU - Cuttings
CT - Continuous Tube

Groundwater
○ During Drilling _____ *Dry ft.*
▽ At Completion _____ *Dry ft.*

Boring Method
HSA - Hollow Stem Augers
CFA - Continuous Flight Augers
DC - Driving Casing
MD - Mud Drilling

BORING LOG

Alt & Witzig Engineering, Inc.

CLIENT **The Skillman Corporation**
PROJECT NAME **Proposed Bus Lot Improvements - HSE**
PROJECT LOCATION **Fishers, IN**

BORING # **P-16**
ALT & WITZIG FILE # **26IN0067**

DRILLING and SAMPLING INFORMATION

Date Started **2/20/26**
Date Completed **2/20/26**
Boring Method **Direct Push**
Driller **W. Ellis**

Hammer Wt. _____ lbs.
Hammer Drop _____ in.
Spoon Sampler OD _____ in.
Rig Type **Geoprobe**

TEST DATA

STRATA ELEV.	SOIL CLASSIFICATION / SURFACE ELEVATION	Strata Depth	Depth Scale	Sample No.	Sample Type	Sampler Graphics / Recovery Graphics	Ground Water	Standard Penetration Test, N - blows/foot	Qu-tsf Unconfined Compressive Strength	PP-tsf Pocket Penetrometer	Moisture Content % / *Dry Unit Weight (pcf)*	Remarks
	5" Asphalt	0.4										
	3" Crushed Stone	0.7		1	MC						13.3	
	Brown Sandy Silty CLAY w/ Sand and Gravel Seams		5	2	MC						13.0	
			10	3	MC						13.2	
	End of Boring at 12.67 feet	12.7										

Sample Type
SS - Driven Split Spoon
ST - Pressed Shelby Tube
CA - Continuous Flight Auger
RC - Rock Core
CU - Cuttings
CT - Continuous Tube

Groundwater
○ During Drilling _____ *Dry ft.*
▽ At Completion _____ *Dry ft.*

Boring Method
HSA - Hollow Stem Augers
CFA - Continuous Flight Augers
DC - Driving Casing
MD - Mud Drilling

MATERIAL GRAPHICS LEGEND


ASPHALT: Asphalt


CL: USCS Low Plasticity Clay


CL-ML: USCS Low Plasticity Silty Clay


TOPSOIL


GRAVEL/COBBLES

SOIL PROPERTY SYMBOLS

N: *Standard "N" penetration value. Blows per foot of a 140-lb hammer falling 30" on a 2" O.D. split-spoon.*

Qu: *Unconfined Compressive Strength, tsf* PP: *Pocket Penetrometer, tsf*

LL: *Liquid Limit, %* PL: *Plastic Limit, %* PI: *Plasticity Index, %*

DRILLING AND SAMPLING SYMBOLS

GROUNDWATER SYMBOLS

○ *Apparent water level noted while drilling.*

▽ *Apparent water level noted upon completion.*

▼ *Apparent water level noted upon delayed time.*

SAMPLER SYMBOLS


MC: Macro Core

RELATIVE DENSITY & CONSISTANCY CLASSIFICATION (NON-COHESIVE SOILS)

TERM	*BLOWS PER FOOT*
Very Loose	0 - 5
Loose	6 - 10
Medium Dense	11 - 30
Dense	31 - 50
Very Dense	>51

RELATIVE DENSITY & CONSISTANCY CLASSIFICATION (COHESIVE SOILS)

TERM	*BLOWS PER FOOT*
Very Soft	0 - 3
Soft	4 - 5
Medium Stiff	6 - 10
Stiff	11 - 15
Very Stiff	16 - 30
Hard	>31

Alt & Witzig Engineering, Inc.
4105 West 99th St.
Carmel, IN 46032
Telephone:
Fax:

GENERAL NOTES

Project: Proposed Bus Lot Improvements - HSE

Location: Fishers, IN

Number: 26IN0067

United States Department of Agriculture

NRCS

Natural Resources Conservation Service

A product of the National Cooperative Soil Survey, a joint effort of the United States Department of Agriculture and other Federal agencies, State agencies including the Agricultural Experiment Stations, and local participants

Custom Soil Resource Report for Hamilton County, Indiana



February 5, 2026

Preface

Soil surveys contain information that affects land use planning in survey areas. They highlight soil limitations that affect various land uses and provide information about the properties of the soils in the survey areas. Soil surveys are designed for many different users, including farmers, ranchers, foresters, agronomists, urban planners, community officials, engineers, developers, builders, and home buyers. Also, conservationists, teachers, students, and specialists in recreation, waste disposal, and pollution control can use the surveys to help them understand, protect, or enhance the environment.

Various land use regulations of Federal, State, and local governments may impose special restrictions on land use or land treatment. Soil surveys identify soil properties that are used in making various land use or land treatment decisions. The information is intended to help the land users identify and reduce the effects of soil limitations on various land uses. The landowner or user is responsible for identifying and complying with existing laws and regulations.

Although soil survey information can be used for general farm, local, and wider area planning, onsite investigation is needed to supplement this information in some cases. Examples include soil quality assessments (http://www.nrcs.usda.gov/wps/portal/nrcs/main/soils/health/) and certain conservation and engineering applications. For more detailed information, contact your local USDA Service Center (https://offices.sc.egov.usda.gov/locator/app?agency=nrcs) or your NRCS State Soil Scientist (http://www.nrcs.usda.gov/wps/portal/nrcs/detail/soils/contactus/?cid=nrcs142p2_053951).

Great differences in soil properties can occur within short distances. Some soils are seasonally wet or subject to flooding. Some are too unstable to be used as a foundation for buildings or roads. Clayey or wet soils are poorly suited to use as septic tank absorption fields. A high water table makes a soil poorly suited to basements or underground installations.

The National Cooperative Soil Survey is a joint effort of the United States Department of Agriculture and other Federal agencies, State agencies including the Agricultural Experiment Stations, and local agencies. The Natural Resources Conservation Service (NRCS) has leadership for the Federal part of the National Cooperative Soil Survey.

Information about soils is updated periodically. Updated information is available through the NRCS Web Soil Survey, the site for official soil survey information.

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Contents

Preface.....2
How Soil Surveys Are Made.....5
Soil Map.....8
Soil Map.....9
Legend.....10
Map Unit Legend.....11
Map Unit Descriptions.....11
Hamilton County, Indiana.....13
YbvA—Brookston silty clay loam-Urban land complex, 0 to 2 percent slopes.....13
YclA—Crosby silt loam, fine-loamy subsoil-Urban land complex, 0 to 2 percent slopes.....14
YmsB2—Miami silt loam-Urban land complex, 2 to 6 percent slopes, eroded.....16
References.....19

How Soil Surveys Are Made

Soil surveys are made to provide information about the soils and miscellaneous areas in a specific area. They include a description of the soils and miscellaneous areas and their location on the landscape and tables that show soil properties and limitations affecting various uses. Soil scientists observed the steepness, length, and shape of the slopes; the general pattern of drainage; the kinds of crops and native plants; and the kinds of bedrock. They observed and described many soil profiles. A soil profile is the sequence of natural layers, or horizons, in a soil. The profile extends from the surface down into the unconsolidated material in which the soil formed or from the surface down to bedrock. The unconsolidated material is devoid of roots and other living organisms and has not been changed by other biological activity.

Currently, soils are mapped according to the boundaries of major land resource areas (MLRAs). MLRAs are geographically associated land resource units that share common characteristics related to physiography, geology, climate, water resources, soils, biological resources, and land uses (USDA, 2006). Soil survey areas typically consist of parts of one or more MLRA.

The soils and miscellaneous areas in a survey area occur in an orderly pattern that is related to the geology, landforms, relief, climate, and natural vegetation of the area. Each kind of soil and miscellaneous area is associated with a particular kind of landform or with a segment of the landform. By observing the soils and miscellaneous areas in the survey area and relating their position to specific segments of the landform, a soil scientist develops a concept, or model, of how they were formed. Thus, during mapping, this model enables the soil scientist to predict with a considerable degree of accuracy the kind of soil or miscellaneous area at a specific location on the landscape.

Commonly, individual soils on the landscape merge into one another as their characteristics gradually change. To construct an accurate soil map, however, soil scientists must determine the boundaries between the soils. They can observe only a limited number of soil profiles. Nevertheless, these observations, supplemented by an understanding of the soil-vegetation-landscape relationship, are sufficient to verify predictions of the kinds of soil in an area and to determine the boundaries.

Soil scientists recorded the characteristics of the soil profiles that they studied. They noted soil color, texture, size and shape of soil aggregates, kind and amount of rock fragments, distribution of plant roots, reaction, and other features that enable them to identify soils. After describing the soils in the survey area and determining their properties, the soil scientists assigned the soils to taxonomic classes (units). Taxonomic classes are concepts. Each taxonomic class has a set of soil characteristics with precisely defined limits. The classes are used as a basis for comparison to classify soils systematically. Soil taxonomy, the system of taxonomic classification used in the United States, is based mainly on the kind and character of soil properties and the arrangement of horizons within the profile. After the soil

scientists classified and named the soils in the survey area, they compared the individual soils with similar soils in the same taxonomic class in other areas so that they could confirm data and assemble additional data based on experience and research.

The objective of soil mapping is not to delineate pure map unit components; the objective is to separate the landscape into landforms or landform segments that have similar use and management requirements. Each map unit is defined by a unique combination of soil components and/or miscellaneous areas in predictable proportions. Some components may be highly contrasting to the other components of the map unit. The presence of minor components in a map unit in no way diminishes the usefulness or accuracy of the data. The delineation of such landforms and landform segments on the map provides sufficient information for the development of resource plans. If intensive use of small areas is planned, onsite investigation is needed to define and locate the soils and miscellaneous areas.

Soil scientists make many field observations in the process of producing a soil map. The frequency of observation is dependent upon several factors, including scale of mapping, intensity of mapping, design of map units, complexity of the landscape, and experience of the soil scientist. Observations are made to test and refine the soil-landscape model and predictions and to verify the classification of the soils at specific locations. Once the soil-landscape model is refined, a significantly smaller number of measurements of individual soil properties are made and recorded. These measurements may include field measurements, such as those for color, depth to bedrock, and texture, and laboratory measurements, such as those for content of sand, silt, clay, salt, and other components. Properties of each soil typically vary from one point to another across the landscape.

Observations for map unit components are aggregated to develop ranges of characteristics for the components. The aggregated values are presented. Direct measurements do not exist for every property presented for every map unit component. Values for some properties are estimated from combinations of other properties.

While a soil survey is in progress, samples of some of the soils in the area generally are collected for laboratory analyses and for engineering tests. Soil scientists interpret the data from these analyses and tests as well as the field-observed characteristics and the soil properties to determine the expected behavior of the soils under different uses. Interpretations for all of the soils are field tested through observation of the soils in different uses and under different levels of management. Some interpretations are modified to fit local conditions, and some new interpretations are developed to meet local needs. Data are assembled from other sources, such as research information, production records, and field experience of specialists. For example, data on crop yields under defined levels of management are assembled from farm records and from field or plot experiments on the same kinds of soil.

Predictions about soil behavior are based not only on soil properties but also on such variables as climate and biological activity. Soil conditions are predictable over long periods of time, but they are not predictable from year to year. For example, soil scientists can predict with a fairly high degree of accuracy that a given soil will have a high water table within certain depths in most years, but they cannot predict that a high water table will always be at a specific level in the soil on a specific date.

After soil scientists located and identified the significant natural bodies of soil in the survey area, they drew the boundaries of these bodies on aerial photographs and

identified each as a specific map unit. Aerial photographs show trees, buildings, fields, roads, and rivers, all of which help in locating boundaries accurately.

Soil Map

The soil map section includes the soil map for the defined area of interest, a list of soil map units on the map and extent of each map unit, and cartographic symbols displayed on the map. Also presented are various metadata about data used to produce the map, and a description of each soil map unit.

Custom Soil Resource Report
Soil Map



Map Scale: 1:1,680 if printed on A landscape (11" x 8.5") sheet.

N

Meters: 0 20 40 80 120

Feet: 0 50 100 200 300

Map projection: Web Mercator Corner coordinates: WGS84 Edge tics: UTM Zone 16N WGS84

MAP LEGEND

Area of Interest (AOI)
- Area of Interest (AOI)

Soils
- Soil Map Unit Polygons
- Soil Map Unit Lines
- Soil Map Unit Points

Special Point Features
- Blowout
- Borrow Pit
- Clay Spot
- Closed Depression
- Gravel Pit
- Gravelly Spot
- Landfill
- Lava Flow
- Marsh or swamp
- Mine or Quarry
- Miscellaneous Water
- Perennial Water
- Rock Outcrop
- Saline Spot
- Sandy Spot
- Severely Eroded Spot
- Sinkhole
- Slide or Slip
- Sodic Spot
- Spoil Area
- Stony Spot
- Very Stony Spot
- Wet Spot
- Other
- Special Line Features

Water Features
- Streams and Canals

Transportation
- Rails
- Interstate Highways
- US Routes
- Major Roads
- Local Roads

Background
- Aerial Photography

MAP INFORMATION

The soil surveys that comprise your AOI were mapped at 1:15,800.

Warning: Soil Map may not be valid at this scale.

Enlargement of maps beyond the scale of mapping can cause misunderstanding of the detail of mapping and accuracy of soil line placement. The maps do not show the small areas of contrasting soils that could have been shown at a more detailed scale.

Please rely on the bar scale on each map sheet for map measurements.

Source of Map: Natural Resources Conservation Service
Web Soil Survey URL:
Coordinate System: Web Mercator (EPSG:3857)

Maps from the Web Soil Survey are based on the Web Mercator projection, which preserves direction and shape but distorts distance and area. A projection that preserves area, such as the Albers equal-area conic projection, should be used if more accurate calculations of distance or area are required.

This product is generated from the USDA-NRCS certified data as of the version date(s) listed below.

Soil Survey Area: Hamilton County, Indiana
Survey Area Data: Version 26, Sep 4, 2025

Soil map units are labeled (as space allows) for map scales 1:50,000 or larger.

Date(s) aerial images were photographed: Jun 15, 2022—Jun 21, 2022

The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.

Map Unit Legend

Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
YbvA	Brookston silty clay loam-Urban land complex, 0 to 2 percent slopes	2.5	18.6%
YclA	Crosby silt loam, fine-loamy subsoil-Urban land complex, 0 to 2 percent slopes	7.3	53.4%
YmsB2	Miami silt loam-Urban land complex, 2 to 6 percent slopes, eroded	3.8	28.0%
Totals for Area of Interest		**13.6**	**100.0%**

Map Unit Descriptions

The map units delineated on the detailed soil maps in a soil survey represent the soils or miscellaneous areas in the survey area. The map unit descriptions, along with the maps, can be used to determine the composition and properties of a unit.

A map unit delineation on a soil map represents an area dominated by one or more major kinds of soil or miscellaneous areas. A map unit is identified and named according to the taxonomic classification of the dominant soils. Within a taxonomic class there are precisely defined limits for the properties of the soils. On the landscape, however, the soils are natural phenomena, and they have the characteristic variability of all natural phenomena. Thus, the range of some observed properties may extend beyond the limits defined for a taxonomic class. Areas of soils of a single taxonomic class rarely, if ever, can be mapped without including areas of other taxonomic classes. Consequently, every map unit is made up of the soils or miscellaneous areas for which it is named and some minor components that belong to taxonomic classes other than those of the major soils.

Most minor soils have properties similar to those of the dominant soil or soils in the map unit, and thus they do not affect use and management. These are called noncontrasting, or similar, components. They may or may not be mentioned in a particular map unit description. Other minor components, however, have properties and behavioral characteristics divergent enough to affect use or to require different management. These are called contrasting, or dissimilar, components. They generally are in small areas and could not be mapped separately because of the scale used. Some small areas of strongly contrasting soils or miscellaneous areas are identified by a special symbol on the maps. If included in the database for a given area, the contrasting minor components are identified in the map unit descriptions along with some characteristics of each. A few areas of minor components may not have been observed, and consequently they are not mentioned in the descriptions, especially where the pattern was so complex that it was impractical to make enough observations to identify all the soils and miscellaneous areas on the landscape.

The presence of minor components in a map unit in no way diminishes the usefulness or accuracy of the data. The objective of mapping is not to delineate pure taxonomic classes but rather to separate the landscape into landforms or landform segments that have similar use and management requirements. The delineation of such segments on the map provides sufficient information for the development of resource plans. If intensive use of small areas is planned, however, onsite investigation is needed to define and locate the soils and miscellaneous areas.

An identifying symbol precedes the map unit name in the map unit descriptions. Each description includes general facts about the unit and gives important soil properties and qualities.

Soils that have profiles that are almost alike make up a *soil series*. Except for differences in texture of the surface layer, all the soils of a series have major horizons that are similar in composition, thickness, and arrangement.

Soils of one series can differ in texture of the surface layer, slope, stoniness, salinity, degree of erosion, and other characteristics that affect their use. On the basis of such differences, a soil series is divided into *soil phases*. Most of the areas shown on the detailed soil maps are phases of soil series. The name of a soil phase commonly indicates a feature that affects use or management. For example, Alpha silt loam, 0 to 2 percent slopes, is a phase of the Alpha series.

Some map units are made up of two or more major soils or miscellaneous areas. These map units are complexes, associations, or undifferentiated groups.

A *complex* consists of two or more soils or miscellaneous areas in such an intricate pattern or in such small areas that they cannot be shown separately on the maps. The pattern and proportion of the soils or miscellaneous areas are somewhat similar in all areas. Alpha-Beta complex, 0 to 6 percent slopes, is an example.

An *association* is made up of two or more geographically associated soils or miscellaneous areas that are shown as one unit on the maps. Because of present or anticipated uses of the map units in the survey area, it was not considered practical or necessary to map the soils or miscellaneous areas separately. The pattern and relative proportion of the soils or miscellaneous areas are somewhat similar. Alpha-Beta association, 0 to 2 percent slopes, is an example.

An *undifferentiated group* is made up of two or more soils or miscellaneous areas that could be mapped individually but are mapped as one unit because similar interpretations can be made for use and management. The pattern and proportion of the soils or miscellaneous areas in a mapped area are not uniform. An area can be made up of only one of the major soils or miscellaneous areas, or it can be made up of all of them. Alpha and Beta soils, 0 to 2 percent slopes, is an example.

Some surveys include *miscellaneous areas*. Such areas have little or no soil material and support little or no vegetation. Rock outcrop is an example.

Hamilton County, Indiana

YbvA—Brookston silty clay loam-Urban land complex, 0 to 2 percent slopes

Map Unit Setting

National map unit symbol: 2w57n
Landscape: Till plains
Elevation: 600 to 1,260 feet
Mean annual precipitation: 37 to 46 inches
Mean annual air temperature: 48 to 55 degrees F
Frost-free period: 145 to 180 days
Farmland classification: Not prime farmland

Map Unit Composition

Brookston and similar soils: 65 percent
Urban land: 30 percent
Minor components: 5 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Brookston

Setting

Landscape: Till plains
Landform: Depressions, Till plains
Landform position (two-dimensional): Toeslope
Landform position (three-dimensional): Dip
Down-slope shape: Concave, linear
Across-slope shape: Concave
Parent material: Loess over loamy till

Typical profile

Ap - 0 to 16 inches: silty clay loam
Btg1 - 16 to 32 inches: silty clay loam
Btg2 - 32 to 44 inches: loam
C - 44 to 60 inches: loam

Properties and qualities

Slope: 0 to 2 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Poorly drained
Runoff class: Negligible
Capacity of the most limiting layer to transmit water (Ksat): Moderately high (0.20 to 0.60 in/hr)
Depth to water table: About 0 to 12 inches
Frequency of flooding: None
Frequency of ponding: Frequent
Calcium carbonate, maximum content: 40 percent
Maximum salinity: Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)
Available water supply, 0 to 60 inches: Moderate (about 8.9 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 2w
Hydrologic Soil Group: B/D

Ecological site: F111XA007IN - Till Depression Flatwood
Hydric soil rating: Yes

Description of Urban Land

Setting
Landscape: Wisconsin till plains
Anthropogenic Feature: Urban land

Minor Components

Crosby
Percent of map unit: 5 percent
Landscape: Till plains
Landform: Wisconsin till plains
Landform position (two-dimensional): Summit, footslope
Landform position (three-dimensional): Talf
Down-slope shape: Concave
Across-slope shape: Linear
Ecological site: F111XA008IN - Wet Till Ridge
Hydric soil rating: No

YclA—Crosby silt loam, fine-loamy subsoil-Urban land complex, 0 to 2 percent slopes

Map Unit Setting
National map unit symbol: 2w57p
Landscape: Till plains
Elevation: 600 to 1,040 feet
Mean annual precipitation: 36 to 46 inches
Mean annual air temperature: 48 to 55 degrees F
Frost-free period: 145 to 180 days
Farmland classification: Not prime farmland

Map Unit Composition
Crosby and similar soils: 60 percent
Urban land: 30 percent
Minor components: 10 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Crosby

Setting
Landscape: Till plains
Landform: Wisconsin ground moraines, Wisconsin recessionial moraines, Wisconsin water-lain moraines
Landform position (two-dimensional): Summit, backslope, footslope
Landform position (three-dimensional): Interfluve, rise
Down-slope shape: Convex, linear

Across-slope shape: Linear, convex
Parent material: Silty material or loess over loamy till

Typical profile

Ap - 0 to 10 inches: silt loam
Btg - 10 to 17 inches: silty clay loam
2Bt - 17 to 29 inches: clay loam
2BCt - 29 to 36 inches: loam
2Cd - 36 to 79 inches: loam

Properties and qualities

Slope: 0 to 2 percent
Depth to restrictive feature: 24 to 40 inches to densic material
Drainage class: Somewhat poorly drained
Runoff class: Medium
Capacity of the most limiting layer to transmit water (Ksat): Low to moderately high (0.01 to 0.20 in/hr)
Depth to water table: About 6 to 24 inches
Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate, maximum content: 55 percent
Maximum salinity: Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)
Available water supply, 0 to 60 inches: Moderate (about 6.5 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 2w
Hydrologic Soil Group: C/D
Ecological site: F111XA008IN - Wet Till Ridge
Hydric soil rating: No

Description of Urban Land

Setting

Landscape: Wisconsin till plains
Anthropogenic Feature: Urban land

Minor Components

Williamstown, eroded

Percent of map unit: 5 percent
Landscape: Wisconsin till plains
Landform: Wisconsin water-lain moraines, Wisconsin ground moraines, Wisconsin recessionial moraines
Landform position (two-dimensional): Summit, shoulder, backslope
Landform position (three-dimensional): Head slope, nose slope, side slope, crest, rise
Down-slope shape: Convex, linear
Across-slope shape: Linear, convex
Ecological site: F111XA009IN - Till Ridge
Hydric soil rating: No

Treaty, drained

Percent of map unit: 5 percent
Landscape: Till plains
Landform: Depressions, Water-lain moraines, Swales
Landform position (two-dimensional): Footslope, toeslope

Landform position (three-dimensional): Base slope, dip
Down-slope shape: Linear
Across-slope shape: Concave
Ecological site: F111XA007IN - Till Depression Flatwood
Hydric soil rating: Yes

YmsB2—Miami silt loam-Urban land complex, 2 to 6 percent slopes, eroded

Map Unit Setting

National map unit symbol: 2w586
Landscape: Till plains
Elevation: 180 to 1,040 feet
Mean annual precipitation: 37 to 46 inches
Mean annual air temperature: 48 to 55 degrees F
Frost-free period: 145 to 180 days
Farmland classification: Not prime farmland

Map Unit Composition

Miami, eroded, and similar soils: 50 percent
Urban land: 35 percent
Minor components: 15 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Miami, Eroded

Setting

Landscape: Till plains
Landform: Till plains
Landform position (two-dimensional): Shoulder, backslope, footslope
Landform position (three-dimensional): Side slope
Down-slope shape: Convex
Across-slope shape: Linear
Parent material: Loess over loamy till

Typical profile

Ap - 0 to 8 inches: silt loam
Bt - 8 to 13 inches: silty clay loam
2Bt - 13 to 31 inches: clay loam
2BCt - 31 to 36 inches: loam
2Cd - 36 to 79 inches: loam

Properties and qualities

Slope: 2 to 6 percent
Depth to restrictive feature: 24 to 40 inches to densic material
Drainage class: Moderately well drained
Runoff class: High
Capacity of the most limiting layer to transmit water (Ksat): Low to moderately high (0.01 to 0.20 in/hr)

Depth to water table: About 24 to 36 inches
Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate, maximum content: 45 percent
Maximum salinity: Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)
Available water supply, 0 to 60 inches: Low (about 5.8 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 2e
Hydrologic Soil Group: C
Ecological site: F111XA009IN - Till Ridge
Hydric soil rating: No

Description of Urban Land

Setting

Landscape: Wisconsin till plains
Anthropogenic Feature: Urban land

Minor Components

Williamstown

Percent of map unit: 5 percent
Landscape: Till plains
Landform: Till plains
Landform position (two-dimensional): Shoulder, backslope
Landform position (three-dimensional): Side slope
Down-slope shape: Convex
Across-slope shape: Linear
Ecological site: F111XA009IN - Till Ridge
Hydric soil rating: No

Treaty

Percent of map unit: 5 percent
Landscape: Till plains
Landform: Till plains
Landform position (two-dimensional): Toeslope
Landform position (three-dimensional): Dip
Down-slope shape: Concave
Across-slope shape: Concave
Ecological site: F111XA007IN - Till Depression Flatwood
Hydric soil rating: Yes

Crosby

Percent of map unit: 5 percent
Landscape: Till plains
Landform: Till plains
Landform position (two-dimensional): Summit
Landform position (three-dimensional): Interfluve
Down-slope shape: Linear
Across-slope shape: Convex
Ecological site: F111XA008IN - Wet Till Ridge
Hydric soil rating: No

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General Conditions of the Contract for Construction

for the following PROJECT:
(Name and location or address)

Hamilton Southeastern High School Expansion, Renovation and Update Project
12499 Olio Road
Fishers, IN 46037

THE OWNER:
(Name, legal status and address)

Hamilton Southeastern School Corporation
13485 Cumberland Road
Fishers, IN 46038

THE ARCHITECT:
(Name, legal status and address)

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TABLE OF ARTICLES

1 GENERAL PROVISIONS

2 OWNER

3 CONTRACTOR

4 ARCHITECT

5 SUBCONTRACTORS

6 CONSTRUCTION BY OWNER OR BY SEPARATE CONTRACTORS

7 CHANGES IN THE WORK

8 TIME

9 PAYMENTS AND COMPLETION

10 PROTECTION OF PERSONS AND PROPERTY

11 INSURANCE AND BONDS

12 UNCOVERING AND CORRECTION OF WORK

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13 MISCELLANEOUS PROVISIONS

14 TERMINATION OR SUSPENSION OF THE CONTRACT

15 CLAIMS AND DISPUTES

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INDEX
(Topics and numbers in bold are Section headings.)

Acceptance of Nonconforming Work
9.6.6, 9.9.3, **12.3**
Acceptance of Work
9.6.6, 9.8.2, 9.9.3, 9.10.1, 9.10.3, 12.3
Access to Work
3.16, 6.2.1, 12.1
Accident Prevention
10
Acts and Omissions
3.2, 3.3.2, 3.12.8, 3.18, 4.2.3, 8.3.1, 9.5.1, 10.2.5, 10.2.8, 13.3.2, 14.1, 15.1.2, 15.2
Addenda
1.1.1
Additional Costs, Claims for
3.7.4, 3.7.5, 10.3.2, 15.1.5
Additional Inspections and Testing
9.4.2, 9.8.3, 12.2.1, **13.4**
Additional Time, Claims for
3.2.4, 3.7.4, 3.7.5, 3.10.2, 8.3.2, **15.1.6**
Administration of the Contract
3.1.3, **4.2**, 9.4, 9.5
Advertisement or Invitation to Bid
1.1.1
Aesthetic Effect
4.2.13
Allowances
3.8
Applications for Payment
4.2.5, 7.3.9, 9.2, **9.3**, 9.4, 9.5.1, 9.5.4, 9.6.3, 9.7, 9.10
Approvals
2.1.1, 2.3.1, 2.5, 3.1.3, 3.10.2, 3.12.8, 3.12.9, 3.12.10.1, 4.2.7, 9.3.2, 13.4.1
Arbitration
8.3.1, 15.3.2, **15.4**
ARCHITECT
4
Architect, Definition of
4.1.1
Architect, Extent of Authority
2.5, 3.12.7, 4.1.2, 4.2, 5.2, 6.3, 7.1.2, 7.3.4, 7.4, 9.2, 9.3.1, 9.4, 9.5, 9.6.3, 9.8, 9.10.1, 9.10.3, 12.1, 12.2.1, 13.4.1, 13.4.2, 14.2.2, 14.2.4, 15.1.4, 15.2.1
Architect, Limitations of Authority and Responsibility
2.1.1, 3.12.4, 3.12.8, 3.12.10, 4.1.2, 4.2.1, 4.2.2, 4.2.3, 4.2.6, 4.2.7, 4.2.10, 4.2.12, 4.2.13, 5.2.1, 7.4, 9.4.2, 9.5.4, 9.6.4, 15.1.4, 15.2
Architect's Additional Services and Expenses
2.5, 12.2.1, 13.4.2, 13.4.3, 14.2.4
Architect's Administration of the Contract
3.1.3, 3.7.4, 15.2, 9.4.1, 9.5
Architect's Approvals
2.5, 3.1.3, 3.5, 3.10.2, 4.2.7
Architect's Authority to Reject Work
3.5, 4.2.6, 12.1.2, 12.2.1
Architect's Copyright
1.1.7, 1.5
Architect's Decisions
3.7.4, 4.2.6, 4.2.7, 4.2.11, 4.2.12, 4.2.13, 4.2.14, 6.3, 7.3.4, 7.3.9, 8.1.3, 8.3.1, 9.2, 9.4.1, 9.5, 9.8.4, 9.9.1, 13.4.2, 15.2
Architect's Inspections
3.7.4, 4.2.2, 4.2.9, 9.4.2, 9.8.3, 9.9.2, 9.10.1, 13.4
Architect's Instructions
3.2.4, 3.3.1, 4.2.6, 4.2.7, 13.4.2
Architect's Interpretations
4.2.11, 4.2.12
Architect's Project Representative
4.2.10
Architect's Relationship with Contractor
1.1.2, 1.5, 2.3.3, 3.1.3, 3.2.2, 3.2.3, 3.2.4, 3.3.1, 3.4.2, 3.5, 3.7.4, 3.7.5, 3.9.2, 3.9.3, 3.10, 3.11, 3.12, 3.16, 3.18, 4.1.2, 4.2, 5.2, 6.2.2, 7, 8.3.1, 9.2, 9.3, 9.4, 9.5, 9.7, 9.8, 9.9, 10.2.6, 10.3, 11.3, 12, 13.3.2, 13.4, 15.2
Architect's Relationship with Subcontractors
1.1.2, 4.2.3, 4.2.4, 4.2.6, 9.6.3, 9.6.4, 11.3
Architect's Representations
9.4.2, 9.5.1, 9.10.1
Architect's Site Visits
3.7.4, 4.2.2, 4.2.9, 9.4.2, 9.5.1, 9.9.2, 9.10.1, 13.4
Asbestos
10.3.1
Attorneys' Fees
3.18.1, 9.6.8, 9.10.2, 10.3.3
Award of Separate Contracts
6.1.1, 6.1.2
Award of Subcontracts and Other Contracts for Portions of the Work
5.2
Basic Definitions
1.1
Bidding Requirements
1.1.1
Binding Dispute Resolution
8.3.1, 9.7, 11.5, 13.1, 15.1.2, 15.1.3, 15.2.1, 15.2.5, 15.2.6.1, 15.3.1, 15.3.2, 15.3.3, 15.4.1
Bonds, Lien
7.3.4.4, 9.6.8, 9.10.2, 9.10.3
Bonds, Performance, and Payment
7.3.4.4, 9.6.7, 9.10.3, **11.1.2**, 11.1.3, **11.5**
Building Information Models Use and Reliance
1.8
Building Permit
3.7.1
Capitalization
1.3
Certificate of Substantial Completion
9.8.3, 9.8.4, 9.8.5
Certificates for Payment
4.2.1, 4.2.5, 4.2.9, 9.3.3, **9.4**, 9.5, 9.6.1, 9.6.6, 9.7, 9.10.1, 9.10.3, 14.1.1.3, 14.2.4, 15.1.4
Certificates of Inspection, Testing or Approval
13.4.4
Certificates of Insurance
9.10.2
Change Orders

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1.1.1, 3.4.2, 3.7.4, 3.8.2.3, 3.11, 3.12.8, 4.2.8, 5.2.3, 7.1.2, 7.1.3, **7.2**, 7.3.2, 7.3.7, 7.3.9, 7.3.10, 8.3.1, 9.3.1.1, 9.10.3, 10.3.2, 11.2, 11.5, 12.1.2
Change Orders, Definition of
7.2.1
CHANGES IN THE WORK
2.2.2, 3.11, 4.2.8, **7**, 7.2.1, 7.3.1, 7.4, 8.3.1, 9.3.1.1, 11.5
Claims, Definition of
15.1.1
Claims, Notice of
1.6.2, 15.1.3
CLAIMS AND DISPUTES
3.2.4, 6.1.1, 6.3, 7.3.9, 9.3.3, 9.10.4, 10.3.3, **15**, 15.4
Claims and Timely Assertion of Claims
15.4.1
Claims for Additional Cost
3.2.4, 3.3.1, 3.7.4, 7.3.9, 9.5.2, 10.2.5, 10.3.2, **15.1.5**
Claims for Additional Time
3.2.4, 3.3.1, 3.7.4, 6.1.1, 8.3.2, 9.5.2, 10.3.2, **15.1.6**
Concealed or Unknown Conditions, Claims for
3.7.4
Claims for Damages
3.2.4, 3.18, 8.3.3, 9.5.1, 9.6.7, 10.2.5, 10.3.3, 11.3, 11.3.2, 14.2.4, 15.1.7
Claims Subject to Arbitration
15.4.1
Cleaning Up
3.15, 6.3
Commencement of the Work, Conditions Relating to
2.2.1, 3.2.2, 3.4.1, 3.7.1, 3.10.1, 3.12.6, 5.2.1, 5.2.3, 6.2.2, 8.1.2, 8.2.2, 8.3.1, 11.1, 11.2, **15.1.5**
Commencement of the Work, Definition of
8.1.2
Communications
3.9.1, **4.2.4**
Completion, Conditions Relating to
3.4.1, 3.11, 3.15, 4.2.2, 4.2.9, 8.2, 9.4.2, 9.8, 9.9.1, 9.10, 12.2, 14.1.2, 15.1.2
COMPLETION, PAYMENTS AND
9
Completion, Substantial
3.10.1, 4.2.9, 8.1.1, 8.1.3, 8.2.3, 9.4.2, 9.8, 9.9.1, 9.10.3, 12.2, 15.1.2
Compliance with Laws
2.3.2, 3.2.3, 3.6, 3.7, 3.12.10, 3.13, 9.6.4, 10.2.2, 13.1, 13.3, 13.4.1, 13.4.2, 13.5, 14.1.1, 14.2.1.3, 15.2.8, 15.4.2, 15.4.3
Concealed or Unknown Conditions
3.7.4, 4.2.8, 8.3.1, 10.3
Conditions of the Contract
1.1.1, 6.1.1, 6.1.4
Consent, Written
3.4.2, 3.14.2, 4.1.2, 9.8.5, 9.9.1, 9.10.2, 9.10.3, 13.2, 15.4.4.2
Consolidation or Joinder
15.4.4
CONSTRUCTION BY OWNER OR BY
SEPARATE CONTRACTORS
1.1.4, **6**
Construction Change Directive, Definition of
7.3.1
Construction Change Directives
1.1.1, 3.4.2, 3.11, 3.12.8, 4.2.8, 7.1.1, 7.1.2, 7.1.3, **7.3**, 9.3.1.1
Construction Schedules, Contractor's
3.10, 3.11, 3.12.1, 3.12.2, 6.1.3, 15.1.6.2
Contingent Assignment of Subcontracts
5.4, 14.2.2.2
Continuing Contract Performance
15.1.4
Contract, Definition of
1.1.2
CONTRACT, TERMINATION OR
SUSPENSION OF THE
5.4.1.1, 5.4.2, 11.5, **14**
Contract Administration
3.1.3, 4, 9.4, 9.5
Contract Award and Execution, Conditions Relating to
3.7.1, 3.10, 5.2, 6.1
Contract Documents, Copies Furnished and Use of
1.5.2, 2.3.6, 5.3
Contract Documents, Definition of
1.1.1
Contract Sum
2.2.2, 2.2.4, 3.7.4, 3.7.5, 3.8, 3.10.2, 5.2.3, 7.3, 7.4, **9.1**, 9.2, 9.4.2, 9.5.1.4, 9.6.7, 9.7, 10.3.2, 11.5, 12.1.2, 12.3, 14.2.4, 14.3.2, 15.1.4.2, **15.1.5, 15.2.5**
Contract Sum, Definition of
9.1
Contract Time
1.1.4, 2.2.1, 2.2.2, 3.7.4, 3.7.5, 3.10.2, 5.2.3, 6.1.5, 7.2.1.3, 7.3.1, 7.3.5, 7.3.6, 7, 7, 7.3.10, 7.4, 8.1.1, 8.2.1, 8.2.3, 8.3.1, 9.5.1, 9.7, 10.3.2, 12.1.1, 12.1.2, 14.3.2, 15.1.4.2, 15.1.6.1, 15.2.5
Contract Time, Definition of
8.1.1
CONTRACTOR
3
Contractor, Definition of
3.1, 6.1.2
Contractor's Construction and Submittal Schedules
3.10, 3.12.1, 3.12.2, 4.2.3, 6.1.3, 15.1.6.2
Contractor's Employees
2.2.4, 3.3.2, 3.4.3, 3.8.1, 3.9, 3.18.2, 4.2.3, 4.2.6, 10.2, 10.3, 11.3, 14.1, 14.2.1.1
Contractor's Liability Insurance
11.1
Contractor's Relationship with Separate Contractors and Owner's Forces
3.12.5, 3.14.2, 4.2.4, 6, 11.3, 12.2.4
Contractor's Relationship with Subcontractors
1.2.2, 2.2.4, 3.3.2, 3.18.1, 3.18.2, 4.2.4, 5, 9.6.2, 9.6.7, 9.10.2, 11.2, 11.3, 11.4
Contractor's Relationship with the Architect
1.1.2, 1.5, 2.3.3, 3.1.3, 3.2.2, 3.2.3, 3.2.4, 3.3.1, 3.4.2, 3.5.1, 3.7.4, 3.10, 3.11, 3.12, 3.16, 3.18, 4.2, 5.2, 6.2.2, 7, 8.3.1, 9.2, 9.3, 9.4, 9.5, 9.7, 9.8, 9.9, 10.2.6,

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10.3, 11.3, 12, 13.4, 15.1.3, 15.2.1
Contractor's Representations
3.2.1, 3.2.2, 3.5, 3.12.6, 6.2.2, 8.2.1, 9.3.3, 9.8.2
Contractor's Responsibility for Those Performing the Work
3.3.2, 3.18, 5.3, 6.1.3, 6.2, 9.5.1, 10.2.8
Contractor's Review of Contract Documents
3.2
Contractor's Right to Stop the Work
2.2.2, 9.7
Contractor's Right to Terminate the Contract
14.1
Contractor's Submittals
3.10, 3.11, 3.12, 4.2.7, 5.2.1, 5.2.3, 9.2, 9.3, 9.8.2, 9.8.3, 9.9.1, 9.10.2, 9.10.3
Contractor's Superintendent
3.9, 10.2.6
Contractor's Supervision and Construction Procedures
1.2.2, 3.3, 3.4, 3.12.10, 4.2.2, 4.2.7, 6.1.3, 6.2.4, 7.1.3, 7.3.4, 7.3.6, 8.2, 10, 12, 14, 15.1.4
Coordination and Correlation
1.2, 3.2.1, 3.3.1, 3.10, 3.12.6, 6.1.3, 6.2.1
Copies Furnished of Drawings and Specifications
1.5, 2.3.6, 3.11
Copyrights
1.5, **3.17**
Correction of Work
2.5, 3.7.3, 9.4.2, 9.8.2, 9.8.3, 9.9.1, 12.1.2, **12.2**, 12.3, 15.1.3.1, 15.1.3.2, 15.2.1
Correlation and Intent of the Contract Documents
1.2
Cost, Definition of
7.3.4
Costs
2.5, 3.2.4, 3.7.3, 3.8.2, 3.15.2, 5.4.2, 6.1.1, 6.2.3, 7.3.3.3, 7.3.4, 7.3.8, 7.3.9, 9.10.2, 10.3.2, 10.3.6, 11.2, 12.1.2, 12.2.1, 12.2.4, 13.4, 14
Cutting and Patching
3.14, 6.2.5
Damage to Construction of Owner or Separate Contractors
3.14.2, 6.2.4, 10.2.1.2, 10.2.5, 10.4, 12.2.4
Damage to the Work
3.14.2, 9.9.1, 10.2.1.2, 10.2.5, 10.4, 12.2.4
Damages, Claims for
3.2.4, 3.18, 6.1.1, 8.3.3, 9.5.1, 9.6.7, 10.3.3, 11.3.2, 11.3, 14.2.4, 15.1.7
Damages for Delay
6.2.3, 8.3.3, 9.5.1.6, 9.7, 10.3.2, 14.3.2
Date of Commencement of the Work, Definition of
8.1.2
Date of Substantial Completion, Definition of
8.1.3
Day, Definition of
8.1.4
Decisions of the Architect
3.7.4, 4.2.6, 4.2.7, 4.2.11, 4.2.12, 4.2.13, 6.3, 7.3.4, 7.3.9, 8.1.3, 8.3.1, 9.2, 9.4, 9.5.1, 9.8.4, 9.9.1, 13.4.2, 14.2.2, 14.2.4, 15.1, 15.2
Decisions to Withhold Certification
9.4.1, **9.5**, 9.7, 14.1.1.3
Defective or Nonconforming Work, Acceptance, Rejection and Correction of
2.5, 3.5, 4.2.6, 6.2.3, 9.5.1, 9.5.3, 9.6.6, 9.8.2, 9.9.3, 9.10.4, 12.2.1
Definitions
1.1, 2.1.1, 3.1.1, 3.5, 3.12.1, 3.12.2, 3.12.3, 4.1.1, 5.1, 6.1.2, 7.2.1, 7.3.1, 8.1, 9.1, 9.8.1, 15.1.1
Delays and Extensions of Time
3.2, **3.7.4**, 5.2.3, 7.2.1, 7.3.1, **7.4**, **8.3**, 9.5.1, **9.7**, 10.3.2, **10.4**, 14.3.2, **15.1.6**, 15.2.5
Digital Data Use and Transmission
1.7
Disputes
6.3, 7.3.9, 15.1, 15.2
Documents and Samples at the Site
3.11
Drawings, Definition of
1.1.5
Drawings and Specifications, Use and Ownership of
3.11
Effective Date of Insurance
8.2.2
Emergencies
10.4, 14.1.1.2, **15.1.5**
Employees, Contractor's
3.3.2, 3.4.3, 3.8.1, 3.9, 3.18.2, 4.2.3, 4.2.6, 10.2, 10.3.3, 11.3, 14.1, 14.2.1.1
Equipment, Labor, or Materials
1.1.3, 1.1.6, 3.4, 3.5, 3.8.2, 3.8.3, 3.12, 3.13, 3.15.1, 4.2.6, 4.2.7, 5.2.1, 6.2.1, 7.3.4, 9.3.2, 9.3.3, 9.5.1.3, 9.10.2, 10.2.1, 10.2.4, 14.2.1.1, 14.2.1.2
Execution and Progress of the Work
1.1.3, 1.2.1, 1.2.2, 2.3.4, 2.3.6, 3.1, 3.3.1, 3.4.1, 3.7.1, 3.10.1, 3.12, 3.14, 4.2, 6.2.2, 7.1.3, 7.3.6, 8.2, 9.5.1, 9.9.1, 10.2, 10.3, 12.1, 12.2, 14.2, 14.3.1, 15.1.4
Extensions of Time
3.2.4, 3.7.4, 5.2.3, 7.2.1, 7.3, 7.4, 9.5.1, 9.7, 10.3.2, 10.4, 14.3, 15.1.6, **15.2.5**
Failure of Payment
9.5.1.3, **9.7**, 9.10.2, 13.5, 14.1.1.3, 14.2.1.2
Faulty Work
(See Defective or Nonconforming Work)
Final Completion and Final Payment
4.2.1, 4.2.9, 9.8.2, **9.10**, 12.3, 14.2.4, 14.4.3
Financial Arrangements, Owner's
2.2.1, 13.2.2, 14.1.1.4
GENERAL PROVISIONS
1
Governing Law
13.1
Guarantees (See Warranty)
Hazardous Materials and Substances
10.2.4, **10.3**
Identification of Subcontractors and Suppliers
5.2.1
Indemnification
3.17, **3.18**, 9.6.8, 9.10.2, 10.3.3, 11.3
Information and Services Required of the Owner

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2.1.2, **2.2**, 2.3, 3.2.2, 3.12.10.1, 6.1.3, 6.1.4, 6.2.5, 9.6.1, 9.9.2, 9.10.3, 10.3.3, 11.2, 13.4.1, 13.4.2, 14.1.1.4, 14.1.4, 15.1.4
Initial Decision
15.2
Initial Decision Maker, Definition of
1.1.8
Initial Decision Maker, Decisions
14.2.4, 15.1.4.2, 15.2.1, 15.2.2, 15.2.3, 15.2.4, 15.2.5
Initial Decision Maker, Extent of Authority
14.2.4, 15.1.4.2, 15.2.1, 15.2.2, 15.2.3, 15.2.4, 15.2.5
Injury or Damage to Person or Property
10.2.8, 10.4
Inspections
3.1.3, 3.3.3, 3.7.1, 4.2.2, 4.2.6, 4.2.9, 9.4.2, 9.8.3, 9.9.2, 9.10.1, 12.2.1, 13.4
Instructions to Bidders
1.1.1
Instructions to the Contractor
3.2.4, 3.3.1, 3.8.1, 5.2.1, 7, 8.2.2, 12, 13.4.2
Instruments of Service, Definition of
1.1.7
Insurance
6.1.1, 7.3.4, 8.2.2, 9.3.2, 9.8.4, 9.9.1, 9.10.2, 10.2.5, **11**
Insurance, Notice of Cancellation or Expiration
11.1.4, 11.2.3
Insurance, Contractor's Liability
11.1
Insurance, Effective Date of
8.2.2, 14.4.2
Insurance, Owner's Liability
11.2
Insurance, Property
10.2.5, 11.2, 11.4, 11.5
Insurance, Stored Materials
9.3.2
INSURANCE AND BONDS
11
Insurance Companies, Consent to Partial Occupancy
9.9.1
Insured loss, Adjustment and Settlement of
11.5
Intent of the Contract Documents
1.2.1, 4.2.7, 4.2.12, 4.2.13
Interest
13.5
Interpretation
1.1.8, 1.2.3, **1.4**, 4.1.1, 5.1, 6.1.2, 15.1.1
Interpretations, Written
4.2.11, 4.2.12
Judgment on Final Award
15.4.2
Labor and Materials, Equipment
1.1.3, 1.1.6, **3.4**, 3.5, 3.8.2, 3.8.3, 3.12, 3.13, 3.15.1, 5.2.1, 6.2.1, 7.3.4, 9.3.2, 9.3.3, 9.5.1.3, 9.10.2, 10.2.1, 10.2.4, 14.2.1.1, 14.2.1.2
Labor Disputes
8.3.1
Laws and Regulations
1.5, 2.3.2, 3.2.3, 3.2.4, 3.6, 3.7, 3.12.10, 3.13, 9.6.4, 9.9.1, 10.2.2, 13.1, 13.3.1, 13.4.2, 13.5, 14, 15.2.8, 15.4
Liens
2.1.2, 9.3.1, 9.3.3, 9.6.8, 9.10.2, 9.10.4, 15.2.8
Limitations, Statutes of
12.2.5, 15.1.2, 15.4.1.1
Limitations of Liability
3.2.2, 3.5, 3.12.10, 3.12.10.1, 3.17, 3.18.1, 4.2.6, 4.2.7, 6.2.2, 9.4.2, 9.6.4, 9.6.7, 9.6.8, 10.2.5, 10.3.3, 11.3, 12.2.5, 13.3.1
Limitations of Time
2.1.2, 2.2, 2.5, 3.2.2, 3.10, 3.11, 3.12.5, 3.15.1, 4.2.7, 5.2, 5.3, 5.4.1, 6.2.4, 7.3, 7.4, 8.2, 9.2, 9.3.1, 9.3.3, 9.4.1, 9.5, 9.6, 9.7, 9.8, 9.9, 9.10, 12.2, 13.4, 14, 15, 15.1.2, 15.1.3, 15.1.5
Materials, Hazardous
10.2.4, **10.3**
Materials, Labor, Equipment and
1.1.3, 1.1.6, 3.4.1, 3.5, 3.8.2, 3.8.3, 3.12, 3.13, 3.15.1, 5.2.1, 6.2.1, 7.3.4, 9.3.2, 9.3.3, 9.5.1.3, 9.10.2, 10.2.1.2, 10.2.4, 14.2.1.1, 14.2.1.2
Means, Methods, Techniques, Sequences and Procedures of Construction
3.3.1, 3.12.10, 4.2.2, 4.2.7, 9.4.2
Mechanic's Lien
2.1.2, 9.3.1, 9.3.3, 9.6.8, 9.10.2, 9.10.4, 15.2.8
Mediation
8.3.1, 15.1.3.2, 15.2.1, 15.2.5, 15.2.6, **15.3**, 15.4.1, 15.4.1.1
Minor Changes in the Work
1.1.1, 3.4.2, 3.12.8, 4.2.8, 7.1, **7.4**
MISCELLANEOUS PROVISIONS
13
Modifications, Definition of
1.1.1
Modifications to the Contract
1.1.1, 1.1.2, 2.5, 3.11, 4.1.2, 4.2.1, 5.2.3, 7, 8.3.1, 9.7, 10.3.2
Mutual Responsibility
6.2
Nonconforming Work, Acceptance of
9.6.6, 9.9.3, **12.3**
Nonconforming Work, Rejection and Correction of
2.4, 2.5, 3.5, 4.2.6, 6.2.4, 9.5.1, 9.8.2, 9.9.3, 9.10.4, 12.2
Notice
1.6, 1.6.1, 1.6.2, 2.1.2, 2.2.2., 2.2.3, 2.2.4, 2.5, 3.2.4, 3.3.1, 3.7.4, 3.7.5, 3.9.2, 3.12.9, 3.12.10, 5.2.1, 7.4, 8.2.2 9.6.8, 9.7, 9.10.1, 10.2.8, 10.3.2, 11.5, 12.2.2.1, 13.4.1, 13.4.2, 14.1, 14.2.2, 14.4.2, 15.1.3, 15.1.5, 15.1.6, 15.4.1
Notice of Cancellation or Expiration of Insurance
11.1.4, 11.2.3
Notice of Claims
1.6.2, 2.1.2, 3.7.4, 9.6.8, 10.2.8, **15.1.3**, 15.1.5, 15.1.6, 15.2.8, 15.3.2, 15.4.1
Notice of Testing and Inspections
13.4.1, 13.4.2
Observations, Contractor's

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3.2, 3.7.4
Occupancy
2.3.1, 9.6.6, 9.8
Orders, Written
1.1.1, 2.4, 3.9.2, 7, 8.2.2, 11.5, 12.1, 12.2.2.1, 13.4.2, 14.3.1
OWNER
2
Owner, Definition of
2.1.1
Owner, Evidence of Financial Arrangements
2.2, 13.2.2, 14.1.1.4
Owner, Information and Services Required of the
2.1.2, **2.2**, 2.3, 3.2.2, 3.12.10, 6.1.3, 6.1.4, 6.2.5, 9.3.2, 9.6.1, 9.6.4, 9.9.2, 9.10.3, 10.3.3, 11.2, 13.4.1, 13.4.2, 14.1.1.4, 14.1.4, 15.1.4
Owner's Authority
1.5, 2.1.1, 2.3.32.4, 2.5, 3.4.2, 3.8.1, 3.12.10, 3.14.2, 4.1.2, 4.2.4, 4.2.9, 5.2.1, 5.2.4, 5.4.1, 6.1, 6.3, 7.2.1, 7.3.1, 8.2.2, 8.3.1, 9.3.2, 9.5.1, 9.6.4, 9.9.1, 9.10.2, 10.3.2, 11.4, 11.5, 12.2.2, 12.3, 13.2.2, 14.3, 14.4, 15.2.7
Owner's Insurance
11.2
Owner's Relationship with Subcontractors
1.1.2, 5.2, 5.3, 5.4, 9.6.4, 9.10.2, 14.2.2
Owner's Right to Carry Out the Work
2.5, 14.2.2
Owner's Right to Clean Up
6.3
Owner's Right to Perform Construction and to Award Separate Contracts
6.1
Owner's Right to Stop the Work
2.4
Owner's Right to Suspend the Work
14.3
Owner's Right to Terminate the Contract
14.2, 14.4
Ownership and Use of Drawings, Specifications and Other Instruments of Service
1.1.1, 1.1.6, 1.1.7, **1.5**, 2.3.6, 3.2.2, 3.11, 3.17, 4.2.12, 5.3
Partial Occupancy or Use
9.6.6, **9.9**
Patching, Cutting and
3.14, 6.2.5
Patents
3.17
Payment, Applications for
4.2.5, 7.3.9, 9.2, **9.3**, 9.4, 9.5, 9.6.3, 9.7, 9.8.5, 9.10.1, 14.2.3, 14.2.4, 14.4.3
Payment, Certificates for
4.2.5, 4.2.9, 9.3.3, **9.4**, 9.5, 9.6.1, 9.6.6, 9.7, 9.10.1, 9.10.3, 14.1.1.3, 14.2.4
Payment, Failure of
9.5.1.3, **9.7**, 9.10.2, 13.5, 14.1.1.3, 14.2.1.2
Payment, Final
4.2.1, 4.2.9, **9.10**, 12.3, 14.2.4, 14.4.3
Payment Bond, Performance Bond and
7.3.4.4, 9.6.7, 9.10.3, **11.1.2**
Payments, Progress
9.3, **9.6**, 9.8.5, 9.10.3, 14.2.3, 15.1.4
PAYMENTS AND COMPLETION
9
Payments to Subcontractors
5.4.2, 9.5.1.3, 9.6.2, 9.6.3, 9.6.4, 9.6.7, 14.2.1.2
PCB
10.3.1
Performance Bond and Payment Bond
7.3.4.4, 9.6.7, 9.10.3, **11.1.2**
Permits, Fees, Notices and Compliance with Laws
2.3.1, **3.7**, 3.13, 7.3.4.4, 10.2.2
PERSONS AND PROPERTY, PROTECTION OF
10
Polychlorinated Biphenyl
10.3.1
Product Data, Definition of
3.12.2
Product Data and Samples, Shop Drawings
3.11, **3.12**, 4.2.7
Progress and Completion
4.2.2, **8.2**, 9.8, 9.9.1, 14.1.4, 15.1.4
Progress Payments
9.3, **9.6**, 9.8.5, 9.10.3, 14.2.3, 15.1.4
Project, Definition of
1.1.4
Project Representatives
4.2.10
Property Insurance
10.2.5, **11.2**
Proposal Requirements
1.1.1
PROTECTION OF PERSONS AND PROPERTY
10
Regulations and Laws
1.5, 2.3.2, 3.2.3, 3.6, 3.7, 3.12.10, 3.13, 9.6.4, 9.9.1, 10.2.2, 13.1, 13.3, 13.4.1, 13.4.2, 13.5, 14, 15.2.8, 15.4
Rejection of Work
4.2.6, 12.2.1
Releases and Waivers of Liens
9.3.1, 9.10.2
Representations
3.2.1, 3.5, 3.12.6, 8.2.1, 9.3.3, 9.4.2, 9.5.1, 9.10.1
Representatives
2.1.1, 3.1.1, 3.9, 4.1.1, 4.2.10, 13.2.1
Responsibility for Those Performing the Work
3.3.2, 3.18, 4.2.2, 4.2.3, 5.3, 6.1.3, 6.2, 6.3, 9.5.1, 10
Retainage
9.3.1, 9.6.2, 9.8.5, 9.9.1, 9.10.2, 9.10.3
Review of Contract Documents and Field Conditions by Contractor
3.2, 3.12.7, 6.1.3
Review of Contractor's Submittals by Owner and Architect
3.10.1, 3.10.2, 3.11, 3.12, 4.2, 5.2, 6.1.3, 9.2, 9.8.2
Review of Shop Drawings, Product Data and Samples by Contractor

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3.12
Rights and Remedies
1.1.2, 2.4, 2.5, 3.5, 3.7.4, 3.15.2, 4.2.6, 5.3, 5.4, 6.1, 6.3, 7.3.1, 8.3, 9.5.1, 9.7, 10.2.5, 10.3, 12.2.1, 12.2.2, 12.2.4, **13.3**, 14, 15.4
Royalties, Patents and Copyrights
3.17
Rules and Notices for Arbitration
15.4.1
Safety of Persons and Property
10.2, 10.4
Safety Precautions and Programs
3.3.1, 4.2.2, 4.2.7, 5.3, **10.1**, 10.2, 10.4
Samples, Definition of
3.12.3
Samples, Shop Drawings, Product Data and
3.11, **3.12**, 4.2.7
Samples at the Site, Documents and
3.11
Schedule of Values
9.2, 9.3.1
Schedules, Construction
3.10, 3.12.1, 3.12.2, 6.1.3, 15.1.6.2
Separate Contracts and Contractors
1.1.4, 3.12.5, 3.14.2, 4.2.4, 4.2.7, 6, 8.3.1, 12.1.2
Separate Contractors, Definition of
6.1.1
Shop Drawings, Definition of
3.12.1
Shop Drawings, Product Data and Samples
3.11, **3.12**, 4.2.7
Site, Use of
3.13, 6.1.1, 6.2.1
Site Inspections
3.2.2, 3.3.3, 3.7.1, 3.7.4, 4.2, 9.9.2, 9.4.2, 9.10.1, 13.4
Site Visits, Architect's
3.7.4, 4.2.2, 4.2.9, 9.4.2, 9.5.1, 9.9.2, 9.10.1, 13.4
Special Inspections and Testing
4.2.6, 12.2.1, 13.4
Specifications, Definition of
1.1.6
Specifications
1.1.1, **1.1.6**, 1.2.2, 1.5, 3.12.10, 3.17, 4.2.14
Statute of Limitations
15.1.2, 15.4.1.1
Stopping the Work
2.2.2, 2.4, 9.7, 10.3, 14.1
Stored Materials
6.2.1, 9.3.2, 10.2.1.2, 10.2.4
Subcontractor, Definition of
5.1.1
SUBCONTRACTORS
5
Subcontractors, Work by
1.2.2, 3.3.2, 3.12.1, 3.18, 4.2.3, 5.2.3, 5.3, 5.4, 9.3.1.2, 9.6.7
Subcontractual Relations
5.3, 5.4, 9.3.1.2, 9.6, 9.10, 10.2.1, 14.1, 14.2.1
Submittals
3.10, 3.11, 3.12, 4.2.7, 5.2.1, 5.2.3, 7.3.4, 9.2, 9.3, 9.8, 9.9.1, 9.10.2, 9.10.3
Submittal Schedule
3.10.2, 3.12.5, 4.2.7
Subrogation, Waivers of
6.1.1, **11.3**
Substances, Hazardous
10.3
Substantial Completion
4.2.9, 8.1.1, 8.1.3, 8.2.3, 9.4.2, **9.8**, 9.9.1, 9.10.3, 12.2, 15.1.2
Substantial Completion, Definition of
9.8.1
Substitution of Subcontractors
5.2.3, 5.2.4
Substitution of Architect
2.3.3
Substitutions of Materials
3.4.2, 3.5, 7.3.8
Sub-subcontractor, Definition of
5.1.2
Subsurface Conditions
3.7.4
Successors and Assigns
13.2
Superintendent
3.9, 10.2.6
Supervision and Construction Procedures
1.2.2, **3.3**, 3.4, 3.12.10, 4.2.2, 4.2.7, 6.1.3, 6.2.4, 7.1.3, 7.3.4, 8.2, 8.3.1, 9.4.2, 10, 12, 14, 15.1.4
Suppliers
1.5, 3.12.1, 4.2.4, 4.2.6, 5.2.1, 9.3, 9.4.2, 9.5.4, 9.6, 9.10.5, 14.2.1
Surety
5.4.1.2, 9.6.8, 9.8.5, 9.10.2, 9.10.3, 11.1.2, 14.2.2, 15.2.7
Surety, Consent of
9.8.5, 9.10.2, 9.10.3
Surveys
1.1.7, 2.3.4
Suspension by the Owner for Convenience
14.3
Suspension of the Work
3.7.5, 5.4.2, 14.3
Suspension or Termination of the Contract
5.4.1.1, 14
Taxes
3.6, 3.8.2.1, 7.3.4.4
Termination by the Contractor
14.1, 15.1.7
Termination by the Owner for Cause
5.4.1.1, **14.2,** 15.1.7
Termination by the Owner for Convenience
14.4
Termination of the Architect
2.3.3
Termination of the Contractor Employment
14.2.2

TERMINATION OR SUSPENSION OF THE CONTRACT

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14
Tests and Inspections
3.1.3, 3.3.3, 3.7.1, 4.2.2, 4.2.6, 4.2.9, 9.4.2, 9.8.3, 9.9.2, 9.10.1, 10.3.2, 12.2.1, **13.4**
TIME
8
Time, Delays and Extensions of
3.2.4, 3.7.4, 5.2.3, 7.2.1, 7.3.1, 7.4, **8.3**, 9.5.1, 9.7, 10.3.2, 10.4, 14.3.2, 15.1.6, 15.2.5
Time Limits
2.1.2, 2.2, 2.5, 3.2.2, 3.10, 3.11, 3.12.5, 3.15.1, 4.2, 5.2, 5.3, 5.4, 6.2.4, 7.3, 7.4, 8.2, 9.2, 9.3.1, 9.3.3, 9.4.1, 9.5, 9.6, 9.7, 9.8, 9.9, 9.10, 12.2, 13.4, 14, 15.1.2, 15.1.3, 15.4
Time Limits on Claims
3.7.4, 10.2.8, 15.1.2, 15.1.3
Title to Work
9.3.2, 9.3.3
UNCOVERING AND CORRECTION OF WORK
12
Uncovering of Work
12.1
Unforeseen Conditions, Concealed or Unknown
3.7.4, 8.3.1, 10.3
Unit Prices
7.3.3.2, 9.1.2
Use of Documents
1.1.1, 1.5, 2.3.6, 3.12.6, 5.3
Use of Site
3.13, 6.1.1, 6.2.1
Values, Schedule of
9.2, 9.3.1
Waiver of Claims by the Architect
13.3.2
Waiver of Claims by the Contractor
9.10.5, 13.3.2, **15.1.7**
Waiver of Claims by the Owner
9.9.3, 9.10.3, 9.10.4, 12.2.2.1, 13.3.2, 14.2.4, **15.1.7**
Waiver of Consequential Damages
14.2.4, 15.1.7
Waiver of Liens
9.3, 9.10.2, 9.10.4
Waivers of Subrogation
6.1.1, **11.3**
Warranty
3.5, 4.2.9, 9.3.3, 9.8.4, 9.9.1, 9.10.2, 9.10.4, 12.2.2, 15.1.2
Weather Delays
8.3, 15.1.6.2
Work, Definition of
1.1.3
Written Consent
1.5.2, 3.4.2, 3.7.4, 3.12.8, 3.14.2, 4.1.2, 9.3.2, 9.10.3, 13.2, 13.3.2, 15.4.4.2
Written Interpretations
4.2.11, 4.2.12
Written Orders
1.1.1, 2.4, 3.9, 7, 8.2.2, 12.1, 12.2, 13.4.2, 14.3.1

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ARTICLE 1 GENERAL PROVISIONS

§ 1.1 Basic Definitions

§ 1.1.1 The Contract Documents

The Contract Documents are enumerated in the Agreement between the Owner and Contractor (hereinafter the Agreement) and consist of the Agreement, Conditions of the Contract (General, Supplementary and other Conditions), Drawings, Specifications, Addenda issued prior to execution of the Contract, other documents listed in the Agreement, and Modifications issued after execution of the Contract. A Modification is (1) a written amendment to the Contract signed by both parties, (2) a Change Order, (3) a Construction Change Directive, or (4) a written order for a minor change in the Work issued by the Architect. The Contract Documents do not include the advertisement or invitation to bid, Instructions to Bidders, sample forms, other information furnished by the Owner in anticipation of receiving bids or proposals, the Contractor's bid or proposal, or portions of Addenda relating to bidding or proposal requirements.

§ 1.1.2 The Contract

The Contract Documents form the Contract for Construction. The Contract represents the entire and integrated agreement between the parties hereto and supersedes prior negotiations, representations, or agreements, either written or oral. The Contract may be amended or modified only by a Modification. The Contract Documents shall not be construed to create a contractual relationship of any kind (1) between the Contractor and the Architect or the Architect's consultants, (2) between the Owner and a Subcontractor or a Sub-subcontractor, (3) between the Owner and the Architect or the Architect's consultants, or (4) between any persons or entities other than the Owner and the Contractor. The Architect shall, however, be entitled to performance and enforcement of obligations under the Contract intended to facilitate performance of the Architect's duties.

§ 1.1.3 The Work

The term "Work" means the construction and services required by the Contract Documents, whether completed or partially completed, and includes all other labor, materials, equipment, and services provided or to be provided by the Contractor to fulfill the Contractor's obligations. The Work may constitute the whole or a part of the Project.

§ 1.1.4 The Project

The Project is the total construction of which the Work performed under the Contract Documents may be the whole or a part and which may include construction by the Owner and by Separate Contractors.

§ 1.1.5 The Drawings

The Drawings are the graphic and pictorial portions of the Contract Documents showing the design, location and dimensions of the Work, generally including plans, elevations, sections, details, schedules, and diagrams.

§ 1.1.6 The Specifications

The Specifications are that portion of the Contract Documents consisting of the written requirements for materials, equipment, systems, standards and workmanship for the Work, and performance of related services.

§ 1.1.7 Instruments of Service

Instruments of Service are representations, in any medium of expression now known or later developed, of the tangible and intangible creative work performed by the Architect and the Architect's consultants under their respective professional services agreements. Instruments of Service may include, without limitation, studies, surveys, models, sketches, drawings, specifications, and other similar materials.

§ 1.1.8 Initial Decision Maker

The Initial Decision Maker is the person identified in the Agreement to render initial decisions on Claims in accordance with Section 15.2. The Initial Decision Maker shall not show partiality to the Owner or Contractor.

§ 1.2 Correlation and Intent of the Contract Documents

§ 1.2.1 The intent of the Contract Documents is to include all items necessary for the proper execution and completion of the Work by the Contractor. The Contract Documents are complementary, and what is required by one shall be as binding as if required by all; performance by the Contractor shall be required only to the extent consistent with the Contract Documents and reasonably inferable from them as being necessary to produce the indicated results. To the extent that an inconsistency within a Contract Document or between the Contract Documents cannot be resolved by reference to the preceding sentence, the document or documents in question shall be construed to require the greater quantity, higher quality, and/or sooner completion of the Work or relevant

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portions thereof.

§ 1.2.1.1 The invalidity of any provision of the Contract Documents shall not invalidate the Contract or its remaining provisions. If it is determined that any provision of the Contract Documents violates any law, or is otherwise invalid or unenforceable, then that provision shall be revised to the extent necessary to make that provision legal and enforceable. In such case the Contract Documents shall be construed, to the fullest extent permitted by law, to give effect to the parties' intentions and purposes in executing the Contract.

§ 1.2.2 Organization of the Specifications into divisions, sections and articles, and arrangement of Drawings shall not control the Contractor in dividing the Work among Subcontractors or in establishing the extent of Work to be performed by any trade.

§ 1.2.3 Unless otherwise stated in the Contract Documents, words that have well-known technical or construction industry meanings are used in the Contract Documents in accordance with such recognized meanings.

§ 1.3 Capitalization

Terms capitalized in these General Conditions include those that are (1) specifically defined, (2) the titles of numbered articles, or (3) the titles of other documents published by the American Institute of Architects.

§ 1.4 Interpretation

In the interest of brevity the Contract Documents frequently omit modifying words such as "all" and "any" and articles such as "the" and "an," but the fact that a modifier or an article is absent from one statement and appears in another is not intended to affect the interpretation of either statement.

§ 1.5 Ownership and Use of Drawings, Specifications, and Other Instruments of Service

§ 1.5.1 The Architect and the Architect's consultants shall be deemed the authors and owners of their respective Instruments of Service, including the Drawings and Specifications, and retain all common law, statutory, and other reserved rights in their Instruments of Service, including copyrights. The Contractor, Subcontractors, Sub-subcontractors, and suppliers shall not own or claim a copyright in the Instruments of Service. Submittal or distribution to meet official regulatory requirements or for other purposes in connection with the Project is not to be construed as publication in derogation of the Architect's or Architect's consultants' reserved rights.

§ 1.5.2 The Contractor, Subcontractors, Sub-subcontractors, and suppliers are authorized to use and reproduce the Instruments of Service provided to them, subject to any protocols established pursuant to Sections 1.7 and 1.8, solely and exclusively for execution of the Work. All copies made under this authorization shall bear the copyright notice, if any, shown on the Instruments of Service. The Contractor, Subcontractors, Sub-subcontractors, and suppliers may not use the Instruments of Service on other projects or for additions to the Project outside the scope of the Work without the specific written consent of the Owner, Architect, and the Architect's consultants.

§ 1.6 Notice

§ 1.6.1 Except as otherwise provided in Section 1.6.2, where the Contract Documents require one party to notify or give notice to the other party, such notice shall be provided in writing to the designated representative of the party to whom the notice is addressed and shall be deemed to have been duly served if delivered in person, by mail, by courier, or by electronic transmission if a method for electronic transmission is set forth in the Agreement.

§ 1.6.2 Notice of Claims as provided in Section 15.1.3 shall be provided in writing and shall be deemed to have been duly served only if delivered to the designated representative of the party to whom the notice is addressed by certified or registered mail, or by courier providing proof of delivery.

§ 1.7 Digital Data Use and Transmission

The parties shall agree upon written protocols governing the transmission and use of, and reliance on, Instruments of Service or any other information or documentation in digital form.

§ 1.8 Building Information Models Use and Reliance

Any use of, or reliance on, all or a portion of a building information model without agreement to written protocols governing the use of, and reliance on, the information contained in the model shall be at the using or relying party's sole risk and without liability to the other party and its contractors or consultants, the authors of, or contributors to, the building information model, and each of their agents and employees.

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ARTICLE 2 OWNER

§ 2.1 General

§ 2.1.1 The Owner is the person or entity identified as such in the Agreement and is referred to throughout the Contract Documents as if singular in number. The Owner shall designate in writing a representative who shall have express authority to bind the Owner with respect to all matters requiring the Owner's approval or authorization. Except as otherwise provided in Section 4.2.1, the Architect does not have such authority. The term "Owner" means the Owner or the Owner's authorized representative.

§ 2.1.2 Pursuant to Indiana Law, no mechanic's lien may be recorded against the Project or the Owner. .

§ 2.1.3 Notwithstanding anything to the contrary in the Agreement or in any document, attachment, plan, specification, or other instrument executed in connection herewith, under no circumstances shall any member, manager, shareholder, officer, director, partner, parent, affiliate, employee or agent of Owner other than Owner have any liability of any kind or nature under the Agreement, and in no event shall Contractor bring claims against or seek to hold any person or entity other than Owner liable for the satisfaction of any obligations owed or that may come to be owed under the terms of the Contract.

§ 2.2 Evidence of the Owner's Financial Arrangements

§ 2.2.1 Prior to commencement of the Work and upon written request by the Contractor, the Owner shall furnish to the Contractor reasonable evidence that the Owner has made financial arrangements to fulfill the Owner's obligations under the Contract. The Contractor shall have no obligation to commence the Work until the Owner provides such evidence. If commencement of the Work is delayed under this Section 2.2.1, the Contract Time shall be extended appropriately.

§ 2.2.2 After the Owner furnishes evidence of financial arrangements under this Section 2.2, the Owner shall not materially vary such financial arrangements without prior notice to the Contractor.

§ 2.2.3 Where the Owner has designated information furnished under this Section 2.2 as "confidential," the Contractor shall keep the information confidential and shall not disclose it to any other person. However, the Contractor may disclose "confidential" information, after seven (7) days' notice to the Owner, where disclosure is required by law, including a subpoena or other form of compulsory legal process issued by a court or governmental entity, or by court or arbitrator(s) order. The Contractor may also disclose "confidential" information to its employees, consultants, sureties, Subcontractors and their employees, Sub-subcontractors, and others who need to know the content of such information solely and exclusively for the Project and who agree to maintain the confidentiality of such information.

§ 2.3 Information and Services Required of the Owner

§ 2.3.1 Except for permits and fees that are the responsibility of the Contractor under the Contract Documents, including those required under Section 3.7.1, the Owner shall secure and pay for necessary approvals, easements, assessments and charges required for construction, use or occupancy of permanent structures or for permanent changes in existing facilities.

§ 2.3.2 The Owner shall retain an architect lawfully licensed to practice architecture, or an entity lawfully practicing architecture, in the jurisdiction where the Project is located. That person or entity is identified as the Architect in the Agreement and is referred to throughout the Contract Documents as if singular in number.

§ 2.3.3 If the employment of the Architect terminates, the Owner shall employ a successor to whom the Contractor has no reasonable objection and whose status under the Contract Documents shall be that of the Architect.

§ 2.3.4 The Owner shall furnish surveys describing physical characteristics, legal limitations and utility locations for the site of the Project, and a legal description of the site. The Contractor shall be entitled to reasonably rely on the accuracy of information furnished by the Owner but shall exercise proper precautions relating to the safe performance of the Work.

§ 2.3.5 The Owner shall furnish information or services required of the Owner by the Contract Documents with reasonable promptness. The Owner shall also furnish any other information or services in the Owner's possession

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and relevant to the Contractor's performance of the Work with reasonable promptness after receiving the Contractor's written request for such information or services.

§ 2.3.6 Unless otherwise provided in the Contract Documents, the Owner shall furnish to the Contractor one copy of the Contract Documents for purposes of making reproductions pursuant to Section 1.5.2.

§ 2.4 Owner's Right to Stop the Work

If the Contractor fails to correct Work that is not in accordance with the requirements of the Contract Documents as required by Section 12.2 or repeatedly fails to carry out Work in accordance with the Contract Documents, the Owner may issue a written order to the Contractor to stop the Work, or any portion thereof, until the cause for such order has been eliminated; however, the right of the Owner to stop the Work shall not give rise to a duty on the part of the Owner to exercise this right for the benefit of the Contractor or any other person or entity, except to the extent required by Section 6.1.3. If the Owner stops the Work as provided herein, the Contractor shall not be entitled to an extension of the Contract Time to complete the Work for the time during which the Work was stopped.

§ 2.5 Owner's Right to Carry Out the Work

If the Contractor defaults or neglects to carry out the Work in accordance with the Contract Documents and fails within a ten-day period after receipt of notice from the Owner to commence and continue correction of such default or neglect with diligence and promptness, the Owner may, without prejudice to other remedies the Owner may have, correct such default or neglect. The Architect may, pursuant to Section 9.5.1, withhold or nullify a Certificate for Payment in whole or in part, to the extent reasonably necessary to reimburse the Owner for the reasonable cost of correcting such deficiencies, including Owner's expenses and compensation for the Architect's additional services made necessary by such default, neglect, or failure. If current and future payments are not sufficient to cover such amounts, the Contractor shall pay the difference to the Owner. If the Contractor disagrees with the actions of the Owner or the Architect, or the amounts claimed as costs to the Owner, the Contractor may file a Claim pursuant to Article 15. The Contractor is not entitled to an adjustment of the Contract Time in connection with this Section 2.5.

ARTICLE 3 CONTRACTOR

§ 3.1 General

§ 3.1.1 The Contractor is the person or entity identified as such in the Agreement and is referred to throughout the Contract Documents as if singular in number. The Contractor shall be lawfully licensed, if required in the jurisdiction where the Project is located. The Contractor shall designate in writing a representative who shall have express authority to bind the Contractor with respect to all matters under this Contract. The term "Contractor" means the Contractor or the Contractor's authorized representative.

§ 3.1.2 The Contractor shall perform the Work in accordance with the Contract Documents.

§ 3.1.3 The Contractor shall not be relieved of its obligations to perform the Work in accordance with the Contract Documents either by activities or duties of the Architect in the Architect's administration of the Contract, or by tests, inspections or approvals required or performed by persons or entities other than the Contractor.

§ 3.1.4 Within ten (10) days after the Contractor executes the Agreement or such shorter time as required by the bidding documents, but not later than the start of Work on the Project, the Contractor shall deliver to the Owner: (i) a copy of Contractor's license; (ii) a copy of the Contractor's sales tax registration certificate; (iii) a copy of all applicable certifications or qualifications required by the Contract Documents or applicable law or regulation; (iv) a list of the Contractor's project staff; (v) all required certificates of insurance, including a Certification of Compliance for worker's compensation insurance; and (vi) all other information required by the Contract Documents. Along with execution of the Guaranteed Maximum Price Amendment, the Contractor shall deliver to the Owner all required payment and performance bonds.

§ 3.1.5 The relationship between the Owner and the Contractor is that of independent contractor. The Contract Documents shall not be construed to make the Contractor the agent, servant or employee of the Owner or to create any joint venture, partnership or other association between the Owner and the Contractor other than that of independent contractor.

§ 3.2 Review of Contract Documents and Field Conditions by Contractor

§ 3.2.1 Execution of the Contract by the Contractor is a representation that the Contractor has visited the site, become generally familiar with local conditions under which the Work is to be performed, and correlated personal

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observations with requirements of the Contract Documents.

§ 3.2.2 Because the Contract Documents are complementary, the Contractor shall, before starting each portion of the Work, carefully study and compare the various Contract Documents relative to that portion of the Work, as well as the information furnished by the Owner pursuant to Section 2.3.4, shall take field measurements of any existing conditions related to that portion of the Work, and shall observe any conditions at the site affecting it. These obligations are for the purpose of facilitating coordination and construction by the Contractor and are not for the purpose of discovering errors, omissions, or inconsistencies in the Contract Documents; however, the Contractor shall promptly report to the Architect any errors, inconsistencies or omissions discovered by or made known to the Contractor as a request for information in such form as the Architect may require. It is recognized that the Contractor's review is made in the Contractor's capacity as a contractor and not as a licensed design professional, unless otherwise specifically provided in the Contract Documents.

§ 3.2.3 The Contractor is not required to ascertain that the Contract Documents are in accordance with applicable laws, statutes, ordinances, codes, rules and regulations, or lawful orders of public authorities, but the Contractor shall promptly report to the Architect any nonconformity discovered by or made known to the Contractor as a request for information in such form as the Architect may require.

§ 3.2.4 If the Contractor believes that additional cost or time is involved because of clarifications or instructions the Architect issues in response to the Contractor's notices or requests for information pursuant to Sections 3.2.2 or 3.2.3, the Contractor shall submit Claims as provided in Article 15. If the Contractor fails to perform the obligations of Sections 3.2.2 or 3.2.3, the Contractor shall pay such costs and damages to the Owner, subject to Section 15.1.7, as would have been avoided if the Contractor had performed such obligations. If the Contractor performs those obligations, the Contractor shall not be liable to the Owner or Architect for damages resulting from errors, inconsistencies or omissions in the Contract Documents, for differences between field measurements or conditions and the Contract Documents, or for nonconformities of the Contract Documents to applicable laws, statutes, ordinances, codes, rules and regulations, and lawful orders of public authorities. unless the Contractor recognized or should have recognized such error, inconsistency, omission or difference and knowingly failed to report it to the Architect or Owner.

§ 3.3 Supervision and Construction Procedures

§ 3.3.1 The Contractor shall supervise and direct the Work, using the Contractor's best skill and attention. The Contractor shall be solely responsible for, and have control over, jobsite safety, construction means, methods, techniques, sequences, and procedures, and for coordinating all portions of the Work under the Contract. If the Contract Documents give specific instructions concerning construction means, methods, techniques, sequences, or procedures, the Contractor shall evaluate the jobsite safety thereof and shall be solely responsible for the jobsite safety of such means, methods, techniques, sequences, or procedures. If the Contractor determines that such means, methods, techniques, sequences or procedures may not be safe, the Contractor shall give timely notice to the Owner and Architect, and shall propose alternative means, methods, techniques, sequences, or procedures. The Architect shall evaluate the proposed alternative solely for conformance with the design intent for the completed construction. Unless the Architect objects to the Contractor's proposed alternative, the Contractor shall perform the Work using its alternative means, methods, techniques, sequences, or procedures.

§ 3.3.2 The Contractor shall be responsible to the Owner for acts and omissions of the Contractor's employees, Subcontractors and their agents and employees, and other persons or entities performing portions of the Work for, or on behalf of, the Contractor or any of its Subcontractors.

§ 3.3.3 The Contractor shall be responsible for inspection of portions of Work already performed to determine that such portions are in proper condition to receive subsequent Work.

§ 3.4 Labor and Materials

§ 3.4.1 Unless otherwise provided in the Contract Documents, the Contractor shall provide and pay for labor, materials, equipment, tools, construction equipment and machinery, water, heat, utilities, transportation, and other facilities and services necessary for proper execution and completion of the Work, whether temporary or permanent and whether or not incorporated or to be incorporated in the Work.

§ 3.4.2 Except in the case of minor changes in the Work approved by the Architect in accordance with Section 3.12.8 or ordered by the Architect in accordance with Section 7.4, the Contractor may make substitutions

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only with the consent of the Owner, after evaluation by the Architect and in accordance with a Change Order or Construction Change Directive. By making requests for substitutions, the Contractor: (i) represents that the Contractor has personally investigated the proposed substitute product or system and determined that it is equal or superior in all respects to that specified; (ii) represents that the Contractor will provide the same warranty for the substitution that the Contractor would for that specified; (iii) certifies that the cost data presented is complete and includes all related costs under this Contract except the Architect's redesign costs, and waives all claims for additional costs related to the substitution which subsequently become apparent; and (iv) will coordinate the installation of the accepted substitute, making such changes as may be required for the Work to be complete in all respects.

§ 3.4.3 The Contractor shall enforce strict discipline and good order among the Contractor's employees and other persons carrying out the Work. The Contractor shall not permit employment of unfit persons or persons not properly skilled in tasks assigned to them.

§ 3.4.4 As required by Ind. Code § 5-16-8-2, the Contractor shall use only steel and foundry products made in the United States in the performance of the Work unless the Owner has determined, in writing, that the cost of steel or foundry products is considered to be unreasonable. For purposes hereof, the price of steel or foundry products of domestic origin will not be considered unreasonable if the price does not exceed the sum of the offered price of like steel or foundry products of foreign origin (including any applicable duty) plus a differential of 15% of the offered price of the steel or foundry products of foreign origin.

§ 3.4.5 In the event that any contractor, supplier, or other entity for which the Contractor is responsible asserts a verified statement, bond claim, or other payment claim against the Owner and/or the Project, the Contractor shall promptly resolve such claim and shall defend, indemnify and hold harmless the Owner and the Project from all losses, damages or costs incurred in connection therewith, except to the extent the claim arises as a result of the Owner's failure to timely make payments to the Contractor under the terms of the Contract. Should the Contractor fail to promptly resolve any such claim, the Contractor shall also be responsible for reasonable attorneys' fees and expenses incurred by the Owner, to the extent necessary to protect the Owner's interests with respect to such claim.

§ 3.5 Warranty

§ 3.5.1 The Contractor warrants to the Owner and Architect that materials and equipment furnished under the Contract will be of good quality and new unless the Contract Documents require or permit otherwise. The Contractor further warrants that the Work will conform to the requirements of the Contract Documents and will be free from defects, except for those inherent in the quality of the Work the Contract Documents require or permit. Work, materials, or equipment not conforming to these requirements may be considered defective. The Contractor's warranty excludes remedy for damage or defect caused by abuse, alterations to the Work not executed by the Contractor, improper or insufficient maintenance, improper operation, or normal wear and tear and normal usage. If required by the Architect, the Contractor shall furnish satisfactory evidence as to the kind and quality of materials and equipment. The warranty provided in this paragraph shall be in addition to and not in limitation of any other warranty required by the Contract Documents or otherwise prescribed by law.

§ 3.5.2 All material, equipment, or other special warranties required by the Contract Documents shall be issued in the name of the Owner, or shall be transferable to the Owner, and shall commence in accordance with Section 9.8.4.

§ 3.6 Taxes

§ 3.6.1 The Contractor shall pay sales, consumer, use and similar taxes for the Work provided by the Contractor that are legally enacted when bids are received or negotiations concluded, whether or not yet effective or merely scheduled to go into effect.

§ 3.6.2 Materials and equipment purchased as part of the Work that become a permanent part of the structure or facility being constructed are not subject to state gross retail or use tax, and the Contract Sum and the amount of any Change Orders shall not include such tax. The amount of any tax paid by the Contractor, other than the foregoing, shall be separately itemized on the Contractor's applications for payment and the Owner will have the right to contest such amounts. An exemption certificate will be furnished by the Owner upon request and must be filed with vendors by the Contractor for exemption from payment of the tax on exempt materials and equipment purchased.

§ 3.7 Permits, Fees, Notices and Compliance with Laws

§ 3.7.1 Unless otherwise provided in the Contract Documents, the Contractor shall secure and pay for the building permit as well as for other permits, fees, licenses, and inspections by government agencies necessary for proper

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execution and completion of the Work that are customarily secured after execution of the Contract and legally required at the time bids are received or negotiations concluded.

§ 3.7.2 The Contractor shall comply with and give notices required by applicable laws, statutes, ordinances, codes, rules and regulations, and lawful orders of public authorities applicable to performance of the Work.

§ 3.7.3 If the Contractor performs Work knowing it to be contrary to applicable laws, statutes, ordinances, codes, rules and regulations, or lawful orders of public authorities, the Contractor shall assume appropriate responsibility for such Work and shall bear the costs attributable to correction.

§ 3.7.4 Concealed or Unknown Conditions

If the Contractor encounters conditions at the site that are (1) subsurface or otherwise concealed physical conditions that differ materially from those indicated in the Contract Documents or (2) unknown physical conditions of an unusual nature that differ materially from those ordinarily found to exist and generally recognized as inherent in construction activities of the character provided for in the Contract Documents, the Contractor shall promptly provide notice to the Owner and the Architect before conditions are disturbed and in no event later than 14 days after first observance of the conditions, and (ii) keep an accurate and detailed record which will indicate the actual cost of the work done under the alleged differing site condition and failure to keep such a record shall be a bar to any recovery by reason of such alleged differing site condition. The Architect will promptly investigate such conditions and, if the Architect determines that they differ materially and cause an increase or decrease in the Contractor's cost of, or time required for, performance of any part of the Work, will recommend that an equitable adjustment be made in the Contract Sum or Contract Time, or both. If the Architect determines that the conditions at the site are not materially different from those indicated in the Contract Documents and that no change in the terms of the Contract is justified, the Architect shall promptly notify the Owner and Contractor, stating the reasons. If either party disputes the Architect's determination or recommendation, that party may submit a Claim as provided in Article 15.

§ 3.7.5 If, in the course of the Work, the Contractor encounters human remains or recognizes the existence of burial markers, archaeological sites or wetlands not indicated in the Contract Documents, the Contractor shall immediately suspend any operations that would affect them and shall notify the Owner and Architect. Upon receipt of such notice, the Owner shall promptly take such action the Owner considers reasonably necessary to obtain governmental authorization required to resume the operations. The Contractor shall continue to suspend such operations until otherwise instructed by the Owner but shall continue with all other operations that do not affect those remains or features. Requests for adjustments in the Contract Sum and Contract Time arising from the existence of such remains or features may be made as provided in Article 15.

§ 3.8 Allowances

§ 3.8.1 The Contractor shall include in the Contract Sum all allowances stated in the Contract Documents. The Contractor shall identify each allowance item as a separate line item on the schedule of values. Items covered by allowances shall be supplied for such amounts and by such persons or entities as the Owner may direct, but the Contractor shall not be required to employ persons or entities to whom the Contractor has reasonable objection.

§ 3.8.2 Unless otherwise provided in the Contract Documents,

- **.1** allowances shall cover the cost to the Contractor of materials and equipment delivered at the site and all required taxes, less applicable trade discounts;
- **.2** Contractor's costs for unloading and handling at the site, labor, installation costs, overhead, profit, and other expenses contemplated for stated allowance amounts shall be included in the Contract Sum but not in the allowances; and
- **.3** whenever costs are anticipated by the Contractor to be more than or less than allowances, no adjustment to the Contract Sum shall be made without the Owner's prior written authorization by Change Order. The amount of the Change Order shall reflect (1) the difference between actual costs and the allowances under Section 3.8.2.1 and (2) changes in Contractor's costs under Section 3.8.2.2.

§ 3.8.3 Materials and equipment under an allowance shall be selected by the Owner with reasonable promptness.

§ 3.9 Superintendent

§ 3.9.1 The Contractor shall employ a competent superintendent and necessary assistants who shall be in attendance at the Project site during performance of the Work. The superintendent shall represent the Contractor, and communications given to the superintendent shall be as binding as if given to the Contractor.

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§ 3.9.2 The Contractor, as soon as practicable after award of the Contract, shall notify the Owner and Architect of the name and qualifications of a proposed superintendent. Within 14 days of receipt of the information, the Architect may notify the Contractor, stating whether the Owner or the Architect (1) has reasonable objection to the proposed superintendent or (2) requires additional time for review. Failure of the Architect to provide notice within the 14-day period shall constitute notice of no reasonable objection.

§ 3.9.3 The Contractor shall not employ a proposed superintendent to whom the Owner or Architect has made reasonable and timely objection. The Contractor shall not change the superintendent without the Owner's consent, which shall not unreasonably be withheld or delayed.

§ 3.10 Contractor's Construction and Submittal Schedules

§ 3.10.1 The Contractor, promptly after being awarded the Contract, shall submit for the Owner's and Architect's information a Contractor's construction schedule for the Work. The schedule shall contain detail appropriate for the Project, including (1) the date of commencement of the Work, interim schedule milestone dates, and the date of Substantial Completion; (2) an apportionment of the Work by construction activity; and (3) the time required for completion of each portion of the Work. The schedule shall provide for the orderly progression of the Work to completion and shall not exceed time limits current under the Contract Documents. The schedule shall be revised at appropriate intervals as required by the conditions of the Work and Project.

§ 3.10.2 The Contractor, promptly after being awarded the Contract and thereafter as necessary to maintain a current submittal schedule, shall submit a submittal schedule for the Architect's approval. The Architect's approval shall not be unreasonably delayed or withheld. The submittal schedule shall (1) be coordinated with the Contractor's construction schedule, and (2) allow the Architect reasonable time to review submittals. If the Contractor fails to submit a submittal schedule, or fails to provide submittals in accordance with the approved submittal schedule, the Contractor shall not be entitled to any increase in Contract Sum or extension of Contract Time based on the time required for review of submittals.

§ 3.10.3 The Contractor shall perform the Work in general accordance with the most recent schedules submitted to the Owner and Architect. In no event shall the Architect's or Owner's approval of the Contractor's construction schedule be deemed to modify the Contract Time without a fully executed Change Order.

§ 3.11 Documents and Samples at the Site

The Contractor shall make available, at the Project site, the Contract Documents, including Change Orders, Construction Change Directives, and other Modifications, in good order and marked currently to indicate field changes and selections made during construction, and the approved Shop Drawings, Product Data, Samples, and similar required submittals. These shall be in electronic form or paper copy, available to the Architect and Owner, and delivered to the Architect for submittal to the Owner upon completion of the Work as a record of the Work as constructed.

§ 3.12 Shop Drawings, Product Data and Samples

§ 3.12.1 Shop Drawings are drawings, diagrams, schedules, and other data specially prepared for the Work by the Contractor or a Subcontractor, Sub-subcontractor, manufacturer, supplier, or distributor to illustrate some portion of the Work.

§ 3.12.2 Product Data are illustrations, standard schedules, performance charts, instructions, brochures, diagrams, and other information furnished by the Contractor to illustrate materials or equipment for some portion of the Work.

§ 3.12.3 Samples are physical examples that illustrate materials, equipment, or workmanship, and establish standards by which the Work will be judged.

§ 3.12.4 Shop Drawings, Product Data, Samples, and similar submittals are not Contract Documents. Their purpose is to demonstrate how the Contractor proposes to conform to the information given and the design concept expressed in the Contract Documents for those portions of the Work for which the Contract Documents require submittals. Review by the Architect is subject to the limitations of Section 4.2.7. Informational submittals upon which the Architect is not expected to take responsive action may be so identified in the Contract Documents. Submittals that are not required by the Contract Documents may be returned by the Architect without action.

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§ 3.12.5 The Contractor shall review for compliance with the Contract Documents, approve, and submit to the Architect, Shop Drawings, Product Data, Samples, and similar submittals required by the Contract Documents, in accordance with the submittal schedule approved by the Architect or, in the absence of an approved submittal schedule, with reasonable promptness and in such sequence as to cause no delay in the Work or in the activities of the Owner or of Separate Contractors.

§ 3.12.6 By submitting Shop Drawings, Product Data, Samples, and similar submittals, the Contractor represents to the Owner and Architect that the Contractor has (1) reviewed and approved them, (2) determined and verified materials, field measurements and field construction criteria related thereto, or will do so, and (3) checked and coordinated the information contained within such submittals with the requirements of the Work and of the Contract Documents. This provision shall control over any contrary language stamped or written on submittals during the Project.

§ 3.12.7 The Contractor shall perform no portion of the Work for which the Contract Documents require submittal and review of Shop Drawings, Product Data, Samples, or similar submittals, until the respective submittal has been approved by the Architect.

§ 3.12.8 The Work shall be in accordance with approved submittals except that the Contractor shall not be relieved of responsibility for deviations from the requirements of the Contract Documents by the Architect's approval of Shop Drawings, Product Data, Samples, or similar submittals, unless the Contractor has specifically notified the Architect of such deviation at the time of submittal and (1) the Architect has given written approval to the specific deviation as a minor change in the Work, or (2) a Change Order or Construction Change Directive has been issued authorizing the deviation. The Contractor shall not be relieved of responsibility for errors or omissions in Shop Drawings, Product Data, Samples, or similar submittals, by the Architect's approval thereof.

§ 3.12.9 The Contractor shall direct specific attention, in writing or on resubmitted Shop Drawings, Product Data, Samples, or similar submittals, to revisions other than those requested by the Architect on previous submittals. In the absence of such notice, the Architect's approval of a resubmission shall not apply to such revisions.

§ 3.12.10 The Contractor shall not be required to provide professional services that constitute the practice of architecture or engineering unless such services are specifically required by the Contract Documents or by applicable law for a portion of the Work or unless the Contractor needs to provide such services in order to carry out the Contractor's responsibilities for construction means, methods, techniques, sequences, and procedures. The Contractor shall not be required to provide professional services in violation of applicable law.

§ 3.12.10.1 If professional design services or certifications by a design professional related to systems, materials, or equipment are specifically required of the Contractor by the Contract Documents or by applicable law, the Owner and the Architect will specify all performance and design criteria that such services must satisfy. The Contractor shall be entitled to rely upon the adequacy and accuracy of the performance and design criteria provided in the Contract Documents. The Contractor shall cause such services or certifications to be provided by an appropriately licensed design professional, whose signature and seal shall appear on all drawings, calculations, specifications, certifications, Shop Drawings, and other submittals prepared by such professional. Shop Drawings, and other submittals related to the Work, designed or certified by such professional, if prepared by others, shall bear such professional's written approval when submitted to the Architect. The Owner and the Architect shall be entitled to rely upon the adequacy and accuracy of the services, certifications, and approvals performed or provided by such design professionals, provided the Owner and Architect have specified to the Contractor the performance and design criteria that such services must satisfy. Pursuant to this Section 3.12.10, the Architect will review and approve or take other appropriate action on submittals only for the limited purpose of checking for conformance with information given and the design concept expressed in the Contract Documents.

§ 3.12.10.2 If the Contract Documents require the Contractor's design professional to certify that the Work has been performed in accordance with the design criteria, the Contractor shall furnish such certifications to the Architect at the time and in the form specified by the Architect.

§ 3.12.10.3 The Owner is hereby granted a nonexclusive, irrevocable, royalty-free license to use the drawings, specifications, Shop Drawings and other submittals prepared by or on behalf of the Contractor pursuant to Section 3.12.10 for purposes of constructing, using, maintaining, altering and adding to the Project. The Contractor shall incorporate the requirements of this Section 3.12.10 into its contracts with its design professional and Subcontractors where applicable.

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§ 3.13 Use of Site

§ 3.13.1 The Contractor shall confine operations at the site to areas permitted by applicable laws, statutes, ordinances, codes, rules and regulations, lawful orders of public authorities, and the Contract Documents and shall not unreasonably encumber the site with materials or equipment. The Contractor shall ensure that the Work, at all times, is performed in a manner that affords reasonable access, both vehicular and pedestrian, to the site of the Work and all adjacent areas. The Work shall be performed, to the fullest extent reasonably possible, in such a manner that public areas adjacent to the site of the Work shall be free from all debris, building materials and equipment likely to cause hazardous conditions. Without limitation of any other provision of the Contract Documents, Contractor shall use its best efforts to minimize any interference with the occupancy or beneficial use of (1) any areas and building adjacent to the site of the Work or (2) the building in the event of partial occupancy, as more specifically described in Section 9.9.

§ 3.13.2 Only materials and equipment that are to be used in the Work shall be brought to and stored on the Project site by the Contractor. Equipment no longer required for the Work shall be promptly removed from the Project site. The Contractor shall be solely responsible for protecting construction materials and equipment stored at the Project site from weather, theft, damage and all other adversity.

§ 3.14 Cutting and Patching

§ 3.14.1 The Contractor shall be responsible for cutting, fitting, or patching required to complete the Work or to make its parts fit together properly. All areas requiring cutting, fitting, or patching shall be restored to the condition existing prior to the cutting, fitting, or patching, unless otherwise required by the Contract Documents.

§ 3.14.2 The Contractor shall not damage or endanger a portion of the Work or fully or partially completed construction of the Owner or Separate Contractors by cutting, patching, or otherwise altering such construction, or by excavation. The Contractor shall not cut or otherwise alter construction by the Owner or a Separate Contractor except with written consent of the Owner and of the Separate Contractor. Consent shall not be unreasonably withheld. The Contractor shall not unreasonably withhold, from the Owner or a Separate Contractor, its consent to cutting or otherwise altering the Work.

§ 3.15 Cleaning Up

§ 3.15.1 The Contractor shall keep the premises and surrounding area free from accumulation of waste materials and rubbish caused by operations under the Contract. At completion of the Work, the Contractor shall remove waste materials, rubbish, the Contractor's tools, construction equipment, machinery, and surplus materials from and about the Project.

§ 3.15.2 If the Contractor fails to clean up as provided in the Contract Documents, the Owner may do so and the Owner shall be entitled to reimbursement from the Contractor.

§ 3.16 Access to Work

The Contractor shall provide the Owner and Architect with access to the Work in preparation and progress wherever located.

§ 3.17 Royalties, Patents and Copyrights

The Contractor shall pay all royalties and license fees. The Contractor shall defend suits or claims for infringement of copyrights and patent rights and shall hold the Owner and Architect harmless from loss on account thereof, but shall not be responsible for defense or loss when a particular design, process, or product of a particular manufacturer or manufacturers is required by the Contract Documents, or where the copyright violations are contained in Drawings, Specifications, or other documents prepared by the Owner or Architect. However, if an infringement of a copyright or patent is discovered by, or made known to, the Contractor, the Contractor shall be responsible for the loss unless the information is promptly furnished to the Architect.

§ 3.18 Indemnification

§ 3.18.1 To the fullest extent permitted by law, the Contractor shall indemnify, defend, and hold harmless the Owner, Architect, Architect's consultants, and agents and employees of any of them from and against claims, damages, losses, and expenses, including but not limited to attorneys' fees, arising out of or resulting from performance of the Work, provided that such claim, damage, loss, or expense is attributable to bodily injury, sickness, disease or death, or to injury to or destruction of tangible property (other than the Work itself), but only to

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the extent caused by the negligent acts or omissions of the Contractor, a Subcontractor, anyone directly or indirectly employed by them, or anyone for whose acts they may be liable, regardless of whether or not such claim, damage, loss, or expense is caused in part by a party indemnified hereunder. Such obligation shall not be construed to negate, abridge, or reduce other rights or obligations of indemnity that would otherwise exist as to a party or person described in this Section 3.18.

§ 3.18.2 In claims against any person or entity indemnified under this Section 3.18 by an employee of the Contractor, a Subcontractor, anyone directly or indirectly employed by them, or anyone for whose acts they may be liable, the indemnification obligation under Section 3.18.1 shall not be limited by a limitation on amount or type of damages, compensation, or benefits payable by or for the Contractor or a Subcontractor under workers' compensation acts, disability benefit acts, or other employee benefit acts.

§ 3.18.3 The duties and obligations of Section 3.18 shall survive completion or termination of the Contract.

ARTICLE 4 ARCHITECT

§ 4.1 General

§ 4.1.1 The Architect is the person or entity retained by the Owner pursuant to Section 2.3.2 and identified as such in the Agreement.

§ 4.1.2 Duties, responsibilities, and limitations of authority of the Architect as set forth in the Contract Documents shall not be restricted, modified, or extended without written consent of the Owner and Architect. Consent shall not be unreasonably withheld.

§ 4.2 Administration of the Contract

§ 4.2.1 The Architect will provide administration of the Contract as described in the Contract Documents and will be an Owner's representative during construction until the date the Architect issues the final Certificate for Payment. The Architect will have authority to act on behalf of the Owner only to the extent provided in the Contract Documents.

§ 4.2.2 The Architect will visit the site at intervals appropriate to the stage of construction, or as otherwise agreed with the Owner, to become generally familiar with the progress and quality of the portion of the Work completed, and to determine in general if the Work observed is being performed in a manner indicating that the Work, when fully completed, will be in accordance with the Contract Documents. However, the Architect will not be required to make exhaustive or continuous on-site inspections to check the quality or quantity of the Work. The Architect will not have control over, charge of, or responsibility for the construction means, methods, techniques, sequences or procedures, or for the safety precautions and programs in connection with the Work, since these are solely the Contractor's rights and responsibilities under the Contract Documents.

§ 4.2.3 On the basis of the site visits, the Architect will keep the Owner reasonably informed about the progress and quality of the portion of the Work completed, and promptly report to the Owner (1) known deviations from the Contract Documents, (2) known deviations from the most recent construction schedule submitted by the Contractor, and (3) defects and deficiencies observed in the Work. The Architect will not be responsible for the Contractor's failure to perform the Work in accordance with the requirements of the Contract Documents. The Architect will not have control over or charge of, and will not be responsible for acts or omissions of, the Contractor, Subcontractors, or their agents or employees, or any other persons or entities performing portions of the Work.

§ 4.2.4 Communications

The Owner and Contractor shall include the Architect in all communications that relate to or affect the Architect's services or professional responsibilities. Communications by and with the Architect's consultants shall be through the Architect. Communications by and with Subcontractors and suppliers shall be through the Contractor. Communications by and with Separate Contractors shall be through the Owner. The Contract Documents may specify other communication protocols.

§ 4.2.5 Based on the Architect's evaluations of the Contractor's Applications for Payment, the Architect will review and certify the amounts due the Contractor and will issue Certificates for Payment in such amounts.

§ 4.2.6 The Architect has authority to reject Work that does not conform to the Contract Documents. Whenever the Architect considers it necessary or advisable, the Architect will have authority to require inspection or testing of the

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Work in accordance with Sections 13.4.2 and 13.4.3, whether or not the Work is fabricated, installed or completed.

§ 4.2.7 The Architect will review and approve, or take other appropriate action upon, the Contractor's submittals such as Shop Drawings, Product Data, and Samples, but only for the limited purpose of checking for conformance with information given and the design concept expressed in the Contract Documents. The Architect's action will be taken in accordance with the submittal schedule approved by the Architect or, in the absence of an approved submittal schedule, with reasonable promptness while allowing sufficient time in the Architect's professional judgment to permit adequate review. Review of such submittals is not conducted for the purpose of determining the accuracy and completeness of other details such as dimensions and quantities, or for substantiating instructions for installation or performance of equipment or systems, all of which remain the responsibility of the Contractor as required by the Contract Documents. The Architect's review of the Contractor's submittals shall not relieve the Contractor of the obligations under Sections 3.3, 3.5, and 3.12. The Architect's review shall not constitute approval of safety precautions or of any construction means, methods, techniques, sequences, or procedures. The Architect's approval of a specific item shall not indicate approval of an assembly of which the item is a component.

§ 4.2.8 The Architect will prepare Change Orders and Construction Change Directives, and may order minor changes in the Work as provided in Section 7.4. The Architect will investigate and make determinations and recommendations regarding concealed and unknown conditions as provided in Section 3.7.4.

§ 4.2.9 The Architect will conduct inspections to determine the date or dates of Substantial Completion and the date of final completion; issue Certificates of Substantial Completion pursuant to Section 9.8; receive and forward to the Owner, for the Owner's review and records, written warranties and related documents required by the Contract and assembled by the Contractor pursuant to Section 9.10; and issue a final Certificate for Payment pursuant to Section 9.10.

§ 4.2.10 If the Owner and Architect agree, the Architect will provide one or more Project representatives to assist in carrying out the Architect's responsibilities at the site. The Owner shall notify the Contractor of any change in the duties, responsibilities and limitations of authority of the Project representatives.

§ 4.2.11 The Architect will interpret and decide matters concerning performance under, and requirements of, the Contract Documents on written request of either the Owner or Contractor. The Architect's response to such requests will be made in writing within any time limits agreed upon or otherwise with reasonable promptness.

§ 4.2.12 Interpretations and decisions of the Architect will be consistent with the intent of, and reasonably inferable from, the Contract Documents and will be in writing or in the form of drawings. When making such interpretations and decisions, the Architect will endeavor to secure faithful performance by both Owner and Contractor, will not show partiality to either.

§ 4.2.13 The Architect's decisions on matters relating to aesthetic effect will be final if consistent with the intent expressed in the Contract Documents.

§ 4.2.14 The Architect will review and respond to requests for information about the Contract Documents. The Architect's response to such requests will be made in writing within any time limits agreed upon or otherwise with reasonable promptness. If appropriate, the Architect will prepare and issue supplemental Drawings and Specifications in response to the requests for information.

ARTICLE 5 SUBCONTRACTORS

§ 5.1 Definitions

§ 5.1.1 A Subcontractor is a person or entity who has a direct contract with the Contractor to perform a portion of the Work at the site. The term "Subcontractor" is referred to throughout the Contract Documents as if singular in number and means a Subcontractor or an authorized representative of the Subcontractor. The term "Subcontractor" does not include a Separate Contractor or the subcontractors of a Separate Contractor.

§ 5.1.2 A Sub-subcontractor is a person or entity who has a direct or indirect contract with a Subcontractor to perform a portion of the Work at the site. The term "Sub-subcontractor" is referred to throughout the Contract Documents as if singular in number and means a Sub-subcontractor or an authorized representative of the Sub-subcontractor.

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§ 5.2 Award of Subcontracts and Other Contracts for Portions of the Work

§ 5.2.1 The Contractor shall not substitute a Subcontractor, person, or entity for one previously selected if the Owner or Architect makes reasonable objection to such substitution.

§ 5.3 Subcontractual Relations

By appropriate written agreement, the Contractor shall require each Subcontractor, to the extent of the Work to be performed by the Subcontractor, to be bound to the Contractor by terms of the Contract Documents, and to assume toward the Contractor all the obligations and responsibilities, including the responsibility for safety of the Subcontractor's Work that the Contractor, by these Contract Documents, assumes toward the Owner and Architect. Each subcontract agreement shall preserve and protect the rights of the Owner and Architect under the Contract Documents with respect to the Work to be performed by the Subcontractor so that subcontracting thereof will not prejudice such rights, and shall allow to the Subcontractor, unless specifically provided otherwise in the subcontract agreement, the benefit of all rights, remedies, and redress against the Contractor that the Contractor, by the Contract Documents, has against the Owner. Where appropriate, the Contractor shall require each Subcontractor to enter into similar agreements with Sub-subcontractors. The Contractor shall make available to each proposed Subcontractor, prior to the execution of the subcontract agreement, copies of the Contract Documents to which the Subcontractor will be bound, and, upon written request of the Subcontractor, identify to the Subcontractor terms and conditions of the proposed subcontract agreement that may be at variance with the Contract Documents. Subcontractors will similarly make copies of applicable portions of such documents available to their respective proposed Sub-subcontractors.

§ 5.4 Contingent Assignment of Subcontracts

§ 5.4.1 Each subcontract agreement for a portion of the Work is assigned by the Contractor to the Owner, provided that

.1 assignment is effective only after termination of the Contract by the Owner for cause pursuant to Section 14.2 or a termination of the Contract by the Owner for convenience pursuant to Section 14.4 and only for those subcontract agreements that the Owner accepts by notifying the Subcontractor and Contractor; and

.2 assignment is subject to the prior rights of the surety, if any, obligated under bond relating to the Contract.

When the Owner accepts the assignment of a subcontract agreement, the Owner assumes the Contractor's rights and obligations under the subcontract.

§ 5.4.2 Upon such assignment, if the Work has been suspended for more than 30 days, the Subcontractor's compensation shall be equitably adjusted for increases in cost resulting from the suspension.

§ 5.4.3 Upon assignment to the Owner under this Section 5.4, the Owner may further assign the subcontract to a successor contractor or other entity.

§ 5.4.4 Unless and until an assignment of the Subcontract to the Owner is effective as provided in this Section, nothing contained herein shall create any obligation on the part of the Owner to make any payments to any Subcontractor, and no payment by the Owner to any Subcontractor shall create any obligation to make any further payments to any Subcontractor.

ARTICLE 6 CONSTRUCTION BY OWNER OR BY SEPARATE CONTRACTORS

§ 6.1 Owner's Right to Perform Construction and to Award Separate Contracts

§ 6.1.1 The term "Separate Contractor(s)" shall mean other contractors retained by the Owner under separate agreements. The Owner reserves the right to perform construction or operations related to the Project with the Owner's own forces, and with Separate Contractors.

§ 6.1.2 When separate contracts are awarded for different portions of the Project or other construction or operations on the site, the term "Contractor" in the Contract Documents in each case shall mean the Contractor who executes each separate Owner-Contractor Agreement.

§ 6.1.3 The Owner shall provide for coordination of the activities of the Owner's own forces and of each Separate Contractor with the Work of the Contractor, who shall cooperate with them. The Contractor shall participate with

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any Separate Contractors and the Owner in reviewing their construction schedules. The Contractor shall make any revisions to its construction schedule deemed necessary after a joint review and mutual agreement. The construction schedules shall then constitute the schedules to be used by the Contractor, Separate Contractors, and the Owner until subsequently revised.

§ 6.2 Mutual Responsibility

§ 6.2.1 The Contractor shall afford the Owner and Separate Contractors reasonable opportunity for introduction and storage of their materials and equipment and performance of their activities, and shall connect and coordinate the Contractor's construction and operations with theirs as required by the Contract Documents.

§ 6.2.2 If part of the Contractor's Work depends for proper execution or results upon construction or operations by the Owner or a Separate Contractor, the Contractor shall, prior to proceeding with that portion of the Work, promptly notify the Architect of apparent discrepancies or defects in the construction or operations by the Owner or Separate Contractor that would render it unsuitable for proper execution and results of the Contractor's Work. Failure of the Contractor to notify the Architect of apparent discrepancies or defects prior to proceeding with the Work shall constitute an acknowledgment that the Owner's or Separate Contractor's completed or partially completed construction is fit and proper to receive the Contractor's Work. The Contractor shall not be responsible for discrepancies or defects in the construction or operations by the Owner or Separate Contractor that are not apparent.

§ 6.2.3 The Contractor shall reimburse the Owner for costs the Owner incurs that are payable to a Separate Contractor because of the Contractor's delays, improperly timed activities or defective construction. The Owner shall be responsible to the Contractor for costs the Contractor incurs because of a Separate Contractor's delays, improperly timed activities, damage to the Work or defective construction.

§ 6.2.4 The Contractor shall promptly remedy damage that the Contractor wrongfully causes to completed or partially completed construction or to property of the Owner or Separate Contractor as provided in Section 10.2.5.

§ 6.2.5 The Owner and each Separate Contractor shall have the same responsibilities for cutting and patching as are described for the Contractor in Section 3.14.

§ 6.3 Owner's Right to Clean Up

If a dispute arises among the Contractor, Separate Contractors, and the Owner as to the responsibility under their respective contracts for maintaining the premises and surrounding area free from waste materials and rubbish, the Owner may clean up and will allocate the cost among those responsible.

ARTICLE 7 CHANGES IN THE WORK

§ 7.1 General

§ 7.1.1 Changes in the Work may be accomplished after execution of the Contract, and without invalidating the Contract, by Change Order, Construction Change Directive or order for a minor change in the Work, subject to the limitations stated in this Article 7 and elsewhere in the Contract Documents.

§ 7.1.2 A Change Order shall be based upon agreement among the Owner and Contractor. A Construction Change Directive may be issued by the Owner or Architect and may or may not be agreed to by the Contractor. An order for a minor change in the Work may be issued by the Owner or Architect.

§ 7.1.3 Changes in the Work shall be performed under applicable provisions of the Contract Documents. The Contractor shall proceed promptly with changes in the Work, unless otherwise provided in the Change Order, Construction Change Directive, or order for a minor change in the Work.

§ 7.2 Change Orders

§ 7.2.1 A Change Order is a written instrument prepared by the Architect and signed by the Owner, Contractor, and Architect stating their agreement upon all of the following:

.1 The change in the Work;

.2 The amount of the adjustment, if any, in the Contract Sum; and

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.3 The extent of the adjustment, if any, in the Contract Time.

§ 7.2.2 A fully executed Change Order, or a Construction Change Directive signed by the Contractor, shall constitute a final settlement of all known matters relating to or arising out of the change in the Work that is subject of the Change Order or Construction Change Directive, including but in no way limited to, all direct and indirect costs associated with such change and any and all adjustments to the Contract Sum and Contract Time.

§ 7.2.3 No course of conduct or dealing between the parties and no expressed or implied acceptance of alterations or additions to the Work shall be the basis of any claim for an increase in the Contract Sum or for a change in the Contract Time in the absence of a Change Order or Construction Change Directive.

§ 7.3 Construction Change Directives

§ 7.3.1 A Construction Change Directive is a written order prepared by the Architect and signed by the Owner and Architect, directing a change in the Work prior to agreement on adjustment, if any, in the Contract Sum or Contract Time, or both. The Owner may by Construction Change Directive, without invalidating the Contract, order changes in the Work within the general scope of the Contract consisting of additions, deletions, or other revisions, the Contract Sum and Contract Time being adjusted accordingly.

§ 7.3.2 A Construction Change Directive shall be used in the absence of total agreement on the terms of a Change Order.

§ 7.3.3 If the Construction Change Directive provides for an adjustment to the Contract Sum, the adjustment shall be based on one of the following methods:

.1 Mutual acceptance of a lump sum properly itemized and supported by sufficient substantiating data to permit evaluation;

.2 Unit prices stated in the Contract Documents or subsequently agreed upon;

.3 Cost to be determined in a manner agreed upon by the parties and a mutually acceptable fixed or percentage fee; or

.4 As provided in Section 7.3.4.

§ 7.3.4 If the Contractor does not respond promptly or disagrees with the method for adjustment in the Contract Sum, the Architect shall determine the adjustment on the basis of reasonable expenditures and savings of those performing the Work attributable to the change, including, in case of an increase in the Contract Sum, an amount for overhead and profit as set forth in the Agreement, or if no such amount is set forth in the Agreement, a reasonable amount. In such case, and also under Section 7.3.3.3, the Contractor shall keep and present, in such form as the Architect may prescribe, an itemized accounting together with appropriate supporting data. Unless otherwise provided in the Contract Documents, costs for the purposes of this Section 7.3.4 shall be limited to the following:

.1 Costs of labor, including applicable payroll taxes, fringe benefits required by agreement or custom, workers' compensation insurance, and other employee costs approved by the Architect;

.2 Costs of materials, supplies, and equipment, including cost of transportation, whether incorporated or consumed;

.3 Rental costs of machinery and equipment, exclusive of hand tools, whether rented from the Contractor or others;

.4 Costs of premiums for all bonds and insurance, permit fees, and sales, use, or similar taxes, directly related to the change; and

.5 Costs of supervision and field office personnel directly attributable to the change.

§ 7.3.5 If the Contractor disagrees with the adjustment in the Contract Time, the Contractor may make a Claim in accordance with applicable provisions of Article 15.

§ 7.3.6 Upon receipt of a Construction Change Directive, the Contractor shall promptly proceed with the change in the Work involved and advise the Architect of the Contractor's agreement or disagreement with the method, if any, provided in the Construction Change Directive for determining the proposed adjustment in the Contract Sum or Contract Time.

§ 7.3.7 A Construction Change Directive signed by the Contractor indicates the Contractor's agreement therewith,

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including adjustment in Contract Sum and Contract Time or the method for determining them. Such agreement shall be effective immediately and shall be recorded as a Change Order.

§ 7.3.8 The amount of credit to be allowed by the Contractor to the Owner for a deletion or change that results in a net decrease in the Contract Sum shall be actual net cost as confirmed by the Architect. When both additions and credits covering related Work or substitutions are involved in a change, the allowance for overhead and profit shall be figured on the basis of net increase, if any, with respect to that change.

§ 7.3.9 Pending final determination of the total cost of a Construction Change Directive to the Owner, the Contractor may request payment for Work completed under the Construction Change Directive in Applications for Payment. The Architect will make an interim determination for purposes of monthly certification for payment for those costs and certify for payment the amount that the Architect determines, in the Architect's professional judgment, to be reasonably justified. The Architect's interim determination of cost shall adjust the Contract Sum on the same basis as a Change Order, subject to the right of either party to disagree and assert a Claim in accordance with Article 15.

§ 7.3.10 When the Owner and Contractor agree with a determination made by the Architect concerning the adjustments in the Contract Sum and Contract Time, or otherwise reach agreement upon the adjustments, such agreement shall be effective immediately and the Architect will prepare a Change Order. Change Orders may be issued for all or any part of a Construction Change Directive.

§ 7.4 Minor Changes in the Work

The Architect may order minor changes in the Work that are consistent with the intent of the Contract Documents and do not involve an adjustment in the Contract Sum or an extension of the Contract Time. The Architect's order for minor changes shall be in writing. If the Contractor believes that the proposed minor change in the Work will affect the Contract Sum or Contract Time, the Contractor shall notify the Architect and shall not proceed to implement the change in the Work. If the Contractor performs the Work set forth in the Architect's order for a minor change without prior notice to the Architect that such change will affect the Contract Sum or Contract Time, the Contractor waives any adjustment to the Contract Sum or extension of the Contract Time.

ARTICLE 8 TIME

§ 8.1 Definitions

§ 8.1.1 Unless otherwise provided, Contract Time is the period of time, including authorized adjustments, allotted in the Contract Documents for Substantial Completion of the Work.

§ 8.1.2 The date of commencement of the Work is the date established in the Agreement.

§ 8.1.3 The date of Substantial Completion is the date certified by the Architect in accordance with Section 9.8.

§ 8.1.4 The term "day" as used in the Contract Documents shall mean calendar day unless otherwise specifically defined.

§ 8.2 Progress and Completion

§ 8.2.1 Time limits stated in the Contract Documents are of the essence of the Contract. By executing the Agreement, the Contractor confirms that the Contract Time is a reasonable period for performing the Work.

§ 8.2.2 The Contractor shall not knowingly, except by agreement or instruction of the Owner in writing, commence the Work prior to the effective date of insurance required to be furnished by the Contractor and Owner.

§ 8.2.3 The Contractor shall proceed expeditiously with adequate forces and shall achieve Substantial Completion within the Contract Time.

§ 8.2.4 If the Owner determines that the Work has failed to progress or reach the level of completion required by the Contract Documents, and such failure is the fault of the Contractor or a Subcontractor, the Owner may, but is not obligated to, order the Contractor to take necessary corrective measures to expedite the progress of the Work, including, without limitation, (1) additional shifts or overtime; (2) additional manpower, equipment and facilities; and (3) similar measures (referred to collectively as "extraordinary measures"). If so ordered by the Owner, such extraordinary measures shall continue until the Work achieves the level of completion required by the Contract Documents. The Owner's right to require extraordinary measures is solely for the purposes of ensuring the

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Contractor's compliance with the construction schedule and shall not entitle the Contractor to an increase in the Contract Sum.

§ 8.3 Delays and Extensions of Time

§ 8.3.1 If the Contractor is delayed at any time in the commencement or progress of the Work by (1) an act or neglect of the Owner or Architect, of an employee of either, or of a Separate Contractor; (2) by changes ordered in the Work; (3) by labor disputes, fire, unusual delay in deliveries, unavoidable casualties, adverse weather conditions documented in accordance with Section 15.1.6.2, or other causes beyond the Contractor's control and which are not due to any fault, neglect, act or omission on the part of the Contractor or its Subcontractors or suppliers; (4) by delay authorized by the Owner pending mediation and binding dispute resolution; or (5) by other causes that the Contractor asserts, and the Architect determines, justify delay, then the Contract Time shall be extended for such reasonable time as the Architect may determine.

§ 8.3.2 Claims relating to time shall be made in accordance with applicable provisions of Article 15.

§ 8.3.3 This Section 8.3 does not preclude recovery of damages for delay by either party under other provisions of the Contract Documents.

ARTICLE 9 PAYMENTS AND COMPLETION

§ 9.1 Contract Sum

§ 9.1.1 The Contract Sum is stated in the Agreement and, including authorized adjustments, is the total amount payable by the Owner to the Contractor for performance of the Work under the Contract Documents.

§ 9.1.2 If unit prices are stated in the Contract Documents or subsequently agreed upon, and if quantities originally contemplated are materially changed so that application of such unit prices to the actual quantities causes substantial inequity to the Owner or Contractor, the applicable unit prices shall be equitably adjusted.

§ 9.2 Schedule of Values

Where the Contract is based on a stipulated sum or Guaranteed Maximum Price, the Contractor shall submit a schedule of values to the Architect before the first Application for Payment, allocating the entire Contract Sum to the various portions of the Work. The schedule of values shall be prepared in the form, and supported by the data to substantiate its accuracy, required by the Architect. This schedule, unless objected to by the Architect, shall be used as a basis for reviewing the Contractor's Applications for Payment. Any changes to the schedule of values shall be submitted to the Architect and supported by such data to substantiate its accuracy as the Architect may require, and unless objected to by the Architect, shall be used as a basis for reviewing the Contractor's subsequent Applications for Payment.

§ 9.3 Applications for Payment

§ 9.3.1 At least ten days before the date established for each progress payment, the Contractor shall submit to the Architect an itemized Application for Payment prepared in accordance with the schedule of values, if required under Section 9.2, for completed portions of the Work. The application shall be notarized, if required, and supported by all data substantiating the Contractor's right to payment that the Owner or Architect require, such as copies of requisitions, and releases and waivers of liens from Subcontractors and suppliers, and shall reflect retainage if provided for in the Contract Documents.

§ 9.3.1.1 As provided in Section 7.3.9, such applications may include requests for payment on account of changes in the Work that have been properly authorized by Construction Change Directives, or by interim determinations of the Architect, but not yet included in Change Orders.

§ 9.3.1.2 Applications for Payment shall not include requests for payment for portions of the Work for which the Contractor does not intend to pay a Subcontractor or supplier, unless such Work has been performed by others whom the Contractor intends to pay.

§ 9.3.2 Unless otherwise provided in the Contract Documents, payments shall be made on account of materials and equipment delivered and suitably stored at the site for subsequent incorporation in the Work. If approved in advance by the Owner, payment may similarly be made for materials and equipment suitably stored off the site at a location agreed upon in writing. Payment for materials and equipment stored on or off the site shall be conditioned upon compliance by the Contractor with procedures satisfactory to the Owner to establish the Owner's title to such

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materials and equipment or otherwise protect the Owner's interest, and shall include the costs of applicable insurance, storage, and transportation to the site, for such materials and equipment stored off the site.

§ 9.3.3 The Contractor warrants that title to all Work covered by an Application for Payment will pass to the Owner no later than the time of payment. The Contractor further warrants that upon submittal of an Application for Payment all Work for which Certificates for Payment have been previously issued and payments received from the Owner shall, to the best of the Contractor's knowledge, information, and belief, be free and clear of liens, claims, security interests, or encumbrances, in favor of the Contractor, Subcontractors, suppliers, or other persons or entities that provided labor, materials, and equipment relating to the Work.

§ 9.4 Certificates for Payment

§ 9.4.1 The Architect will, within seven days after receipt of the Contractor's Application for Payment, either (1) issue to the Owner a Certificate for Payment in the full amount of the Application for Payment, with a copy to the Contractor; or (2) issue to the Owner a Certificate for Payment for such amount as the Architect determines is properly due, and notify the Contractor and Owner of the Architect's reasons for withholding certification in part as provided in Section 9.5.1; or (3) withhold certification of the entire Application for Payment, and notify the Contractor and Owner of the Architect's reason for withholding certification in whole as provided in Section 9.5.1.

§ 9.4.2 The issuance of a Certificate for Payment will constitute a representation by the Architect to the Owner, based on the Architect's evaluation of the Work and the data in the Application for Payment, that, to the best of the Architect's knowledge, information, and belief, the Work has progressed to the point indicated, the quality of the Work is in accordance with the Contract Documents, and that the Contractor is entitled to payment in the amount certified. The foregoing representations are subject to an evaluation of the Work for conformance with the Contract Documents upon Substantial Completion, to results of subsequent tests and inspections, to correction of minor deviations from the Contract Documents prior to completion, and to specific qualifications expressed by the Architect. However, the issuance of a Certificate for Payment will not be a representation that the Architect has (1) made exhaustive or continuous on-site inspections to check the quality or quantity of the Work; (2) reviewed construction means, methods, techniques, sequences, or procedures; (3) reviewed copies of requisitions received from Subcontractors and suppliers and other data requested by the Owner to substantiate the Contractor's right to payment; or (4) made examination to ascertain how or for what purpose the Contractor has used money previously paid on account of the Contract Sum.

§ 9.5 Decisions to Withhold Certification

§ 9.5.1 The Architect may withhold a Certificate for Payment in whole or in part, to the extent reasonably necessary to protect the Owner, if in the Architect's opinion the representations to the Owner required by Section 9.4.2 cannot be made. If the Architect is unable to certify payment in the amount of the Application, the Architect will notify the Contractor and Owner as provided in Section 9.4.1. If the Contractor and Architect cannot agree on a revised amount, the Architect will promptly issue a Certificate for Payment for the amount for which the Architect is able to make such representations to the Owner. The Owner may withhold payment in whole or in part, or the Architect may also withhold a Certificate for Payment or, because of subsequently discovered evidence, may nullify the whole or a part of a Certificate for Payment previously issued, to such extent as may be necessary in the Architect's opinion to protect the Owner from loss for which the Contractor is responsible, including loss resulting from acts and omissions described in Section 3.3.2, because of

- **.1** defective Work not remedied;
- **.2** third party claims filed or reasonable evidence indicating probable filing of such claims, unless security acceptable to the Owner is provided by the Contractor;
- **.3** failure of the Contractor to make payments properly to Subcontractors or suppliers for labor, materials or equipment;
- **.4** reasonable evidence that the Work cannot be completed for the unpaid balance of the Contract Sum;
- **.5** damage to the Owner or a Separate Contractor;
- **.6** reasonable evidence that the Work will not be completed within the Contract Time, and that the unpaid balance would not be adequate to cover actual or liquidated damages for the anticipated delay; or
- **.7** repeated failure to carry out the Work in accordance with the Contract Documents.

§ 9.5.2 When either party disputes the Architect's decision regarding a Certificate for Payment under Section 9.5.1, in whole or in part, that party may submit a Claim in accordance with Article 15.

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§ 9.5.3 When the reasons for withholding certification are removed, certification will be made for amounts previously withheld. The Owner shall not be deemed to be in default of the Contract by reason of withholding payment while any of the grounds set forth in Section 9.5.1 remain uncured.

§ 9.5.4 If the Architect withholds certification for payment under Section 9.5.1.3, the Owner may, at its sole option, issue joint checks to the Contractor and to any Subcontractor or supplier to whom the Contractor failed to make payment for Work properly performed or material or equipment suitably delivered. If the Owner makes payments by joint check, the Owner shall notify the Architect and the Contractor shall reflect such payment on its next Application for Payment.

§ 9.6 Progress Payments

§ 9.6.1 After the Architect has issued a Certificate for Payment, the Owner shall make payment in the manner and within the time provided in the Contract Documents, and shall so notify the Architect.

§ 9.6.2 The Contractor shall pay each Subcontractor, no later than seven days after receipt of payment from the Owner, the amount to which the Subcontractor is entitled, reflecting percentages actually retained from payments to the Contractor on account of the Subcontractor's portion of the Work. The Contractor shall, by appropriate agreement with each Subcontractor, require each Subcontractor to make payments to Sub-subcontractors in a similar manner.

§ 9.6.3 The Architect will, on request, furnish to a Subcontractor, if practicable, information regarding percentages of completion or amounts applied for by the Contractor and action taken thereon by the Architect and Owner on account of portions of the Work done by such Subcontractor.

§ 9.6.4 The Owner has the right to request written evidence from the Contractor that the Contractor has properly paid Subcontractors and suppliers amounts paid by the Owner to the Contractor for subcontracted Work. If the Contractor fails to furnish such evidence within seven days, the Owner shall have the right to contact Subcontractors and suppliers to ascertain whether they have been properly paid. Neither the Owner nor Architect shall have an obligation to pay, or to see to the payment of money to, a Subcontractor or supplier, except as may otherwise be required by law.

§ 9.6.5 The Contractor's payments to suppliers shall be treated in a manner similar to that provided in Sections 9.6.2, 9.6.3 and 9.6.4.

§ 9.6.6 A Certificate for Payment, a progress payment, or partial or entire use or occupancy of the Project by the Owner shall not constitute acceptance of Work not in accordance with the Contract Documents.

§ 9.6.7 Unless the Contractor provides the Owner with a payment bond in the full penal sum of the Contract Sum, payments received by the Contractor for Work properly performed by Subcontractors or provided by suppliers shall be held by the Contractor for those Subcontractors or suppliers who performed Work or furnished materials, or both, under contract with the Contractor for which payment was made by the Owner. Nothing contained herein shall require money to be placed in a separate account and not commingled with money of the Contractor, create any fiduciary liability or tort liability on the part of the Contractor for breach of trust, or entitle any person or entity to an award of punitive damages against the Contractor for breach of the requirements of this provision.

§ 9.6.8 Provided the Owner has fulfilled its payment obligations under the Contract Documents, the Contractor shall defend and indemnify the Owner from all loss, liability, damage or expense, including reasonable attorney's fees and litigation expenses, arising out of any lien claim or other claim for payment by any Subcontractor or supplier of any tier. Upon receipt of notice of a lien claim or other claim for payment, the Owner shall notify the Contractor. If approved by the applicable court, when required, the Contractor may substitute a surety bond for the property against which the lien or other claim for payment has been asserted.

§ 9.6.9 As required by Ind. Code § 36-1-12-20(c), the cost for trench safety systems, if any, shall be paid for as a separate pay item or in the pay of the principal work with which safety systems are associated.

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§ 9.7 Failure of Payment

If the Architect does not issue a Certificate for Payment, through no fault of the Contractor, within seven days after receipt of the Contractor's Application for Payment, or if the Owner does not pay the Contractor within seven days after the date established in the Contract Documents, the amount certified by the Architect or awarded by binding dispute resolution, then the Contractor may, upon seven additional days' notice to the Owner and Architect, stop the Work until payment of the amount owing has been received. The Contract Time shall be extended appropriately.

§ 9.8 Substantial Completion

§ 9.8.1 Substantial Completion is the stage in the progress of the Work when the Work or designated portion thereof is sufficiently complete in accordance with the Contract Documents so that the Owner can occupy or utilize the Work for its intended use.

§ 9.8.2 When the Contractor considers that the Work, or a portion thereof which the Owner agrees to accept separately, is substantially complete, the Contractor shall prepare and submit to the Architect a comprehensive list of items to be completed or corrected prior to final payment. Failure to include an item on such list does not alter the responsibility of the Contractor to complete all Work in accordance with the Contract Documents.

§ 9.8.3 Upon receipt of the Contractor's list, the Owner and Architect will make an inspection to determine whether the Work or designated portion thereof is substantially complete. If the inspection discloses any item, whether or not included on the Contractor's list, which is not sufficiently complete in accordance with the Contract Documents so that the Owner can occupy or utilize the Work or designated portion thereof for its intended use, the Contractor shall, before issuance of the Certificate of Substantial Completion, complete or correct such item upon notification by the Architect. In such case, the Contractor shall then submit a request for another inspection to determine Substantial Completion.

§ 9.8.4 When the Work or designated portion thereof is substantially complete, the Architect will prepare a Certificate of Substantial Completion that shall establish the date of Substantial Completion; establish responsibilities of the Owner and Contractor for security, maintenance, heat, utilities, damage to the Work and insurance; and fix the time within which the Contractor shall finish all items on the list accompanying the Certificate. Warranties required by the Contract Documents shall commence on the date of Substantial Completion of the Work or designated portion thereof unless otherwise provided in the Certificate of Substantial Completion.

§ 9.8.5 The Certificate of Substantial Completion shall be submitted to the Owner and Contractor for their written acceptance of responsibilities assigned to them in the Certificate. Upon such acceptance, and consent of surety if any, the Owner shall make payment of retainage applying to the Work or designated portion thereof. Such payment shall be adjusted for Work that is incomplete or not in accordance with the requirements of the Contract Documents.

§ 9.8.6 The Contractor shall complete or correct all items included on the list prepared pursuant to Section 9.8.3, as such list may be supplemented from time to time by the Owner or Architect, within thirty (30) days from the date of Substantial Completion, or the Owner shall have the right, after three (3) days' written notice to the Contractor, to complete or correct such items at the Contractor's sole cost and expense.

§ 9.9 Partial Occupancy or Use

§ 9.9.1 The Owner may occupy or use any completed or partially completed portion of the Work at any stage when such portion is designated by separate agreement with the Contractor, provided such occupancy or use is consented to by the insurer and authorized by public authorities having jurisdiction over the Project. Such partial occupancy or use may commence whether or not the portion is substantially complete, provided the Owner and Contractor have accepted in writing the responsibilities assigned to each of them for payments, retainage, if any, security, maintenance, heat, utilities, damage to the Work and insurance, and have agreed in writing concerning the period for correction of the Work and commencement of warranties required by the Contract Documents. When the Contractor considers a portion substantially complete, the Contractor shall prepare and submit a list to the Architect as provided under Section 9.8.2. Consent of the Contractor to partial occupancy or use shall not be unreasonably withheld. The stage of the progress of the Work shall be determined by written agreement between the Owner and Contractor or, if no agreement is reached, by decision of the Architect.

§ 9.9.2 Immediately prior to such partial occupancy or use, the Owner, Contractor, and Architect shall jointly inspect the area to be occupied or portion of the Work to be used in order to determine and record the condition of the Work.

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§ 9.9.3 Unless otherwise agreed upon, partial occupancy or use of a portion or portions of the Work shall not constitute acceptance of Work not complying with the requirements of the Contract Documents nor shall the Owner waive any rights under the Contract by such partial occupancy or use.

§ 9.10 Final Completion and Final Payment

§ 9.10.1 Upon receipt of the Contractor's notice that the Work is ready for final inspection and acceptance and upon receipt of a final Application for Payment, the Architect will promptly make such inspection. When the Architect and Owner find the Work acceptable under the Contract Documents and the Contract fully performed, the Architect will promptly issue a final Certificate for Payment stating that to the best of the Architect's knowledge, information and belief, and on the basis of the Architect's on-site visits and inspections, the Work has been completed in accordance with the Contract Documents and that the entire balance found to be due the Contractor and noted in the final Certificate is due and payable. The Architect's final Certificate for Payment will constitute a further representation that conditions listed in Section 9.10.2 as precedent to the Contractor's being entitled to final payment have been fulfilled.

§ 9.10.2 Neither final payment nor any remaining retained percentage shall become due until the Contractor submits to the Architect (1) an affidavit that payrolls, bills for materials and equipment, and other indebtedness connected with the Work for which the Owner or the Owner's property might be responsible or encumbered (less amounts withheld by Owner) have been paid or otherwise satisfied, (2) a certificate evidencing that insurance required by the Contract Documents to remain in force after final payment is currently in effect, (3) a written statement that the Contractor knows of no reason that the insurance will not be renewable to cover the period required by the Contract Documents, (4) consent of surety, if any, to final payment, (5) documentation of any special warranties, such as manufacturers' warranties or specific Subcontractor warranties, and (6) if required by the Owner, other data establishing payment or satisfaction of obligations, such as receipts and releases and waivers of liens, claims, security interests, or encumbrances arising out of the Contract, to the extent and in such form as may be designated by the Owner. If a Subcontractor refuses to furnish a release or waiver required by the Owner, the Contractor may furnish a bond satisfactory to the Owner to indemnify the Owner against such lien, claim, security interest, or encumbrance. If a lien, claim, security interest, or encumbrance remains unsatisfied after payments are made, the Contractor shall refund to the Owner all money that the Owner may be compelled to pay in discharging the lien, claim, security interest, or encumbrance, including all costs and reasonable attorneys' fees. Final payment is further subject to the provisions of Ind. Code § 36-1-12-14(f) regarding final payment, payment by the escrow agent, and withholding for uncompleted minor items.

§ 9.10.3 If, after Substantial Completion of the Work, final completion thereof is materially delayed through no fault of the Contractor or by issuance of Change Orders affecting final completion, and the Architect so confirms, the Owner shall, upon application by the Contractor and certification by the Architect, and without terminating the Contract, make payment of the balance due for that portion of the Work fully completed, corrected, and accepted. If the remaining balance for Work not fully completed or corrected is less than retainage stipulated in the Contract Documents, and if bonds have been furnished, the written consent of the surety to payment of the balance due for that portion of the Work fully completed and accepted shall be submitted by the Contractor to the Architect prior to certification of such payment. Such payment shall be made under terms and conditions governing final payment, except that it shall not constitute a waiver of Claims.

§ 9.10.4 The making of final payment shall constitute a waiver of Claims by the Owner except those arising from

- **.1** liens, Claims, security interests, or encumbrances arising out of the Contract and unsettled;
- **.2** failure of the Work to comply with the requirements of the Contract Documents;
- **.3** terms of special warranties required by the Contract Documents; or
- **.4** audits performed by the Owner, if permitted by the Contract Documents, after final payment.

§ 9.10.5 Acceptance of final payment by the Contractor, a Subcontractor, or a supplier, shall constitute a waiver of claims by that payee except those previously made in writing and identified by that payee as unsettled at the time of final Application for Payment.

ARTICLE 10 PROTECTION OF PERSONS AND PROPERTY

§ 10.1 Safety Precautions and Programs

The Contractor shall be responsible for initiating, maintaining, and supervising all safety precautions and programs in connection with the performance of the Contract.

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§ 10.2 Safety of Persons and Property

§ 10.2.1 The Contractor shall take reasonable precautions for safety of, and shall provide reasonable protection to prevent damage, injury, or loss to

.1 employees on the Work and other persons who may be affected thereby;

.2 the Work and materials and equipment to be incorporated therein, whether in storage on or off the site, under care, custody, or control of the Contractor, a Subcontractor, or a Sub-subcontractor; and

.3 other property at the site or adjacent thereto, such as trees, shrubs, lawns, walks, pavements, roadways, structures, and utilities not designated for removal, relocation, or replacement in the course of construction.

§ 10.2.2 The Contractor shall comply with, and give notices required by applicable laws, statutes, ordinances, codes, rules and regulations, and lawful orders of public authorities, bearing on safety of persons or property or their protection from damage, injury, or loss.

§ 10.2.2.1 The provisions of Ind. Code § 36-1-12-20 and IOSHA regulations 29 CFR 1926, Subpart P, pertaining to trench safety systems are incorporated herein by this reference.

§ 10.2.3 The Contractor shall implement, erect, and maintain, as required by existing conditions and performance of the Contract, reasonable safeguards for safety and protection, including posting danger signs and other warnings against hazards; promulgating safety regulations; and notifying the owners and users of adjacent sites and utilities of the safeguards.

§ 10.2.4 When use or storage of explosives or other hazardous materials or equipment, or unusual methods are necessary for execution of the Work, the Contractor shall exercise utmost care and carry on such activities under supervision of properly qualified personnel.

§ 10.2.5 The Contractor shall promptly remedy damage and loss (other than damage or loss insured under property insurance required by the Contract Documents) to property referred to in Sections 10.2.1.2 and 10.2.1.3 caused in whole or in part by the Contractor, a Subcontractor, a Sub-subcontractor, or anyone directly or indirectly employed by any of them, or by anyone for whose acts they may be liable and for which the Contractor is responsible under Sections 10.2.1.2 and 10.2.1.3. The Contractor may make a Claim for the cost to remedy the damage or loss to the extent such damage or loss is attributable to acts or omissions of the Owner or Architect or anyone directly or indirectly employed by either of them, or by anyone for whose acts either of them may be liable, and not attributable to the fault or negligence of the Contractor. The foregoing obligations of the Contractor are in addition to the Contractor's obligations under Section 3.18.

§ 10.2.6 The Contractor shall designate a responsible member of the Contractor's organization at the site whose duty shall be the prevention of accidents. This person shall be the Contractor's superintendent unless otherwise designated by the Contractor in writing to the Owner and Architect.

§ 10.2.7 The Contractor shall not permit any part of the construction or site to be loaded so as to cause damage or create an unsafe condition.

§ 10.2.8 Injury or Damage to Person or Property

If either party suffers injury or damage to person or property because of an act or omission of the other party, or of others for whose acts such party is legally responsible, notice of the injury or damage, whether or not insured, shall be given to the other party within a reasonable time not exceeding 21 days after discovery. The notice shall provide sufficient detail to enable the other party to investigate the matter.

§ 10.3 Hazardous Materials and Substances

§ 10.3.1 The Contractor is responsible for compliance with all requirements included in the Contract Documents and with all federal, state and local laws, statutes, ordiances, rules, regulations and lawful orders of public authorities regarding hazardous materials or substances. If the Contractor encounters a hazardous material or substance not addressed in the Contract Documents and if reasonable precautions will be inadequate to prevent foreseeable bodily injury or death to persons resulting from a material or substance, including but not limited to asbestos or polychlorinated biphenyl (PCB), encountered on the site by the Contractor, the Contractor shall, upon recognizing

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the condition, immediately stop Work in the affected area and notify the Owner and Architect of the condition.

§ 10.3.2 Upon receipt of the Contractor's notice, the Owner shall obtain the services of a licensed laboratory to verify the presence or absence of the material or substance reported by the Contractor and, in the event such material or substance is found to be present, to cause it to be rendered harmless. When the material or substance has been rendered harmless, Work in the affected area shall resume upon written agreement of the Owner and Contractor. By Change Order, the Contract Time shall be extended appropriately and the Contract Sum shall be increased by the amount of the Contractor's reasonable additional costs of shutdown, delay, and start-up. The term "rendered harmless" shall mean that levels are less than any permissible exposure limits set forth in OSHA regulations.

§ 10.3.3 To the fullest extent permitted by law, the Owner shall indemnify and hold harmless the Contractor, Subcontractors, Architect, Architect's consultants, and agents and employees of any of them from and against claims, damages, losses, and expenses, including but not limited to attorneys' fees, arising out of or resulting from performance of the Work in the affected area if in fact the material or substance presents the risk of bodily injury or death as described in Section 10.3.1 and has not been rendered harmless, provided that such claim, damage, loss, or expense is attributable to bodily injury, sickness, disease or death, or to injury to or destruction of tangible property (other than the Work itself), except to the extent that such damage, loss, or expense is due to the fault or negligence of the party seeking indemnity.

§ 10.3.4 The Contractor, not the Owner shall be responsible under this Section 10.3 for hazardous materials or substances the Contractor brings to the site.

§ 10.3.5 The Contractor shall reimburse the Owner for the cost and expense the Owner incurs (1) for remediation of hazardous materials or substances the Contractor or its Subcontractors or suppliers brings to the site if that material or substance is spilled, leaked, released, discharged, abandoned, or negligently, recklessly, or carelessly handled, or intentionally, willfully, or knowingly mishandled, or (2) where the Contractor fails to perform its obligations under Section 10.3.1, except to the extent that the cost and expense are due to the Owner's fault or negligence.

§ 10.3.6 If, without negligence on the part of the Contractor, the Contractor is held liable by a government agency for the cost of remediation of a hazardous material or substance solely by reason of performing Work as required by the Contract Documents, the Owner shall reimburse the Contractor for all cost and expense thereby incurred.

§ 10.4 Emergencies

In an emergency affecting safety of persons or property, the Contractor shall act, at the Contractor's discretion, to prevent threatened damage, injury, or loss. Additional compensation or extension of time claimed by the Contractor on account of an emergency shall be determined as provided in Article 15 and Article 7.

ARTICLE 11 INSURANCE AND BONDS

§ 11.1 Contractor's Insurance and Bonds

§ 11.1.1 The Contractor shall purchase and maintain insurance of the types and limits of liability, containing the endorsements, and subject to the terms and conditions, as described in the Agreement or elsewhere in the Contract Documents. The Contractor shall purchase and maintain the required insurance from an insurance company or insurance companies lawfully authorized to issue insurance in the jurisdiction where the Project is located. The Owner, Architect, and Architect's consultants shall be named as additional insureds under the Contractor's commercial general liability policy or as otherwise described in the Contract Documents.

§ 11.1.2 The Contractor shall provide surety bonds of the types, for such penal sums, and subject to such terms and conditions as required by the Contract Documents. The Contractor shall purchase and maintain the required bonds from a company or companies lawfully authorized to issue surety bonds in the jurisdiction where the Project is located.

§ 11.1.3 Upon the request of any person or entity appearing to be a potential beneficiary of bonds covering payment of obligations arising under the Contract, the Contractor shall promptly furnish a copy of the bonds or shall authorize a copy to be furnished.

§ 11.1.4 Notice of Cancellation or Expiration of Contractor's Required Insurance. Within three (3) business days of the date the Contractor becomes aware of an impending or actual cancellation or expiration of any insurance required by the Contract Documents, the Contractor shall provide notice to the Owner of such impending or actual cancellation

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or expiration. Upon receipt of notice from the Contractor, the Owner shall, unless the lapse in coverage arises from an act or omission of the Owner, have the right to stop the Work until the lapse in coverage has been cured by the procurement of replacement coverage by the Contractor. The furnishing of notice by the Contractor shall not relieve the Contractor of any contractual obligation to provide any required coverage.

§ 11.1.5 Notwithstanding anything to the contrary in the Contract, no agreement or provision contained herein to procure or provide insurance shall be deemed or construed to constitute a waiver of liability, an agreement to exculpate a party from the consequences of its own negligence, or limit the Owner's recourse to the proceeds of such insurance.

§ 11.2 Owner's Insurance

§ 11.2.1 The Owner shall purchase and maintain insurance of the types and limits of liability, containing the endorsements, and subject to the terms and conditions, as described in the Agreement or elsewhere in the Contract Documents. The Owner shall purchase and maintain the required insurance from an insurance company or insurance companies lawfully authorized to issue insurance in the jurisdiction where the Project is located.

§ 11.2.2 Failure to Purchase Required Property Insurance. If the Owner fails to purchase and maintain the required property insurance, with all of the coverages and in the amounts described in the Agreement or elsewhere in the Contract Documents, the Owner shall inform the Contractor in writing prior to commencement of the Work. Upon receipt of notice from the Owner, the Contractor may delay commencement of the Work and may obtain insurance that will protect the interests of the Contractor, Subcontractors, and Sub-Subcontractors in the Work. When the failure to provide coverage has been cured or resolved, the Contract Sum and Contract Time shall be equitably adjusted. In the event the Owner fails to procure coverage, the Owner waives all rights against the Contractor, Subcontractors, and Sub-subcontractors to the extent the loss to the Owner would have been covered by the insurance to have been procured by the Owner. The cost of the insurance shall be charged to the Owner by a Change Order. If the Owner does not provide written notice, and the Contractor is damaged by the failure or neglect of the Owner to purchase or maintain the required insurance, the Owner shall reimburse the Contractor for all reasonable costs and damages attributable thereto.

§ 11.2.3 Notice of Cancellation or Expiration of Owner's Required Property Insurance. Within three (3) business days of the date the Owner becomes aware of an impending or actual cancellation or expiration of any property insurance required by the Contract Documents, the Owner shall provide notice to the Contractor of such impending or actual cancellation or expiration. Unless the lapse in coverage arises from an act or omission of the Contractor: (1) the Contractor, upon receipt of notice from the Owner, shall have the right to stop the Work until the lapse in coverage has been cured by the procurement of replacement coverage by either the Owner or the Contractor; (2) the Contract Time and Contract Sum shall be equitably adjusted; and (3) the Owner waives all rights against the Contractor, Subcontractors, and Sub-subcontractors to the extent any loss to the Owner would have been covered by the insurance had it not expired or been cancelled. If the Contractor purchases replacement coverage, the cost of the insurance shall be charged to the Owner by an appropriate Change Order. The furnishing of notice by the Owner shall not relieve the Owner of any contractual obligation to provide required insurance.

§ 11.3 Waivers of Subrogation

§ 11.3.1 The Owner and Contractor waive all rights against (1) each other and any of their subcontractors, sub-subcontractors, agents, and employees, each of the other; (2) the Architect and Architect's consultants; and (3) Separate Contractors, if any, and any of their subcontractors, sub-subcontractors, agents, and employees, for damages caused by fire, or other causes of loss, to the extent those losses are covered by property insurance required by the Agreement or other property insurance applicable to the Project, except such rights as they have to proceeds of such insurance. The Owner or Contractor, as appropriate, shall require similar written waivers in favor of the individuals and entities identified above from the Architect, Architect's consultants, Separate Contractors, subcontractors, and sub-subcontractors. The policies of insurance purchased and maintained by each person or entity agreeing to waive claims pursuant to this section 11.3.1 shall not prohibit this waiver of subrogation. This waiver of subrogation shall be effective as to a person or entity (1) even though that person or entity would otherwise have a duty of indemnification, contractual or otherwise, (2) even though that person or entity did not pay the insurance premium directly or indirectly, or (3) whether or not the person or entity had an insurable interest in the damaged property.

§ 11.3.2 If during the Project construction period the Owner insures properties, real or personal or both, at or adjacent to the site by property insurance under policies separate from those insuring the Project, or if after final payment property insurance is to be provided on the completed Project through a policy or policies other than those insuring

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the Project during the construction period, to the extent permissible by such policies, the Owner waives all rights in accordance with the terms of Section 11.3.1 for damages caused by fire or other causes of loss covered by this separate property insurance.

§ 11.4 Loss of Use, Business Interruption, and Delay in Completion Insurance

The Owner, at the Owner's option, may purchase and maintain insurance that will protect the Owner against loss of use of the Owner's property, or the inability to conduct normal operations, due to fire or other causes of loss. The Owner waives all rights of action against the Contractor and Architect for loss of use of the Owner's property, due to fire or other hazards however caused.

§11.5 Adjustment and Settlement of Insured Loss

§ 11.5.1 A loss insured under the property insurance required by the Agreement shall be adjusted by the Owner and made payable to the Owner for the insureds, as their interests may appear, subject to requirements of any applicable mortgagee clause and of Section 11.5.2. The Owner shall pay the Architect and Contractor their just shares of insurance proceeds received by the Owner, and by appropriate agreements the Architect and Contractor shall make payments to their consultants and Subcontractors in similar manner.

§ 11.5.2 Prior to settlement of an insured loss, the Owner shall notify the Contractor of the terms of the proposed settlement as well as the proposed allocation of the insurance proceeds. The Contractor shall have 14 days from receipt of notice to object to the proposed settlement or allocation of the proceeds. If the Contractor does not object, the Owner shall settle the loss and the Contractor shall be bound by the settlement and allocation. Upon receipt, the Owner shall deposit the insurance proceeds in a separate account and make the appropriate distributions. Thereafter, if no other agreement is made or the Owner does not terminate the Contract for convenience, the Owner and Contractor shall execute a Change Order for reconstruction of the damaged or destroyed Work in the amount allocated for that purpose. If the Contractor timely objects to either the terms of the proposed settlement or the allocation of the proceeds, the Owner may proceed to settle the insured loss, and any dispute between the Owner and Contractor arising out of the settlement or allocation of the proceeds shall be resolved pursuant to Article 15. Pending resolution of any dispute, the Owner may issue a Construction Change Directive for the reconstruction of the damaged or destroyed Work.

ARTICLE 12 UNCOVERING AND CORRECTION OF WORK

§ 12.1 Uncovering of Work

§ 12.1.1 If a portion of the Work is covered contrary to the Architect's request or to requirements specifically expressed in the Contract Documents, it must, if requested in writing by the Architect, be uncovered for the Architect's examination and be replaced at the Contractor's expense without change in the Contract Time.

§ 12.1.2 If a portion of the Work has been covered that the Architect has not specifically requested to examine prior to its being covered, the Architect may request to see such Work and it shall be uncovered by the Contractor. If such Work is in accordance with the Contract Documents, the Contractor shall be entitled to an equitable adjustment to the Contract Sum and Contract Time as may be appropriate. If such Work is not in accordance with the Contract Documents, the costs of uncovering the Work, and the cost of correction, shall be at the Contractor's expense.

§ 12.2 Correction of Work

§ 12.2.1 Before Substantial Completion

The Contractor shall promptly correct Work rejected by the Architect or failing to conform to the requirements of the Contract Documents, discovered before Substantial Completion and whether or not fabricated, installed or completed. Costs of correcting such rejected Work, including additional testing and inspections, the cost of uncovering and replacement, and compensation for the Architect's services and expenses made necessary thereby, shall be at the Contractor's expense.

§ 12.2.2 After Substantial Completion

§ 12.2.2.1 In addition to the Contractor's obligations under Section 3.5, if, within one year after the date of Substantial Completion of the Work or designated portion thereof any of the Work is found to be not in accordance with the requirements of the Contract Documents, the Contractor shall correct it promptly after receipt of notice from the Owner to do so, unless the Owner has previously given the Contractor a written acceptance of such condition. The Owner shall give such notice promptly after discovery of the condition. During the one-year period for correction of Work, if the Owner fails to notify the Contractor and give the Contractor an opportunity to make the correction, the Owner waives the rights to require correction by the Contractor. If the Contractor fails to correct

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nonconforming Work within a reasonable time during that period after receipt of notice from the Owner or Architect, the Owner may correct it in accordance with Section 2.5.

§ 12.2.2.2 The one-year period for correction of Work shall be extended with respect to portions of Work first performed after Substantial Completion by the period of time between Substantial Completion and the actual completion of that portion of the Work.

§ 12.2.2.3 The one-year period for correction of Work shall not be extended by corrective Work performed by the Contractor pursuant to this Section 12.2.

§ 12.2.3 The Contractor shall remove from the site portions of the Work that are not in accordance with the requirements of the Contract Documents and are neither corrected by the Contractor nor accepted by the Owner.

§ 12.2.4 The Contractor shall bear the cost of correcting destroyed or damaged construction of the Owner or Separate Contractors, whether completed or partially completed, caused by the Contractor's correction or removal of Work that is not in accordance with the requirements of the Contract Documents.

§ 12.2.5 Nothing contained in this Section 12.2 shall be construed to establish a period of limitation with respect to warranties other obligations the Contractor has under the Contract Documents. Establishment of the one-year period for correction of Work as described in Section 12.2.2 relates only to the specific obligation of the Contractor to correct the Work, and has no relationship to the time within which the obligation to comply with the Contract Documents may be sought to be enforced, nor to the time within which proceedings may be commenced to establish the Contractor's liability with respect to the Contractor's obligations other than specifically to correct the Work.

§ 12.3 Acceptance of Nonconforming Work

If the Owner prefers to accept Work that is not in accordance with the requirements of the Contract Documents, the Owner may do so instead of requiring its removal and correction, in which case the Contract Sum will be reduced as appropriate and equitable. Such adjustment shall be effected whether or not final payment has been made.

ARTICLE 13 MISCELLANEOUS PROVISIONS

§ 13.1 Governing Law

The Contract shall be governed by the law of the place where the Project is located, excluding that jurisdiction's choice of law rules. If the parties have selected arbitration as the method of binding dispute resolution, the Federal Arbitration Act shall govern Section 15.4.

§ 13.1.1 Contractor and all Subcontractors are responsible to comply with Indiana Code as it pertains to public works projects. The following are notable requirements set forth in IC 5-16-13 and 4-13.6, but are not inclusive of all requirements.

.1 Each first tier Subcontractor must contribute in: (i) work performed by the Subcontractor's employees; (ii) materials supplied directly by the Subcontractor; (iii) services supplied directly by the Subcontractor's employees; or (iv) any combination of subdivisions (i) through (iii); at least fifteen percent (15%) of the Subcontractor's total contract price as determined at the time the contract is awarded.

.2 Contractor and all Subcontractors, regardless of tier, that are performing the constructing, altering, demolishing, or renovating of a public building or other structure must be qualified by the Indiana Department of Administration, and those contractors and subcontractors that are constructing, altering, or repairing highways, streets, or alleys must be qualified by INDOT.

(a) Contractors and Subcontractors, regardless of tier, performing work for local governmental entities awarded under Ind. Code 36-1-12 and whose contracts are less than $300,000 are not required to have been qualified by IDOA or INDOT.

(b) Suppliers of material are not required to be qualified by IDOA prior to doing work on public works projects. A "Supplier" is defined as "any person supplying materials, but no on site labor, to a Contractor or Subcontractor. IC 4-13.6-1-20.

.3 For public works by local governmental entities under Ind. Code 36-1-12, Contractor and its Subcontractors shall comply with requirements for drug testing of its employees set forth in Ind. Code 4-13-18 if estimated cost of public works Contract is at least $150,000.

.4 Contractor and all Subcontractors, regardless of tier, shall preserve its payroll and related records for three (3) years after completion of the project work and such records shall be open to inspection by

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the Indiana Department of Workforce Development.

.5 If Contractor or Subcontractor, regardless of tier, employs 10 or more employees, then such Contractor/Subcontractor shall provide access to a training program applicable to tasks to be performed in normal course of employee's employment. Contractor or Subcontractor may comply with this training requirement through one of following: (i) an apprenticeship program; (ii) a program offered by Ivy Tech Community College of Indiana or Vincennes University; (iii) a program established by or for Contractor/Subcontractor; (iv) a program offered by an entity sponsored by U. S. Department of Labor, Bureau of Apprenticeship and Training; (v) a program that results in award of an industry recognized portable certification; (vi) a program approved by Federal Highway Administration; or (vii) a program approved by INDOT.

.6 If Contractor or first tier Subcontractor employs more than 50 journeymen, such Contractor/first tier Subcontractor shall participate in an apprenticeship or training program that meets standards established by or has been approved by any of following: U.S. Department of Labor, Bureau of Apprenticeship and Training; Indiana Department of Labor; Federal Highway Administration; or INDOT.

§ 13.2 Successors and Assigns

§ 13.2.1 The Owner and Contractor respectively bind themselves, their partners, successors, assigns, and legal representatives to covenants, agreements, and obligations contained in the Contract Documents. Except as provided in Section 13.2.2, neither party to the Contract shall assign the Contract as a whole without written consent of the other. If either party attempts to make an assignment without such consent, that party shall nevertheless remain legally responsible for all obligations under the Contract.

§ 13.2.2 The Owner may, without consent of the Contractor, assign the Contract to a lender providing construction financing for the Project, if the lender assumes the Owner's rights and obligations under the Contract Documents. The Contractor shall execute all consents reasonably required to facilitate the assignment.

§ 13.3 Rights and Remedies

§ 13.3.1 Duties and obligations imposed by the Contract Documents and rights and remedies available thereunder shall be in addition to and not a limitation of duties, obligations, rights, and remedies otherwise imposed or available by law.

§ 13.3.2 No action or failure to act by the Owner, Architect, or Contractor shall constitute a waiver of a right or duty afforded them under the Contract, nor shall such action or failure to act constitute approval of or acquiescence in a breach thereunder, except as may be specifically agreed upon in writing.

§ 13.4 Tests and Inspections

§ 13.4.1 Tests, inspections, and approvals of portions of the Work shall be made as required by the Contract Documents and by applicable laws, statutes, ordinances, codes, rules, and regulations or lawful orders of public authorities. Unless otherwise provided, the Contractor shall make arrangements for such tests, inspections, and approvals with an independent testing laboratory or entity acceptable to the Owner, or with the appropriate public authority, and shall bear all related costs of tests, inspections, and approvals. The Contractor shall give the Architect timely notice of when and where tests and inspections are to be made so that the Architect may be present for such procedures. The Owner shall bear costs of tests, inspections, or approvals that do not become requirements until after bids are received or negotiations concluded. The Owner shall directly arrange and pay for tests, inspections, or approvals where building codes or applicable laws or regulations so require.

§ 13.4.2 If the Architect, Owner, or public authorities having jurisdiction determine that portions of the Work require additional testing, inspection, or approval not included under Section 13.4.1, the Architect will, upon written authorization from the Owner, instruct the Contractor to make arrangements for such additional testing, inspection, or approval, by an entity acceptable to the Owner, and the Contractor shall give timely notice to the Architect of when and where tests and inspections are to be made so that the Architect may be present for such procedures. Such costs, except as provided in Section 13.4.3, shall be at the Owner's expense.

§ 13.4.3 If procedures for testing, inspection, or approval under Sections 13.4.1 and 13.4.2 reveal failure of the portions of the Work to comply with requirements established by the Contract Documents, all costs made necessary by such failure, including those of repeated procedures and compensation for the Architect's services and expenses, shall be at the Contractor's expense.

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§ 13.4.4 Required certificates of testing, inspection, or approval shall, unless otherwise required by the Contract Documents, be secured by the Contractor and promptly delivered to the Architect.

§ 13.4.5 If the Architect is to observe tests, inspections, or approvals required by the Contract Documents, the Architect will do so promptly and, where practicable, at the normal place of testing.

§ 13.4.6 Tests or inspections conducted pursuant to the Contract Documents shall be made promptly to avoid unreasonable delay in the Work.

§ 13.5 Interest

Payments due and unpaid under the Contract Documents shall bear interest from the date payment is due at the rate the parties agree upon in writing or, in the absence thereof, at the legal rate prevailing from time to time at the place where the Project is located.

ARTICLE 14 TERMINATION OR SUSPENSION OF THE CONTRACT

§ 14.1 Termination by the Contractor

§ 14.1.1 The Contractor may terminate the Contract if the Work is stopped for a period of 30 consecutive days through no act or fault of the Contractor, a Subcontractor, a Sub-subcontractor, their agents or employees, or any other persons or entities performing portions of the Work, for any of the following reasons:

.1 Issuance of an order of a court or other public authority having jurisdiction that requires all Work to be stopped;

.2 An act of government, such as a declaration of national emergency, that requires all Work to be stopped;

.3 Because the Architect has not issued a Certificate for Payment and has not notified the Contractor of the reason for withholding certification as provided in Section 9.4.1, or because, contrary to the provisions of the Contract Documents, the Owner has not made payment on a Certificate for Payment within the time stated in the Contract Documents; or

.4 The Owner has failed to furnish to the Contractor reasonable evidence as required by Section 2.2.

§ 14.1.2 The Contractor may terminate the Contract if, through no act or fault of the Contractor, a Subcontractor, a Sub-subcontractor, their agents or employees, or any other persons or entities performing portions of the Work, repeated suspensions, delays, or interruptions of the entire Work by the Owner as described in Section 14.3, constitute in the aggregate more than 100 percent of the total number of days scheduled for completion, or 120 days in any 365-day period, whichever is less.

§ 14.1.3 If one of the reasons described in Section 14.1.1 or 14.1.2 exists, the Contractor may, upon seven days' notice and opportunity to cure to the Owner and Architect, terminate the Contract and recover from the Owner payment for Work properly executed, as well as the Construction Manager's Fee on Work properly executed, and direct costs incurred by reason of such termination.

§ 14.1.4 If the Work is stopped for a period of 60 consecutive days through no act or fault of the Contractor, a Subcontractor, a Sub-subcontractor, or their agents or employees or any other persons or entities performing portions of the Work because the Owner has repeatedly failed to fulfill the Owner's obligations under the Contract Documents with respect to matters important to the progress of the Work, the Contractor may, upon seven additional days' notice and opportunity to cure to the Owner and the Architect, terminate the Contract and recover from the Owner as provided in Section 14.1.3.

§ 14.2 Termination by the Owner for Cause

§ 14.2.1 The Owner may terminate the Contract if the Contractor

.1 repeatedly refuses or fails to prosecute the Work promptly and diligently or to supply enough properly skilled workers or proper materials;

.2 fails to make payment to Subcontractors or suppliers in accordance with the respective agreements between the Contractor and the Subcontractors or suppliers;

.3 repeatedly disregards applicable laws, statutes, ordinances, codes, rules and regulations, or lawful orders of a public authority;

.4 shall institute proceedings or consents to proceedings requesting relief or arrangement under the

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Federal Bankruptcy Act or any similar or applicable federal or state law, or if a petition under any federal or state bankruptcy or insolvency law is filed against Contractor and such petition is not dismissed within 60 days from the date of filing;

.5 admits in writing its inability to pay its debts generally as they become due;

.6 makes a general assignment for the benefit of its creditors, or if a receiver, liquidator, trustee, or assignee is appointed on account of the Contractor's bankruptcy or insolvency, or if a receiver of all or any portion of the Contractor's properties is appointed; or

.7 abandons the Work; or

.8 otherwise is guilty of substantial breach of a provision of the Contract Documents.

§ 14.2.2 When any of the reasons described in Section 14.2.1 exist, the Owner may, without prejudice to any other rights or remedies of the Owner and after giving the Contractor and the Contractor's surety, if any, seven days' notice, terminate employment of the Contractor and may, subject to any prior rights of the surety:

.1 Exclude the Contractor from the site and take possession of all materials, equipment, tools, and construction equipment and machinery thereon owned by the Contractor;

.2 Accept assignment of subcontracts pursuant to Section 5.4; and

.3 Finish the Work by whatever reasonable method the Owner may deem expedient. Upon written request of the Contractor, the Owner shall furnish to the Contractor a detailed accounting of the costs incurred by the Owner in finishing the Work.

§ 14.2.3 When the Owner terminates the Contract for one of the reasons stated in Section 14.2.1, the Contractor shall not be entitled to receive further payment until the Work is finished.

§ 14.2.4 If the unpaid balance of the Contract Sum exceeds costs of finishing the Work, including compensation for the Architect's services and expenses made necessary thereby, and other damages incurred by the Owner and not expressly waived, such excess shall be paid to the Contractor. If such costs and damages exceed the unpaid balance, the Contractor shall pay the difference to the Owner. This obligation for payment shall survive termination of the Contract.

§ 14.3 Suspension by the Owner for Convenience

§ 14.3.1 The Owner may, without cause, order the Contractor in writing to suspend, delay or interrupt the Work, in whole or in part for such period of time as the Owner may determine.

§ 14.3.2 The Contract Sum and Contract Time shall be adjusted for increases in the cost and time caused by suspension, delay, or interruption under Section 14.3.1. Adjustment of the Contract Sum shall include profit. No adjustment shall be made to the extent

.1 that performance is, was, or would have been, so suspended, delayed, or interrupted, by another cause for which the Contractor is responsible; or

.2 that an equitable adjustment is made or denied under another provision of the Contract.

§ 14.4 Termination by the Owner for Convenience

§ 14.4.1 The Owner may, at any time, terminate the Contract for the Owner's convenience and without cause.

§ 14.4.2 Upon receipt of notice from the Owner of such termination for the Owner's convenience, the Contractor shall

.1 cease operations as directed by the Owner in the notice;

.2 take actions necessary, or that the Owner may direct, for the protection and preservation of the Work; and

.3 except for Work directed to be performed prior to the effective date of termination stated in the notice, terminate all existing subcontracts and purchase orders and enter into no further subcontracts and purchase orders.

§ 14.4.3 In case of such termination for the Owner's convenience, the Owner shall pay the Contractor for Work properly executed; costs incurred by reason of the termination, including costs attributable to termination of Subcontracts; and the termination fee, if any, set forth in the Agreement.

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ARTICLE 15 CLAIMS AND DISPUTES

§ 15.1 Claims

§ 15.1.1 Definition

A Claim is a demand or assertion by one of the parties seeking, as a matter of right, payment of money, a change in the Contract Time, or other relief with respect to the terms of the Contract. The term "Claim" also includes other disputes and matters in question between the Owner and Contractor arising out of or relating to the Contract, but does not include the Owner's termination of the Contract under Sections 14.2 or 14.4. The responsibility to substantiate Claims shall rest with the party making the Claim. This Section 15.1.1 does not require the Owner to file a Claim in order to impose liquidated damages in accordance with the Contract Documents. The making of any progress payments by the Owner shall not be construed as a waiver of any claim by the Owner against the Contractor, whether or not any such claim was known by the Owner before the making of such payment.

§ 15.1.2 Time Limits on Claims

The Owner and Contractor shall commence all Claims and causes of action against the other and arising out of or related to the Contract, whether in contract, tort, breach of warranty or otherwise, in accordance with the requirements of the binding dispute resolution method selected in the Agreement and within the period specified by applicable law, but in any case not more than 10 years after the date of Substantial Completion of the Work. The Owner and Contractor waive all Claims and causes of action not commenced in accordance with this Section 15.1.2.

§ 15.1.3 Notice of Claims

§ 15.1.3.1 Claims by either the Owner or Contractor, where the condition giving rise to the Claim is first discovered prior to expiration of the period for correction of the Work set forth in Section 12.2.2, shall be initiated by notice to the other party and to the Initial Decision Maker with a copy sent to the Architect, if the Architect is not serving as the Initial Decision Maker. Claims by either party under this Section 15.1.3.1 shall be initiated within 21 days after occurrence of the event giving rise to such Claim or within 21 days after the claimant first recognizes the condition giving rise to the Claim, whichever is later.

§ 15.1.3.2 Claims by either the Owner or Contractor, where the condition giving rise to the Claim is first discovered after expiration of the period for correction of the Work set forth in Section 12.2.2, shall be initiated by notice to the other party. In such event, no decision by the Initial Decision Maker is required.

§ 15.1.4 Continuing Contract Performance

§ 15.1.4.1 Pending final resolution of a Claim, except as otherwise agreed in writing or as provided in Section 9.7 and Article 14, the Contractor shall proceed diligently with performance of the Contract and the Owner shall continue to make payments in accordance with the Contract Documents.

§ 15.1.4.2 The Contract Sum and Contract Time shall be adjusted in accordance with the Initial Decision Maker's decision, subject to the right of either party to proceed in accordance with this Article 15. The Architect will issue Certificates for Payment in accordance with the decision of the Initial Decision Maker.

§ 15.1.5 Claims for Additional Cost

If the Contractor wishes to make a Claim for an increase in the Contract Sum, notice as provided in Section 15.1.3 shall be given before proceeding to execute the portion of the Work that is the subject of the Claim. Prior notice is not required for Claims relating to an emergency endangering life or property arising under Section 10.4.

§ 15.1.6 Claims for Additional Time

§ 15.1.6.1 If the Contractor wishes to make a Claim for an increase in the Contract Time, notice as provided in Section 15.1.3 shall be given. The Contractor's Claim shall include an estimate of cost and of probable effect of delay on progress of the Work. In the case of a continuing delay, only one Claim is necessary.

§ 15.1.6.2 If adverse weather conditions are the basis for a Claim for additional time, such Claim shall be documented by data substantiating that weather conditions were abnormal for the period of time, could not have been reasonably anticipated, and had an adverse effect on the scheduled construction.

§ 15.1.7 Waiver of Claims for Consequential Damages

The Contractor and Owner waive Claims against each other for consequential damages arising out of or relating to this Contract. This mutual waiver includes

.1 damages incurred by the Owner for rental expenses, for losses of use, income, profit, financing,

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business and reputation, and for loss of management or employee productivity or of the services of such persons; and

.2 damages incurred by the Contractor for principal office expenses including the compensation of personnel stationed there, for losses of financing, business and reputation, and for loss of profit, except anticipated profit arising directly from the Work.

This mutual waiver is applicable, without limitation, to all consequential damages due to either party's termination in accordance with Article 14. Nothing contained in this Section 15.1.7 shall be deemed to preclude assessment of liquidated damages, when applicable, in accordance with the requirements of the Contract Documents.

§ 15.2 Initial Decision

§ 15.2.1 Claims asserted prior to the date of final payment, excluding those where the condition giving rise to the Claim is first discovered after expiration of the period for correction of the Work set forth in Section 12.2.2 or arising under Sections 10.3, 10.4, and 11.5, shall be referred to the Initial Decision Maker for initial decision. The Architect will serve as the Initial Decision Maker, unless otherwise indicated in the Agreement. Except for those Claims excluded by this Section 15.2.1, an initial decision shall be required as a condition precedent to mediation of any Claim. If an initial decision has not been rendered within 30 days after the Claim has been referred to the Initial Decision Maker, the party asserting the Claim may demand mediation and binding dispute resolution without a decision having been rendered. Unless the Initial Decision Maker and all affected parties agree, the Initial Decision Maker will not decide disputes between the Contractor and persons or entities other than the Owner.

§ 15.2.2 The Initial Decision Maker will review Claims and within ten days of the receipt of a Claim take one or more of the following actions: (1) request additional supporting data from the claimant or a response with supporting data from the other party, (2) reject the Claim in whole or in part, (3) approve the Claim, (4) suggest a compromise, or (5) advise the parties that the Initial Decision Maker is unable to resolve the Claim if the Initial Decision Maker lacks sufficient information to evaluate the merits of the Claim or if the Initial Decision Maker concludes that, in the Initial Decision Maker's sole discretion, it would be inappropriate for the Initial Decision Maker to resolve the Claim.

§ 15.2.3 In evaluating Claims, the Initial Decision Maker may, but shall not be obligated to, consult with or seek information from either party or from persons with special knowledge or expertise who may assist the Initial Decision Maker in rendering a decision. The Initial Decision Maker may request the Owner to authorize retention of such persons at the Owner's expense.

§ 15.2.4 If the Initial Decision Maker requests a party to provide a response to a Claim or to furnish additional supporting data, such party shall respond, within ten days after receipt of the request, and shall either (1) provide a response on the requested supporting data, (2) advise the Initial Decision Maker when the response or supporting data will be furnished, or (3) advise the Initial Decision Maker that no supporting data will be furnished. Upon receipt of the response or supporting data, if any, the Initial Decision Maker will either reject or approve the Claim in whole or in part.

§ 15.2.5 The Initial Decision Maker will render an initial decision approving or rejecting the Claim, or indicating that the Initial Decision Maker is unable to resolve the Claim. This initial decision shall (1) be in writing; (2) state the reasons therefor; and (3) notify the parties and the Architect, if the Architect is not serving as the Initial Decision Maker, of any change in the Contract Sum or Contract Time or both. The initial decision shall be final and binding on the parties but subject to mediation and, if the parties fail to resolve their dispute through mediation, to binding dispute resolution.

§ 15.2.6 Either party may file for mediation of an initial decision at any time, subject to the terms of Section 15.2.6.1.

§ 15.2.6.1 Either party may, within 30 days from the date of receipt of an initial decision, demand in writing that the other party file for mediation. If such a demand is made and the party receiving the demand fails to file for mediation within 30 days after receipt thereof, then both parties waive their rights to mediate or pursue binding dispute resolution proceedings with respect to the initial decision.

§ 15.2.7 In the event of a Claim against the Contractor, the Owner may, but is not obligated to, notify the surety, if any, of the nature and amount of the Claim. If the Claim relates to a possibility of a Contractor's default, the Owner

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may, but is not obligated to, notify the surety and request the surety's assistance in resolving the controversy.

§ 15.3 Mediation

§ 15.3.1 Claims, disputes, or other matters in controversy arising out of or related to the Contract, except those waived as provided for in Sections 9.10.4, 9.10.5, and 15.1.7, shall be subject to mediation as a condition precedent to binding dispute resolution.

§ 15.3.2 The parties shall endeavor to resolve their Claims by mediation which, unless the parties mutually agree otherwise, shall be administered by the American Arbitration Association in accordance with its Construction Industry Mediation Procedures in effect on the date of the Agreement. A request for mediation shall be made in writing, delivered to the other party to the Contract, and filed with the person or entity administering the mediation. The request may be made concurrently with the filing of binding dispute resolution proceedings but, in such event, mediation shall proceed in advance of binding dispute resolution proceedings, which shall be stayed pending mediation for a period of 60 days from the date of filing, unless stayed for a longer period by agreement of the parties or court order. If an arbitration is stayed pursuant to this Section 15.3.2, the parties may nonetheless proceed to the selection of the arbitrator(s) and agree upon a schedule for later proceedings.

§ 15.3.3 Either party may, within 30 days from the date that mediation has been concluded without resolution of the dispute or 60 days after mediation has been demanded without resolution of the dispute, demand in writing that the other party file for binding dispute resolution. If such a demand is made and the party receiving the demand fails to file for binding dispute resolution within 60 days after receipt thereof, then both parties waive their rights to binding dispute resolution proceedings with respect to the initial decision.

§ 15.3.4 The parties shall share the mediator's fee and any filing fees equally. The mediation shall be held in the place where the Project is located, unless another location is mutually agreed upon. Agreements reached in mediation shall be enforceable as settlement agreements in any court having jurisdiction thereof.

§ 15.4 Arbitration

§ 15.4.1 If the parties have selected arbitration as the method for binding dispute resolution in the Agreement, any Claim subject to, but not resolved by, mediation shall be subject to arbitration which, unless the parties mutually agree otherwise, shall be administered by the American Arbitration Association in accordance with its Construction Industry Arbitration Rules in effect on the date of the Agreement. The Arbitration shall be conducted in the place where the Project is located, unless another location is mutually agreed upon. A demand for arbitration shall be made in writing, delivered to the other party to the Contract, and filed with the person or entity administering the arbitration. The party filing a notice of demand for arbitration must assert in the demand all Claims then known to that party on which arbitration is permitted to be demanded.

§ 15.4.1.1 A demand for arbitration shall be made no earlier than concurrently with the filing of a request for mediation, but in no event shall it be made after the date when the institution of legal or equitable proceedings based on the Claim would be barred by the applicable statute of limitations. For statute of limitations purposes, receipt of a written demand for arbitration by the person or entity administering the arbitration shall constitute the institution of legal or equitable proceedings based on the Claim.

§ 15.4.2 The award rendered by the arbitrator or arbitrators shall be final, and judgment may be entered upon it in accordance with applicable law in any court having jurisdiction thereof.

§ 15.4.3 The foregoing agreement to arbitrate and other agreements to arbitrate with an additional person or entity duly consented to by parties to the Agreement, shall be specifically enforceable under applicable law in any court having jurisdiction thereof.

§ 15.4.4 Consolidation or Joinder

§ 15.4.4.1 Subject to the rules of the American Arbitration Association or other applicable arbitration rules, either party may consolidate an arbitration conducted under this Agreement with any other arbitration to which it is a party provided that (1) the arbitration agreement governing the other arbitration permits consolidation, (2) the arbitrations to be consolidated substantially involve common questions of law or fact, and (3) the arbitrations employ materially similar procedural rules and methods for selecting arbitrator(s).

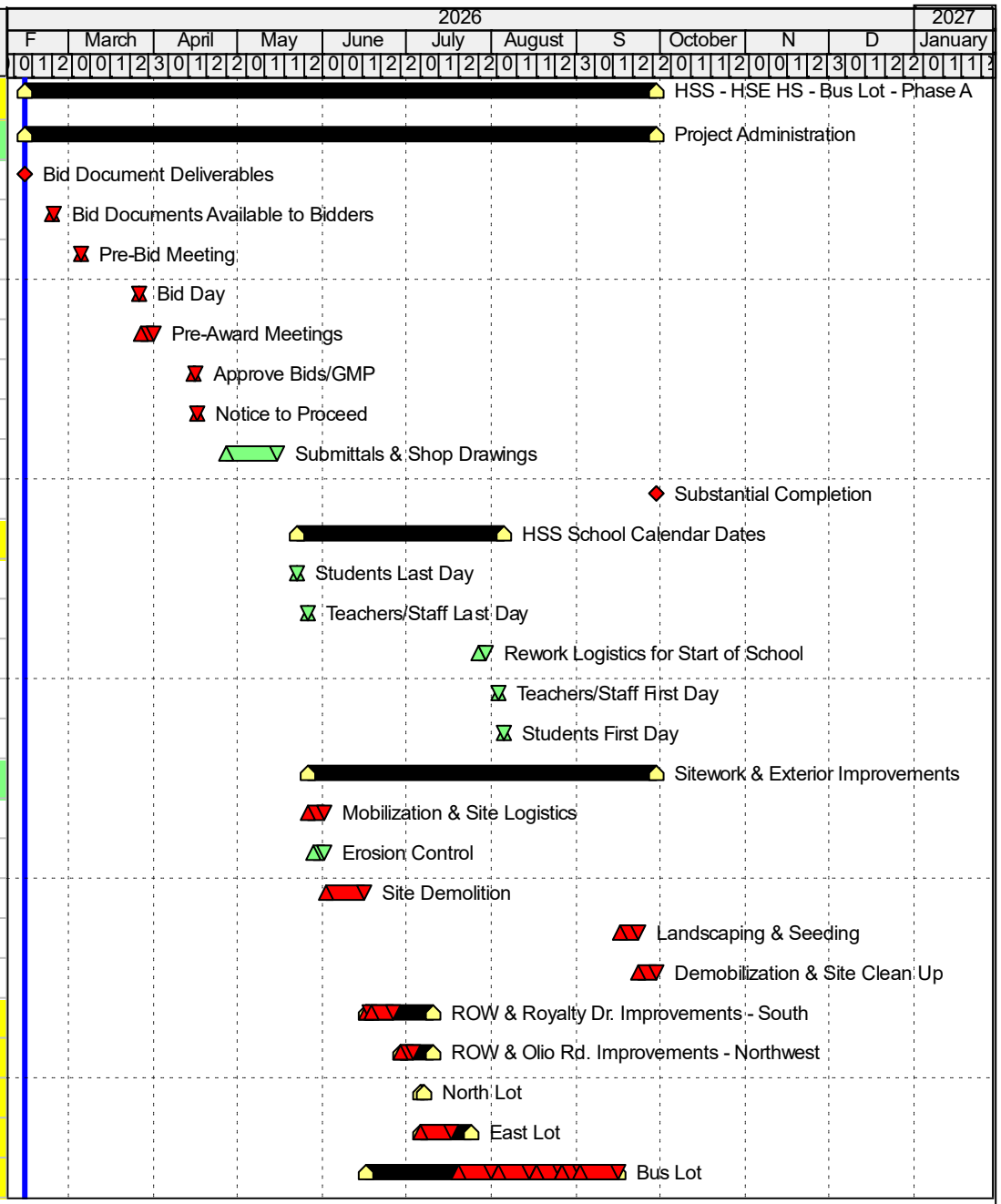
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§ 15.4.4.2 Subject to the rules of the American Arbitration Association or other applicable arbitration rules, either party may include by joinder persons or entities substantially involved in a common question of law or fact whose presence is required if complete relief is to be accorded in arbitration, provided that the party sought to be joined consents in writing to such joinder. Consent to arbitration involving an additional person or entity shall not constitute consent to arbitration of any claim, dispute or other matter in question not described in the written consent.

§ 15.4.4.3 The Owner and Contractor grant to any person or entity made a party to an arbitration conducted under this Section 15.4, whether by joinder or consolidation, the same rights of joinder and consolidation as those of the Owner and Contractor under this Agreement.

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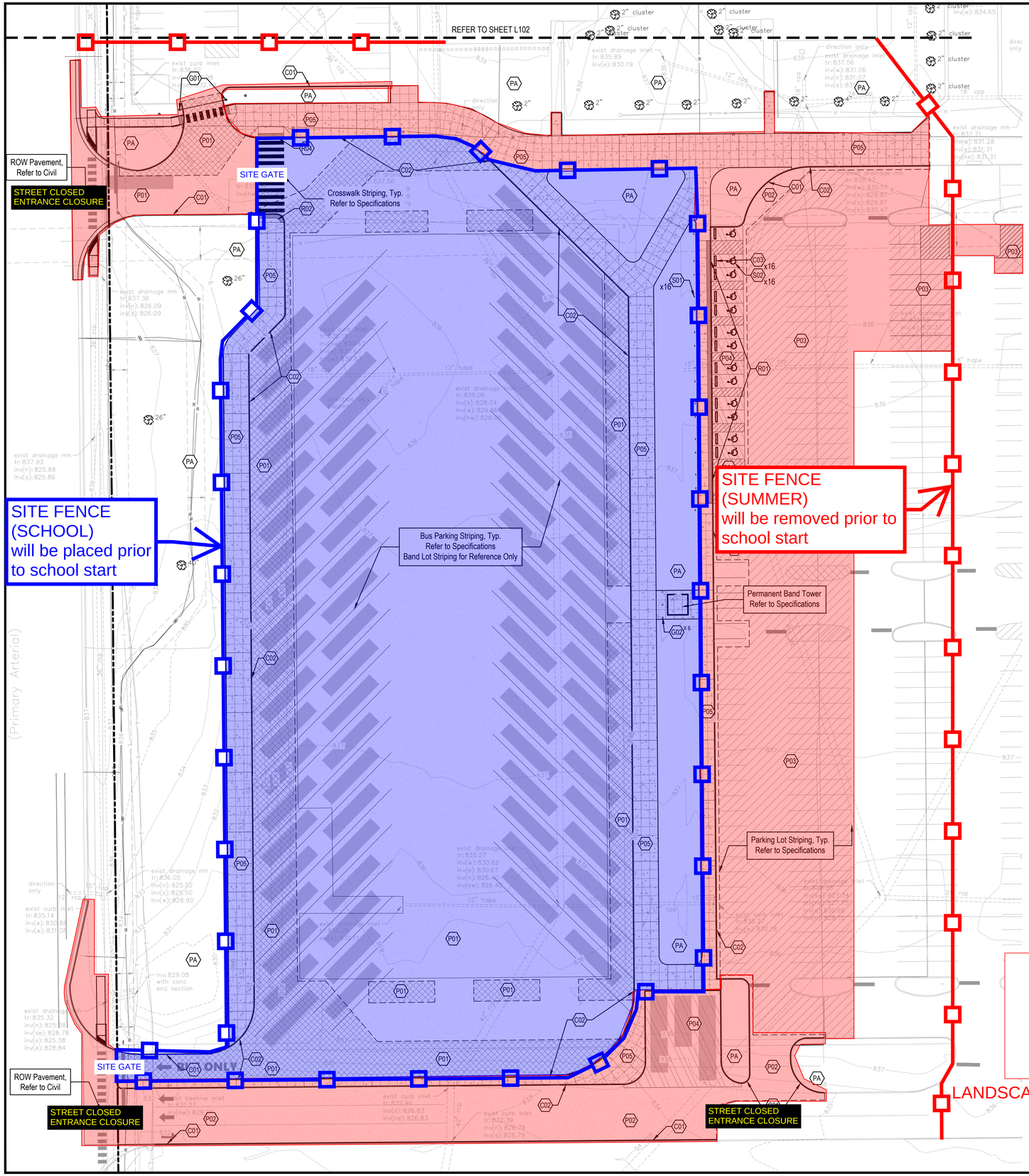
Activity Name	Original Duration	Start	Finish
HSS - HSE HS - Bus Lot - Phase A	163	13-Feb-26	29-Sep-26
Project Administration	163	13-Feb-26	29-Sep-26
Bid Document Deliverables	0		13-Feb-26
Bid Documents Available to Bidders	1	23-Feb-26	23-Feb-26
Pre-Bid Meeting	1	05-Mar-26	05-Mar-26
Bid Day	1	26-Mar-26	26-Mar-26
Pre-Award Meetings	3	27-Mar-26	31-Mar-26
Approve Bids/GMP	1	15-Apr-26	15-Apr-26
Notice to Proceed	1	16-Apr-26	16-Apr-26
Submittals & Shop Drawings	15	27-Apr-26	15-May-26
Substantial Completion	0		29-Sep-26
HSS School Calendar Dates	54	22-May-26	05-Aug-26
Students Last Day	1	22-May-26	22-May-2(
Teachers/Staff Last Day	1	26-May-26	26-May-2(
Rework Logistics for Start of School	3	27-Jul-26	29-Jul-26
Teachers/Staff First Day	1	03-Aug-26*	03-Aug-26
Students First Day	1	05-Aug-26*	05-Aug-26
Sitework & Exterior Improvements	91	26-May-26	29-Sep-26
Mobilization & Site Logistics	5	26-May-26	01-Jun-26
Erosion Control	3	28-May-26	01-Jun-26
Site Demolition	10	02-Jun-26	15-Jun-26
Landscaping & Seeding	5	16-Sep-26	22-Sep-26
Demobilization & Site Clean Up	5	23-Sep-26	29-Sep-26
ROW & Royalty Dr. Improvements - South	19	16-Jun-26	10-Jul-26
ROW & Olio Rd. Improvements - Northwest	10	29-Jun-26	10-Jul-26
North Lot	2	06-Jul-26	07-Jul-26
East Lot	15	06-Jul-26	24-Jul-26
Bus Lot	66	16-Jun-26	15-Sep-26



Actual Work
Remaining Work
Critical Remaining Work
Milestone
Summary

HSS - HSE HS - Bus Lot - Phase A 225700
Guideline Schedule - 26-Feb-26

The SKILLMAN Corporation
AN EMPLOYEE-OWNED COMPANY



	MATERIAL KEYNOTES
KEY	DESCRIPTION / REFERENCE
C01	CURB, POST REFER TO SITE DETAIL 7/L501
C02	CURB, INTEGRAL REFER TO SITE DETAIL 8/L501
C03	WHEEL STOP REFER TO DETAIL 1/L502

	MATERIAL KEYNOTES
KEY	DESCRIPTION / REFERENCE
S01	28' BARRIER SWING GATE WITH TIEBACK POSTS, REFER TO SPECIFICATIONS
S02	BOLLARD - VEHICULAR RATED

	MATERIAL KEYNOTES
KEY	DESCRIPTION / REFERENCE
P01	ASPHALT, HEAVY DUTY REFER TO CIVIL SERIES
P02	ASPHALT, MILL AND RESURFACE REFER TO CIVIL SERIES
P03	SEALCOAT AND STRIPE, REFER TO SPECIFICATIONS
P04	CONCRETE, HEAVY DUTY REFER TO SITE DETAIL 3, 5 & 6/L501
P05	CONCRETE, STANDARD DUTY REFER TO SITE DETAIL 4-6/L501

	MATERIAL KEYNOTES
KEY	DESCRIPTION / REFERENCE
R01	PARALLEL RAMP REFER TO DETAIL 6/L502
R02	STRAIGHT RAMP REFER TO DETAIL 6/L502
R03	SINGLE-SIDED FLARE RAMP REFER TO DETAIL 6/L502
R04	DOUBLE-SIDED FLARE RAMP REFER TO DETAIL 6/L502
R05	TRUNCATED DOMES WITH NO RAMP REFER TO DETAIL 6/L502

	MATERIAL KEYNOTES
KEY	DESCRIPTION / REFERENCE
S01	ADA ACCESSIBLE PARKING SIGN, REFER TO DETAIL 4/L502
S02	ACCESSIBLE PARKING STRIPING & SYMBOL, REFER TO DETAIL 2 & 3/L502
S03	STOP SIGN REFER TO DETAIL 5/L502
S04	BUS ONLY SIGN REFER TO DETAIL 5/L502

	MATERIAL KEYNOTES
KEY	DESCRIPTION / REFERENCE
PA	PLANT AREA REFER TO L400 SERIES

: MAY 26 - JULY 24

: MAY 26 - SEPT 29

LANDSCAPE / SEEDING TO BE PLANTED DURING FALL SEASON

North

Scale 1" = 30'-0"

context DESIGN
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317-485-6900 | www.context-design.com

Certified by:
FREDDIE L. PRATT
STATE OF INDIANA
2020-0012
REGISTERED ARCHITECT
12-31-2027
NOT FOR CONSTRUCTION

Construction Documents

HSE High School Bus Lot Improvements
12499 Olio Rd, Fishers, IN 46037

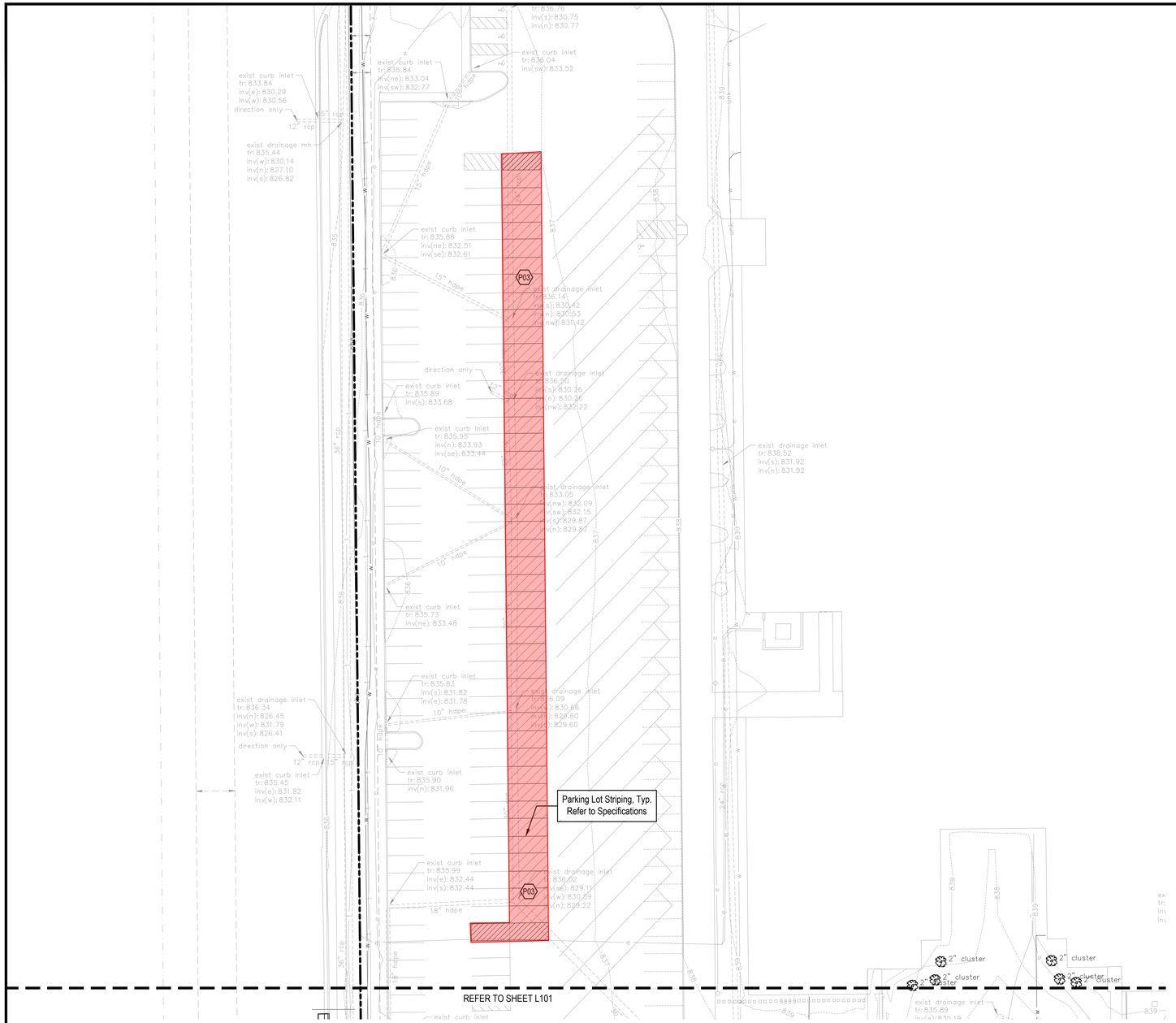
Sheet Title
Materials & Notes Plan

Revision	Date	Description

Date:	2026/02/13
Project No:	25-1911
Drawn by:	SS
Checked by:	LAM/FJP

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Sheet No:
L101



: JULY 06 - JULY 10

	MATERIAL KEYNOTES
KEY	DESCRIPTION / REFERENCE
C01	CURB, POST REFER TO SITE DETAIL 7/L501
C02	CURB, INTEGRAL REFER TO SITE DETAIL 8/L501
C03	WHEEL STOP REFER TO DETAIL 1/L502

	MATERIAL KEYNOTES
KEY	DESCRIPTION / REFERENCE
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G02	BOLLARD - VEHICULAR RATED

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	MATERIAL KEYNOTES
KEY	DESCRIPTION / REFERENCE
PA	PLANT AREA REFER TO L400 SERIES

North

0 15' 30' 60'

Scale 1" = 30'-0"

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Certified by:

FREDDIE RAY JOHNSON III
REGISTERED
No. 2020-0052
STATE OF INDIANA
LANDSCAPE ARCHITECT
Date: 12-31-2027

NOT FOR CONSTRUCTION

Construction Documents

HSE High School Bus Lot Improvements

12499 Olio Rd, Fishers, IN 46037

Sheet Title:

Materials & Notes Plan

Revision	Date	Description

Date:	2026/02/13
Project No:	25-1911
Drawn by:	SS
Checked by:	LAM/FJP

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Sheet No:

L102

Addendum

ADDENDUM NO: 1

PROJECT: **HAMILTON SOUTHEASTERN HS – BUS LOT IMPROVEMENTS – PHASE A**

CONTEXT PROJECT NO: 25-1911 DATE: 03/12/2026 BY: Liz Mooney

This Addendum is issued in accordance with the provisions of "The General Conditions of the Contract for Construction," Article 1, "Contract Documents" and becomes a part of the Contract Documents as provided therein. This Addendum includes:

PART 1 – BIDDING AND CONTRACT REQUIREMENTS

A. UNUSED

PART 2 – SPECIFICATIONS

A. REVISED 'Index' is attached.

B. Section 12 93 00 Site Furnishings has been updated to include the Band Tower and Vehicular rated bollards.

C. The Following Specification Sections should be added in their entirety:

260500	Common Work Results for Electrical
260519	Low-voltage Electrical Power Conductors and Cables
260526	Grounding and Bonding for Electrical Systems
260529	Hangers and Supports for Electrical Systems
260533	Raceways and Boxes for Electrical Systems
260543	Underground Ducts and Raceways for Electrical Systems
260544	Sleeves and Sleeve Seals for Electrical Raceways and Cabling
260553	Identification for Electrical Systems
262200	Low-Voltage Transformers
262416	Panelboards
262726	Wiring Devices
264313	Surge Protection for Low-voltage Electrical Power Circuits
265600	Exterior Lighting
265668	Exterior Athletic Lighting – Bus Lot

D.

PART 3 – DRAWINGS

A. Sheet C001 – Title Sheet

– Sheet Index updated to include additional sheets C201, C601, E001, ED100, E100, E401, and T100

- Additional Statements added to the title sheet per City of Fishers comment.

Addenda

B. Sheet C110 – Demolition Plan

- Note added to protect existing underdrains per comment from County Highway Department
- Additional keynote added along Olio Rd to remove bike lane striping and replace with dashed striping.

C. Sheet C201 – ADA Ramp Details

- New Sheet. Detailed dimensions and spot elevations at ADA ramps within the ROW per comment from County Highway Department

D. Sheet C300 – Grading Plan

- Revised grades near Southern Entrance / New sidewalk connection to Olio Rd Sidewalk.

E. Sheet C301 – Grading Plan Enlargements

- New enlargement added for southern entrance from Olio Rd.

F. Sheet C400 – Utility Plan

- Note added per comment from City Engineering department to add a snow-plowable marker on pavement near relocated hydrant.

G. Sheets C500-C502 – Erosion Control Plans

- Construction limits have been adjusted to include new sidewalk connection to Olio Rd near southern entrance.

H. Sheet C601 – Site Details

- New Sheet. This includes the details and specifications for additional signage required by the County Highway Department.

I. Sheet L001 – Tree Preservation Plan

– This sheet has been updated to reflect a new sidewalk on the south end of the project area.

J. Sheet L101 – Materials and Notes Plan

- This sheet has been updated to include a new sidewalk at the south end of the project area.
- Light poles are now referenced on this drawing
- Vehicular rated bollards are shown around the based of band lot light poles.
- A thickened slab is shown below the band tower.

K. Sheet L201 – Layout Plan

- This sheet has been updated to include a new sidewalk at the south end of the project area.
- Coordinate Points have been added to all new light post.

L. Sheet L401 – Planting Plan

- Shrubs and trees have been added on the east side of the site to meet UDO requirements.

M. Sheet L410 – Planting Details

- The plant schedule has been updated.

N. Sheet L501 – Site Details

- Remove Asphalt Details from sheet.

O. E001 – Symbols, Abbreviations, and General Notes – Electrical

- Add this drawing in its entirety.

P. ED100 – Site Plan – Electrical Demolition

- Add this drawing in its entirety.

Q. E100 – Site Plan – Electrical

- Add this drawing in its entirety.

R. E401 – Details and Schedules – Electrical

- Add this drawing in its entirety.

S. T100 – Site Plan – Telecom

- Add this drawing in its entirety.

PART 4 – QUESTIONS & ANSWERS

END OF ADDENDUM 1

SECTION 12 93 00 – SITE FURNISHINGS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 1 Specification Sections, apply to this Section.

B. Bidders shall include in their Base Bid price all materials, labor, and shop drawings required to provide and install each furnishing, including all applicable fasteners, anchors, foundations, footings, supports, and base preparation required to deliver a turn-key system that complies with these specifications.

1.2 SUMMARY

A. This Section includes the following:

1. Band Tower
2. Vehicular Rated Bollard

B. Prior to Final Acceptance, the Contractor shall submit to the Owner three (3) copies of Maintenance Manuals, which shall include all necessary instructions for the proper care of equipment and furnishings.

C. Related Sections include the following:

1. Division 31 Section "Earthwork" for soil materials, excavating, backfilling and site grading requirements.
2. Division 31 Section "Concrete Paving" for concrete, formwork and related items.

1.3 SUBMITTALS

A. Product Data: For each type of site furnishing specified, with installation instruction for each unit built-in or connected to other construction. Include methods of installation for each type of substrate.

B. Samples for Initial Selection Purposes: Manufacturer's standard size samples showing full range of colors, textures, and patterns available for each type of furnishing required.

C. Submissions for Verification Purposes: Manufacturer's standard sizes for each type of site furnishing required.

D. Shop Drawings: For each furnishing system, indicating dimensions, anchoring methods, colors, finishes, and related delegated design requirements. Note that some systems require a signed and sealed engineer's certification. Shop drawings will allow for final approval from the Owner and his representatives. Color selections, if not clearly identified within this Specification, will also be determined during the submittal process as selected from the Manufacturer's full range.

1.4 QUALITY ASSURANCE

A. Manufacturer Qualifications: Not less than three (3) years of production experience for each type of product specified, and whose published literature clearly indicates compliance with the indicated requirements of this Section.

B. Single Source Responsibility: Once a determination is made by the Owner as to the best value provider of any particular furnishing type, it is anticipated that all subsequent installations of that same furnishing type will be produced by a single manufacturer.

C. The Manufacturer shall offer comprehensive product support and engineering as part of their Base Bid, including coordination with on-site conditions that may affect use of any particular product.

D. All furnishings shall offer no less than a five (5) year warranty against fading or other defects. Ensure UV-stabilized finishes are provided in all outdoor applications.

E. When applicable, the latest 2012 edition of the International Building Code shall apply to any manufacturer's delegated design responsibilities. Bidders shall size all supports and anchors to account for local wind/ice/snow load.

1.5 DELIVERY, STORAGE AND HANDLING

A. Deliver materials to Project site in original factory wrappings and/or containers, clearly labeled with identification of manufacturer, brand name and lot number (as applicable).
1. Sequence delivery of site furnishings as near as practicable to required time scheduled for installation so as to minimize the required amount of onsite storage time.
2. Store materials in original, undamaged packages and containers, protected from the elements, soiling and other potential sources of damage.

B. Comply with instructions and recommendations of manufacturer for additional delivery, storage and handling requirements.

1.6 MAINTENANCE

A. Maintenance Instructions: Submit manufacturer’s printed instructions for maintenance of furnishings and their respective installation, including methods and frequency recommended for maintaining optimum condition under anticipated use conditions. Include precautions about materials and methods which may be detrimental to finishes and performance.

PART 2 - PRODUCTS

2.1 MISCELLANEOUS MATERIALS

A. Welding Electrodes and Filler Metal: Type and alloy of filler metal and electrodes as recommended by producer of metal to be welded, complying with applicable AWS specifications and as required for color match, strength and compatibility in fabricated items.

B. Cast-in-Place Anchors: Anchors fabricated from corrosion-resistant materials with capability to sustain imposed design loads when installed in concrete as determined by testing per ASTM E 488 conducted by a qualified independent testing agency.

C. Fasteners: Use fasteners of same basic metal as the fastened metal, unless otherwise indicated. Do not use metals that are corrosive or incompatible with materials joined.

1. Provide concealed fasteners for interconnection of site furnishings and for their attachment to other Work except where exposed fasteners are unavoidable or are manufacturer's standard fastening method. Provide tamper-proof machine screws for exposed fasteners, unless otherwise indicated or approved by the Owner and his representatives.

2.2 FABRICATION, GENERAL

A. Provide site furnishing items, both freestanding and permanently installed, equipped with functions as specified. Fabricate units with tight seams and joints, exposed edges rolled. Provide products with consistent finish with no evidence of wrinkling, chipping, uneven coloration, dents, uneven/inconsistent welds or other imperfections.

2.3 PRODUCTS

A. Band Tower

1. **Tower Model Summit 28 (635-028S – by Field Towers LLC, (d.b.a Educational Steel Products), 765-534-4092 www.fieldtowers.com or approved equal.**
2. **Provide a complete, integrated set of mutually dependent components that form a completely assembled, prefabricated steel personnel tower.**
3. **Provide drawings and instructions, along with anchor bolts and components for slab to be installed by others on Project site:**
   a. **Anchor bolt assembly**
   b. **Installation jig**
   c. **Base drawing will indicate a "safe zone" for stubbing (Maximum 12" vertical) conduit for electrician use.**
4. **Tower shall be capable of withstanding structural and other loads without failure. Project includes structural framing, stair landings, treads, stringers, handrails, platform railings and panels, gate fabric and hardware.**
   a. **Main Frame: Structural steel tubing and angle iron**
   b. **Platforms: Diamond grip-strut treads**
   c. **Side railings: Galvanized expanded metal in-fill or laser cut**
   d. **Safety items:**
      1) **OSHA-compliant caution signage on all levels.**
      2) **Safety chain on top level.**
      3) **Limited limited-access gate with padlock.**
5. **Model Summit 28 (635-028S): Include all materials and labor to fabricate a 28-foot (to the upper floor) fixed viewing tower with stairs, which is to be bolted onto a concrete pad (poured by others) utilizing a welded embedded assembly provided by the same vendor as the tower.**
6. **Coatings: Finish exposed metal frame surfaces with a zinc rich primer, followed by a minimum of two coats of Rustoleum 9800 series urethane in the owner's choice of color (Sherwin Williams™ is a good resource. All other exposed surfaces to be galvanized.**
7. **Numerous manufacturers offer comparable products and are encouraged to offer an equal product as part of the bidding process. Provide full product literature and**

ensure all quality standards demonstrated by the basis-of-design product are met or exceeded.

B. Vehicular Rated Bollards

1. See Drawings for proposed locations; confirm in field with Landscape Architect prior to installation.

a. Manufacturer: TrafficGuard

b. Model: RFP 5560R S10 – 10 MPH Fixed Embedded Bollard

c. Color and Finish: Standard Powercoat color to be chosen by Landscape Architect.

d. Verify Locations in field with Landscape Architect prior to installation.

PART 3 - EXECUTION

3.1 PREPARATION

A. Coordinate and furnish anchorages and setting drawings, diagrams, templates, instructions and directions for installing items having integral anchors that are to be embedded in concrete or masonry construction. Coordinate delivery of such items to the Project site.

3.2 INSTALLATION, GENERAL

A. Provide anchorage devices and fasteners where necessary for securing site furnishings to in-place construction.

B. As required, and in accordance with manufacturer's written recommendations, perform drilling and fitting to install units. Set units accurately in location, alignment and elevation, plumb, level and true, measured from established lines and levels. Provide temporary bracing or anchors in form work for items that are to be built into concrete, masonry or similar construction.

C. Fit exposed connections accurately together to form tight, hairline joints. If cutting, welding and/or grinding is required for proper shop fitting and joining of site furnishings, restore finishes to completely eliminate any evidence of such corrective Work.

1. Do not cut or abrade finishes that cannot be completely restored in the field. Return items with such finishes to the shop for required alterations, followed by complete refinishing, or provide new units as required.

3.3 INSTALLATION

A. Verify that materials are those specified before installing. Inspect furnishings to insure that all units are complete, including fasteners, anchoring devices and/or accessories required for installation as shown and indicated.

B. Coordinate installation of furnishings with related Work to ensure that units will be undamaged at time of acceptance of Work. Provide temporary protective covering for units to avoid damage during the remainder of the construction period. Remove any temporary coverings at time of Substantial Completion.

C. Coordinate installation of furnishings with related Work to ensure no damage is done to adjacent work in progress, work in place, or other ongoing operations.

D. Remove and replace all damaged or defective items at no additional cost to the Owner. Clean and polish exposed surfaces using materials and methods as recommended by the manufacturer.

END OF SECTION

SECTION 26 05 00 – COMMON WORK RESULTS FOR ELECTRICAL

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:

1. Scope of Work
2. Codes and Standards
3. Coordination Between Contractors
4. Work and Workmanship
5. Drawings
6. Submittals
7. Operation and Maintenance Manuals
8. Permits
9. Minor Deviations
10. Record Drawings
11. Project Closeout
12. Guarantee
13. Inspection
14. Assignment of Miscellaneous Work
15. Materials and Equipment
16. Product and Material Approval
17. Equipment Delivery Schedule
18. Material Storage
19. Temporary Use of Equipment
20. Caulking and Fire Stopping
21. Attaching to Building Construction
22. Electrical Connections to Equipment
23. Escutcheons
24. Equipment Installation
25. Occupational Safety & Health Administration
26. Temperature Control and Building Management Systems
27. Electrical Demolition

B. Related Requirements:

1. Contractor shall thoroughly review entire bid documents, including all drawings and specifications prior to bidding and include all required electrical work in his bid, even if not shown on electrical plans and specification.

1.2 SCOPE OF WORK

A. In addition to the requirements specified in Division 01 Section comply with this Article.

B. This section of Specifications contains instructions and information applicable to the electrical contractor and his subcontractors.

C. In event of conflict between the requirements in Drawings, the General Provisions, or the Specifications, the bidder shall inform Engineer of such conflict in writing not later than five days

before bids are due. If such notification is not provided, Contractor shall accept Engineer's resolution of conflicts without any further compensation.

D. This Section contains a general scope of work to be performed under this contract; however, this section does not include all work to be performed, only a general description of the project.

1. All electrical equipment indicated herein and as indicated on Drawings to make this structure electrically complete.
2. Provide electrical distribution - 480-volt panelboard, transformer, and 208-volt panelboard, including feeders.
3. Provide sport lighting and controls for band practice area.
4. Provide additional parking lot lighting.
5. Provide wiring devices.
6. Provide branch circuit wiring.
7. Provide overcurrent protection.
8. Provide grounding and bonding.
9. Provide excavation and directional boring.
10. Provide existing utility locates.
11. Provide geotechnical surveys and reports.

E. Refer to Division 01 Section “Temporary Facilities and Controls” for temporary power requirements.

1.3 CODES AND STANDARDS

A. Materials and workmanship shall comply with Code.

B. Codes and standards shall include state laws, local ordinances, utility company regulations and requirements of nationally accepted codes and standards.

C. In case of difference between building codes, specifications, state laws, local ordinances, industry standards and utility company regulations and contract documents, the most stringent shall govern. Contractor shall promptly notify Engineer in writing of such difference.

D. Non-compliance: Should Contractor perform any work that does not comply with requirements of applicable building codes, state laws, local ordinances, industry standards and utility company regulations, he shall bear all costs arising in correcting the deficiencies.

E. Building Codes: Indiana Building Code; Indiana Plumbing Code; Indiana Mechanical Code; Indiana Electrical Code and American Disabilities Act Title III, Appendix ADAAG.

F. These requirements are to be considered minimum and are to be exceeded when so indicated on Drawings or herein specified.

G. Industry Standards, Code and Specifications

1. ADA Americans with Disabilities Act
2. ANSI American National Standards Institute
3. ASTM American Society for Testing and Materials
4. ETL Electrical Testing Laboratories
5. IEEE Institute of Electrical and Electronics Engineers
6. ICEA Insulated Cable Engineers Association
7. NECA National Electrical Contractors Association

8. NEMA National Electrical Manufacturers Association
9. NESC National Electrical Safety Code
10. NFPA The National Fire Protection Association
11. NIST National Institute of Standards and Technology
12. OSHA Occupational Safety & Health Administration
13. UL Underwriters Laboratory Inc.

1.4 COORDINATION BETWEEN CONTRACTORS

A. Each contractor and subcontractor shall study all Drawings applicable to Work, so complete coordination between trades will be affected. Special attention shall be given to points where ducts cross other ducts or piping, where pipes, ducts and conduit pass through walls and columns, etc.

B. It is responsibility of each Contractor and Subcontractor to leave necessary room for other trades. No extra compensation will be allowed to cover cost of removing piping, conduit, ducts, or equipment found encroaching on space required by others.

C. Refer to Part 3 Article “Equipment Installation.”

D. All power outages shall be scheduled in advance with the Owner. At least two weeks advance notice is required for power transfers to allow for building user notification and scheduling.

1.5 WORK AND WORKMANSHIP

A. Provide all required labor, materials, equipment, and contractor's services necessary for complete installation of systems required in full conformity with requirements of authorities having jurisdiction, all as indicated on Drawings and herein specified.

B. Finished job shall be functional and complete in every detail including all such items required for complete system, whether or not these items be specified or shown on Drawings.

C. Special attention shall be given to accessibility of working and controlling parts. Adjustable parts shall be within easy reach. Removable parts shall have space for removal.

D. Each contractor shall acquaint himself with details of all work to be performed by other trades and take necessary steps to integrate and coordinate his work with other trades.

E. It is assumed that electrical contractor is familiar with standard first-class installation procedures. Therefore, the Specifications do not attempt to include every detail or operation necessary for complete installation.

F. Wherever tables or schedules show quantities of materials, they shall not be used as final count. These figures serve only as a guide to contractor. Each contractor shall be responsible for furnishing all materials indicated on Drawings and in Specifications.

G. Electrical contractor shall be responsible for the protection, safekeeping and cleanliness of all existing equipment, material, etc. located in spaces to be remodeled in which he is working. As part of his responsibility, he shall provide necessary covers, structures, etc., as required to keep all dirt, water, moisture, and dust from equipment. Method the contractor proposes to use in protecting equipment shall be coordinated with Engineer and Owner's Representative for

approval before any work is started. Any damage sustained during construction shall be corrected or replaced by electrical contractor.

H. Refer to Part 3 Article “Equipment Installation.”

1.6 DRAWINGS

A. Conduit runs are not shown on Drawings. Care shall be taken to coordinate conduit runs with existing conditions.

B. In general, junction boxes are not shown on Drawings. Contractor may install small junction boxes at his discretion if they are accessible. Large junction boxes shall have locations approved by the Owner and Engineer.

C. Number of wires required shall be installed to provide indicated functions. Verify all wiring requirements.

D. Wiring requirements for special systems may vary between acceptable manufacturers; conduit system or riser diagram shown will be that required by indicated manufacturer, but it shall be the contractor's responsibility to obtain wiring requirements from manufacturer of equipment he intends to use and include cost of this wiring in his bid.

E. Electrical work shall conform to requirements shown on Drawings. Existing structure shall take precedence over electrical drawings. Because of small scale of electrical drawings, it is not possible to indicate all offsets, fittings and accessories which may be required. Contractor shall investigate structural and finish conditions and provide such fittings and accessories as may be required to meet such conditions.

F. Refer to Part 3 Article “Equipment Installation.”

1.7 SUBMITTALS

A. In addition to the requirements in Division 01 Section “Submittal Procedures,” comply with the following requirements:

1. Review of product data and shop drawings does not relieve Contractor of responsibility for correct ordering of material and equipment. Submittals shall be reviewed by the Contractor, Engineer and Owner.
2. Include all significant data on submittals shown in specifications and on equipment schedules.
3. Contractor review should ensure that equipment will fit into available space.
4. Submit submittals in brochure form and include all related equipment in one brochure.
5. Submit six copies more than Contractor needs for his use.
6. After award of contract, submit within 30 days.
7. See individual product Sections for submittal requirements.
8. Contractor to affix his company name (in form of a stamp) and project name to all Shop Drawings and submittals before submitting.

1.8 OPERATION AND MAINTENANCE MANUALS

A. In addition to the requirements in Division 01 Section “Operation and Maintenance Data,” comply with the following:

1. Contractor shall submit prior to 50 percent job completion four maintenance manuals. Manuals are to indicate all information relative to maintenance and operating instructions for all new electrical equipment.
2. Operations and Maintenance (O&M) manuals shall be provided for each item of equipment. O&M submittals shall be submitted in expandable 3-ring binders. Binders shall contain enough dividers to permit an orderly filing of submittals. Each divider shall be labeled as to contents. O&M submittals shall include but not be limited to the following:

a. Installation instructions and schematic drawings.
b. Operating and maintenance instructions.
c. Complete parts list with manufacturer's model numbers.
d. Complete set of approved shop drawings.
e. Complete wiring diagrams showing all connections and internal wiring diagrams of all equipment, including module diagrams. Factory typical wiring diagrams are not acceptable.

3. Also, as part of maintenance manuals, furnish a list of all motors used on the project with the following information: equipment served, manufacturer, horsepower, full load nameplate amps, voltage at motor, actual amp draw at full load, fuse size, overload size, type and size of starters, where fed from and how controlled.

1.9 PERMITS

A. Contractor shall pay for all permits required to carry out his work.

B. Permits shall be posted in prominent place at building site, protected properly from weather and physical damage.

1.10 MINOR DEVIATIONS

A. For purpose of clarity and legibility, Drawings are diagrammatic, although size and location of equipment and piping are drawn to scale wherever possible. Verify contract document information at site.

B. Drawings may indicate required sizes and points of termination and suggested routes. The Drawings do not indicate all necessary offsets. Install work in manner to conform to structure, avoid obstructions, preserve headroom, and keep openings and passageways clear. Do not scale from Drawings.

1.11 RECORD DRAWINGS (AS-BUILTS)

A. In addition to the requirements in Division 01 Section “Project Record Documents,” comply with the following:

1. During construction, maintain complete and legible set of Drawings, showing changes and deviations between actual construction and Engineer's Drawings. Submit marked-up sets to Engineer for review.
2. As-Built Drawings shall show ALL conduit routings, junction boxes and wiring.

1.12 PROJECT CLOSEOUT

A. In addition to the requirements in Division 01 Section “Closeout Procedures,” comply with the following:

1. Contractor shall perform the following at time the building is determined to be complete and ready to turn over to Owner:

a. All burned out or inoperative lighting lamps and ballasts shall be replaced with new lamps or ballasts by this contractor.
b. All equipment and systems shall be checked by respective contractor for correct adjustment and operation and made to function as intended.
c. All moving parts shall be lubricated, and all oil reservoirs and grease cups filled.
d. All temporary wiring, conduit, etc., shall be removed by respective contractors.

1.13 GUARANTEE

A. Unless noted otherwise, materials and equipment (excluding lamps) shall be guaranteed for a period of one year after final acceptance of Project by Owner.

B. Contractor agrees to make good damage to construction of building or site, or equipment which, in the opinion of the Architect/Engineer, is a result of, or incidental to, use of materials, equipment or workmanship which is inferior, defective, or not in accordance with the Specifications.

C. Contractor shall keep Work in good repair during the guarantee period. In case such repairs become necessary, Owner shall give written notice to Contractor to commence such repairs. If after 30 days the Contractor has failed to make such repairs, the Owner may make such repairs either by its own employees or by independent contract and may thereupon recover from Contractor and his Sureties the cost of repairs so made, together with the cost of supervision and inspection thereof. Owner shall have 60 days after expiration of said guarantee period in which to notify Contractor of any such repairs necessary.

D. Determination of the necessity for repairs shall rest entirely with the Architect/Engineer whose decision upon matter shall be final and obligatory upon the Contractor. Guarantee herein stipulated shall extend to whole body improvement and all its appurtenances.

E. Include the guarantee in the Operation and Maintenance Manual.

1.14 INSPECTION

A. At the completion of the electrical installation, the electrical contractor shall notify the local and state authorities to arrange the final inspection of Work. Include the inspection certificate in the Operation and Maintenance Manual.

PART 2 - PRODUCTS

2.1 ASSIGNMENT OF MISCELLANEOUS WORK

A. Excavating and backfilling for electrical work shall be by electrical contractor.

1. Properly support banks of excavation with safety sheet pile. Install necessary guards. Provide adequate pumping equipment and keep excavation free of water.
2. Excavate pipe trenches to proper depth. Where rock is encountered, excavate to 6 inches below pipe and refill to 6 inches above pipe with compacted granular fill. Granular fill shall consist of dune sand, gravel or other suitable material containing not more than 10 percent by weight passing #200 sieve and 100 percent passing 1-inch sieve.
3. Whenever underground feeders are run below footings and grade beams, contractor shall backfill the void with poured, steel-reinforced concrete to elevation of bottom of footing or grade beam.
4. Backfill within building lines shall be made with granular fill or compacted backfill material laid in 6-inch layers and tamped to specified compaction after each layer.
5. Backfill under paved area shall be made with granular fill compacted backfill material laid in 12-inch layers and tamped to compaction after each layer.
6. Backfill under open yards or fields shall be made with non-compacted backfill laid in layers not to exceed 24 inches deep. Sand trenches may be allowed to settle naturally and shall be refilled back to grade as required during first year after final acceptance.
7. Contractor shall refill, regrade, and refinish any area that becomes unsatisfactory due to settlement within one year after final acceptance.
8. Contractor shall verify all existing grades, inverts, utilities, obstacles and topographical conditions prior to any trenching, excavation, or underground installation. In event existing conditions are such as to prevent installation in accordance with Drawings, contractor shall immediately notify Engineer.
9. Provide appropriate plastic marker tape buried directly above underground electric and communication lines continuously along length of lines. Marker tape shall be located 12 inches below finished grade, but no closer than 12 inches above underground lines. Tape shall be a minimum of 6 inches wide.

B. Concrete pads and bases for electrical work shall be formed and poured by the electrical contractor. Electrical contractor shall install all anchoring devices.

1. Unless noted otherwise, 4-inch pads projecting 3 inches on all sides beyond equipment shall be used for switchboards, control centers, unit substations, motor controllers, etc. Set bolts in pipe sleeves from templates or actual measurements. Set equipment level and grout in place. Anchor equipment to pad.
2. Concrete used on this project shall have maximum slump of 4 inches and shall attain 3000 psi compressive strength after 28 days. Smooth out all rough edges and surfaces.

C. Platforms and supporting stands for electrical equipment shall be furnished by the electrical contractor.

1. Each piece of equipment or apparatus suspended from ceiling or mounted above floor level shall be provided with suitable structural support, platform, or carrier, in accordance with best recognized practice.
2. Contractor shall exercise extreme care that structural members of building are not overloaded by such equipment. In all cases, details of such hangers, platforms and supports, together with total weight of mounted equipment, shall be approved by Engineer.

D. Cutting and patching for electrical equipment shall be by the electrical contractor.

1. Cut structural materials where required after approval from Architect/Engineer.
2. Electrical contractor shall provide all his own cutting and patching in finished areas.

E. Ceiling and wall access panels for electrical equipment shall be furnished and installed by the electrical contractor.

1. Wherever any electrical outlet, junction box, or item of equipment is concealed or enclosed above or behind walls, ceilings, floors, bulkheads, etc., an access panel or door shall be provided.
2. When access through acoustic tile ceiling is required, this shall be accomplished wherever possible by use of removable ceiling tiles.
3. All access panels, doors and removable ceiling tiles required for electrical equipment shall be provided and installed by contractor as required and as approved by Engineer.
4. Access panels or doors shall be of design suitable to type of construction at each location. Locks shall be flush, screwdriver-operated, cam action type. Doors and frames shall be furnished in prime coat of gray, rust-inhibitive paint unless otherwise specified. These units shall be manufactured by Milcor or approved equal.

F. Lintels required by the electrical contractor shall be furnished by the electrical contractor. Electrical contractor shall notify the general contractor of correct location for all lintels prior to wall construction.

G. Sleeves and small openings (not framed) for electrical equipment shall be furnished and set by electrical contractor.

1. Where electrical conduits pass through walls, roofs, ceilings, or floors, electrical contractor shall have sleeves set for them when floors, walls, ceilings, or roofs are constructed. If any holes are cut in finished work where sleeves have been omitted, cutting shall be done with a concrete coring machine or other approved means and only with consent of Engineer. All such holes are to be carefully cut and shall not be larger than necessary. These holes are to be entirely covered by escutcheon plates when work is completed. Sleeves shall be made of pipe or rolled sheet steel no lighter than No. 18 gauge.
2. Where conduits pass through sleeves in exterior walls above grade, annular space shall be caulked with oakum and filled inside and out with non-hardening, waterproof sealant finished off flush with both faces of wall.
3. Provide penetration seals for all conduits penetrating the building wall below grade. This shall include service entrance, site power and lighting circuits, etc.

    a. Description: The pipe to wall penetration closures shall be "Link-Seal" or equal, as manufactured by PSI/Thunderline Corporation – Houston, TX. Seals shall be modular type, consisting of synthetic rubber shaped to continuously fill the annular space between the pipe and wall opening. After the seal assembly is positioned in the sleeve, the rubber sealing elements shall provide a water-right seal between the pipe and wall opening. The seal shall be constructed as to provide electrical insulation between the pipe and wall, thus reducing changes of cathodic reaction between these two members.
    b. Wall Opening: Provide “Century-Line” sleeves or equal as manufactured by PSI/Thunderline Corporation – Houston, TX. Contractor shall determine the required inside diameter of each individual wall opening of sleeve before ordering, fabricating, or installing. The inside diameter of each wall opening shall be sized as recommended by the manufacturer to fit the pipe and Link-Seal to assure a water-tight joint. Sizing (correct Link-Seal model and number of links per seal) may be obtained through manufacturer's catalog. If pipe O.D is non-standard due to coating, insulation, etc. consult Thunderline's factory for engineering assistance and recommendation before proceeding with wall opening detail.

H. Holes through Structural members: Holes required for conduit of size 5-inches and smaller shall be cut in field at expense of electrical contractor. Obtain structural engineer's approval in writing prior to any cutting.

I. Pitch Pockets: Required for conduit penetrating roof by electrical contractor. Electrical contractor to seal sleeves and provide flashing.

J. Color Coding: Responsibility for correct color coding shall be by the electrical contractor.

K. Dust Protection: Temporary partitions or barriers required to protect existing building or facility shall be provided by electrical contractor. Electrical contractor shall coordinate necessity and location of such protection with Owner.

L. Painting of electrical equipment, conduits, etc., shall be in accordance with painting part of the Specification. Painting shall be by others, except as indicated below, who will paint work of electrical contractor; however, each contractor shall thoroughly clean all his own equipment, apparatus, and piping in manner satisfactory to Architect and Owner. Equipment furnished with factory applied finish shall be protected from injury and any damaged surface shall be repaired by electrical contractor to match original finish or shall be replaced before final acceptance. The electrical contractor shall provide color-code painting as required to comply with Division 26 Section "Identification for Electrical System."

2.2 MATERIALS AND EQUIPMENT

A. Electrical equipment shall be new, listed by UL and shall conform to NEMA and ICEA standards.

B. Materials used for like service shall be by same manufacturer (i.e., all motor starters to be by same manufacturer).

C. All materials and equipment, including any hangers, supports, fastenings or accessory fittings, shall have corrosion protection suitable for atmosphere in which they are installed, whether located indoors or out. Care shall be taken during installation to assure integrity of corrosion protection.

D. All screws, bolts, nuts, clamps, fittings, or other fastening devices shall be made up tight. All bolts, screws, nuts and other threaded devices shall have standard threads and heads so they may be installed and replaced, when necessary, without special tools.

2.3 PRODUCT AND MATERIAL APPROVAL

A. A Specification followed by one or more manufacturers is limited to those manufacturers. Names of other manufacturers may be submitted for approval to Engineer a minimum of ten (10) days prior to receiving bids. Approval will be issued by Addendum if granted.

B. A Specification followed by one or more manufacturers and "or approved equal" is open to all equal products or materials; however, Contractor shall supply one of listed manufacturers at no additional cost if Engineer finds substituted product unsatisfactory.

2.4 EQUIPMENT DELIVERY SCHEDULE

A. Submit upon request a schedule listing equipment and materials required for complete installation, quantity ordered, date of placing order and promised delivery date.

2.5 MATERIAL STORAGE

A. Provide suitable protection from weather and vandalism for all materials and equipment to be installed. Storage shall be dry, clean, and safe. Any materials or equipment damaged, deteriorated, rusted, or defaced due to improper storage shall be fully repaired, refinished or replaced as directed by Engineer.

2.6 TEMPORARY USE OF EQUIPMENT

A. Should it become necessary or desirable to operate any equipment before final acceptance, Owner shall be allowed to do so, but only after proper adjustment and trial operation by contractor specified. Electrical contractor shall be responsible for instructing Owner or his Representative as to proper operation and care of equipment so used. Owner shall be responsible for proper care and supervision of equipment before acceptance and shall safeguard same in every way.

2.7 CAULKING AND FIRESTOPPING

A. Comply with this Article.

B. All raceway and sleeve penetrations of fire barriers shall be sealed to achieve fire resistance equivalent to fire separation.

1. Maintain fire rating per ASTM E-814 and UL 1479.
2. This assembly must also maintain a watertight seal between floor or wall and pipe.

C. For other penetrations through non-rated walls, partitions, floors, and ceilings, caulk the space between raceways and raceway sleeves with non-staining, waterproof gun grade compound. Apply caulking compound by the gun method using nozzles of a proper size to fit the width of joint. Prepare the joint for caulking by packing it tightly with a resilient foam or rope yarn.

D. Products: Subject to compliance with requirements, provide one of the following:

1. Penetration sealant:

a. 3M Brand "Moldable Putty Pads": and "Moldable Putty Stix"
b. 3M Brand "Fire Barrier" Caulk, Putty or Penetrating Sealing Systems
c. Dow Corning "Fire Stop Foam: and "Fire Stop Sealant" systems
d. Insta-Foam Products, Inc. "Insta-Fire Seal Silicone RTV Foam"
e. Standard Oil Engineering Materials Company, "Frye Putty"
f. Chase technology "Chase Foam #CTC PR-855"

2. Intumescent Sealant for use at openings and sleeves involving flexible cable.

a. 3M Brand "Fire Barrier" caulk or putty, FS-195 Wrap Strip and CS-195 Composite Sheet.
b. Dow Corning "Fire Stop Intumescent Wrap Strip"

c. Fox Couplings, Inc. "The Fox Cast-in-Place Coupling"

E. Performance Characteristic: Firestopping materials shall conform to both Flame (F) and Temperature (T) ratings as tested by nationally accepted test agencies per ASTM E814 or UL 1479 fire test.

1. F Rating shall be a minimum of one hour but not less than the fire resistance rating of the assembly being penetrated.
2. Conduct the fire test with a minimum positive pressure differential of 0.01 inches of water column.

F. Quality Assurance: Installer qualifications – a firm specializing in firestopping installation with not less than two years of experience or trained and approved by firestopping manufacturer.

PART 3 - EXECUTION

3.1 ATTACHING TO BUILDING CONSTRUCTION

A. Equipment raceway supports shall be attached to structural members (beams, joists, etc.) rather than to floor or roof slabs. Do not attach to ceiling support wires.

B. Where equipment and raceway are suspended from existing concrete or masonry construction, use expansion shields to attach supports to construction. Expansion shield bolt diameter shall be same size as support rod diameter, hereinafter specified. Expansion shields shall be Star Double, Star Gloxin, Star Loxin or approved equal.

C. Where existing masonry is not suitable to receive and hold expansion shield or where other means of attachment is advantageous, Contractor shall submit alternate method for approval by Engineer.

D. Equipment to be installed in groups shall not be mounted directly to masonry or concrete walls. Mount 1- by 1-inch structural channel such as Unistrut, to wall and secure equipment to these channels.

E. Where raceways are suspended from structural steel building framing or supporting members, furnish and install beam clamps for attaching piping device to building member.

F. Obtain approval from Owner and structural engineer before cutting or welding to structural members, or before hanging heavy equipment.

3.2 ELECTRICAL CONNECTIONS TO EQUIPMENT

A. In event that supplier requires larger starter or disconnect than those indicated on documents, he shall reimburse contractor supplying these items for difference.

B. Connections and wiring diagrams shown on Drawings or described in Specifications are typical and are for bidding purposes only. Detailed diagrams and instructions shall be provided by contractor supplying equipment if connections are different from those shown on Drawings. Diagrams shall be submitted to Engineer for review prior to actual wiring.

C. Additional relays, switches, contactors, etc., which may be required for control purposes in addition to those specified for and indicated on Drawings, shall be provided by electrical contractor. These devices shall be mounted by supplier within 5-feet of apparatus to be installed. Electrical contractor shall provide all additional wire and electrical connections without additional charge to Owner.

3.3 ESCUTCHEONS

A. Install chrome plated escutcheons on exposed bare conduit, leaving and entering walls, floors, ceilings, etc.

3.4 EQUIPMENT INSTALLATION

A. All equipment must be installed such that maintenance and service may be properly accomplished. If necessary, the Owner, at their option, may require the contractor to demonstrate the service on any piece of equipment to determine sufficient service space exists. If the service space is not adequate, the equipment shall be relocated at no additional cost to the Owner such that sufficient service space is achieved.

3.5 OCCUPATIONAL SAFETY & HEALTH STANDARDS

A. All work shall comply with current requirements of U.S. Department of Labor-Occupational Safety & Health Administration, entitled Occupational Safety and Health Standards; National Consensus Standards and Established Federal Standards.

3.6 ELECTRICAL DEMOLITION

A. Comply with this Article.

1. Scope of Work: Provide demolition required for removal of systems and equipment made obsolete by this Project and as determined by the Architect/Engineer.
2. Work Included:

    a. Non-destructive removal of systems, materials, and equipment for reuse or salvage as shown on Drawings or requested by Owner.
    b. Removal of all debris from site and legal disposal of same.
    c. Removal of all abandoned or obsolete exposed materials and equipment for a clean and finished installation.
    d. Removal of all abandoned or obsolete raceways, wiring, cabling, or electrical devices of any kind.

B. Conditions

1. Coordination: It shall be expected that the Contractor understands that adjacent areas need to remain in operation and that services to these areas need to be maintained. A schedule will be worked out prior to beginning work and as many criteria for operation as possible will be explained. Contractor cooperation shall be expected in all conditions.
2. Phasing:

a. Prior to commencing demolition in any area of the work, notify the Owner and Architect/Engineer five (5) working days in advance to ensure that no adjacent occupied areas will be disrupted.
b. Demolition phasing must be approved by Architect/Engineer prior to commencement of operations.
c. Removal of debris and construction traffic will be limited to specified areas. Confirm all operations with Architect/Engineer prior to commencement of work.

3. Adjacent Materials:

a. During the execution of the work, primary consideration shall be given to protecting from damaging the structure, furnishings, finishes, and the like which are not specifically indicated to be removed and disposed.
b. Provide and maintain temporary partitions or dust barriers adequate to keep dirt, dust, noise, and other particles from being transferred to adjacent areas.
c. Existing items or surfaces to remain which are damaged because of this work shall be refinished, repaired, or replaced to the satisfaction of the Architect/Engineer and Owner at no additional cost.

C. Materials

1. Patching: Materials used for patching shall be in conformance with the applicable sections of the Project Manual. Where materials are not specifically described but required for proper completion of the work, they shall be as selected by the Contractor subject to approval of the Architect/Engineer. Materials used and workmanship shall match surrounding areas as much as possible, unless otherwise directed.

END OF SECTION 26 05 00

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SECTION 26 05 19 – LOW VOLTAGE ELECTRICAL POWER CONDUCTORS & CABLES

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:

1. Building wires and cables rated 600 V and less.
2. Connectors, splices, and terminations rated 600 V and less.

1.2 ACTION SUBMITTALS

A. Product Data: For each type of product.

1.3 INFORMATIONAL SUBMITTALS

A. Field quality-control reports.

PART 2 - PRODUCTS

2.1 CONDUCTORS AND CABLES

A. Copper Conductors: Comply with NEMA WC 70/ICEA S-95-658. Use copper conductors only for all circuits up to and including 100 amps. For circuits over 100 amps, contractor may utilize copper or aluminum conductors, but shall verify compatibility with all equipment connections. Some equipment may only accept copper conductors, for which the entire run shall be copper. Refer to drawings for specific circuits that must use copper conductors only.

B. Conductor Insulation: Comply with NEMA WC 70/ICEA S-95-658 for Type THHN-2-THWN-2 and Type SO.

C. Multiconductor Cable: Comply with NEMA WC 70/ICEA S-95-658 for metal-clad cable, Type MC and Type SO with ground wire.

2.2 CONNECTORS AND SPLICES

A. Description: Factory-fabricated connectors and splices of size, ampacity rating, material, type, and class for application and service indicated.

2.3 SYSTEM DESCRIPTION

A. Electrical Components, Devices, and Accessories: Listed and labeled as defined in NFPA 70, by a qualified testing agency, and marked for intended location and application.

B. Comply with NFPA 70.

PART 3 - EXECUTION

3.1 CONDUCTOR MATERIAL APPLICATIONS

A. Feeders: Copper only up to and including 100 amps. Copper or aluminum is acceptable for above 100 amps, unless otherwise noted or required for connections to equipment. If equipment manufacturer requires copper only connections, then the entire circuit wiring shall be copper.

B. Branch Circuits: Copper.

3.2 CONDUCTOR INSULATION AND MULTICONDUCTOR CABLE APPLICATIONS AND WIRING METHODS

A. Service Entrance: Type THHN-2-THWN-2, single conductors in raceway.

B. Exposed Feeders: Type THHN-2-THWN-2, single conductors in raceway.

C. Feeders Concealed in Ceilings, Walls, Partitions, and Crawlspaces: Type THHN-2-THWN-2, or single conductors in raceway.

D. Feeders Concealed in Concrete, below Slabs-on-Grade, and Underground: Type THHN-2-THWN-2, single conductors in raceway.

E. Feeders Installed below Raised Flooring: Type THHN-2-THWN-2, single conductors in raceway.

F. Exposed Branch Circuits, Including in Crawlspaces: Type THHN-2-THWN-2, single conductors in raceway.

G. Branch Circuits Concealed in Ceilings, Walls, and Partitions: Type THHN-2-THWN-2, single conductors in raceway. Metal-clad MC cable is acceptable for individual drops to devices as indicated on the bid drawings.

H. Branch Circuits Concealed in Concrete, below Slabs-on-Grade, and Underground: Type THHN-2-THWN-2, single conductors in raceway.

I. Branch Circuits Installed below Raised Flooring: Type THHN-2-THWN-2, single conductors in raceway.

J. Cord Drops and Portable Appliance Connections: Type SO, hard service cord with stainless-steel, wire-mesh, strain relief device at terminations to suit application.

3.3 INSTALLATION OF CONDUCTORS AND CABLES

A. Conduit Fill: Unless otherwise indicated, install no more than the following in a single conduit or EMT:

1. Single-Phase Circuits: Three circuits, phases A, B, and C, and associated grounded (neutral) conductors, and equipment grounding conductor.
2. Three-Phase Circuits: One circuit, phases A, B, and C, and grounded conductor where applicable, and equipment grounding conductor.

B. Conceal cables in finished walls, ceilings, and floors unless otherwise indicated.

C. Complete raceway installation between conductor and cable termination points according to Section 26 05 33 "Raceways and Boxes for Electrical Systems" prior to pulling conductors and cables.

D. Use manufacturer-approved pulling compound or lubricant where necessary; compound used must not deteriorate conductor or insulation. Do not exceed manufacturer's recommended maximum pulling tensions and sidewall pressure values.

E. Use pulling means, including fish tape, cable, rope, and basket-weave wire/cable grips, that will not damage cables or raceway.

F. Install exposed cables parallel and perpendicular to surfaces of exposed structural members, and follow surface contours where possible.

G. Support cables according to Section 26 05 29 "Hangers and Supports for Electrical Systems."

H. Do not daisy-chain MC cable or flexible conduit/wire from device to device.

3.4 CONNECTIONS

A. Tighten electrical connectors and terminals according to manufacturer's published torque-tightening values. If manufacturer's torque values are not indicated, use those specified in UL 486A.

B. Make splices, terminations, and taps that are compatible with conductor material.

C. Wiring at Outlets: Install conductor at each outlet, with at least 6 inches of slack.

3.5 IDENTIFICATION

A. Identify and color-code conductors and cables according to Section 26 05 53 "Identification for Electrical Systems."

B. Identify each spare conductor at each end with identity number and location of other end of conductor, and identify as spare conductor.

3.6 SLEEVE AND SLEEVE-SEAL INSTALLATION FOR ELECTRICAL PENETRATIONS

A. Install sleeves and sleeve seals at penetrations of exterior floor and wall assemblies. Comply with requirements in Section 26 05 44 "Sleeves and Sleeve Seals for Electrical Raceways and Cabling."

3.7 FIRESTOPPING

A. Apply firestopping to electrical penetrations of fire-rated floor and wall assemblies to restore original fire-resistance rating of assembly according to Division 07 Section "Penetration Firestopping."

3.8 FIELD QUALITY CONTROL

A. Perform the following tests and inspections:

1. After installing conductors and cables and before electrical circuitry has been energized, test service entrance and feeder conductors for compliance with requirements.
2. Perform each visual and mechanical inspection and electrical test stated in NETA Acceptance Testing Specification. Certify compliance with test parameters.

B. Test and Inspection Reports: Prepare a written report to record the following:

1. Procedures used.
2. Results that comply with requirements.
3. Results that do not comply with requirements and corrective action taken to achieve compliance with requirements.

C. Cables will be considered defective if they do not pass tests and inspections.

END OF SECTION 26 05 19

SECTION 26 05 26 – GROUNDING & BONDING FOR ELECTRICAL SYSTEMS

PART 1 - GENERAL

1.1 SUMMARY

A. Section includes grounding and bonding systems and equipment.

1.2 ACTION SUBMITTALS

A. Product Data: For each type of product indicated.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

A. Manufacturers: Subject to compliance with requirements, provide products by one of the following:

1. Burndy; Part of Hubbell Electrical Systems.
2. ERICO International Corporation.
3. Harger Lightning and Grounding.
4. ILSCO.
5. O-Z/Gedney; A Brand of the EGS Electrical Group.

2.2 SYSTEM DESCRIPTION

A. Electrical Components, Devices, and Accessories: Listed and labeled as defined in NFPA 70, by a qualified testing agency, and marked for intended location and application.

B. Comply with UL 467 for grounding and bonding materials and equipment.

2.3 CONDUCTORS

A. Insulated Conductors: Copper or tinned-copper wire or cable insulated for 600 V unless otherwise required by applicable Code or authorities having jurisdiction.

B. Bare Copper Conductors:

1. Solid Conductors: ASTM B 3.
2. Stranded Conductors: ASTM B 8.
3. Tinned Conductors: ASTM B 33.
4. Bonding Cable: 28 kcmil, 14 strands of No. 17 AWG conductor, 1/4 inch in diameter.
5. Bonding Conductor: No. 4 or No. 6 AWG, stranded conductor.
6. Bonding Jumper: Copper tape, braided conductors terminated with copper ferrules; 1-5/8 inches wide and 1/16 inch thick.

7. Tinned Bonding Jumper: Tinned-copper tape, braided conductors terminated with copper ferrules; 1-5/8 inches wide and 1/16 inch thick.

2.4 CONNECTORS

A. Listed and labeled by an NRTL acceptable to authorities having jurisdiction for applications in which used and for specific types, sizes, and combinations of conductors and other items connected.

B. Bolted Connectors for Conductors and Pipes: Copper or copper alloy.

C. Welded Connectors: Exothermic-welding kits of types recommended by kit manufacturer for materials being joined and installation conditions.

D. Bus-Bar Connectors: Mechanical type, cast silicon bronze, solderless compression-type wire terminals, and long-barrel, two-bolt connection to ground bus bar.

2.5 GROUNDING ELECTRODES

A. Ground Rods: Copper-clad steel; 3/4 inch by 10 feet.

PART 3 - EXECUTION

3.1 APPLICATIONS

A. Conductors: Install solid conductor for No. 8 AWG and smaller, and stranded conductors for No. 6 AWG and larger unless otherwise indicated.

B. Underground Grounding Conductors: Install bare tinned-copper conductor, No. 2/0 AWG minimum.

1. Bury at least 24 inches below grade.

C. Conductor Terminations and Connections:

1. Pipe and Equipment Grounding Conductor Terminations: Bolted connectors.
2. Underground Connections: Welded connectors except as otherwise indicated.
3. Connections to Structural Steel: Welded connectors.

3.2 GROUNDING UNDERGROUND DISTRIBUTION SYSTEM COMPONENTS

A. Comply with IEEE C2 grounding requirements.

3.3 EQUIPMENT GROUNDING

A. Install insulated equipment grounding conductors with all feeders and branch circuits.

B. Poles Supporting Outdoor Lighting Fixtures: Install grounding electrode and a separate insulated equipment grounding conductor in addition to grounding conductor installed with branch-circuit conductors.

3.4 INSTALLATION

A. Grounding Conductors: Route along shortest and straightest paths possible unless otherwise indicated or required by Code. Avoid obstructing access or placing conductors where they may be subjected to strain, impact, or damage.

B. Ground Rods: Drive rods until tops are 2 inches below finished floor or final grade unless otherwise indicated.

1. Interconnect ground rods with grounding electrode conductor below grade and as otherwise indicated. Make connections without exposing steel or damaging coating if any.
2. For grounding electrode system, install at least three rods spaced at least one-rod length from each other and located at least the same distance from other grounding electrodes, and connect to the service grounding electrode conductor.

C. Bonding Straps and Jumpers: Install in locations accessible for inspection and maintenance except where routed through short lengths of conduit.

1. Bonding to Structure: Bond straps directly to basic structure, taking care not to penetrate any adjacent parts.
2. Bonding to Equipment Mounted on Vibration Isolation Hangers and Supports: Install bonding so vibration is not transmitted to rigidly mounted equipment.
3. Use exothermic-welded connectors for outdoor locations; if a disconnect-type connection is required, use a bolted clamp.

3.5 FIELD QUALITY CONTROL

A. Perform tests and inspections. Inspect physical and mechanical condition. Verify tightness of accessible, bolted, electrical connections with a calibrated torque wrench according to manufacturer's written instructions.

END OF SECTION 26 05 26

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SECTION 26 05 29 – HANGERS & SUPPORTS FOR ELECTRICAL SYSTEMS

PART 1 - GENERAL

1.1 SUMMARY

A. Section includes:

1. Hangers and supports for electrical equipment and systems.
2. Construction requirements for concrete bases.

1.2 PERFORMANCE REQUIREMENTS

A. Design supports for multiple raceways capable of supporting combined weight of supported systems and its contents.

B. Design equipment supports capable of supporting combined operating weight of supported equipment and connected systems and components.

1.3 ACTION SUBMITTALS

A. Product Data: For steel slotted support systems.

1.4 QUALITY ASSURANCE

A. Comply with NFPA 70.

PART 2 - PRODUCTS

2.1 SUPPORT, ANCHORAGE, AND ATTACHMENT COMPONENTS

A. Steel Slotted Support Systems: Comply with MFMA-4, factory-fabricated components for field assembly.

1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:

a. Allied Tube & Conduit.
b. Cooper B-Line, Inc.; a division of Cooper Industries.
c. ERICO International Corporation.
d. GS Metals Corp.
e. Thomas & Betts Corporation.
f. Unistrut; Tyco International, Ltd.
g. Wesanco, Inc.

2. Metallic Coatings: Hot-dip galvanized after fabrication and applied according to MFMA-4.

3. Nonmetallic Coatings: Manufacturer's standard PVC, polyurethane, or polyester coating applied according to MFMA-4.
4. Painted Coatings: Manufacturer's standard painted coating applied according to MFMA-4.
5. Channel Dimensions: Selected for applicable load criteria.

B. Raceway and Cable Supports: As described in NECA 1 and NECA 101.

C. Conduit and Cable Support Devices: Steel hangers, clamps, and associated fittings, designed for types and sizes of raceway or cable to be supported.

D. Mounting, Anchoring, and Attachment Components: Items for fastening electrical items or their supports to building surfaces include the following:

1. Powder-Actuated Fasteners: Not permitted.
2. Mechanical-Expansion Anchors: Insert-wedge-type, zinc-coated steel, for use in hardened portland cement concrete with tension, shear, and pullout capacities appropriate for supported loads and building materials in which used.

a. Manufacturers: Subject to compliance with requirements, provide products by one of the following:

1) Cooper B-Line, Inc. a division of Cooper Industries.
2) Empire Tool and Manufacturing Co., Inc.
3) Hilti Inc.
4) ITW Ramset/Red Head; a division of Illinois Tool Works, Inc.
5) MKT Fastening, LLC.

3. Concrete Inserts: Steel or malleable-iron, slotted support system units similar to MSS Type 18; complying with MFMA-4 or MSS SP-58.
4. Clamps for Attachment to Steel Structural Elements: MSS SP-58, type suitable for attached structural element.
5. Through Bolts: Structural type, hex head, and high strength. Comply with ASTM A 325.
6. Toggle Bolts: All-steel springhead type.
7. Hanger Rods: Threaded steel.

PART 3 - EXECUTION

3.1 APPLICATION

A. Comply with NECA 1 and NECA 101 for application of hangers and supports for electrical equipment and systems except if requirements in this Section are stricter.

B. Maximum Support Spacing and Minimum Hanger Rod Size for Raceway: Space supports for EMT, IMC, and RMC as scheduled in NECA 1, where its Table 1 lists maximum spacings less than stated in NFPA 70. Minimum rod size shall be 1/4 inch in diameter.

C. Multiple Raceways or Cables: Install trapeze-type supports fabricated with steel slotted support system, sized so capacity can be increased by at least 25 percent in future without exceeding specified design load limits.

1. Secure raceways and cables to these supports with single-bolt conduit clamps using spring friction action for retention in support channel.

D. Steel Slotted Support Systems: Select material suitable for environmental conditions.

1. Outdoors: Metallic coated.
2. Indoors: Painted.

3.2 SUPPORT INSTALLATION

A. Comply with NECA 1 and NECA 101 for installation requirements except as specified in this Article.

B. Raceway Support Methods: In addition to methods described in NECA 1, EMT, IMC, and RMC may be supported by openings through structure members, as permitted in NFPA 70.

C. Strength of Support Assemblies: Where not indicated, select sizes of components so strength will be adequate to carry present and future static loads within specified loading limits. Minimum static design load used for strength determination shall be weight of supported components plus 200 lb.

D. Mounting and Anchorage of Surface-Mounted Equipment and Components: Anchor and fasten electrical items and their supports to building structural elements by the following methods unless otherwise indicated by code:

1. To Wood: Fasten with lag screws or through bolts.
2. To New Concrete: Bolt to concrete inserts.
3. To Masonry: Approved toggle-type bolts on hollow masonry units and expansion anchor fasteners on solid masonry units.
4. To Existing Concrete: Expansion anchor fasteners.
5. To Steel: Beam clamps (MSS Type 19, 21, 23, 25, or 27) complying with MSS SP-69.
6. To Light Steel: Sheet metal screws.
7. Items Mounted on Hollow Walls and Nonstructural Building Surfaces: Mount cabinets, panelboards, disconnect switches, control enclosures, pull and junction boxes, transformers, and other devices on slotted-channel racks attached to substrate.

E. Drill holes for expansion anchors in concrete at locations and to depths that avoid reinforcing bars.

3.3 CONCRETE BASES

A. Construct concrete bases of dimensions indicated but not less than 4 inches larger in both directions than supported unit, and so anchors will be a minimum of 10 bolt diameters from edge of the base.

B. Use 3000-psi, 28-day compressive-strength concrete. Concrete materials, reinforcement, and placement requirements are specified in Division 03 Section "Cast-in-Place Concrete" or Division 03 Section "Miscellaneous Cast-in-Place Concrete."

C. Anchor equipment to concrete base.

1. Place and secure anchorage devices. Use supported equipment manufacturer's setting drawings, templates, diagrams, instructions, and directions furnished with items to be embedded.
2. Install anchor bolts to elevations required for proper attachment to supported equipment.

3. Install anchor bolts according to anchor-bolt manufacturer's written instructions.

3.4 PAINTING

A. Touchup: Clean field welds and abraded areas of shop paint. Paint exposed areas immediately after erecting hangers and supports. Use same materials as used for shop painting. Comply with SSPC-PA 1 requirements for touching up field-painted surfaces.

1. Apply paint by brush or spray to provide minimum dry film thickness of 2.0 mils.

B. Touchup: Comply with requirements in Division 09 Section "Exterior Painting," Division 09 Section "Interior Painting," and Division 09 Section "High Performance Coatings" for cleaning and touchup painting of field welds, bolted connections, and abraded areas of shop paint on miscellaneous metal.

C. Galvanized Surfaces: Clean welds, bolted connections, and abraded areas and apply galvanizing-repair paint to comply with ASTM A 780.

END OF SECTION 26 05 29

SECTION 26 05 33 – RACEWAYS & BOXES FOR ELECTRICAL SYSTEMS

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:

1. Metal conduits, tubing, and fittings.
2. Nonmetal conduits, tubing, and fittings.
3. Metal wireways and auxiliary gutters.
4. Surface raceways.
5. Boxes, enclosures, and cabinets.
6. Handholes and boxes for exterior underground cabling.

1.2 ACTION SUBMITTALS

A. Product Data: For surface raceways, wireways and fittings, floor boxes, hinged-cover enclosures, and cabinets.

1.3 INFORMATIONAL SUBMITTALS

A. Coordination Drawings: Conduit routing plans, drawn to scale, on which the following items are shown and coordinated with each other, using input from installers of items involved:

1. Structural members in paths of conduit groups with common supports.
2. HVAC and plumbing items and architectural features in paths of conduit groups with common supports.

PART 2 - PRODUCTS

2.1 METAL CONDUITS, TUBING, AND FITTINGS

A. Listing and Labeling: Metal conduits, tubing, and fittings shall be listed and labeled as defined in NFPA 70, by a qualified testing agency, and marked for intended location and application.

B. GRC: Comply with ANSI C80.1 and UL 6.

C. IMC: Comply with ANSI C80.6 and UL 1242.

D. EMT: Comply with ANSI C80.3 and UL 797.

E. FMC: Comply with UL 1; zinc-coated steel.

F. LFMC: Flexible steel conduit with PVC jacket and complying with UL 360.

G. Fittings for Metal Conduit: Comply with NEMA FB 1 and UL 514B.

1. Conduit Fittings for Hazardous (Classified) Locations: Comply with UL 886 and NFPA 70.
2. Fittings for EMT:

a. Material: Steel. Die-cast is not permitted.
b. Type: Setscrew or compression.

H. Joint Compound for IMC and GRC: Approved, as defined in NFPA 70, by authorities having jurisdiction for use in conduit assemblies, and compounded for use to lubricate and protect threaded conduit joints from corrosion and to enhance their conductivity.

2.2 NONMETALLIC CONDUITS, TUBING, AND FITTINGS

A. Listing and Labeling: Nonmetallic conduits, tubing, and fittings shall be listed and labeled as defined in NFPA 70, by a qualified testing agency, and marked for intended location and application.

B. RNC: Type EPC-40-PVC and Type EPC-80-PVC, complying with NEMA TC 2 and UL 651 unless otherwise indicated.

C. Continuous HDPE: Comply with UL 651B.

D. Coilable HDPE: Preassembled with conductors or cables, and complying with ASTM D 3485.

E. Fittings for RNC: Comply with NEMA TC 3; match to conduit or tubing type and material.

2.3 METAL WIREWAYS AND AUXILIARY GUTTERS

A. Description: Sheet metal, complying with UL 870 and NEMA 250, Type 1 unless otherwise indicated, and sized according to NFPA 70.

1. Metal wireways installed outdoors shall be listed and labeled as defined in NFPA 70, by a qualified testing agency, and marked for intended location and application.

B. Fittings and Accessories: Include covers, couplings, offsets, elbows, expansion joints, adapters, hold-down straps, end caps, and other fittings to match and mate with wireways as required for complete system.

2.4 BOXES, ENCLOSURES, AND CABINETS

A. General Requirements for Boxes, Enclosures, and Cabinets: Boxes, enclosures, and cabinets installed in wet locations shall be listed for use in wet locations.

B. Sheet Metal Outlet and Device Boxes: Comply with NEMA OS 1 and UL 514A.

C. Cast-Metal Outlet and Device Boxes: Comply with NEMA FB 1, ferrous alloy or aluminum, Type FD, with gasketed cover.

D. Nonmetallic Outlet and Device Boxes: Comply with NEMA OS 2 and UL 514C.

E. Small Sheet Metal Pull and Junction Boxes: NEMA OS 1.

F. Cast-Metal Access, Pull, and Junction Boxes: Comply with NEMA FB 1 and UL 1773, cast aluminum or galvanized, cast iron with gasketed cover.

G. Device Box Dimensions: 4 inches square by 2-1/8 inches deep.

H. Gangable boxes are prohibited.

I. Hinged-Cover Enclosures: Comply with UL 50 and NEMA 250, Type 1 with continuous-hinge cover with flush latch unless otherwise indicated.

1. Metal Enclosures: Steel, finished inside and out with manufacturer's standard enamel.
2. Nonmetallic Enclosures: Plastic or fiberglass.
3. Interior Panels: Steel; all sides finished with manufacturer's standard enamel.

J. Cabinets:

1. NEMA 250, Type 1 galvanized-steel box with removable interior panel and removable front, finished inside and out with manufacturer's standard enamel.
2. Hinged door in front cover with flush latch and concealed hinge.
3. Key latch to match panelboards.
4. Metal barriers to separate wiring of different systems and voltage.
5. Accessory feet where required for freestanding equipment.
6. Nonmetallic cabinets shall be listed and labeled as defined in NFPA 70, by a qualified testing agency, and marked for intended location and application.

2.5 HANDHOLES AND BOXES FOR EXTERIOR UNDERGROUND WIRING

A. General Requirements for Handholes and Boxes:

1. Boxes and handholes for use in underground systems shall be designed and identified as defined in NFPA 70, for intended location and application.
2. Boxes installed in wet areas shall be listed and labeled as defined in NFPA 70, by a qualified testing agency, and marked for intended location and application.

B. Fiberglass Handholes and Boxes: Molded of fiberglass-reinforced polyester resin, with frame and covers of polymer concrete.

1. Standard: Comply with SCTE 77.
2. Configuration: Designed for flush burial with open bottom unless otherwise indicated.
3. Cover: Weatherproof, secured by tamper-resistant locking devices and having structural load rating consistent with enclosure and handhole location.
4. Cover Finish: Nonskid finish shall have a minimum coefficient of friction of 0.50.
5. Cover Legend: Molded lettering, "ELECTRIC.".

PART 3 - EXECUTION

3.1 RACEWAY APPLICATION

A. Outdoors: Apply raceway products as specified below unless otherwise indicated:

1. Exposed Conduit: GRC.
2. Concealed Conduit, Aboveground: RNC, Type EPC-40-PVC.
3. Underground Conduit: RNC, Type EPC-80-PVC, direct-buried.
4. Connection to Vibrating Equipment (Including Transformers and Hydraulic, Pneumatic, Electric Solenoid, or Motor-Driven Equipment): LFMC.
5. Boxes and Enclosures, Aboveground: NEMA 250, Type 3R.

B. Indoors: Apply raceway products as specified below unless otherwise indicated.

1. Exposed, Not Subject to Physical Damage: EMT. EMT raceway is acceptable in mechanical and electrical rooms.

C. Minimum Raceway Size: 3/4-inch trade size.

D. Raceway Fittings: Compatible with raceways and suitable for use and location.

1. Rigid and Intermediate Steel Conduit: Use threaded rigid steel conduit fittings unless otherwise indicated. Comply with NEMA FB 2.10.
2. EMT: Use steel fittings. Comply with NEMA FB 2.10.
3. Flexible Conduit: Use only fittings listed for use with flexible conduit. Comply with NEMA FB 2.20.

E. Do not install aluminum boxes or fittings in contact with concrete or earth.

F. Install surface raceways only where indicated on Drawings.

G. Do not install nonmetallic conduit where ambient temperature exceeds 120 deg F.

3.2 INSTALLATION

A. Comply with NECA 1 and NECA 101 for installation requirements except where requirements on Drawings or in this article are stricter. Comply with NFPA 70 limitations for types of raceways allowed in specific occupancies and number of floors.

B. Keep raceways at least 6 inches away from parallel runs of flues and steam or hot-water pipes. Install horizontal raceway runs above water and steam piping.

C. Comply with requirements in Section 26 05 29 "Hangers and Supports for Electrical Systems" for hangers and supports.

D. Arrange stub-ups so curved portions of bends are not visible above finished slab.

E. Install no more than the equivalent of three 90-degree bends in any conduit. Support within 12 inches of changes in direction.

F. Conceal conduit and EMT within finished walls, ceilings, and below floors unless otherwise indicated. Install conduits parallel or perpendicular to building lines.

G. Support conduit within 12 inches of enclosures to which attached.

H. Raceways Embedded in Slabs: Not permitted.

I. Threaded Conduit Joints, Exposed to Wet, Damp, Corrosive, or Outdoor Conditions: Apply listed compound to threads of raceway and fittings before making up joints. Follow compound manufacturer's written instructions.

J. Install pull wires in empty raceways. Use polypropylene or monofilament plastic line with not less than 200-lb tensile strength. Leave at least 12 inches of slack at each end of pull wire. Cap underground raceways designated as spare above grade alongside raceways in use.

K. Install raceway sealing fittings at accessible locations according to NFPA 70 and fill them with listed sealing compound. For concealed raceways, install each fitting in a flush steel box with a blank cover plate having a finish similar to that of adjacent plates or surfaces.

L. Install devices to seal raceway interiors at accessible locations. Locate seals so no fittings or boxes are between the seal and the following changes of environments. Seal the interior of all raceways at the following points:

1. Where conduits pass from warm to cold locations, such as boundaries of refrigerated spaces.
2. Where an underground service raceway enters a building or structure.
3. Where otherwise required by NFPA 70.

M. Mount boxes at heights indicated on Drawings. If mounting heights of boxes are not individually indicated, give priority to ADA requirements. Install boxes with height measured to bottom of box unless otherwise indicated.

N. Recessed Boxes in Masonry Walls: Saw-cut opening for box in center of cell of masonry block, and install box flush with surface of wall. Prepare block surfaces to provide a flat surface for a raintight connection between the box and cover plate or the supported equipment and box.

O. Locate boxes so that cover or plate will not span different building finishes.

P. Support boxes of three gangs or more from more than one side by spanning two framing members or mounting on brackets specifically designed for the purpose.

Q. Fasten junction and pull boxes to or support from building structure. Do not support boxes by conduits.

3.3 INSTALLATION OF UNDERGROUND CONDUIT

A. Direct-Buried Conduit:

1. Excavate trench bottom to provide firm and uniform support for conduit. Prepare trench bottom as specified in Division 31 Section "Earth Moving" for pipe less than 6 inches in nominal diameter.
2. Install backfill as specified in Division 31 Section "Earth Moving."

3. After installing conduit, backfill and compact. Start at tie-in point, and work toward end of conduit run, leaving conduit at end of run free to move with expansion and contraction as temperature changes during this process. Firmly hand tamp backfill around conduit to provide maximum supporting strength. After placing controlled backfill to within 12 inches of finished grade, make final conduit connection at end of run and complete backfilling with normal compaction as specified in Division 31 Section "Earth Moving."
4. Install manufactured rigid steel conduit elbows for stub-ups at poles and equipment and at building entrances through floor.

    a. Couple steel conduits to ducts with adapters designed for this purpose, and encase coupling with 3 inches of concrete for a minimum of 12 inches on each side of the coupling.
    b. For stub-ups at equipment mounted on outdoor concrete bases and where conduits penetrate building foundations, extend steel conduit horizontally a minimum of 60 inches from edge of foundation or equipment base. Install insulated grounding bushings on terminations at equipment.

5. Underground Warning Tape: Comply with requirements in Section 26 05 53 "Identification for Electrical Systems."

3.4 INSTALLATION OF UNDERGROUND HANDHOLES AND BOXES

A. Install handholes and boxes level and plumb and with orientation and depth coordinated with connecting conduits to minimize bends and deflections required for proper entrances.

B. Unless otherwise indicated, support units on a level bed of crushed stone or gravel, graded from 1/2-inch sieve to No. 4 sieve and compacted to same density as adjacent undisturbed earth.

C. Elevation: In paved areas, set so cover surface will be flush with finished grade. Set covers of other enclosures 1 inch above finished grade.

D. Install handholes with bottom below frost line, 30 inches below grade.

3.5 SLEEVE AND SLEEVE-SEAL INSTALLATION FOR ELECTRICAL PENETRATIONS

A. Install sleeves and sleeve seals at penetrations of exterior floor and wall assemblies. Comply with requirements in Section 26 05 44 "Sleeves and Sleeve Seals for Electrical Raceways and Cabling."

3.6 PROTECTION

A. Protect coatings, finishes, and cabinets from damage and deterioration.

1. Repair damage to galvanized finishes with zinc-rich paint recommended by manufacturer.
2. Repair damage to PVC coatings or paint finishes with matching touchup coating recommended by manufacturer.

END OF SECTION 26 05 33

SECTION 26 05 43 – UNDERGROUND DUCTS & RACEWAYS FOR ELECTRICAL SYSTEMS

PART 1 - GENERAL

1.1 SUMMARY

A. This Section includes the following:

1. Conduit, ducts, and duct accessories for direct-buried and concrete-encased duct banks, and in single duct runs.
2. Handholes and boxes.

1.2 ACTION SUBMITTALS

A. Product Data: For accessories for handholes and boxes.

B. Shop Drawings for Precast or Factory-Fabricated Underground Utility Structures: Include plans, elevations, sections, details, attachments to other work, and accessories, including the following:

1. Duct entry provisions, including locations and duct sizes.
2. Reinforcement details.
3. Frame and cover design and manhole frame support rings.
4. Ladder details.
5. Grounding details.
6. Dimensioned locations of cable rack inserts, pulling-in and lifting irons, and sumps.
7. Joint details.

C. Shop Drawings for Factory-Fabricated Handholes and Boxes: Include dimensioned plans, sections, and elevations, and fabrication and installation details, including the following:

1. Duct entry provisions, including locations and duct sizes.
2. Cover design.
3. Grounding details.
4. Dimensioned locations of cable rack inserts, and pulling-in and lifting irons.

1.3 QUALITY ASSURANCE

A. Comply with ANSI C2.

B. Comply with NFPA 70.

PART 2 - PRODUCTS

2.1 CONDUIT

A. Rigid Steel Conduit: Galvanized. Comply with ANSI C80.1.

B. RNC: NEMA TC 2, Type EPC-40-PVC and Type EPC-80-PVC, UL 651, with matching fittings by same manufacturer as the conduit, complying with NEMA TC 3 and UL 514B.

2.2 NONMETALLIC DUCTS AND DUCT ACCESSORIES

A. Manufacturers: Subject to compliance with requirements, provide products by one of the following:

1. ARNCO Corp.
2. Beck Manufacturing.
3. Cantex, Inc.
4. CertainTeed Corp.; Pipe & Plastics Group.
5. Condux International, Inc.
6. ElecSys, Inc.
7. Electri-Flex Company.
8. IPEX Inc.
9. Lamson & Sessions; Carlon Electrical Products.
10. Manhattan/CDT; a division of Cable Design Technologies.
11. Spiraduct/AFT Cable Systems, Inc.

B. Underground Plastic Utilities Duct: NEMA TC 6 & 8, Type EB-20-PVC, ASTM F 512, UL 651A, with matching fittings by the same manufacturer as the duct, complying with NEMA TC 9.

C. Duct Accessories:

1. Duct Separators: Factory-fabricated rigid PVC interlocking spacers, sized for type and sizes of ducts with which used, and selected to provide minimum duct spacings indicated while supporting ducts during concreting or backfilling.
2. Warning Tape: Underground-line warning tape specified in Section 26 05 53 "Identification for Electrical Systems."
3. Concrete Warning Planks: Nominal 12 by 24 by 3 inches in size, manufactured from 6000-psi concrete.

    a. Color: Red dye added to concrete during batching.
    b. Mark each plank with "ELECTRIC" in 2-inch- high, 3/8-inch- deep letters.

2.3 HANDHOLES AND BOXES

A. Description: Comply with SCTE 77.

1. Color: Green.
2. Configuration: Units shall be designed for flush burial and have open bottom, unless otherwise indicated.
3. Cover: Weatherproof, secured by tamper-resistant locking devices and having structural load rating consistent with enclosure.
4. Cover Finish: Nonskid finish shall have a minimum coefficient of friction of 0.50.
5. Cover Legend: Molded lettering, "ELECTRIC" or "TELEPHONE" as applicable for each service.
6. Handholes 12 inches wide by 24 inches long and larger shall have inserts for cable racks and pulling-in irons installed before concrete is poured.

B. Fiberglass Handholes and Boxes with Polymer Concrete Frame and Cover: Sheet-molded, fiberglass-reinforced, polyester resin enclosure joined to polymer concrete top ring or frame.

1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:

a. Armorcast Products Company.
b. Carson Industries LLC
c. Christy Concrete Products.
d. Synertech Moulded Products, Inc.; a division of Oldcastle Precast.

PART 3 - EXECUTION

3.1 EARTHWORK

A. Excavation and Backfill: Comply with Division 31 Section "Earth Moving," but do not use heavy-duty, hydraulic-operated, compaction equipment.

B. Restore surface features at areas disturbed by excavation and reestablish original grades, unless otherwise indicated. Replace removed sod immediately after backfilling is completed.

C. Restore areas disturbed by trenching, storing of dirt, cable laying, and other work. Restore vegetation and include necessary topsoiling, fertilizing, liming, seeding, sodding, sprigging, and mulching. Comply with Division 32 Section "Turf and Grasses" and Division 32 Section "Plants."

D. Cut and patch existing pavement in the path of underground ducts and utility structures according to Division 01 Section "Cutting and Patching."

3.2 DUCT INSTALLATION

A. Slope: Pitch ducts a minimum slope of 1:300 down toward handholes and away from buildings and equipment.

B. Curves and Bends: Use 5-degree angle couplings for small changes in direction. Use manufactured long sweep bends with a minimum radius of 48 inches, both horizontally and vertically, at other locations, unless otherwise indicated.

C. Joints: Use solvent-cemented joints in ducts and fittings and make watertight according to manufacturer's written instructions. Stagger couplings so those of adjacent ducts do not lie in same plane.

D. Duct Entrances to Concrete and Polymer Concrete Handholes: Use end bells, spaced approximately 10 inches o.c. for 5-inch ducts, and vary proportionately for other duct sizes.

1. Begin change from regular spacing to end-bell spacing 10 feet from the end bell without reducing duct line slope and without forming a trap in the line.
2. Grout end bells into structure walls from both sides to provide watertight entrances.

E. Building Wall Penetrations: Make a transition from underground duct to rigid steel conduit at least 10 feet outside the building wall without reducing duct line slope away from the building, and without forming a trap in the line. Use fittings manufactured for duct-to-conduit transition. Install

conduit penetrations of building walls as specified in Section 26 05 44 "Sleeves and Sleeve Seals for Electrical Raceways and Cabling."

F. Sealing: Provide temporary closure at terminations of ducts that have cables pulled. Seal spare ducts at terminations. Use sealing compound and plugs to withstand at least 15-psig hydrostatic pressure.

G. Pulling Cord: Install 200-lbf- test nylon cord in ducts, including spares.

H. Concrete-Encased Ducts: Support ducts on duct separators.

1. Separator Installation: Space separators close enough to prevent sagging and deforming of ducts, with not less than 4 spacers per 20 feet of duct. Secure separators to earth and to ducts to prevent floating during concreting. Stagger separators approximately 6 inches between tiers. Tie entire assembly together using fabric straps; do not use tie wires or reinforcing steel that may form conductive or magnetic loops around ducts or duct groups.
2. Concreting Sequence:

    a. Start at one end and finish at the other, allowing for expansion and contraction of ducts as their temperature changes during and after the pour. Use expansion fittings installed according to manufacturer's written recommendations, or use other specific measures to prevent expansion-contraction damage.
    b. If more than one pour is necessary, terminate each pour in a vertical plane and install 3/4-inch reinforcing rod dowels extending 18 inches into concrete on both sides of joint near corners of envelope.

3. Pouring Concrete: Spade concrete carefully during pours to prevent voids under and between conduits and at exterior surface of envelope. Do not allow a heavy mass of concrete to fall directly onto ducts. Use a plank to direct concrete down sides of bank assembly to trench bottom. Allow concrete to flow to center of bank and rise up in middle, uniformly filling all open spaces. Do not use power-driven agitating equipment unless specifically designed for duct-bank application.
4. Reinforcement: Reinforce concrete-encased duct banks where they cross disturbed earth and where indicated. Arrange reinforcing rods and ties without forming conductive or magnetic loops around ducts or duct groups.
5. Forms: Use walls of trench to form side walls of duct bank where soil is self-supporting and concrete envelope can be poured without soil inclusions; otherwise, use forms.
6. Minimum Space between Ducts: 3 inches between ducts and exterior envelope wall, 2 inches between ducts for like services, and 4 inches between power and signal ducts.
7. Depth: Install top of duct bank at least 24 inches below finished grade in areas not subject to deliberate traffic, and at least 30 inches below finished grade in deliberate traffic paths for vehicles, unless otherwise indicated.
8. Stub-Ups: Use manufactured rigid steel conduit elbows for stub-ups at poles and equipment and at building entrances through the floor.

    a. Couple steel conduits to ducts with adapters designed for this purpose and encase coupling with 3 inches of concrete.
    b. Stub-Ups to Equipment: For equipment mounted on outdoor concrete bases, extend steel conduit horizontally a minimum of 60 inches from edge of base. Install insulated grounding bushings on terminations at equipment.

9. Warning Tape: Bury warning tape approximately 12 inches above all concrete-encased ducts and duct banks. Align tape parallel to and within 3 inches of the centerline of duct bank. Provide an additional warning tape for each 12-inch increment of duct-bank width over a nominal 18 inches. Space additional tapes 12 inches apart, horizontally.

I. Direct-Buried Duct Banks:

1. Support ducts on duct separators coordinated with duct size, duct spacing, and outdoor temperature.
2. Space separators close enough to prevent sagging and deforming of ducts, with not less than 4 spacers per 20 feet of duct. Secure separators to earth and to ducts to prevent displacement during backfill and yet permit linear duct movement due to expansion and contraction as temperature changes. Stagger spacers approximately 6 inches between tiers.
3. Excavate trench bottom to provide firm and uniform support for duct bank. Prepare trench bottoms as specified in Division 31 Section "Earth Moving" for pipes less than 6 inches in nominal diameter.
4. Install backfill as specified in Divison 31 Section "Earth Moving."
5. After installing first tier of ducts, backfill and compact. Start at tie-in point and work toward end of duct run, leaving ducts at end of run free to move with expansion and contraction as temperature changes during this process. Repeat procedure after placing each tier. After placing last tier, hand-place backfill to 4 inches over ducts and hand tamp. Firmly tamp backfill around ducts to provide maximum supporting strength. Use hand tamper only. After placing controlled backfill over final tier, make final duct connections at end of run and complete backfilling with normal compaction as specified in Division 31 Section "Earth Moving."
6. Install ducts with a minimum of 3 inches between ducts for like services and 6 inches between power and signal ducts.
7. Depth: Install top of duct bank at least 36 inches below finished grade, unless otherwise indicated.
8. Set elevation of bottom of duct bank below the frost line.
9. Install manufactured rigid steel conduit elbows for stub-ups at poles and equipment and at building entrances through the floor.

    a. Couple steel conduits to ducts with adapters designed for this purpose, and encase coupling with 3 inches of concrete.
    b. For equipment mounted on outdoor concrete bases, extend steel conduit horizontally a minimum of 60 inches from edge of equipment pad or foundation. Install insulated grounding bushings on terminations at equipment.

10. Warning Planks: Bury warning planks approximately 12 inches above direct-buried ducts and duct banks, placing them 24 inches o.c. Align planks along the width and along the centerline of duct bank. Provide an additional plank for each 12-inch increment of duct-bank width over a nominal 18 inches. Space additional planks 12 inches apart, horizontally.

3.3 INSTALLATION OF HANDHOLES AND BOXES OTHER THAN PRECAST CONCRETE

A. Install handholes and boxes level and plumb and with orientation and depth coordinated with connecting ducts to minimize bends and deflections required for proper entrances. Use box extension if required to match depths of ducts, and seal joint between box and extension as recommended by the manufacturer.

B. Unless otherwise indicated, support units on a level bed of crushed stone or gravel, graded from 1/2-inch sieve to No. 4 sieve and compacted to same density as adjacent undisturbed earth.

C. Elevation: In paved areas and trafficways, set so cover surface will be flush with finished grade. Set covers of other handholes 1 inch above finished grade.

D. Install handholes and boxes with bottom below the frost line, 30 inches below grade.

E. Install removable hardware, including pulling eyes, cable stanchions, cable arms, and insulators, as required for installation and support of cables and conductors and as indicated. Select arm lengths to be long enough to provide spare space for future cables, but short enough to preserve adequate working clearances in the enclosure.

F. Field-cut openings for ducts and conduits according to enclosure manufacturer's written instructions. Cut wall of enclosure with a tool designed for material to be cut. Size holes for terminating fittings to be used, and seal around penetrations after fittings are installed.

3.4 GROUNDING

A. Ground underground ducts and utility structures according to Section 26 05 26 "Grounding and Bonding for Electrical Systems."

3.5 FIELD QUALITY CONTROL

A. Perform the following field tests and inspections and prepare test reports:

1. Demonstrate capability and compliance with requirements on completion of installation of underground ducts and utility structures.
2. Pull aluminum or wood test mandrel through duct to prove joint integrity and test for out-of-round duct. Provide mandrel equal to 80 percent fill of duct. If obstructions are indicated, remove obstructions and retest.
3. Test manhole and handhole grounding to ensure electrical continuity of grounding and bonding connections. Measure and report ground resistance as specified in Section 26 05 26 "Grounding and Bonding for Electrical Systems."

B. Correct deficiencies and retest as specified above to demonstrate compliance.

3.6 CLEANING

A. Pull leather-washer-type duct cleaner, with graduated washer sizes, through full length of ducts. Follow with rubber duct swab for final cleaning and to assist in spreading lubricant throughout ducts.

B. Clean internal surfaces of handholes. Remove foreign material.

END OF SECTION 26 05 43

SECTION 26 05 44 – SLEEVE AND SLEEVE SEALS FOR ELECTRICAL RACEWAYS & CABLING

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:

1. Sleeves for raceway and cable penetration of non-fire-rated construction walls and floors.
2. Sleeve-seal systems.
3. Sleeve-seal fittings.
4. Grout.
5. Silicone sealants.

B. Related Requirements:

1. Division 07 Section "Penetration Firestopping" for penetration firestopping installed in fire-resistance-rated walls, horizontal assemblies, and smoke barriers, with and without penetrating items.

1.2 ACTION SUBMITTALS

A. Product Data: For each type of product.

PART 2 - PRODUCTS

2.1 SLEEVES

A. Wall Sleeves:

1. Steel Pipe Sleeves: ASTM A 53/A 53M, Type E, Grade B, Schedule 40, zinc coated, plain ends.
2. Cast-Iron Pipe Sleeves: Cast or fabricated "wall pipe," equivalent to ductile-iron pressure pipe, with plain ends and integral waterstop unless otherwise indicated.

B. Sleeves for Conduits Penetrating Non-Fire-Rated Gypsum Board Assemblies: Galvanized-steel sheet; 0.0239-inch minimum thickness; round tube closed with welded longitudinal joint, with tabs for screw-fastening the sleeve to the board.

C. Sleeves for Rectangular Openings:

1. Material: Galvanized sheet steel.
2. Minimum Metal Thickness:

a. For sleeve cross-section rectangle perimeter less than 50 inches and with no side larger than 16 inches, thickness shall be 0.052 inch.
b. For sleeve cross-section rectangle perimeter 50 inches or more and one or more sides larger than 16 inches, thickness shall be 0.138 inch.

2.2 SLEEVE-SEAL SYSTEMS

A. Description: Modular sealing device, designed for field assembly, to fill annular space between sleeve and raceway or cable.

1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:

a. Advance Products & Systems, Inc.
b. CALPICO, Inc.
c. GPT Industries.
d. Metraflex Company (The).
e. Pipeline Seal and Insulator, Inc.
f. Proco Products, Inc.

2. Sealing Elements: EPDM rubber interlocking links shaped to fit surface of pipe. Include type and number required for pipe material and size of pipe.
3. Pressure Plates: Reinforced nylon polymer.
4. Connecting Bolts and Nuts: Carbon steel, with corrosion-resistant coating of length required to secure pressure plates to sealing elements.

2.3 SLEEVE-SEAL FITTINGS

A. Description: Manufactured plastic, sleeve-type, waterstop assembly made for embedding in concrete slab or wall. Unit shall have plastic or rubber waterstop collar with center opening to match piping OD.

1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:

a. Presealed Systems.

2.4 GROUT

A. Description: Nonshrink; recommended for interior and exterior sealing openings in non-fire-rated walls or floors.

B. Standard: ASTM C 1107/C 1107M, Grade B, post-hardening and volume-adjusting, dry, hydraulic-cement grout.

C. Design Mix: 5000-psi, 28-day compressive strength.

D. Packaging: Premixed and factory packaged.

2.5 SILICONE SEALANTS

A. Silicone Sealants: Single-component, silicone-based, neutral-curing elastomeric sealants of grade indicated below.

1. Grade: Pourable (self-leveling) formulation for openings in floors and other horizontal surfaces that are not fire rated.

B. Silicone Foams: Multicomponent, silicone-based liquid elastomers that, when mixed, expand and cure in place to produce a flexible, non-shrinking foam.

PART 3 - EXECUTION

3.1 SLEEVE INSTALLATION FOR NON-FIRE-RATED ELECTRICAL PENETRATIONS

A. Comply with NECA 1.

B. Comply with NEMA VE 2 for cable tray and cable penetrations.

C. Sleeves for Conduits Penetrating Above-Grade Non-Fire-Rated Concrete and Masonry-Unit Floors and Walls:

1. Interior Penetrations of Non-Fire-Rated Walls and Floors:

a. Seal annular space between sleeve and raceway or cable, using joint sealant appropriate for size, depth, and location of joint. Comply with requirements in Section 07 92 00 "Joint Sealants."
b. Seal space outside of sleeves with mortar or grout. Pack sealing material solidly between sleeve and wall so no voids remain. Tool exposed surfaces smooth; protect material while curing.

2. Use pipe sleeves unless penetration arrangement requires rectangular sleeved opening.
3. Size pipe sleeves to provide 1/4-inch annular clear space between sleeve and raceway or cable unless sleeve seal is to be installed.
4. Install sleeves for wall penetrations unless core-drilled holes or formed openings are used. Install sleeves during erection of walls. Cut sleeves to length for mounting flush with both surfaces of walls. Deburr after cutting.
5. Install sleeves for floor penetrations. Extend sleeves installed in floors 2 inches above finished floor level. Install sleeves during erection of floors.

D. Sleeves for Conduits Penetrating Non-Fire-Rated Gypsum Board Assemblies:

1. Use circular metal sleeves unless penetration arrangement requires rectangular sleeved opening.
2. Seal space outside of sleeves with approved joint compound for gypsum board assemblies.

E. Roof-Penetration Sleeves: Seal penetration of individual raceways and cables with flexible boot-type flashing units applied in coordination with roofing work.

F. Aboveground, Exterior-Wall Penetrations: Seal penetrations using steel or cast-iron pipe sleeves and mechanical sleeve seals. Select sleeve size to allow for 1-inch annular clear space between pipe and sleeve for installing mechanical sleeve seals.

G. Underground, Exterior-Wall and Floor Penetrations: Install cast-iron pipe sleeves. Size sleeves to allow for 1-inch annular clear space between raceway or cable and sleeve for installing sleeve-seal system.

3.2 SLEEVE-SEAL-SYSTEM INSTALLATION

A. Install sleeve-seal systems in sleeves in exterior concrete walls and slabs-on-grade at raceway entries into building.

B. Install type and number of sealing elements recommended by manufacturer for raceway or cable material and size. Position raceway or cable in center of sleeve. Assemble mechanical sleeve seals and install in annular space between raceway or cable and sleeve. Tighten bolts against pressure plates that cause sealing elements to expand and make watertight seal.

3.3 SLEEVE-SEAL-FITTING INSTALLATION

A. Install sleeve-seal fittings in new walls and slabs as they are constructed.

B. Assemble fitting components of length to be flush with both surfaces of concrete slabs and walls. Position waterstop flange to be centered in concrete slab or wall.

C. Secure nailing flanges to concrete forms.

D. Using grout, seal the space around outside of sleeve-seal fittings.

END OF SECTION 26 05 44

SECTION 26 05 53 – IDENTIFICATION FOR ELECTRICAL SYSTEMS

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:

1. Identification for conductors.
2. Underground-line warning tape.
3. Warning labels and signs.
4. Instruction signs.
5. Equipment identification labels.
6. Miscellaneous identification products.

1.2 ACTION SUBMITTALS

A. Product Data: For each electrical identification product indicated.

1.3 QUALITY ASSURANCE

A. Comply with ANSI A13.1.

B. Comply with NFPA 70.

C. Comply with 29 CFR 1910.144 and 29 CFR 1910.145.

D. Comply with ANSI Z535.4 for safety signs and labels.

PART 2 - PRODUCTS

2.1 CONDUCTOR IDENTIFICATION MATERIALS

A. Self-Adhesive Vinyl Labels: Preprinted, flexible label laminated with a clear, weather- and chemical-resistant coating and matching wraparound adhesive tape for securing ends of legend label.

B. Marker Tapes: Vinyl or vinyl-cloth, self-adhesive wraparound type, with circuit identification legend machine printed by thermal transfer or equivalent process.

C. Write-On Tags: Polyester tag, 0.010 inch thick, with corrosion-resistant grommet and cable tie for attachment to conductor or cable.

1. Marker for Tags: Permanent, waterproof, black ink marker recommended by tag manufacturer.

2.2 UNDERGROUND-LINE WARNING TAPE

A. Tape:

1. Recommended by manufacturer for the method of installation and suitable to identify and locate underground electrical and communications utility lines.
2. Printing on tape shall be permanent and shall not be damaged by burial operations.
3. Tape material and ink shall be chemically inert, and not subject to degrading when exposed to acids, alkalis, and other destructive substances commonly found in soils.

    a. Detectable three-layer laminate, consisting of a printed pigmented polyolefin film, a solid aluminum-foil core, and a clear protective film that allows inspection of the continuity of the conductive core, bright-colored, compounded for direct-burial service.
    b. Overall Thickness: 5 mils.
    c. Foil Core Thickness: 0.35 mil.
    d. Weight: 28 lb/1000 sq. ft.
    e. 3-Inch Tensile According to ASTM D 882: 70 lbf, and 4600 psi.

B. Color and Printing:

1. Comply with ANSI Z535.1 through ANSI Z535.5.
2. Inscriptions for Red-Colored Tapes: ELECTRIC LINE, HIGH VOLTAGE,
3. Inscriptions for Orange-Colored Tapes: TELEPHONE CABLE, CATV CABLE, COMMUNICATIONS CABLE, OPTICAL FIBER CABLE.

2.3 WARNING LABELS AND SIGNS

A. Comply with NFPA 70 and 29 CFR 1910.145.

B. Self-Adhesive Warning Labels: Factory-printed, multicolor, pressure-sensitive adhesive labels, configured for display on front cover, door, or other access to equipment unless otherwise indicated.

C. Warning label and sign shall include, but are not limited to, the following legends:

1. Multiple Power Source Warning: "DANGER - ELECTRICAL SHOCK HAZARD - EQUIPMENT HAS MULTIPLE POWER SOURCES."
2. Workspace Clearance Warning: "WARNING - OSHA REGULATION - AREA IN FRONT OF ELECTRICAL EQUIPMENT MUST BE KEPT CLEAR FOR 36 INCHES."

2.4 INSTRUCTION SIGNS

A. Engraved, laminated acrylic or melamine plastic, minimum 1/16 inch thick for signs up to 20 sq. inches and 1/8 inch thick for larger sizes.

1. Engraved legend with black letters on white face.
2. Punched or drilled for mechanical fasteners.
3. Framed with mitered acrylic molding and arranged for attachment at applicable equipment.

2.5 EQUIPMENT IDENTIFICATION LABELS

A. Engraved, Laminated Acrylic or Melamine Label: Screw-attached, with white letters on a dark-gray background. Minimum letter height shall be 3/8 inch.

1. Self-Adhesive equipment identification labels are not permitted.

2.6 MISCELLANEOUS IDENTIFICATION PRODUCTS

A. Paint: Comply with requirements in painting Sections for paint materials and application requirements. Select paint system applicable for surface material and location (exterior or interior).

B. Fasteners for Labels and Signs: Self-tapping, stainless-steel screws or stainless-steel machine screws with nuts and flat and lock washers.

PART 3 - EXECUTION

3.1 INSTALLATION

A. Location: Install identification materials and devices at locations for most convenient viewing without interference with operation and maintenance of equipment.

B. Apply identification devices to surfaces that require finish after completing finish work.

C. Attach signs and plastic labels that are not self-adhesive type with mechanical fasteners appropriate to the location and substrate.

D. Underground-Line Warning Tape: During backfilling of trenches install continuous underground-line warning tape directly above line at 6 to 8 inches below finished grade. Use multiple tapes where width of multiple lines installed in a common trench or concrete envelope exceeds 16 inches overall.

E. Painted Identification: Comply with requirements in painting Sections for surface preparation and paint application.

3.2 IDENTIFICATION SCHEDULE

A. Power-Circuit Conductor Identification, 600 V or Less: For conductors in vaults, pull and junction boxes, manholes, and handholes, use color-coded conductor insulation to identify the phase.

1. Color-Coding for Phase and Voltage Level Identification, 600 V or Less: Use colors listed below for ungrounded service, feeder, and branch-circuit conductors.

a. Color shall be factory applied.
b. Colors for 208/120-V Circuits:

1) Phase A: Black.
2) Phase B: Red.
3) Phase C: Blue.

4) Common Neutral: White.
5) Neutral, Phase A: White with black stripe.
6) Neutral, Phase B: White with red stripe.
7) Neutral, Phase C: White with blue stripe.
8) Equipment Grounding Conductor: Green.

c. Colors for 480/277-V Circuits:

1) Phase A: Brown.
2) Phase B: Orange.
3) Phase C: Yellow.
4) Common Neutral: Gray.
5) Neutral, Phase A: Gray with brown stripe.
6) Neutral, Phase B: Gray with orange stripe.
7) Neutral, Phase C: Gray with yellow stripe.
8) Equipment Grounding Conductor: Green.

d. Field-Applied, Color-Coding Conductor Tape: Not permitted.

B. Install instructional sign including color-code for grounded and ungrounded conductors using adhesive-film-type labels.

C. Conductors to Be Extended in the Future: Attach write-on tags to conductors and list source.

D. Auxiliary Electrical Systems Conductor Identification: Identify field-installed alarm, control, and signal connections.

1. Identify conductors, cables, and terminals in enclosures and at junctions, terminals, and pull points. Identify by system and circuit designation.
2. Use system of marker tape designations that is uniform and consistent with system used by manufacturer for factory-installed connections.
3. Coordinate identification with Project Drawings, manufacturer's wiring diagrams, and the Operation and Maintenance Manual.

E. Locations of Underground Lines: Identify with underground-line warning tape for power, lighting, communication, and control wiring and optical fiber cable.

1. Limit use of underground-line warning tape to direct-buried cables.
2. Install underground-line warning tape for both direct-buried cables and cables in raceway.

F. Workspace Indication: Install floor marking tape to show working clearances in the direction of access to live parts. Workspace shall be as required by NFPA 70 and 29 CFR 1926.403 unless otherwise indicated. Do not install at flush-mounted panelboards and similar equipment in finished spaces.

G. Warning Labels for Indoor Cabinets, Boxes, and Enclosures for Power and Lighting: Self-adhesive warning labels.

1. Comply with 29 CFR 1910.145.
2. Identify system voltage with black letters on an orange background.
3. Apply to exterior of door, cover, or other access.
4. For equipment with multiple power or control sources, apply to door or cover of equipment including, but not limited to, the following:

a. Power transfer switches.
b. Controls with external control power connections.

H. Operating Instruction Signs: Install instruction signs to facilitate proper operation and maintenance of electrical systems and items to which they connect. Install instruction signs with approved legend where instructions are needed for system or equipment operation.

I. Emergency Operating Instruction Signs: Install instruction signs with white legend on a red background with minimum 3/8-inch- high letters for emergency instructions at equipment used for power transfer.

J. Equipment Identification Labels: On each unit of equipment, install unique designation label that is consistent with wiring diagrams, schedules, and the Operation and Maintenance Manual. Apply labels to disconnect switches and protection equipment, central or master units, control panels, control stations, terminal cabinets, and racks of each system. Systems include power, lighting, control, communication, signal, monitoring, and alarm systems unless equipment is provided with its own identification.

1. Labeling Instructions:

a. Indoor Equipment: Engraved, laminated acrylic or melamine label. Unless otherwise indicated, provide a single line of text with 1/2-inch- high letters on 1-1/2-inch- high label; where two lines of text are required, use labels 2 inches high.
b. Outdoor Equipment: Stenciled legend 4 inches high.
c. Elevated Components: Increase sizes of labels and letters to those appropriate for viewing from the floor.
d. Fasten labels with appropriate mechanical fasteners that do not change the NEMA or NRTL rating of the enclosure.

END OF SECTION 26 05 53

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SECTION 26 22 00 – LOW-VOLTAGE TRANSFORMERS

PART 1 - GENERAL

1.1 SUMMARY

A. This Section includes the following types of dry-type transformers rated 600 V and less, with capacities up to 1000 kVA:

1. Distribution transformers.

1.2 ACTION SUBMITTALS

A. Product Data: For each product indicated.

B. Shop Drawings: Indicate dimensions and weights.

1. Wiring Diagrams: Power, signal, and control wiring.

1.3 CLOSEOUT SUBMITTALS

A. Operation and maintenance data.

1. Include output settings report.

1.4 QUALITY ASSURANCE

A. Electrical Components, Devices, and Accessories: Listed and labeled as defined in NFPA 70, Article 100, by a testing agency acceptable to authorities having jurisdiction, and marked for intended use.

B. Comply with IEEE C57.12.91, "Test Code for Dry-Type Distribution and Power Transformers."

PART 2 - PRODUCTS

2.1 MANUFACTURERS

A. Manufacturers: Subject to compliance with requirements, provide products by one of the manufacturer’s listed on the drawings.

2.2 GENERAL TRANSFORMER REQUIREMENTS

A. Description: Dry-type resin encapsulated 3-phase distribution transformer with primary and secondary voltages up to 600V, and capacity ratings from 3-30 kVA.

B. Comply with NEMA ST 20, and listed and labeled as complying with UL 1561.

C. Cores to be constructed of high-grade, non-again silicon steel with high magnetic permeability and low hysteresis and eddy current losses. Magnetic flux densities are to be kept well below the saturation point.

D. Terminations shall consist of wire leads with a minimum insulation rating of 125 deg. C.

E. The transformer enclosure shall be #304 stainless steel.

2.3 IDENTIFICATION DEVICES

A. Nameplates: Engraved, laminated-plastic or metal nameplate. Nameplates are specified in Section 26 05 53 "Identification for Electrical Systems."

PART 3 - EXECUTION

3.1 INSTALLATION

A. Install wall-mounting transformers level and plumb with wall brackets fabricated by transformer manufacturer.

B. Construct concrete bases and anchor floor-mounting transformers according to manufacturer's written instructions and requirements in Section 26 05 29 "Hangers and Supports for Electrical Systems."

3.2 FIELD QUALITY CONTROL

A. Perform tests and inspections.

B. Tests and Inspections:

1. Perform each visual and mechanical inspection and electrical test stated in NETA Acceptance Testing Specification. Certify compliance with test parameters.

3.3 ADJUSTING

A. Adjust transformer taps to provide optimum voltage conditions at secondary terminals. Optimum is defined as not exceeding nameplate voltage plus 10 percent and not being lower than nameplate voltage minus 3 percent at maximum load conditions. Submit recording and tap settings as test results.

B. Connect buck-boost transformers to provide nameplate voltage of equipment being served, plus or minus 5 percent, at secondary terminals.

C. Output Settings Report: Prepare a written report recording output voltages and tap settings.

END OF SECTION 26 22 00

SECTION 26 24 16 - PANELBOARDS

PART 1 - GENERAL

1.1 SUMMARY

A. Section includes distribution panelboards and lighting and appliance branch-circuit panelboards.

1.2 ACTION SUBMITTALS

A. Product Data: For each type of product indicated.

B. Shop Drawings: For each panelboard and related equipment.

1. Include dimensioned plans, elevations, sections, and details. Show tabulations of installed devices, equipment features, and ratings.
2. Detail enclosure types and details for types other than NEMA 250, Type 1.
3. Detail bus configuration, current, and voltage ratings.
4. Short-circuit current rating of panelboards and overcurrent protective devices.
5. Detail features, characteristics, ratings, and factory settings of individual overcurrent protective devices and auxiliary components.
6. Include wiring diagrams for power, signal, and control wiring.
7. Include time-current coordination curves for each type and rating of overcurrent protective device included in panelboards.

1.3 INFORMATIONAL SUBMITTALS

A. Field quality-control reports.

B. Panelboard schedules for installation in panelboards.

1.4 CLOSEOUT SUBMITTALS

A. Operation and maintenance data.

1.5 QUALITY ASSURANCE

A. Electrical Components, Devices, and Accessories: Listed and labeled as defined in NFPA 70, by a qualified testing agency, and marked for intended location and application.

B. Comply with NEMA PB 1.

C. Comply with NFPA 70.

D. Manufacturer's Warranty: Manufacturer agrees to replace or replace SPDs that fail in materials or workmanship within specified warranty period.

1. Warranty Period: Ten years from date of Substantial Completion.

PART 2 - PRODUCTS

2.1 GENERAL REQUIREMENTS FOR PANELBOARDS

A. Enclosures: Flush- and surface-mounted cabinets.

1. Rated for environmental conditions at installed location.
   a. Outdoor Locations: NEMA 250, Type 3R.

2. Front: Secured to box with concealed trim clamps. For surface-mounted fronts, match box dimensions; for flush-mounted fronts, overlap box.
3. Hinged Front Cover: Entire front trim hinged to box with continuous piano hinge and standard door within hinged trim cover.
4. Directory Card: Inside panelboard door, mounted in card holder with metal frame and transparent plastic window.

B. Incoming Mains Location: Top and bottom.

C. Phase, Neutral, and Ground Buses: Tin-plated aluminum or hard-drawn copper, 98 percent conductivity.

D. Conductor Connectors: Suitable for use with conductor material and sizes.

1. Material: Tin-plated aluminum or hard-drawn copper, 98 percent conductivity.
2. Main and Neutral Lugs: Compression or mechanical type.
3. Ground Lugs and Bus Configured Terminators: Compression or mechanical type.
4. Feed-Through Lugs: Compression or mechanical type, suitable for use with conductor material. Locate at opposite end of bus from incoming lugs or main device.
5. Sub-feed (Double) Lugs: Compression or mechanical type suitable for use with conductor material. Locate at same end of bus as incoming lugs or main device.

E. Service Equipment Label: NRTL labeled for use as service equipment for panelboards with one or more main service disconnecting and overcurrent protective devices.

F. Future Devices: Mounting brackets, bus connections, filler plates, and necessary appurtenances required for future installation of devices.

G. Panelboard Short-Circuit Current Rating: Fully rated to interrupt symmetrical short-circuit current available at terminals.

1. Series-ratings are not permitted.

2.2 APPLIANCE BRANCH-CIRCUIT PANELBOARDS

A. Manufacturers: Subject to compliance with requirements, provide products by one of the following:

1. General Electric Company; GE Consumer & Industrial – Electrical Distribution.
2. Siemens Energy & Automation, Inc.
3. Square D; a brand of Schneider Electric.

B. Panelboards: NEMA PB 1, lighting and appliance branch-circuit type.

C. Mains: Circuit breaker or lugs only, as indicated in Drawings.

D. Branch Overcurrent Protective Devices: Bolt-on circuit breakers, replaceable without disturbing adjacent units.

E. Doors: Concealed hinges; secured with flush latch with tumbler lock; keyed alike.

2.3 DISCONNECTING AND OVERCURRENT PROTECTIVE DEVICES

A. Manufacturers: Subject to compliance with requirements, provide products by one of the following:

1. General Electric Company; GE Consumer & Industrial – Electrical Distribution.
2. Siemens Energy & Automation, Inc.
3. Square D; a brand of Schneider Electric.

B. Molded-Case Circuit Breaker (MCCB): Comply with UL 489, with interrupting capacity to meet available fault currents.

1. Thermal-Magnetic Circuit Breakers: Inverse time-current element for low-level overloads, and instantaneous magnetic trip element for short circuits. Adjustable magnetic trip setting for circuit-breaker frame sizes 250 A and larger.
2. Adjustable Instantaneous-Trip Circuit Breakers: Magnetic trip element with front-mounted, field-adjustable trip setting.
3. Electronic trip circuit breakers with rms sensing; field-replaceable rating plug or field-replicable electronic trip; and the following field-adjustable settings:

    a. Instantaneous trip.
    b. Long- and short-time pickup levels.
    c. Long- and short-time time adjustments.
    d. Ground-fault pickup level, time delay, and I^2t response.

4. GFCI Circuit Breakers: Single- and two-pole configurations with Class A ground-fault protection (6-mA trip).
5. Ground-Fault Equipment Protection (GFEP) Circuit Breakers: Class B ground-fault protection (30-mA trip).
6. Molded-Case Circuit-Breaker (MCCB) Features and Accessories:

    a. Standard frame sizes, trip ratings, and number of poles.
    b. Lugs: Compression or mechanical style, suitable for number, size, trip ratings, and conductor materials.
    c. Application Listing: Appropriate for application; Type SWD for switching fluorescent lighting loads; Type HID for feeding fluorescent and high-intensity discharge (HID) lighting circuits.
    d. Ground-Fault Protection: Integrally mounted relay and trip unit with adjustable pickup and time-delay settings, push-to-test feature, and ground-fault indicator.
    e. Shunt Trip: 120-V trip coil energized from separate circuit, set to trip at 55 percent of rated voltage.
    f. Handle Padlocking Device: Fixed attachment, for locking circuit-breaker handle in on or off position.
    g. Handle Clamp: Loose attachment, for holding circuit-breaker handle in on position.

PART 3 - EXECUTION

3.1 INSTALLATION

A. Receive, inspect, handle, store and install panelboards and accessories according to NECA 407.

B. Mount top of trim 79 inches above finished floor unless otherwise indicated.

C. Mount panelboard cabinet plumb and rigid without distortion of box. Mount recessed panelboards with fronts uniformly flush with wall finish and mating with back box.

D. Install overcurrent protective devices and controllers not already factory installed.

1. Set field-adjustable, circuit-breaker trip ranges.

E. Install filler plates in unused spaces.

F. Stub four 1-inch empty conduits from panelboard into accessible ceiling space or space designated to be ceiling space in the future. Stub four 1-inch empty conduits into raised floor space or below slab not on grade.

G. Arrange conductors in gutters into groups and bundle and wrap with wire ties.

H. Comply with NECA 1.

3.2 IDENTIFICATION

A. Identify field-installed conductors, interconnecting wiring, and components; provide warning signs complying with Section 26 05 53 "Identification for Electrical Systems."

B. Create a directory to indicate installed circuit loads and incorporating Owner's final room designations. Obtain approval before installing. Use a computer or typewriter to create directory; handwritten directories are not acceptable.

C. Panelboard Nameplates: Label each panelboard with a nameplate complying with requirements for identification specified in Section 26 05 53 "Identification for Electrical Systems."

D. Device Nameplates: Label each branch circuit device in distribution panelboards with a nameplate complying with requirements for identification specified in Section 26 05 53 "Identification for Electrical Systems."

3.3 FIELD QUALITY CONTROL

A. Perform tests and inspections.

B. Acceptance Testing Preparation:

1. Test insulation resistance for each panelboard bus, component, connecting supply, feeder, and control circuit.
2. Test continuity of each circuit.

C. Tests and Inspections:

1. Perform each visual and mechanical inspection and electrical test stated in NETA Acceptance Testing Specification. Certify compliance with test parameters.
2. Correct malfunctioning units on-site, where possible, and retest to demonstrate compliance; otherwise, replace with new units and retest.

D. Panelboards will be considered defective if they do not pass tests and inspections.

E. Prepare test and inspection reports, including a certified report that identifies panelboards included. Include notation of deficiencies detected, remedial action taken, and observations after remedial action.

END OF SECTION 26 24 16

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SECTION 26 27 26 – WIRING DEVICES

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:

1. Receptacles, receptacles with integral GFCI, and associated device plates.
2. Weather-resistant receptacles.

1.2 ADMINISTRATIVE REQUIREMENTS

A. Coordination:

1. Receptacles for Owner-Furnished Equipment: Match plug configurations.

1.3 ACTION SUBMITTALS

A. Product Data: For each type of product.

B. Shop Drawings: List of legends and description of materials and process used for pre-marking wall plates.

1.4 CLOSEOUT SUBMITTALS

A. Operation and maintenance data.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

A. Manufacturers: Shortened versions (shown in parentheses) of the following manufacturers' names are used in other Part 2 articles:

1. Hubbell Incorporated; Wiring Device-Kellems (Hubbell).
2. Leviton Mfg. Company Inc. (Leviton).
3. Pass & Seymour/Legrand (Pass & Seymour).

B. Source Limitations: Obtain each type of wiring device and associated wall plate from single source from single manufacturer.

2.2 GENERAL WIRING-DEVICE REQUIREMENTS

A. Wiring Devices, Components, and Accessories: Listed and labeled as defined in NFPA 70, by a qualified testing agency, and marked for intended location and application.

B. Comply with NFPA 70.

2.3 GFCI RECEPTACLES

A. General Description:

1. Straight blade, feed-through type.
2. Comply with NEMA WD 1, NEMA WD 6, UL 498, and UL 943 Class A.
3. Include indicator light that shows when the GFCI has malfunctioned and no longer provides proper GFCI protection.

B. Weather-Resistant GFCI Convenience Receptacles, 125 V, 20 A:

1. Products: Subject to compliance with requirements, provide one of the following:

a. Hubbell; GFWRST20.
b. Pass & Seymour; 2097TRWR.
c. Leviton; GFWR2-.

C. Weather- and Tamper-Resistant GFCI Convenience Receptacles, 125 V, 20 A:

1. Products: Subject to compliance with requirements, provide one of the following:

a. Hubbell; GFTWRST20.
b. Pass & Seymour; 2097TRWR.
c. Leviton; GFWT2-.

2.4 WALL PLATES

A. Single and combination types shall match corresponding wiring devices.

1. Plate-Securing Screws: Metal with head color to match plate finish.
2. Material for Finished Spaces: 0.035-inch- thick, satin-finished, Type 302 stainless steel or nylon, as selected by Architect for each location.
3. Material for Unfinished Spaces: Galvanized steel.
4. Material for Damp Locations: Cast aluminum with spring-loaded lift cover, and listed and labeled for use in wet and damp locations.

B. Wet-Location, Weatherproof Cover Plates: NEMA 250, complying with Type 3R, weather-resistant, extra-duty, while-in-use, die-cast aluminum with lockable cover.

2.5 FINISHES

A. Device Color: Ivory.

PART 3 - EXECUTION

3.1 INSTALLATION

A. Comply with NECA 1.

B. Coordination with Other Trades:

1. Protect installed devices and their boxes. Do not place wall finish materials over device boxes and do not cut holes for boxes with routers that are guided by riding against outside of boxes.
2. Keep outlet boxes free of plaster, drywall joint compound, mortar, cement, concrete, dust, paint, and other material that may contaminate the raceway system, conductors, and cables.
3. Install device boxes in brick or block walls so that the cover plate does not cross a joint unless the joint is troweled flush with the face of the wall.
4. Install wiring devices after all wall preparation, including painting, is complete.

C. Conductors:

1. Do not strip insulation from conductors until right before they are spliced or terminated on devices.
2. Strip insulation evenly around the conductor using tools designed for the purpose. Avoid scoring or nicking of solid wire or cutting strands from stranded wire.
3. The length of free conductors at outlets for devices shall meet provisions of NFPA 70, Article 300, without pigtails.
4. Existing Conductors:

    a. Cut back and pigtail or replace all damaged conductors.
    b. Straighten conductors that remain and remove corrosion and foreign matter.
    c. Pig tailing existing conductors is permitted, provided the outlet box is large enough.

D. Device Installation:

1. Replace devices that have been in temporary use during construction and that were installed before building finishing operations were complete.
2. Keep each wiring device in its package or otherwise protected until it is time to connect conductors.
3. Do not remove surface protection, such as plastic film and smudge covers, until the last possible moment.
4. Connect devices to branch circuits using pigtails that are not less than 6 inches in length.
5. When there is a choice, use side wiring with binding-head screw terminals. Wrap solid conductor tightly clockwise, two-thirds to three-fourths of the way around terminal screw.
6. Use a torque screwdriver when a torque is recommended or required by manufacturer.
7. When conductors larger than No. 12 AWG are installed on 15- or 20-A circuits, splice No. 12 AWG pigtails for device connections.
8. Tighten unused terminal screws on the device.
9. When mounting into metal boxes, remove the fiber or plastic washers used to hold device-mounting screws in yokes, allowing metal-to-metal contact.
10. Install adjacent devices in multi-gang boxes under common device plates.

E. Receptacle Orientation:

1. Install ground pin of vertically mounted receptacles up, and on horizontally mounted receptacles to the right.

F. Device Plates: Do not use oversized or extra-deep plates. Repair wall finishes and remount outlet boxes when standard device plates do not fit flush or do not cover rough wall opening.

3.2 FIELD QUALITY CONTROL

A. Perform the following tests and inspections:

1. Test Instruments: Use instruments that comply with UL 1436.
2. Test Instrument for Convenience Receptacles: Digital wiring analyzer with digital readout or illuminated digital-display indicators of measurement.

B. Tests for Convenience Receptacles:

1. Line Voltage: Acceptable range is 105 to 132 V.
2. Percent Voltage Drop under 15-A Load: A value of 6 percent or higher is unacceptable.
3. Ground Impedance: Values of up to 2 ohms are acceptable.
4. GFCI Trip: Test for tripping values specified in UL 1436 and UL 943.
5. Using the test plug, verify that the device and its outlet box are securely mounted.
6. Tests shall be diagnostic, indicating damaged conductors, high resistance at the circuit breaker, poor connections, inadequate fault current path, defective devices, or similar problems. Correct circuit conditions, remove malfunctioning units and replace with new ones, and retest as specified above.

C. Wiring device will be considered defective if it does not pass tests and inspections.

END OF SECTION 26 27 26

SECTION 26 43 13 – SURGE PROTECTION FOR LOW-VOLTAGE ELECTRICAL POWER CIRCUITS

PART 1 - GENERAL

1.1 SUMMARY

A. Section includes field-mounted SPDs for low-voltage (120 to 600 V) power distribution and control equipment.

1.2 ACTION SUBMITTALS

A. Product Data: For each type of product.

1. Include rated capacities, operating characteristics, electrical characteristics, and furnished specialties and accessories.
2. Copy of UL Category Code VZCA certification, as a minimum, listing the tested values for VPRs, nominal ratings, MCOVs, type designations, OCPD requirements, model numbers, system voltages, and modes of protection.

1.3 INFORMATIONAL SUBMITTALS

A. Sample Warranty: For manufacturer's special warranty.

1.4 CLOSEOUT SUBMITTALS

A. Maintenance data.

1.5 WARRANTY

A. Manufacturer's Warranty: Manufacturer agrees to replace or replace SPDs that fail in materials or workmanship within specified warranty period.

1. Warranty Period: Ten years from date of Substantial Completion.

PART 2 - PRODUCTS

2.1 GENERAL SPD REQUIREMENTS

A. SPD with Accessories: Listed and labeled as defined in NFPA 70, by a qualified testing agency, and marked for intended location and application.

B. Comply with NFPA 70.

C. Comply with UL 1449.

D. MCOV of the SPD shall be the nominal system voltage.

2.2 PANEL SUPPRESSORS

A. Manufacturer: Subject to compliance with requirements, provide the following product:

1. Current Technology TG3-80-XXX-3Y-MDT-M4E-F2-HPI. No equals. (XXX = voltage)

B. SPDs: Comply with UL 1449, Type 1.

1. Include LED indicator lights for power and protection status.
2. Internal thermal protection that disconnects the SPD before damaging internal suppressor components.
3. Integral disconnect, high impedance cabling, advance monitoring, character display, ethernet & Modbus TCP.

C. Peak Surge Current Rating: The minimum single-pulse surge current withstand rating per phase shall not be less than 160 kA. The peak surge current rating shall be the arithmetic sum of the ratings of the individual MOVs in a given mode.

D. SCCR: Equal or exceed 200 kA.

E. I Nominal Rating: 20 kA.

F. Outdoor Enclosures: NEMA 250, Type 4.

PART 3 - EXECUTION

3.1 INSTALLATION

A. Comply with NECA 1.

B. Install an OCPD or disconnect as required to comply with the UL listing of the SPD.

C. Install SPDs with high-impedance conductors between suppressor and points of attachment as short and straight as possible, and adjust circuit-breaker positions to achieve shortest and straightest leads. Do not splice and extend SPD leads unless specifically permitted by manufacturer. Do not exceed manufacturer's recommended lead length. Do not bond neutral and ground.

D. Use crimped connectors and splices only. Wire nuts are unacceptable.

E. Complete startup checks according to manufacturer's written instructions. Energize SPDs after power system has been energized, stabilized, and tested.

F. Network connection – provide a network connection for monitoring of each SPD.

3.2 FIELD QUALITY CONTROL

A. Perform the following tests and inspections with the assistance of a factory-authorized service representative.

1. Compare equipment nameplate data for compliance with Drawings and Specifications.

2. Inspect anchorage, alignment, grounding, and clearances.
3. Verify that electrical wiring installation complies with manufacturer's written installation requirements.

B. An SPD will be considered defective if it does not pass tests and inspections.

3.3 DEMONSTRATION

A. Train Owner's maintenance personnel to operate and maintain SPDs.

END OF SECTION 26 43 13

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SECTION 26 56 00 – EXTERIOR LIGHTING

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:

1. Exterior luminaires with LED's and drivers.
2. Luminaire-mounted photoelectric relays.
3. Poles and accessories.

1.2 STRUCTURAL ANALYSIS CRITERIA FOR POLE SELECTION

A. Dead Load: Weight of luminaire and its horizontal and vertical supports, lowering devices, and supporting structure, applied as stated in AASHTO LTS-5.

B. Wind Load: Pressure of wind on pole and luminaire and banners and banner arms, calculated and applied as stated in AASHTO LTS-5.

1. Basic wind speed for calculating wind load for poles 50 feet high or less is 100 mph.

a. Wind Importance Factor: 1.0.
b. Minimum Design Life: 25 years.
c. Velocity Conversion Factors: 1.0.

1.3 ACTION SUBMITTALS

A. Product Data: For each luminaire, pole, and support component, arranged in order of lighting unit designation. Include data on features, accessories, and finishes.

1. Include lamp, ballast, and driver for each fixture.
2. LED Luminaires: Include total luminous flux, electrical power, luminous intensity distribution, and chromaticity report according to IESNA LM-79.

B. Shop Drawings: Anchor-bolt templates keyed to specific poles and certified by manufacturer.

1.4 QUALITY ASSURANCE

A. Electrical Components, Devices, and Accessories: Listed and labeled as defined in NFPA 70, by a qualified testing agency, and marked for intended location and application.

B. Comply with IEEE C2, "National Electrical Safety Code."

C. Comply with NFPA 70.

1.5 WARRANTY

A. Special Warranty for LED Drivers: Manufacturer's standard form in which manufacturer of agrees to repair or replace components that fails in materials or workmanship within five years from date of Substantial Completion.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

A. Products: Subject to compliance with requirements, provide one of the products indicated on Drawings.

2.2 GENERAL REQUIREMENTS FOR LUMINAIRES

A. Luminaires shall comply with UL 1598 and be listed and labeled for installation in wet locations by an NRTL acceptable to authorities having jurisdiction.

B. Lateral Light Distribution Patterns: Comply with IESNA RP-8 for parameters of lateral light distribution patterns indicated for luminaires.

C. Metal Parts: Free of burrs and sharp corners and edges.

D. Sheet Metal Components: Corrosion-resistant aluminum unless otherwise indicated. Form and support to prevent warping and sagging.

E. Housings: Rigidly formed, weather- and light-tight enclosures that will not warp, sag, or deform in use. Provide filter/breather for enclosed luminaires.

F. Doors, Frames, and Other Internal Access: Smooth operating, free of light leakage under operating conditions, and designed to permit relamping without use of tools. Designed to prevent doors, frames, lenses, diffusers, and other components from falling accidentally during relamping and when secured in operating position. Doors shall be removable for cleaning or replacing lenses. Designed to disconnect ballast when door opens.

G. Exposed Hardware Material: Stainless steel.

H. Plastic Parts: High resistance to yellowing and other changes due to aging, exposure to heat, and UV radiation.

I. Light Shields: Metal baffles, factory installed and field adjustable, arranged to block light distribution to indicated portion of normally illuminated area or field.

J. Reflecting surfaces shall have minimum reflectance as follows unless otherwise indicated:

1. White Surfaces: 85 percent.
2. Specular Surfaces: 83 percent.
3. Diffusing Specular Surfaces: 75 percent.

K. Lenses and Refractors Gaskets: Use heat- and aging-resistant resilient gaskets to seal and cushion lenses and refractors in luminaire doors.

L. Luminaire Finish: Manufacturer's standard paint applied to factory-assembled and -tested luminaire before shipping. Where indicated, match finish process and color of pole or support materials.

M. Factory-Applied Finish for Steel Poles and Luminaires: Comply with NAAMM's "Metal Finishes Manual for Architectural and Metal Products" for recommendations for applying and designating finishes.

1. Finish: As indicated on Drawings.

N. Factory-Applied Finish for Aluminum Poles and Luminaires: Comply with NAAMM's "Metal Finishes Manual for Architectural and Metal Products" for recommendations for applying and designating finishes.

1. Finish: As indicated on Drawings.

O. Factory-Applied Labels: Comply with UL 1598. Include recommended lamps and ballasts. Labels shall be located where they will be readily visible to service personnel, but not seen from normal viewing angles when lamps are in place.

1. Label shall include the following lamp and ballast characteristics:

a. "USES ONLY" and include specific lamp type.
b. Lamp type, wattage, bulb type (ED17, BD56, etc.) and coating (clear or coated) for HID luminaires.
c. ANSI ballast type (M98, M57, etc.) for HID luminaires.
d. CCT and CRI for all luminaires.

2.3 LED LUMINAIRES

A. General Description: Minimum initial lumens and maximum input wattage indicated on Drawings, CRI 80 (minimum), and color temperature 4000 K.

B. Useful Lifetime: IESNA TM-21 L70 rating of at least 50,000 hours using IESNA LM-80 test methods.

2.4 DRIVERS FOR LED LUMINAIRES

A. General Requirements for Electronic Drivers: Electronic type rated for 0 deg F starting and operating temperature with indicated LED module types.

1. Comply with UL 935 and with ANSI C82.11.
2. Designed for type and quantity of LED lamp modules served.
3. Drivers shall be designed for full light output unless dimmer or bi-level control is indicated.
4. Sound Rating: Class A.
5. Total Harmonic Distortion Rating: Less than 10 percent.
6. Transient Voltage Protection: IEEE C62.41.1 and IEEE C62.41.2, Category A or better.
7. Power Factor: 0.90 or higher.
8. Inrush Current: No more than 6 times rated luminaire current at 16 milliseconds.

2.5 GENERAL REQUIREMENTS FOR POLES AND SUPPORT COMPONENTS

A. Structural Characteristics: Comply with AASHTO LTS-5.

1. Wind-Load Strength of Poles: Adequate at indicated heights above grade without failure, permanent deflection, or whipping in steady winds of speed indicated in "Structural Analysis Criteria for Pole Selection" Article.
2. Strength Analysis: For each pole, multiply the actual equivalent projected area of luminaires and brackets by a factor of 1.1 to obtain the equivalent projected area to be used in pole selection strength analysis.

B. Luminaire Attachment Provisions: Comply with luminaire manufacturers' mounting requirements. Use stainless-steel fasteners and mounting bolts unless otherwise indicated.

C. Mountings, Fasteners, and Appurtenances: Corrosion-resistant items compatible with support components.

1. Materials: Shall not cause galvanic action at contact points.
2. Anchor Bolts, Leveling Nuts, Bolt Caps, and Washers: Hot-dip galvanized after fabrication unless otherwise indicated.
3. Anchor-Bolt Template: Plywood or steel.

D. Handhole: Oval-shaped, with minimum clear opening of 2-1/2 by 5 inches, with cover secured by stainless-steel captive screws.

E. Concrete Pole Foundations: Cast in place, with anchor bolts to match pole-base flange. Concrete, reinforcement, and formwork are specified in Division 03 Section "Cast-in-Place Concrete."

2.6 STEEL POLES

A. Poles: Comply with ASTM A 500, Grade B, carbon steel with a minimum yield of 46,000 psig; one-piece construction up to 40 feet in height with access handhole in pole wall.

1. Shape: As indicated on Drawings.
2. Mounting Provisions: Butt flange for bolted mounting on foundation.

B. Brackets for Luminaires: Detachable, cantilever, without underbrace.

1. Adapter fitting welded to pole, allowing the bracket to be bolted to the pole mounted adapter, then bolted together with stainless-steel or galvanized-steel bolts.
2. Cross Section: Tapered oval, with straight tubular end section to accommodate luminaire.

C. Grounding and Bonding Lugs: Welded 1/2-inch threaded lug, complying with requirements in Section 26 05 26 "Grounding and Bonding for Electrical Systems," listed for attaching grounding and bonding conductors of type and size listed in that Section, and accessible through handhole.

D. Finish: Same as luminaire.

2.7 ALUMINUM POLES

A. Poles: Seamless, extruded structural tube complying with ASTM B 429/B 429M, Alloy 6063-T6 with access handhole in pole wall.

B. Poles: ASTM B 209, 5052-H34 marine sheet alloy with access handhole in pole wall.

1. Shape: As indicated on Drawings.
2. Mounting Provisions: Butt flange for bolted mounting on foundation or breakaway support.

C. Grounding and Bonding Lugs: Welded 1/2-inch threaded lug, complying with requirements in Section 26 05 26 "Grounding and Bonding for Electrical Systems," listed for attaching grounding and bonding conductors of type and size listed in that Section, and accessible through handhole.

D. Brackets for Luminaires: Detachable, with pole and adapter fittings of cast aluminum. Adapter fitting welded to pole and bracket, then bolted together with stainless-steel bolts.

1. Tapered oval cross section, with straight tubular end section to accommodate luminaire.

E. Finish: Same as luminaire.

2.8 POLE ACCESSORIES

A. Base Covers: Manufacturers' standard metal units, arranged to cover pole's mounting bolts and nuts. Finish same as pole.

PART 3 - EXECUTION

3.1 LUMINAIRE INSTALLATION

A. Install lamps in each luminaire.

B. Fasten luminaire to indicated structural supports.

C. Adjust luminaires that require field adjustment or aiming. Include adjustment of photoelectric device to prevent false operation of relay by artificial light sources, favoring a north orientation.

3.2 POLE INSTALLATION

A. Alignment: Align pole foundations and poles for optimum directional alignment of luminaires and their mounting provisions on the pole.

B. Clearances: Maintain the following minimum horizontal distances of poles from surface and underground features unless otherwise indicated on Drawings:

1. Fire Hydrants and Storm Drainage Piping: 60 inches.
2. Water, Gas, Electric, Communication, and Sewer Lines: 10 feet.
3. Trees: 15 feet from tree trunk.

C. Concrete Pole Foundations: Set anchor bolts according to anchor-bolt templates furnished by pole manufacturer. Concrete materials, installation, and finishing requirements are specified in Division 03 Section "Cast-in-Place Concrete."

D. Foundation-Mounted Poles: Mount pole with leveling nuts, and tighten top nuts to torque level recommended by pole manufacturer.

1. Grout void between pole base and foundation. Use non-shrink or expanding concrete grout firmly packed to fill space.
2. Install base covers unless otherwise indicated.
3. Use a short piece of 1/2-inch- diameter pipe to make a drain hole through grout. Arrange to drain condensation from interior of pole.

E. Raise and set poles using web fabric slings (not chain or cable).

3.3 BOLLARD LUMINAIRE INSTALLATION

A. Align units for optimum directional alignment of light distribution.

B. Install on concrete base with top 4 inches above finished grade or surface at bollard location. Cast conduit into base, and shape base to match shape of bollard base. Finish by troweling and rubbing smooth. Concrete materials, installation, and finishing are specified in Division 03 Section "Cast-in-Place Concrete."

3.4 INSTALLATION OF INDIVIDUAL GROUND-MOUNTING LUMINAIRES

A. Install on concrete base with top 4 inches above finished grade or surface at luminaire location. Cast conduit into base, and finish by troweling and rubbing smooth. Concrete materials, installation, and finishing are specified in Division 03 Section "Cast-in-Place Concrete."

3.5 CORROSION PREVENTION

A. Aluminum: Do not use in contact with earth or concrete. When in direct contact with a dissimilar metal, protect aluminum by insulating fittings or treatment.

B. Steel Conduits: Comply with Section 26 05 33 "Raceways and Boxes for Electrical Systems." In concrete foundations, wrap conduit with 0.010-inch- thick, pipe-wrapping plastic tape applied with a 50 percent overlap.

3.6 GROUNDING

A. Ground metal poles and support structures according to Section 26 05 26 "Grounding and Bonding for Electrical Systems."

1. Install grounding electrode for each pole unless otherwise indicated.
2. Install grounding conductor pigtail in the base for connecting luminaire to grounding system.

END OF SECTION 26 56 00

SECTION 26 56 68 – EXTERIOR ATHLETIC LIGHTING – BUS LOT

PART 1 – GENERAL

1.1 SUMMARY

A. Work covered by this section of the specifications shall conform to the contract documents, engineering plans as well as state and local codes.

B. The purpose of these specifications is to define the lighting system performance and design standards for Hamilton Southeastern High School Bus Lot & Band Practice Area using an LED Lighting source. The manufacturer / contractor shall supply lighting equipment to meet or exceed the standards set forth in these specifications.

C. The sports lighting will be for the following venues with nominal dimensions:

1. Band Practice Area – 300’ Long x 160’ Wide
2. Bus Parking Lot & Dropoff Area – 560’ Long x 225’ Wide.

D. The primary goals of this sports lighting project are:

1. Guaranteed Light Levels: Selection of appropriate light levels impact the safety of the players and the enjoyment of spectators. Therefore, light levels are guaranteed to not drop below specified target values for a period of 25 years.
2. Environmental Light Control: It is the primary goal of this project to minimize spill light to adjoining properties and glare to the neighbors.
3. Cost of Ownership: To reduce the operating budget, the preferred lighting system shall be energy-efficient and cost-effective to operate. All maintenance costs shall be eliminated for the duration of the warranty.
4. Control and Monitoring: To allow for optimized use of labor resources and avoid unneeded operation of the facility, customer requires a remote on/off control system for the lighting system. Fields should be proactively monitored to detect luminaire outages over a 25-year life cycle. All communication and monitoring costs for 25-year period shall be included in the bid.

1.2 LIGHTING PERFORMANCE

A. Illumination Levels and Design Factors: Playing surfaces shall be lit to an average target illumination level and uniformity as specified in the chart below. Lighting calculations shall be developed, and field measurements taken on the grid spacing with the minimum number of grid points specified below. Appropriate light loss factors shall be applied and submitted for the basis of design.

Area of Lighting	Average Target Illumination Levels	Maximum to Minimum Uniformity Ratio	Grid Points	Grid Spacing
Band Practice	30 fc	2.5:1	50	30’ x 30’
Bus Parking	11.95 fc	23:1	289	20’ x 20’

B. Color: The lighting system shall have a min. color temperature of 5700K and a CRI of 75.

C. Mounting Heights: To ensure proper aiming angles for reduced glare and to provide better playability, minimum mounting heights shall be as described below. Higher mounting heights may be required based on photometric report and ability to ensure the top of the field angle is a minimum of 10 degrees below horizontal.

# of Poles	Pole Designation	Pole Height
8	P1-P4, P6-P9	40’

1.3 ENVIRONMENTAL LIGHT CONTROL

A. Light Control Luminaires: All luminaires shall utilize spill light and glare control devices including, but not limited to, internal shields, louvers, and external shields. No symmetrical beam patterns are accepted.

B. Spill Light and Glare Control: To minimize impact on adjacent properties, spill light and candela values must not exceed the following levels taken at 3 feet above grade.

Surrounding Spill at 150’	Maximum
Horizontal Footcandles	0.02 fc
Candela	7,307cd

C. Spill Scans: Spill scans must be submitted indicating the amount of horizontal and vertical footcandles along the specified lines. Light levels shall be taken at 30-foot intervals along the boundary line. Readings shall be taken with the meter orientation at both horizontal and aimed towards the most intense bank of lights. Illumination level shall be measured in accordance with the IESNA LM-5-04 after 1 hour warm up.

D. The first page of a photometric report for all luminaire types proposed showing horizontal and vertical axial candle power shall be provided to demonstrate the capability of achieving the specified performance. Reports shall be certified by a qualified testing laboratory with a minimum of five years’ experience or by a manufacturer’s laboratory with a current accreditation under the National Voluntary Laboratory Accreditation Program for Energy Efficient Lighting Products. A summary of the horizontal and vertical aiming angles for each luminaire shall be included with the photometric report.

1.4 Cost of Ownership

A. Manufacturer shall submit a 25-year Cost of Ownership summary that includes energy consumption, anticipated maintenance costs, and control costs. All costs associated with faulty luminaire replacement - equipment rentals, removal and installation labor, and shipping - are to be included in the maintenance costs.

PART 2 – PRODUCT

2.2 SPORTS LIGHTING SYSTEM CONSTRUCTION

A. Manufacturing Requirements: All components shall be designed and manufactured as a system. All luminaires, wire harnesses, drivers and other enclosures shall be factory

assembled, aimed, wired and tested.

B. Durability: All exposed components shall be constructed of corrosion resistant material and/or coated to help prevent corrosion. All exposed carbon steel shall be hot dip galvanized per ASTM A123. All exposed aluminum shall be powder coated with high performance polyester or anodized. All exterior reflective inserts shall be anodized, coated, and protected from direct environmental exposure to prevent reflective degradation or corrosion. All exposed hardware and fasteners shall be stainless steel, passivated and coated with aluminum-based thermosetting epoxy resin for protection against corrosion and stress corrosion cracking. Structural fasteners may be carbon steel and galvanized meeting ASTM A153 and ISO/EN 1461 (for hot dipped galvanizing), or ASTM B695 (for mechanical galvanizing). All wiring shall be enclosed within the cross-arms, pole, or electrical components enclosure.

C. System Description: Lighting system shall consist of the following:

1. Galvanized steel poles and cross-arm assembly.
2. Non-approved pole technology:

    a. Square static cast concrete poles will not be accepted.
    b. Direct bury steel poles which utilize the extended portion of the steel shaft for their foundation will not be accepted due to potential for internal and external corrosive reaction to the soils and long-term performance concerns. Per IHSAA Lighting Standards (Page 8, Section 3 Strength of Pole, Subsection b.); Foundations designed with direct embedment steel components are not recommended.

3. Lighting systems shall use concrete foundations. See Section 2.4 for details.

    a. For a foundation using a pre-stressed concrete base embedded in concrete backfill the concrete shall be air-entrained and have a minimum compressive design strength at 28 days of 3,000 PSI. 3,000 PSI concrete specified for early pole erection; actual required minimum allowable concrete strength is 1,000 PSI. All piers and concrete backfill must bear on and against firm undisturbed soil.
    b. For anchor bolt foundations or foundations using a pre-stressed concrete base in a suspended pier or re-enforced pier design pole erection may occur after 7 days. Or after a concrete sample from the same batch achieves a certain strength.

4. Manufacturer will supply all drivers and supporting electrical equipment

    a. Remote drivers and supporting electrical equipment shall be mounted approximately 10 feet above grade in aluminum enclosures. The enclosures shall be touch-safe and include drivers and fusing with indicator lights on fuses to notify when a fuse is to be replaced for each luminaire. Disconnect per circuit for each pole structure will be in the enclosure. Integral drivers are not allowed.
    b. Per IHSAA Lighting Standards (Page 5, Section 10 Ballast (MH) or Driver (LED) Weight). It is recommended that all ballast and drivers be remotely mounted on pole at step ladder height. Remote ballast/Remote drivers and supporting electrical equipment shall be mounted in aluminum enclosures. The enclosures shall be touch-safe and include drivers and fusing with indicator lights on fuses to notify when a fuse is to be replaced for each luminaire. Disconnect per circuit for each pole structure will be in the enclosure.
    c. Manufacturer shall provide surge protection at the pole equal to or greater than 40 kA for each line to ground (Common Mode) as recommended by IEEE C62.41.2_2002.

4. Wire harness complete with an abrasion protection sleeve, strain relief and plug-in connections for fast, trouble-free installation.
5. All luminaires, visors, and cross-arm assemblies shall withstand 150 mi/h winds and maintain luminaire aiming alignment.
6. Control cabinet to provide remote on-off control, monitoring, and entertainment features of the lighting system. See Section 2.3 for further details.
8. Manufacturer shall provide lightning grounding as defined by NFPA 780 and be UL Listed per UL 96 and UL 96A.

    a. Integrated grounding via concrete encased electrode grounding system.
    b. If grounding is not integrated into the structure, the manufacturer shall supply grounding electrodes, copper down conductors, and exothermic weld kits. Electrodes and conductors shall be sized as required by NFPA 780.The grounding electrode shall be minimum size of 5/8 inch diameter and 8 feet long, with a minimum of 10 feet embedment. Grounding electrode shall be connected to the structure by a grounding electrode conductor with a minimum size of 2 AWG for poles with 75 feet mounting height or less, and 2/0 AWG for poles with more than 75 feet mounting height.

D. Safety: All system components shall be UL listed for the appropriate application.

2.2 ELECTRICAL

A. Electric Power Requirements for the Sports Lighting Equipment:

1. Electric power: 480 Volt, 3 Phase
2. Maximum total voltage drop: Voltage drop to the disconnect switch located on the poles shall not exceed three (3) percent of the rated voltage.

B. Energy Consumption: The kW consumption for the practice field lighting system shall be 24.48 kW and the bus lot adds an additional 9.36 kW.

2.3 CONTROL

A. Instant On/Off Capabilities: System shall provide for instant on/off of luminaires.

B. Lighting contactor cabinet(s) constructed of NEMA Type 4 aluminum, designed for easy installation with contactors, labeled to match field diagrams and electrical design. Manual off-on-auto selector switches shall be provided.

C. Dimming: System shall provide for 3-stage dimming (high-medium-low). Dimming will be set via scheduling options (website, app, phone, fax, email).

D. Remote Lighting Control System: System shall allow owner and users with a security code to schedule on/off system operation via a web site, phone, fax or email up to ten years in advance. Manufacturer shall provide and maintain a two-way TCP/IP communication link. Trained staff shall be available 24/7 to provide scheduling support and assist with reporting needs.

E. The owner may assign various security levels to schedulers by function and/or fields. This function must be flexible to allow a range of privileges such as full scheduling capabilities for all fields to only having permission to execute “early off” commands by phone. Scheduling tool shall be capable of setting curfew limits.

F. Controller shall accept and store 7-day schedules, be protected against memory loss during power outages, and shall reboot once power is regained and execute any commands that would have occurred during outage.

G. Remote Monitoring System: System shall monitor lighting performance and notify manufacturer if individual luminaire outage is detected so that appropriate maintenance can be scheduled. The controller shall determine switch position (manual or auto) and contactor status (open or closed).

H. Management Tools: Manufacturer shall provide a web-based database and dashboard tool of actual field usage and provide reports by facility and user group. Dashboard shall also show status of luminaire outages, control operation and service. Mobile application will be provided suitable for IOS, Android and Blackberry devices.
Hours of Usage: Manufacturer shall provide a means of tracking actual hours of usage for the field lighting system that is readily accessible to the owner.

1. Cumulative hours: shall be tracked to show the total hours used by the facility
2. Report hours saved by using early off and push buttons by users.

I. Communication Costs: Manufacturer shall include communication costs for operating the control and monitoring system for a period of 25 years.

J. Communication with luminaire drivers: Control system shall interface with drivers in electrical components enclosures by means of powerline communication.

2.4 STRUCTURAL PARAMETERS

A. Wind Loads: Wind loads shall be based on the 2012 International Building Code. Wind loads to be calculated using ASCE 7-10, an ultimate design wind speed of 115 and exposure category C.

B. Pole Structural Design: The stress analysis and safety factor of the poles shall conform to 2009 AASHTO Standard Specification for Structural Supports for Highway Signs, Luminaires, and Traffic Signals (LTS-5).

C. Foundation Design: The foundation design shall be based on soils that meet or exceed those of a Class 5 material as defined by 2015 IBC Table 1806.2. Include in bid the performance of a project specific geotechnical analysis and report.

D. Foundation Drawings: Provide project specific foundation drawings. They must be stamped by a registered engineer in the state where the project is located. The foundation drawings must list the moment, shear (horizontal) force, and axial (vertical) force at ground level for each pole. These drawings must be submitted at time of bid to allow for accurate pricing.

PART 3 – EXECUTION

3.1 SOIL QUALITY CONTROL

A. It shall be the Contractor’s responsibility to notify the Owner if soil conditions exist other than those on which the foundation design is based, or if the soil cannot be readily excavated. Contractor may issue a change order request / estimate for the Owner’s approval / payment for additional costs associated with:

1. Providing engineered foundation embedment design by a registered engineer in the State of Indiana for soils other than specified soil conditions.
2. Additional materials required to achieve alternate foundation.
3. Excavation and removal of materials other than normal soils, such as rock, caliche, etc.

3.2 DELIVERY TIMING

A. Delivery Timing Equipment On-Site: The equipment must be on-site 10-12 weeks from receipt of approved submittals and receipt of complete order information.

3.3 FIELD QUALITY CONTROL

A. Illumination Measurements: Upon substantial completion of the project and in the presence of the Contractor, Project Engineer, Owner's Representative, and Manufacturer's Representative, illumination measurements shall be taken and verified.

B. Field Light Level Accountability

1. Light levels are guaranteed not to fall below the target maintained light levels for the entire warranty period of 25 years. These levels will be specifically stated as “guaranteed” on the illumination summary provided by the manufacturer.
2. The contractor/manufacturer shall be responsible for conducting initial light level testing and an additional inspection of the system, in the presence of the owner, one year from the date of commissioning of the lighting.
3. The contractor/manufacturer will be held responsible for all changes needed to bring these fields back to compliance for light levels and uniformities. Contractor/Manufacturer will be held responsible for any damage to the fields during these repairs.

C. Correcting Non-Conformance: If, in the opinion of the Owner or his appointed Representative, the actual performance levels including footcandles and uniformity ratios are not in conformance with the requirements of the performance specifications and submitted information, the Manufacturer shall be required to make adjustments to meet specifications and satisfy Owner.

3.4 WARRANTY AND GUARANTEE

A. 25-Year Warranty: Each manufacturer shall supply a signed warranty covering the entire system for 25 years from the date of shipment. Warranty shall guarantee specified light levels. Manufacturer shall maintain specifically funded financial reserves to assure fulfillment of the warranty for the full term. Warranty does not cover weather conditions events such as lightning or hail damage, improper installation, vandalism or abuse, unauthorized repairs or alterations, or product made by other manufacturers.

B. Maintenance: Manufacturer shall monitor the performance of the lighting system, including on/off status, hours of usage and luminaire outage for 25 years from the date of equipment shipment. Parts and labor shall be covered such that individual luminaire outages will be repaired when the usage of any field is materially impacted. Manufacturer is responsible for removal and replacement of failed luminaires, including all parts, labor, shipping, and equipment rental associated with maintenance. Owner agrees to check fuses in the event of a luminaire outage.

PART 4 – DESIGN APPROVAL

4.0 PRE-BID SUBMITTAL REQUIREMENTS (Non-Musco)

A. Design Approval: The owner / engineer will review pre-bid submittals per section 4.0.B from all the manufacturers to ensure compliance to the specification 3 days prior to bid. If the design meets the design requirements of the specifications, a letter and/or addendum will be issued to the manufacturer indicating approval for the specific design submitted.

B. Approved Product: Musco's Light-Structure System™ with TLC for LED™ is the approved product. All substitutions must provide a complete submittal package for approval as outlined in Submittal Information at the end of this section at least 10 days prior to bid. Special manufacturing to meet the standards of this specification may be required. An addendum will be issued prior to bid listing any other approved lighting manufacturers and designs.

C. All listed manufacturers not pre-approved shall submit the information at the end of this section at least 10 days prior to bid. An addendum will be issued prior to bid; listing approved lighting manufacturers and the design method to be used.

D. Bidders are required to bid only products that have been approved by this specification or addendum by the owner or owner's representative. Bids received that do not utilize an approved system/design, will be rejected.

REQUIRED SUBMITTAL INFORMATION FOR ALL MANUFACTURERS (NOT PRE-APPROVED) 10 DAYS PRIOR TO BID

All items listed below are mandatory, shall comply with the specification and be submitted according to pre-bid submittal requirements. Complete the Yes/No column to indicate compliance (Y) or noncompliance (N) for each item. ***Submit checklist below with submittal.***

Yes / No	Tab	Item	Description
	A	Letter/ Checklist	Listing of all information being submitted must be included on the table of contents. List the name of the manufacturer's local representative and his/her phone number. Signed submittal checklist to be included.
	B	Equipment Layout	Drawing(s) showing field layouts with pole locations
	C	On Field Lighting Design	Lighting design drawing(s) showing: a. Field Name, date, file number, prepared by b. Outline of field(s) being lighted, as well as pole locations referenced to the center of the field (x & y), Illuminance levels at grid spacing specified c. Pole height, number of fixtures per pole, horizontal and vertical aiming angles, as well as luminaire information including wattage, lumens, and optics d. Height of light test meter above field surface. e. Summary table showing the number and spacing of grid points; average, minimum and maximum illuminance levels in foot candles (fc); uniformity including maximum to minimum ratio, coefficient of variance (CV), coefficient of utilization (CU) uniformity gradient; number of luminaries, total kilowatts, average tilt factor; light loss factor.
	D	Off Field Lighting Design	Lighting design drawing showing initial spill light levels along the boundary line (defined on bid drawings) in footcandles. Lighting design showing glare along the boundary line in candela. Light levels shall be taken at 30-foot intervals along the boundary line. Readings shall be taken with the meter orientation at both horizontal and aimed towards the most intense bank of lights.
	E	Photometric Report	Provide first page of photometric report for all luminaire types being proposed showing candela tabulations as defined by IESNA Publication LM-35-02. Photometric data shall be certified by laboratory with current National Voluntary Laboratory Accreditation Program or an independent testing facility with over 5 years' experience.
	F	Performance Guarantee	Provide performance guarantee including a written commitment to undertake all corrections required to meet the performance requirements noted in these specifications at no expense to the owner. Light levels must be guaranteed to not fall below target levels for warranty period.
	G	Structural Calculations	Pole structural calculations and foundation design showing foundation shape, depth backfill requirements, rebar and anchor bolts (if required). Pole base reaction forces shall be shown on the foundation drawing along with soil bearing pressures. Design must be stamped by a structural engineer in the state of Indiana, if required by owner. (May be supplied upon award).
	H	Control & Monitoring System	Manufacturer of the control and monitoring system shall provide written definition and schematics for automated control system. They will also provide 10 references of customers currently using proposed system in the state of Indiana.
	I	Electrical Distribution Plans	Manufacturer bidding an alternate product must include a revised electrical distribution plan including changes to service entrance, panels and wire sizing, signed by a licensed Electrical Engineer in the state of Indiana.
	J	Warranty	Provide written warranty information including all terms and conditions. Provide 10 references of customers currently under specified warranty in the state of Indiana.
	K	Project References	Manufacturer to provide a list of 10 projects where the technology and specific fixture proposed for this project has been installed in the state of Indiana. Reference list will

			include project name, project city, installation date, and if requested, contact name and contact phone number.
	L	Product Information	Complete bill of material and current brochures/cut sheets for all products being provided.
	M	Delivery	Manufacturer shall supply an expected delivery timeframe from receipt of approved submittals and complete order information.
	N	Non-Compliance	Manufacturer shall list all items that do not comply with the specifications. If in full compliance, tab may be omitted.
	O	Cost of Ownership	Document cost of ownership as defined in the specification. Identify energy costs for operating the luminaires. Maintenance cost for the system must be included. All costs should be based on 25 Years

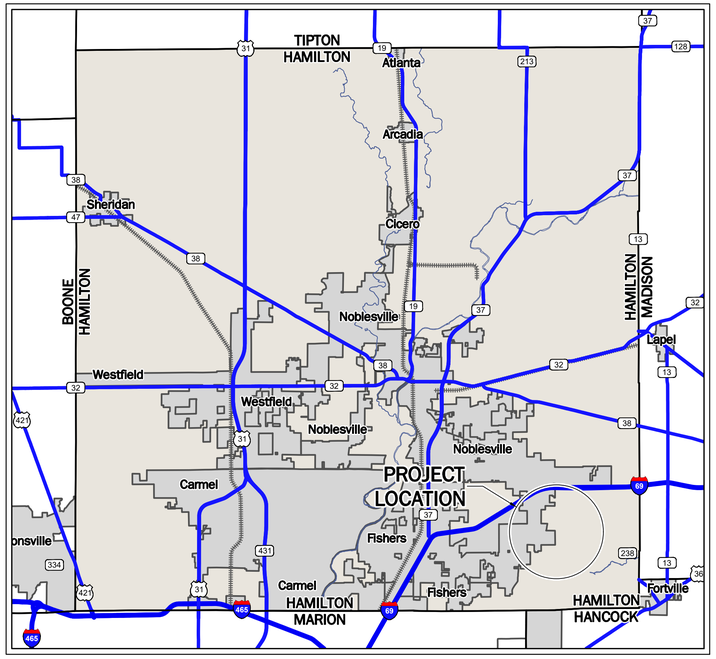
The information supplied herein shall be used for the purpose of complying with the specifications for Hamilton Southeastern High School. By signing below, I agree that all requirements of the specifications have been met and that the manufacturer will be responsible for any future costs incurred to bring their equipment into compliance for all items not meeting specifications and not listed in the Non-Compliance section.

Manufacturer: _____ **Signature:** _____

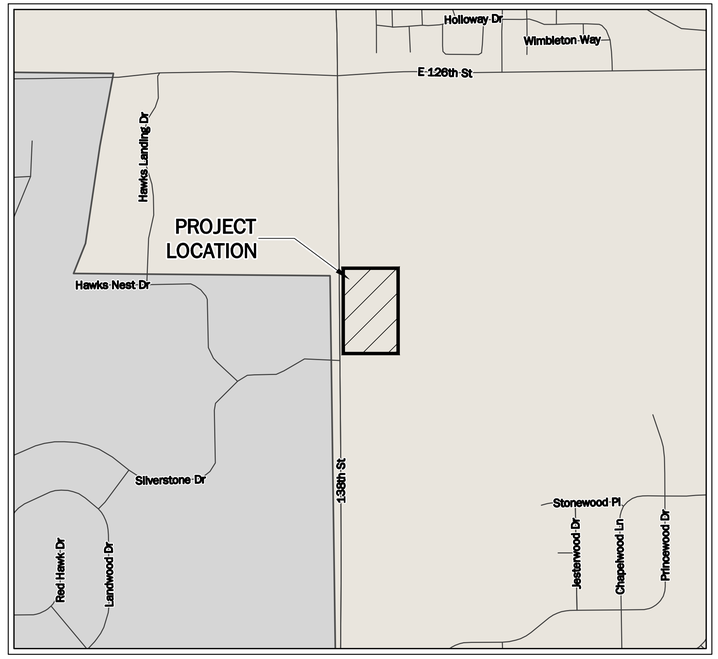
Contact Name: _____ **Date:** _____/_____/_____

Contractor: _____ **Signature:** _____

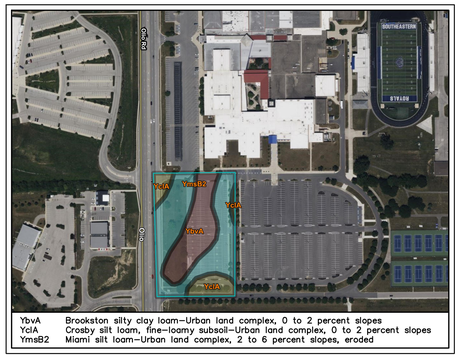
CONSTRUCTION PLANS
FOR
HAMILTON SOUTHEASTERN HIGH SCHOOL
BUS PARKING LOT
12499 OLIO ROAD
FISHERS, INDIANA 46037



LOCATION MAP
NOT TO SCALE

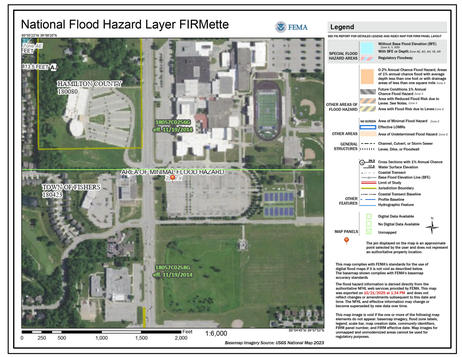


VICINITY MAP
NOT TO SCALE



YbvA Brookston silty clay loam–Urban land complex, 0 to 2 percent slopes
YcIA Crosby silt loam, fine–loamy subsoil–Urban land complex, 0 to 2 percent slopes
YmsB2 Miami silt loam–Urban land complex, 2 to 6 percent slopes, eroded

SOILS MAP
NOT TO SCALE



FEMA MAP
NOT TO SCALE

1. THE DESIGN AND CONSTRUCTION SHALL COMPLY WITH THE CURRENT FISHERS STANDARD CONSTRUCTION DETAILS AND CONSTRUCTION SPECIFICATIONS. THE OMISSION OF ANY CURRENT STANDARD DETAIL DOES NOT RELIEVE THE CONTRACTOR OF THIS REQUIREMENT.
2. THE DESIGN AND CONSTRUCTION SHALL COMPLY WITH ALL ADA REQUIREMENTS AND SHALL BE PROWAG COMPLIANT.
3. THE CONTRACTOR SHALL SCHEDULE A SITE PRE-CONSTRUCTION MEETING WITH THE CITY OF FISHERS PRIOR TO ANY CONSTRUCTION ON THE SITE BEING STARTED.
4. THE FINAL SITE INSPECTION WILL NOT BE PERFORMED BY THE FISHERS DEPARTMENT OF ENGINEERING INSPECTOR UNTIL ALL SITE AND RIGHT-OF-WAY WORK IS COMPLETED.
5. SITE RECORD DRAWINGS ARE REQUIRED TO BE SUBMITTED IN THE FISHERS STANDARD FORMAT PRIOR TO ENGINEERING DEPT. RELEASE OF THE COMPLETED SITE.
6. A CITY OF FISHERS RIGHT-OF-WAY ACTIVITY PERMIT IS REQUIRED FOR UTILITY WORK CROSSING EXISTING PUBLIC RIGHT-OF-WAY OR WITHIN THE RIGHT-OF-WAY BEYOND THE LIMITS OF THE SITE.
7. UTILITY WORK WITHIN EXISTING PUBLIC RIGHT-OF-WAY OR WITHIN 5' OF EXISTING PUBLIC RIGHT-OF-WAY PAVEMENT REQUIRES REMOVABLE ﬁLOWABLE FILL.
8. UTILITY CONFLICTS (INCLUDING UTILITY POLES/PEDESTALS) MUST BE COMPLETELY RESOLVED PRIOR TO THE CONSTRUCTION OF ACCELERATION/DECELERATION, PASSING BLISTER LANES AND/OR LEFT TURN LANES. CONSTRUCTION OF THESE LANES INCLUDES BUT IS NOT LIMITED TO EXCAVATION, EMBANKMENT, PAVING, AND SUBGRADE PREPARATION, ETC.
9. ALL ROADS MUST BE BROUGHT BACK TO ORIGINAL OR BETTER CONDITION, INCLUDING BUT NOT LIMITED TO PAVEMENT MARKINGS, CURB/STONE SHOULDERS, SIGNAGE, ETC. REPAIRS SHALL COINCIDE WITH THE ADJOINING ROAD.

INDEX

DESCRIPTION	SHEET No.
TITLE SHEET	C001
GENERAL NOTES	C002
SPECIFICATIONS	C003
EXISTING TOPOGRAPHY PLAN	C100
DEMOLITION PLAN	C110
SITE ENTRANCE PLAN	C200
ADA RAMP DETAILS	C201
GRADING PLAN	C300
GRADING PLAN ENLARGEMENTS	C301
EMERGENCY FLOOD ROUTING PLAN	C350
UTILITY PLAN	C400
STORM SEWER PLAN & PROFILES	C410
STORM STRUCTURE DATA TABLE	C415
INITIAL EROSION CONTROL PLAN	C500
EROSION CONTROL PLAN	C501
FINAL EROSION CONTROL PLAN	C502
STORM WATER POLLUTION PREVENTION PLAN	C510
EROSION CONTROL DETAILS	C520
SITE DETAILS	C600–C601
CITY OF FISHERS DETAILS	
TREE PRESERVATION PLAN	L001
MATERIALS & NOTES PLAN	L101
LAYOUT PLAN	L201
PLANTING PLAN	L401
PLANTING DETAILS	L410
SITE DETAILS (LANDSCAPE)	L501–L502

UTILITY CONTACTS

UTILITY	COMPANY	CONTACT	PHONE NO.
COMMUNICATIONS	AT&T	BRIAN WENTE	(317) 252–4222
COMMUNICATIONS	BRIGHTSPEED	SONNI SMITH	(704) 314–2662
COMMUNICATIONS	CROWN CASTLE	fiber.dig@crowncastle.com	(888) 632–0931
COMMUNICATIONS	WINDSTREAM, LLC	locate.desk@windstream.com	(800) 289–1901
COMMUNICATIONS	EVERSTREAM, LLC (SOUTH)	utility.review@everstream.net	
FIBER OPTICS	LUMEN	nationalrelo@centurylink.com	(877) 366–8344
FIBER OPTICS	METRO FIBERNET, LLC	811design@metronet.com	(812) 213–1050
GAS	CENTERPOINT ENERGY (NORTH)	JON EASTHAM	(765) 287–2119
WATER	CITIZENS WATER	BRAD HOSTETLER	(317) 927–4351
ELECTRIC	DUKE ENERGY	DON MCDUFFY	(317) 776–5320
STORM SEWER	CITY OF FISHERS	JASON ARMOUR	(317) 567–5056
SANITARY SEWER	CITY OF FISHERS	DAN TUCKER	(317) 595–3108

(REV. 01/29/26)

GENERAL NOTES:

1. CONTRACTOR SHALL PROTECT AND NOT DESTROY THE PROPERTY CORNER MONUMENTS DURING CONSTRUCTION.
2. CONTRACTOR TO VERIFY LOCATION, SIZE AND DEPTH OF EXISTING UTILITIES PRIOR TO COMMENCING ANY CONSTRUCTION. CONTACT ENGINEER IF VARIATION EXISTS.
3. SEE SHEET C002 GENERAL NOTES FOR MORE INFORMATION.

!! CAUTION !!

THE LOCATIONS OF ALL EXISTING UNDERGROUND UTILITIES SHOWN ON THIS PLAN ARE BASED UPON ABOVE GROUND EVIDENCE (including, but not limited to, manholes, inlets, valves, and marks made upon the ground by others) AND ARE SPECULATIVE IN NATURE. THERE MAY ALSO BE OTHER EXISTING UNDERGROUND UTILITIES FOR WHICH THERE IS NO ABOVE GROUND EVIDENCE OR FOR WHICH NO ABOVE GROUND EVIDENCE WAS OBSERVED. THE EXACT LOCATIONS OF SAID EXISTING UNDERGROUND UTILITIES SHALL BE VERIFIED BY THE CONTRACTOR PRIOR TO ANY AND ALL CONSTRUCTION.

CALL TOLL FREE
"811" OR 1–800–382–5544
– INDIANA UNDERGROUND –

HAMILTON SOUTHEASTERN SCHOOLS
13485 CUMBERLAND ROAD
FISHERS, IN 46038

AMERICAN STRUCTUREPOINT INC.
9025 River Road, Suite 200 | Indianapolis, Indiana 46240
TEL 317.547.5580 | FAX 317.543.0270
www.structurepoint.com

context DESIGN
5825 Lawton Loop E. Dr.
Indianapolis, Indiana 46216

HAMILTON SOUTHEASTERN HIGH SCHOOL
BUS PARKING LOT
12499 Olio Road
Fishers, IN 46037

APPROVAL PENDING
NOT FOR CONSTRUCTION
IN SUBMITTING BIDS IN RELIANCE ON THESE PLANS THE CONTRACTOR ASSUMES ALL RISKS OF ADDITIONAL COSTS OF REVISIONS DUE TO REQUIREMENTS OF THE OWNER OR GOVERNMENTAL AUTHORITIES AND MATERIAL REVISIONS IN THE COURSE OF COMPLETING THE FINAL DESIGN.

CERTIFIED BY

ISSUANCE INDEX
DATE:
03/06/2026
PROJECT PHASE:
CONSTRUCTION DOCUMENTS

REVISION SCHEDULE		
NO.	DESCRIPTION	DATE
1	ADDENDUM 1	03/12/26

Project Number 2025.01563

TITLE SHEET

C001

PLOT DATE: 3/11/2026 4:54 PM
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GENERAL NOTES

1. ALL WORK TO CONFORM TO STATE AND LOCAL REGULATIONS.
2. CONTRACTOR SHALL KEEP ADJOINING PROPERTIES CLEAN OF CONSTRUCTION DEBRIS AND CONSTRUCTION TRAFFIC AT ALL TIMES.
3. THE CONTRACTOR SHALL PROTECT AND NOT DESTROY THE BASE SURVEY CONTROL POINTS DURING DEMOLITION AND CONSTRUCTION.
4. ALL UTILITY INFORMATION SHALL BE VERIFIED BY THE CONTRACTOR. CONTACT ENGINEER IMMEDIATELY IF ANY VARIATION EXISTS.
5. MAINTAIN EXISTING UTILITIES TO REMAIN IN SERVICE AND PROTECT AGAINST DAMAGE DURING DEMOLITION AND CONSTRUCTION OPERATIONS.
6. THE CONTRACTOR SHALL VERIFY ALL DIMENSIONS IN THE FIELD PRIOR TO THE START OF CONSTRUCTION. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ALL FIELD DIMENSIONS. IF ANY DISCREPANCIES ARE FOUND IN THESE PLANS FROM ACTUAL FIELD CONDITIONS, THE CONTRACTOR SHALL NOTIFY ENGINEER IMMEDIATELY.

EXISTING TOPOGRAPHY NOTES

1. EXISTING TOPOGRAPHY IS PROVIDED BY: AMERICAN STRUCTUREPOINT, INC. PROJECT: 2025.01563 DATED: 07/08/2025

DEMOLITION NOTES

1. CLEAR AND GRUB ALL TREES AND VEGETATION NECESSARY FOR CONSTRUCTION.
2. PROTECT TREES TO REMAIN DURING CONSTRUCTION.
3. PLANT MATERIALS TO REMAIN, TO BE PROTECTED BY TREE FENCE WHICH ENCOMPASSES IT'S DRIP LINE. NO CONSTRUCTION EQUIPMENT, MATERIALS OR DEBRIS SHALL BE LOCATED WITHIN TREE PROTECTION BOUNDARIES. NO DEMOLITION CAN OCCUR UNTIL TREE PROTECTION IS APPROVED BY THE OWNER.
4. THE CONTRACTOR SHALL REMOVE AND DISPOSE OF ALL EXISTING STRUCTURES, FENCES, CONCRETE, ASPHALT PAVEMENT AND OTHER MISCELLANEOUS APPURTENANCES OFF SITE, UNLESS NOTED TO REMAIN ON THE CONTRACT DRAWINGS.
5. DEMOLISH FOUNDATIONS AND OTHER BELOW-GRADE CONSTRUCTION, INCLUDING CONCRETE SLABS, TO A DEPTH OF NOT LESS THAN 48 INCHES BELOW LOWEST FOUNDATION LEVEL.
6. COMPLETELY FILL BELOW-GRADE AREAS AND VOIDS RESULTING FROM DEMOLITION OF STRUCTURES, WITH COMPACTED GRANULAR BACKFILL.
7. THE USE OF ANY TYPE OF EXPLOSIVES WILL NOT BE PERMITTED.
8. CONDUCT DEMOLITION AND CONSTRUCTION OPERATIONS TO ENSURE MINIMAL INTERFERENCE WITH STREETS, WALKS AND OTHER ADJACENT OCCUPIED FACILITIES.
9. DO NOT CLOSE OR OBSTRUCT STREETS, WALKS OR OTHER OCCUPIED FACILITIES WITHOUT PERMISSION FROM THE LOCAL AUTHORITIES HAVING JURISDICTION. PROVIDE ALTERNATE ROUTES AROUND CLOSED OR OBSTRUCTED TRAFFIC WAYS, IF REQUIRED BY GOVERNING AUTHORITIES.
10. ENSURE SAFE PASSAGE OF PERSONS AROUND AREAS OF DEMOLITION AND CONSTRUCTION. CONDUCT OPERATIONS TO PREVENT DAMAGE TO ADJACENT STRUCTURES AND OTHER FACILITIES AND INJURY TO PERSONS.
11. PROMPTLY REPAIR DAMAGE TO ADJACENT FACILITIES CAUSED BY DEMOLITION AND CONSTRUCTION OPERATIONS.
12. ALL UTILITIES TO BE REMOVED SHALL BE DISCONNECTED AND CAPPED AT THE NEAREST CONNECTION POINT.
13. NO ON-SITE BURNING IS PERMITTED.
14. CONTRACTOR SHALL USE MEASURES TO CONTROL DUST AT ALL TIMES.
15. DEMOLITION ITEMS INCLUDE BUT ARE NOT LIMITED TO DEMOLITION ITEMS INDICATED ON THIS PLAN. IT IS THE CONTRACTOR'S RESPONSIBILITY TO REMOVE OR RELOCATE ITEMS WHICH INTERFERE WITH NEW CONSTRUCTION.
16. ALL EROSION CONTROL MEASURES SHALL BE IN PLACE PRIOR TO COMMENCING DEMOLITION.

SITE NOTES

1. ALL PARKING STRIPES ARE TO BE 4" PAINTED (WHITE). ADA ACCESSIBLE PARKING STRIPES SHALL BE 4" PAINTED (BLUE).
2. ALL DIMENSIONS ARE TO THE EDGE OF PAVEMENT OR FACE OF CURB, UNLESS NOTED OTHERWISE.
3. ALL DIMENSIONS ARE TO FACE OF BRICK OR FACING MATERIAL, WHERE APPLICABLE.
4. ALL DIMENSIONS ARE PARALLEL WITH, OR PERPENDICULAR TO BASE LINES, PROPERTY LINES OR BUILDING LINES, UNLESS OTHERWISE NOTED.
5. PROVIDE SMOOTH TRANSITIONS FROM NEW AREAS TO EXISTING FEATURES AS NECESSARY.
6. RESURFACE OR RECONSTRUCT AT LEAST TO ORIGINAL CONDITIONS ALL AREAS WHERE THE EXISTING PAVEMENT OR LAWNS ARE DAMAGED DURING CONSTRUCTION FROM TRAFFIC BY CONTRACTORS, SUBCONTRACTORS OR SUPPLIERS AFTER CONSTRUCTION WORK IS COMPLETE.
7. EXISTING PAVEMENT TO BE SAW CUT IN ALL AREAS WHERE INDICATED NEW PAVEMENT TO JOIN EXISTING.
8. THE EDGE OF THE EXISTING ASPHALT PAVEMENT SHALL BE PROPERLY SEALED WITH A TACK COAT MATERIAL IN ALL AREAS WHERE NEW ASPHALT PAVEMENT IS INDICATED TO JOIN EXISTING ASPHALT.
9. CONCRETE SAW CUTTING SHALL BE DONE AS SOON AS POURED CONCRETE HAS CURED AND CAN SUPPORT WEIGHT. PROVIDE A NEAT CUT WHICH IS TRUE IN ALIGNMENT.
10. ALL JOINTS ARE TO CONTINUE THROUGH THE CURB.
11. RADIAL JOINTS SHALL BE NO SHORTER THAN 1.5'.
12. CONTRACTOR SHALL USE A THICKENED EXPANSION JOINT AROUND THE PERIMETER OF ANY BLOCK OUT IN THE CONCRETE PAVING.
13. ALL CONSTRUCTION JOINTS SHALL BE SAWN, CLEANED OF DEBRIS, BLOWN DRY AND IMMEDIATELY SEALED WITH THE APPROPRIATE SEALANT ACCORDING TO MANUFACTURER'S DIRECTIONS.
14. ALL MATERIALS TO BE IN ACCORDANCE WITH LOCAL DEPARTMENT OF TRANSPORTATION STANDARD SPECIFICATIONS RELATIVE TO MATERIAL, MIX, PLACEMENT AND WORKMANSHIP.
15. ALL SIDEWALKS SHALL COMPLY WITH ADA STANDARDS. MAXIMUM CROSS SLOPE OF 1:50 AND MAXIMUM LONGITUDINAL SLOPE OF 1:20.
16. CHAMFER ALL ENDS OF CURBS.

GRADING NOTES

1. SITE GRADING SHALL NOT PROCEED UNTIL EROSION CONTROL MEASURES HAVE BEEN INSTALLED.
2. THE EXCAVATING CONTRACTOR MUST TAKE PARTICULAR CARE WHEN EXCAVATING IN AND AROUND EXISTING UTILITY LINES AND EQUIPMENT. VERIFY COVER REQUIREMENTS BY UTILITY CONTRACTORS AND/OR UTILITY COMPANIES SO AS NOT TO CAUSE DAMAGE.
3. THE CONTRACTOR SHALL NOTIFY ALL UTILITY COMPANIES 72 HOURS BEFORE CONSTRUCTION IS TO START TO VERIFY IF ANY UTILITIES ARE PRESENT ON SITE. ALL VERIFICATIONS (LOCATION, SIZE AND DEPTH), SHALL BE MADE BY THE APPROPRIATE UTILITY COMPANIES. WHEN EXCAVATING AROUND OR OVER EXISTING UTILITIES, THE CONTRACTOR MUST NOTIFY THE UTILITY COMPANY SO A REPRESENTATIVE OF THAT UTILITY COMPANY CAN BE PRESENT TO INSTRUCT AND OBSERVE DURING CONSTRUCTION. SUBCONTRACTORS ARE RESPONSIBLE FOR LOCATIONS OF UTILITIES FOR THEIR OWN WORK.
4. CONTRACTOR TO ADJUST ALL EXISTING SURFACE INFRASTRUCTURE (HYDRANTS, VALVES, HANDHOLES, CASTINGS, IRRIGATION SYSTEM, UTILITY PEDESTALS, ETC.) AS REQUIRED TO MEET PROPOSED GRADE AT NO EXTRA COST.
5. AFTER STRIPPING TOPSOIL MATERIAL, PROOFROLL SHALL BE PERFORMED BY A LOADED TANDEM PNEUMATIC TIRE DUMP TRUCK MINIMUM GROSS VEHICLE WEIGHT OF 15 TONS. THE TIRES SHALL BE OPERATED AT INFLATION PRESSURES BETWEEN 70-80 PSI UNLESS OTHERWISE NOTED BY THE GEOTECHINICAL ENGINEER. THE TIRES SHALL BE INFLATED WITH AIR ONLY, NO LIQUID SHALL BE USED. THE PROOFROLL SHALL BE COMPLETED UNDER INSPECTION OF SOILS FIRM TO DETERMINE LOCATIONS OF ANY POCKETS OF UNSUITABLE MATERIAL. THE NECESSITY FOR SUBDRAINS AND/OR REMOVAL OF ANY UNSUITABLE MATERIAL WILL BE DETERMINED AT THE TIME OF CONSTRUCTION.
6. PROVIDE POSITIVE DRAINAGE WITHOUT PONDING IN ALL AREAS. AFTER INSTALLATION, CONTRACTOR TO TEST FOR, AND CORRECT, IF ANY, STANDING WATER CONDITIONS.
7. ALL PROPOSED SPOT ELEVATIONS OR CONTOURS ARE THE FINAL PAVEMENT AND FINAL GRADE ELEVATIONS. THIS INCLUDES UNPAVED, GRASS, OR LANDSCAPED AREAS, WHERE THE FINAL GRADE SHALL REPRESENT THE TOP OF MULCH, TOPSOIL, OR OTHER MATERIAL AS SPECIFIED.
8. SEE APPROPRIATE DETAILS TO DETERMINE SUBGRADE ELEVATIONS BELOW FINISH GRADE ELEVATIONS INDICATED. THIS INCLUDES ADJUSTING THE SUBGRADE ELEVATIONS IN UNPAVED AREAS TO ACCOUNT FOR THE ANTICIPATED TOPSOIL, MULCH, OR OTHER MATERIALS SPECIFIED.
9. TRENCHES FOR ALL STORM DRAIN LINES SHALL BE BACKFILLED COMPLETELY WITH SELECT GRANULAR MATERIAL IF WITHIN 5 FEET OF PAVEMENT.
10. CONTRACTOR TO PERPETUATE ANY SUBSURFACE DRAIN TILES OR PIPES ENCOUNTERED DURING CONSTRUCTION AND PROVIDE POSITIVE OUTLET TO DOWNSTREAM RECEIVING SYSTEM. CONTRACTOR TO NOTIFY THE ENGINEER WITH ANY CIRCUMSTANCES WHERE THIS CANNOT BE ACCOMPLISHED.
11. DUE TO SITE CONSTRAINTS, THE EARTHWORK FOR THE SITE AS DESIGNED MAY OR MAY NOT BALANCE. IT IS THE CONTRACTOR'S RESPONSIBILITY TO REVIEW THE EXISTING CONDITIONS AND INCLUDE IN THEIR BID ALL EARTHWORK COSTS INCLUDING IMPORTS AND/OR EXPORTS NECESSARY TO MAKE THE SITE BALANCE.
12. CONTRACTOR TO STABILIZE EXPOSED EARTH AS INDICATED BY THE STORMWATER POLLUTION PREVENTION PLAN OR GOVERNING AUTHORITY.

UTILITY NOTES

1. SITE UTILITIES SHALL NOT PROCEED UNTIL EROSION CONTROL MEASURES HAVE BEEN INSTALLED.
2. THE EXCAVATING CONTRACTOR MUST TAKE PARTICULAR CARE WHEN EXCAVATING IN AND AROUND EXISTING UTILITY LINES AND EQUIPMENT. VERIFY COVER REQUIREMENTS BY UTILITY CONTRACTORS AND/OR UTILITY COMPANIES SO AS NOT TO CAUSE DAMAGE.
3. THE CONTRACTOR SHALL NOTIFY ALL UTILITY COMPANIES 72 HOURS BEFORE CONSTRUCTION IS TO START TO VERIFY IF ANY UTILITIES ARE PRESENT ON SITE. ALL VERIFICATIONS (LOCATION, SIZE AND DEPTH), SHALL BE MADE BY THE APPROPRIATE UTILITY COMPANIES. WHEN EXCAVATING AROUND OR OVER EXISTING UTILITIES, THE CONTRACTOR MUST NOTIFY THE UTILITY COMPANY SO A REPRESENTATIVE OF THAT UTILITY COMPANY CAN BE PRESENT TO INSTRUCT AND OBSERVE DURING CONSTRUCTION. SUBCONTRACTORS ARE RESPONSIBLE FOR LOCATIONS OF UTILITIES FOR THEIR OWN WORK.
4. CONTRACTOR TO ADJUST ALL EXISTING SURFACE INFRASTRUCTURE (HYDRANTS, VALVES, HANDHOLES, CASTINGS, IRRIGATION SYSTEM, UTILITY PEDESTALS, ETC.) AS REQUIRED TO MEET PROPOSED GRADE.
5. ALL UTILITY MATERIALS AND INSTALLATION SHALL CONFORM TO LOCAL STANDARDS FOR EACH UTILITY AGENCY HAVING JURISDICTION.
6. TRENCHES FOR ALL UTILITY LINES SHALL BE BACKFILLED COMPLETELY WITH SELECT GRANULAR MATERIAL IF THE TOP OF THE TRENCH IS WITHIN 5 FEET OF PAVEMENT.
7. CONTRACTOR SHALL COORDINATE INSTALLATION OF UTILITIES AND CONDUITS TO AVOID CONFLICTS AND PROVIDE REQUIRED MINIMUM DEPTHS OF COVER. THE CONTRACTOR SHALL PROVIDE ANY ADDITIONAL BENDS WITH THRUST BLOCKS REQUIRED TO ASSURE PROPER INSTALLATION OF WATER MAINS AND LATERALS.
8. IN THE EVENT OF A CONFLICT BETWEEN WATER LINES AND STORM DRAINS, THE CONTRACTOR SHALL EITHER ADJUST THE WATER LINE DOWNWARD IN SUCH A MANNER SO THAT THE PIPE MANUFACTURER'S RECOMMENDATIONS ON PIPE DEFLECTION AND JOINT STRESS ARE NOT EXCEEDED OR THE CONTRACTOR SHALL PROVIDE APPROPRIATE BENDS AND CROSSINGS.
9. ALL COORDINATES AND DIMENSIONS ARE TO THE CENTERLINE OF UTILITIES AND STRUCTURES.
10. ALL PROPOSED STORM SEWER AND DRAINAGE APPURTENANCES SHALL BE IN CONFORMANCE WITH THE CITY OF FISHERS STORMWATER SPECIFICATIONS, LATEST EDITION. DISCREPANCIES BETWEEN THE PLANS AND THE STORMWATER SPECIFICATIONS SHALL NOT ALLEVIATE THE CONTRACTOR FROM ADHERING TO THE REQUIREMENTS AS SET FORTH IN THE STORMWATER SPECIFICATIONS.

EROSION CONTROL NOTES

1. CONTRACTOR SHALL INSTALL ALL PERIMETER SILT FENCE AND SEDIMENT CONTROL BARRIERS PRIOR TO CLEARING AND GRADING.
2. THIS PLAN SHALL NOT BE CONSIDERED ALL INCLUSIVE AS THE CONTRACTOR SHALL TAKE ALL NECESSARY PRECAUTIONS TO PREVENT SOIL SEDIMENT FROM LEAVING THE SITE.
3. ADDITIONAL EROSION AND SEDIMENT CONTROL MEASURES SHALL BE INSTALLED IF DEEMED NECESSARY BY ON SITE INSPECTION.
4. LAND ALTERATION WHICH STRIPS THE LAND OF VEGETATION, INCLUDING RE-GRADING, SHALL BE DONE IN A WAY THAT WILL MINIMIZE EROSION.
5. SEDIMENT LADEN WATER SHALL BE DETAINED BY EROSION CONTROL PRACTICES AS NEEDED TO MINIMIZE SEDIMENTATION IN RECEIVING WATER. NO STORM WATER SHALL BE DISCHARGED FROM THE SITE IN A MANNER THAT CAUSES EROSION AT THE POINT OF DISCHARGE.
6. WASTE AND UNUSED BUILDING MATERIALS SHALL NOT BE ALLOWED TO BE CARRIED FROM THE SITE BY STORM WATER RUNOFF. PROPER DISPOSAL OF ALL WASTE AND UNUSED BUILDING MATERIALS IS REQUIRED.
7. SEDIMENT BEING TRACKED ONTO PUBLIC OR PRIVATE ROADWAYS SHALL BE MINIMIZED. CLEARING OF ACCUMULATED SEDIMENT SHALL NOT INCLUDE FLUSHING WITH WATER. CLEARED SEDIMENT SHALL BE RETURNED TO THE SITE FOR DISPOSAL.
8. SOIL WHICH HAS ACCUMULATED NEXT TO EROSION CONTROL DEVICES SHALL BE COLLECTED AND RE-DISTRIBUTED ON SITE AFTER EACH RAINFALL EVENT, AND AT LEAST ONCE A WEEK.
9. IF INSTALLATION OF STORM DRAINAGE SYSTEM SHOULD BE INTERRUPTED BY WEATHER OR NIGHTFALL, THE PIPE ENDS SHALL BE COVERED WITH FILTER FABRIC.
10. THE SITE IS NOT LOCATED WITHIN ANY FLOODPLAIN, FLOODWAY OR FLOODWAY FRINGE AS INDICATED ON THE FLOOD INSURANCE RATE MAP (FIRM) FOR HAMILTON COUNTY, IN, MAP NUMBER 18057C0258G, DATED NOVEMBER 19, 2014.
11. SCHEDULE OF EARTHWORK ACTIVITIES:
    a. THE DURATION OF TIME WHICH AN AREA REMAINS EXPOSED SHALL BE KEPT TO A PRACTICAL MINIMUM. THE AREA SHALL BE STABILIZED AS SOON AS POSSIBLE. UN-VEGETATED AREAS THAT ARE SCHEDULED OR LIKELY TO BE LEFT INACTIVE FOR FIFTEEN (15) DAYS OR MORE MUST BE TEMPORARILY OR PERMANENTLY STABILIZED WITH MEASURES APPROPRIATE FOR THE SEASON TO MINIMIZE EROSION POTENTIAL. ALTERNATIVE MEASURES TO SITE STABILIZATION ARE ACCEPTABLE IF THE PROJECT SITE OWNER OR THEIR REPRESENTATIVE CAN DEMONSTRATE THEY HAVE IMPLEMENTED EROSION AND SEDIMENT CONTROL MEASURES ADEQUATE TO PREVENT SEDIMENT DISCHARGE.
    b. TOPSOIL REPLACEMENT SHALL TAKE PLACE FROM MARCH 1 TO OCTOBER 31. STOCKPILE TOPSOIL AT ALL OTHER TIMES OF THE YEAR. PERMANENT AND FINAL VEGETATION AND STRUCTURAL EROSION CONTROL DEVICES SHALL BE INSTALLED WITHIN SEVEN (7) DAYS AFTER FINAL GRADING OR AS SOON AS POSSIBLE.
    c. INSTALL INLET PROTECTION AROUND INLETS IMMEDIATELY UPON COMPLETION OF THE STRUCTURE. REMOVE INLET PROTECTION FOR PAVING OPERATION. REPLACE INLET PROTECTION AFTER PAVING IS COMPLETE. INLET PROTECTION SHALL REMAIN IN PLACE UNTIL VEGETATION IS ESTABLISHED ON SEEDED AREAS BEHIND THE CURB.
12. PRIOR TO COMPLETION OF THE PROJECT, CONTRACTOR SHALL CLEAN OUT ALL STORM DRAINAGE STRUCTURES AND RESTORE ALL DITCHES AND PONDS TO DESIGNED GRADES.
13. CONTRACTOR SHALL REMOVE ALL SEDIMENT CONTROL BARRIERS ONCE CONSTRUCTION IS COMPLETE AND THE SITE HAS BEEN STABILIZED.
14. ALL PROPOSED EROSION AND SEDIMENT CONTROL SHALL BE IN CONFORMANCE WITH THE CITY OF FISHERS STORMWATER SPECIFICATIONS, LATEST EDITION. DISCREPANCIES BETWEEN THE PLANS AND THE STORMWATER SPECIFICATIONS SHALL NOT ALLEVIATE THE CONTRACTOR FROM ADHERING TO THE REQUIREMENTS AS SET FORTH IN THE STORMWATER SPECIFICATIONS.
15. ADDITIONAL EROSION AND SEDIMENT CONTROL MEASURES MAY BE REQUIRED BY THE INSPECTOR.

UTILITY CONTACTS

UTILITY	COMPANY	CONTACT	PHONE NO.
COMMUNICATIONS	AT&T	BRIAN WENTE	(317) 252-4222
COMMUNICATIONS	BRIGHTSPEED	SONNI SMITH	(704) 314-2662
COMMUNICATIONS	CROWN CASTLE	fiber.dig@crowncastle.com	(888) 632-0931
COMMUNICATIONS	WINDSTREAM, LLC	locate.desk@windstream.com	(800) 289-1901
COMMUNICATIONS	EVERSTREAM, LLC (SOUTH)	utilityreview@everstream.net	
FIBER OPTICS	LUMEN	nationalrelo@centurylink.com	(877) 366-8344
FIBER OPTICS	METRO FIBERNET, LLC	811design@metronet.com	(812) 213-1050
GAS	CENTERPOINT ENERGY (NORTH)	JON EASTHAM	(765) 287-2119
WATER	CITIZENS WATER	BRAD HOSTETLER	(317) 927-4351
ELECTRIC	DUKE ENERGY	DON MCDUFFY	(317) 776-5320
STORM SEWER	CITY OF FISHERS	JASON ARMOUR	(317) 567-5056
SANITARY SEWER	CITY OF FISHERS	DAN TUCKER	(317) 595-3108

(REV. 01/29/26)

EXISTING LEGEND

ADA Parking	Right of Way Marker
Air Conditioner	Sanitary MH
Beehive Inlet	Sign
Bush	Spigot
Clean Out	Sprinkler Control Valve
Combination Pole	Stand Pipe
Curb Inlet	Stump
Down Spout	Telephone Cross Box
Drainage Inlet	Telephone Handhole
Drainage MH	Telephone Marker
Electric Box	Telephone MH
Electric Cross Box	Telephone Pedestal
Electric Handhole	Telephone Pole
Electric Meter Box	Temporary Bench Mark
Electric MH	Traffic MH
Fire Hydrant	Traffic Pedestal
Fire Plug	Traffic Pole
Fire Valve Shut Off	Transformer
Flag Pole	Tree
Gas Marker	Vent
Gas Meter	Water Meter
Gas Valve	Water MH
Guard Post	Water Valve
Guy Wire	Well
Hose Bib	Yard Light
Lid	-e- Buried Electric Line
Light Pole	-g- Buried Gas Line
Mail Box	-t- Buried Telephone Line
Manhole	-tr- Buried Traffic Line
Pine Tree	-w- Buried Water Line
Post	-ohe- Overhead Electric Line
Power Pole	-oht- Overhead Telephone Line
	-otr- Overhead Traffic Line

BENCHMARK DATA

(DATUM: NAVD 88)

BENCHMARK ELEVATIONS WERE ESTABLISHED FROM GPS OBSERVATIONS ON THE IDENTIFIED BASE STATION DESCRIBED WITHIN. AN NGS OPUS SOLUTION (FILE #TR1949262187316) WAS OBTAINED AND USED TO CONTROL THE PROJECT'S VERTICAL DATUM. THE ELEVATIONS WERE THEN TRANSFERRED TO THE SITE USING DIFFERENTIAL LEVELING.

TBM 109
CUT "X" S.W. BOLT LIGHT POLE BASE ±100' WEST OF S.W. CORNER OF HAMILTON SOUTHEASTERN HIGH SCHOOL TENNIS COURTS.
ELEV: 838.44'

TBM #50
CUT "X" S.W. BOLT LIGHT POLE, NORTH SIDE HSE HIGH SCHOOL S RING ROAD SW CORNER OF STADIUM.
ELEV: 839.39'

TBM #51
CUT "X" SOUTH EAST BOLT LIGHT POLE BASE WHERE OLIO FIELDS ENTRANCE ROAD TURNS BACK TO WEST AND BECOMES HSE HIGH SCHOOL RING ROAD.
ELEV: 843.25'

TBM #52
CUT "X" WEST SIDE 4TH LIGHT POLE BASE COUTH OF 126TH STREET, EAST SIDE OF OLIO FIELDS DRIVE.
ELEV: 847.45'

TBM #53
CUT "X" WEST SIDE LIGHT POLE BASE 126TH STREET, 25' EAST OF ENTRANCE TO OLIO FIELDS.
ELEV: 848.68'

TBM #54
CUT "X" TOP OF RIGHT-OF-WAY MONUMENT, SOUTH SIDE OF 126TH STREET AND 100'± EAST OF MIDDLE ENTRANCE TO HSE HIGH SCHOOL.
ELEV: 843.69'

TBM #55
CUT "X" NORTH NORTHEAST BOLT FIRE HYDRANT, SOUTH SIDE 126TH STREET, 50' WEST OF WEST ENTRANCE TO HSE HIGH SCHOOL.
ELEV: 839.31'

TBM #56
CUT "X" NORTHWEST BOLT FIRE HYDRANT, EAST SIDE OF OLIO ROAD, SOUTH SIDE NORTH ENTRANCE TO HSE HIGH SCHOOL.
ELEV: 839.49'

TBM #57
CUT "X" SOUTHWEST BOLT STRAIN POLE, EAST SIDE OF OLIO ROAD, 60' NORTH OF MIDDLE ENTRANCE TO HSE HIGH SCHOOL.
ELEV: 837.84'

TBM #58
CUT "X" WEST NORTHWEST BOLT FIRE HYDRANT, EAST SIDE OF OLIO ROAD AT SOUTH ENTRANCE TO HSE HIGH SCHOOL.
ELEV: 834.37'

TBM #HSE 12
HSE DISK SET IN CONCRETE ON THE SOUTH SIDE OF THE NORTH ENTRANCE TO FALL CREEK ELEMENTARY SCHOOL.
ELEV: 836.52'

GEOTECHNICAL & ENVIRONMENTAL NOTE:

1. CONTRACTOR SHALL REFER TO THE GEOTECHNICAL ENGINEERING REPORT FOR INFORMATION ABOUT SOIL CONDITIONS.
2. CONTRACTOR SHALL REFER TO THE ENVIRONMENTAL REPORT FOR INFORMATION ON ENVIRONMENTAL FINDINGS ON THE SITE.

GENERAL NOTES:

1. CONTRACTOR SHALL PROTECT AND NOT DESTROY THE PROPERTY CORNER MONUMENTS DURING CONSTRUCTION.
2. CONTRACTOR TO VERIFY LOCATION, SIZE AND DEPTH OF EXISTING UTILITIES PRIOR TO COMMENCING ANY CONSTRUCTION. CONTACT ENGINEER IF VARIATION EXISTS.

!! CAUTION !!

THE LOCATIONS OF ALL EXISTING UNDERGROUND UTILITIES SHOWN ON THIS PLAN ARE BASED UPON ABOVE GROUND EVIDENCE (including, but not limited to, manholes, inlets, valves, and marks made upon the ground by others) AND ARE SPECULATIVE IN NATURE. THERE MAY ALSO BE OTHER EXISTING UNDERGROUND UTILITIES FOR WHICH THERE IS NO ABOVE GROUND EVIDENCE OR FOR WHICH NO ABOVE GROUND EVIDENCE WAS OBSERVED. THE EXACT LOCATIONS OF SAID EXISTING UNDERGROUND UTILITIES SHALL BE VERIFIED BY THE CONTRACTOR PRIOR TO ANY AND ALL CONSTRUCTION.

CALL TOLL FREE
"811" OR 1-800-382-5544
- INDIANA UNDERGROUND -

HAMILTON SOUTHEASTERN SCHOOLS 13485 CUMBERLAND ROAD FISHERS, IN 46038

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5825 Lawton Loop E. Dr.
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HAMILTON SOUTHEASTERN HIGH SCHOOL BUS PARKING LOT

12499 Olio Road
Fishers, IN 46037

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IN SUBMITTING BIDS IN RELIANCE ON THESE PLANS THE CONTRACTOR ASSUMES ALL RISKS OF ADDITIONAL COSTS OF REVISIONS DUE TO REQUIREMENTS OF THE OWNER OR GOVERNMENTAL AUTHORITIES AND MATERIAL REVISIONS IN THE COURSE OF COMPLETING THE FINAL DESIGN.

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GENERAL NOTES

C002

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EDIT DATE: 1/29/2026
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EARTHWORK:

A. GENERAL

1. EARTHWORK INCLUDES CLEARING, GRUBBING, SUBGRADE PREPARATION, REMOVAL OF TREES AND VEGETATION (INCLUDING STUMPS), PROTECTION OF TREES TO REMAIN, STRIPPING AND STORAGE OF TOPSOIL, FILL COMPACTION AND ROUGH GRADING OF ENTIRE SITE AS INDICATED ON DRAWINGS.
2. THE CONTRACTOR SHALL NOTIFY ENGINEER IN WRITING OF ANY CHANGES, ERRORS, OR OMISSIONS FOUND ON THE PLANS OR IN THE FIELD, BEFORE WORK IS STARTED OR RESUMED.
3. CONTRACTOR SHALL PROVIDE AND PLACE ANY ADDITIONAL FILL MATERIAL FROM OFF THE SITE AS MAY BE NECESSARY TO PRODUCE THE GRADES REQUIRED AS SHOWN ON THE DRAWINGS. FILL OBTAINED FROM OFF SITE MUST BE SUITABLE SOIL AS DEFINED IN THE SPECIFICATIONS OR AS OTHERWISE APPROVED BY OWNER.
4. THE CONTRACTOR SHALL ACCEPT THE SITE IN ITS CURRENT STATE AND SHALL REMOVE ALL TRASH, RUBBISH, AND DEBRIS FROM THE SITE PRIOR TO STARTING EXCAVATION.
5. EXCEPT FOR STRIPPED TOPSOIL AND OTHER MATERIALS INDICATED TO BE STOCKPILED OR OTHERWISE REMAIN OWNER'S PROPERTY, CLEARED MATERIALS SHALL BECOME CONTRACTOR'S PROPERTY AND SHALL BE REMOVED FROM PROJECT SITE.
6. DO NOT CLOSE OR OBSTRUCT STREETS, WALKS, DRIVES, FACILITIES, ETC. WITHOUT OWNER PERMISSION OR AUTHORITY HAVING JURISDICTION.
7. ALL EROSION CONTROL MEASURES SHALL BE IN PLACE PRIOR TO COMMENCING EARTHWORK AND CLEARING OPERATIONS. EROSION CONTROL MEASURES SHOULD BE PROTECTED AND MAINTAINED THROUGHOUT CONSTRUCTION.
8. CONTRACTOR SHALL CAREFULLY MAINTAIN ALL BENCHMARKS, MONUMENTS, AND OTHER REFERENCE POINTS. IF DISTURBED, CONTRACTOR SHALL ENGAGE LICENSED LAND SURVEY FOR REPLACEMENT OF REFERENCE POINTS.
9. WHERE THESE SPECIFICATIONS CONFLICT WITH CITY OF FISHERS STANDARDS, THE STANDARDS OF THE JURISDICTION HAVING AUTHORITY SHALL PREVAIL.

B. MATERIALS

1. CONTRACTOR TO PROVIDE BORROW SOIL MATERIALS WHEN SUFFICIENT SATISFACTORY SOIL MATERIALS ARE NOT AVAILABLE FROM EXCAVATIONS.
2. SATISFACTORY (OR SUITABLE) SOILS: SOIL CLASSIFICATION GROUPS GW, GP, GM, SW, SP, AND SM ACCORDING TO ASTM D2487, OR A COMBINATION OF THESE GROUPS; FREE OF ROCK OR GRAVEL LARGER THAN 3 INCHES IN ANY DIMENSION, DEBRIS, WASTE, FROZEN MATERIALS, VEGETATION AND OTHER DELETERIOUS MATERIAL.
3. UNSATISFACTORY (OR UNSUITABLE) SOILS: SOIL CLASSIFICATION GROUPS GC, SC, CL, ML, OL, CH, MH, OH, AND PT ACCORDING TO ASTM D 2487, OR A COMBINATION OF THESE GROUPS. UNSATISFACTORY SOILS ALSO INCLUDES SATISFACTORY SOILS NOT MAINTAINED WITHIN 2 PERCENT OF OPTIMUM MOISTURE CONTENT AT TIME OF COMPACTION.

C. EXECUTION

1. CONTRACTOR SHALL LOCATE, IDENTIFY, DISCONNECT, AND SEAL OR CAP UTILITIES INDICATED TO BE REMOVED OR ABANDONED IN PLACE. DO NOT INTERRUPT UTILITIES SERVING FACILITIES OCCUPIED BY OWNER UNLESS PERMISSION IS GRANTED. NOTIFY OWNER AT LEAST TWO DAYS IN ADVANCE OF PROPOSED UTILITY INTERRUPTIONS.
2. REMOVE OBSTRUCTIONS, TREES, SHRUBS, AND OTHER VEGETATION AS REQUIRED FOR NEW CONSTRUCTION. STRIP TOPSOIL TO DEPTH AS REQUIRED IN THE FIELD TO PREVENT INTERMINGLING WITH UNDERLYING SUBSOIL OR OTHER WASTE MATERIALS. STOCKPILE TOPSOIL AWAY FROM EXCAVATIONS WITHOUT INTERMIXING WITH SUBSOIL AND GRADE STOCKPILES TO DRAIN SURFACE WATER.
3. REMOVE EXISTING ABOVE AND BELOW-GRADE IMPROVEMENTS AS INDICATED AND NECESSARY TO FACILITATE NEW CONSTRUCTION.
4. PROTECT SUBGRADES AND FOUNDATION SOILS FROM FREEZING TEMPERATURES, FROST, AND PONDING WATER.
5. EXCAVATE TO INDICATED ELEVATIONS AND DIMENSIONS FOR ALL STRUCTURES, WALKS, PAVEMENTS, AND UTILITY TRENCHES.
6. CONTRACTOR SHALL FURNISH AND OPERATE ALL DEWATERING MEASURES REQUIRED TO FACILITATE NEW CONSTRUCTION AND IN ACCORDANCE WITH ALL LOCAL, STATE, AND FEDERAL REGULATIONS.
6. PROOF ROLL SUBGRADE BELOW BUILDING PAVEMENTS WITH A PNEUMATIC-TIRED DUMP TRUCK TO IDENTIFY SOFT POCKETS AND AREAS OF EXCESS YIELDING. DO NOT PROOF ROLL WET OR SATURATED SUBGRADES. RECONSTRUCT SUBGRADES DAMAGED BY FREEZING TEMPERATURES, FROST, RAIN, ACCUMULATED WATER, OR CONSTRUCTION ACTIVITIES AS DIRECTED BY ENGINEER OR OWNER REPRESENTATIVE, WITHOUT ADDITIONAL COMPENSATION.
7. BACKFILL ALL UTILITY TRENCHES BENEATH PAVEMENT (AND WITHIN 5') WITH GRANULAR MATERIAL.
8. SOIL FILL: USE SATISFACTORY SOIL MATERIAL UNDER ALL WALKS, PAVEMENTS, STEPS, RAMPS, BUILDING SLABS, FOOTINGS, AND FOUNDATIONS.
9. UNIFORMLY MOISTEN OR AERATE SUBGRADE AND EACH SUBSEQUENT FILL OR BACKFILL SOIL LAYER BEFORE COMPACTION TO WITHIN 2 PERCENT OF OPTIMUM MOISTURE CONTENT. DO NOT PLACE BACKFILL OR FILL SOIL MATERIAL ON SURFACES THAT ARE MUDDY, FROZEN, OR CONTAIN FROST OR ICE. REMOVE AND REPLACE, OR SCARIFY AND AIR DRY, OTHERWISE SATISFACTORY SOIL MATERIAL THAT EXCEEDS OPTIMUM MOISTURE CONTENT BY 2 PERCENT AND IS TOO WET TO COMPACT TO SPECIFIED UNIT WEIGHT.
10. COMPACTION OF SOIL BACKFILLS AND FILLS ARE TO BE IN ACCORDANCE WITH GEOTECHNICAL RECOMMENDATIONS. WHERE NO GEOTECHNICAL REPORT EXISTS, COMPACT ALL FILL MATERIAL BELOW STRUCTURES, PAVEMENTS, WALKS, UTILITY TRENCHES AND STEPS (AND WITHIN 5 FEET OF SAID AREAS) TO 98 PERCENT OF THE MAXIMUM DRY UNIT WEIGHT ACCORDING TO ASTM D-698 (STANDARD PROCTOR DENSITY) OR 95 PERCT OF THE MAXIMUM DRY UNIT WEIGHT ACCORDING TO ASTM D-1557 (MODIFIED PROCTOR DENSITY). COMPACT ALL FILL MATERIALS BELOW TURF OR UNPAVED AREAS TO 90 PERCENT OF THE MAXIMUM DRY UNIT WEIGHT ACCORDING TO ASTM D-698 (STANDARD PROCTOR DENSITY). ALL FILL MATERIALS TO BE COMPACTED IN MAXIMUM 8-INCH LIFTS.
11. SITE ROUGH GRADING: SLOPE GRADES TO DIRECT WATER AWAY FROM BUILDINGS AND TO PREVENT PONDING. FINISH SUBGRADES TO REQUIRED ELEVATIONS WITHIN THE FOLLOWING TOLERANCES:
    i. TURF OR UNPAVED AREAS: PLUS OR MINUS 1 INCH
    ii. WALKS: PLUS OR MINUS 1/2 INCH
    iii. PAVEMENTS: PLUS OR MINUS 1/2 INCH
    iv. INSIDE BUILDING LINES: FINISH SUBGRADE TO A TOLERANCE OF ½ INCH WHEN TESTED WITH A 10-FOOT STRAIGHTEDGE.
12. QUALITY CONTROL: QUALIFIED GEOTECHNICAL ENGINEER TO BE ENGAGED AS TESTING AGENCY AS DIRECTED BY OWNER.
13. REPAIR AND REESTABLISH GRADES TO SPECIFIED TOLERANCES WHERE COMPLETED OR PARTIALLY COMPLETED SURFACES BECOME ERODED, RUTTED, SETTLED, OR WHERE THEY LOSE COMPACTION DUE TO SUBSEQUENT CONSTRUCTION OPERATIONS OR WEATHER

STORM SEWER:

A. GENERAL

1. STORM SEWER INCLUDES ALL PIPES, FITTINGS, MANHOLES, CLEANOUTS, TRANSITION COUPLINGS, CATCH BASINS, INLETS, END SECTIONS, AND OUTLETS.
2. THE CONTRACTOR SHALL NOTIFY ENGINEER IN WRITING OF ANY CHANGES, ERRORS, OR OMISSIONS FOUND ON THE PLANS OR IN THE FIELD, BEFORE WORK IS STARTED OR RESUMED.
3. CONTRACTOR SHALL LOCATE, IDENTIFY, DISCONNECT, AND SEAL OR CAP UTILITIES INDICATED TO BE REMOVED OR ABANDONED IN PLACE. DO NOT INTERRUPT UTILITIES SERVING FACILITIES OCCUPIED BY OWNER UNLESS PERMISSION IS GRANTED. NOTIFY OWNER AT LEAST TWO DAYS IN ADVANCE OF PROPOSED UTILITY INTERRUPTIONS.

B. PRODUCTS

1. PE PIPE AND FITTINGS: PE DRAINAGE PIPE AND FITTINGS NP 3 TO NPS 10, AASHTO M 252M, TYPE S, WITH SMOOTH WATERWAY FOR COUPLING JOINTS. PE DRAINAGE PIPE AND FITTINGS NP 12 TO NPS 60, AASHTO M 294M, TYPE S, WITH SMOOTH WATERWAY FOR COUPLING JOINTS.
2. PVC PIPE AND FITTINGS: PIPE: ASTM F 949, PVC, OR ASTM 0-3034, F-1336, F-679, CORRUGATED PIPE WITH BELL AND SPIGOT ENDS FOR GASKETED JOINTS. FITTINGS: ASTM 949, PVC MOLDED OR FABRICATED, SOCKET TYPE. GASKETS: ASTM F 477, ELASTOMERIC SEALS.
3. CONCRETE PIPE AND FITTINGS: REINFORCED CONCRETE SEWER PIPE AND FITTINGS MEETING ASTM C 76 WITH BELL AND SPIGOT ENDS AND GASKETED JOINTS WITH ASTM C 443 RUBBER GASKETS. PIPE TO BE CLASS III UNLESS OTHERWISE INDICATED ON PLANS.
4. COMPLY WITH ASTM C 1173, ELASTOMERIC SLEEVE-TYPE REDUCING OR TRANSITION COUPLING, FOR JOINTING UNDERGROUND NON-PRESSURE PIPING. INCLUDE ENDS OF SAME SIZES AS PIPING TO BE JOINED, AND CORROSION-RESISTANT METAL TENSION BAND AND TIGHTENING MECHANISM ON EACH END.
5. CLEANOUTS: CAST IRON CLEANOUTS: ASME A112.36.2M ROUND, GRAY-IRON HOUSING WITH CLAMPING DEVICE AND ROUND, SECURED, SCORIATED, GRAY-IRON COVER. HEAVY DUTY TOP LOADING IS REQUIRED. PLASTIC CLEANOUTS: PVC BODY WITH PVC THREADED PLUG.
6. MANHOLES AND CATCH BASINS: STANDARD REINFORCED PRECAST CONCRETE MANHOLES MEETING ASTM C 478. MINIMUM 48-INCH DIAMETER UNLESS OTHERWISE INDICATED. BASE SECTION TO BE MINIMUM 6-INCH THICKNESS AND 4-INCH THICKNESS FOR WALLS AND BASE RISER SECTION. REINFORCED CONCRETE GRADE RINGS, 6-9 INCH TOTAL THICKNESS, TO MATCH DIAMETER OF MANHOLE FRAME AND COVER. MANHOLE FRAMES AND COVERS AS INDICATED ON DRAWINGS. PIPE CONNECTORS SHOULD BE PROVIDED TO MEET ASTM C293, RESILIENT, OF SIZE REQUIRED, FOR EACH PIPE CONNECTING TO THE BASE SECTION.
7. CONCRETE: CAST-IN-PLACE CONCRETE ACCORDING TO ACI 318 AND ACI 350/350R AND IN ACCORDANCE WITH THE FOLLOWING:
    i. CEMENT: ASTM C 150, TYPE III
    ii. FINE AGGREGATE: ASTM C 33, SAND
    iii. COARSE AGGREGATE: ASTM C 33, CRUSHED GRAVEL
    iv. WATER: POTABLE
8. PORTLAND CEMENT DESIGN MIX: 4,000 PSI MINIMUM WITH 0.45 MAXIMUM WATER/CEMENTIOUS MATERIALS RATIO. REINFORCING FABRIC TO MEET ASTM A 185/A 185M, STEEL, WELDED WIRE FABRIC, PLAIN. REINFORCING BARS TO MEET ASTM A 615/A 615M, GRADE 60 DEFORMED STEEL.
9. MANHOLE CHANNELS TO BE FORMED WITH AN INVERT SLOPE OF 2 PERCENT THROUGH THE MANHOLE AND BENCHES AT 4 PERCENT, SLOPED TO DRAIN INTO CHANNEL.
10. INLETS: PROVIDE INLETS WITH HEAVY DUTY CASTINGS AS SHOWN ON DRAWINGS.
11. OUTLETS: CONCRETE END SECTION SHOULD BE PROVIDED AT ALL PIPE ENDS AND AS INDICATED ON DRAWINGS. RIP RAP APRONS TO BE INSTALLED AT ALL END SECTIONS TO DIMENSIONS INDICATED. AVERAGE RIP-RAP SIZE TO BE 6-INCHES UNLESS OTHERWISE INDICATED ON DRAWINGS.

STORM SEWER (CONT.):

C. EXECUTION

1. INSTALL PIPING BEGINNING AT LOW POINT, TRUE TO GRADES AND ALIGNMENT INDICATED WITH UNBROKEN CONTINUITY OF INVERT. PLACE BELL ENDS OF PIPING FACING UPSTREAM. INSTALL GASKETS, SEALS, SLEEVES, AND OTHER COUPLINGS ACCORDING TO MANUFACTURERS WRITTEN INSTRUCTIONS.
2. WHEN INSTALLING PIPE UNDER STREETS OR OTHER OBSTRUCTIONS THAT CANNOT BE DISTURBED, USE PIPE-JACKING PROCESS OF MICRO-TUNNELING.
3. INSTALL PIPING PITCHED DOWN IN DIRECTION OF FLOW. INSTALL PE CORRUGATED SEWER PIPING IN ACCORDANCE WITH ASTM D 2231. INSTALL PVC PIPING ACCORDING TO ASTM D 2321 AND ASTM F 1668. INSTALL REINFORCED CONCRETE SEWER PIPING IN ACCORDANCE WITH ASTM C 1479 AND ACPA'S "CONCRETE PIPE INSTALLATION MANUAL."
4. PIPE JOINT CONSTRUCTION: JOIN CORRUGATED PE PIPE ACCORDING TO ASTM D 3212 FOR PUSH ON JOINTS. JOIN PVC CORRUGATED SEWER PIPING IN ACCORDANCE WITH ASTM D 2321 FOR ELASTOMERIC-SEAL JOINTS. JOIN REINFORCED CONCRETE PIPE ACCORDING TO ACPA'S "CONCRETE PIPE INSTALLATION MANUAL" FOR RUBBER-GASKETED JOINTS. JOIN DISSIMILAR PIPE MATERIALS WITH NON-PRESSURE TYPE FLEXIBLE COUPLINGS.
5. CONTRACTOR TO INSPECT INTERIOR OF PIPING AND MANHOLES FOR DEFECTS. DEFECTS REQUIRING CORRECTION INCLUDE THE FOLLOWING:
    i. ALIGNMENT: LESS THAN FULL DIAMETER OF INSIDE OF PIPE IS VISIBLE BETWEEN STRUCTURES.
    ii. DEFLECTION: FLEXIBLE PIPING WITH DEFLECTION THAT PREVENTS PASSAGE OF BALL OR CYLINDER OF SIZE NOT LESS THAN 92.5 PERCENT OF PIPING DIAMETER.
    iii. DAMAGE: CRUSHED, BROKEN, CRACKED, OR OTHERWISE DAMAGED PIPING.
    iv. INFILTRATION: WATER LEAKAGE INTO PIPING.
    v. EXFILTRATION: WATER LEAKAGE FROM OR AROUND PIPING
        REPLACE DEFECTIVE PIPING USING NEW MATERIALS, AND REPEAT INSPECTION UNTIL DEFECTS ARE WITHIN ALLOWANCES SPECIFIED.
6. TEST NEW PIPING SYSTEMS, AND PARTS OF EXISTING SYSTEMS THAT HAVE BEEN ALTERED, EXTENDED, REPAIRED, FOR LEAKS AND DEFECTS. FOR GRAVITY FLOW STORM DRAINAGE PIPING: TEST ACCORDING TO REQUIREMENTS OF AUTHORITIES HAVING JURISDICTION, UNI-B-6, AND THE FOLLOWING:
    i. EXCEPTION: PIPING WITH SOIL-TIGHT JOINTS UNLESS REQUIRED BY AUTHORITIES HAVING JURISDICTION.
    ii. OPTION: TEST PLASTIC PIPING ACCORDING TO ASTM F 1417
    iii. OPTION: TEST CONCRETE PIPING ACCORDING TO ASTM C 924
7. SUBMIT TESTING REPORTS AS REQUIRED BY OWNER OR AUTHORITY HAVING JURISDICTION.

ASPHALT PAVING:

A. GENERAL

1. THE CONTRACTOR SHALL NOTIFY ENGINEER IN WRITING OF ANY CHANGES, ERRORS, OR OMISSIONS FOUND ON THE PLANS OR IN THE FIELD, BEFORE WORK IS STARTED OR RESUMED.
2. USE MATERIALS AND GRADATIONS THAT HAVE PERFORMED SATISFACTORILY IN PREVIOUS INSTALLATIONS.

B. PRODUCTS

1. AGGREGATES
    i. COURSE AGGREGATE: ASTM D 692/D92M, SOUND; ANGULAR CRUSHED STONE, CRUSHED GRAVEL, OR CURED, CRUSHED BLAST-FURNANCE SLAG.
    ii. FINE AGGREGATE: ASTM D 1073 OR AASHTO M 29, SHARP-EDGED NATURAL SAND OR SAND PREPARED FROM STONE, GRAVEL, CURED BLAST-FURNANCE SLAG, OR COMBINATIONS THEREOF.
        a. FOR HOT-MIX ASPHALT, LIMIT NATURAL SAND TO A MAXIMUM OF 20 PERCENT BY WEIGHT OF THE TOTAL AGGREGATE MASS.
    iii. MINERAL FILLER: ASTM D 242 OR AASHTO M 17, ROCK OR SLAG DUST, HYDRAULIC CEMENT, OR OTHER INERT MATERIAL.
2. ASPHALT MATERIALS
    i. ASPHALT BINDER: AASHTO M 320, PG 64-22 (OR AS OTHERWISE RECOMMENDED BY INDOT STANDARDS)
    ii. ASPHALT CEMENT: PER INDOT STANDARDS
    iii. CUTBACK PRIME COAT: PER INDOT STANDARDS
    iv. EMULSIFIED ASPHALT PRIME COAT: PER INDOT STANDARDS
    v. TACK COAT: PER INDOT STANDARDS
    vi. WATER: POTABLE.
    vii. UNDERSEALING ASPHALT: ASTM D 3141; PUMPING CONSISTENCY.
3. AUXILIARY MATERIALS
    i. RECYCLED MATERIALS FOR HOT-MIX ASPHALT MIXES: RECLAIMED ASPHALT PAVEMENT; RECLAIMED, UNBOUND AGGREGATE BASE MATERIAL; AND RECYCLED ASPHALT SHINGLES FROM SOURCES AND GRADATIONS THAT HAVE PERFORMED SATISFACTORILY IN PREVIOUS INSTALLATIONS, EQUAL TO PERFORMANCE OF REQUIRED HOT-MIX ASPHALT PAVING PRODUCED FROM ALL NEW MATERIALS.
    ii. HERBICIDE: COMMERCIAL CHEMICAL FOR WEED CONTROL, REGISTERED BY THE EPA, AND NOT CLASSIFIED AS "RESTRICTED USE" FOR LOCATIONS AND CONDITIONS OF APPLICATION. PROVIDE IN GRANULAR, LIQUID, OR WETTABLE POWDER FORM.
    iii. SAND: ASTM D 1073 OR AASHTO M 29, GRADE NO. 2 OR NO. 3.
4. MIXES
    i. RECYCLED CONTENT OF HOT-MIX ASPHALT: PER INDOT STANDARDS
    ii. HOT-MIX ASPHALT: DENSE-GRADED, HOT-LAID, HOT-MIX ASPHALT PLANT MIXES
    APPROVED BY INDOT AND COMPLYING WITH THE FOLLOWING REQUIREMENTS:
        a. PROVIDE MIXES WITH A HISTORY OF SATISFACTORY PERFORMANCE IN GEOGRAPHICAL AREA WHERE PROJECT IS LOCATED.
        b. BASE COURSE: 25.0 MM OR 19.0 MM (AS INDICATED ON DRAWINGS)
        c. SURFACE COURSE: 9.5MM

C. EXECUTION

1. EXAMINATION
    i. VERIFY THAT SUBGRADE IS DRY AND IN SUITABLE CONDITION TO BEGIN PAVING.
    ii. PROOF-ROLL SUBGRADE BELOW PAVEMENTS WITH HEAVY PNEUMATIC-TIRED EQUIPMENT TO IDENTIFY SOFT POCKETS AND AREAS OF EXCESS YIELDING. DO NOT PROOF-ROLL WET OR SATURATED SUBGRADES. PROOFROL TO BE PERFORMED BY QUALIFIED GEOTECHNICAL ENGINEER.
        a. COMPLETELY PROOF-ROLL SUBGRADE IN ONE DIRECTION LIMIT VEHICLE SPEED TO 3 MPH.
        b. PROOF ROLL WITH A LOADED 10-WHEEL, TANDEM-AXLE DUMP TRUCK WEIGHING NOT LESS THAN 15 TONS
        c. EXCAVATE SOFT SPOTS, UNSATISFACTORY SOILS, AND AREAS OF EXCESSIVE PUMPING OR RUTTING, AS DETERMINED BY ENGINEER, AND REPLACE WITH COMPACTED BACKFILL OR FILL AS DIRECTED.
        d. PROCEED WITH PAVING ONLY AFTER UNSATISFACTORY CONDITIONS HAVE BEEN CORRECTED.
2. SURFACE PREPARATION
    i. GENERAL: IMMEDIATELY BEFORE PLACING ASPHALT MATERIALS, REMOVE LOOSE AND DELETERIOUS MATERIAL FROM SUBSTRATE SURFACES. ENSURE THAT PREPARED SUBGRADE IS READY TO RECEIVE PAVING.
    ii. HERBICIDE TREATMENT: APPLY HERBICIDE ACCORDING TO MANUFACTURER'S RECOMMENDED RATES AND WRITTEN APPLICATION INSTRUCTIONS. APPLY TO DRY, PREPARED SUBGRADE OR SURFACE OF COMPACTED-AGGREGATE BASE BEFORE APPLYING PAVING MATERIALS.
        a. MIX HERBICIDE WITH PRIME COAT IF FORMULATED BY MANUFACTURER FOR THAT PURPOSE2
    iii. CUTBACK PRIME COAT: APPLY UNIFORMLY OVER SURFACE OF COMPACTED UNBOUND-AGGREGATE BASE COURSE AT A RATE OF 0.15 TO 0.50 GAL./SQ. YD. APPLY ENOUGH MATERIAL TO PENETRATE AND SEAL, BUT NOT FLOOD, SURFACE. ALLOW PRIME COAT TO CURE.
        a. IF PRIME COAT IS NOT ENTIRELY ABSORBED WITHIN 24 HOURS AFTER APPLICATION, SPREAD SAND OVER SURFACE TO BLOT EXCESS ASPHALT. USE ENOUGH SAND TO PREVENT PICKUP UNDER TRAFFIC. REMOVE LOOSE SAND BY SWEEPING BEFORE PAVEMENT IS PLACED AND AFTER SOLAR OR HAND EVAPORATED.
        b. PROTECT PRIMED SUBSTRATE FROM DAMAGE UNTIL READY TO RECEIVE PAVING.
    iv. TACK COAT: APPLY UNIFORMLY TO SURFACES OF EXISTING PAVEMENT AT A RATE OF 0.05 TO 0.15 GAL./SQ. YD.
        a. ALLOW TACK COAT TO CURE UNDISTURBED BEFORE APPLYING HOT-MIX ASPHALT PAVING.
        b. AVOID SMEARING OR STAINING ADJOINING SURFACES, APPURTENANCES, AND SURROUNDINGS. REMOVE SPILLAGES AND CLEAN AFFECTED SURFACES.
3. PLACING HOT-MIX ASPHALT
    i. MACHINE PLACE HOT-MIX ASPHALT ON PREPARED SURFACE, SPREAD UNIFORMLY, AND STRIKE OFF. PLACE ASPHALT MIX BY HAND IN AREAS INACCESSIBLE TO EQUIPMENT IN A MANNER THAT PREVENTS SEGREGATION OF MIX. PLACE EACH COURSE TO REQUIRED GRADE, CROSS SECTION, AND THICKNESS WHEN COMPACTED.
        a. PLACE HOT-MIX ASPHALT BASE COURSE IN NUMBER OF LIFTS AND THICKNESSES INDICATED.
        b. PLACE HOT-MIX ASPHALT SURFACE COURSE IN SINGLE LIFT.
        c. SPREAD MIX AT A MINIMUM TEMPERATURE OF 250 DEG F
        d. BEGIN APPLYING MIX ALONG CENTERLINE OF CROWN FOR CROWNED SECTIONS AND ON HIGH SIDE OF ONE-WAY SLOPES UNLESS OTHERWISE INDICATED.
        e. REGULATE PAVER MACHINE SPEED TO OBTAIN SMOOTH, CONTINUOUS SURFACE FREE OF PULLS AND TEARS IN ASPHALT-PAVING MAT.
    ii. PLACE PAVING IN CONSECUTIVE STRIPS NOT LESS THAN 10 FEET WIDE UNLESS INFILL EDGE STRIPS OF A LESSER WIDTH ARE REQUIRED.
        a. AFTER FIRST STRIP HAS BEEN PLACED AND ROLLED, PLACE SUCCEEDING STRIPS AND EXTEND ROLLING TO OVERLAP PREVIOUS STRIPS. OVERLAP MIX PLACEMENT ABOUT 1 TO 1-1/2 INCHES FROM STRIP TO STRIP TO ENSURE PROPER COMPACTION OF MIX ALONG LONGITUDINAL JOINTS.
        b. COMPLETE A SECTION OF ASPHALT BASE COURSE BEFORE PLACING ASPHALT SURFACE COURSE.
    iii. PROMPTLY CORRECT SURFACE IRREGULARITIES IN PAVING COURSE BEHIND PAVER. USE SUITABLE HAND TOOLS TO REMOVE EXCESS MATERIAL FORMING HIGH SPOTS. FILL DEPRESSIONS WITH HOT-MIX ASPHALT TO PREVENT SEGREGATION OF MIX; USE SUITABLE HAND TOOLS TO SMOOTH SURFACE.
4. JOINTS
    i. CONSTRUCT JOINTS TO ENSURE A CONTINUOUS BOND BETWEEN ADJOINING PAVING SECTIONS. CONSTRUCT JOINTS FREE OF DEPRESSIONS, WITH SAME TEXTURE AND SMOOTHNESS AS OTHER SECTIONS OF HOT-MIX ASPHALT COURSE.
        a. CLEAN CONTACT SURFACES AND APPLY TACK COAT TO JOINTS.
        b. OFFSET LONGITUDINAL JOINTS, IN SUCCESSIVE COURSES, A MINIMUM OF 6 INCHES
        c. OFFSET TRANSVERSE JOINTS, IN SUCCESSIVE COURSES, A MINIMUM OF 24 INCHES
        d. CONSTRUCT TRANSVERSE JOINTS AT EACH POINT WHERE PAVER ENDS A DAY'S WORK AND RESUMES WORK AT A SUBSEQUENT TIME. CONSTRUCT THESE JOINTS USING EITHER "BULKHEAD" OR "PAPERED" METHOD ACCORDING TO AI MS-22, FOR BOTH "ENDING A LANE" AND "RESUMPTION OF PAVING OPERATIONS."
        e. COMPACT JOINTS AS SOON AS HOT-MIX ASPHALT WILL BEAR ROLLER WEIGHT WITHOUT EXCESSIVE DISPLACEMENT.
        f. COMPACT ASPHALT AT JOINTS TO A DENSITY WITHIN 2 PERCENT OF SPECIFIED COURSE DENSITY.

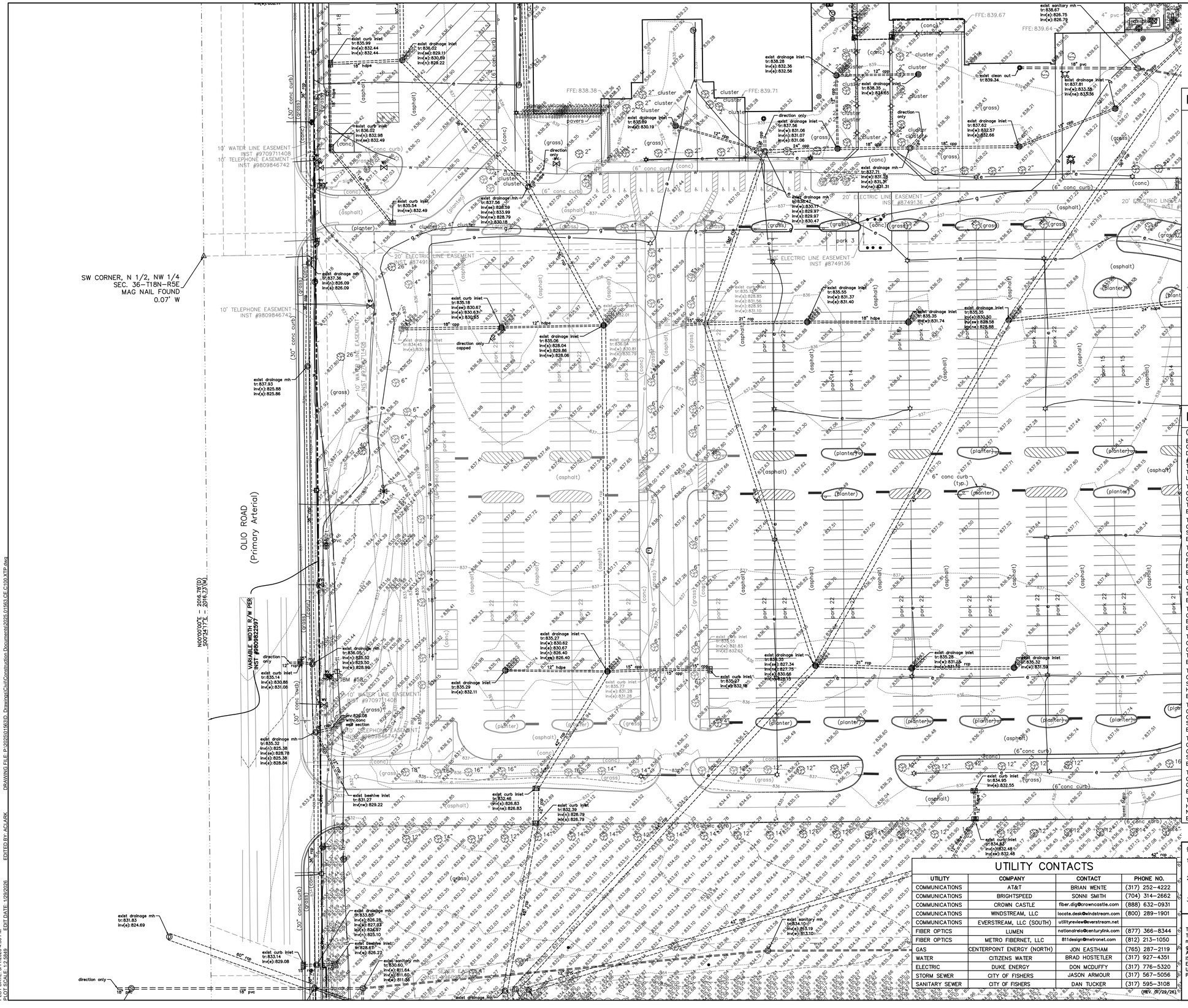
ASPHALT PAVING (CONT.):

5. COMPACTION
    i. GENERAL: BEGIN COMPACTION AS SOON AS PLACED HOT-MIX PAVING WILL BEAR ROLLER WEIGHT WITHOUT EXCESSIVE DISPLACEMENT. COMPACT HOT-MIX PAVING WITH HOT, HAND TAMPERS OR WITH VIBRATORY-PLATE COMPACTORS IN AREAS INACCESSIBLE TO ROLLERS.
        a. COMPLETE COMPACTION BEFORE MIX TEMPERATURE COOLS TO 185 DEG F
    ii. BREAKDOWN ROLLING: COMPLETE BREAKDOWN OR INITIAL ROLLING IMMEDIATELY AFTER ROLLING JOINTS AND OUTSIDE EDGE. EXAMINE SURFACE IMMEDIATELY AFTER BREAKDOWN ROLLING FOR INDICATED CROWN, GRADE, AND SMOOTHNESS. CORRECT LAYDOWN AND ROLLING OPERATIONS TO COMPLY WITH REQUIREMENTS.
    iii. INTERMEDIATE ROLLING: BEGIN INTERMEDIATE ROLLING IMMEDIATELY AFTER BREAKDOWN ROLLING WHILE HOT-MIX ASPHALT IS STILL HOT ENOUGH TO ACHIEVE SPECIFIED DENSITY. CONTINUE ROLLING UNTIL HOT-MIX ASPHALT MIX IS COMPACTED TO THE FOLLOWING DENSITY:
        a. AVERAGE DENSITY: 96 PERCENT OF REFERENCE LABORATORY DENSITY ACCORDING TO ASTM D 6927 OR AASHTO T 245, BUT NOT LESS THAN 94 PERCENT OR GREATER THAN 100 PERCENT.
        b. AVERAGE DENSITY: 92 PERCENT OF REFERENCE MAXIMUM THEORETICAL DENSITY ACCORDING TO ASTM D 2041, BUT NOT LESS THAN 90 PERCENT OR GREATER THAN 96 PERCENT.
    iv. FINISH ROLLING: FINISH ROLL PAVED SURFACES TO REMOVE ROLLER MARKS WHILE HOT-MIX ASPHALT IS STILL WARM.
    v. EDGE SHAPING: WHILE SURFACE IS BEING COMPACTED AND FINISHED, TRIM EDGES OF PAVEMENT TO PROPER ALIGNMENT. BEVEL EDGES WHILE ASPHALT IS STILL HOT; COMPACT THOROUGHLY.
    vi. REPAIRS: REMOVE PAVED AREAS THAT ARE DEFECTIVE OR CONTAMINATED WITH FOREIGN MATERIALS AND REPLACE WITH FRESH, HOT-MIX ASPHALT. COMPACT BY ROLLING TO SPECIFIED DENSITY AND SURFACE SMOOTHNESS.
    vii. PROTECTION: AFTER FINAL ROLLING, DO NOT PERMIT VEHICULAR TRAFFIC ON PAVEMENT UNTIL IT HAS COOLED AND HARDENED.
    viii. ERECT BARRICADES TO PROTECT PAVING FROM TRAFFIC UNTIL MIXTURE HAS COOLED ENOUGH NOT TO BECOME MARKED.
6. INSTALLATION TOLERANCES
    i. PAVEMENT THICKNESS: COMPACT EACH COURSE TO PRODUCE THE THICKNESS INDICATED WITHIN THE FOLLOWING TOLERANCES:
        a. BASE COURSE: PLUS OR MINUS 1/2 INCH
        b. SURFACE COURSE: PLUS 1/4 INCH NO MINUS.
    ii. PAVEMENT SURFACE SMOOTHNESS: COMPACT EACH COURSE TO PRODUCE A SURFACE SMOOTHNESS WITHIN THE FOLLOWING TOLERANCES AS DETERMINED BY USING A 10-FOOT STRAIGHTEDGE APPLIED TRANSVERSELY OR LONGITUDINALLY TO PAVED AREAS:
        a. BASE COURSE: 1/4 INCH
        b. SURFACE COURSE: 1/8 INCH
        c. CROWNED SURFACES: TEST WITH CROWNED TEMPLATE CENTERED AND AT RIGHT ANGLE TO CROWN. MAXIMUM ALLOWABLE VARIANCE FROM TEMPLATE IS 1/4 INCH
7. FIELD QUALITY CONTROL
    i. TESTING AGENCY: CONTRACTOR TO ENGAGE A QUALIFIED TESTING AGENCY TO PERFORM TESTS AND INSPECTIONS.
    ii. THICKNESS: IN-PLACE COMPACTED THICKNESS OF HOT-MIX ASPHALT COURSES WILL BE DETERMINED ACCORDING TO ASTM D 3549.
    iii. SURFACE SMOOTHNESS: FINISHED SURFACE OF EACH HOT-MIX ASPHALT COURSE WILL BE TESTED FOR COMPLIANCE WITH SMOOTHNESS TOLERANCES.
    iv. IN-PLACE DENSITY: TESTING AGENCY WILL TAKE SAMPLES OF UNCOMPACTED PAVING MIXTURES AND COMPACTED PAVEMENT ACCORDING TO ASTM D 979 OR AASHTO T 168.
        a. REFERENCE MAXIMUM THEORETICAL DENSITY WILL BE DETERMINED BY AVERAGING RESULTS FROM FOUR SAMPLES OF HOT-MIX ASPHALT-PAVING MIXTURE DELIVERED DAILY TO SITE, PREPARED ACCORDING TO ASTM D 2041, AND COMPACTED ACCORDING TO JOB-MIX SPECIFICATIONS.
        b. IN-PLACE DENSITY OF COMPACTED PAVEMENT WILL BE DETERMINED BY TESTING CORE SAMPLES ACCORDING TO ASTM D 1188 OR ASTM D 2726.
    v. ONE CORE SAMPLE WILL BE TAKEN FOR EVERY 1000 SQ. YD. OR LESS OF INSTALLED PAVEMENT, WITH NO FEWER THAN THREE CORES TAKEN.
    vi. FIELD DENSITY OF IN-PLACE COMPACTED PAVEMENT MAY ALSO BE DETERMINED BY NUCLEAR METHOD ACCORDING TO ASTM D 2950 AND CORRELATED WITH ASTM D 1188 OR ASTM D 2726.
    vii. REPLACE AND COMPACT HOT-MIX ASPHALT WHERE CORE TESTS WERE TAKEN.
    viii. REMOVE AND REPLACE OR INSTALL ADDITIONAL HOT-MIX ASPHALT WHERE TEST RESULTS OR MEASUREMENTS INDICATE THAT IT DOES NOT COMPLY WITH SPECIFIED REQUIREMENTS.

CONCRETE PAVING:

A. GENERAL

1. CONCRETE PAVING SECTION INCLUDES DRIVEWAYS, ROADWAYS, PARKING LOTS, CURBS AND GUTTERS, WALKS, AND CONCRETE APRONS.
2. ACTION SUBMITTALS
    i. PRODUCT DATA: FOR EACH TYPE OF PRODUCT INDICATED.
    ii. OTHER ACTION SUBMITTALS
    a. DESIGN MIXTURES: FOR EACH CONCRETE PAVING MIXTURE. INCLUDE ALTERNATE DESIGN MIXTURES WHEN CHARACTERISTICS OF MATERIALS PROJECT CONDITIONS, WEATHER, TEST RESULTS, OR OTHER CIRCUMSTANCES WARRANT ADJUSTMENTS.
    b. MATERIAL TEST REPORTS: FROM A QUALIFIED TESTING AGENCY INDICATING AND INTERPRETING TEST RESULTS FOR COMPLIANCE OF THE FOLLOWING WITH REQUIREMENTS INDICATED, BASED ON COMPREHENSIVE TESTING OF CURRENT MATERIALS.
3. QUALITY ASSURANCE
    i. READY-MIX-CONCRETE MANUFACTURER QUALIFICATIONS: A FIRM EXPERIENCED IN MANUFACTURING READY-MIXED CONCRETE PRODUCTS AND THAT COMPLIES WITH ASTM C 94/C 94M REQUIREMENTS FOR PRODUCTION FACILITIES AND EQUIPMENT.
    ii. ACI PUBLICATIONS: COMPLY WITH ACI 301



0' 40' 80'

SCALE: 1"=40'

EXISTING LEGEND

ADA Parking	Right of Way Marker
Air Conditioner	Sanitary MH
Beehive Inlet	Sign
Bush	Spigot
Clean Out	Sprinkler Control Valve
Combination Pole	Stand Pipe
Curb Inlet	Stump
Down Spout	Telephone Cross Box
Drainage Inlet	Telephone Handhole
Drainage MH	Telephone Marker
Electric Box	Telephone MH
Electric Cross Box	Telephone Pedestal
Electric Handhole	Telephone Pole
Electric Meter Box	Temporary Bench Mark
Electric MH	Traffic MH
Fire Hydrant	Traffic Pedestal
Fire Plug	Traffic Pole
Fire Valve Shut Off	Transformer
Flag Pole	Tree
Gas Marker	Vent
Gas Meter	Water Meter
Gas Valve	Water MH
Guard Post	Water Valve
Guy Wire	Well
Hose Bib	Yard Light
Lid	-e- Buried Electric Line
Light Pole	-g- Buried Gas Line
Mail Box	-t- Buried Telephone Line
Manhole	-tr- Buried Traffic Line
Pine Tree	-w- Buried Water Line
Post	-ohe- Overhead Electric Line
Power Pole	-oht- Overhead Telephone Line
	-otr- Overhead Traffic Line

BENCHMARK DATA

(DATUM: NAVD 88)

BENCHMARK ELEVATIONS WERE ESTABLISHED FROM GPS OBSERVATIONS ON THE IDENTIFIED BASE STATION DESCRIBED WITHIN. AN NGS OPUS SOLUTION (FILE #TR1949262187316) WAS OBTAINED AND USED TO CONTROL THE PROJECT'S VERTICAL DATUM. THE ELEVATIONS WERE THEN TRANSFERRED TO THE SITE USING DIFFERENTIAL LEVELING.

TBM 109
CUT "X" S.W. BOLT LIGHT POLE BASE ±100' WEST OF S.W. CORNER OF HAMILTON SOUTHEASTERN HIGH SCHOOL TENNIS COURTS.
ELEV: 838.44'

TBM #50
CUT "X" S.W. BOLT LIGHT POLE, NORTH SIDE HSE HIGH SCHOOL S RING ROAD SW CORNER OF STADIUM.
ELEV: 839.39'

TBM #51
CUT "X" SOUTH EAST BOLT LIGHT POLE BASE WHERE OLIO FIELDS ENTRANCE ROAD TURNS BACK TO WEST AND BECOMES HSE HIGH SCHOOL RING ROAD.
ELEV: 843.25'

TBM #52
CUT "X" WEST SIDE 4TH LIGHT POLE BASE COUTH OF 126TH STREET, EAST SIDE OF OLIO FIELDS DRIVE.
ELEV: 847.45'

TBM #53
CUT "X" WEST SIDE LIGHT POLE BASE 126TH STREET, 25' EAST OF ENTRANCE TO OLIO FIELDS.
ELEV: 848.68'

TBM #54
CUT "X" TOP OF RIGHT-OF-WAY MONUMENT, SOUTH SIDE OF 126TH STREET AND 100'± EAST OF MIDDLE ENTRANCE TO HSE HIGH SCHOOL.
ELEV: 843.69'

TBM #55
CUT "X" NORTH NORTHEAST BOLT FIRE HYDRANT, SOUTH SIDE 126TH STREET, 50' WEST OF WEST ENTRANCE TO HSE HIGH SCHOOL.
ELEV: 839.31'

TBM #56
CUT "X" NORTHWEST BOLT FIRE HYDRANT, EAST SIDE OF OLIO ROAD, SOUTH SIDE NORTH ENTRANCE TO HSE HIGH SCHOOL.
ELEV: 839.49'

TBM #57
CUT "X" SOUTHWEST BOLT STRAIN POLE, EAST SIDE OF OLIO ROAD, 60' NORTH OF MIDDLE ENTRANCE TO HSE HIGH SCHOOL.
ELEV: 837.84'

TBM #58
CUT "X" WEST NORTHWEST BOLT FIRE HYDRANT, EAST SIDE OF OLIO ROAD AT SOUTH ENTRANCE TO HSE HIGH SCHOOL.
ELEV: 834.37'

TBM #SE 12
HSE DISK SET IN CONCRETE ON THE SOUTH SIDE OF THE NORTH ENTRANCE TO FALL CREEK ELEMENTARY SCHOOL.
ELEV: 836.52'

GENERAL NOTES:

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3. SEE SHEET C002 GENERAL NOTES FOR MORE INFORMATION.

UTILITY CONTACTS

UTILITY	COMPANY	CONTACT	PHONE NO.
COMMUNICATIONS	AT&T	BRIAN WENTE	(317) 252-4222
COMMUNICATIONS	BRIGHTSPEED	SONNI SMITH	(704) 314-2662
COMMUNICATIONS	CROWN CASTLE	fiber.dig@crowncastle.com	(888) 632-0931
COMMUNICATIONS	WINDSTREAM, LLC	locate.desk@windstream.com	(800) 289-1901
COMMUNICATIONS	EVERSTREAM, LLC (SOUTH)	utilityreview@everstream.net	
FIBER OPTICS	LUMEN	nationalrelo@centurylink.com	(877) 366-8344
FIBER OPTICS	METRO FIBERNET, LLC	811design@metronet.com	(812) 213-1050
GAS	CENTERPOINT ENERGY (NORTH)	JON EASTHAM	(765) 287-2119
WATER	CITIZENS WATER	BRAD HOSTETLER	(317) 927-4351
ELECTRIC	DUKE ENERGY	DON MCDUFFY	(317) 776-5320
STORM SEWER	CITY OF FISHERS	JASON ARMOUR	(317) 567-5056
SANITARY SEWER	CITY OF FISHERS	DAN TUCKER	(317) 595-3108

(REV. 01/29/26)

!! CAUTION !!

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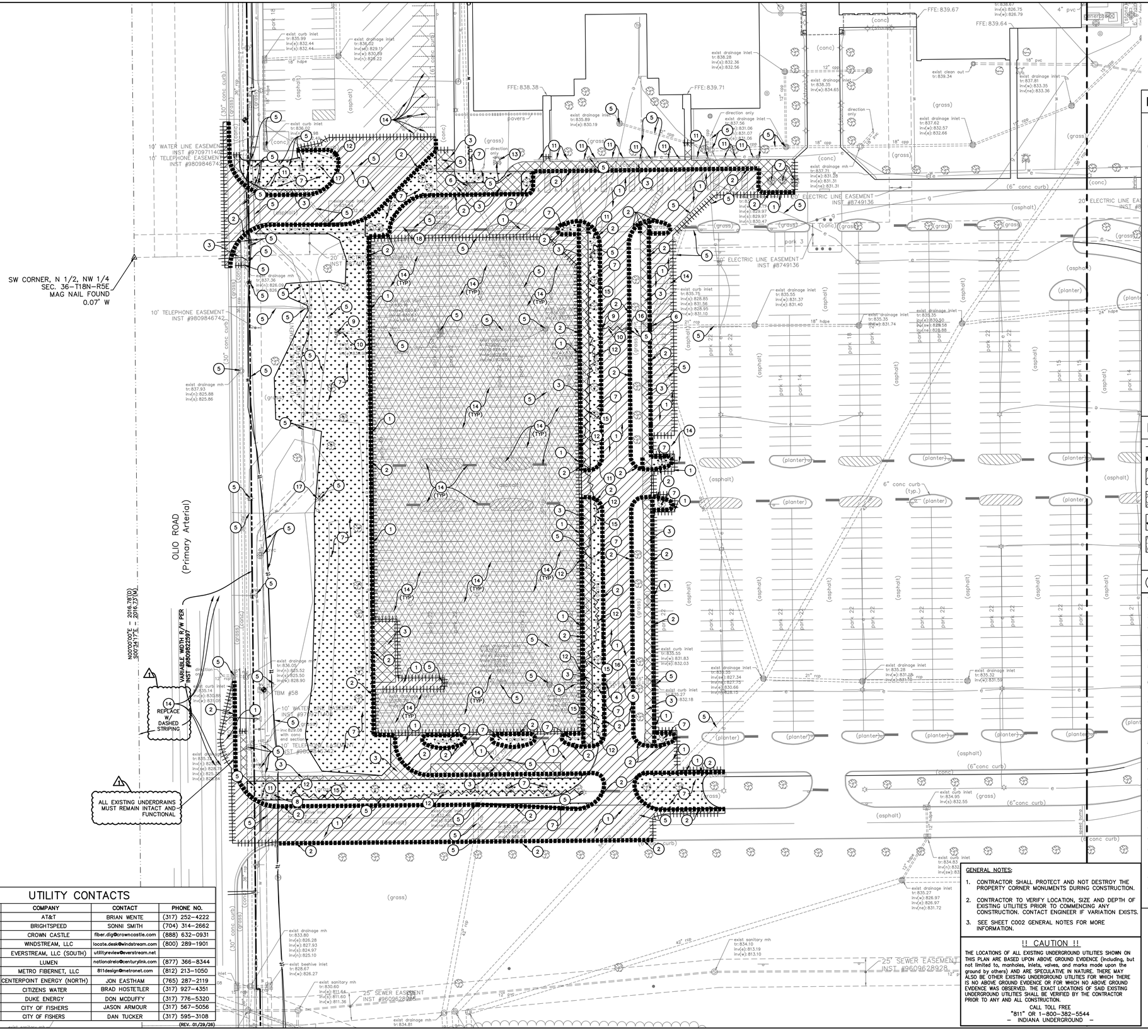
REVISION SCHEDULE		
NO.	DESCRIPTION	DATE
1	ADDENDUM 1	03/12/26

Project Number 2025.01563

EXISTING TOPOGRAPHY PLAN

C100

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PLOT SCALE: 1:2.5849
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(REV. 01/29/26)

0' 40' 80'

SCALE: 1"=40'

EXISTING LEGEND

ADA Parking	Right of Way Marker
Air Conditioner	Sanitary MH
Beehive Inlet	Sign
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Post	–ohe– Overhead Electric Line
Power Pole	–oht– Overhead Telephone Line
	–otr– Overhead Traffic Line

DEMOLITION LEGEND

- PAVEMENT TO BE SAWCUT
- EXISTING CURB TO BE REMOVED
- EXISTING ASPHALT TO BE REMOVED
- EXISTING CONCRETE AND BASE TO BE REMOVED
- EXISTING GRASS AND LANDSCAPING TO BE REMOVED
- 1.5" MILL & RESURFACE

KEYNOTES

1. EXISTING ASPHALT PAVEMENT AND BASE MATERIAL TO BE REMOVED (SAWCUT FOR CLEAN EDGE).
2. EXISTING CONCRETE CURB TO BE REMOVED.
3. REMOVE EXISTING CONCRETE, BASE, CONCRETE PADS AND OTHER MISCELLANEOUS CONCRETE MATERIAL (SAWCUT FOR CLEAN EDGE).
4. PROTECT EXISTING INLET / MANHOLE. EXISTING CASTING TO BE REPLACED WITH APPROPRIATE SOLID LID CASTING.
5. PROTECT EXISTING UTILITY THROUGHOUT DURATION OF CONSTRUCTION.
6. ADJUST EXISTING STRUCTURE AND RIM TO PROPOSED GRADE. REFER TO GRADING PLAN FOR PROPOSED RIM ELEVATIONS.
7. EXISTING TREES AND BRUSH TO BE REMOVED. CONTRACTOR TO SEEK OWNER AUTHORIZATION FOR REMOVAL OF ANY HEALTHY HARDWOOD TREES OVER 6" DIA. PROPOSED GRADING NEAR ANY PRESERVED TREES TO BE MODIFIED TO MAINTAIN POSITIVE DRAINAGE. NO TREE TO BE REMOVED WITHIN 2' OF THE PROPERTY LINE
8. STORM STRUCTURE CASTING TO BE REPLACED WITH THE APPROPRIATE FLAT CASTING. STRUCTURE TO BE ADJUSTED TO PROPOSED GRADE. SEE GRADING PLAN FOR PROPOSED RIM ELEVATIONS.
9. EXISTING STORM STRUCTURE TO BE REMOVED.
10. EXISTING STORM SEWER TO BE REMOVED
11. EXISTING SIGN TO BE REMOVED
12. EXISTING LIGHT POLE TO BE REMOVED
13. EXISTING FIRE HYDRANT TO BE RELOCATED. SEE UTILITY PLAN FOR PROPOSED LOCATION.
14. EXISTING PAVEMENT STRIPING TO BE REMOVED
15. EXISTING UNDERGROUND ELECTRIC LINE TO BE REMOVED
16. EXISTING STORM STRUCTURE CASTING TO BE REPLACED WITH A YARD/BEEHIVE CASTING. STRUCTURE TO BE ADJUSTED TO PROPOSED GRADE. SEE GRADING PLAN FOR PROPOSED RIM ELEVATIONS
17. EXISTING VALVE TO BE ADJUSTED TO PROPOSED GRADE
18. CONTRACTOR TO CONFIRM GAS SERVICE LINE DEPTH PRIOR TO START OF CONSTRUCTION. COORDINATE WITH UTILITY COMPANY FOR POTENTIAL CONFLICTS.

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context DESIGN
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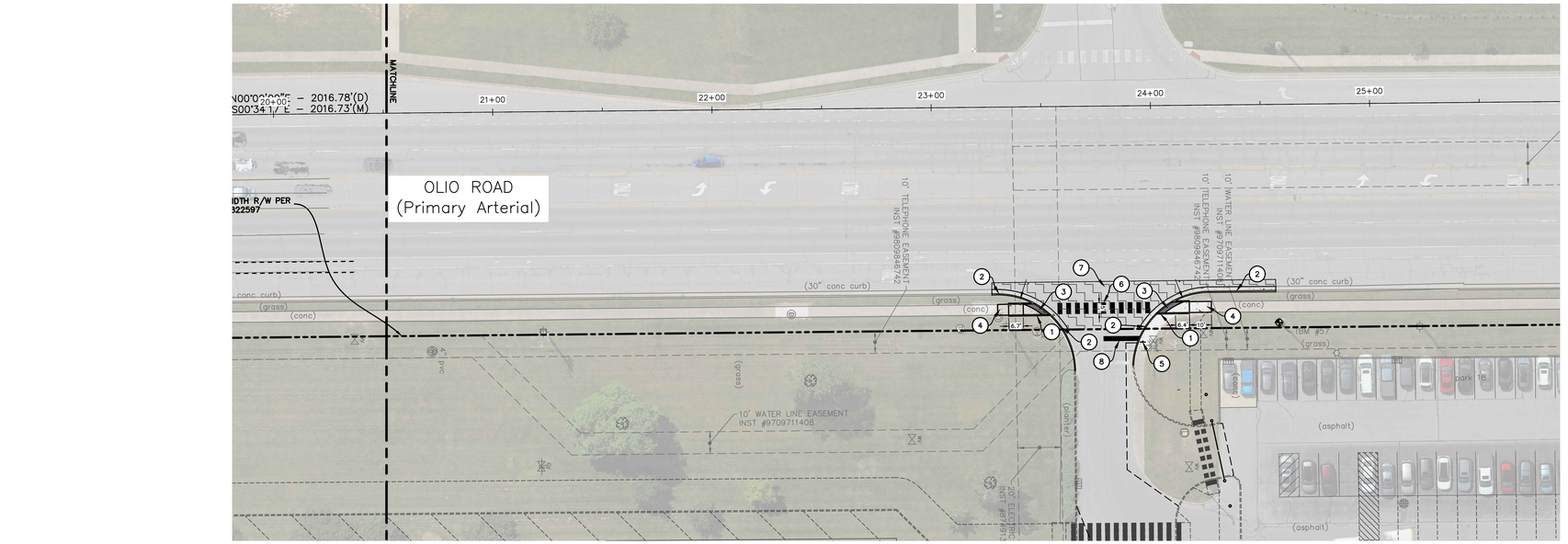
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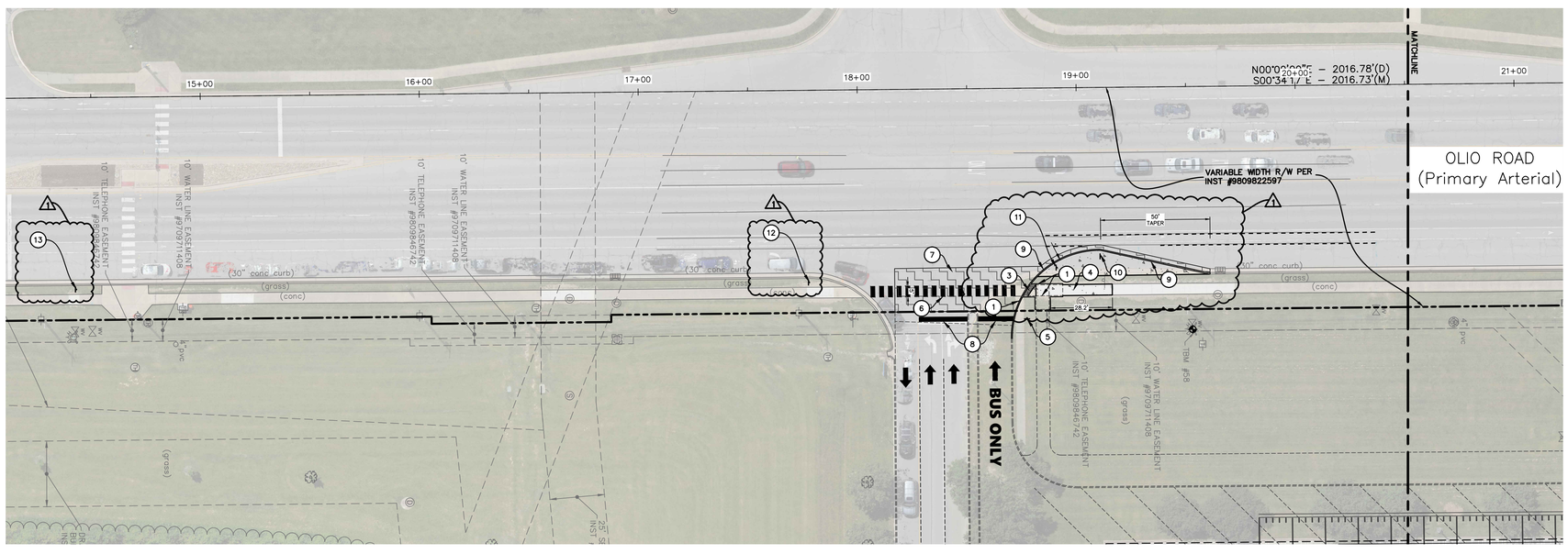
Project Number 2025.01563

DEMOLITION PLAN

C110

PLOT DATE: 3/11/2026 4:57 PM
PLOT SCALE: 1:2.5849
EDIT DATE: 3/11/2026
EDITED BY: JVINSON
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0' 30' 60'

SCALE: 1"=30'

EXISTING LEGEND

- ADA Parking
- Air Conditioner
- Beehive Inlet
- Bush
- Clean Out
- Combination Pole
- Curb Inlet
- Down Spout
- Drainage Inlet
- Drainage MH
- Electric Box
- Electric Cross Box
- Electric Handhole
- Electric Meter Box
- Electric MH
- Fire Hydrant
- Fire Plug
- Fire Valve Shut Off
- Flag Pole
- Gas Marker
- Gas Meter
- Gas Valve
- Guard Post
- Guy Wire
- Hose Bib
- Lid
- Light Pole
- Mail Box
- Manhole
- Pine Tree
- Post
- Power Pole
- Right of Way Marker
- Sanitary MH
- Sign
- Spigot
- Sprinkler Control Valve
- Stand Pipe
- Stump
- Telephone Cross Box
- Telephone Handhole
- Telephone Marker
- Telephone MH
- Telephone Pedestal
- Telephone Pole
- Temporary Bench Mark
- Traffic MH
- Traffic Pedestal
- Traffic Pole
- Transformer
- Tree
- Vent
- Water Meter
- Water MH
- Water Valve
- Well
- Yard Light
- –e– Buried Electric Line
- –g– Buried Gas Line
- –t– Buried Telephone Line
- –tr– Buried Traffic Line
- –w– Buried Water Line
- –ohe– Overhead Electric Line
- –oht– Overhead Telephone Line
- –otr– Overhead Traffic Line

SITE LEGEND

- OLIO ROAD RIGHT–OF–WAY ASPHALT PAVEMENT (PER HCHD STANDARDS)
- CONCRETE SIDEWALK

KEYNOTES

1. 6" CONCRETE BARRIER CURB
2. 30" CONCRETE COMBINED CURB & GUTTER
3. ONE–WAY DIRECTIONAL PERPENDICULAR CURB RAMP WITH BUFFER
4. CONCRETE SIDEWALK
5. STOP SIGN
6. CROSSWALK, PAINTED WHITE
7. OLIO ROAD RIGHT–OF–WAY ASPHALT PAVEMENT (PER HCHD STANDARDS)
8. STOP BAR, 24" PAINTED WHITE
9. 8" CONCRETE BARRIER CURB
10. BEGIN RIGHT TURN LANE, YIELD TO BIKES (R4–4) SIGN
11. OBJECT MARKER (OM3–R) SIGN
12. RIGHT LANE MUST TURN RIGHT (R3–7R) SIGN
13. RIGHT TURN ONLY (R3–5R) SIGN

GENERAL NOTES:

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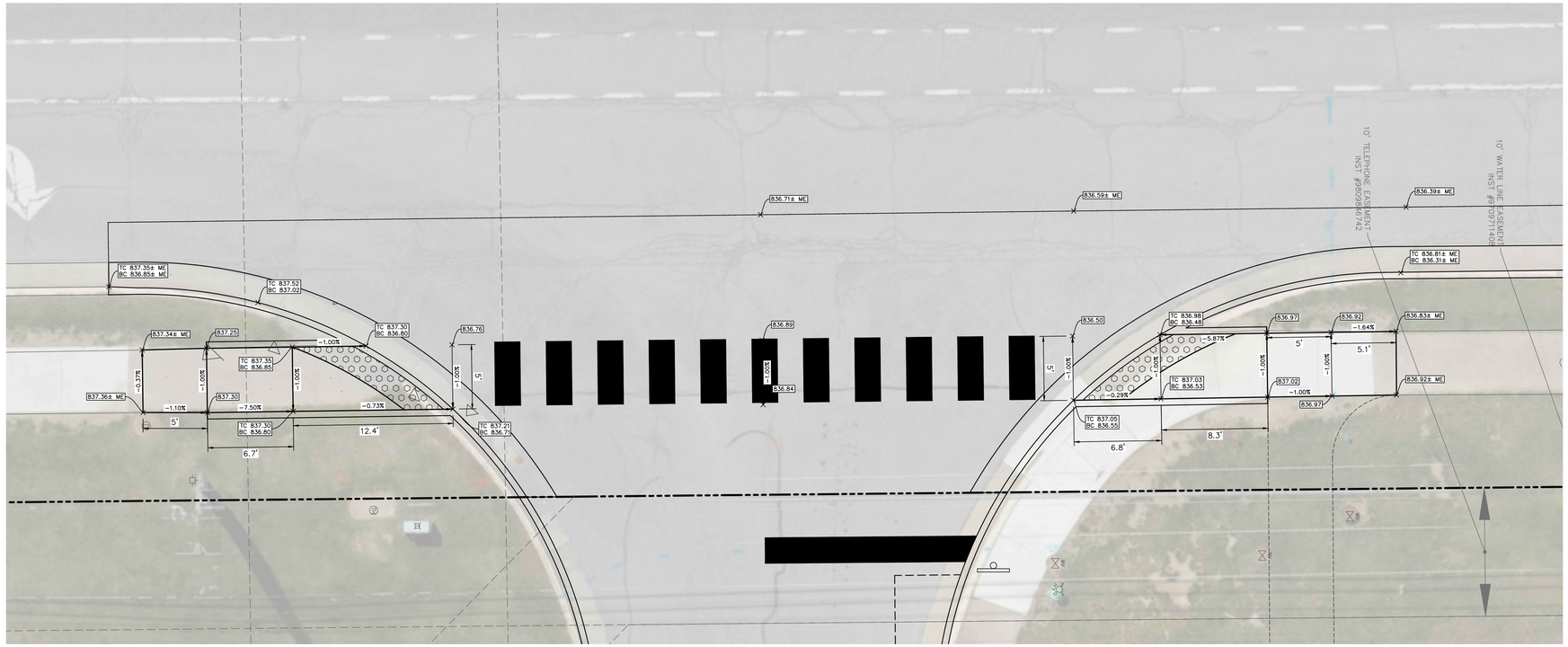
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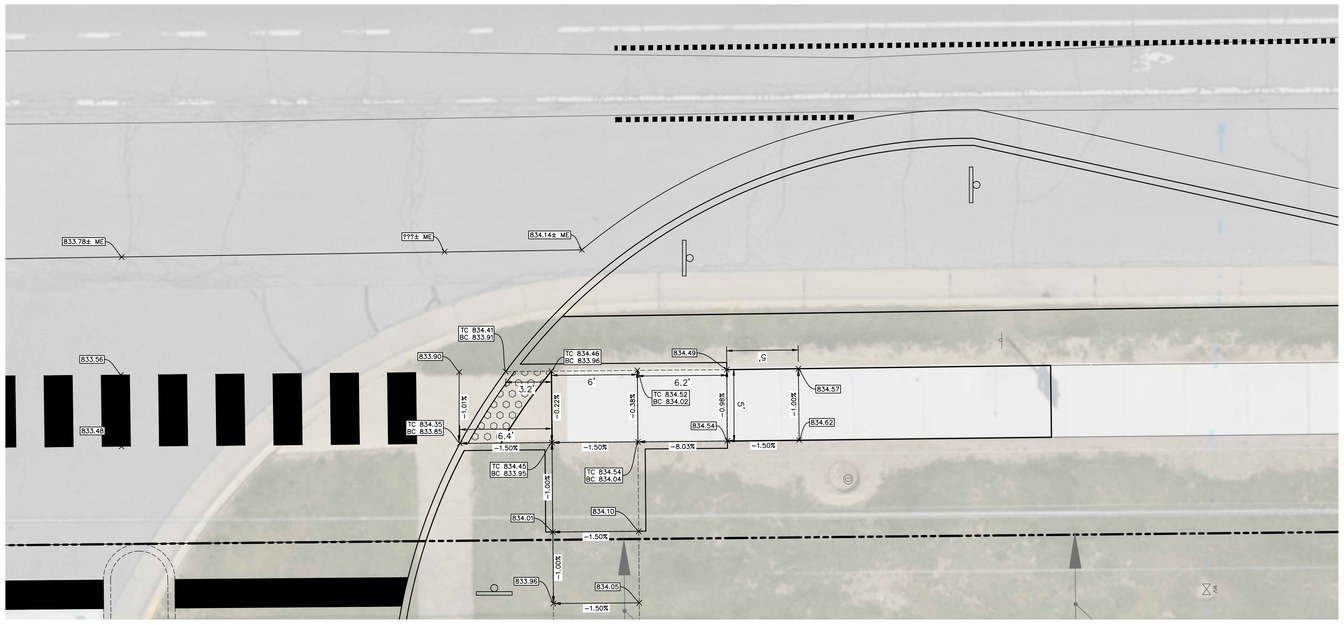
Project Number 2025.01563

SITE ENTRANCE PLAN

C200

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0' 5' 10'

SCALE: 1"=5'

EXISTING LEGEND

- ADA Parking
- Air Conditioner
- Beehive Inlet
- Bush
- Clean Out
- Combination Pole
- Curb Inlet
- Down Spout
- Drainage Inlet
- Drainage MH
- Electric Box
- Electric Cross Box
- Electric Handhole
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- Gas Valve
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- Lid
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- Mail Box
- Manhole
- Pine Tree
- Post
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- Right of Way Marker
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- Stand Pipe
- Stump
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- Telephone Pedestal
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- –w– Buried Water Line
- –ohe– Overhead Electric Line
- –oht– Overhead Telephone Line
- –otr– Overhead Traffic Line

GRADING LEGEND

ME	MATCH EXISTING
FL	FLOWLINE
BC	BOTTOM OF CURB
TC	TOP OF CURB
HP	HIGH POINT
LP	LOW POINT
000	CONTOURS
	SWALE
TC 000.50 BC 000.00	CURB ELEVATIONS
000.00	SPOT ELEVATIONS

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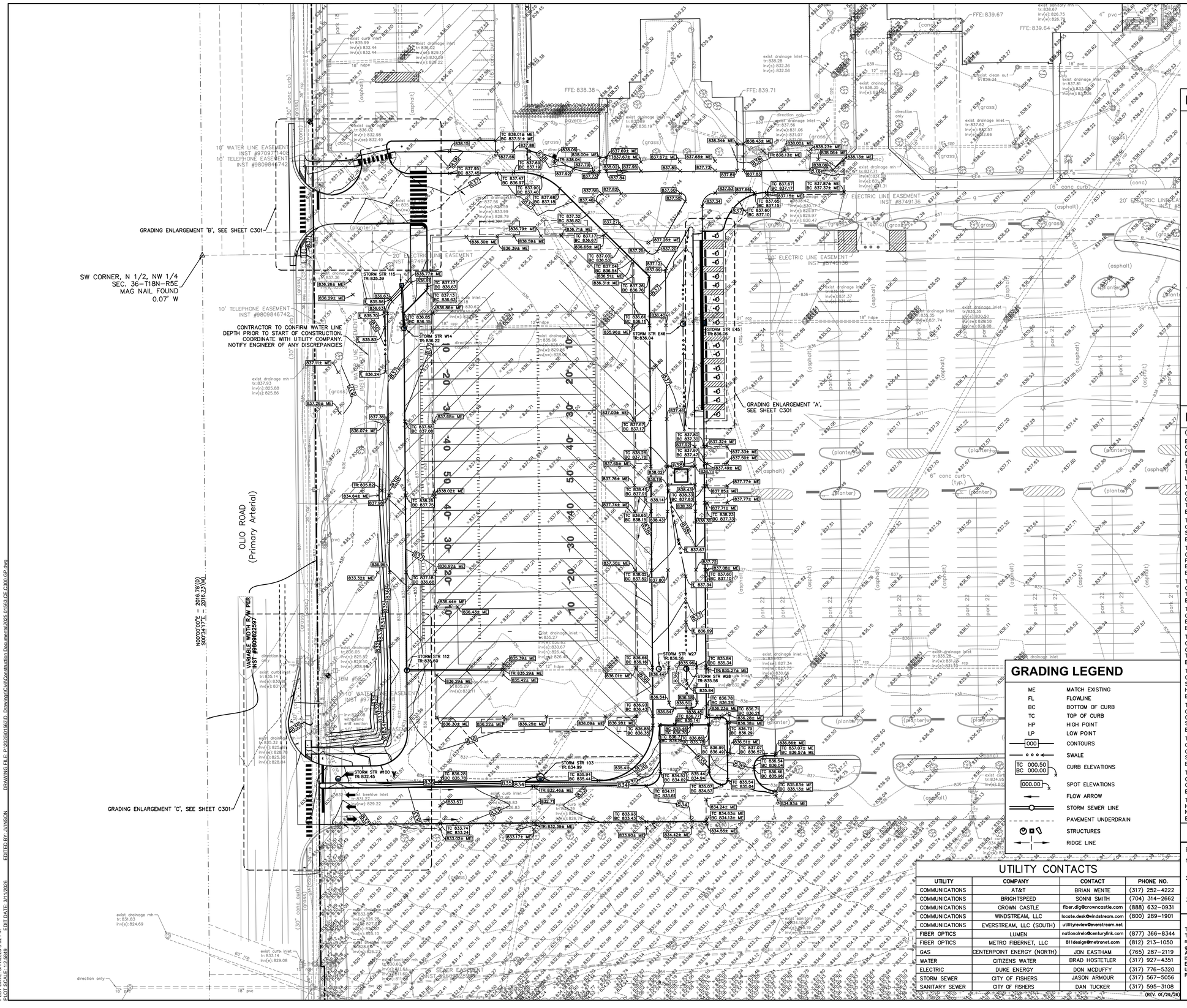
NO.	DESCRIPTION	DATE
1	ADDENDUM 1	03/12/26

Project Number 2025.01563

ADA RAMP DETAILS

C201

PLOT DATE: 3/11/2026 4:59 PM
PLOT SCALE: 12.5849
EDIT DATE: 3/11/2026 EDITED BY: JVINSON DRAWING FILE: P:\2025\01563\D_Drawings\Civil\Construction Documents\2025.01563_GE C200 SP.dwg



EXISTING LEGEND

ADA Parking	Right of Way Marker
Air Conditioner	Sanitary MH
Beehive Inlet	Sign
Bush	Spigot
Clean Out	Sprinkler Control Valve
Combination Pole	Stand Pipe
Curb Inlet	Stump
Down Spout	Telephone Cross Box
Drainage Inlet	Telephone Handhole
Drainage MH	Telephone Marker
Electric Box	Telephone MH
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Electric Meter Box	Temporary Bench Mark
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Fire Plug	Traffic Pole
Fire Valve Shut Off	Transformer
Flag Pole	Tree
Gas Marker	Vent
Gas Meter	Water Meter
	Water MH
Gas Valve	Water Valve
Guard Post	Well
Guy Wire	Yard Light
Hose Bib	-e- Buried Electric Line
Lid	-g- Buried Gas Line
Light Pole	-t- Buried Telephone Line
Mail Box	-tr- Buried Traffic Line
Manhole	-w- Buried Water Line
Pine Tree	-ohe- Overhead Electric Line
Post	-oht- Overhead Telephone Line
Power Pole	-otr- Overhead Traffic Line

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(DATUM: NAVD 88)

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TBM 109
CUT "X" S.W. BOLT LIGHT POLE BASE ±100' WEST OF S.W. CORNER OF HAMILTON SOUTHEASTERN HIGH SCHOOL TENNIS COURTS.
ELEV: 838.44'

TBM #50
CUT "X" S.W. BOLT LIGHT POLE, NORTH SIDE HSE HIGH SCHOOL, S RING ROAD SW CORNER OF STADIUM.
ELEV: 839.39'

TBM #51
CUT "X" SOUTH EAST BOLT LIGHT POLE BASE WHERE OLIO FIELDS ENTRANCE ROAD TURNS BACK TO WEST AND BECOMES HSE HIGH SCHOOL RING ROAD.
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CUT "X" TOP OF RIGHT-OF-WAY MONUMENT, SOUTH SIDE OF 126TH STREET AND 100'± EAST OF MIDDLE ENTRANCE TO HSE HIGH SCHOOL.
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ELEV: 834.37'

TBM #SE 12
HSE DISK SET IN CONCRETE ON THE SOUTH SIDE OF THE NORTH ENTRANCE TO FALL CREEK ELEMENTARY SCHOOL.
ELEV: 836.52'

GRADING LEGEND

ME	MATCH EXISTING
FL	FLOWLINE
BC	BOTTOM OF CURB
TC	TOP OF CURB
HP	HIGH POINT
LP	LOW POINT
000	CONTOURS
	SWALE
TC 000.50 BC 000.00	CURB ELEVATIONS
000.00	SPOT ELEVATIONS
	FLOW ARROW
	STORM SEWER LINE
	PAVEMENT UNDERDRAIN
	STRUCTURES
	RIDGE LINE

GENERAL NOTES:

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UTILITY CONTACTS

UTILITY	COMPANY	CONTACT	PHONE NO.
COMMUNICATIONS	AT&T	BRIAN WENTE	(317) 252-4222
COMMUNICATIONS	BRIGHTSPEED	SONNI SMITH	(704) 314-2662
COMMUNICATIONS	CROWN CASTLE	fiber.dig@crowncastle.com	(888) 632-0931
COMMUNICATIONS	WINDSTREAM, LLC	locate.desk@windstream.com	(800) 289-1901
COMMUNICATIONS	EVERSTREAM, LLC (SOUTH)	utilityreview@everstream.net	
FIBER OPTICS	LUMEN	nationalrelo@centurylink.com	(877) 366-8344
FIBER OPTICS	METRO FIBERNET, LLC	811design@metronet.com	(812) 213-1050
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(REV. 01/29/26)

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context DESIGN
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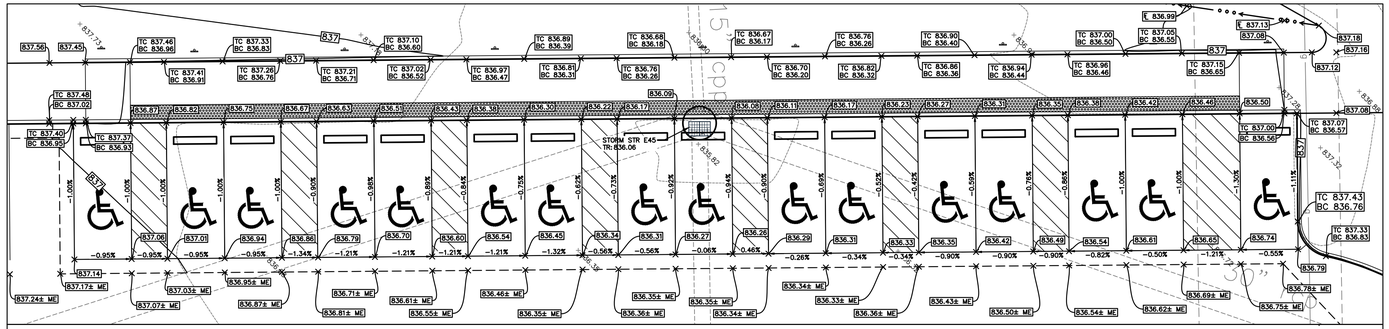
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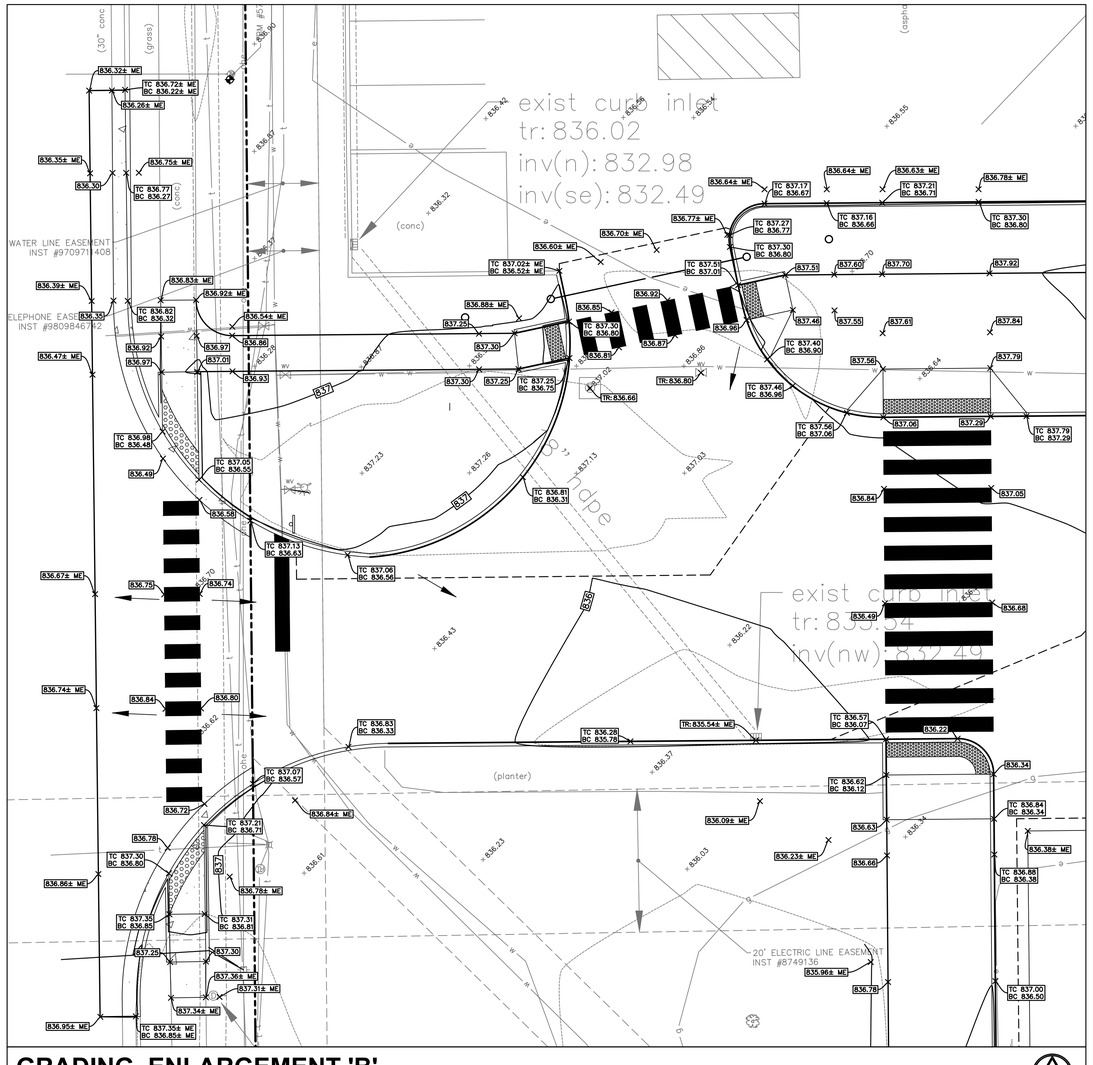
GRADING PLAN

C300

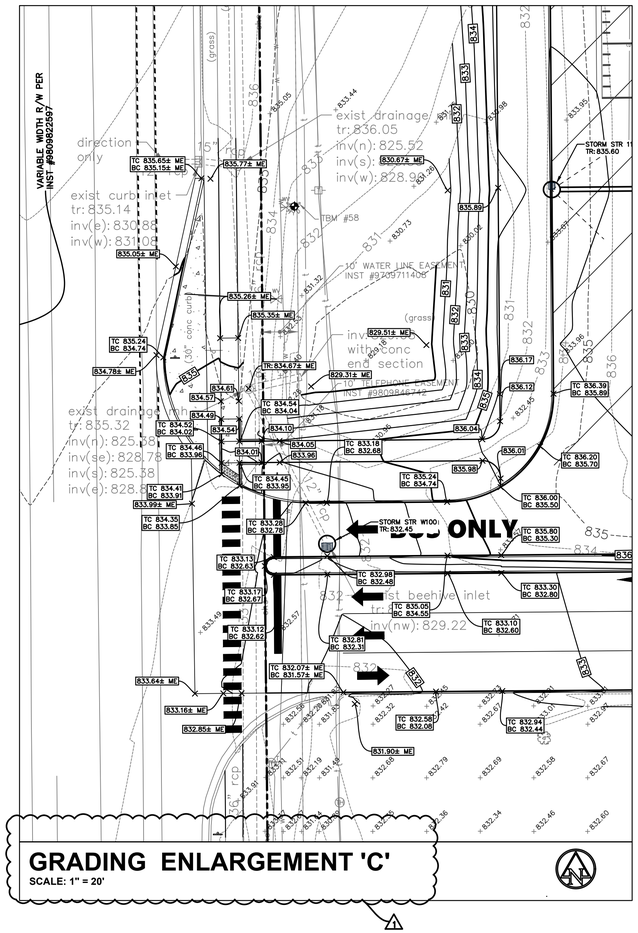
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DRAWING FILE: P:\2025\01563\D. Drawings\Civil\Construction Documents\2025.01563 CE C300 GP.dwg



GRADING ENLARGEMENT 'A'
SCALE: 1" = 10'



GRADING ENLARGEMENT 'B'
SCALE: 1" = 10'



GRADING ENLARGEMENT 'C'
SCALE: 1" = 20'

GRADING LEGEND

ME	MATCH EXISTING
FL	FLOWLINE
BC	BOTTOM OF CURB
TC	TOP OF CURB
HP	HIGH POINT
LP	LOW POINT
000	CONTOURS
	SWALE
TC 000.50 BC 000.00	CURB ELEVATIONS
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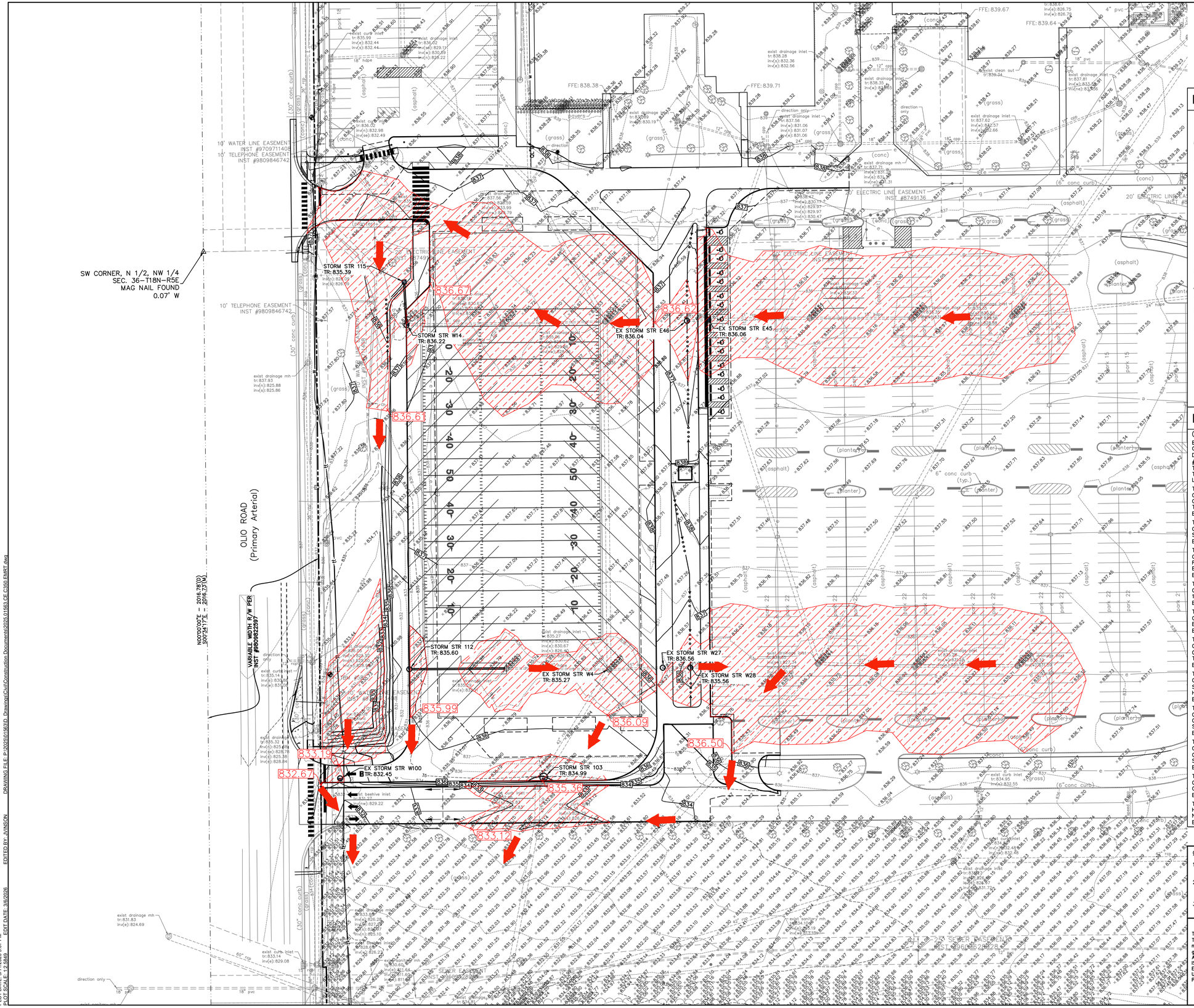
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GRADING PLAN ENLARGEMENTS

C301

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PLOT SCALE: 1:2.5849
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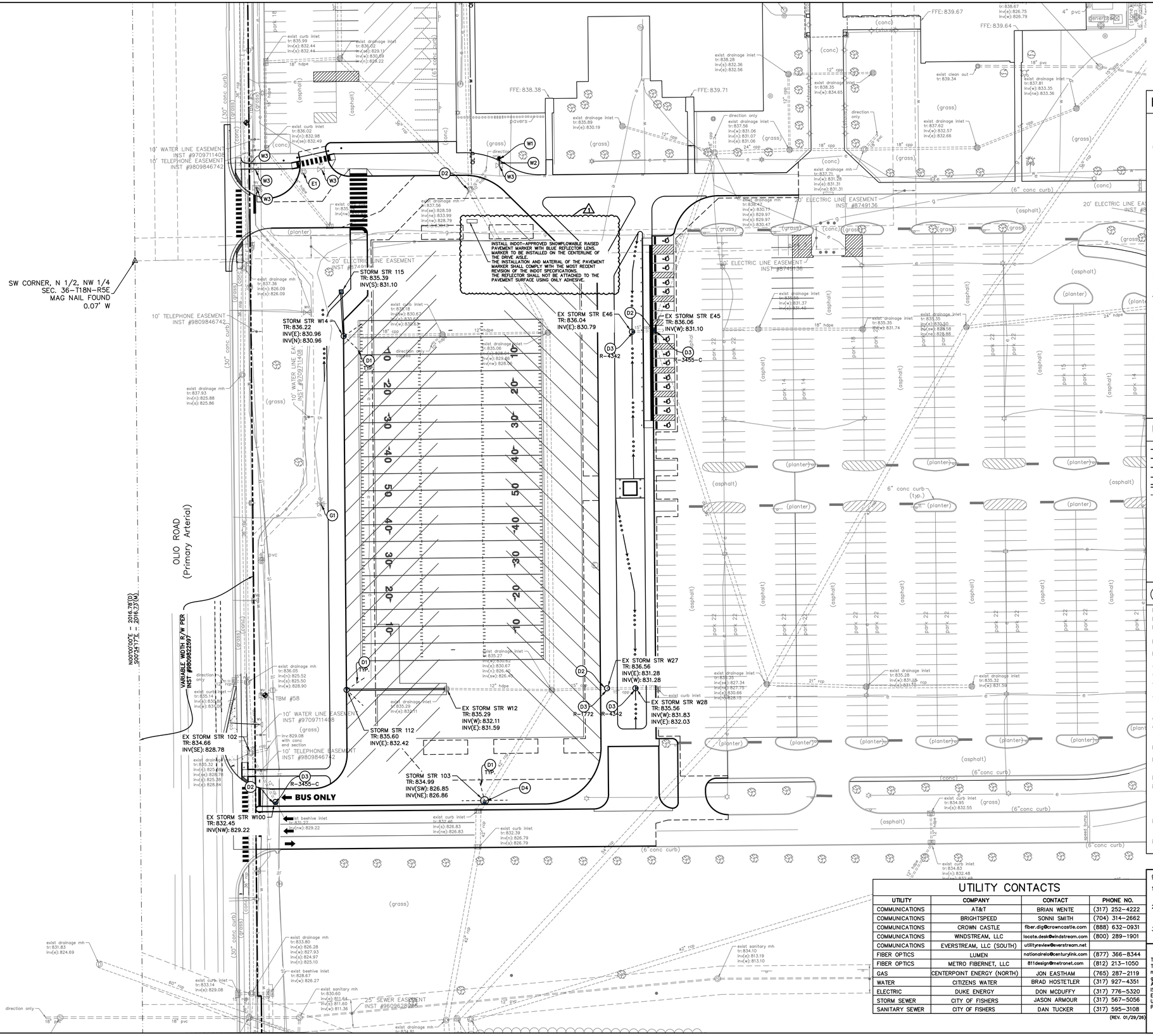
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EMERGENCY FLOOD ROUTING PLAN

C350

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UTILITY LEGEND

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- PAVEMENT UNDERDRAIN
- VALVE
- WATER FITTINGS
- FIRE HYDRANT W/ ASSEMBLY

KEYNOTES

DRAINAGE/STORM SEWER

D1. PAVEMENT UNDERDRAIN

D2. ADJUST EXISTING STRUCTURE TO PROPOSED GRADE. SEE GRADING PLAN FOR PROPOSED RIM ELEVATIONS.

D3. REPLACE EXISTING CASTING

D4. DOGHOUSE MANHOLE

WATERLINE

W1. RELOCATED FIRE HYDRANT

W2. FIRE PROTECTION LINE (MATCH EXISTING SIZE AND MATERIAL)

W3. ADJUST EXISTING VALVE TO PROPOSED GRADES. SEE GRADING PLAN FOR PROPOSED RIM ELEVATIONS.

GAS

G1. ADJUST EXISTING GAS VALVE TO PROPOSED GRADE. SEE GRADING PLAN FOR PROPOSED RIM ELEVATION.

ELECTRIC

E1. ADJUST EXISTING ELECTRIC BOX TO PROPOSED GRADE. SEE GRADING PLAN FOR PROPOSED RIM ELEVATIONS

MISCELLANEOUS

M1. POTENTIAL UTILITY CONFLICT (ALL WATER / SANITARY / STORM CROSSINGS TO HAVE A MINIMUM OF 18" VERTICAL CLEARANCE. CONTACT ENGINEER IF CONFLICTS EXIST. RELOCATE EXISTING UTILITIES AS REQUIRED.

M2. CONTRACTOR TO FIELD VERIFY LOCATION, DEPTH AND SIZE OF EXISTING UTILITIES TO ENSURE CONFLICTS DO NOT EXIST WITH PROPOSED UTILITIES.

M3. CONTRACTOR TO COORDINATE UTILITY CONNECTION WITH UTILITY PROVIDER.

UTILITY CONTACTS

UTILITY	COMPANY	CONTACT	PHONE NO.
COMMUNICATIONS	AT&T	BRIAN WENTE	(317) 252–4222
COMMUNICATIONS	BRIGHTSPEED	SONNI SMITH	(704) 314–2662
COMMUNICATIONS	CROWN CASTLE	fiber.dig@crowncastle.com	(888) 632–0931
COMMUNICATIONS	WINDSTREAM, LLC	locate.desk@windstream.com	(800) 289–1901
COMMUNICATIONS	EVERSTREAM, LLC (SOUTH)	utilityreview@everstream.net	
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(REV. 01/29/26)

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Project Number 2025.01563

UTILITY PLAN

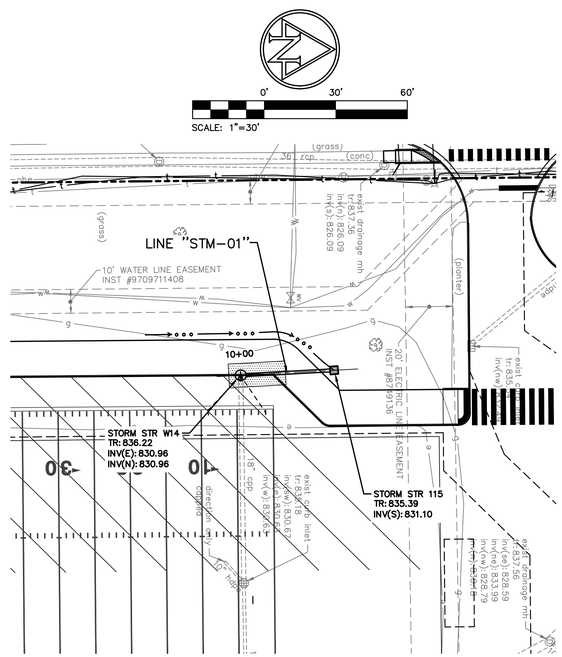
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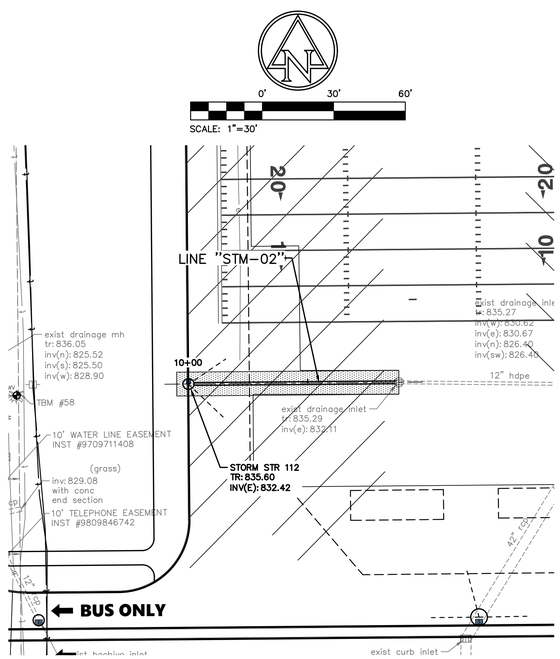
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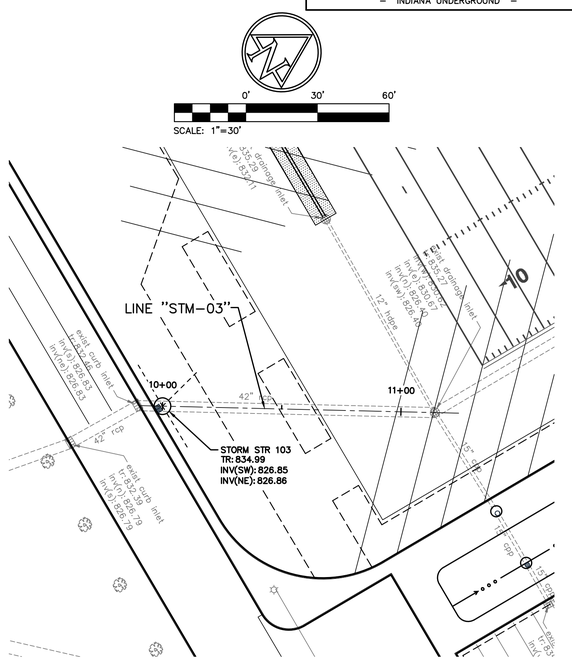
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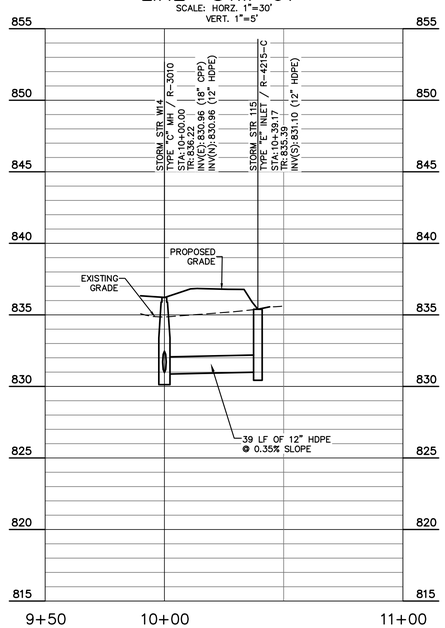
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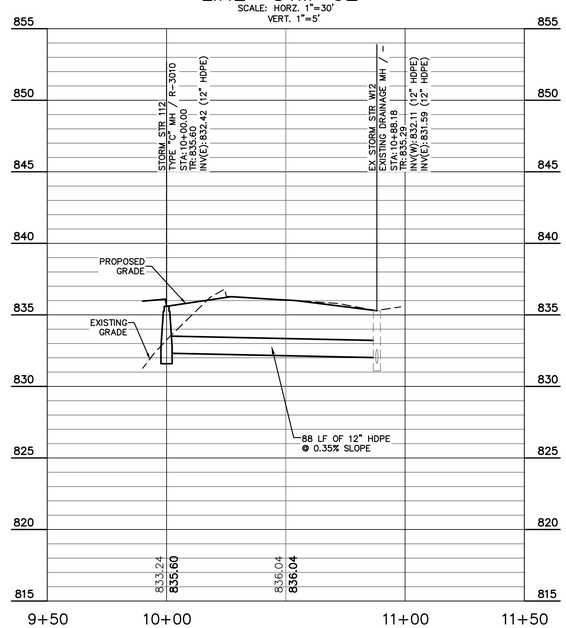
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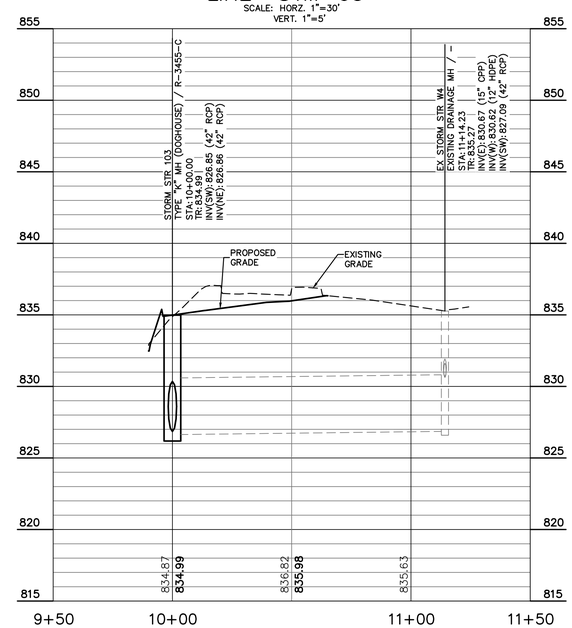












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EXISTING LEGEND

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- Combination Pole
- Curb Inlet
- Down Spout
- Drainage Inlet
- Drainage MH
- Electric Box
- Electric Cross Box
- Electric Handhole
- Electric Meter Box
- Electric MH
- Fire Hydrant
- Fire Plug
- Fire Valve Shut Off
- Flag Pole
- Gas Marker
- Gas Meter
- Gas Valve
- Guard Post
- Guy Wire
- Hose Bib
- Lid
- Light Pole
- Mail Box
- Manhole
- Pine Tree
- Post
- Power Pole
- Right of Way Marker
- Sanitary MH
- Sign
- Spigot
- Sprinkler Control Valve
- Stand Pipe
- Stump
- Telephone Cross Box
- Telephone Handhole
- Telephone Marker
- Telephone MH
- Telephone Pedestal
- Telephone Pole
- Temporary Bench Mark
- Traffic MH
- Traffic Pedestal
- Traffic Pole
- Transformer
- Tree
- Vent
- Water Meter
- Water MH
- Water Valve
- Well
- Yard Light
- –e– Buried Electric Line
- –g– Buried Gas Line
- –t– Buried Telephone Line
- –tr– Buried Traffic Line
- –w– Buried Water Line
- –ohe– Overhead Electric Line
- –oht– Overhead Telephone Line
- –otr– Overhead Traffic Line

BENCHMARK DATA

(DATUM: NAVD 88)

BENCHMARK ELEVATIONS WERE ESTABLISHED FROM GPS OBSERVATIONS ON THE IDENTIFIED BASE STATION DESCRIBED WITHIN. AN NGS OPUS SOLUTION (FILE #TR1949262187316) WAS OBTAINED AND USED TO CONTROL THE PROJECT'S VERTICAL DATUM. THE ELEVATIONS WERE THEN TRANSFERRED TO THE SITE USING DIFFERENTIAL LEVELING.

TBM 109
CUT "X" S.W. BOLT LIGHT POLE BASE ±100' WEST OF S.W. CORNER OF HAMILTON SOUTHEASTERN HIGH SCHOOL TENNIS COURTS.
ELEV: 838.44'

TBM #50
CUT "X" S.W. BOLT LIGHT POLE, NORTH SIDE HSE HIGH SCHOOL S RING ROAD SW CORNER OF STADIUM.
ELEV: 839.39'

TBM #51
CUT "X" SOUTH EAST BOLT LIGHT POLE BASE WHERE OLIO FIELDS ENTRANCE ROAD TURNS BACK TO WEST AND BECOMES HSE HIGH SCHOOL RING ROAD.
ELEV: 843.25'

TBM #52
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TBM #54
CUT "X" TOP OF RIGHT-OF-WAY MONUMENT, SOUTH SIDE OF 126TH STREET AND 100'± EAST OF MIDDLE ENTRANCE TO HSE HIGH SCHOOL.
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TBM #HSE 12
HSE DISK SET IN CONCRETE ON THE SOUTH SIDE OF THE NORTH ENTRANCE TO FALL CREEK ELEMENTARY SCHOOL.
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STORM SEWER NOTES

1. ALL CASTINGS SHALL BE LABELED "DUMP NO WASTE – DRAINS TO WATERWAY"
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3. PIPE NOTED AS HDPE MAY BE SUBSTITUTED WITH HP PIPE – REFER TO STORM TRENCH DETAIL FOR MORE INFORMATION

PLAN & PROFILE LEGEND

GRANULAR BACKFILL REQUIRED; THE GRANULAR BACKFILL AREAS SHOWN IN PLAN VIEW ARE AN ESTIMATE PROVIDED BY THE ENGINEER. EXACT LIMITS OF GRANULAR BACKFILL ARE TO BE DETERMINED IN THE FIELD BY THE CONTRACTOR BASED ON TRENCH WIDTH AND AS DIRECTED BY THE AUTHORITY HAVING JURISDICTION.

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STORM SEWER PLAN & PROFILES

C410

PLOT DATE: 3/11/2026 5:10 PM
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(REV. 01/29/26)

STORM STRUCTURE DATA TABLE

NOTE: ALL CASTINGS SHALL BE LABELED "DUMP NO WASTE-DRAINS TO WATERWAY"

STR. NO.	STRUCTURE TYPE	CASTING TYPE	TOP OF RIM	INCOMING PIPE DATA (DIRECTION) [FROM STR]	OUTGOING PIPE DATA (DIRECTION) [TO STR]	OUTGOING PIPE L.F.	OUTGOING GRADE (%)	REMARKS
13	EXISTING DRAINAGE MH	-	835.18	18" CPP 830.63 (W) [W14]				
102	EXISTING DRAINAGE MH	-	834.66	12" RCP 828.78 (SE) [W100]				EXISTING STRUCTURE
103	TYPE "K" MH	R-3455-C	834.99	42" RCP 826.86 (NE) [W4]	42" RCP 826.85 (SW) []	10'	0.20%	DOGHOUSE MANHOLE
112	TYPE "C" MH	R-3010	835.60		12" HDPE 832.42 (E) [W12]	88'	0.35%	
115	TYPE "E" INLET	R-4215-C	835.39		12" HDPE 831.10 (S) [W14]	39'	0.35%	
E45	TYPE "C" MH	R-3455-C	836.06	15" CPP 831.10 (W) [E46]				EXISTING STRUCTURE. SWAP CASTING TO FLAT CASTING AND ADJUST STRUCTURE TO PROPOSED GRADE.
E46	TYPE "C" MH	R-4342	836.04		15" CPP 830.79 (E) [E45]	19'	-1.62%	EXISTING STRUCTURE. SWAP CASTING TO BEEHIVE/YARD CASTING.
W4	EXISTING DRAINAGE MH	-	835.27	15" CPP 830.67 (E) [W27] 12" HDPE 830.62 (W) [W12]	42" RCP 827.09 (SW) [103]	114'	0.20%	EXISTING STRUCTURE
W12	EXISTING DRAINAGE MH	-	835.29	12" HDPE 832.11 (W) [112]	12" HDPE 831.59 (E) [W4]	93'	1.04%	
W14	TYPE "C" MH	R-3010	836.22	12" HDPE 830.96 (N) [115]	18" CPP 830.96 (E) [13]	87'	0.38%	
W27	TYPE "C" MH	R-1772	836.56	12" CPP 831.28 (E) [W28]	15" CPP 831.28 (W) [W4]	49'	1.25%	EXISTING STRUCTURE. SWAP CASTING TO SOLID LID AND ADJUST STRUCTURE TO PROPOSED GRADE.
W28	TYPE "C" MH	R-4342	835.56	12" CPP 832.03 (E) []	12" CPP 831.83 (W) [W27]	25'	2.20%	EXISTING STRUCTURE. SWAP CASTING TO BEEHIVE/YARD CASTING.
W100	TYPE "C" MH	R-3455-C	832.45		12" RCP 829.22 (NW) [102]	49'	0.91%	EXISTING STRUCTURE. SWAP CASTING TO FLAT CASTING AND ADJUST STRUCTURE TO PROPOSED GRADE.

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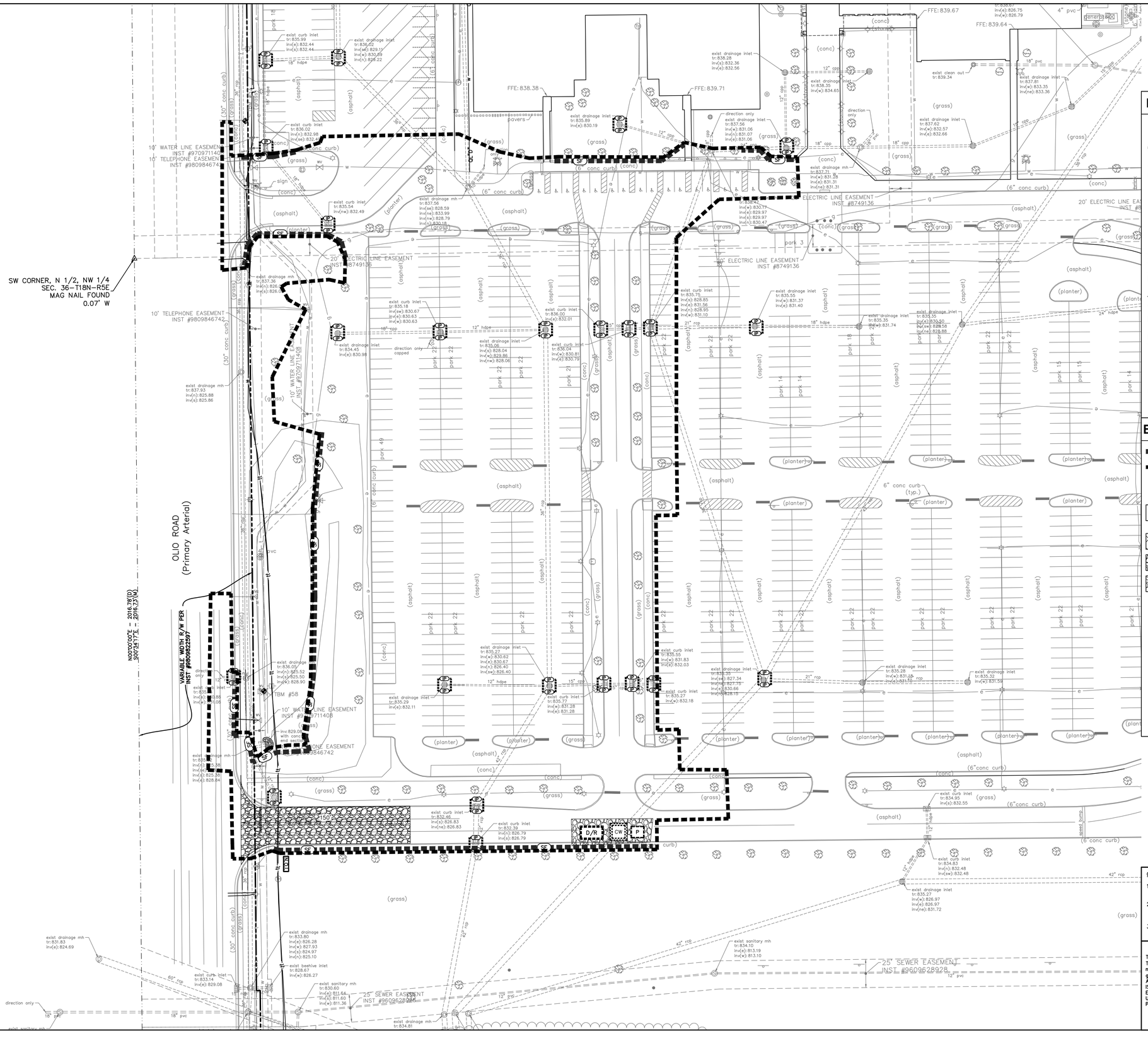
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STORM STRUCTURE DATA TABLE

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- Sanitary MH
- Sign
- Spigot
- Sprinkler Control Valve
- Stand Pipe
- Stump
- Telephone Cross Box
- Telephone Handhole
- Telephone Marker
- Telephone MH
- Telephone Pedestal
- Telephone Pole
- Temporary Bench Mark
- Traffic MH
- Traffic Pedestal
- Traffic Pole
- Transformer
- Tree
- Vent
- Water Meter
- Water MH
- Water Valve
- Well
- Yard Light
- –e– Buried Electric Line
- –g– Buried Gas Line
- –t– Buried Telephone Line
- –tr– Buried Traffic Line
- –w– Buried Water Line
- –ohe– Overhead Electric Line
- –oht– Overhead Telephone Line
- –otr– Overhead Traffic Line

EROSION CONTROL LEGEND

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context DESIGN
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Indianapolis, Indiana 46216

HAMILTON SOUTHEASTERN HIGH SCHOOL BUS PARKING LOT

12499 Olio Road
Fishers, IN 46037

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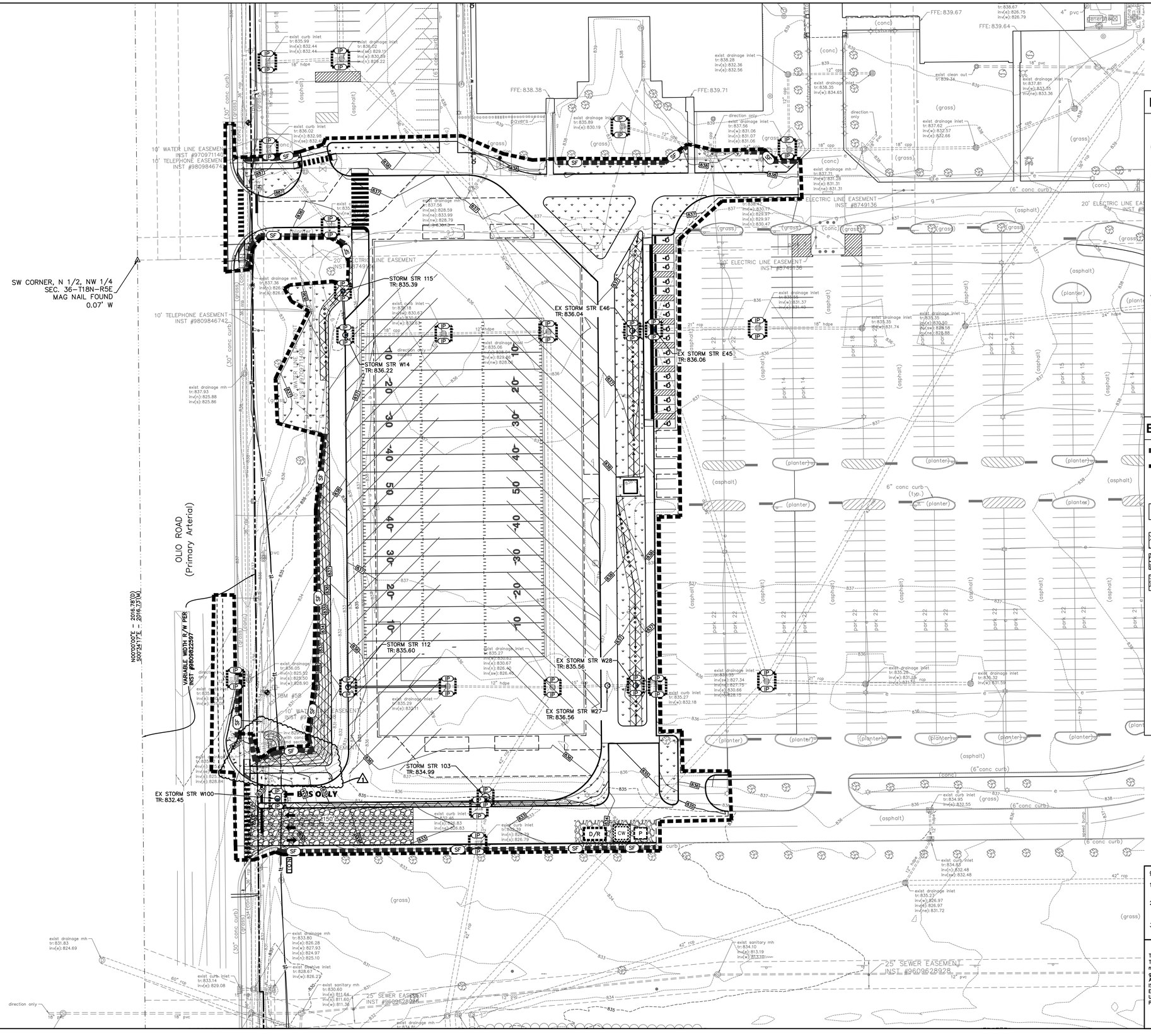
REVISION SCHEDULE		
NO.	DESCRIPTION	DATE
1	ADDENDUM 1	03/12/26

Project Number 2025.01563

INITIAL EROSION CONTROL PLAN

C500

PLOT DATE: 3/11/2026 5:11 PM
PLOT SCALE: 1:2.5849
EDIT DATE: 3/11/2026
EDITED BY: JVNSON
DRAWING FILE: P:\2025\01563\D Drawings\Civil\Construction Documents\2025.01563 CE C500 IECP.dwg



EXISTING LEGEND

ADA Parking	Right of Way Marker
Air Conditioner	Sanitary MH
Beehive Inlet	Sign
Bush	Spigot
Clean Out	Sprinkler Control Valve
Combination Pole	Stand Pipe
Curb Inlet	Stump
Down Spout	Telephone Cross Box
Drainage Inlet	Telephone Handhole
Drainage MH	Telephone Marker
Electric Box	Telephone MH
Electric Cross Box	Telephone Pedestal
Electric Handhole	Telephone Pole
Electric Meter Box	Temporary Bench Mark
Electric MH	Traffic MH
Fire Hydrant	Traffic Pedestal
Fire Plug	Traffic Pole
Fire Valve Shut Off	Transformer
Flag Pole	Tree
Gas Marker	Vent
Gas Meter	Water Meter
Gas Valve	Water MH
Guard Post	Water Valve
Guy Wire	Well
Hose Bib	Yard Light
Lid	–e– Buried Electric Line
Light Pole	–g– Buried Gas Line
Mail Box	–t– Buried Telephone Line
Manhole	–tr– Buried Traffic Line
Pine Tree	–w– Buried Water Line
Post	–ohe– Overhead Electric Line
Power Pole	–oht– Overhead Telephone Line
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Project Number 2025.01563

EROSION CONTROL PLAN

C501

PLOT DATE: 3/11/2026 5:12 PM
PLOT SCALE: 1:2.5849
EDIT DATE: 3/11/2026
EDITED BY: JVINSON
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SW CORNER, N 1/2, NW 1/4
SEC. 36–T18N–R5E
MAG NAIL FOUND
0.07' W

OLIO ROAD
(Primary Arterial)

N00°00'00"E – 2016.78'(D)
S00°34'17"E – 2016.73'(M)

VARIABLE WIDTH R/W PER
INST #9809822597

10' WATER LINE EASEMENT
INST #9709711400
10' TELEPHONE EASEMENT
INST #9809846744

10' TELEPHONE EASEMENT
INST #9809846742

20' ELECTRIC LINE EASEMENT
INST #8749749

10' WATER LINE EASEMENT
INST #9809822597

20' ELECTRIC LINE EASEMENT
INST #8745136

ELECTRIC LINE EASEMENT
INST #8749136

25' SEWER EASEMENT
INST #9609628928

STORM STR 115
STORM STR W14
STORM STR E45
EX STORM STR E46
STORM STR 112
EX STORM STR W27
EX STORM STR W28
EX STORM STR 102
EX STORM STR W100
STORM STR 103

FFE: 838.38
FFE: 839.71
FFE: 839.67
FFE: 839.64

JBM #58

SCALE: 1"=40'

EXISTING LEGEND

ADA Parking	Right of Way Marker
Air Conditioner	Sanitary MH
Beehive Inlet	Sign
Bush	Spigot
Clean Out	Sprinkler Control Valve
Combination Pole	Stand Pipe
Curb Inlet	Stump
Down Spout	Telephone Cross Box
Drainage Inlet	Telephone Handhole
Drainage MH	Telephone Marker
Electric Box	Telephone MH
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Electric Handhole	Telephone Pole
Electric Meter Box	Temporary Bench Mark
Electric MH	Traffic MH
Fire Hydrant	Traffic Pedestal
Fire Plug	Traffic Pole
Fire Valve Shut Off	Transformer
Flag Pole	Tree
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Gas Meter	Water Meter
Gas Valve	Water MH
Guard Post	Water Valve
Guy Wire	Well
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FINAL EROSION CONTROL PLAN

C502

PLOT DATE: 3/11/2026 5:12 PM
PLOT SCALE: 1:2.4849
EDIT DATE: 3/11/2026
EDITED BY: JVINSON
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SITE NAME

The area scheduled for construction is known as "Hamilton Southeastern High School Bus Parking Lot" (hereinafter referred to as the "Project").

PROJECT LOCATION

The property is located at Hamilton Southeastern High School, between 126th St and Olio Rd in Fishers, Indiana.

NOTICE OF INTENT

All parties defined as owners or operators must submit a Construction Stormwater General Permit (CSGP) at least 48 hours prior to commencement of on-site construction activities. Submittal of late CSGP's is not prohibited; however, authorization under the construction general permit is only for discharges that occur after permit coverage is granted. Unpermitted discharges may be subject to enforcement actions by the EPA. For the purposes of this permit, an operator is defined as any party meeting either of the following requirements:

a) The party has operational control over construction plans and specifications, including the ability to make modifications to those plans and specifications.
b) The party has day-to-day operational control of those activities at a project that are necessary to ensure compliance with a stormwater pollution prevention plan for the site or other permit conditions.

A1 INDEX OF THE LOCATION OF REQUIRED PLAN ELEMENTS IN THE CONSTRUCTION PLAN:

Refer to the Sheet Index on the Title Sheet.

A2 VICINITY MAP DEPICTING THE PROJECT SITE LOCATION IN RELATIONSHIP TO RECOGNIZABLE LOCAL LANDMARKS, TOWNS, AND MAJORE ROADS:

Refer to the Title Sheet for the Vicinity Map.

A3 NARRATIVE OF THE NATURE AND PURPOSE OF THE PROJECT:

This project consists of the construction of a Bus Parking Lot and associated infrastructure.

A4 LATITUDE AND LONGITUDE TO THE NEAREST FIFTEEN (15) SECONDS:

The project is located at a latitude of 39°58'8" N and a longitude of 85°55'6"W.

A5 LEGAL DESCRIPTION OF THE PROJECT SITE:

Refer to the Existing Topography Plan for the legal description. The site is located in NE Quarter, Section 36, Township 18 N, Range 5 E in Fall Creek Township.

A6 11x17-INCH PLAT SHOWING BUILDING LOT NUMBERS/BOUNDARIES AND ROAD LAYOUT/NAMES:

Refer to the Existing Topography Plan.

A7 BOUNDARIES OF THE ONE HUNDRED (100) YEAR FLOODPLAINS, FLOODWAY FRINGES, AND FLOODWAYS:

Refer to Title Sheet. The project is not located in a 100 Year Floodplain, Floodway Fringe, or Floodway as indicated on the Hamilton, IN, Flood Insurance Rate Map 18057C0258G dated November 19, 2014.

A8 LAND USE OF ALL ADJACENT PROPERTIES:

North: Residential
East: Education / Residential
South: Residential
West: Commercial

A9 IDENTIFICATION OF A U.S. EPA APPROVED OR ESTABLISHED TMDL:

There are identified pollutants for this project's watershed per the available TMDL Reports. Fall Creek TMDL Reports include E.Coli

A10 NAME(S) OF THE RECEIVING WATER(S):

Mud Creek is the receiving water of the project.

A11 IDENTIFICATION OF DISCHARGES TO A WATER ON THE CURRENT 303(D) LIST OF IMPAIRED WATERS AND THE POLLUTANT(S) FOR WHICH IT IS IMPAIRED:

The receiving water of this project is not on the current 303(d) List of Impaired Waters.

A12 SOILS MAP OF THE PREDOMINATE SOIL TYPES:

Refer to the Title Sheet. The on-site soil will be treated as recommended by the geotechnical engineer if the conditions are unsuitable for the proposed construction. Remedial treatments may include, but are not limited to, removal of unsuitable soil and backfilling with engineered material, installation of a geofabric within or under the pavement system, or treatment of the subgrade with lime.

A13 IDENTIFICATION AND LOCATION OF ALL KNOWN WETLANDS, LAKES, AND WATER COURSES ON OR ADJACENT TO THE PROJECT SITE (CONSTRUCTION PLAN, EXISTING SITE LAYOUT):

Refer to the Existing Topography Plan. There are not wetlands, lakes, or water courses on or adjacent to this site.

A14 IDENTIFICATION OF ANY OTHER STATE OR FEDERAL WATER QUALITY PERMITS OR AUTHORIZATIONS THAT ARE REQUIRED FOR CONSTRUCTION ACTIVITIES:

None.

A15 IDENTIFICATION AND DELINEATION OF EXISTING COVER, INCLUDING NATURAL BUFFERS:

Refer to the Existing Topography Plan. There are not required natural buffers.

A16 EXISTING SITE TOPOGRAPHY AT AN INTERVAL APPROPRIATE TO INDICATE DRAINAGE PATTERNS:

Refer to the Existing Topography & Demolition Plan.

A17 LOCATION(S) WHERE RUN-OFF ENTERS THE PROJECT SITE:

Refer to the Existing Topography & Demolition Plan. There is not offsite stormwater flowing onto the site.

A18 LOCATION(S) WHERE RUN-OFF DISCHARGES FROM THE PROJECT SITE PRIOR TO LAND DISTURBANCE:

Refer to the Existing Topography & Demolition Plan. The project's stormwater discharges from the site via storm sewer south of the site into existing dry detention basin.

A19 LOCATION OF ALL EXISTING STRUCTURES ON THE PROJECT SITE:

Refer to the Existing Topography & Demolition Plan. There are existing buildings, ponds, or other infrastructure on the project site.

A20 EXISTING PERMANENT RETENTION OR DETENTION FACILITIES, INCLUDING MANMADE WETLANDS, DESIGNED FOR THE PURPOSE OF STORMWATER MANAGEMENT:

Refer to the Existing Topography & Demolition Plan. There are existing permanent retention or detention facilities.

A21 LOCATIONS WHERE STORMWATER MAY BE DIRECTLY DISCHARGED INTO GROUND WATER, SUCH AS ABANDONED WELLS, SINKHOLES, OR KARST FEATURES:

Refer to the Existing Topography & Demolition Plan. There are not locations where stormwater may be directly discharged into groundwater.

A22 SIZE OF THE PROJECT AREA EXPRESSED IN ACRES:

Refer to the Existing Topography & Demolition Plan. The project area is ±4.8 acres.

A23 TOTAL EXPECTED LAND DISTURBANCE EXPRESSED IN ACRES:

Refer to the Site Plan. The disturbed area is ±3.1 acres.

A24 PROPOSED FINAL TOPOGRAPHY:

Refer to the Grading Plan for the proposed grading of the project.

A25 LOCATIONS AND APPROXIMATE BOUNDARIES OF ALL DISTURBED AREAS:

Refer to the Erosion Control Plan for construction limits.

A26 LOCATIONS, SIZE, AND DIMENSIONS OF ALL STORMWATER DRAINAGE SYSTEM SUCH AS CULVERTS, STORMWATER SEWER, AND CONVEYANCE CHANNELS:

Refer to the Utility Plan for location and Storm Sewer Plan & Profiles for size and dimensions.

A27 LOCATIONS OF SPECIFIC POINTS WHERE STORMWATER AND NON-STORMWATER DISCHARGES WILL LEAVE THE PROJECT SITE:

Refer to the Grading & Utility Plan for where stormwater discharges from the site. The discharge points for this site are located south of the site into an existing dry detention basin and west of the site into existing inlet structures along Olio Rd.

A28 LOCATION OF ALL PROPOSED SITE IMPROVEMENTS, INCLUDING ROADS, UTILITIES, LOT DELINEATION AND IDENTIFICATION, PROPOSED STRUCTURES, AND COMMON AREAS:

Refer to the Utility & Grading Plan for the location of all site improvements.

A29 LOCATION OF ALL ON-SITE AND OFF-SITE SOIL STOCKPILES AND BORROW AREAS:

Refer to the Erosion Control Plan for the location of soil stockpiles.

A30 CONSTRUCTION SUPPORT ACTIVITIES THAT ARE EXPECTED TO BE PART OF THE PROJECT:

Refer to the Erosion Control Plan for location of staging area, concrete washout, port-o-let, dumpster, etc.

A31 LOCATION OF ANY IN-STREAM ACTIVITIES THAT ARE PLANNED FOR THE PROJECT INCLUDING, BUT NOT LIMITED TO, STREAM CROSSINGS AND PUMP AROUNDS:

Refer to the Site Plan. There are not any in-stream activities planned as part of this project.

B1 DESCRIPTION OF POTENTIAL POLLUTANT GENERATING SOURCES AND POLLUTANTS, INCLUDING ALL POTENTIAL NON-STORMWATER DISCHARGES:

The following potential pollutant sources may be associated with construction activities on site:

- Material storage areas (more specifically described below)
- Construction waste material
- Fuel storage areas and fueling stations
- Exposed soils
- Leaking vehicles and equipment
- Sanitary waste from temporary toilet facilities
- Litter
- Windblown dust
- Soil tracking off site from construction equipment

The following construction materials may be staged or stored on site at various points during development of the site:

- Structural fill
- Pavement Base Stone
- HDPE, HP, PVC, RCP or Ductile Iron pipe
- Precast concrete, HDPE or PVC drainage and sanitary structures
- Rock rip-rap

B2 STABLE CONSTRUCTION ENTRANCE LOCATIONS AND SPECIFICATIONS:

Refer to the Erosion Control Plan for location and Erosion Control Details for details/specifications. Construction entrances will be in place prior to any site construction or demolition.

B3 SPECIFICATIONS FOR TEMPORARY AND PERMANENT STABILIZATION:

Refer to the Erosion Control Plan for location and Erosion Control Details for details/specifications. Surface stabilization is required on any bare or thinly vegetated area that is scheduled or likely to remain inactive for a period of 7 days or more. Refer to the Temporary and Permanent Seeding Details for specifics on soil amendments, seed mixtures and mulching. Surface roughening is required on any bare-soiled surface with a slope greater than or equal to 6:1. Surface roughening should be employed in conjunction with temporary and permanent stabilization methods as described above. See Erosion Control Details for installation, inspection, and maintenance of surface roughening.

B4 SEDIMENT CONTROL MEASURES FOR CONCENTRATED FLOW AREAS:

Refer to the Erosion Control Plan for location and Erosion Control Details for details/specifications. Proposed swales will be stabilized with erosion control blankets and rock check dams & rock donuts will be installed to slow runoff to inlets/end sections. Straw bales and silt fences will not be allowed as concentrated flow protection measures.

B5 SEDIMENT CONTROL MEASURES FOR SHEET FLOW AREAS:

Refer to the Erosion Control Plan for location and Erosion Control Details for details/specifications. Sheet flow areas will be protected by seed and mulch or hydroseeding. Erosion control blankets will be installed on sloped areas where the slope exceeds 6:1 (horizontal to vertical). Silt Fencing will be utilized to prevent sedimentation from leaving the site.

B6 RUN-OFF CONTROL MEASURES:

Refer to the Erosion Control Plan for location and Erosion Control Details for details/specifications. This project does not includes the use of rock check dams, diversions, and slope drains.

B7 STORMWATER OUTLET PROTECTION LOCATION AND SPECIFICATIONS:

Refer to the Erosion Control Plan for location and Erosion Control Details for details/specifications. Stormwater outlets will be protected by riprap aprons (Riprap Outlet Protection) to prevent scour erosion.

B8 GRADE STABILIZATION STRUCTURE LOCATIONS AND SPECIFICATIONS:

Refer to the Erosion Control Plan for location and Erosion Control Details for details/specifications. This project does not utilize grade stabilization measures. These measures include rock chutes, toe wall, and drop structures.

B9 DEWATERING APPLICATIONS AND MANAGEMENT METHODS:

Refer to the Erosion Control Details for details/specifications of dewatering.

Installation
- Locate the desired outflow location for the dewatering system and coordinate the filter and stabilization method to be used with the installer.
- Discuss the pump capacity and piping components to be used with the installer. Review the layout of the system prior to placement and have any deficiencies corrected prior to operation activation.
- Construct a secondary containment BMP such as a rock filter berm or sediment trap near the waterway.
- Place filter bag on a flat stable surface outside of the waterway.
- Place filter bag in a location that can be removed efficiently without causing damage or losing sediment.

Inspection
- Inspect daily during dewatering operations.
- Inspect the filter location and condition for necessary repair.
- Review the piping system for leakage, kinks and conditions for needed repair.
- Inspect the filer bag for tears and sediment and water capacity.
- Look for erosion between filter bag and waterway.

Maintenance
- Repair any pumps damaged or not operating properly.
- Repair or replace filters that exhibit leakage or failure.
- Filters may need to be replaced when they become laden with sediment.
- Repair or replace leaking or damaged piping.
- Repair eroded areas and stabilize.

B10 MEASURES UTILIZED FOR WORK WITHIN WATERBODIES:

There is not any work within waterbodies for this project.

B11 MAINTENANCE GUIDELINES FOR EACH PROPOSED STORMWATER QUALITY MEASURE:

Inspection Schedule/Reporting
All impacted areas, as well as all erosion and sediment control devices, will be inspected every seven (7) calendar days and within 24 hours after a rainfall of 0.5 inch or greater. Where sites have been final or temporarily stabilized or on sites where runoff is unlikely due to winter conditions (e.g., site is covered with snow, ice, or frozen ground exists), such inspections shall be conducted at least once every month.

Inspections shall be conducted and a written report prepared, by a designated and qualified person familiar with the USEPA NPDES Storm Water General Permit, this SWP3, and the Project.

Inspection reports shall be completed including scope of the inspection, name(s) and qualifications of personnel making the inspection, the date of the inspection, observations relating to the implementation of the SWP3, and any actions taken as a result of incidents of noncompliance noted during the inspection. The inspection report should state whether the site was in compliance or identify any incidents of noncompliance. The contractor shall keep a copy of the inspection reports on site and permanently for a period of two years following construction. The on-site reports may be requested by inspections conducted by the local governing authority.

Construction Entrance
Locations where vehicles exit the site shall be inspected for evidence of off-site sediment tracking. Each contractor and subcontractor shall be responsible for maintaining the Construction Entrance and other controls as described in this SWP3.

Material Storage Inspections
Inspectors must evaluate areas used for storage of materials that are exposed to precipitation. The purpose is to ensure that materials are protected and/or impounded so that pollutants cannot discharge from storage areas. Off-site material storage areas used solely by the subject project are considered to be part of the project and must be included in the erosion control plans and the site inspection reports.

Soil Stabilization Inspections
Seeded areas will be inspected to confirm that a healthy stand of vegetation is maintained. The site has achieved final stabilization once all areas are covered with pavement or have a stand of vegetation with at least 70% of the background vegetation density. The density of 70% or greater must be maintained to be considered as stabilized. The operator or their representative will water, fertilize, and reseed disturbed areas as needed to achieve this goal.

Erosion and Sediment Control Inspections
All controls should be inspected at least once every seven (7) calendar days and following any storm event of 0.5 inch or greater. The following is a list of inspection/maintenance practices that will be used for specific controls:

1. Geotextiles/Erosion Control Mats: Missing or loose matting must be replaced or re-anchored.
2. Inlet Protection: If silt fence inlet protection is to be used, sediment should be removed when it reaches approximately one-half the height of the fence. If a sump is used, sediment should be removed when the volume of the basin is reduced by 50%.
3. Diversion Swales: Clean debris or other obstructions as needed. Damage from storms or normal construction activities (i.e., tire ruts) shall be repaired immediately.
4. Mulching: Inspect for thin or bare spots caused by natural decomposition or weather-related events. Mulch in high traffic areas should be replaced on a regular basis to maintain uniform protection.
5. Sediment Trap: Accumulated silt shall be removed and the basin shall be re-graded to its original dimensions at such point that the capacity of the impoundment has been reduced to one-half of its original storage capacity. The removed sediment shall be stockpiled or redistributed in areas that are protected from erosion.
6. Sediment Basin: Inspect frequently to check for damage and to ensure obstructions are not diminishing the effectiveness of the structures. Sediment shall be removed and the basin shall be re-graded to its original dimensions at such point that the capacity of the impoundment has been reduced to 20% of its original storage capacity. The removed sediment shall be stockpiled or redistributed in areas that are protected from erosion.
7. Silt Fence: Removal of built-up sediment will occur when the sediment reaches one-third the height of the fence.
8. Stabilized Construction Entrance: Periodic re-grading and top dressing with additional stone.
9. Straw Bales: Replace straw bales that show signs of deterioration.
10. Vegetation: Protect newly seeded areas from excessive runoff and traffic until vegetation is established. Establish a watering and fertilizing schedule.
11. Good Housekeeping: Litter, construction debris, and construction chemicals exposed to stormwater shall be prevented from becoming a pollutant source for stormwater discharges through screening of outfalls and daily pickup of litter.

In the event that sediment escapes the construction site, off-site accumulations of sediment must be removed at a frequency sufficient to minimize adverse impacts. An example of this may be the situation where sediment has washed into the street and could be carried into the storm sewers by the next rainfall and/or pose a safety hazard to users of public streets.

Modifications/Revisions to SWP3.
Based on inspection results, any necessary modification to this SWP3 shall be implemented within seven calendar days of the inspection. A modification is necessary if a control measure or operational procedure does not provide adequate pollutant control. All revisions shall be recorded on a Record of Revisions within seven calendar days of the inspection.

It is the responsibility of the operator to maintain effective pollutant discharge controls. Physical site conditions or contractor/subcontractor practices could make it necessary to install more controls than were originally planned. For example, localized concentrations of surface runoff or unusually steep areas could require additional silt barrier or other structural controls. Assessing the need for and installing additional controls will be a continuing contractor/subcontractor responsibility until final stabilization is achieved. Contractors and subcontractors implementing this SWP3 must remain alert to the need to periodically refine and update this SWP3 in order to accomplish the intended goals.

Notice of Termination
Compliance of the site with the CSGP remains the responsibility of all operators that have submitted a CSGP until such time as they have submitted a Notice of Termination (NOT). The permittee's authorization to discharge under the CSGP terminates at midnight of the day the NOT is signed.

All permittees must submit an NOT within thirty (30) days after one or more of the following conditions have been met:

1. Final stabilization has been achieved on all portions of the site for which the permittee was responsible.
2. Another operator/permittee has assumed control over all areas of the site that have not been finally stabilized.
3. In residential construction operations, temporary stabilization has been completed and the residence has been transferred to the homeowner.

B12 PLANNED CONSTRUCTION SEQUENCE THAT DESCRIBES THE IMPLEMENTATION OF STORMWATER QUALITY MEASURES IN RELATION TO LAND DISTURBANCE:

Preconstruction Activity
- The exact locations of all existing utilities within the project limits are to be verified prior to construction.
- Schedule pre-construction meeting with local stormwater authority.
- Install protection fencing for existing trees to remain in place within the project limits.
- Install protection fencing for existing karst in areas adjacent to project limits.

Construction Site Access
- Install gravel construction entrance.
- Post the NOI at the construction entrance.
- Install construction staging pads, fueling station, material storage areas, concrete washout, construction parking areas and stabilize construction routes.

Perimeter Controls
- Utilize the gravel construction entrance for installation of the perimeter silt fence. Add stone if needed.

Initial Land Clearing and Grading Activities
- Add protection measures to existing inlets.
- Strip the topsoil and stabilize the topsoil stockpile.

Secondary Land Grading Activities
- Begin site grading/construction of detention basins and stabilize any soil stockpiles that will be left dormant for more than 7 days.
- Complete the cut and fills on the site. Final grade and seed the pond slopes. Install check dams and stabilize slopes with erosion control blankets.
- Install storm sewer system and install inlet protection immediately upon completion of the inlet and install riprap outlet protection prior to installing outlets.

Surface Stabilization
- Apply temporary seeding and stabilize slopes in areas where rough grading has been completed.
- Apply permanent seeding and stabilize slopes in areas where final grading has been completed.

Building Construction
- Prior to building construction install stone surface for paved areas.
- Building pads left dormant for more than 7 days, must be temporarily seeded.
- Start building construction. Install staging area for building materials and stabilize.

Final Shaping/Landscaping
- Utilize topsoil salvage in applicable areas and apply permanent seeding.
- Apply permanent seeding the perimeter of the site.
- Complete utility installation, curbs, paving and building construction.
- Install landscaping plant material and stabilize all disturbed areas.
- Remove all erosion and sediment control practices when areas have a uniform grass cover.

B13 PROVISIONS FOR EROSION AND SEDIMENT CONTROL ON INDIVIDUAL RESIDENTIAL BUILDING LOTS REGULATED UNDER THE PROPOSED PROJECT:

This section does not apply to this project.

B14 MATERIAL HANDLING AND SPILL PREVENTION AND SPILL RESPONSE PLAN MEETING THE REQUIREMENT IN 327 IAC 2-6.1:

Material Handling and Spill Prevention
Discharge of hazardous substances or oil into stormwater is subject to reporting requirements. In the event of a spill of a hazardous substance, the operator is required to notify the National Response Center (1-800-424-8802) to properly report the spill. In addition, the operator shall submit a written description of the release (including the type and amount of material released, the date of the release, the circumstances of the release, and the steps to be taken to prevent future spills) to the local governing authority. The SWP3 must be revised within 14 calendar days after the release to reflect the release, stating the information above along with modifications to minimize the possibility of future occurrences. Each contractor and subcontractor is responsible for complying with these reporting requirements.

Spill Response Plan
Minor – Small spills that typically involve oil, gasoline, paint, hydraulic fluid, etc., can be controlled by the first responder at the discovery of the spill.
- Contain spill to prevent material from entering storm or ground water. Do not flush with water or bury.
- Use absorbent material to clean-up spill material and any subsequently contaminated soil and dispose of properly.

Semi-Significant Spills – Approximately ten gallons or less of pollutant with no contamination of ground or surface waters. Minor spills can be generally controlled by the first responder with help from other site personnel. This response may require other operations to stop to make sure the spill is quickly and safely addressed. At the discovery of the spill:
- Contain spill to prevent material from entering storm or ground water. Do not flush with water or bury.
- Use absorbent material to clean-up spills and dispose of properly. Spills on impervious surfaces should be disposed of as soon as possible to prevent migration deeper into the soil and groundwater. Dispose of contaminated soils or absorbents properly.
- Contact 911 if the spill could be a safety issue.
- Contact supervisors and designated site inspectors immediately.
- Contaminated solids are to be removed to an approved landfill.

Major or Hazardous Spills – More than ten gallons, there is the potential for death, injury or illness to humans or animals, or has the potential for surface or groundwater pollution.
- Control or contain the spill without risking badly harm. Temporarily plug storm drains if possible to prevent migration of the spill into the stormwater system.
- Immediately contact the local Fire Department at 911 to report any hazardous material spill.
- Contact supervisors and designated site inspectors immediately. Governing authorities responsible for storm water facilities should be contacted as well. The contractor is responsible for having these contact numbers available at the job site. A written report should be submitted to the owner as soon as possible.
- As soon as possible but within 2 hours of discovery, contact the local agency responsible for spill management. The following information should be noted for future reports to the agency
  - Name, address and phone number of person making the spill report
  - The location of the spill
  - The time of the spill
  - Identification of the spilled substance
  - Approximate quantity of the substance that has been spilled or may be further spilled
  - The duration and source of the spill
  - Name and location of the damaged waters
  - Name of spill response organization
  - What measures were taken in the spill response
  - Other information that may be significant

Additional regulations or requirements may be present. A spill response professional should be consulted to make sure all appropriate and required steps have been taken. Contaminated solids should only be removed from the site after approval is given by the appropriate agency.

B15 MATERIAL HANDLING AND STORAGE PROCEDURES ASSOCIATED WITH CONSTRUCTION ACTIVITY:

Solid Waste Disposal
No solid material, including building materials, is permitted to be discharged to surface waters or buried on site. All solid waste materials, including disposable materials incidental to the construction activity, must be collected in containers or closed dumpsters. The collection containers must be emptied periodically and the collected material hauled to a landfill permitted by the State and/or appropriate local municipality to accept the waste for disposal.

A foreman or supervisor should be designated in writing to oversee, enforce, and instruct construction workers on proper solid waste procedures.

Dust Control/Off-Site Vehicle Tracking

During construction, water trucks should be used, as needed, by each contractor or subcontractor to reduce dust. After construction, the site should be stabilized to reduce dust.

Construction traffic should enter and exit the site at a Construction Entrance with a rock pad or equivalent device. The purpose of the rock pad is to minimize the amount of soil and mud that is tracked onto existing streets. If sediment escapes the construction site, off-site accumulations of sediment must be removed at a frequency sufficient to minimize offsite impacts.

Hazardous Material Storage & Waste

Whenever possible, minimize the use of hazardous materials and generation of hazardous wastes. All hazardous waste materials will be disposed in the manner specified by federal, state, or local regulations or by the manufacturer.

Chemicals, paints, solvents, fertilizers, and other toxic or hazardous materials should be stored in their original containers (if original container is not resealable, store the products in clearly labeled, waterproof containers). Except during application, the containers should be kept in trucks or in bermed areas within covered storage facilities. Runoff containing such materials shall be collected, removed from the site, and disposed of in accordance with the federal, state, and local regulations. Use containment berms in fueling and maintenance areas and where potential for spills is high.

As may be required by federal, state or local regulations, the Contractor should have a Hazardous Materials Management Plan and/or Hazardous Materials Spill and Prevention Program in place. A foreman or supervisor should be designated in writing to oversee, enforce, and instruct construction workers on proper hazardous materials storage and handling procedures. The location of any hazardous material storage areas should be indicated on the stormwater pollution prevention plan by the operator following on-site location of the storage areas.

Sanitary/Septic
Contractors and subcontractors must comply with all state and local sanitary sewer, portable toilet, or septic system regulations. Sanitary facilities shall be provided at the site by each contractor or subcontractor throughout construction activities. The sanitary facilities should be utilized by all construction personnel and be serviced regularly. All expenses associated with providing sanitary facilities are the responsibility of the contractors and subcontractors. The location of any sanitary facilities should be indicated on the stormwater pollution prevention plan by the operator following on-site location of said facilities.

Water Source
Water used to establish and maintain grass, to control dust, and for other construction purposes must originate from a public water supply or private well approved by the State or local health department.

Equipment Fueling and Storage Areas
Equipment fueling, maintenance, and cleaning should only be completed in protected areas (i.e., bermed area). Leaking equipment and maintenance fluids will be collected and not allowed to discharge onto soil where they may be washed away during a rain event.

Equipment wash down (except for wheel washes) should take place within an area surrounded by a berm. The use of detergents is prohibited.

Concrete Washout
All concrete trucks waste material shall be completely contained and disposed in accordance with all local, state, and federal regulations. A pit or container is required when cleaning concrete chutes.

C1 DESCRIPTION OF POLLUTANTS AND THEIR SOURCES ASSOCIATED WITH THE PROPOSED LAND USE:

The proposed land use is a Bus Parking Lot. The pollutants and sources of each pollutant normally expected from this type of land use are listed below:

Pollutant Source: Passenger vehicles, delivery vehicles.
Type of Pollutant: Oil, gasoline, diesel fuel, any hydrocarbon associated with vehicular fuels and lubricants, grease, antifreeze, windshield cleaner solution, brake fluid, brake dust, rubber, glass, metal and plastic fragments, grit, road de-icing materials.

Pollutant Source: Building
Type of Pollutant: Cleaning solutions or solvents, leaks from HVAC equipment, grit from roof drainage, aggregate or rubber fragments from roofing system.

Pollutant Source: Trash dumpster
Type of Pollutant: Cleaning solutions or solvents, litter (paper, plastic, general refuse associated with distribution operations), uneaten food products, bacteria.

Pollutant Source: Parking lot
Type of Pollutant: Any pollutant associated with vehicular sources, grit from asphalt wearing surface, bituminous compounds from periodic maintenance (sealing, resurfacing and patching), pavement de-icing materials, paint fragments from parking stall stripes, concrete fragments, wind-blown litter from off-site sources, elevated water temperatures from contact with impervious surfaces.

Pollutant Source: Lawn and landscape areas
Type of Pollutant: Fertilizers, soil, organic material (leaves, mulch, grass clippings)

C2 DESCRIPTION OF PROPOSED POST-CONSTRUCTION STORMWATER QUALITY MEASURES:

This project was designed to meet local run-off rates per the Hamilton County Stormwater Management Technical Stormwater Manual (2009). These reduced run-off rates ensure the post-development run-off discharge is less than the pre-development discharge. Below is a summary of the proposed post-construction stormwater measures used to meet these rates.

Permanent Vegetation
Topsoil will be placed in lawn areas and seeded with grass, and graded not to exceed 3:1 slopes. Proposed landscape trees and shrubs will also be added. These Bio areas will act as a natural filter strip to help improve storm water quality. The vegetated areas will slow the velocities of storm water runoff, reduce sediment runoff, and reduce problems associated with mud or dust from bare soils.

Existing Dry Detention Basin (DDB): Basins collect, temporarily hold, and gradually release excess storm water from storm events. Detention is achieved through the use of an outlet structure that regulates the rate of storm water outflow.

Good Housekeeping Measures
Good Housekeeping measures such as regular street sweeping, installation of trash receptacles, and reduction in fertilizer overspray can be incorporated by the owner and/or occupant.

C3 PLAN DETAILS FOR EACH STORMWATER MEASURE:

Refer to the Utility Plan for location and Stormwater Details for details of the stormwater measures in Section C2.

C4 SEQUENCE DESCRIBING STORMWATER MEASURE IMPLEMENTATION:

Refer to Section B12 for sequence steps.

Permanent Vegetation: The permanent vegetation is to be installed as part of the Final Shaping/Landscaping step to ensure positive drainage and adequate ground cover without disturbance from construction activities. Temporary vegetation should be maintained throughout preceding steps.

Dry Detention Basin (DDB): The dry detention basin is existing.

C5 MAINTENANCE GUIDELINES FOR POST-CONSTRUCTION STORMWATER QUALITY MEASURES:

Maintenance requirements for the stormwater quality measures which will remain in place after construction is complete, are described below. Refer to the BMP Operations and Maintenance Manual for more detailed maintenance requirements.

Detention Basins (Wet or Dry): Inspect periodically as needed or at least every six months. Sediment shall be disposed of off site in accordance with all applicable laws. Areas that show sign of erosion shall be stabilized with erosion control blanket and/or seed as necessary.

C6 ENTITY THAT WILL BE RESPONSIBLE FOR OPERATION AND MAINTENANCE OF THE POST-CONSTRUCTION STOMWATER MEASURES:

Owner's Information:
Name: Hamilton Southeastern Schools
Address: 13485 Cumberland Rd, Fishers IN
Representative: Mathew Rapp
Title: Director of Facilities and Maintenance
Telephone: (317) 570-3379

Operator's Information (Trained Individual)
Name: Hamilton Southeastern Schools
Address: 13485 Cumberland Rd, Fishers IN
Representative: Mathew Rapp
Title: Director of Facilities and Maintenance
Telephone: (317) 570-3379

DRAWING FILE: P:\2025\01563\D Drawings\Civil\Construction Documents\2025.01563_CE_C510_SWPPP.dwg
EDITED BY: JJUNSON
EDIT DATE: 1/28/2026
PLOT DATE: 3/11/2026 5:13 PM
PLOT SCALE: 12.5849

HAMILTON SOUTHEASTERN SCHOOLS
13485 CUMBERLAND ROAD
FISHERS, IN 46038

AMERICAN STRUCTUREPOINT INC.
9025 River Road, Suite 200 | Indianapolis, Indiana 46240
TEL 317.547.5580 | FAX 317.543.0270
www.structurepoint.com

context DESIGN
5825 Lawton Loop E. Dr.
Indianapolis, Indiana 46216

HAMILTON SOUTHEASTERN HIGH SCHOOL BUS PARKING LOT
12499 Olio Road
Fishers, IN 46037

APPROVAL PENDING
NOT FOR CONSTRUCTION
IN SUBMITTING BIDS IN RELIANCE ON THESE PLANS THE CONTRACTOR ASSUMES ALL RISKS OF ADDITIONAL COSTS OF REVISIONS DUE TO REQUIREMENTS OF THE OWNER OR GOVERNMENTAL AUTHORITIES AND MATERIAL REVISIONS IN THE COURSE OF COMPLETING THE FINAL DESIGN.

CERTIFIED BY

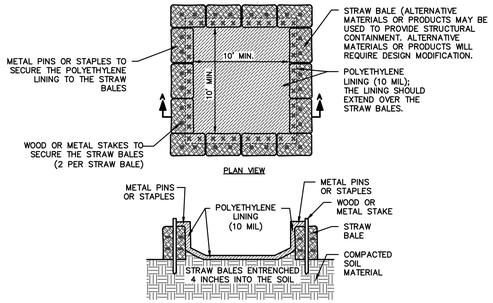
ISSUANCE INDEX
DATE:
03/06/2026
PROJECT PHASE:
CONSTRUCTION DOCUMENTS

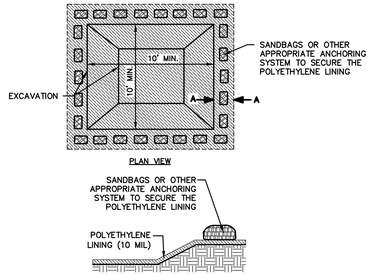
REVISION SCHEDULE		
NO.	DESCRIPTION	DATE
1	ADDENDUM 1	03/12/26

Project Number 2025.01563

STORM WATER POLLUTION PREVENTION PLAN

C510





MATERIALS
- MINIMUM OF TEN MIL POLYETHYLENE SHEETING THAT IS FREE OF HOLES, TEARS, AND OTHER DEFECTS. THE SHEETING SELECTED SHOULD BE OF AN APPROPRIATE SIZE TO FIT THE WASHOUT SYSTEM WITHOUT SEAMS OR OVERLAP OF THE LINING (DESIGNED AND INSTALLED SYSTEMS).
- SIGNAGE.
- ORANGE SAFETY FENCING OR EQUIVALENT.
- STRAW BALES, SANDBAGS (BAGS SHOULD BE ULTRAVIOLET–STABILIZED GEOTEXTILE FABRIC), SOIL MATERIAL, OR OTHER APPROPRIATE MATERIALS THAT CAN BE USED TO CONSTRUCT A CONTAINMENT SYSTEM (ABOVE GRADE SYSTEMS).
- METAL PINS OR STAPLES AT A MINIMUM OF SIX INCHES IN LENGTH, SANDBAGS, OR ALTERNATIVE FASTENER TO SECURE POLYETHYLENE LINING TO THE CONTAINMENT SYSTEM.
- NON–COLLAPSING AND NON–WATER HOLDING COVER FOR USE DURING RAIN EVENTS (OPTIONAL).

INSTALLATION
PREFABRICATED WASHOUT SYSTEMS/CONTAINERS
- INSTALL AND LOCATE ACCORDING TO THE MANUFACTURER'S RECOMMENDATIONS.

DESIGNED AND INSTALLED SYSTEMS
- UTILIZE AND FOLLOW THE DESIGN IN THE STORM WATER POLLUTION PREVENTION PLAN TO INSTALL THE SYSTEM.
- DEPENDENT UPON THE TYPE OF SYSTEM, EITHER EXCAVATE THE PIT OR INSTALL THE CONTAINMENT SYSTEM.
- A BASE SHALL BE CONSTRUCTED AND PREPARED THAT IS FREE OF ROCKS AND OTHER DEBRIS THAT MAY CAUSE TEARS OR PUNCTURES IN THE POLYETHYLENE LINING.
- INSTALL THE POLYETHYLENE LINING. FOR EXCAVATED SYSTEMS, THE LINING SHOULD EXTEND OVER THE ENTIRE EXCAVATION. THE LINING FOR BERMED SYSTEMS SHOULD BE INSTALLED OVER THE POOLING AREA WITH ENOUGH MATERIAL TO EXTEND THE LINING OVER THE BERM OR CONTAINMENT SYSTEM. THE LINING SHOULD BE SECURED WITH PINS, STAPLES, OR OTHER FASTENERS.
- PLACE FLAGS, SAFETY FENCING, OR EQUIVALENT TO PROVIDE A BARRIER TO CONSTRUCTION EQUIPMENT AND OTHER TRAFFIC.
- PLACE A NON–COLLAPSING, NON–WATER HOLDING COVER OVER THE WASHOUT FACILITY PRIOR TO A PREDICTED RAINFALL EVENT TO PREVENT ACCUMULATION OF WATER AND POSSIBLE OVERFLOW OF THE SYSTEM (OPTIONAL).
- INSTALL SIGNAGE THAT IDENTIFIES CONCRETE WASHOUT AREAS.
- POST SIGNS DIRECTING CONTRACTORS AND SUPPLIERS TO DESIGNATED LOCATIONS.
- WHERE NECESSARY, PROVIDE STABLE INGRESS AND EGRESS OR ALTERNATIVE APPROACH PAD FOR CONCRETE WASHOUT SYSTEMS.

MAINTENANCE
- INSPECT DAILY AND AFTER EACH STORM EVENT.
- INSPECT THE INTEGRITY OF THE OVERALL STRUCTURE INCLUDING, WHERE APPLICABLE, THE CONTAINMENT SYSTEM.
- INSPECT THE SYSTEM FOR LEAKS, SPILLS, AND TRACKING OF SOIL BY EQUIPMENT.
- INSPECT THE POLYETHYLENE LINING FOR FAILURE, INCLUDING TEARS AND PUNCTURES.
- ONCE CONCRETE WASTES HARDEN, REMOVE AND DISPOSE OF THE MATERIAL.
- EXCESS CONCRETE SHOULD BE REMOVED WHEN THE WASHOUT SYSTEM REACHES 50 PERCENT OF THE DESIGN CAPACITY. USE OF THE SYSTEM SHOULD BE DISCONTINUED UNTIL APPROPRIATE MEASURES CAN BE INITIATED TO CLEAN THE STRUCTURE. PREFABRICATED SYSTEMS SHOULD ALSO UTILIZE THIS CRITERION, UNLESS THE MANUFACTURER HAS ALTERNATE SPECIFICATIONS.
- UPON REMOVAL OF THE SOLIDS, INSPECT THE STRUCTURE. REPAIR THE STRUCTURE AS NEEDED OR CONSTRUCT A NEW SYSTEM.
- DISPOSE OF ALL CONCRETE IN A LEGAL MANNER. REUSE THE MATERIAL ON SITE, RECYCLE OR HAUL THE MATERIAL TO AN APPROVED CONSTRUCTION/DEMOLITION LANDFILL SITE. RECYCLING OF MATERIAL IS ENCOURAGED. THE WASTE MATERIAL CAN BE USED FOR MULTIPLE APPLICATIONS INCLUDING BUT NOT LIMITED TO ROADBEDS AND BUILDING. THE AVAILABILITY FOR RECYCLING SHOULD BE CHECKED LOCALLY.
- THE PLASTIC LINER SHOULD BE REPLACED AFTER EVERY CLEANING; THE REMOVAL OF MATERIAL WILL USUALLY DAMAGE THE LINING.
- THE CONCRETE WASHOUT SYSTEM SHOULD BE REPAIRED OR ENLARGED AS NECESSARY TO MAINTAIN CAPACITY FOR CONCRETE WASTES.
- CONCRETE WASHOUT SYSTEMS ARE DESIGNED TO PROMOTE EVAPORATION. HOWEVER, IF THE LIQUIDS DO NO EVAPORATE AND THE SYSTEM IS NEAR CAPACITY IT MAY BE NECESSARY TO VACUUM OR REMOVE THE LIQUIDS AND DISPOSE OF THEM IN AN ACCEPTABLE METHOD. DISPOSAL MAY BE ALLOWED AT THE LOCAL SANITARY SEWER AUTHORITY PROVIDED THEIR NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM PERMITS ALLOW FOR ACCEPTANCE OF THIS MATERIAL. ANOTHER OPTION WOULD BE TO UTILIZE A SECONDARY CONTAINMENT SYSTEM OR BASIN FOR FUTURE DEWATERING.
- PREFABRICATED UNITS ARE OFTEN PUMPED AND THE COMPANY SUPPLYING THE UNIT PROVIDES THIS SERVICE.
- INSPECT CONSTRUCTION ACTIVITIES ON A REGULAR BASIS TO ENSURE SUPPLIERS, CONTRACTORS, AND OTHERS ARE UTILIZING DESIGNATED WASHOUT AREAS. IF CONCRETE WASTE IS BEING DISPOSED OF IMPROPERLY, IDENTIFY THE VIOLATORS AND TAKE APPROPRIATE ACTION.
- WHEN CONCRETE WASHOUT SYSTEMS ARE NO LONGER REQUIRED, THE CONCRETE WASHOUT SYSTEMS SHALL BE CLOSED. DISPOSE OF ALL HARDENED CONCRETE AND OTHER MATERIALS USED TO CONSTRUCT THE SYSTEM.
- HOLES, DEPRESSIONS AND OTHER LAND DISTURBANCES ASSOCIATED WITH THE SYSTEM SHOULD BE BACKFILLED, GRADED, AND STABILIZED.

SPECIFICATIONS
SITE MANAGEMENT
- COMPLETE CONSTRUCTION/INSTALLATION OF THE SYSTEM AND HAVE WASHOUT LOCATIONS OPERATIONAL PRIOR TO CONCRETE DELIVERY.
- DO NOT WASH OUT CONCRETE TRUCKS OR EQUIPMENT INTO STORM DRAINS, WETLANDS, STREAMS, RIVERS, CREEKS, DITCHES, OR STREETS.
- NEVER WASH OUT INTO A STORM SEWER DRAINAGE SYSTEM. THESE SYSTEMS ARE TYPICALLY CONNECTED TO A NATURAL CONVEYANCE SYSTEM.
- WHERE NECESSARY, PROVIDE STABLE INGRESS AND EGRESS.
- IT IS RECOMMENDED THAT WASHOUT SYSTEMS BE RESTRICTED TO WASHING CONCRETE FROM MIXER AND PUMP TRUCKS AND NOT USED TO DISPOSE OF EXCESS CONCRETE OR RESIDUAL LOADS DUE TO THE POTENTIAL TO EXCEED THE DESIGN CAPACITY OF THE WASHOUT SYSTEM. SMALL AMOUNTS OF EXCESS OR RESIDUAL CONCRETE (NOT WASHOUT WATER) MAY BE DISPOSED OF IN AREAS THAT WILL NOT RESULT IN FLOW TO AN AREA THAT IS TO BE PROTECTED.
- INSTALL SYSTEMS AT STRATEGIC LOCATIONS THAT ARE CONVENIENT AND IN CLOSE PROXIMITY TO WORK AREAS AND IN SUFFICIENT NUMBER TO ACCOMMODATE THE DEMAND FOR DIPOSAL.
- INSTALL SIGNAGE IDENTIFYING THE LOCATION OF CONCRETE WASHOUT SYSTEMS.

LOCATION
- LOCATE CONCRETE WASHOUT SYSTEMS AT LEAST 50 FEET FROM ANY CREEKS, WETLANDS, DITCHEST, KARST FEATURES, OR STORM DRAINS/MANMADE CONVEYANCE SYSTEMS.
- TO THE EXTENT PRACTICAL, LOCATE CONCRETE WASHOUT SYSTEMS IN RELATIVELY FLAT AREAS THAT HAVE ESTABLISHED VEGETATIVE COVER AND DO NOT RECEIVE RUNOFF FROM ADJACENT LAND AREAS.
- LOCATE IN AREAS THAT PROVIDE EASY ACCESS FOR CONCRETE TRUCKS AND OTHER CONSTRUCTION EQUIPMENT.
- LOCATE AWAY FROM OTHER CONSTRUCTION TRAFFIC TO REDUCE THE POTENTIAL FOR DAMAGE TO THE SYSTEM.

GENERAL DESIGN CONSIDERATIONS
- THE STRUCTURE OR SYSTEM SHALL BE DESIGNED TO CONTAIN THE ANTICIPATED WASHOUT WATER ASSOCIATED WITH CONSTRUCTION ACTIVITIES.
- THE SYSTEM SHALL BE DESIGNED, TO THE EXTENT PRACTICAL, TO ELIMINATE RUNOFF FROM ENTERING THE WASHOUT SYSTEM.
- RUNOFF FROM A RAINSTORM OR SNOWMELT SHOULD NOT CARRY WASTES AWAY FROM THE WASHOUT LOCATION.
- WASHOUT WILL NOT IMPACT FUTURE LAND USES (I.E., OPEN SPACES, LANDSCAPED AREAS, HOME SITES, PARKS).
- WASHOUT SYSTEMS/CONTAINMENTS MEASURES MAY ALSO BE UTILIZED ON SMALLER INDIVIDUAL BUILDING SITES. THE DESIGN AND SIZE OF THE SYSTEM CAN BE ADJUSTED TO ACCOMMODATE THE EXPECTED CAPACITY.

PREFABRICATED WASHOUT SYSTEMS/CONTAINERS
- SELF–CONTAINED STURDY CONTAINMENT SYSTEMS THAT ARE DELIVERED TO A SITE AND LOCATED AT STRATEGIC LOCATIONS FOR CONCRETE DISPOSAL.
- THESE SYSTEMS ARE MANUFACTURED TO RESIST DAMAGE FROM CONSTRUCTION EQUIPMENT AND PROTECT AGAINST LEAKS OR SPILLS.
- MANUFACTURER OR SUPPLIER PROVIDES THE CONTAINERS. THE PROJECT SITE MANAGER MAINTAINS THE SYSTEM OR THE SUPPLIER PROVIDES COMPLETE SERVICE THAT INCLUDES MAINTENANCE AND DISPOSAL.
- UNITS ARE OFTEN AVAILABLE WITH OR WITHOUT RAMPS. UNITS WITH RAMPS LEND THEMSELVES TO ACCOMMODATE PUMP TRUCKS.
- MAINTAIN ACCORDING TO MANUFACTURER'S RECOMMENDATIONS.

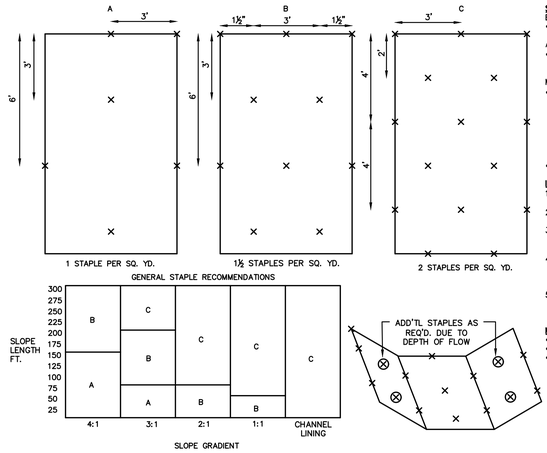
DESIGNED AND INSTALLED UNITS
THESE UNITS ARE DESIGNED AND INSTALLED ON SITE. THEY TEND TO BE LESS RELIABLE THAN PREFABRICATED SYSTEMS ARE OFTEN PRONE TO FAILURE. CONCRETE WASHOUT SYSTEMS CAN BE CONSTRUCTED ABOVE OR BELOW GRADE. IT IS NOT UNCOMMON TO HAVE A SYSTEM THAT IS PARTLY BELOW GRADE WITH AN ADDITIONAL CONTAINMENT STRUCTURE ABOVE GRADE.
- WASHOUT SYSTEMS SHALL UTILIZE A PIT OR BERMED AREA DESIGNED AND MAINTAINED AT A CAPACITY TO CONTAIN ALL LIQUID AND CONCRETE WASTE GENERATED BY WASHOUT OPERATIONS.
- THE VOLUME OF THE SYSTEM MUST ALSO BE DESIGNED TO CONTAIN RUNOFF THAT DRAINS TO THE SYSTEM AND RAINFALL THAT ENTERS THE SYSTEM FOR A TWO–YEAR FREQUENCY, 24–HOUR STORM EVENT.

BELOW GRADE SYSTEM
- A WASHOUT SYSTEM INSTALLED BELOW GRADE SHOULD BE A MINIMUM OF TEN FEET WIDE BY TEN FEET LONG, BUT SIZED TO CONTAIN ALL LIQUID AND WASTE THAT IS EXPECTED TO BE GENERATED BETWEEN SCHEDULED CLEANOUT PERIODS. THE SIZE OF THE PIT MAY BE LIMITED BY THE SIZE OF THE POLYETHYLENE AVAILABLE. THE POLYETHYLENE LINING SHOULD BE ADEQUATE SIZE TO EXTEND OVER THE ENTIRE EXCAVATION.
- INCLUDE A MINIMUM 12–INCH FREEBOARD TO REASONABLY ENSURE THAT THE STRUCTURE WILL NOT OVERTOP DURING A RAIN EVENT.
- LINE THE PIT WITH TEN MIL POLYETHYLENE LINING TO CONTROL SEEPAGE.
- THE BOTTOM OF EXCAVATED PIT SHOULD BE ABOVE THE SEASONAL HIGH WATER TABLE.

ABOVE GRADE SYSTEM
- A SYSTEM DESIGNED AND BUILT ABOVE GRADE SHOULD BE A MINIMUM OF TEN FEET WIDE BY TEN FEET LONG, BUT SIZED TO CONTAIN ALL LIQUID AND WASTE THAT IS EXPECTED TO BE GENERATED BETWEEN SCHEDULED CLEANOUT PERIODS. THE SIZE OF THE CONTAINMENT SYSTEM MAY BE LIMITED BY THE SIZE OF POLYETHYLENE AVAILABLE. THE POLYETHYLENE LINING SHOULD BE OF ADEQUATE SIZE TO EXTEND OVER THE BERM OR CONTAINMENT SYSTEM.
- THE SYSTEM DESIGN MAY UTILIZE AN EARTHEN BERM, STRAW BALES, SANDBAGS, OR OTHER ACCEPTABLE BARRIERS THAT WILL MAINTAIN ITS SHAPE AND INTEGRITY AND SUPPORT THE POLYETHYLENE LINING.
- INCLUDE A MINIMUM FOUR–INCH FREEBOARD AS PART OF THE DESIGN.

WASHOUT PROCEDURES
- DO NOT LEAVE EXCESS MUD IN THE CHUTES OR HOPPER AFTER THE POUR. EVERY EFFORT SHOULD BE MADE TO EMPTY THE CHUTES AND HOPPER AT THE POUR. THE LESS MATERIAL LEFT IN THE CHUTES AND HOPPER, THE QUICKER AND EASIER THE CLEANOUT. SMALL AMOUNTS OF EXCESS CONCRETE (NOT WASHOUT WATER) MAY BE DISPOSED OF IN AREAS THAT WILL NOT RESULT IN FLOW TO AN AREA THAT IS TO BE PROTECTED.
- AT THE WASHOUT LOCATION, SCRAPE AS MUCH MATERIAL FROM THE CHUTES AS POSSIBLE BEFORE WASHING THEM. USE NON–WATER CLEANING METHODS TO MINIMIZE THE CHANCE FOR WASTE TO FLOW OFF SITE.
- REMOVE AS MUCH MUD AS POSSIBLE WHEN WASHING OUT.
- STOP WASHING OUT IN AN AREA IF YOU OBSERVE WATER RUNNING OFF THE DESIGNATED AREA OR IF THE CONTAINMENT SYSTEM IS LEAKING OR OVERFLOWING AND INEFFECTIVE.
- DO NOT BACK FLUSH EQUIPMENT AT THE PROJECT SITE. BACK FLUSHING SHOULD BE RESTRICTED TO THE PLANT AS IT GENERATES LARGE VOLUMES OF WASTE THAT MORE THAN LIKELY WILL EXCEED THE CAPACITY OF MOST WASHOUT SYSTEMS. IF AN EMERGENCY ARISES, BACK FLUSH SHOULD ONLY BY PERFORMED WITH THE PERMISSION OF AN ON–SITE MANAGER FOR THE PROJECT.
- DO NOT USE ADDITIVES WITH WASH WATER. DO NOT USE SOLVENTS OR ACIDS THAT MAY BE USED AT THE TARGET PLANT.

CONCRETE WASH OUT
NOT TO SCALE (REV. 01/17)



SPECIFICATIONS
EFFECTIVE LIFE
- THE FUNCTIONAL LIFE OF AN EROSION CONTROL BLANKET IS DEPENDENT ON THE MATERIALS USED.

ANCHORING
- STAPLES, PINS OR STAKES USED TO PREVENT MOVEMENT OR DISPLACEMENT OF BLANKET. (FOLLOW MANUFACTURER'S RECOMMENDATIONS FOR SPECIFIC APPLICATIONS.)

MATERIALS
- ORGANIC (STRAW, EXCELSIOR, WOVEN PAPER, COCONUT FIBER, ETC.) OR SYNTHETIC MULCH INCORPORATED WITH A POLYPROPYLENE, NATURAL FIBER OR SIMILAR NETTING MATERIAL. (THE NETTING MAY BE BIODEGRADABLE, PHOTODEGRADABLE OR PERMANENT.)

NOTE: SOME EROSION CONTROL BLANKET NETTINGS MAY POSE A THREAT TO CERTAIN SPECIES OF WILDLIFE IF THEY BECOME ENTANGLED IN THE NETTING MATRIX.
- SIX TO 12–INCH STAPLES, PINS, OR STAKES.

INSTALLATION
1. SELECT THE TYPE AND WEIGHT OF EROSION CONTROL BLANKET TO FIT THE SITE CONDITIONS (E.G., SLOPE, CHANNEL, FLOW VELOCITY) PER THE MANUFACTURER'S RECOMMENDATIONS.
2. PREPARE THE SEEDBED, ADD SOIL AMENDMENTS, AND PERMANENTLY SEED THE AREA IMMEDIATELY FOLLOWING SEEDBED PREPARATION.
3. LAY EROSION CONTROL BLANKETS ON THE SEEDED AREA SO THAT THEY ARE IN CONTINUOUS CONTACT WITH THE SOIL WITH EACH UP–SLOPE OR UP–STREAM BLANKET OVERLAPPING THE DOWN–SLOPE OR DOWN–STREAM BLANKET BY AT LEAST EIGHT INCHES, OR FOLLOW MANUFACTURER'S RECOMMENDATIONS.
4. TUCK THE UPPERMOST EDGE OF THE UPPER BLANKETS INTO A CHECK SLOT (SLIT TRENCH), BACKFILL WITH SOIL AND TAMP DOWN. IN CERTAIN APPLICATIONS, THE MANUFACTURER MAY REQUIRE ADDITIONAL CHECK SLOTS AT SPECIFIC LOCATIONS DOWN SLOPE FROM THE UPPERMOST EDGE OF THE UPPER BLANKETS.
5. ANCHOR THE BLANKETS IN PLACE BY DRIVING STAPLES, PINS, OR STAKES THROUGH THE BLANKET AND INTO THE UNDERLYING SOIL. FOLLOW AN ANCHORING PATTERN APPROPRIATE FOR THE SITE CONDITIONS AND AS RECOMMENDED BY THE MANUFACTURER.

MAINTENANCE
- INSPECT WITHIN 24 HOURS OF EACH RAIN EVENT AND AT LEAST ONCE EVERY SEVEN CALENDAR DAYS.
- CHECK FOR EROSION OR DISPLACEMENT OF THE BLANKET.
- IF ANY AREA SHOWS EROSION, PULL BACK THAT PORTION OF THE BLANKET COVERING THE ERODED AREA, ADD SOIL AND TAMP, RESEED THE AREA, REPLACE AND STAPLE THE BLANKET.

NOTES
CHANNEL LININGS UTILIZE STAPLE PATTERN "C" WITH ADDITIONAL STAPLES ON SIDE SLOPES AT PROJECTED WATER LINE.

STAPLE PATTERNS APPLY TO ALL NORTH AMERICAN GREEN EROSION CONTROL BLANKETS. STAPLE PATTERNS MAY VARY DEPENDING UPON SOIL TYPE AND AVERAGE RAINFALL.

AT SLOPE LENGTHS GREATER THAN 300 FEET OR WHERE DRAINAGE OVER LARGE AREAS IS DIRECTED ONTO THE BLANKETS, STAPLE PATTERN "C" SHOULD BE UTILIZED.

EROSION CONTROL BLANKET
NOT TO SCALE (REV. 01/17)

SPECIFICATIONS
DRAINAGE AREA
- LIMITED TO ONE–QUARTER ACRE PER 100 LINEAR FEET OF FENCE.
- FURTHER RESTRICTED BY SLOPE STEEPNESS (SEE TABLE 1).

EFFECTIVE LIFE
- SIX MONTHS (MAXIMUM).

LOCATION
- INSTALLED PARALLEL TO THE SLOPE CONTOUR.
- MINIMUM OF 10 FEET BEYOND THE TOE OF THE SLOPE TO PROVIDE A BROAD, SHALLOW SEDIMENT POOL.
- ACCESSIBLE FOR MAINTENANCE (REMOVAL OF SEDIMENT AND SILT FENCE REPAIR).

SPACING
TABLE 1. SLOPE STEEPNESS RESTRICTIONS

PERCENT SLOPE		MAXIMUM DISTANCE
< 2%	< 50:1	100 FEET
2% – 5%	50:1 TO 20:1	75 FEET
5% – 10%*	20:1 TO 10:1	50 FEET
10% – 20%*	10:1 TO 5:1	25 FEET
> 20%	> 5:1	15 FEET

*CONSIDER OTHER ALTERNATIVES.
NOTE: MULTIPLE ROWS OF SILT FENCE ARE NOT RECOMMENDED ON THE SAME SLOPE.

TRENCH
- DEPTH: EIGHT INCHES MINIMUM.
- WIDTH: FOUR INCHES MINIMUM.
- AFTER INSTALLING THE FENCE, BACKFILL WITH SOIL MATERIAL AND COMPACT (TO BURY AND ANCHOR THE LOWER PORTION OF THE FENCE FABRIC).

NOTE: AN ALTERNATIVE TO TRENCHING IS TO USE MECHANICAL EQUIPMENT TO PLOW IN THE SILT FENCE.

MATERIALS AND SILT FENCE SPECIFICATIONS
- FABRIC – WOVEN OR NON–WOVEN GEOTEXTILE FABRIC, MEETING SPECIFIED MINIMUMS OUTLINED IN TABLE 2.

TABLE 2. GEOTEXTILE FABRIC SPECIFICATIONS FOR SILT FENCE (MINIMUM)

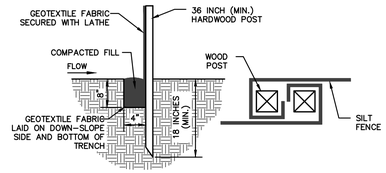
PHYSICAL PROPERTY	WOVEN GEOTEXTILE FABRIC	NON–WOVEN GEOTEXTILE FABRIC
FILTERING EFFICIENCY	85%	85%
TEXTILE STRENGTH AT 20% ELONGATION STANDARD STRENGTH EXTRA STRENGTH	 30 LBS. PER LINEAL INCH 50 LBS. PER LINEAL INCH	 50 LBS. PER LINEAL INCH 70 LBS. PER LINEAL INCH
SLURRY FLOW RATE	0.3 GAL./MIN./SQUARE FOOT	4.5 GAL./MIN./SQUARE FOOT
WATER FLOW RATE	15 GAL./MIN./SQUARE FOOT	220 GAL./MIN./SQUARE FOOT
UV RESISTANCE	70%	85%
POST SPACING	7 FEET	5 FEET

NOTE: SILT FENCES CAN BE PURCHASED COMMERCIALLY.
- HEIGHT – A MINIMUM OF 18 INCHES ABOVE GROUND LEVEL (30 INCHES MAXIMUM).
- REINFORCEMENT – FABRIC SECURELY FASTENED TO POSTS WITH WOOD LATHE.
- SUPPORT POSTS – 2x2 INCH HARDWOOD POSTS. STEEL FENCE POSTS MAY BE SUBSTITUTED FOR HARDWOOD POSTS (STEEL POSTS SHOULD HAVE PROJECTIONS FOR FASTENING FABRIC).
- SPACING – EIGHT FEET MAXIMUM IS FENCE IS SUPPORTED BY WIRE MESH FENCING, SIX FEET MAXIMUM FOR EXTRA–STRENGTH FABRIC WITHOUT WIRE BACKING.

INSTALLATION
1. LAY OUT THE LOCATION OF THE FENCE SO THAT IS IS PARALLEL TO THE CONTOUR OF THE SLOPE AND AT LEAST 10 FEET BEYOND THE TOE OF THE SLOPE TO PROVIDE A SEDIMENT STORAGE AREA. TURN THE ENDS OF THE FENCE UP SLOPE SUCH THAT THE POINT OF CONTACT BETWEEN THE GROUND AND THE BOTTOM OF THE FENCE END TERMINATES AT A HIGHER ELEVATION THAN THE TOP OF THE FENCE AT ITS LOWEST POINT.
2. EXCAVATE AN EIGHT–INCH DEEP BY FOUR–INCH WIDE TRENCH ALONG THE ENTIRE LENGTH OF THE FENCE LINE. INSTALLATION BY PLOWING IS ALSO ACCEPTABLE.
3. INSTALL THE SILT FENCE WITH THE FILTER FABRIC LOCATED ON THE UP–SLOPE SIDE OF THE EXCAVATED TRENCH AND THE SUPPORT POSTS ON THE DOWN–SLOPE SIDE OF THE TRENCH.
4. DRIVE THE SUPPORT POSTS AT LEAST 18 INCHES INTO THE GROUND, TIGHTLY STRETCHING THE FABRIC BETWEEN THE POSTS AS EACH IS DRIVEN INTO THE SOIL. A MINIMUM OF 12 INCHES OF THE FILTER FABRIC SHOULD EXTEND INTO THE TRENCH. (IF IT IS NECESSARY TO JOIN THE ENDS OF TWO FENCES, USE THE JOINT METHOD SHOWN.
5. LAY THE FOUR INCHES OF FILTER FABRIC ON THE BOTTOM OF THE TRENCH AND EXTEND IT TOWARD THE UP–SLOPE SIDE OF THE TRENCH.
6. BACKFILL THE TRENCH WITH SOIL MATERIAL AND COMPACT IT IN PLACE.

NOTE: IF THE SILT FENCE IS BEING CONSTRUCTED ON–SITE, ATTACH THE FILTER FABRIC TO THE SUPPORT POSTS (REFER TO TABLES 1 AND 2 FOR SPACING AND GEOTEXTILE SPECIFICATIONS) AND ATTACH WOODEN LATHE TO SECURE THE FABRIC TO THE POSTS. ALLOW FOR AT LEAST 12 INCHES OF FABRIC BELOW GROUND LEVEL. COMPLETE THE SILT FENCE INSTALLATION, FOLLOWING STEPS 1 THROUGH 6 ABOVE.

MAINTENANCE
- INSPECT WITHIN 24 HOURS OF A RAIN EVENT AND AT LEAST ONCE EVERY SEVEN CALENDAR DAYS.
- IF FENCE FABRIC TEARS, STARTS TO DECOMPOSE, OR IN ANY WAY BECOMES INEFFECTIVE, REPLACE THE AFFECTED PORTION IMMEDIATELY. ALL REPAIRS SHOULD MEET SPECIFICATIONS AS OUTLINED WITHIN THIS MEASURE.
- REMOVE DEPOSITED SEDIMENT WHEN IT IS CAUSING THE FILTER FABRIC TO BULGE OR WHEN IT REACHES ON–HALF THE HEIGHT OF THE FENCE AT ITS LOWEST POINT. WHEN CONTRIBUTING DRAINAGE AREA HAS BEEN STABILIZED, REMOVE THE FENCE AND SEDIMENT DEPOSITS, GRADE THE SITE TO BLEND WITH THE SURROUNDING AREA, AND STABILIZE.



NOTE: SILT FENCE IS NOT RECOMMENDED FOR USE AS A DIVERSION AND SHOULD NOT BE USED ACROSS A STREAM, CHANNEL, DITCH, SWALE, OR ANYWHERE THAT CONCENTRATED FLOW IS ANTICIPATED.

SILT FENCE CONSTRUCTION
NOT TO SCALE (REV. 01/17)

SEEDING SPECIFICATIONS
SEEDBED PREPARATION
- GRADE AND APPLY SOIL AMENDMENTS.

SEEDING FREQUENCY
- SEED ROUGH GRADED AREAS DAILY WHILE SOIL IS STILL LOOSE AND MOIST.

DENSITY OF VEGETATIVE COVER
- EIGHTY PERCENT OR GREATER OVER THE SOIL SURFACE.

MATERIALS
- SOIL AMENDMENTS – SELECT MATERIALS AND RATES AS DETERMINED BY A SOIL TEST (CONTACT YOUR COUNTY SOIL AND WATER CONSERVATION DISTRICT OR COOPERATIVE EXTENSION OFFICE FOR ASSISTANCE AND SOIL INFORMATION, INCLUDING AVAILABLE SOIL TESTING SERVICES) OR 400 TO 600 POUNDS OF 12–12–12 ANALYSIS FERTILIZER, OR EQUIVALENT. CONSIDER THE USE OF REDUCED PHOSPHOROUS APPLICATION WHERE SOIL TESTS INDICATE ADEQUATE PHOSPHOROUS LEVELS IN THE SOIL PROFILE.
- SEED – SELECT APPROPRIATE PLANT SPECIES SEED OR SEED MIXTURES ON THE BASIS OF QUICK GERMINATION, GROWTH, AND TIME OF YEAR TO BE SEEDED (SEE TABLE 1).
- MULCH – STRAW, HAY, WOOD FIBER, ETC. (TO PROTECT SEEDBED, RETAIN MOISTURE, AND ENCOURAGE PLANT GROWTH), ANCHORED TO PREVENT REMOVAL BY WIND OR WATER OR COVERED WITH MANUFACTURED EROSION CONTROL BLANKETS.

TABLE 1. SLOPE STEEPNESS RESTRICTIONS

SEED SPECIES*	RATE PER ACRE	PLANTING DEPTH	OPTIMUM DATES**
WHEAT OR RYE	150 LBS.	1 TO 1–1/2 INCHES	SEPT. 15–OCT. 30
SPRING OATS	100 LBS.	1 INCH	MARCH 1–APRIL 15
ANNUAL RYEGRASS	40 LBS.	1/4 INCH	MARCH 1–MAY 1 AUG. 1–SEPT. 1
GERMAN MILLET	40 LBS.	1 TO 2 INCHES	MAY 1–JUNE 1
SUDANGRASS	35 LBS.	1 TO 2 INCHES	MAY 1–JULY 30
BUCKWHEAT	60 LBS.	1 TO 2 INCHES	APRIL 15–JUNE 1
CORN (BROADCAST)	300 LBS.	1 TO 2 INCHES	MAY 11–AUG. 10
SORGHUM	35 LBS.	1 TO 2 INCHES	MAY 1–JULY 15

*PERENNIAL SPECIES MAY BE USED AS A TEMPORARY COVER, ESPECIALLY IF THE AREA TO BE SEEDED WILL REMAIN IDLE FOR MORE THAN ONE YEAR.
**SEEDING DONE OUTSIDE THE OPTIMUM SEEDING DATES INCREASES THE CHANCES OF SEEDING FAILURE. DATES MAY BE EXTENDED OR SHORTENED BASED ON THE LOCATION OF THE PROJECT WITHIN THE STATE.

NOTES:
MULCH ALONE IS AN ACCEPTABLE TEMPORARY COVER AND MAY BE USED IN LIEU OF TEMPORARY SEEDING, PROVIDED THAT IT IS APPROPRIATELY ANCHORED.

A HIGH POTENTIAL FOR FERTILIZER, SEED, AND MULCH TO WASH EXISTS ON STEEP BANKS, CUTS, AND IN CHANNELS AND AREAS OF CONCENTRATED FLOW.

SEEDING APPLICATION
SEEDBED PREPARATION
1. TEST SOIL TO DETERMINE pH AND NUTRIENT LEVELS.
2. APPLY SOIL AMENDMENTS AS RECOMMENDED BY THE SOIL TEST. IF TESTING IS NOT DONE, APPLY 400 TO 600 POUNDS PER ACRE OF 12–12–12 ANALYSIS FERTILIZER, OR EQUIVALENT.
3. WORK THE SOIL AMENDMENTS INTO THE UPPER TWO TO FOUR INCHES OF THE SOIL WITH A DISK OR RAKE OPERATED ACROSS THE SLOPE.

SEEDING
1. SELECT A SEED SPECIES OR AN APPROPRIATE SEED MIXTURE AND APPLICATION RATE FROM TABLE 1.
2. APPLY SEED UNIFORMLY WITH A DRILL OR CULTIPACKER SEEDER OR BY BROADCASTING. PLANT OR COVER SEED TO THE DEPTH SHOWN IN TABLE 1.

   NOTES:
   1. IF DRILLING OR BROADCASTING THE SEED, ENSURE GOOD SEED–TO–SOIL CONTACT BY FIRMING THE SEEDBED WITH A ROLLER OR CULTIPACKER AFTER COMPLETING SEED OPERATIONS.
   2. DAILY SEEDING WHEN THE SOIL IS MOIST IS USUALLY MOST EFFECTIVE.
   3. IF SEEDING IS DONE WITH A HYDROSEEDER, FERTILIZER AND MULCH CAN BE APPLIED WITH THE SEED IN A SLURRY MIXTURE.
3. APPLY MULCH AND ANCHOR IT IN PLACE.

SEEDING MAINTENANCE
- INSPECT WITHIN 24 HOURS OF EACH RAIN EVENT AND AT LEAST ONCE EVERY SEVEN CALENDAR DAYS.
- CHECK FOR EROSION OR MOVEMENT OF MULCH AND REPAIR IMMEDIATELY.
- MONITOR FOR EROSION DAMAGE AND ADEQUATE COVER (80 PERCENT DENSITY); RESEED, FERTILIZE, AND APPLY MULCH WHERE NECESSARY.
- IF NITROGEN DEFICIENCY IS APPARENT, TOP

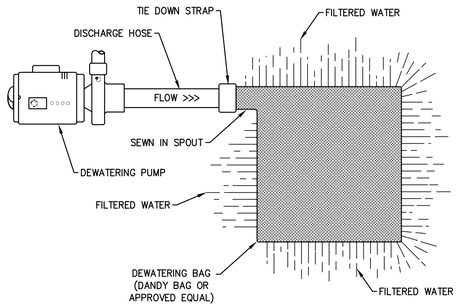
INSTALLATION

1. PLACE LIFTING STRAPS UNDER THE UNIT TO FACILITATE REMOVAL AFTER USE.
2. UNFOLD DANDY DEWATERING BAG (OR APPROVED EQUAL) ON STABILIZED AREA OVER DENSE VEGETATION, STRAW, OR GRAVEL.
3. INSERT DISCHARGE HOSE FROM PUMP INTO DANDY DEWATERING BAG (OR APPROVED EQUAL) A MINIMUM OF SIX INCHES AND TIGHTLY SECURE WITH ATTACHED STRAP TO PREVENT WATER FROM FLOWING OUT OF THE UNIT WITHOUT BEING FILTERED. IF USING OPTIONAL ABSORBENTS, PLACE ABSORBENT PILLOW INTO THE DANDY DEWATERING BAG (OR APPROVED EQUAL).

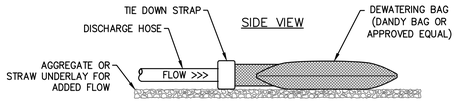
MAINTENANCE

1. REPLACE THE UNIT WHEN 1/2 FULL OF SEDIMENT OR WHEN SEDIMENT HAS REDUCED THE FLOW RATE OF THE PUMP DISCHARGE TO AN IMPRACTICAL RATE. IF USING OPTIONAL ABSORBENTS, REMOVE AND REPLACE ABSORBENT PILLOW WHEN NEAR SATURATION.
2. REMOVE AND DISPOSE OF THE SEDIMENT IN A MANNER SATISFACTORY TO THE INSPECTOR OR MOVE THE UNIT AND SEDIMENT FROM THE ENVIRONMENTALLY SENSITIVE AREA TO AN APPROVED DISPOSAL SITE. SLIT THE UNIT, REMOVE THE SEDIMENT, GRADE SMOOTHLY INTO THE EXISTING TOPOGRAPHY AND SEED. DISPOSE OF UNIT NO LONGER IN USE AT AN APPROPRIATE RECYCLING OR SOLID WASTE FACILITY.

TOP VIEW



SIDE VIEW



DEWATERING BAG

NOT TO SCALE

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HAMILTON SOUTHEASTERN SCHOOLS
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HAMILTON SOUTHEASTERN HIGH SCHOOL BUS PARKING LOT
12499 Olio Road
Fishers, IN 46037

APPROVAL PENDING
NOT FOR CONSTRUCTION
IN SUBMITTING BIDS IN RELIANCE ON THESE PLANS THE CONTRACTOR ASSUMES ALL RISKS OF ADDITIONAL COSTS OF REVISIONS DUE TO REQUIREMENTS OF THE OWNER OR GOVERNMENTAL AUTHORITIES AND MATERIAL REVISIONS IN THE COURSE OF COMPLETING THE FINAL DESIGN.

CERTIFIED BY

ISSUANCE INDEX
DATE:
03/06/2026
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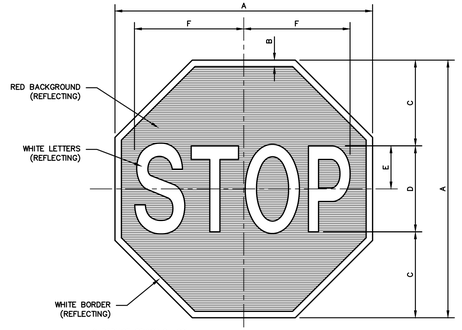
REVISION SCHEDULE

NO.	DESCRIPTION	DATE
1	ADDENDUM 1	03/12/26

Project Number 2025.01563

EROSION CONTROL DETAILS

C521



* REDUCE SPACING 40%

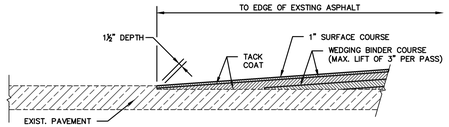
SIGN	DIMENSIONS (INCHES)					
	A	B	C	D	E	F
STD.	30	2"	10	10C	5	12½"

R1-1

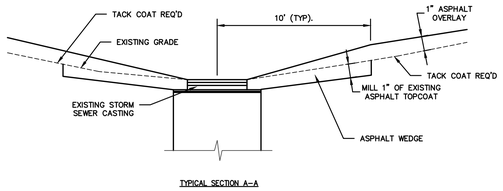
NOTES:
MOUNTING HEIGHT – 7' ABOVE GRADE.

COLORS
LEGEND – WHITE (REFLECTIVE)
BACKGROUND – RED (REFLECTIVE)

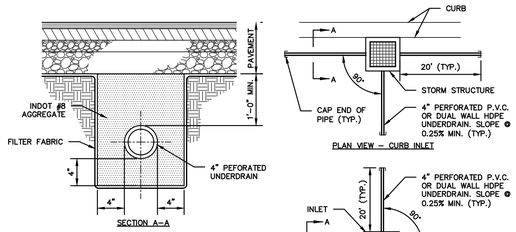
STOP SIGN DETAIL
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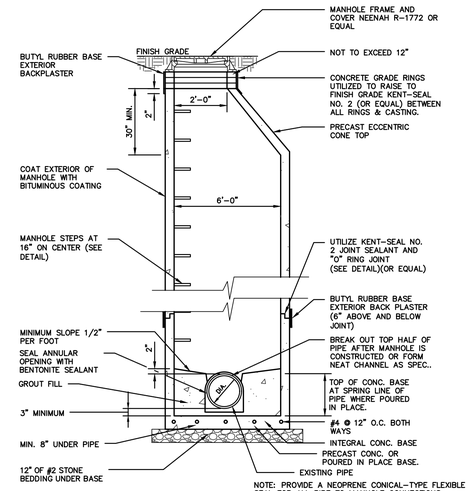
TRANSITION WEDGE DETAIL
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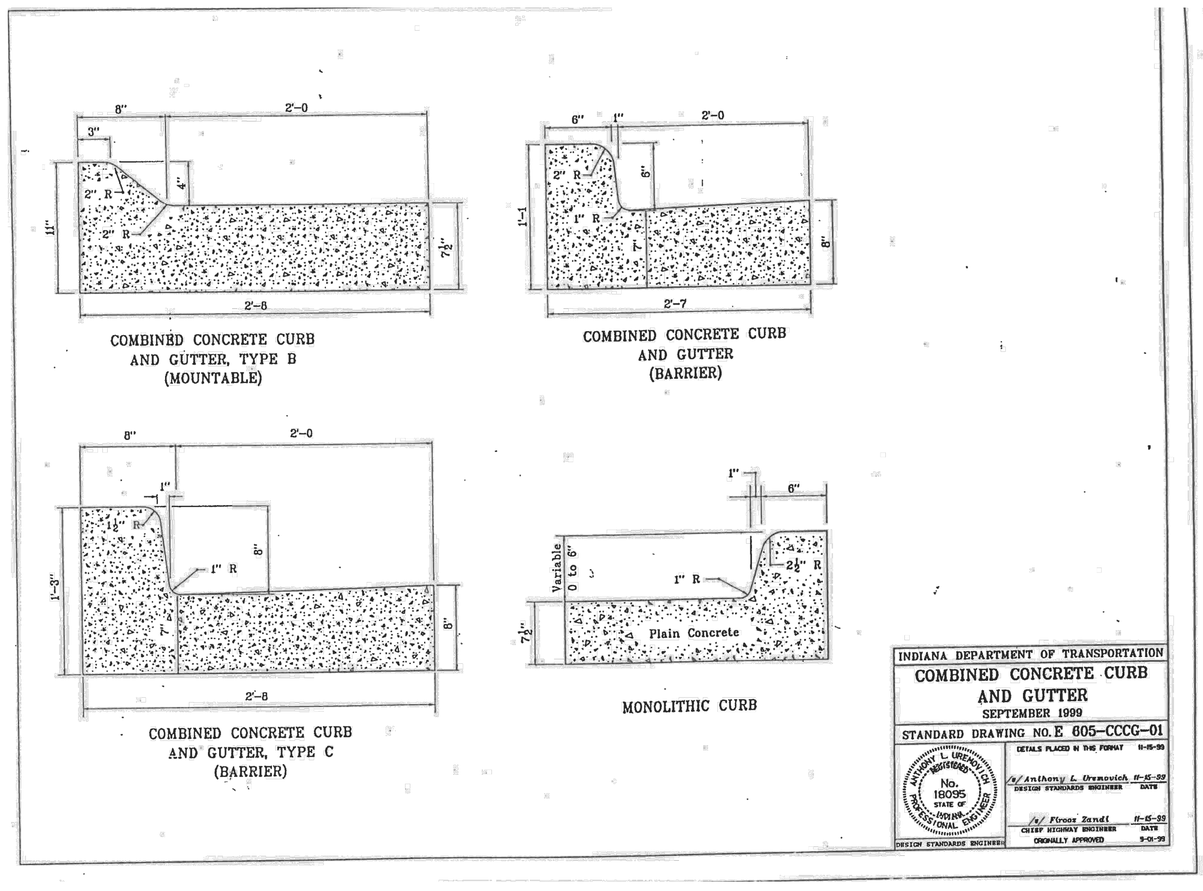
ASPHALT MILL & WEDGE DETAIL FOR STORM CASTING
NOT TO SCALE (REV. 01/17)

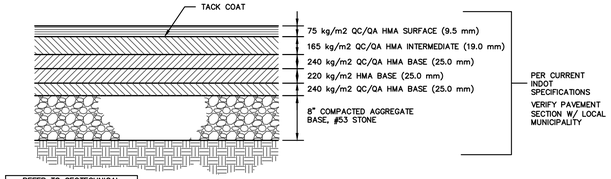


PAVEMENT UNDERDRAIN DETAIL
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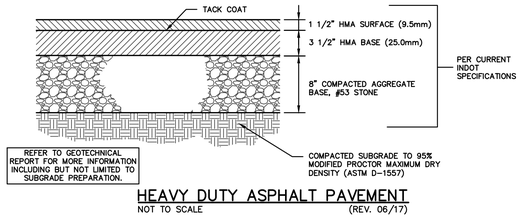


NEW MANHOLE OVER EXISTING SEWER (DOGHOUSE)
NOT TO SCALE (REV. 06/18)





OLIO ROAD RIGHT-OF-WAY PAVEMENT SECTION
NOT TO SCALE (REV. 01/26)



HEAVY DUTY ASPHALT PAVEMENT
NOT TO SCALE (REV. 06/17)

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1	ADDENDUM 1	03/12/26

Project Number 2025.01563

SITE DETAILS

C600

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DRAWING FILE: P:\2025\01563\D Drawings\Civil\Construction Documents\2025.01563 CE C600 SD.dwg

HAMILTON COUNTY HIGHWAY DEPARTMENT SIGN SPECIFICATIONS

1. SQUARE POSTS SIZED IN ACCORDANCE WITH INDOT STANDARD DRAWING E 802-SNGS-07
   - 1.1. UNREINFORCED ANCHOR BASE INSTALLED PER INDOT STANDARD DRAWING E 802-SNGS-09
   - 1.2. FOR STREET NAME SIGNS USE TYPE II SQUARE POST
   - 1.3. FOR POSTS MOUNTED ON CONCRETE - SNAP-N-SAFE MODEL S200S (TYPE II POST) OR MODEL S225S (TYPE I POST) FLUSH MOUNT BRACKETS SHALL BE USED
2. SIGN TYPE/PLACEMENT IN ACCORDANCE WITH INDIANA MUTCD
3. SIGN MATERIALS IN ACCORDANCE WITH INDOT STANDARD SPEC SECTION 919
   - 3.1. SIGN SHEETING IN ASTM TYPE IV OR BETTER
   - 3.2. WARNING SIGNS SHALL BE FLUORESCENT YELLOW
   - 3.3. PEDESTRIAN/SCHOOL SIGNS SHALL BE FLUORESCENT YELLOW-GREEN
4. PER MUTCD STREET NAME SIGNS ON MULTI-LANE FACILITY HAVE 8" CAPITAL LETTERS/NUMBERS AND 6" LOWERCASE LETTERS ON 18" BLADE.
   - 4.1. SNS SHALL HAVE WHITE BORDERS
   - 4.2. 18" BLADES WILL BE SINGLE SIDED AND BOLTED TO POST
   - 4.3. INCREASES THE NEEDED POST LENGTH BY 3' (36" OF BLADE ALONG POST)
   - 4.4. DEPENDING ON BLADE LENGTH - SCRAP POST SHOULD BE BOLTED BETWEEN TWO SINGLE SIDED POSTS FOR SUPPORT



OM-3R
Type 3 Object Marker (right)

ROW SIGNAGE
OM-3R



R3-7R
Right Lane Must Turn Right

ROW SIGNAGE
R3-7R



R3-5R
Right Turn Only

ROW SIGNAGE
R3-5R



R4-4
Begin Right Turn Lane Yield To Bikes

ROW SIGNAGE
R4-4

HAMILTON SOUTHEASTERN SCHOOLS
13485 CUMBERLAND ROAD
FISHERS, IN 46038

AMERICAN STRUCTUREPOINT INC.
9025 River Road, Suite 200 | Indianapolis, Indiana 46240
TEL 317.547.5580 | FAX 317.543.0270
www.structurepoint.com

context DESIGN
5825 Lawton Loop E. Dr.
Indianapolis, Indiana 46216

HAMILTON SOUTHEASTERN HIGH SCHOOL BUS PARKING LOT
12499 Olio Road
Fishers, IN 46037

APPROVAL PENDING
NOT FOR CONSTRUCTION
IN SUBMITTING BIDS IN RELIANCE ON THESE PLANS THE CONTRACTOR ASSUMES ALL RISKS OF ADDITIONAL COSTS OF REVISIONS DUE TO REQUIREMENTS OF THE OWNER OR GOVERNMENTAL AUTHORITIES AND MATERIAL REVISIONS IN THE COURSE OF COMPLETING THE FINAL DESIGN.

CERTIFIED BY

ISSUANCE INDEX
DATE:
03/06/2026
PROJECT PHASE:
CONSTRUCTION DOCUMENTS

REVISION SCHEDULE		
NO.	DESCRIPTION	DATE
1	ADDENDUM 1	03/12/26

Project Number 2025.01563

SITE DETAILS

C601

PLOT DATE: 3/11/2026 5:13 PM
PLOT SCALE: 1:2.5849
EDIT DATE: 3/11/2026
EDITED BY: JVINSON
DRAWING FILE: P:\2025\01563\D_Drawings\Civil\Construction Documents\2025.01563 CE C600 SD.dwg

CITY STANDARDS APPLY TO PUBLIC PROPERTY & PRIVATE PROPERTY

FISHERS
EST. 1872

STANDARD CONSTRUCTION DETAILS

AMENDED MAY 2024

DIRECTIONS FOR USE

1) Applicable sheets from the City Standards shall be attached to the construction drawings and shall be considered part thereto. Individual City Standards that do not apply may be crossed out by design engineer by placing a single large X over the detail. Minor reference notations may be placed adjacent to individual standard titles for coordination. However, the standards themselves shall not be modified in any way.

2) Details prepared by outside sources shall not be included in the construction drawings when said details are covered by City Standards.

3) Details prepared by outside sources covering work which is not covered by City Standards are the sole responsibility of the design engineer and shall be placed on sheets other than the City Standard sheets.

4) Failure to properly execute the above directions for use will not affect the applicability nor the enforcement of the City Standards.

5) City of Fishers shall be contacted when required by calling the Director of Engineering.

6) City Standards shall be used in conjunction with the Transportation Plan and Construction Specifications.

7) The use of INDOT refers to Indiana Department of Transportation Standard Drawings and Specifications (Current Version).

NOTES

1) A City of Fishers Right-of-Way Activity Permit is required for utilities crossing existing public right-of-way or encroaching into right-of-way pavement.

2) Utility work within existing public right-of-way or within 5 feet of existing right-of-way pavement requires removable flowable fill as backfill.

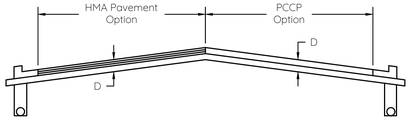
INDEX

TITLE SHEET	1
TYPICAL SECTIONS AND PAVEMENT	2-3
CURB DETAILS	4
DRIVEWAY AND MISCELLANEOUS ROADWAY DETAILS	5
SIDEWALK AND CURB RAMP DETAILS	6
ROUNDABOUT DESIGN DETAILS	7
HANDRAIL AND FENCE DETAILS	8
TIMBER GUARDRAIL DETAILS	9-12
STORM SEWER DETAILS	13-15
DETENTION BASIN DETAILS	16-17
SANITARY SEWER DETAILS	18-23
EROSION CONTROL DETAILS	24-27
SIGN AND PAVEMENT MARKING DETAILS	28
LIGHTING DETAILS	29

5/28/2024

HATEM M. MEKKY REGISTERED No. 10910914 STATE OF INDIANA PROFESSIONAL ENGINEER

CITY OF FISHERS STANDARD CONSTRUCTION DETAILS	R052824 RESOLUTION NO. 5/28/2024 DATE OF ADOPTION	SHEET
TITLE SHEET		1 of 29



Notes:

1) Asphalt pavement shall be in accordance with the most current INDOT Standard Specifications Section 401. For all local (non-Federal Aid) projects, all HMA acceptance and testing requirements shall be in accordance with Section 402. Patching and Widening shall be in accordance with Section 304.
2) PCCP pavement shall be in accordance with the most current INDOT Standard Specifications Section 502.
3) Any other pavement design will need Director of Engineering approval.
4) Where existing roads have SMA surface pavement, material is to be matched.

PRIMARY ARTERIAL AND COLLECTOR

HMA Pavement Option

D = 1.5" - 165lb/syd QC/QA-HMA, 2, 64, Surface, 9.5mm, on
2.5" - 275lb/syd QC/QA-HMA, 2, 64, Intermediate, 19.0 mm, on
3.75" - 413lb/syd QC/QA-HMA, 2, 64, Base, 25.0mm, on
3" - 300lb/syd QC/QA-HMA, 3, 76, Intermediate, Base, 19.0mm, on
6" - Compacted Aggregate, No. 53, on
14" - INDOT Subgrade Treatment, Type IBC

PCCP Option (Requires Engineering Approval)

D = 13" - PCCP, on
3" - Compacted Aggregate, No. 8, on
3" - Compacted Aggregate, No. 53, on
14" - INDOT Subgrade Treatment, Type IBC

Roundabout

D = 2" - 220lb/syd QC/QA-HMA, 2, 64, Surface, 9.5mm, on
2.5" - 275lb/syd QC/QA-HMA, 2, 64, Intermediate, 19.0 mm, on
3.5" - 385lb/syd QC/QA-HMA, 2, 64, Base, 25.0mm, on
3" - 300lb/syd QC/QA-HMA, 3, 76, Intermediate, Base, 19.0mm, on
6" - Compacted Aggregate, No. 53, on
14" - INDOT Subgrade Treatment, Type IBC

SECONDARY ARTERIAL

HMA Pavement Option

D = 1.5" - 165lb/syd QC/QA-HMA, 2, 64, Surface, 9.5mm, on
2.5" - 275lb/syd QC/QA-HMA, 2, 64, Intermediate, 19.0 mm, on
3.75" - 413lb/syd QC/QA-HMA, 2, 64, Base, 25.0mm, on
9" - Compacted Aggregate, No. 53, on
14" - INDOT Subgrade Treatment, Type IBC

PCCP Option (Requires Engineering Approval)

D = 13" - PCCP, on
3" - Compacted Aggregate, No. 8, on
3" - Compacted Aggregate, No. 53, on
14" - INDOT Subgrade Treatment, Type IBC

Roundabout

D = 2" - 220lb/syd QC/QA-HMA, 2, 64, Surface, 9.5mm, on
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9" - Compacted Aggregate, No. 53, on
14" - INDOT Subgrade Treatment, Type IBC

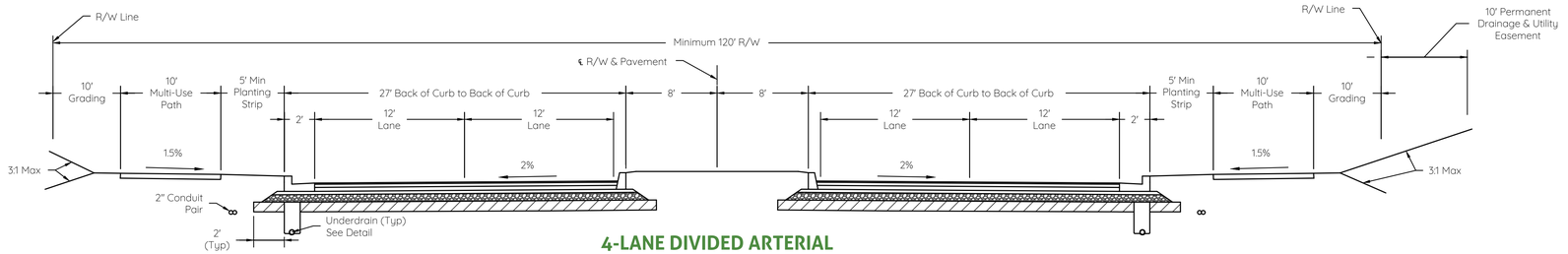
COLLECTOR

HMA Pavement Option

D = 1.5" - 165lb/syd QC/QA-HMA, 2, 64, Surface, 9.5mm, on
2.5" - 275lb/syd QC/QA-HMA, 2, 64, Intermediate, 19.0 mm, on
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8" - Compacted Aggregate, No. 53, on
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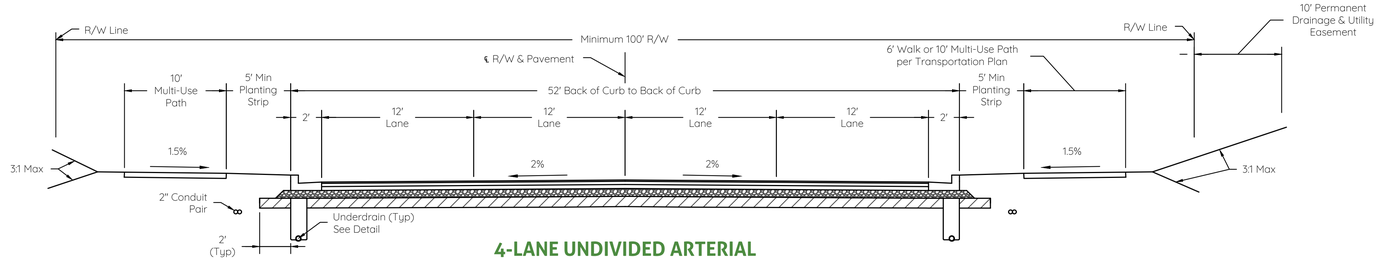
PCCP Option (Requires Engineering Approval)

D = 13" - PCCP, on
3" - Compacted Aggregate, No. 8, on
3" - Compacted Aggregate, No. 53, on
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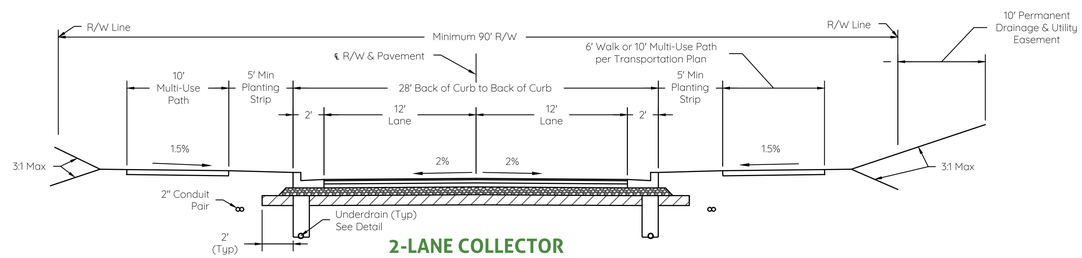
4-LANE DIVIDED ARTERIAL

Not to Scale



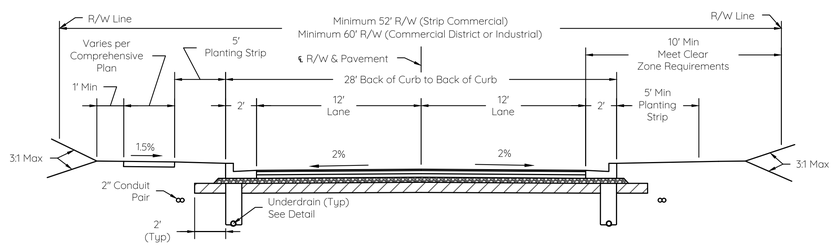
4-LANE UNDIVIDED ARTERIAL

Not to Scale



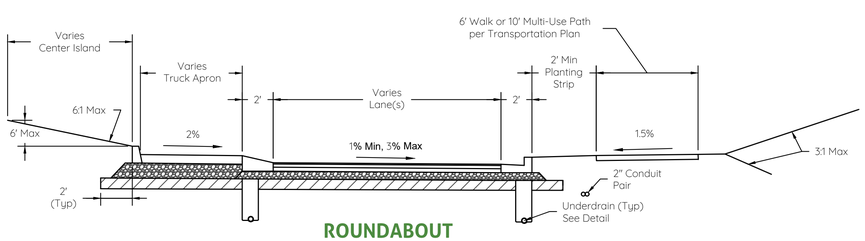
2-LANE COLLECTOR

Not to Scale



COMMERCIAL OR INDUSTRIAL COLLECTOR

Not to Scale



ROUNDABOUT

Not to Scale

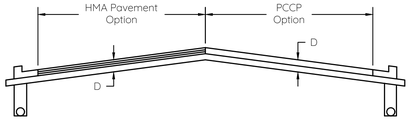
04/18/2024
5/28/2024

HATEM M. MEKKY
REGISTERED
No. 10910914
STATE OF INDIANA
PROFESSIONAL ENGINEER

CITY OF FISHERS
STANDARD CONSTRUCTION DETAILS

ARTERIAL AND COLLECTOR TYPICAL PAVEMENT AND ROADWAY SECTIONS

SHEET
2 of 29



Notes:

1) Asphalt pavement shall be in accordance with the most current INDOT Standard Specifications Section 401. For all local (non-Federal Aid) projects, all HMA acceptance and testing requirements shall be in accordance with Section 402. Patching and Widening shall be in accordance with Section 304.
2) PCCP pavement shall be in accordance with the most current INDOT Standard Specifications Section 502.
3) Any other pavement design will need Director of Engineering approval

LOCAL STREET

HMA Pavement Option

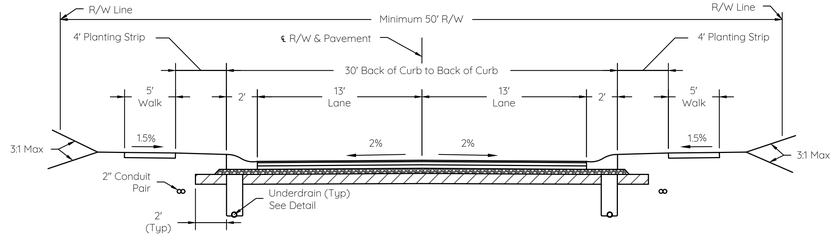
D = 1.5" - 165lb/syd QC/QA-HMA, 2, 64, Surface, 9.5mm, on
2.5" - 275lb/syd QC/QA-HMA, 2, 64, Intermediate, 19.0 mm, on
3.75" - 413lb/syd QC/QA-HMA, 2, 64, Base, 19.0mm, on
6" - Compacted Aggregate, No. 53, on
14" - INDOT Subgrade Treatment, Type IBC

Minor Subdivision

D = 1.5" - 165lb/syd QC/QA-HMA, 2, 64, Surface, 9.5mm, on
3.5" - 385lb/syd QC/QA-HMA, 2, 64, Intermediate, 19.0 mm, on
12" - Compacted Aggregate, No. 53, on
14" - INDOT Subgrade Treatment, Type IBC

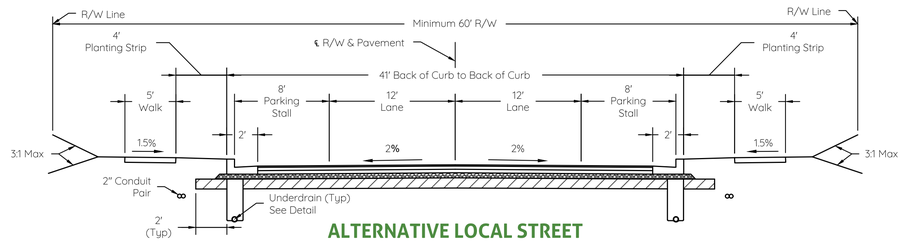
PCCP Option (Requires Engineering Approval)

D = 13" - PCCP, on
3" - Compacted Aggregate, No. 53, on
14" - INDOT Subgrade Treatment, Type IBC



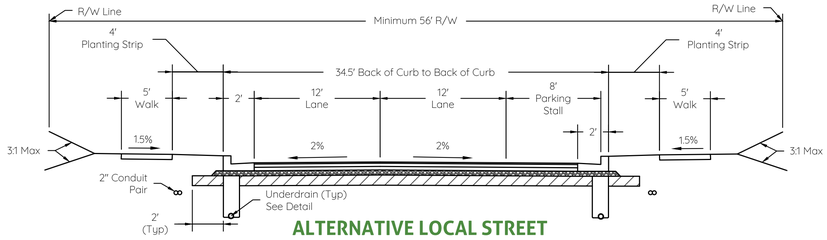
LOCAL STREET

Not to Scale



ALTERNATIVE LOCAL STREET
TRADITIONAL SECTION WITH 2 PARKING LANES

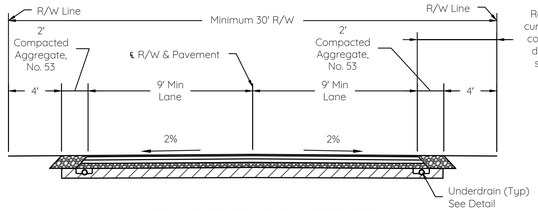
Not to Scale



ALTERNATIVE LOCAL STREET
TRADITIONAL SECTION WITH 1 PARKING LANE

Not to Scale

MODIFICATIONS TO THESE SECTIONS MUST BE APPROVED BY THE DIRECTOR OF ENGINEERING



Road sections without curb shall require special consideration for storm drainage, underdrain, side ditch depth, etc.

ALTERNATIVE LOCAL STREET
MINOR SUBDIVISION

Not to Scale

5/28/2024

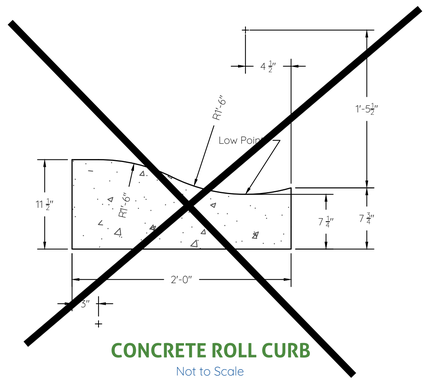
HATEM M. MEKKY REGISTERED No. 10910914 STATE OF INDIANA PROFESSIONAL ENGINEER

CITY OF FISHERS
STANDARD CONSTRUCTION DETAILS

LOCAL STREET
TYPICAL PAVEMENT AND
ROADWAY SECTIONS

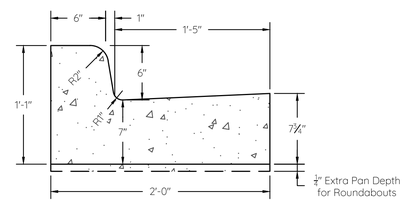
SHEET

3 of 29



CONCRETE ROLL CURB

Not to Scale

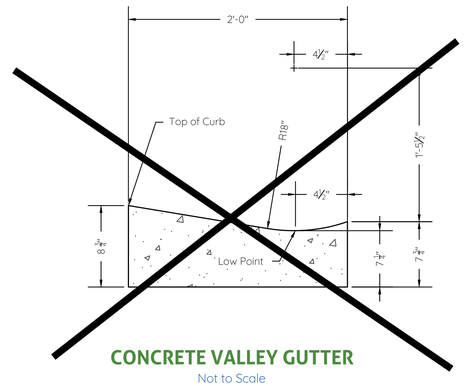


Note:

1) Provide reverse pitch curb & gutter on center islands when curb inlets are not provided for drainage and when natural flow is away from curb.

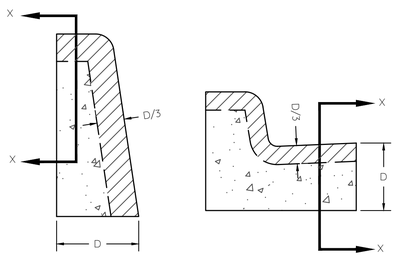
CONCRETE COMBINED CURB & GUTTER

Not to Scale



CONCRETE VALLEY GUTTER

Not to Scale

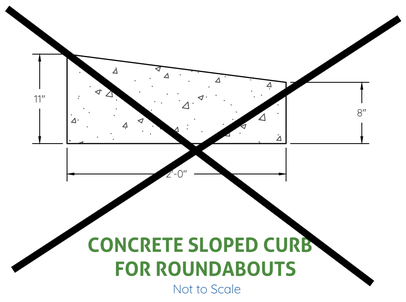


Note:

1) Contraction joints for concrete curbs shall be sawed at 10-ft spacing. Spacing shall be 5-ft on curves.

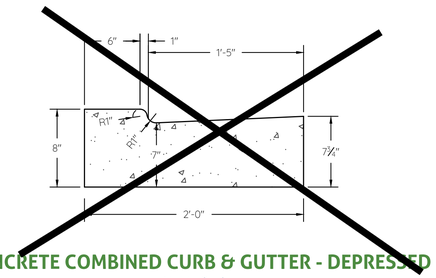
CONTRACTION JOINTS - CONCRETE CURB

Not to Scale



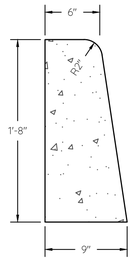
CONCRETE SLOPED CURB FOR ROUNDABOUTS

Not to Scale



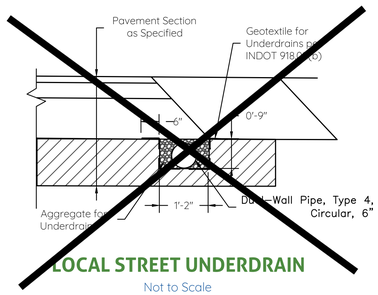
CONCRETE COMBINED CURB & GUTTER - DEPRESSED

Not to Scale



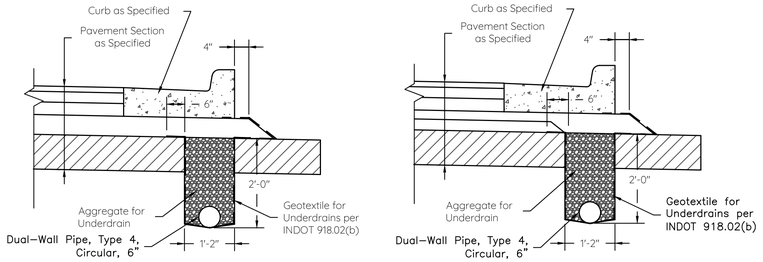
CONCRETE BARRIER CURB

Not to Scale



LOCAL STREET UNDERDRAIN

Not to Scale

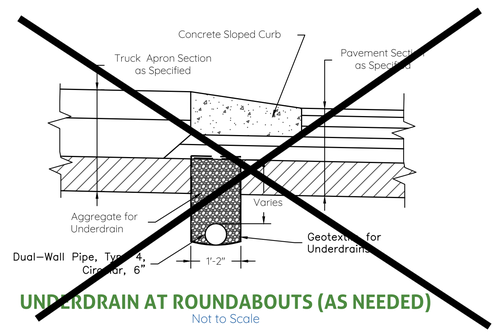


Note:

1) No connections shall be made to curb underdrain (downspouts, sump pumps, yard drains, etc).

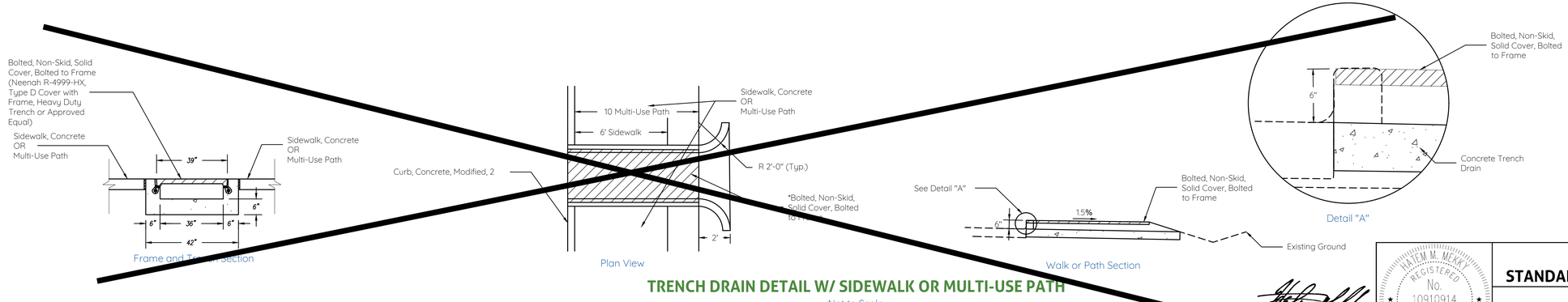
CURB UNDERDRAIN

Not to Scale



UNDERDRAIN AT ROUNDABOUTS (AS NEEDED)

Not to Scale



TRENCH DRAIN DETAIL W/ SIDEWALK OR MULTI-USE PATH

Not to Scale

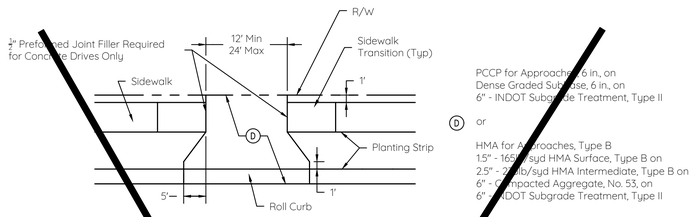
HATEM M. MEKKY
REGISTERED
No. 10910914
STATE OF INDIANA
PROFESSIONAL ENGINEER

5/28/2024

CITY OF FISHERS
STANDARD CONSTRUCTION DETAILS

CURB AND UNDERDRAIN DETAILS

SHEET 4 of 29

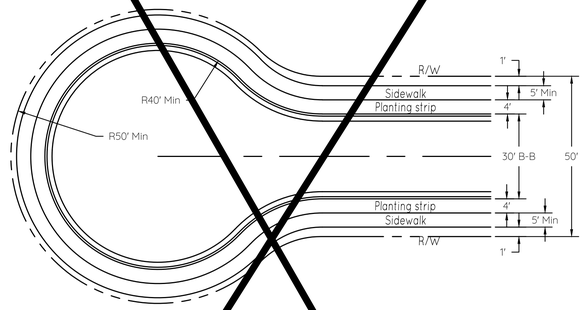


PCCP for Approaches, 6 in., on
Dense Graded Subbase, 6 in., on
6" - INDOT Subgrade Treatment, Type II

D or

HMA for Approaches, Type B
1.5" - 165lb/syd HMA Surface, Type B on
2.5" - 275lb/syd HMA Intermediate, Type B on
6" - Compacted Aggregate, No. 53, on
6" - INDOT Subgrade Treatment, Type II

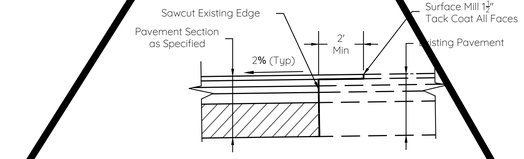
Residential Driveway on Local Road



Note:
1) 'Eyebrows' are not allowed

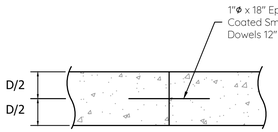
CUL-DE-SAC

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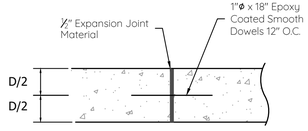
LONGITUDINAL PAVEMENT TIE-IN SECTION

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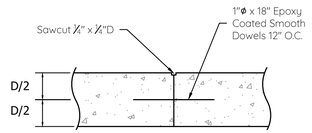
CONSTRUCTION JOINT - 10' O.C. MAX.

Not to Scale



EXPANSION JOINT - 30' O.C. MAX.

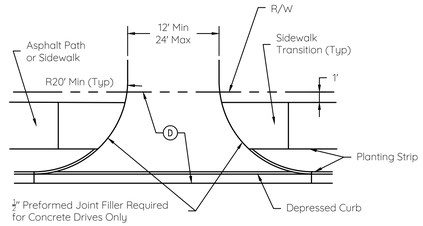
Not to Scale



SAWCUT CONTROL JOINT - 10' O.C. MAX.

Not to Scale

RAISED PEDESTRIAN CROSSING JOINTS



PCCP for Approaches, 6 in., on
Dense Graded Subbase, 6 in., on
6" - INDOT Subgrade Treatment, Type II

D or

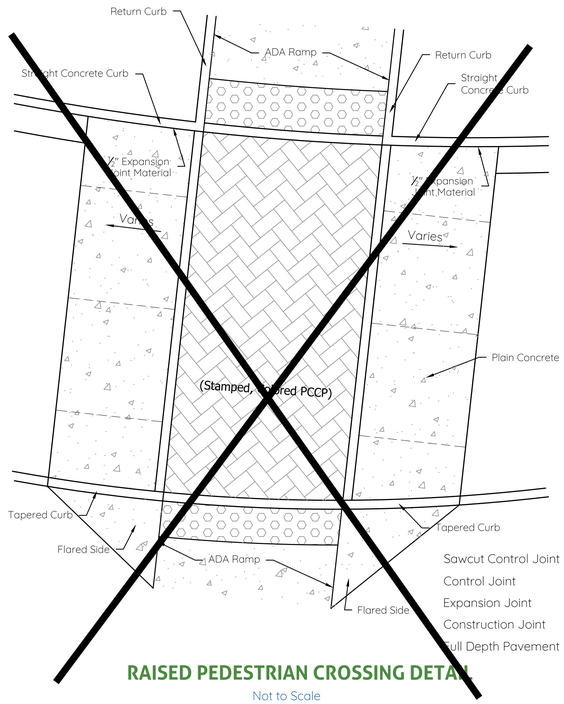
HMA for Approaches, Type B
1.5" - 165lb/syd HMA Surface, Type B on
2.5" - 275lb/syd HMA Intermediate, Type B on
6" - Compacted Aggregate, No. 53, on
6" - INDOT Subgrade Treatment, Type II

Residential Driveway on Collector, Secondary, or Primary Arterial

Notes:
1) Details do not reflect additional road improvements (i.e., turn lanes and tapers).
2) Decorative driveway aprons are not allowed except as approved by the Director of Engineering.
3) Maximum driveway slope outside of right-of-way shall be 12 % for minimum 10 feet beyond R/W line.
4) Adjoining asphalt shall have perpendicular edges.
5) Asphalt shall not be used for residential driveways on Collector, Secondary, or Primary Arterials.
6) Asphalt must match adjacent mainline cross section for commercial approaches.

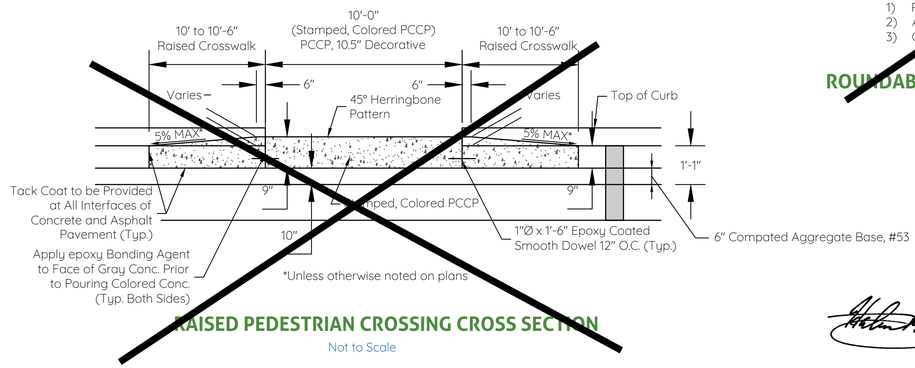
DRIVEWAY DETAILS

Not to Scale



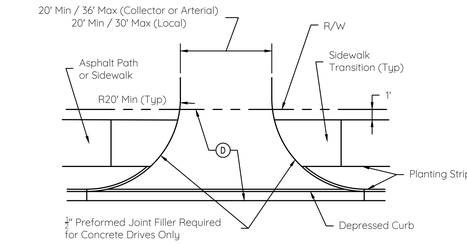
RAISED PEDESTRIAN CROSSING DETAIL

Not to Scale



RAISED PEDESTRIAN CROSSING CROSS SECTION

Not to Scale

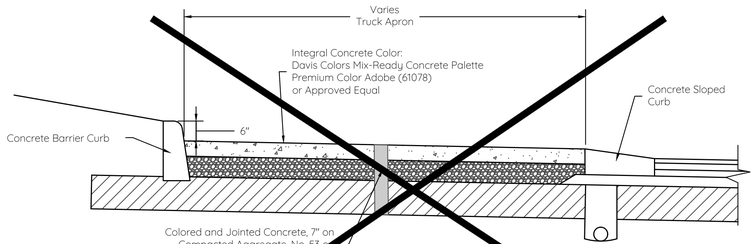


PCCP for Approaches, 9 in., on
Dense Graded Subbase, 6 in., on
Geogrid, Type 1B, on
6" - INDOT Subgrade Treatment, Type II

D or

HMA for Approaches, Type B
1.5" - 165lb/syd HMA Surface, Type B on
2.5" - 275lb/syd HMA Intermediate, Type B on
6" - 660lb/syd HMA Base, Type B on
6" - INDOT Subgrade Treatment, Type II on
Geogrid, Type 1B

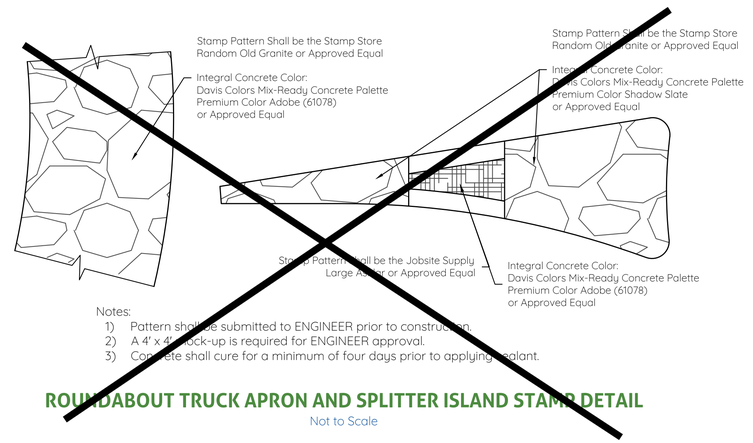
Commercial Driveway



Note:
1) Type D-1 Contraction Joints not required unless otherwise directed by Dept. of Engineering.

CONCRETE TRUCK APRON DETAIL

Not to Scale



Notes:
1) Pattern shall be submitted to ENGINEER prior to construction.
2) A 4' x 4' mock-up is required for ENGINEER approval.
3) Concrete shall cure for a minimum of four days prior to applying sealant.

ROUNDABOUT TRUCK APRON AND SPLITTER ISLAND STAMP DETAIL

Not to Scale

5/28/2024

HAKEM M. MEKKY
REGISTERED
No. 10910914
STATE OF INDIANA
PROFESSIONAL ENGINEER

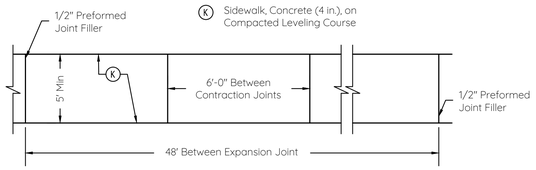
CITY OF FISHERS
STANDARD CONSTRUCTION DETAILS

DRIVEWAY, CUL-DE-SAC, AND MISC. TRANSPORTATION DETAILS

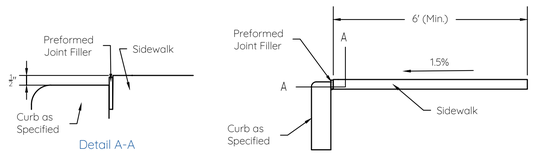
SHEET
5 of 29

NOTES

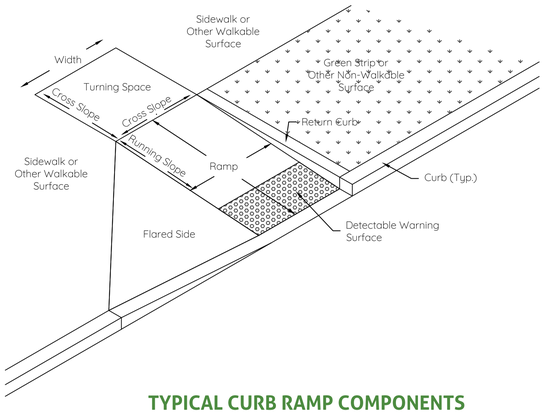
1) Curb ramps and sidewalks shall be constructed in accordance with INDOT Standard Specifications, Section 604.
2) All sidewalks and curb ramps within Fishers Right-of-Way shall be ADA compliant.
3) Detectable Warning Surfaces shall be cast iron type and shall be powder coated black.
4) Detectable Warning Surfaces shall not be installed at commercial or private driveways unless traffic warrants or approved by City Engineer.
5) Transverse joints shall be cut with a jointer having a radius of 1/2-inch of spacing.
6) Decorative sidewalks are not permitted unless prior approval has been given by the Director of Engineering.
7) When sidewalk is built in conjunction with concrete pavement, expansion and contraction joints should be placed at the same location as the pavement slab. The curb and gutter shall be tied to the pavement by 1/2-in round preformed epoxy coated bars at approximate 3-foot intervals. If concrete pavement is not being built at the same time the curb is constructed, expansion joints should be placed at the ends of all returns and at intervals not to exceed 100 feet. Contraction joints should be installed at 20-foot intervals.
8) Curb inlets shall not be allowed within 2 feet of curb ramps or at the apex of corner radii.



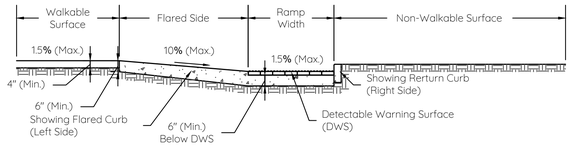
SIDEWALK DETAIL
Not to Scale



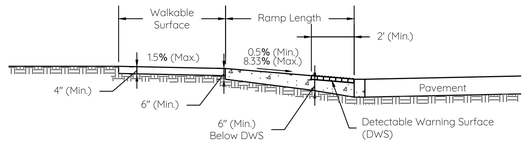
SIDEWALK ADJACENT TO CURB
Not to Scale



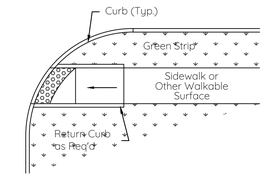
TYPICAL CURB RAMP COMPONENTS
Not to Scale



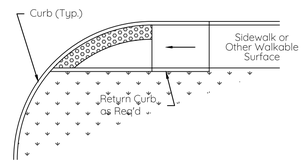
TYPICAL CURB RAMP CROSS SLOPE SECTION
Not to Scale



TYPICAL CURB RAMP RUNNING SLOPE SECTION
Not to Scale

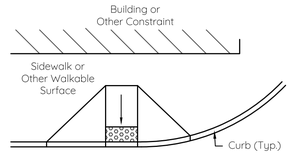


Ramp with Buffer

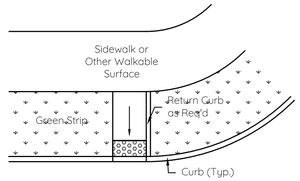


Ramp Adjacent to Curb

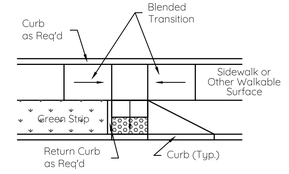
ONE-WAY DIRECTIONAL PERPENDICULAR CURB RAMP EXAMPLES
Not to Scale



Ramp Adjacent to Walkable Surface

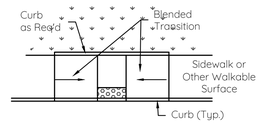


Ramp Adjacent to Non-Walkable Surface

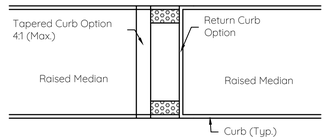


Ramp with Grade Tiering

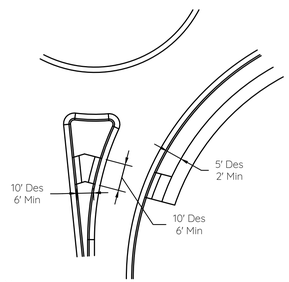
PERPENDICULAR CURB RAMP EXAMPLES
Not to Scale



PARALLEL CURB RAMP EXAMPLE
Not to Scale

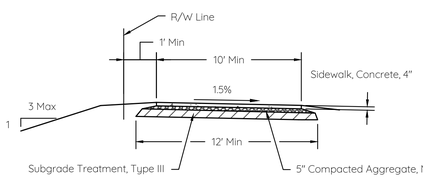


MEDIAN CURB RAMP EXAMPLE
Not to Scale

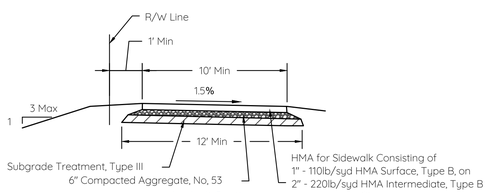


Note:
1) If 6' minimum cannot be achieved at the splitter island, crosswalk shall be of passthrough type without angular deflection.

ROUNDABOUT SIDEWALK AND CURB RAMP PLACEMENT
Not to Scale

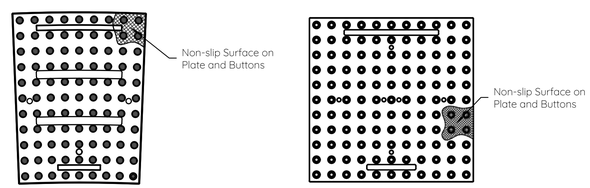


Concrete Section (Requires Engineering Approval)



Asphalt Section

PERIMETER PATH
Not to Scale



Note:
1) Detectable warning surfaces by East Jordan Iron Works, Neenah, or approved equal shall be cast iron, have a heavy duty load rating, and be powder coated black.
2) Detectable warning surfaces shall be ADA compliant.

DETECTABLE WARNING SURFACE
Not to Scale

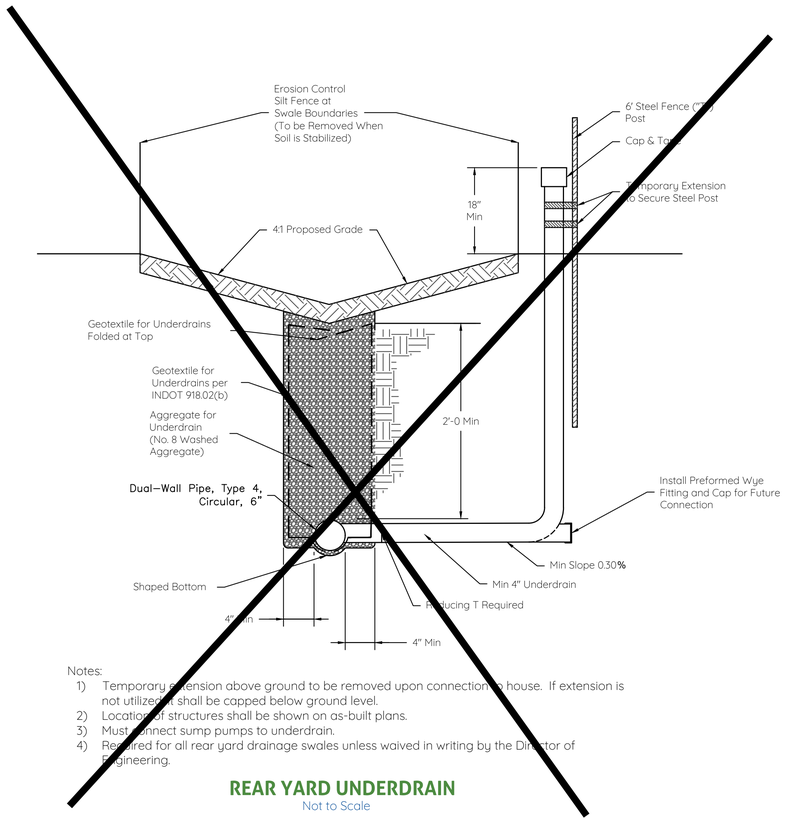
5/28/2024

HAKEM M. MEKKY REGISTERED No. 10910914 STATE OF INDIANA PROFESSIONAL ENGINEER

CITY OF FISHERS
STANDARD CONSTRUCTION DETAILS

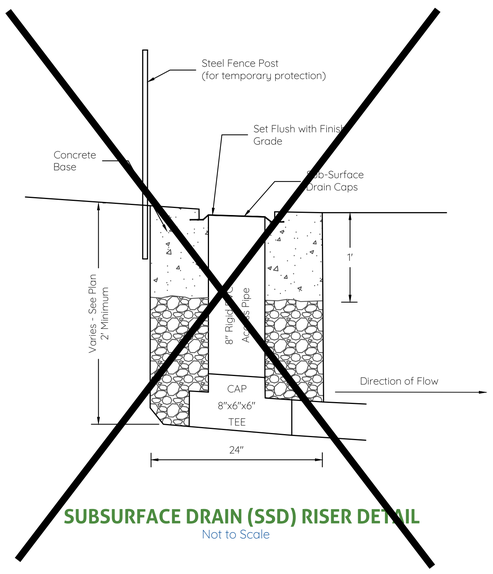
SIDEWALK, CURB RAMP, AND PERIMETER PATH DETAILS

SHEET 6 of 29

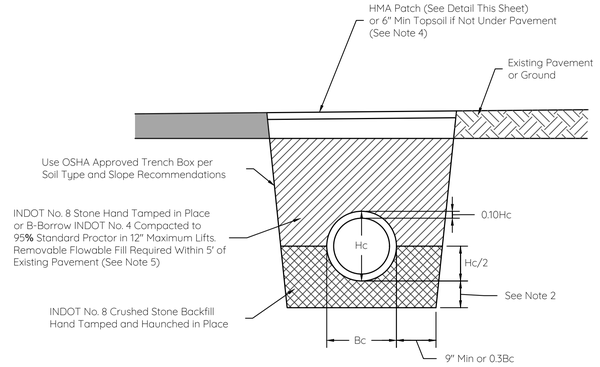


Notes:
1) Temporary extension above ground to be removed upon connection to house. If extension is not utilized it shall be capped below ground level.
2) Location of structures shall be shown on as-built plans.
3) Must connect sump pumps to underdrain.
4) Required for all rear yard drainage swales unless waived in writing by the Director of Engineering.

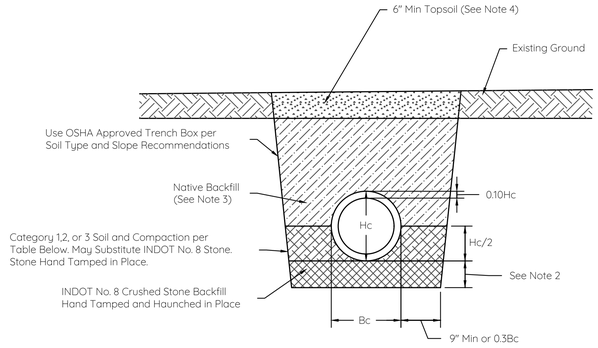
REAR YARD UNDERDRAIN
Not to Scale



SUBSURFACE DRAIN (SSD) RISER DETAIL
Not to Scale



Within 5' of Pavement or Under Pavement



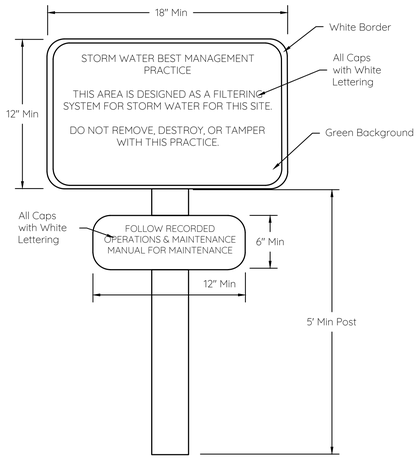
Outside of Pavement

SOIL CATEGORY	SOIL NAME	USCS SOIL TYPE	AASHTO SOIL TYPE	STANDARD PROCTOR	MODIFIED PROCTOR
CATEGORY 1	CLEAN GRAVEL OR SAND	SW, SP, GW, GP	A1, A3	85	80
CATEGORY 2	SILTY GRAVEL OR SAND	GM, SM, ML & GC/SC W/LESS THAN 20% PASSING #200 SIEVE	A2, A4	90	85
CATEGORY 3	SILTY CLAY	CL, MH, GC, SC	A5, A6	95	85

Reference: American Concrete Pipe Association Standard Installation Manual

Notes:
1) For backfill purposes, paved shoulders and curbs are considered pavement. If paving is to occur within 30 days of placement of INDOT No.#4 B-Borrow, contractor shall provide City of Fishers with Professional Engineer certified compaction results.
2) Depth of bedding material below pipe shall be minimum of 3" or hc/24, whichever is greater.
3) Native backfill material must be free of aggregate greater than 6" diameter.
4) Topsoil material shall be mounded to accommodate settlement.
5) Removable flowable backfill shall be required for all open cuts across existing pavement and will also be allowed as a substitute for other backfill requirements.
6) Pipe and fittings used in storm sewer construction shall be RCP (AASHTO M170) and meet the fill height and load requirements according to the latest fill height tables of INDOT. Refer to Chapter 4.J of the City of Fishers Stormwater Technical Standards Manual for other approved pipe materials that may be used in commercial parking lots or private, non-paved areas. Any alternative pipe materials shall be in accordance with the requirements of Chapter 4.J, and shall be installed in accordance with manufacturer's specifications.
7) A minimum of Class III RCP (D-load 1350 lb/ft/ft) is required for all pipe within the City of Fishers Right-of-Way, or areas subject to loading. An alternate pipe class (Class IV or V) may be required by the design engineer or Director of Engineering for special pavement loading circumstances.
8) For pavement bores, alternative materials will be considered.
9) For elliptical or arch pipe installations, see installation specifications from the American Concrete Pipe Association.
10) For all excavation work, OSHA approved safety standards shall be followed.

TRENCH BACKFILL DETAILS
Not to Scale

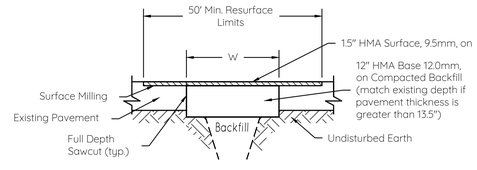


Notes:
1) BMP signs should be placed immediately adjacent or within the practice.
2) Signs should be aluminum and meet minimum IMUTCD standards.
3) Total number of signs required for each BMP is subject to plan review.

BMP SIGN
Not to Scale

PAVEMENT RESTORATION TABLE	
UTILITY DEPTH RANGE (FEET)	MAXIMUM TRENCH WIDTH AT FINISHED GRADE, W (FEET)
0 to 5	I.D. +5
5 to 8	I. D. +8
8 to 10	I. D. +10
10 to 12	I. D. +12
12 to 14	I. D. +14
14 to 16	I. D. +16
16 to 18	I. D. +18
18 to 20	I. D. +20

I.D. = Pipe or Conduit Inside Diameter



Notes:
1) Sawcuts shall provide a vertical, neat, and uniform edge.
2) All materials shall comply with specifications as required by the City of Fishers.
3) Contractor shall surface mill (1.5") existing pavement 25 ft. in each direction from trench centerline from face-of-curb to face-of-curb or edge-of-roadway, replace with 1.5" HMA Surface, 9.5mm, and appropriate pavement markings.
4) The existing milled surface and HMA Base layer is to be tack coated prior to the placement of new asphalt. The new surface pavement grade shall match the existing surface pavement grade.
5) A two (2) inch wide band of crack sealant is to be applied along the joint between the existing and new asphalt surface. Sealant is to be applied in accordance with INDOT Standard Specifications, Section 305.
6) Refer to Pavement Restoration Table for W.

HMA PATCH DETAIL
Not to Scale

04/18/2024

HATEM M. MEKKY
REGISTERED
No.
10910914
STATE OF
INDIANA
PROFESSIONAL ENGINEER

CITY OF FISHERS
STANDARD CONSTRUCTION DETAILS

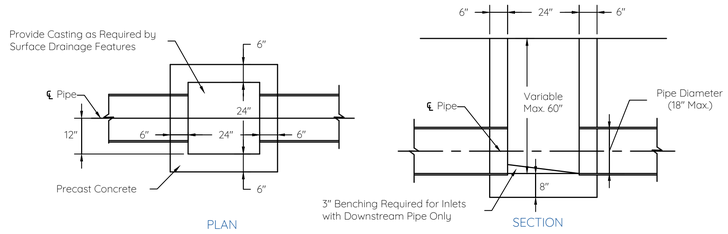
STORM SEWER BACKFILL, SWALE UNDERDRAIN, EXCAVATION DETAILS AND NOTES

SHEET
13
of
29

NOTES

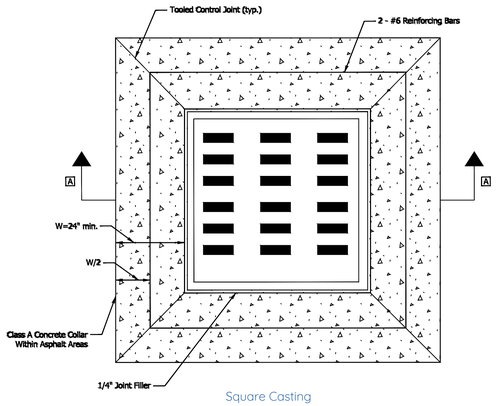
1) Inlet boxes shall not extend into the pavement section beyond the width of the wall thickness which shall be a maximum of 6 inches. Square or rectangular structures shall be utilized for all pipe connections along the curb line. The maximum inlet box size shall be limited to 24"x36". Mainline pipe shall be defined as all pipe greater than 15" in diameter. No mainline pipe shall be allowed in direct connection to the inlet box. Details and manufacturer shop drawings shall be provided for all pipe connections less than 90 degrees to the box edge. Field changes to structures shall be cut or cored. Round structures shall only be allowed for areas outside of the curb line and outside of road section pavement.
2) 24"x24" inlet boxes shall be limited to depths of 5 feet. Inlet boxes greater than 5 feet in depth shall be 24"x36" (inside dimensions), or greater, and include steps.
3) The downstream most structure that collects runoff from within the Right-of-Way shall be sumped (2 feet) prior to the detention basin and is required to be placed within 15 feet of the curb, where practical, and equipped with a snout to catch floatables.
4) The contractor shall use precast inlets or catch basins, unless otherwise approved by the Director of Engineering, that are in accordance with INDOT Standard Specifications.
5) A 6" cushion of INDOT No. 8 crushed stone shall be required when the precast bottom section is used.
6) If a precast inlet, catch basin, or manhole is used and the adjoining pipes are field connected directly to the precast unit, the connection shall be made using a Class "A" concrete collar of 6" minimum longitudinal and radial thickness. Brick should be used as a filler for concrete patching for inlets that are not precast.
7) Waterproofing material shall conform to AASHTO M115 and INDOT Standard Specifications.
8) All curb inlets and catch basins shall be equipped for underdrains.
9) All structures receiving sub-surface drain (SSD) shall have both ports core drilled. T or Y blind connections are not allowed.
10) Expansion joints are required around castings for all structures located within PCCP, PCC sidewalk, PCC multi-use paths, or concrete curb and/or gutter.
11) All castings shall be checked to meet inlet design and ensure compatibility with curb specified, swales, ponds, etc. All castings shall be in accordance with the Compatibility of Inlet Structures and Castings Table, this sheet, unless otherwise approved by the Director of Engineering.
12) All inlet castings shall contain a "NO DUMPING, DRAINS TO WATERWAY" or equivalent clean water message to educate and warn against illegal dumping. Casting openings should be grated or otherwise designed to limit floatables and debris from entering the inlet box.
13) No inlet castings shall be installed within wheel paths, unless otherwise approved by the Director of Engineering.

COMPATIBILITY OF INLET STRUCTURES AND CASTINGS																
INLET TYPE	INDOT CASTING TYPES					NEENAH CASTING TYPES					EAST JORDAN IRON WORKS CASTING TYPES					
	2	3	7	8	10	R-3287-10V	R-3405-A	R-3501-TR	R-3501-TL	R-4215-C	5250	6610	7030 w/ M2 Grate & T1 Back	7495M1	7495M2	7495M4
A	X	X		X			X				X					
E			X							X		X				
F			X							X		X				
J					X	X		X	X				X	X	X	X
M					X	X		X	X				X	X	X	X

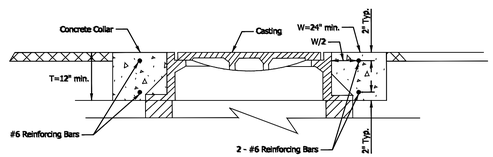


INLET, TYPE A

Not to Scale



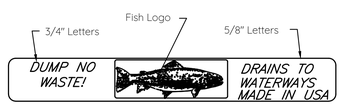
Square Casting



Section A-A

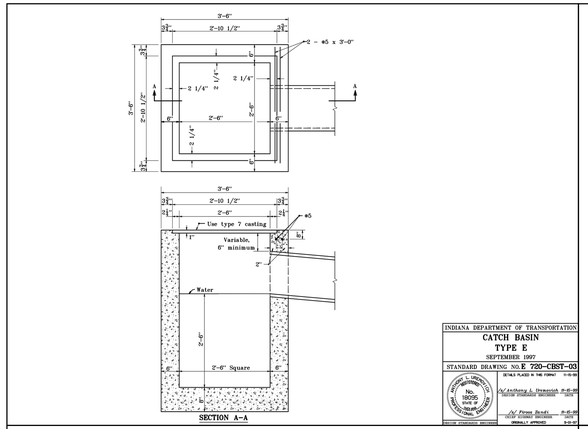
CONCRETE COLLAR FOR SQUARE CASTINGS DETAIL

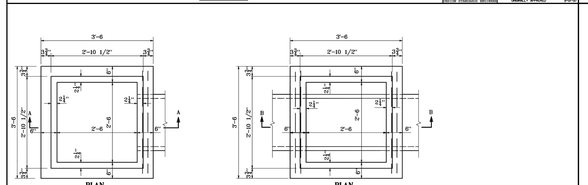
Not to Scale



INLET LID CASTING DETAIL

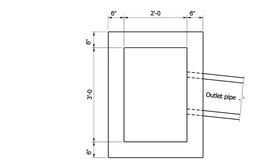
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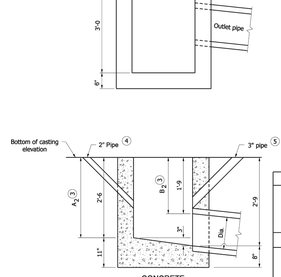




INDIANA DEPARTMENT OF TRANSPORTATION
CATCH BASIN TYPE E
SEPTEMBER 1997
STANDARD DRAWING NO. E 720-CBST-03
DETAILS PLACED IN THIS FORMAT 11-15-99
No. 19705 STATE OF INDIANA REGISTERED PROFESSIONAL ENGINEER
/s/ Anthony L. Hrywnak 11-15-99
DESIGN STANDARDS ENGINEER DATE
/s/ Fiona Bond 11-15-99
CHIEF HIGHWAY ENGINEER DATE
ORIGINALLY APPROVED 9-15-97

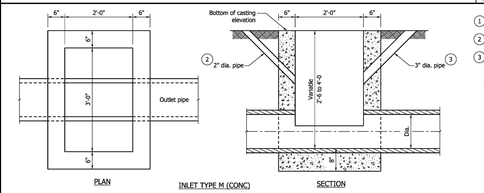
INDIANA DEPARTMENT OF TRANSPORTATION
INLETS TYPE E AND F
SEPTEMBER 1997
STANDARD DRAWING NO. E 720-INST-04
DETAILS PLACED IN THIS FORMAT 11-15-99
No. 19705 STATE OF INDIANA REGISTERED PROFESSIONAL ENGINEER
/s/ Anthony L. Hrywnak 11-15-99
DESIGN STANDARDS ENGINEER DATE
/s/ Fiona Bond 11-15-99
CHIEF HIGHWAY ENGINEER DATE
ORIGINALLY APPROVED 9-15-97



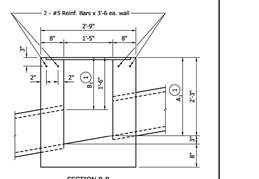


GENERAL NOTES
1. Brick, block, or concrete may be used.
2. T = 8" for brick structure
   T = 6" for segmental block structure
3. In special cases or where inlet pipe is required, A_1, B_1, A_2, and B_2 shall be increased or decreased 1'-0, as directed.
4. 2" dia. pipe drain from bottom of curb to inlet. Aggregate to be placed around inlet end of pipe.
5. 3" dia. pipe to be kept open for drainage of subgrade or base until surface is placed.

INDIANA DEPARTMENT OF TRANSPORTATION
INLET TYPE J
SEPTEMBER 2008
STANDARD DRAWING NO. E 720- INST-06
No. 9750 STATE OF INDIANA REGISTERED PROFESSIONAL ENGINEER
/s/ Richard L. VanCleave 09/02/08
DESIGN STANDARDS ENGINEER DATE
/s/ Mark A. Miller 09/02/08
CHIEF HIGHWAY ENGINEER DATE
DESIGN STANDARDS ENGINEER



GENERAL NOTES
1. If inlet pipe is required, A_1 and B_1 shall be increased or decreased 1'-0 as directed.
2. 2" dia. drain from bottom of curb to inlet. Aggregate to be placed around inlet end of pipe.
3. 3" min. dia. pipe to be kept open for drainage of subgrade or base until surface is placed.



INDIANA DEPARTMENT OF TRANSPORTATION
INLET TYPE M & R
SEPTEMBER 2009
STANDARD DRAWING NO. E 720 INST-07
No. 9750 STATE OF INDIANA REGISTERED PROFESSIONAL ENGINEER
/s/ Richard L. VanCleave 09/01/09
DESIGN STANDARDS ENGINEER DATE
/s/ Mark A. Miller 09/01/09
CHIEF HIGHWAY ENGINEER DATE
DESIGN STANDARDS ENGINEER

5/28/2024

HATEM M. MEKKY REGISTERED No. 10910914 STATE OF INDIANA PROFESSIONAL ENGINEER

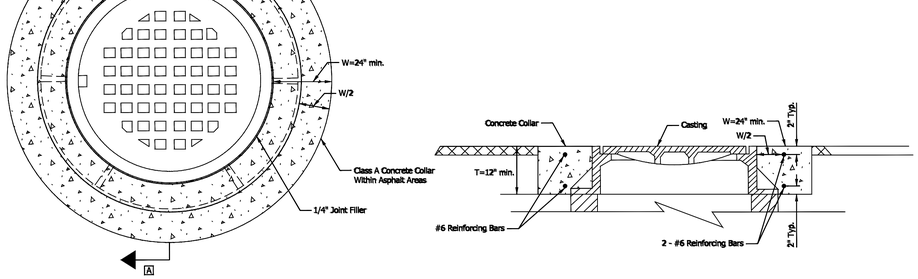
CITY OF FISHERS
STANDARD CONSTRUCTION DETAILS

STORM SEWER INLET STRUCTURE DETAILS AND NOTES

SHEET 14 of 29

NOTES

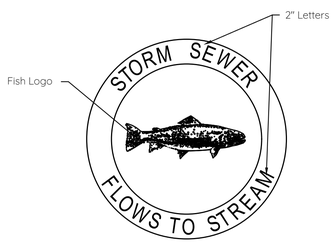
1) All precast manhole materials shall conform to ASTM C-478 and INDOT Standard Specifications (min. sq. in. of reinforcing steel per lineal foot of barrel shall be 0.12).
2) A 6" cushion of INDOT No. 8 crushed stone shall be required when the precast bottom section is used.
3) Joints between sections of precast manholes shall be in accordance with ASTM C-443.
4) If the contractor uses a precast manhole and the adjoining pipes are field connected directly to the precast unit, the connection shall be made using a Class "A" concrete collar of 6" minimum longitudinal and radial thickness. Brick should be used as a filler for concrete patching for manholes that are not precast.
5) Drop pipe may be used with Manhole, Type D, E, F, or G and referred to as Drop Manhole, Type D, E, F, or G as approved by the Director of Engineering.
6) Bottom shall be constructed of precast bottom section or Class "A" concrete formed in place.
7) Benchwalls shall be Class "A" concrete.
8) Waterproofing material shall conform to AASHTO M115 and INDOT Standard Specifications.
9) Flat precast covers shall be used where headroom is limited.
10) The downstream most structure that collects runoff from within the Right-of-Way shall be sumped (2 feet) prior to the detention basin and is required to be placed within 15 feet of the curb, where practical, and equipped with a snout to catch floatables.
11) All structures receiving sub-surface drain (SSD) shall have both ports core drilled. T or Y blind connections are not allowed.
12) Expansion joints around castings are required at all structures located within PCCP, PCC sidewalk, PCC multi-use paths, or concrete curb and/or gutter.
13) All manhole castings shall be checked to meet inlet grate design and ensure compatibility with curb specified, swales, ponds, etc. In accordance with the Compatibility of Manhole Structures and Castings Table, this sheet, unless otherwise approved by the Director of Engineering.
14) All manhole castings shall contain a "NO DUMPING, DRAINS TO WATERWAY" or equivalent clean water message to educate and warn against illegal dumping. Casting openings should be grated or otherwise designed to limit floatables and debris from entering the manhole.
15) All manhole steps shall conform to INDOT Standard Drawing 720-MHST-09.
16) No manhole castings shall be installed within wheel paths, unless otherwise approved by the Director of Engineering.



Round Casting — Section A-A

CONCRETE COLLAR FOR ROUND CASTINGS DETAIL

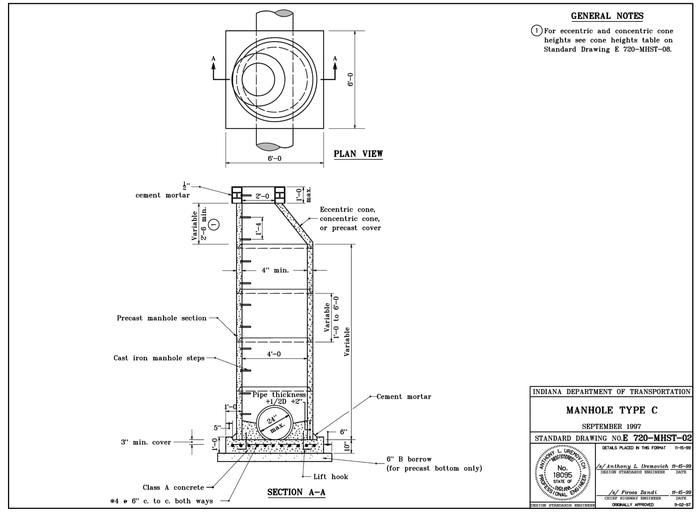
Not to Scale



MANHOLE LID CASTING DETAIL

Not to Scale

COMPATIBILITY OF MANHOLE STRUCTURES AND CASTINGS									
MANHOLE TYPE	INDOT CASTING TYPES			NEENAH CASTING TYPES			EAST JORDAN IRON WORKS CASTING TYPES		
	2	4	8	R-2502-D	R-4342	R-1772	1022 w/ Type A Lid	1022 w/ M1 or M3 Grate	6489
C	X	X	X	X	X	X	X	X	X
H	X	X	X	X	X	X	X	X	X
J	X	X	X	X	X	X	X	X	X
K	X	X	X	X	X	X	X	X	X
L	X	X	X	X	X	X	X	X	X
M	X	X	X	X	X	X	X	X	X
N	X	X	X	X	X	X	X	X	X

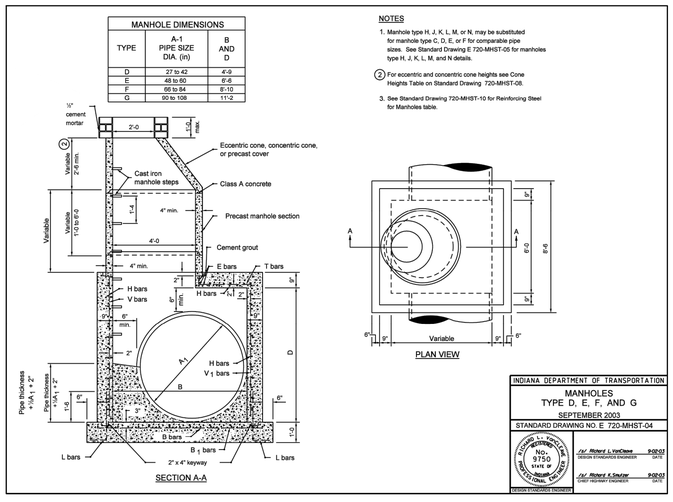


GENERAL NOTES

(1) For eccentric and concentric cone heights see cone heights table on Standard Drawing E 720-MHST-08.

INDIANA DEPARTMENT OF TRANSPORTATION
MANHOLE TYPE C
SEPTEMBER 1997
STANDARD DRAWING NO. E 720-MHST-02
DETAILS PLACED IN THIS FORMAT 11-15-99
/s/ Anthony L. Devnovich 11-15-99 DESIGN STANDARDS ENGINEER DATE
/s/ Fiross Bandi 11-15-99 CHIEF ECONOMY ENGINEER DATE
ORIGINALLY APPROVED 9-02-97

MANHOLE DIMENSIONS		
TYPE	A-1 PIPE SIZE DIA. (in)	B AND D
D	27 to 42	4'-9
E	48 to 90	5'-6
F	66 to 84	8'-10
G	90 to 108	11'-2



NOTES

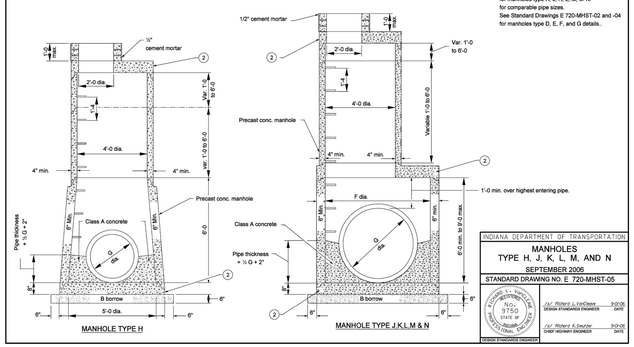
1. Manhole type H, J, K, L, M, or N, may be substituted for manhole type C, D, E, or F for comparable pipe sizes. See Standard Drawing E 720-MHST-05 for manholes type H, J, K, L, M, and N details.
2. For eccentric and concentric cone heights see Cone Heights Table on Standard Drawing 720-MHST-08.
3. See Standard Drawing 720-MHST-10 for Reinforcing Steel for Manholes table.

INDIANA DEPARTMENT OF TRANSPORTATION
MANHOLES
TYPE D, E, F, AND G
SEPTEMBER 2003
STANDARD DRAWING NO. E 720-MHST-04
/s/ Richard L. VanCleave 9-03-03 DESIGN STANDARDS ENGINEER DATE
/s/ Richard K. Sinclair 9-03-03 CHIEF HIGHWAY ENGINEER DATE

MANHOLE PIPE SIZES				
Type	G (in.)	F (ft. in.)	Maximum Pipe Size Rt. ∠ to Mainline (in.)	Maximum Pipe Size for Mainline (in.)
H	24 to 36	———	30	36
J	24 to 36	5'-0	30	36
K	36 to 48	6'-0	36	48
L	48 to 54	8'-0	48	54
M	54 to 72	8'-6	66	72
N	72 to 84	9'-0	72	84

NOTES

1. Drop pipe may be used with manholes Type H, J, K, L, M, or N. Such manhole shall be referred to as drop manholes type H, J, K, L, M, or N. For details of construction see Standard Drawing E 720-MHST-03.
2. See Standard Drawing E 720-MHST-06 for Details A, B, and C.
3. Manholes type C, D, E, or F may be substituted for manholes type H, J, K, L, M, or N. for comparable pipe sizes. See Standard Drawings E 720-MHST-02 and -04 for manholes type D, E, F, and G details..



INDIANA DEPARTMENT OF TRANSPORTATION
MANHOLES
TYPE H, J, K, L, M, AND N
SEPTEMBER 2006
STANDARD DRAWING NO. E 720-MHST-05
/s/ Richard L. VanCleave 9-01-06 DESIGN STANDARDS ENGINEER DATE
/s/ Richard K. Sinclair 9-01-06 CHIEF HIGHWAY ENGINEER DATE

5/28/2024

HAKEM M. MERKY REGISTERED No. 10910914 STATE OF INDIANA PROFESSIONAL ENGINEER

CITY OF FISHERS
STANDARD CONSTRUCTION DETAILS

STORM SEWER MANHOLE STRUCTURE DETAILS AND NOTES

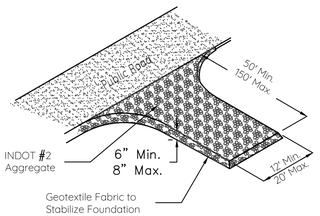
SHEET 15 of 29

GENERAL SWWP NOTES FOR INDIVIDUAL LOTS

1) All storm water quality measures, including erosion and sediment control, necessary to comply with the requirements for 327 IAC 15-5, Rule 5, City of Fishers, and/or general construction practices must be implemented in accordance with the plan and sufficient to satisfy Chapter 7 of the City of Fishers STSM.
2) Provisions for erosion and sediment control on individual building lots regulated under the original permit of a project site owner must include the following requirements:
   - 2)1) The individual lot operator, whether owning the property or acting as the agent of the property owner, shall be responsible for erosion and sediment control requirements associated with activities on individual lots.
   - 2)2) Installation and maintenance of a stable construction site access.
   - 2)3) Installation and maintenance of appropriate perimeter erosion and sediment control measures prior to land disturbance.
   - 2)4) Sediment discharge and tracking from each lot must be minimized throughout the land disturbing activities on the lot until permanent stabilization has been achieved.
   - 2)5) Clean-up of sediment must be redistributed or disposed of in a manner that is in compliance with all applicable statutes and rules.
   - 2)6) Adjacent lots disturbed by an individual lot operator must be repaired and stabilized with temporary or permanent surface stabilization.
3) In accordance with Chapter 7 of the City of Fishers STSM, final stabilization of an individual lot project site is achieved when:
   - 3)1) All land disturbing activities have been completed
   - 3)2) The establishment, at a uniform density of seventy percent (70 %) across one-hundred percent (100%) of the disturbed area, of vegetative cover or permanent non-erosive material that will ensure the resistance of the soil to erosion, sliding, or other movement.

CONSTRUCTION SEQUENCE FOR INDIVIDUAL LOTS

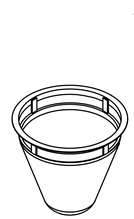
1) Clearly delineate areas of trees, shrubs, and vegetation that are to be undisturbed. To prevent root damage, the areas delineated for tree protection should be at least the same diameter as the crown.
2) Install perimeter silt fence at construction limits. Position the fence to intercept runoff prior to entering drainage swales.
3) Avoid disturbing drainage swales if vegetation is established. If drainage swales are bare, install erosion control blankets or sod to immediately stabilize.
4) Install appropriate inlet protection for all inlets on the property.
5) Install curb inlet protection, on both sides of the road, for all inlets along the property frontage and along the frontage of adjacent lots, or install temporary catch basin inserts in each inlet and frequently clean.
6) Install gravel construction entrance flush with the back of existing curb, extending from the street to the building pad.
7) Perform primary grading operations.
8) Contain erosion from any soil stockpiles created on-site with silt fence around the base.
9) Establish temporary seeding and straw mulch on disturbed areas.
10) Construct the home and install utilities.
11) Install downspout extenders once the roof and gutters have been constructed. Extenders should outlet to a stabilized area.
12) Re-seed any areas disturbed by construction and utilities installation with temporary seed mix that will be left inactive for seven (7) days.
13) Grade the site to final elevations. Add topsoil as needed to minimize erosion of underlying soil and to quickly establish grass.
14) Install permanent seeding or sod.



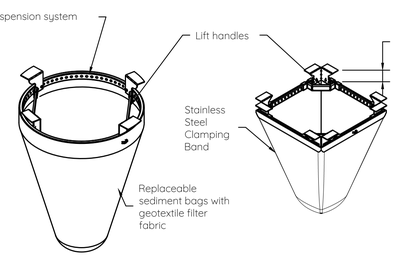
Notes:
1. Must keep top of stone at road elevation.
2. Width to be adjusted to match wider entrance, if required.

Site Size	Entrance Width	Entrance Length	Stone Depth
Less than 2 acres	12' min	50' min	6" min
2 acres or more	20' min	150' min	8" min

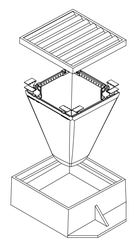
TEMPORARY GRAVEL CONSTRUCTION ENTRANCE
Not to Scale



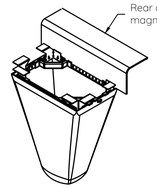
Stainless Steel Round Inlet Filters



Typical Round Inlet Filter



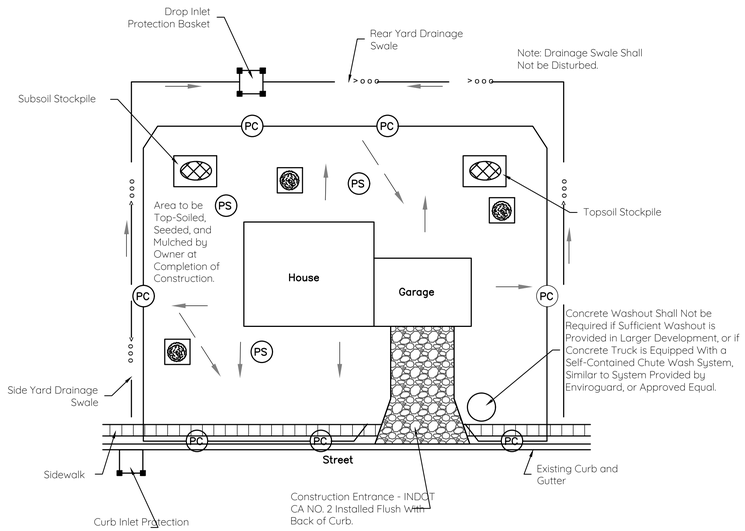
Typical Rectangular Inlet Filter



Combination Inlet Filter for Curb Hoods

Note:
1) Measures to be used in accordance with manufacturer's stated installation and maintenance specifications, and limitations

BASKET INLET PROTECTION
Not to Scale

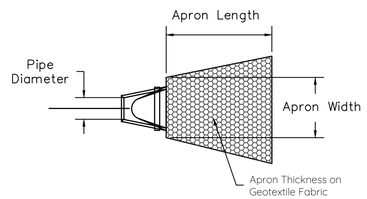


SAMPLE EROSION / SEDIMENT CONTROL PLAN
ONE OR TWO-FAMILY DWELLING UNDER CONSTRUCTION
Not to Scale

Notes:
1) Erosion/ sediment control measures must be functional and be maintained throughout construction.
2) Maintain positive drainage away from the structure.
3) Perimeter protection should be installed before excavation of basement/foundation has begun. Perimeter protection on lots shall remain in place until the lot is stabilized, meeting the cover requirements of IDEM and City of Fishers.
4) All trash and construction debris shall be disposed properly into an enclosed waste receptacle.
5) Street to be cleaned at the end of every work day, at a minimum, or more frequent if needed.
6) Erosion control blanket must be used on rear yards where slopes exceed 3:1 in lieu of silt fence.

INDIVIDUAL LOT EROSION CONTROL PLAN LEGEND

- Property Line/ Drainage Swale
- Existing Drainage
- Finished Drainage
- Tree Conservation With Fencing at Drip Line
- PC — Perimeter Control (SILT Fence, Etc.)
- Temporary Construction Ingress/Egress Pad
- Basket Inlet Protection (Combination Inlet Filter for Curb Hoods)
- Drop Fabric or Basket Inlet Protection
- Topsoil / Subsoil Stockpile
- PS — Permanent Seeding / Sod



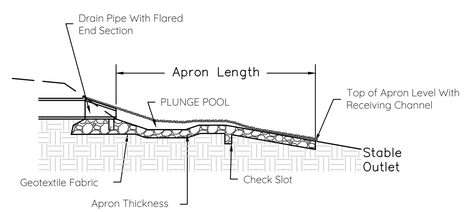
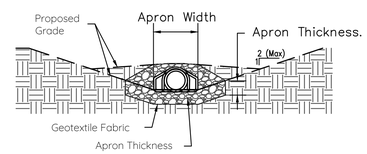


Table 1. Sizing for Flow Dissipaters at end Sections [1]

PIPE SIZE	AVG. RIPRAP DIAMETER	APRON[2] WIDTH	APRON[3] LENGTH
8 in.	3 in.	2 to 3 ft.	5 to 7 ft.
12 in	5 in.	3 to 4 ft.	6 to 12 ft.
18 in.	8 in.	4 to 6 ft.	8 to 18 ft.
24 in.	10 in.	6 to 8 ft.	12 to 22 ft.
30 in.	12 in.	8 to 10 ft.	14 to 28 ft.
36 in.	14 in.	10 to 12 ft.	16 to 32 ft.

1-For Larger or Higher Flows Consult a Registered Engineer
2-Apron Width at the Narrow End of Apron (Pipe or Channel Outlet)
3-Select Length Taking Into Consideration the Low Flow (Nor Pressure Head) or High Flow (Pressure Head) Conditions of the Culvert Pipe.



Apron Thickness = 1.2 Times the Max Stone Diameter for a D50 Stone Size of 15 Inches or Larger
Apron Thickness = 1.5 Times the Max Stone Diameter for a D50 Stone Size of 15 Inches or Less

ENERGY DISSIPATER (OUTLET PROTECTION)
Not to Scale

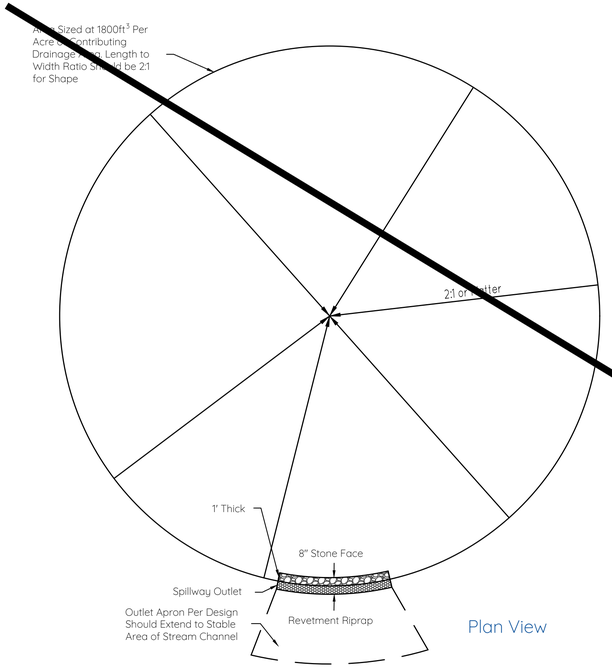
5/28/2024

HAKEM M. MERKY REGISTERED No. 10910914 STATE OF INDIANA PROFESSIONAL ENGINEER

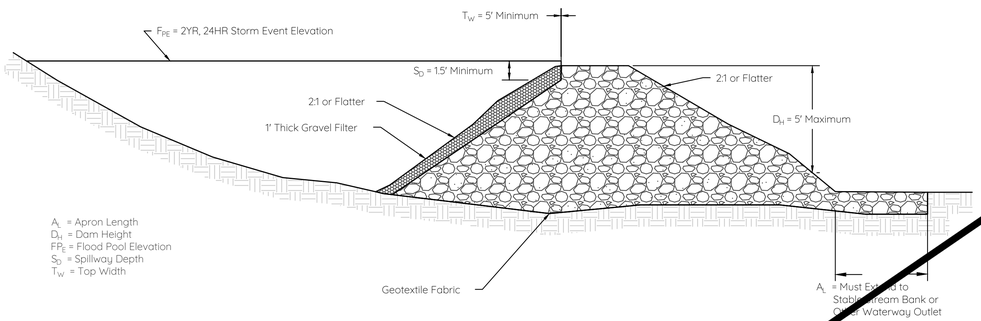
CITY OF FISHERS
STANDARD CONSTRUCTION DETAILS

EROSION CONTROL DETAILS

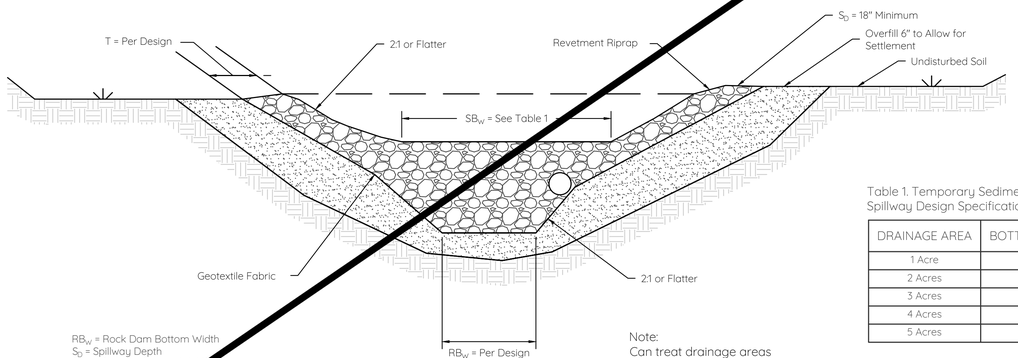
SHEET
24 of 29



Plan View



Profile View



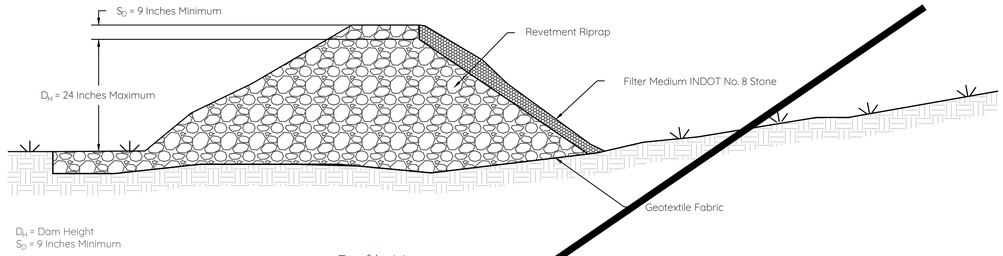
Cross-Section View

Table 1. Temporary Sediment Trap Spillway Design Specifications

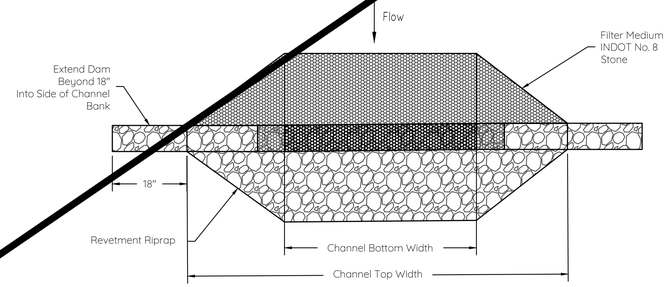
DRAINAGE AREA	BOTTOM WIDTH
1 Acre	4 Feet
2 Acres	6 Feet
3 Acres	8 Feet
4 Acres	10 Feet
5 Acres	12 Feet

Note:
Can treat drainage areas up to five (5) acres

TEMPORARY SEDIMENT TRAP
Not to Scale

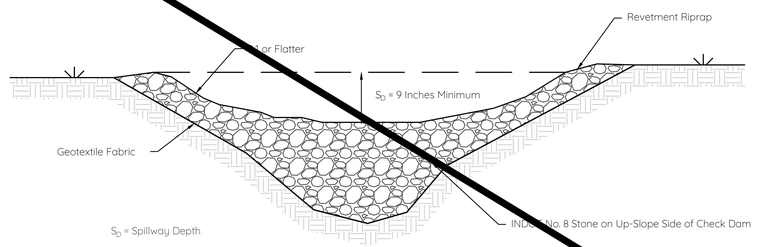


Profile View



Plan View

Profile View



Cross Section View

TEMPORARY ROCK CHECK DAM
Not to Scale

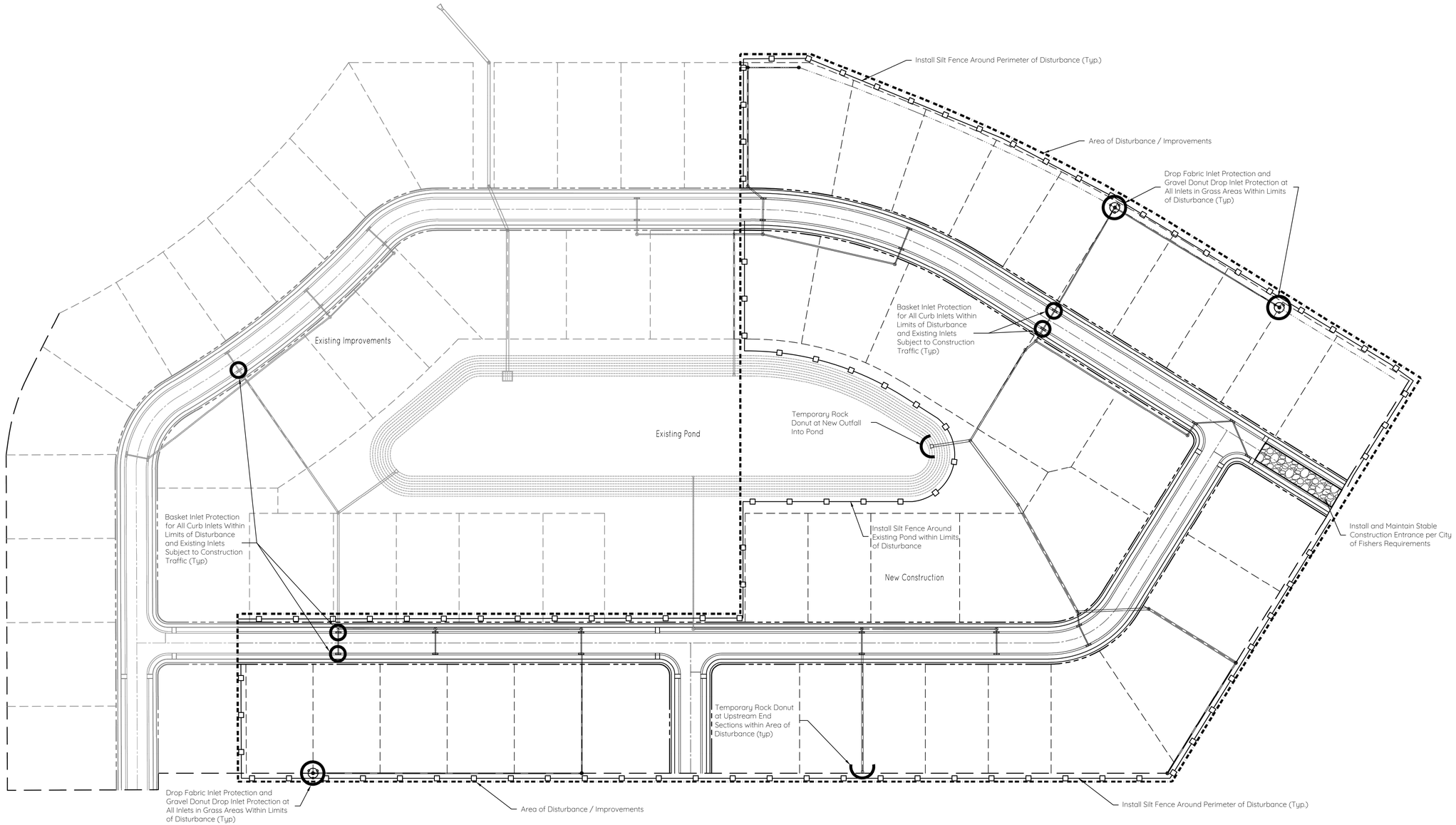
HATEM M. MEKKY
REGISTERED
No. 10910914
STATE OF INDIANA
PROFESSIONAL ENGINEER

5/28/2024

CITY OF FISHERS
STANDARD CONSTRUCTION DETAILS

EROSION CONTROL DETAILS

SHEET
25 of 29



Notes:

1) Individual lot erosion control measures to be installed per details on Sheet 24, and in accordance with Indiana Stormwater Quality Manual.
2) Measures to be used in accordance with manufacturer's stated installation and maintenance specifications, and limitations.
3) Temporary and permanent stabilization to be installed as soon as possible. Re-seed any areas disturbed by construction and utilities installation that will be left inactive for seven (7) days with temporary seed mix.
4) Pond protection measures shown are example only. Additional measures may be required. Site specific SWPPP to be prepared and approved by the City of Fishers.

PROTECTION OF EXISTING DETENTION POND - EXAMPLE MEASURES

Not to Scale

5/28/2024

HATEM M. MEKKY REGISTERED No. 10910914 STATE OF INDIANA PROFESSIONAL ENGINEER

CITY OF FISHERS
STANDARD CONSTRUCTION DETAILS

EROSION CONTROL DETAILS

SHEET 27 of 29

TREE PROTECTION GENERAL NOTES

1. Underground utilities, if shown, are based on above ground indications and construction drawings. There is no guarantee that all underground utilities in service or abandoned are shown. Underground utilities are shown as accurately as possible but still may not be exact. No physical underground utility locations were made.
2. Contractor to review all trees to be removed on site with Landscape Architect or Owner's Representative prior to demolition.
3. Tree Protection Fencing locations are fixed. Install exactly where shown on these plans. Any adjustments to fencing locations must be approved by the Owner. Damages will be assessed if tree protection fence location is adjusted without Owner approval. Fence deviation from this plan or approved change will be corrected by the General Contractor prior to the start of construction.
4. All tree pruning and limb restraint will be performed under the direct supervision of a Certified Arborist. Contractor shall not prune trees or restrain limbs.
5. No staging, equipment, material storage, or vehicles are allowed on non-paved areas unless indicated otherwise on plan.
6. Abandon all utilities to be removed when located within a Protected Root Zone.
7. Backfill all depressed and void areas with top soil following removal of vegetation. Soil shall be free of debris. Compact soils to ensure settling and sedimentation do not occur.
8. Owner is responsible for transplanting identified trees, as noted. Coordinate with Owner if trees to be transplanted remain on site when mobilization begins.
9. Cleanly cut all roots encountered during construction. Contractor to Air-knife all roots around trees around all indicated as being essential to the campus landscape vocabulary and any tree over 18" in diameter.
10. Coordinate locations of Tree Protection Fencing and Construction Fencing prior to the start of construction activities. In areas where Tree Protection and Construction Fences overlap, the Contractor may elect to install the more restrictive fence type of the two provided that the single fence accommodates the requirements of both fences.

Legend

- Tree to Remain, Refer to Tree Protection Detail This Sheet
- Tree to Remove

TRENCHING/EXCAVATION

ZONE A (CRITICAL ROOT ZONE)
1. NO DISTURBANCE ALLOWED without site-specific inspection and approval of methods to minimize root damage.
2. Severance of roots larger than 2" diameter requires Landscape Architect's approval.
3. Tunneling or boring required to install utilities 3'-0" below grade or deeper.

ZONE B (DRIPLINE)
1. Operation of heavy equipment and/or stockpiling of materials subject to Landscape Architect's approval. Surface Protection* measures required.
2. Trenching allowed as follows:
   - Excavation by hand or with hand-driver trencher may be required.
   - Limit trench width. Do not disturb Zone A, maintain 2/3 or more of Zone B in undisturbed condition.
3. Tunneling or boring may be required for trenches deeper than 3'-0".

ZONE C (FEEDER ROOT ZONE)
1. Operation of heavy equipment and/or stockpiling of materials subject to Landscape Architect's approval. Surface Protection* measures required.
2. Trenching with heavy equipment allowed as follows:
   - Minimize trench width.
   - Maintain 2/3 or more of Zone C in undisturbed condition.

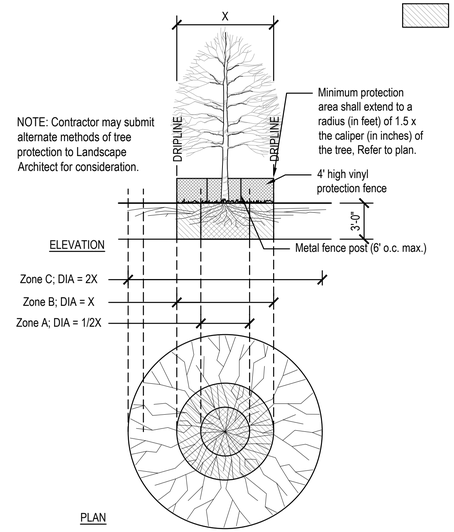
FENCING/ROOT PROTECTION

4' high vinyl protection fence at the greater of Zone B (Dripline) or to a radius (in feet) of 1.5x the caliper (in inches) of the tree, minimum, and at Zone C (Feeder Root Zone) if possible. Refer to Detail this Sheet.

Upon Landscape Architect's approval, a plywood box (8' minimum height) may be used where fencing cannot be achieved.

Landscape Architect's approval required for use/access within Zone B. Permission for use/access requires Surface Protection Measures for all unfenced, unpaved surfaces within Zone B.

*SURFACE PROTECTION MEASURES
1. Mulch Layer, 6"-8" Depth
2. ¾" Plywood
3. Steel Plates



NOTE: Contractor may submit alternate methods of tree protection to Landscape Architect for consideration.

1 TREE PROTECTION
Not To Scale

North

0 15' 30' 60'

Scale 1" = 30'-0"

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EXPIRES 12-31-2027

Construction Documents

HSE High School Bus Lot Improvements
12499 Olio Rd. Fishers, IN 46037

Tree Preservation Plan

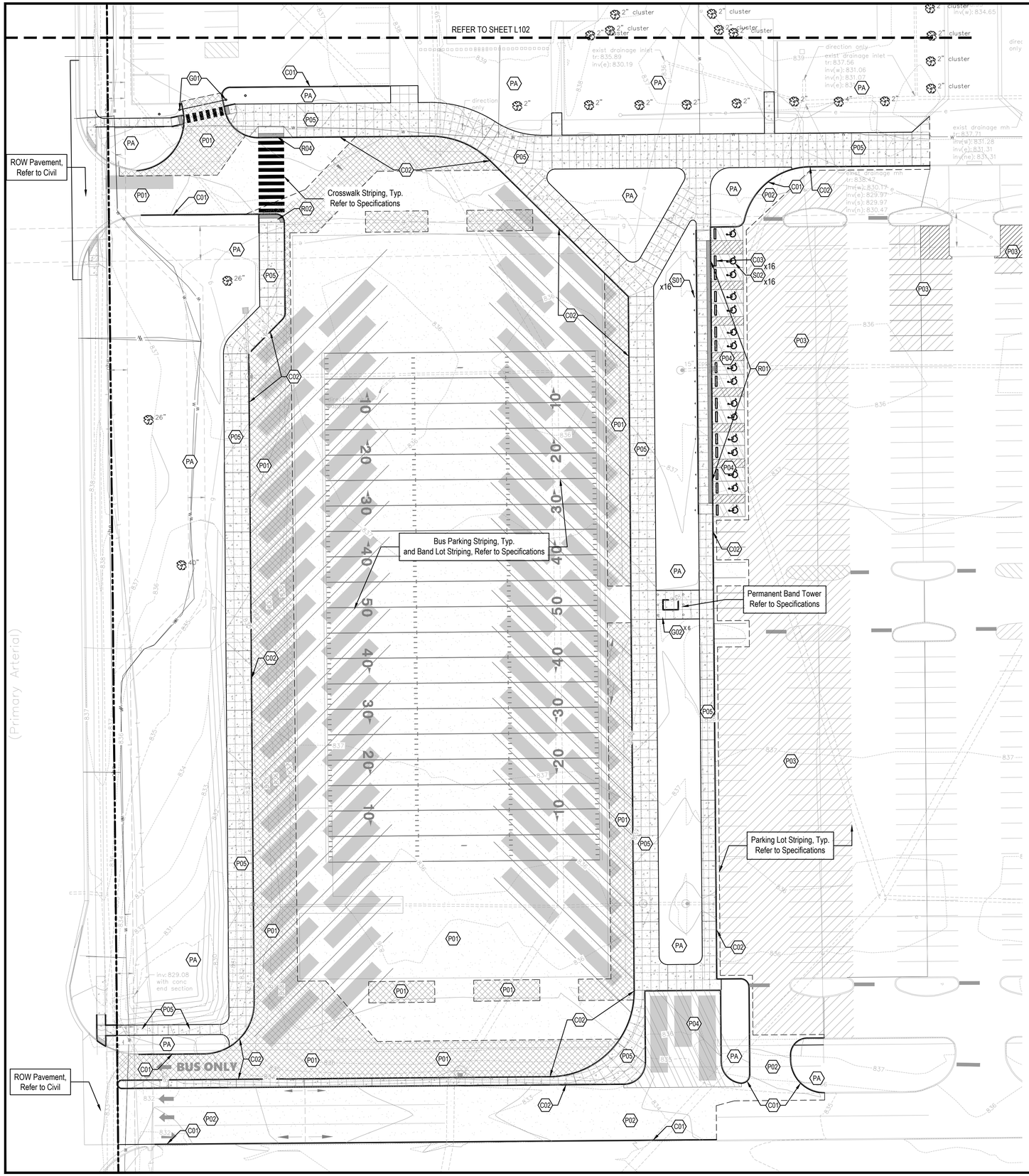
Sheet Title

Revision	Date	Description
1	03-05-2026	TAC Revision

Date:	2026/02/13
Project No:	25-1911
Drawn by:	SS
Checked by:	LAM/FJP

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Sheet No:
L001



	MATERIAL KEYNOTES
KEY	DESCRIPTION / REFERENCE
C01	CURB, POST REFER TO SITE DETAIL 7/L501
C02	CURB, INTEGRAL REFER TO SITE DETAIL 8/L501
C03	WHEEL STOP REFER TO DETAIL 1/L502

	MATERIAL KEYNOTES
KEY	DESCRIPTION / REFERENCE
S01	28' BARRIER SWING GATE WITH TIEBACK POSTS, REFER TO SPECIFICATIONS
S02	BOLLARD - VEHICULAR RATED

	MATERIAL KEYNOTES
KEY	DESCRIPTION / REFERENCE
P01	ASPHALT, HEAVY DUTY REFER TO CIVIL SERIES
P02	ASPHALT, MILL AND RESURFACE REFER TO CIVIL SERIES
P03	SEALCOAT AND STRIPE, REFER TO SPECIFICATIONS
P04	CONCRETE, HEAVY DUTY REFER TO SITE DETAIL 3, 5 & 6/L501
P05	CONCRETE, STANDARD DUTY REFER TO SITE DETAIL 4-6/L501

	MATERIAL KEYNOTES
KEY	DESCRIPTION / REFERENCE
R01	PARALLEL RAMP REFER TO DETAIL 6/L502
R02	STRAIGHT RAMP REFER TO DETAIL 6/L502
R03	SINGLE-SIDED FLARE RAMP REFER TO DETAIL 6/L502
R04	DOUBLE-SIDED FLARE RAMP REFER TO DETAIL 6/L502
R05	TRUNCATED DOMES WITH NO RAMP REFER TO DETAIL 6/L502

	MATERIAL KEYNOTES
KEY	DESCRIPTION / REFERENCE
S01	ADA ACCESSIBLE PARKING SIGN, REFER TO DETAIL 4/L502
S02	ACCESSIBLE PARKING STRIPING & SYMBOL, REFER TO DETAIL 2 & 3/L502
S03	STOP SIGN REFER TO DETAIL 5/L502
S04	BUS ONLY SIGN REFER TO DETAIL 5/L502

	MATERIAL KEYNOTES
KEY	DESCRIPTION / REFERENCE
PA	PLANT AREA REFER TO L400 SERIES

North

0 15' 30' 60'

Scale 1" = 30'-0"

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Construction Documents

HSE High School Bus Lot Improvements

12499 Olio Rd. Fishers, IN 46037

Sheet Title:

Materials & Notes Plan

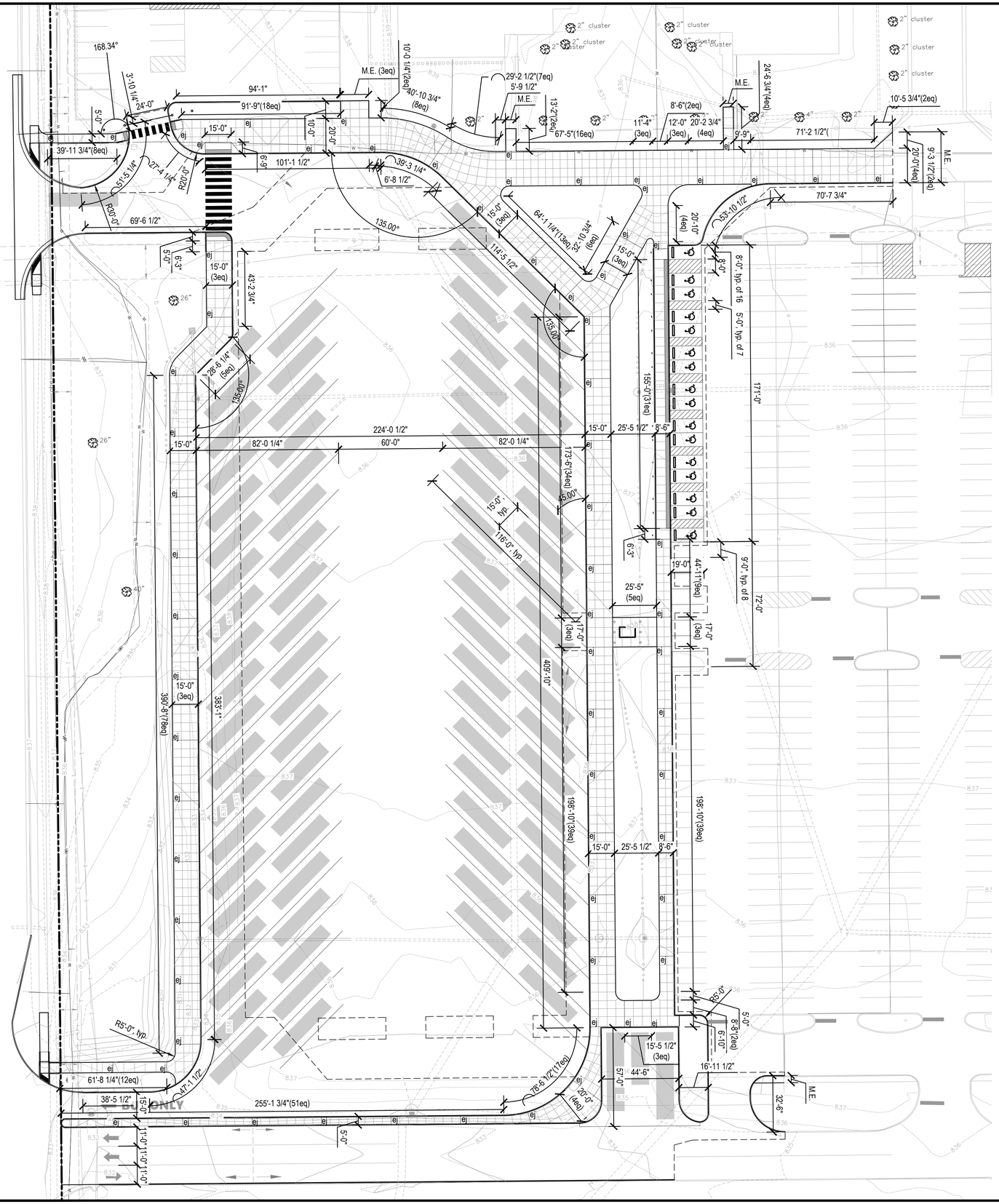
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Sheet No:

L101



LAYOUT NOTES

1. Dimensions are shown to Face of Curb unless otherwise noted.
2. Contractor shall coordinate final joint locations in the field with the Landscape Architect. Align to existing conditions when practical, including at building and wall corners, connections to existing work, and to centerlines of doors.
3. Space control joints evenly between all bands and expansion joints as shown, unless otherwise dimensioned. Space interim joints equally whenever possible.
4. Digital AutoCAD files will be provided to the successful bidder as a courtesy to assist with field layout. The Contractor maintains all responsibility for the use, accuracy, and confirmation of such data.
5. All pavement striping shown shall adhere to Specifications. The Contractor shall include in their bid any miscellaneous copy, striping, or curb painting that may be requested by the Fire Marshal.
6. All disturbed areas not proposed to receive pavements shall be dressed with topsoil and seeded per Specifications.
7. Contractor shall provide and install One (1) Accessible Parking Sign per accessible parking space indicated in plans. Coordinate final location in the field with Landscape Architect.

North

0 15' 30' 60'

Scale 1" = 30'-0"

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Construction Documents

HSE High School Bus Lot Improvements

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Sheet Title

Layout Plan

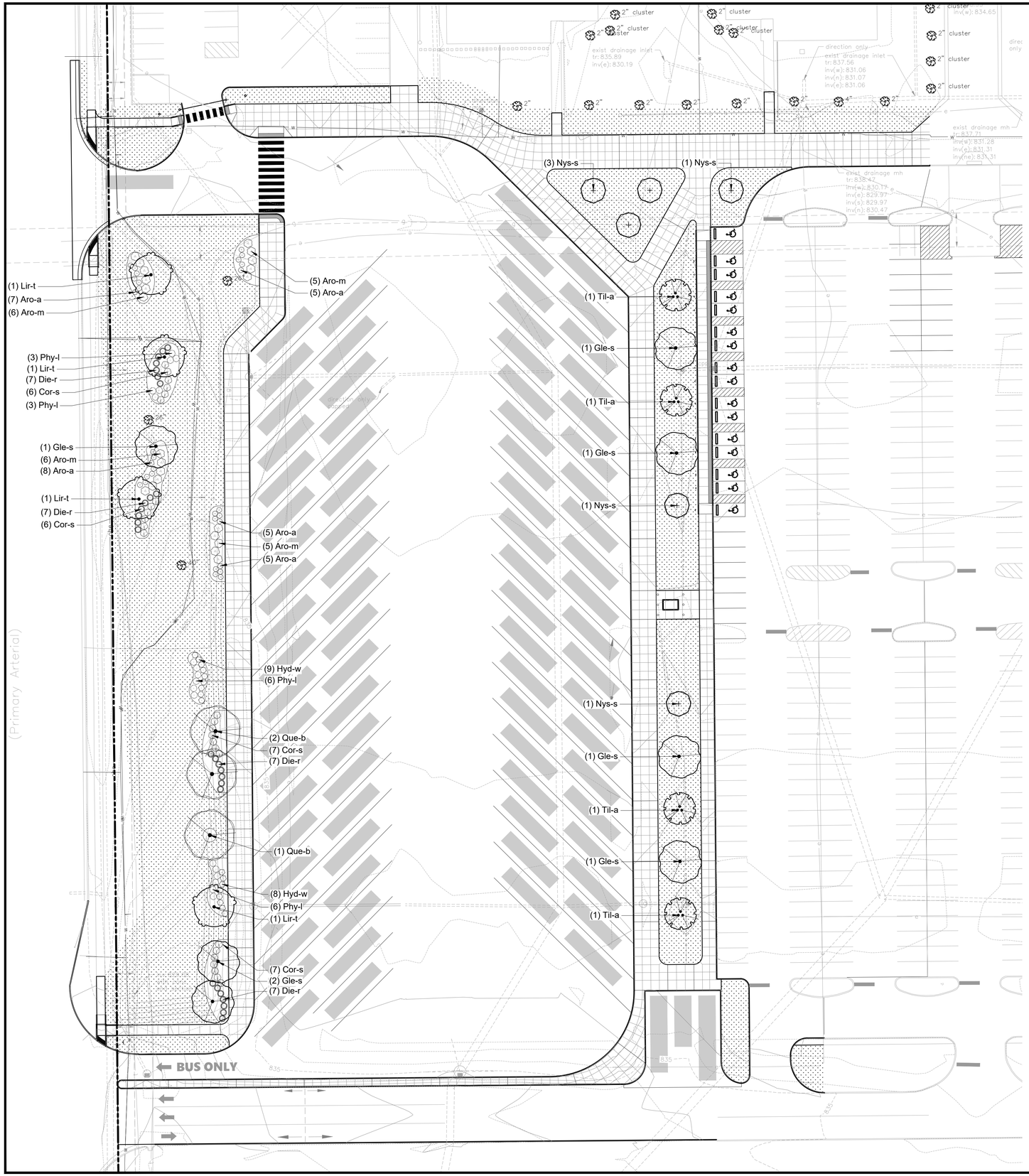
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Sheet No:

L201



GENERAL LANDSCAPE AND PLANTING NOTES

1. Refer to Project Manual for Planting Specifications and Topsoil requirements. Refer to Plant Schedule and Planting Details for additional information.
2. All materials are subject to the approval of the Landscape Architect and Owner at any time. Landscape Architect to inspect all plant locations and plant bed conditions prior to installation. On-site adjustments may be required.
3. Rootballs shall meet or exceed size standards as set forth in 'American Standards for Nursery Stock'. MAIN LEADERS OF ALL TREES SHALL REMAIN INTACT.
4. Remove from the site any plant material that turns brown or defoliates within five (5) days after planting. Replace immediately with approved, specified material.
5. Plant counts indicated on drawings are for Landscape Architect's use only. Contractor shall make own plant quantity takeoffs using drawings, specifications, and plant schedule requirements (i.e., spacing), unless otherwise directed by Landscape Architect. Contractor to verify bed measurements and install appropriate quantities as governed by plant spacing per schedule. Plant material quantities shown on plan are minimum quantities. Additional material may be needed to meet spacing requirements and field conditions.
6. Seed all areas disturbed by construction activities that are not otherwise noted to receive pavement, planting bed, or sod treatment.
7. The Contractor shall install and/or amend topsoil in all proposed bed areas to meet Specifications. Contractor shall coordinate quantity and placement of topsoil. Landscaper shall verify depth of topsoil prior to plant installation. (Refer to specifications for topsoil source and placement requirements)
8. All tree locations shall be marked with 2x2" stakes prior to planting for review and approval by the Landscape Architect. Any plant material installed in an incorrect location, by the judgment of the Landscape Architect, shall be reinstalled at the Contractor's expense.
9. All plant beds shall receive 3" minimum of shredded hardwood bark mulch (unless otherwise noted).
10. Verify all utility locations in the field prior to beginning work. Repair all damaged utilities to Owner's satisfaction at no additional cost.
11. The Contractor shall maintain all plant material and lawns until the project is fully accepted by the Landscape Architect, unless otherwise noted.
12. All workmanship and materials shall be guaranteed by the Contractor for a period of one calendar year after Final Acceptance.
13. Install all plant material in accordance with all local codes and ordinances. Coordinate with the Owner to obtain any required permits necessary to complete work.
14. Contractor shall test all tree pits for drainage. Any tree pit that holds water for more than 24 hours shall be installed using tree pit drainage.
15. Tree Protection Fencing is the responsibility of the Contractor. Minimum protected area shall include the full drip line of the canopy. NO construction activities, material storage, etc. may occur within that area. The Contractor shall ensure that no soil compaction or tree damage occurs in any Protected areas, at any time during the construction process.
16. Trees shall be matched in groups unless otherwise noted.

Parking Perimeter Requirement

Parking Area Landscaping (Section 6.11.4.): Perimeter Plantings must be a minimum of five (5) feet wide, landscaped with shrubs installed at a rate of 30 shrubs per 100 linear feet that under typical conditions can be expected to reach a height and spread of three (3) feet within three (3) years of planting; and 2 trees per 100 linear feet.

Staff is willing to replace some, or all, this requirement with more trees or shrubs planted within the entire area between the parking lot and Olio Rd. Please work with staff on this.

Required:

493 lf./100 = 4.93 x 30 = 148 Shrubs
493 lf./100 = 4.93 x 2 = 10 Trees

Provided:

148 Shrubs
10 Canopy Trees

North

0 15' 30' 60'
Scale 1" = 30'-0"

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Sheet Title
Planting Plan

Revision	Date	Description
1	03-05-2026	TAC Revision

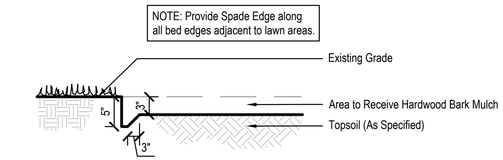
Date:	2026/02/13
Project No:	25-1911
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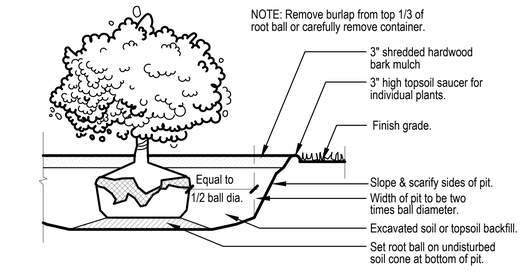
Sheet No:
L401

PLANT SCHEDULE

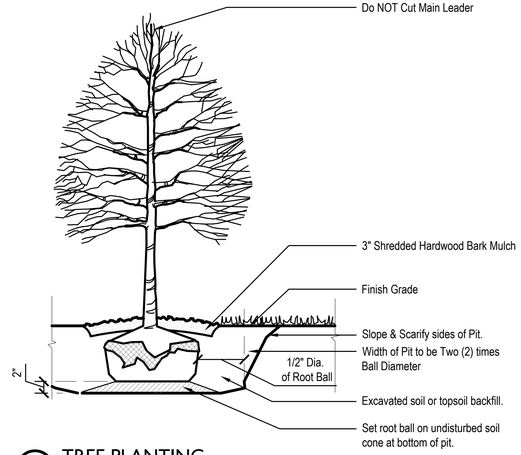
CODE	QTY	BOTANICAL NAME	COMMON NAME	CONT	CAL	REMARKS
DECIDUOUS TREES						
Gle-s	7	Gleditsia triacanthos inermis `Shademaster`	Shademaster Thornless Honeylocust	B & B	2"Cal	full, strong central leader, matched
Lir-t	4	Liriodendron tulipifera	Tulip Tree	B & B	2"Cal	full, strong central leader, matched
Nys-s	6	Nyssa sylvatica	Sour Gum	B & B	2"Cal	full, strong central leader, matched
Que-b	3	Quercus bicolor	Swamp White Oak	B & B	2"Cal	spring dug, full, strong central leader, matched
Til-a	4	Tilia americana `Boulevard`	Boulevard Linden	B & B	2"Cal	full, strong central leader, matched
CODE	QTY	BOTANICAL NAME	COMMON NAME	SIZE	HEIGHT	REMARKS
SHRUBS						
Aro-a	30	Aronia arbutifolia `Brilliantissima`	Brilliant Red Chokeberry	container	24"	space @ 3`-0" o.c.
Aro-m	22	Aronia melanocarpa `Autumn Magic`	Autumn Magic Black Chokeberry	container	24"	space @ 5`-0" o.c.
Cor-s	26	Cornus sericea `Cardinal`	Cardinal Red-twig Dogwood	container	24"	space @ 4`-0" o.c.
Die-r	28	Diervilla x 'G2X885411'	Kodiak Red Diervilla	container	24"	space @ 3`-0" o.c.
Hyd-w	17	Hydrangea quercifolia `Pee Wee`	Pee Wee Oakleaf Hydrangea	container	24"	space @ 3`-0" o.c.
Phy-l	18	Physocarpus opulifolius 'Little Devil'	Little Devil™ Dwarf Ninebark	container	24"	space @ 3'-0" o.c.



3 SPADE EDGE
Not to Scale



2 SHRUB PLANTING
Not to Scale



1 TREE PLANTING
Not to Scale

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PLanting Details

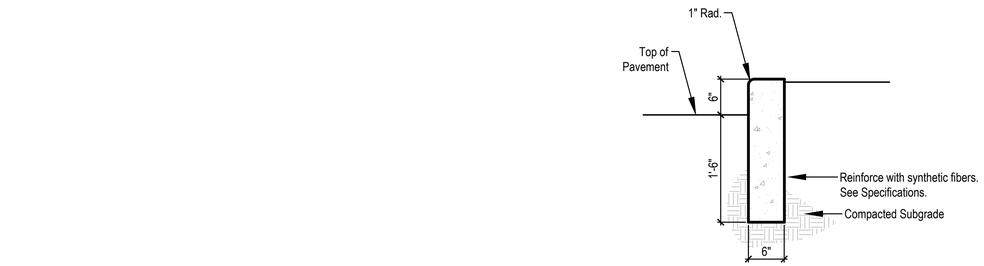
Sheet Title

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Sheet No:
L410



NOTES:
1. Control joints, expansion joints and edges of sidewalks indicated as hand-tooled shall be dressed after each finishing operation.
2. Provide expansion joints at intersection with another sidewalk, beween walks and building slabs, and at other points as indicated on the drawings.
3. Refer to plan drawings for locations of control and expansion joints.

4 STANDARD CONCRETE PAVEMENT
Not to scale

7 CONCRETE POST CURB
Scale: 1"=1'-0"

NOTES:
1. Control joints, expansion joints and edges of sidewalks indicated as hand-tooled shall be dressed after each finishing operation.
2. Provide expansion joints at intersection with another sidewalk, beween walks and building slabs, and at other points as indicated on the drawings.
3. Refer to plan drawings for locations of control and expansion joints.

3 HEAVY DUTY CONCRETE
Not to Scale

NOTE:
Turn down concrete and dowel at all threshold conditions, where new concrete abuts existing slabs, and at proposed stairs and walls.

6 DOWELS IN CONCRETE @ THRESHOLD
Scale: 1"=1'-0"



2 STANDARD ASPHALT PAVEMENT
Not to Scale

NOTES:
1. Curb shall have ½" expansion joints at 40'-0" max, control joints at 8'-0" max. unless otherwise noted.

2. Control joints shall be cut ¼" depth of total thickness of slab.

3. Fiber additive: Virgin nylon fibers, ¾" length, Nycon by Nycon Inc., or Forta Nylon by Forta Corporation, added at the batch plant at 1 lb. per cu. yd. of concrete.

8 INTEGRAL CONCRETE CURB & WALK
Scale: 1"=1'-0"

5 CONCRETE JOINTING
Not to Scale

Note: Not for use within ROW.

1 HEAVY-DUTY ASPHALT PAVEMENT
Not to Scale

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Construction Documents

HSE High School Bus Lot Improvements

12499 Olio Rd, Fishers, IN 46037

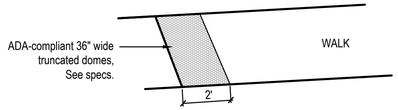
Sheet Title:
Site Details

Revision	Date	Description
1	03-05-2026	TAC Revision

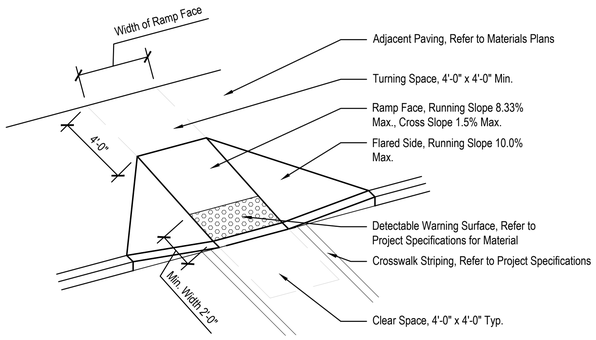
Date:	2026/02/13
Project No:	25-1911
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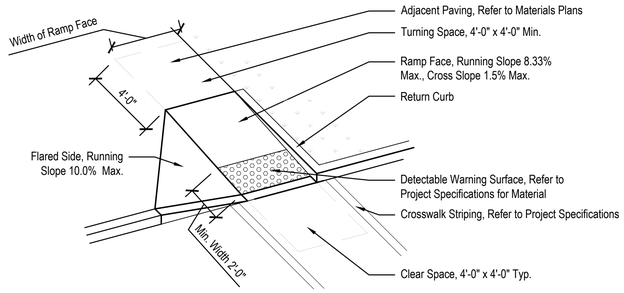
Sheet No:
L501



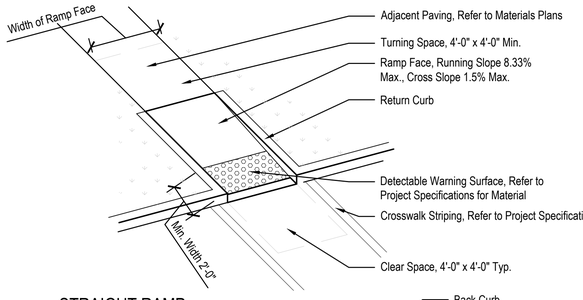
TRUNCATED DOMES WITH NO RAMP CONDITION



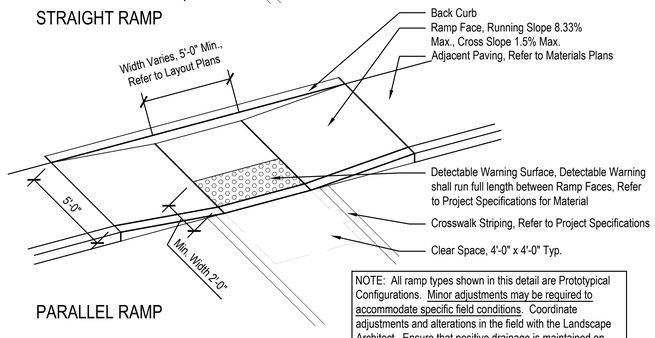
DOUBLE-SIDED FLARE RAMP



SINGLE-SIDED FLARE RAMP



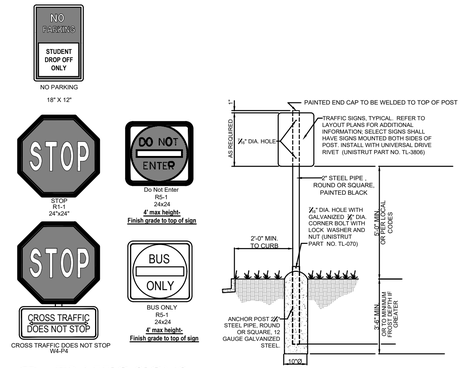
STRAIGHT RAMP



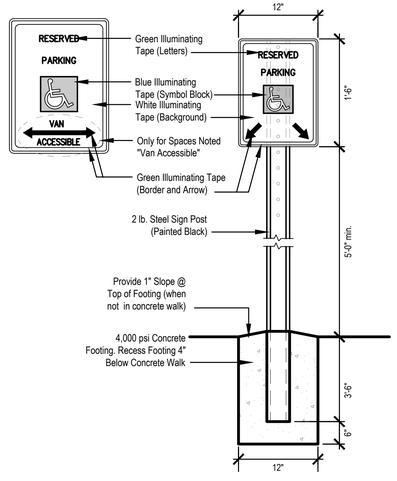
PARALLEL RAMP

NOTE: All ramp types shown in this detail are Prototypical Configurations. Minor adjustments may be required to accommodate specific field conditions. Coordinate adjustments and alterations in the field with the Landscape Architect. Ensure that positive drainage is maintained on and around each ramp to prevent birdbaths and ponding.

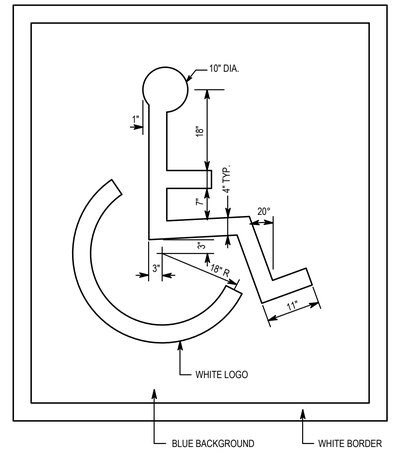
6 ACCESSIBLE CURB RAMPS
Scale: 1/4" = 1'-0"



5 TRAFFIC SIGNS
Not to Scale

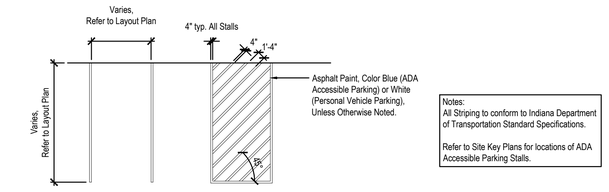


4 ACCESSIBLE PARKING SIGN
Not to Scale



NOTE:
ALL STRIPES TO BE 4" PAINTED WHITE

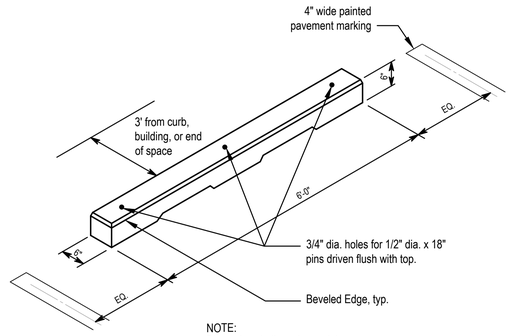
3 ACCESSIBLE PARKING SYMBOL
Not to Scale



Notes:
All Striping to conform to Indiana Department of Transportation Standard Specifications.

Refer to Site Key Plans for locations of ADA Accessible Parking Stalls.

2 PARKING STRIPING DETAIL
Scale: 1" = 1'-0"



NOTE:
Dimensions indicated are minimums.
Manufacturer's standards in excess are acceptable.
Precast concrete OR recycled HDPE may be provided at Contractor's option.

1 WHEEL STOP
Not to Scale

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STATE OF INDIANA
LANDSCAPE ARCHITECT
EXPIRES 12-31-2027

Construction Documents
HSE High School Bus Lot Improvements
12499 Olio Rd. Fishers, IN 46037
Site Details
Sheet Title

Revision	Date	Description
1	03-05-2026	TAC Revision

Date:	2026/02/13
Project No:	25-1911
Drawn by:	SS
Checked by:	LAM/FJP

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Sheet No:
L502

TREE PROTECTION GENERAL NOTES

1. Underground utilities, if shown, are based on above ground indications and construction drawings. There is no guarantee that all underground utilities in service or abandoned are shown. Underground utilities are shown as accurately as possible but still may not be exact. No physical underground utility locations were made.
2. Contractor to review all trees to be removed on site with Landscape Architect or Owner's Representative prior to demolition.
3. Tree Protection Fencing locations are fixed. Install exactly where shown on these plans. Any adjustments to fencing locations must be approved by the Owner. Damages will be assessed if tree protection fence location is adjusted without Owner approval. Fence deviation from this plan or approved change will be corrected by the General Contractor prior to the start of construction.
4. All tree pruning and limb restraint will be performed under the direct supervision of a Certified Arborist. Contractor shall not prune trees or restrain limbs.
5. No staging, equipment, material storage, or vehicles are allowed on non-paved areas unless indicated otherwise on plan.
6. Abandon all utilities to be removed when located within a Protected Root Zone.
7. Backfill all depressed and void areas with top soil following removal of vegetation. Soil shall be free of debris. Compact soils to ensure settling and sedimentation do not occur.
8. Owner is responsible for transplanting identified trees, as noted. Coordinate with Owner if trees to be transplanted remain on site when mobilization begins.
9. Cleanly cut all roots encountered during construction. Contractor to Air-knife all roots around trees around all indicated as being essential to the campus landscape vocabulary and any tree over 18" in diameter.
10. Coordinate locations of Tree Protection Fencing and Construction Fencing prior to the start of construction activities. In areas where Tree Protection and Construction Fences overlap, the Contractor may elect to install the more restrictive fence type of the two provided that the single fence accommodates the requirements of both fences.

Legend

- Tree to Remain, Refer to Tree Protection Detail This Sheet
- Tree to Remove

TRENCHING/EXCAVATION

ZONE A (CRITICAL ROOT ZONE)
1. NO DISTURBANCE ALLOWED without site-specific inspection and approval of methods to minimize root damage.
2. Severance of roots larger than 2" diameter requires Landscape Architect's approval.
3. Tunneling or boring required to install utilities 3'-0" below grade or deeper.

ZONE B (DRIPLINE)
1. Operation of heavy equipment and/or stockpiling of materials subject to Landscape Architect's approval. Surface Protection* measures required.
2. Trenching allowed as follows:
   - Excavation by hand or with hand-driver trencher may be required.
   - Limit trench width. Do not disturb Zone A, maintain 2/3 or more of Zone B in undisturbed condition.
3. Tunneling or boring may be required for trenches deeper than 3'-0".

ZONE C (FEEDER ROOT ZONE)
1. Operation of heavy equipment and/or stockpiling of materials subject to Landscape Architect's approval. Surface Protection* measures required.
2. Trenching with heavy equipment allowed as follows:
   - Minimize trench width.
   - Maintain 2/3 or more of Zone C in undisturbed condition.

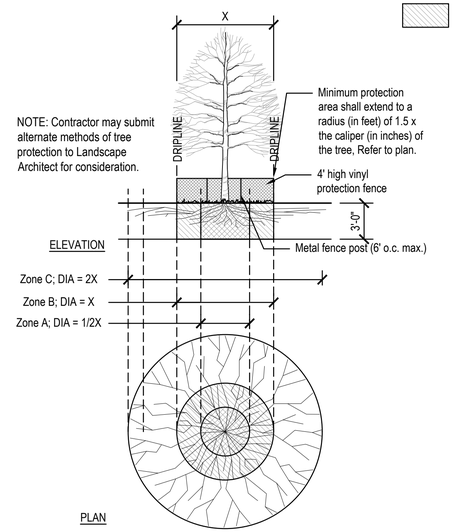
FENCING/ROOT PROTECTION

4' high vinyl protection fence at the greater of Zone B (Dripline) or to a radius (in feet) of 1.5x the caliper (in inches) of the tree, minimum, and at Zone C (Feeder Root Zone) if possible. Refer to Detail this Sheet.

Upon Landscape Architect's approval, a plywood box (8' minimum height) may be used where fencing cannot be achieved.

Landscape Architect's approval required for use/access within Zone B. Permission for use/access requires Surface Protection Measures for all unfenced, unpaved surfaces within Zone B.

*SURFACE PROTECTION MEASURES
1. Mulch Layer, 6"-8" Depth
2. ¾" Plywood
3. Steel Plates



NOTE: Contractor may submit alternate methods of tree protection to Landscape Architect for consideration.

1 TREE PROTECTION
Not To Scale

North

0 15' 30' 60'

Scale 1" = 30'-0"

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Construction Documents

HSE High School Bus Lot Improvements

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Tree Preservation Plan

Sheet Title

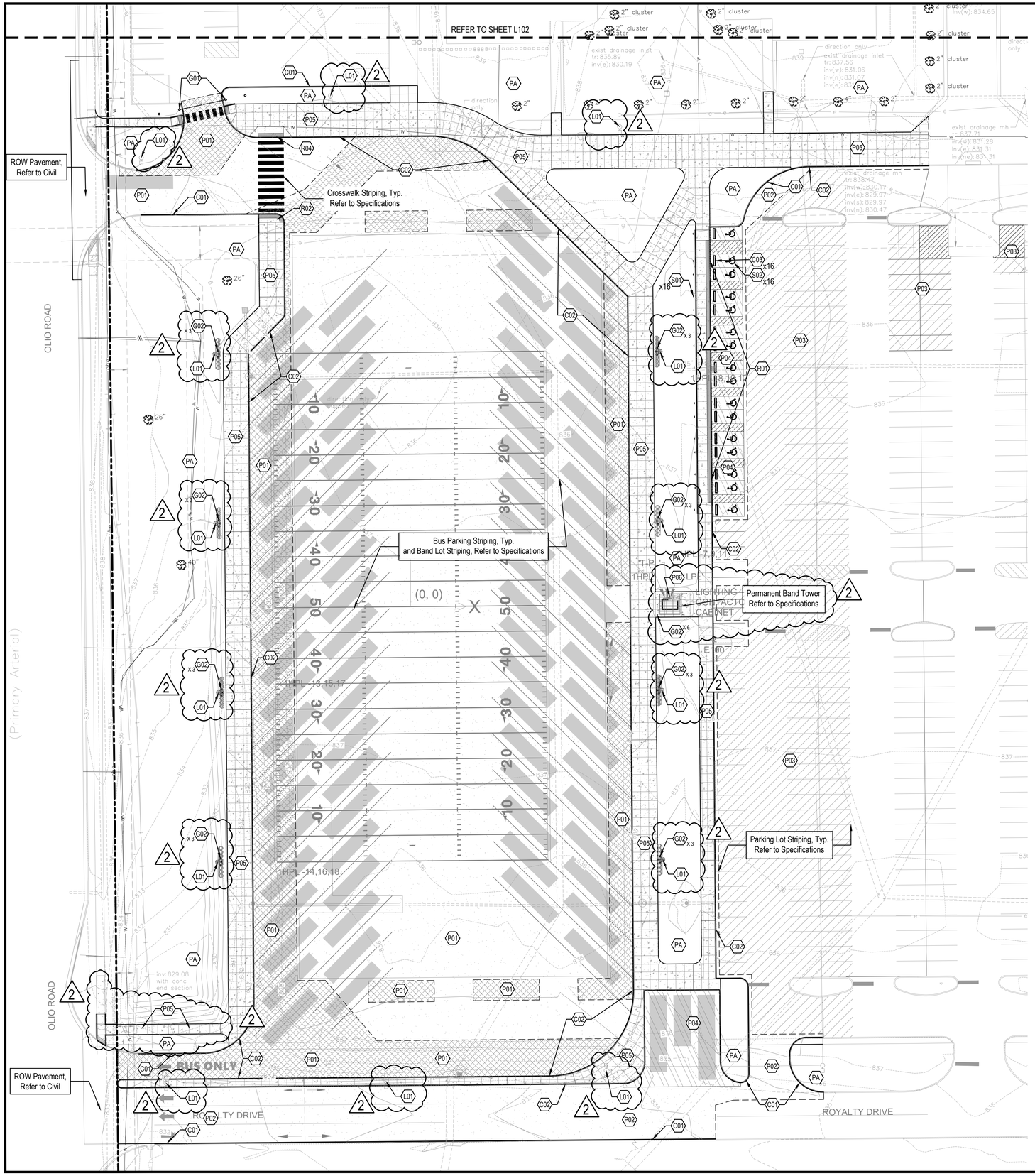
Revision	Date	Description
1	03-05-2026	TAC Revision
2	03-12-2026	Addendum 01

Date:	2026/02/13
Project No:	25-1911
Drawn by:	SS
Checked by:	LAM/FJP

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Sheet No:

L001



	MATERIAL KEYNOTES
KEY	DESCRIPTION / REFERENCE
C01	CURB, POST REFER TO SITE DETAIL 7/L501
C02	CURB, INTEGRAL REFER TO SITE DETAIL 8/L501
C03	WHEEL STOP REFER TO DETAIL 1/L502

	MATERIAL KEYNOTES
KEY	DESCRIPTION / REFERENCE
G01	28' BARRIER SWING GATE WITH TIEBACK POSTS, REFER TO SPECIFICATIONS
G02	BOLLARD - VEHICULAR RATED REFER TO SPECIFICATIONS

	MATERIAL KEYNOTES
KEY	DESCRIPTION / REFERENCE
L01	LIGHT POLE REFER TO E-SERIES DRAWINGS

	MATERIAL KEYNOTES
KEY	DESCRIPTION / REFERENCE
P01	ASPHALT, HEAVY DUTY REFER TO CIVIL SERIES
P02	ASPHALT, MILL AND RESURFACE REFER TO CIVIL SERIES
P03	SEALCOAT AND STRIPE, REFER TO SPECIFICATIONS
P04	CONCRETE, HEAVY DUTY REFER TO SITE DETAIL 3, 5 & 6/L501
P05	CONCRETE, STANDARD DUTY REFER TO SITE DETAIL 4-6/L501
P06	CONCRETE, THICKENED SLAB PER MANUFACTURER'S RECOMMENDATION

	MATERIAL KEYNOTES
KEY	DESCRIPTION / REFERENCE
R01	PARALLEL RAMP REFER TO DETAIL 6/L502
R02	STRAIGHT RAMP REFER TO DETAIL 6/L502
R03	SINGLE-SIDED FLARE RAMP REFER TO DETAIL 6/L502
R04	DOUBLE-SIDED FLARE RAMP REFER TO DETAIL 6/L502
R05	TRUNCATED DOMES WITH NO RAMP REFER TO DETAIL 6/L502

	MATERIAL KEYNOTES
KEY	DESCRIPTION / REFERENCE
S01	ADA ACCESSIBLE PARKING SIGN, REFER TO DETAIL 4/L502
S02	ACCESSIBLE PARKING STRIPING & SYMBOL, REFER TO DETAIL 2 & 3/L502
S03	STOP SIGN REFER TO DETAIL 5/L502
S04	BUS ONLY SIGN REFER TO DETAIL 5/L502

	MATERIAL KEYNOTES
KEY	DESCRIPTION / REFERENCE
PA	PLANT AREA REFER TO L400 SERIES

North

0 15' 30' 60'

Scale 1" = 30'-0"

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Construction Documents

HSE High School Bus Lot Improvements

12499 Olio Rd, Fishers, IN 46037

Sheet Title:

Materials & Notes Plan

Revision	Date	Description
1	03-05-2026	TAC Revision
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Sheet No:

L101

LAYOUT NOTES

1. Dimensions are shown to Face of Curb unless otherwise noted.
2. Contractor shall coordinate final joint locations in the field with the Landscape Architect. Align to existing conditions when practical, including at building and wall corners, connections to existing work, and to centerlines of doors.
3. Space control joints evenly between all bands and expansion joints as shown, unless otherwise dimensioned. Space interim joints equally whenever possible.
4. Digital AutoCAD files will be provided to the successful bidder as a courtesy to assist with field layout. The Contractor maintains all responsibility for the use, accuracy, and confirmation of such data.
5. All pavement striping shown shall adhere to Specifications. The Contractor shall include in their bid any miscellaneous copy, striping, or curb painting that may be requested by the Fire Marshal.
6. All disturbed areas not proposed to receive pavements shall be dressed with topsoil and seeded per Specifications.
7. Contractor shall provide and install One (1) Accessible Parking Sign per accessible parking space indicated in plans. Coordinate final location in the field with Landscape Architect.

(Primary Arterial)

North

Scale 1" = 30'-0"

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HSE High School Bus Lot Improvements

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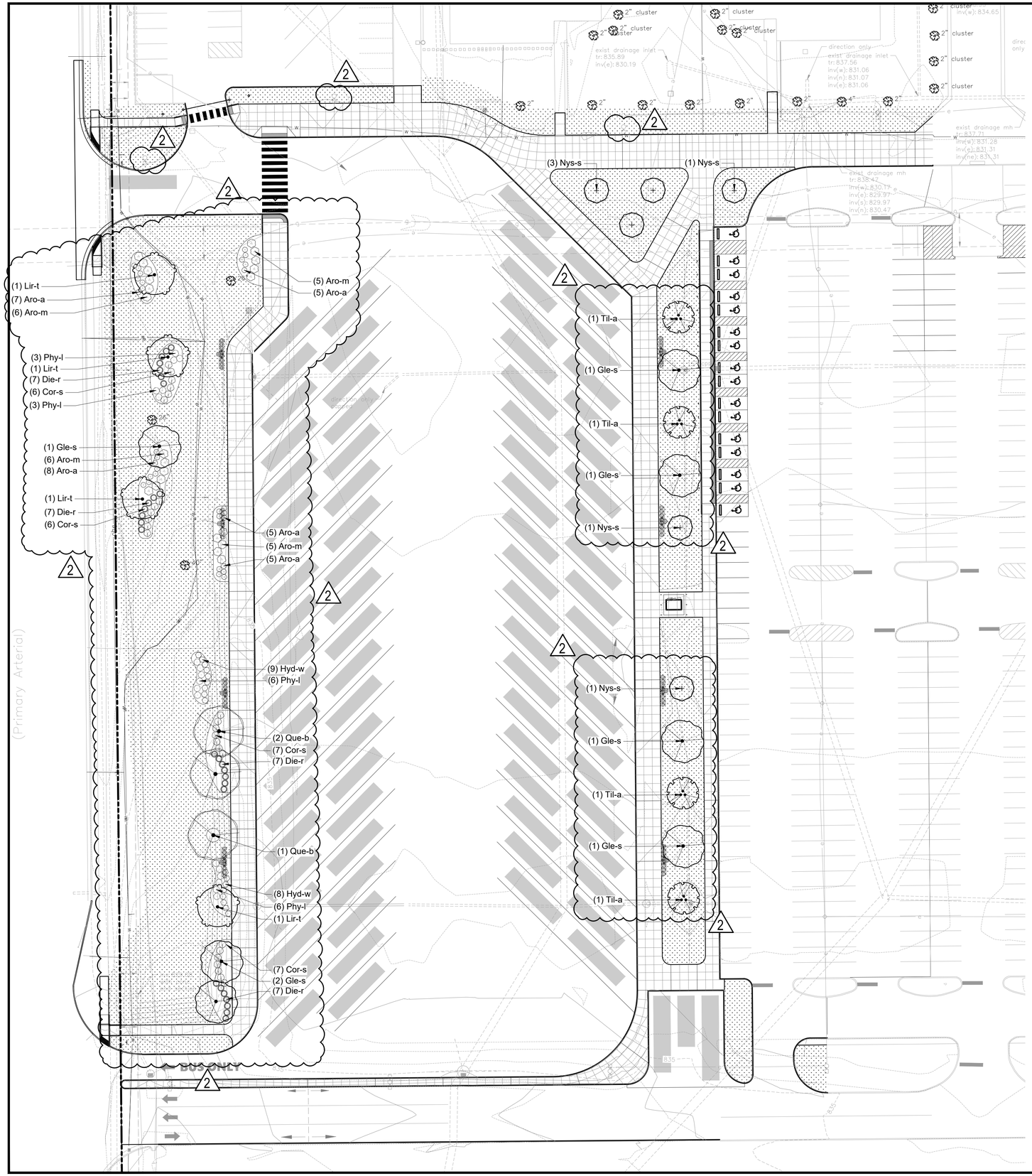
Sheet Title: Layout Plan

Revision	Date	Description
1	03-05-2026	TAC Revision
2	03-12-2026	Addendum 01

Date:	2026/02/13
Project No:	25-1911
Drawn by:	SS
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Sheet No:
L201



GENERAL LANDSCAPE AND PLANTING NOTES

1. Refer to Project Manual for Planting Specifications and Topsoil requirements. Refer to Plant Schedule and Planting Details for additional information.
2. All materials are subject to the approval of the Landscape Architect and Owner at any time. Landscape Architect to inspect all plant locations and plant bed conditions prior to installation. On-site adjustments may be required.
3. Rootballs shall meet or exceed size standards as set forth in 'American Standards for Nursery Stock'. MAIN LEADERS OF ALL TREES SHALL REMAIN INTACT.
4. Remove from the site any plant material that turns brown or defoliates within five (5) days after planting. Replace immediately with approved, specified material.
5. Plant counts indicated on drawings are for Landscape Architect's use only. Contractor shall make own plant quantity takeoffs using drawings, specifications, and plant schedule requirements (i.e., spacing), unless otherwise directed by Landscape Architect. Contractor to verify bed measurements and install appropriate quantities as governed by plant spacing per schedule. Plant material quantities shown on plan are minimum quantities. Additional material may be needed to meet spacing requirements and field conditions.
6. Seed all areas disturbed by construction activities that are not otherwise noted to receive pavement, planting bed, or sod treatment.
7. The Contractor shall install and/or amend topsoil in all proposed bed areas to meet Specifications. Contractor shall coordinate quantity and placement of topsoil. Landscaper shall verify depth of topsoil prior to plant installation. (Refer to specifications for topsoil source and placement requirements)
8. All tree locations shall be marked with 2x2" stakes prior to planting for review and approval by the Landscape Architect. Any plant material installed in an incorrect location, by the judgment of the Landscape Architect, shall be reinstalled at the Contractor's expense.
9. All plant beds shall receive 3" minimum of shredded hardwood bark mulch (unless otherwise noted).
10. Verify all utility locations in the field prior to beginning work. Repair all damaged utilities to Owner's satisfaction at no additional cost.
11. The Contractor shall maintain all plant material and lawns until the project is fully accepted by the Landscape Architect, unless otherwise noted.
12. All workmanship and materials shall be guaranteed by the Contractor for a period of one calendar year after Final Acceptance.
13. Install all plant material in accordance with all local codes and ordinances. Coordinate with the Owner to obtain any required permits necessary to complete work.
14. Contractor shall test all tree pits for drainage. Any tree pit that holds water for more than 24 hours shall be installed using tree pit drainage.
15. Tree Protection Fencing is the responsibility of the Contractor. Minimum protected area shall include the full drip line of the canopy. NO construction activities, material storage, etc. may occur within that area. The Contractor shall ensure that no soil compaction or tree damage occurs in any Protected areas, at any time during the construction process.
16. Trees shall be matched in groups unless otherwise noted.

Parking Perimeter Requirement

Parking Area Landscaping (Section 6.11.4.): Perimeter Plantings must be a minimum of five (5) feet wide, landscaped with shrubs installed at a rate of 30 shrubs per 100 linear feet that under typical conditions can be expected to reach a height and spread of three (3) feet within three (3) years of planting; and 2 trees per 100 linear feet.

Staff is willing to replace some, or all, this requirement with more trees or shrubs planted within the entire area between the parking lot and Olio Rd. Please work with staff on this.

Required:

493 lf./100 = 4.93 x 30 = 148 Shrubs
493 lf./100 = 4.93 x 2 = 10 Trees

Provided:

148 Shrubs
10 Canopy Trees

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Construction Documents

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Planting Plan

Sheet Title

Revision	Date	Description
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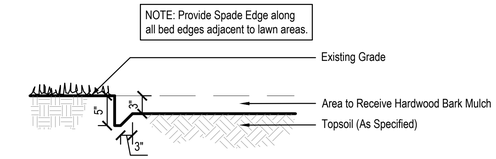
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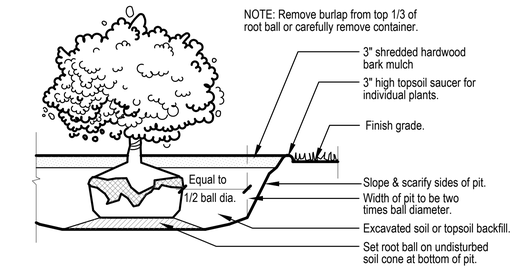
Sheet No:
L401

PLANT SCHEDULE

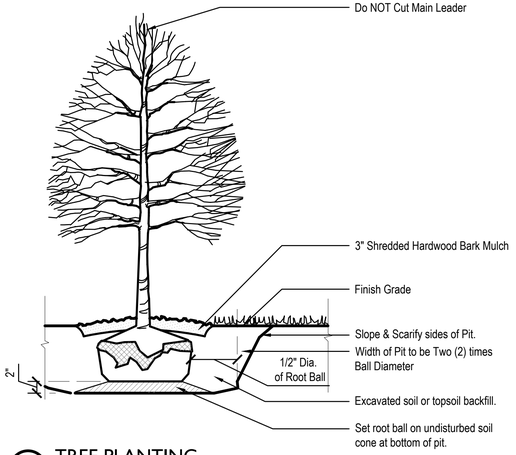
CODE	QTY	BOTANICAL NAME	COMMON NAME	CONT	CAL	REMARKS
DECIDUOUS TREES						
Gle-s	7	Gleditsia triacanthos inermis `Shademaster`	Shademaster Thornless Honeylocust	B & B	2"Cal	full, strong central leader, matched
Lir-t	4	Liriodendron tulipifera	Tulip Tree	B & B	2"Cal	full, strong central leader, matched
Nys-s	6	Nyssa sylvatica	Sour Gum	B & B	2"Cal	full, strong central leader, matched
Que-b	3	Quercus bicolor	Swamp White Oak	B & B	2"Cal	spring dug, full, strong central leader, matched
Til-a	4	Tilia americana `Boulevard`	Boulevard Linden	B & B	2"Cal	full, strong central leader, matched
CODE	QTY	BOTANICAL NAME	COMMON NAME	SIZE	HEIGHT	REMARKS
SHRUBS						
Aro-a	30	Aronia arbutifolia `Brilliantissima`	Brilliant Red Chokeberry	container	24"	space @ 3`-0" o.c.
Aro-m	22	Aronia melanocarpa `Autumn Magic`	Autumn Magic Black Chokeberry	container	24"	space @ 5`-0" o.c.
Cor-s	26	Cornus sericea `Cardinal`	Cardinal Red-twig Dogwood	container	24"	space @ 4`-0" o.c.
Die-r	28	Diervilla x 'G2X885411'	Kodiak Red Diervilla	container	24"	space @ 3`-0" o.c.
Hyd-w	17	Hydrangea quercifolia `Pee Wee`	Pee Wee Oakleaf Hydrangea	container	24"	space @ 3`-0" o.c.
Phy-l	18	Physocarpus opulifolius 'Little Devil'	Little Devil™ Dwarf Ninebark	container	24"	space @ 3'-0" o.c.



3 SPADE EDGE
Not to Scale



2 SHRUB PLANTING
Not to Scale



1 TREE PLANTING
Not to Scale

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PLanting Details

Sheet Title

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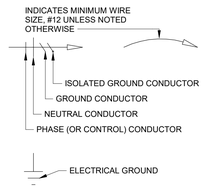
Sheet No:
L410

ABBREVIATIONS

A	AMPERE
AC	ALTERNATING CURRENT; ARMORED CABLE
ADJ	ADJUSTABLE
AF	AMPERE FUSE; AMPERE FRAME
AFF	ABOVE FINISHED FLOOR
AFG	ABOVE FINISHED GRADE
AIC	AMPERE INTERRUPTING CAPACITY
AL	ALUMINUM
ALCR	AUTOMATIC LOAD CONTROL RELAY
ANSI	AMERICAN NATIONAL STANDARDS INSTITUTE
ASYM	ASYMMETRICAL
AT	AMPERE TRIP
ATS	AUTOMATIC TRANSFER SWITCH
AUX	AUXILIARY
AVG	AVERAGE
AWG	AMERICAN WIRE GUAGE
BATT	BATTERY
BPS	BOLTED PRESSURE SWITCH
C	CONDUIT; CENTRIGRADE
C/C	CENTER TO CENTER
CB	CIRCUIT BREAKER
CCTV	CLOSED CIRCUIT TELEVISION
CD	CANDELA
CF	CUBIC FEET
CFL	COMPACT FLUORESCENT
CIRC	CIRCUIT
CLG	CEILING
CMU	CONCRETE MASONRY UNIT
COL	COLUMN
COMB	COMBINATION
CONC	CONCRETE
COND	CONDUCTOR
CONT	CONTINUOUS; CONTINUED
CP	CONTROL PANEL
CPT	CONTROL POWER TRANSFORMER
CT	CURRENT TRANSFORMER
CU	COPPER; CUBIC
CU FT	CUBIC FOOT
CY	CUBIC YARD
CYL	CYLINDER
D	DEEP; DEPTH
DB	DECIBEL; DIRECT BURIED
DC	DIRECT CURRENT
DDC	DIRECT DIGITAL CONTROL
DF	DUAL FACE
DIA	DIAMETER
DIAG	DIAGONAL
DISC	DISCONNECT
DISTR	DISTRIBUTION
DN	DOWN
DPDT	DOUBLE POLE, DOUBLE THROW
DPST	DOUBLE POLE, SINGLE THROW
DWG	DRAWING
DX	DIRECT EXPANSION
E	EAST; EXISTING
EA	EACH
EBBR	ELECTRIC BASEBOARD RADIATION
EB	ELECTRONIC BALLAST
EC	ELECTRICAL CONTRACTOR
EGC	EQUIPMENT GROUNDING CONDUCTOR
ELEC	ELECTRICAL
ELEV	ELEVATOR; ELEVATION
EM	EMERGENCY
EMS	ENERGY MANAGEMENT SYSTEM
EMT	ELECTRICAL METALLIC TUBING
ENCL	ENCLOSURE
ENG	ENGINE
EQUIP	EQUIPMENT
EST	ESTIMATED
EWC	ELECTRIC WATER COOLER
EWH	ELECTRIC WATER HEATER
EXP	EXPOSED
EXT	EXTERIOR
F	FUSED; FAHRENHEIT
FA	FIRE ALARM
FAA	FIRE ALARM ANNUNCIATOR
FACP	FIRE ALARM CONTROL PANEL
FC	FOOT-CANDLE
FD	FUSED DISCONNECT
FDR	FEEDER
FIN	FINISHED
FIXT	FIXTURE
FLA	FULL LOAD AMPS
FLR	FLOOR
FLUOR	FLUORESCENT
FM	FREQUENCY MODULATION; FACTORY MUTUAL
FT	FOOT; FEET
FURN	FURNISHED
FVNR	FULL VOLTAGE NON-REVERSING
G	GROUND
GA	GUAGE
GALV	GALVANIZED
GC	GENERAL CONTRACTOR
GEN	GENERATOR
GFCI, GFI	GROUND FAULT CIRCUIT INTERRUPTER
GFP	GROUND FAULT PROTECTION
GND	GROUND
GRS, GRC	GALVANIZED RIGID STEEL CONDUIT
H	HIGH
HD	HEAVY DUTY; HIGH DEFINITION
HG	MERCURY
HOA	HAND-OFF-AUTOMATIC
HORIZ	HORIZONTAL
HP	HORSEPOWER
HPS	HIGH PRESSURE SODIUM
HR	HOUR
HRS/DAY	HOURS PER DAY
HT	HEIGHT
HV	HIGH VOLTAGE
HZ	HERTZ
ID	INSIDE DIAMETER
IDF	INTERMEDIATE DISTRIBUTION FRAME
IEEE	INSTITUTE OF ELECTRICAL AND ELECTRONICS ENGINEERS
IG	ISOLATED GROUND
IMC	INTERMEDIATE METAL CONDUIT
IMP	IMPEDANCE
IN	INCH
INCAN	INCANDESCENT
INSUL	INSULATION; INSULATED
INT	INTERIOR; INTERNAL
INV EL	INVERTED ELEVATION
J	JOULE; JUNCTION
JB	JUNCTION BOX
K	THOUSAND
KCMIL	THOUSAND CIRCULAR MILS
KHZ	KILOHERTZ
KK	KIRK KEY
KP	KEYPAD
KV	KILOVOLT
KVA	KILOVOLT AMPERE
KVAR	KILOVOLT AMPERE REACTIVE
KW	KILOWATT
KWH	KILOWATT-HOUR
L	LENGTH; LONG; LUMEN
LB	POUND; ELL CONDUIT BODY
LED	LIGHT EMITTING DIODE
LF	LINEAR FOOT
LLD	LAMP LUMEN DEPRECIATION
LO	LOCK OUT
LRA	LOCKED ROTOR AMPS
LT	LIGHT; LIQUID-TIGHT
LTG	LIGHTING
LV	POWER LIMITED LOW VOLTAGE
M	METER
MA	MILLIAMPERE
MAG STR	MAGNETIC STARTER
MAN	MANUAL
MAT	MATERIAL
MATV	MASTER ANTENNA TELEVISION
MAX	MAXIMUM
MC	METAL CLAD CABLE; MOTOR CONTROLLER
MCA	MINIMUM CIRCUIT AMPS
MCB	MAIN CIRCUIT BREAKER
MCC	MOTOR CONTROL CENTER
MCCB	MOLDED CASE CIRCUIT BREAKER
MCM	THOUSAND CIRCULAR MILS
MCP	MOTOR CIRCUIT PROTECTOR
MCS	MOTOR CIRCUIT SWITCH
MDF	MAIN DISTRIBUTION FRAME
MDP	MAIN DISTRIBUTION PANELBOARD
MED	MEDIUM
MFG	MANUFACTURING
MFR	MANUFACTURER
MH	MANHOLE; METAL HALIDE; MAN-HOUR
MHZ	MEGAHERTZ
MI	MINERAL INSULATED
MIC	MICROPHONE
MIN	MINIMUM; MINUTE
MISC	MISCELLANEOUS
MLO	MAIN LUGS ONLY
MOCP	MAXIMUM OVERCURRENT PROTECTION
MOG	MOGUL
MTD	MOUNTED
MTS	MANUAL TRANSFER SWITCH
MV	MEGAVOLT; MEDIUM VOLTAGE
MVA	MEGAVOLT AMPERES
MVAR	MEGAVOLT AMPERES REACTIVE
MW	MEGAWATT
N	NEUTRAL
N/A	NOT APPLICABLE
NC	NORMALLY CLOSED
NEC	NATIONAL ELECTRICAL CODE
NEMA	NATIONAL ELECTRICAL MANUFACTURERS ASSOCATION
NF	NON-FUSED
NFS	NON-FUSED DISCONNECT
NIC	NOT IN CONTRACT
NL	NIGHT LIGHT
NM	NON-METALLIC SHEATHED CABLE
NO	NUMBER; NORMALLY OPEN
NTS	NOT TO SCALE
O&P	OVERHEAD AND PROFIT
OC	ON CENTER; OVERCURRENT
OD	OUTSIDE DIAMETER
OH	OVERHEAD
OL	OVERLOAD
OS&Y	OUTSIDE SCREW AND YOKE
OZ	OUNCE
P	POLE; PULL
PA	PUBLIC ADDRESS
PB	PUSH BUTTON; PULL BOX
PC	PHOTOCELL
PED	PEDESTAL
PF	POWER FACTOR
PH	PHASE
PIV	POST INDICATOR VALVE
PL	PILOT LIGHT
PNL	PANEL
PR	PAIR
PRI	PRIMARY
PSF	POUNDS PER SQUARE FOOT
PSI	POUNDS PER SQUARE INCH
PSIG	POUNDS PER SQUARE INCH GUAGE
PT	POTENTIAL TRANSFORMER
PU	PER UNIT
PVC	POLYVINYL CHLORIDE
PWR	POWER
QUAN; QTY	QUANTITY
R	RESISTANCE; RELOCATED
RECEPT	RECEPTACLE
REF	REFERENCE
REFR	REFRIGERATOR
REQ'D	REQUIRED
RGS	RIGID GALVANIZED STEEL
RLA	RUNNING LOAD AMPS
RM	ROOM
RMC	RIGID METALLIC CONDUIT
RMS	ROOT MEAN SQUARE
RNC	RIGID NON-METALLIC CONDUIT
RT	RAINTIGHT
SCCR	SHORT-CIRCUIT CURRENT-RATING
SCHED	SCHEDULE
SCR	SHORT CIRCUIT RATING
SE	SERVICE ENTRACE; SERVICE EQUIPMENT
SEC	SECONDARY
SN	SOLID NEUTRAL
SP	SINGLE POLE
SPD	SURGE PROTECTIVE DEVICE
SPDT	SINGLE POLE, DOUBLE THROW
SPKR	SPEAKER
SPST	SINGLE POLE, SINGLE THROW
SQ	SQUARE
SQ FT	SQUARE FEET
SQ IN	SQUARE INCH
SS	STAINLESS STEEL; SAFETY SWITCH
S/S	START STOP
ST	SHUNT TRIP;
STD	STANDARD
SURF	SURFACE
SW	SWITCH
SWD	SWITCHING DUTY
SWBD	SWITCHBOARD
SQ YD	SQUARE YARD
SYM	SYMMETRICAL
T	TEMPERATURE; TRANFORMER
TB	TERMINAL BLOCK
TC	TIME CLOCK
TCC	TEMPERATURE CONTROLS CONTRACTOR
TCP	TEMPERATURE CONTROL PANEL
TD	TIME DELAY
TELE	TELEPHONE
TGB	TELECOMMUNICATIONS GROUNDING BUSBAR
THD	TOTAL HARMONIC DISTORTION; THREAD
TMGB	TELECOMMUNICATIONS MAIN GROUNDING BUSBAR
TO	TELECOMMUNICATIONS OUTLET
TR	TAMPER RESISTANT
TTB	TELEPHONE TERMAINAL BOARD
TV	TELEVISION
TVSS	TRANSIENT VOLTAGE SURGE SUPPRESSOR
TYP	TYPICAL
UC	UNDER (CABINET OR COUNTER)
UF	UNDERGROUND FEEDER
UG	UNDERGROUND
UHF	ULTRA HIGH FREQUENCY
UL	UNDERWRITERS LABORATORY
UNFIN	UNFINISHED
UNO	UNLESS NOTED OTHERWISE
UTIL	UTILITY
UTP	UNSHIELDED TWISTED PAIR
V	VOLT
VA	VOLT AMPERES
VAR	VOLT AMPERES REACTIVE
VERT	VERTICAL
VFD	VARIABLE FREQUENCY DRIVE
VHF	VERY HIGH FREQUENCY
VOL	VOLUME
W	WIRE; WATT; WIDE
W/	WITH
WAP	WIRELESS ACCESS POINT
WG	WIRE GUARD
WM	"WIREMOLD" (SURFACE RACEWAY)
WP	WEATHERPROOF
WT	WEIGHT; WATERTIGHT
XFMR	TRANSFORMER
XFER	TRANSFER
Y	WYE
°	DEGREE
Δ	DELTA
Ø	PHASE; DIAMETER
#	POUND; NUMBER
%	PERCENT
@	AT
~	APPROXIMATELY
'	FEET
"	INCHES

NOT ALL SYMBOLS ON THIS SHEET ARE USED IN THESE DOCUMENTS.

TYPICAL WIRING DESIGNATIONS



ROOM CIRCUIT DESIGNATIONS



* INDIVIDUAL CIRCUITS NUMBERS ARE LOCATED AT EACH DEVICE

ROOM CIRCUIT DESIGNATION SHOWN ABOVE APPLY TO EVERY DEVICE IN THE ROOM UNLESS NOTED OTHERWISE

ROOM CIRCUIT DESIGNATIONS WITH RELAY NUMBER



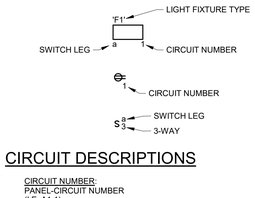
RACEWAYS

- CONDUIT, IN WALL OR CEILING
- CONDUIT, BELOW FLOOR
- CONDUIT, EXPOSED
- W — SURFACE RACEWAY ("WIREMOLD")
- CONDUIT, TURNING UP
- CONDUIT, TURNING DOWN
- 3 CONDUIT, CAPPED
- UNDERFLOOR DUCT & JUNCTION BOX, SINGLE SYSTEM
- UNDERFLOOR DUCT & JUNCTION BOX, DUAL SYSTEM
- UNDERFLOOR DUCT & JUNCTION BOX, TRIPLE SYSTEM
- J JUNCTION BOX
- P PULL BOX

MISCELLANEOUS

- CLOCK (WALL)
- CLOCK (CEILING)
- BELL
- BUZZER
- THERMOSTAT
- ELECTRICAL GROUND

TYPICAL DEVICE DESIGNATIONS



CIRCUIT DESCRIPTIONS

CIRCUIT NUMBER:
PANEL-CIRCUIT NUMBER
(I.E. A1-1)

MULTIPLE INDIVIDUAL CIRCUIT NUMBERS:
PANEL-CIRCUIT NUMBER,CIRCUIT NUMBER,CIRCUIT NUMBER
(I.E. A1-1, A1-3)

2-POLE CIRCUIT NUMBER:
PANEL-CIRCUIT NUMBER/CIRCUIT NUMBER
(I.E. A1-1,3)

3-POLE CIRCUIT NUMBER:
PANEL-CIRCUIT NUMBER/CIRCUIT NUMBER/CIRCUIT NUMBER
(I.E. A1-1,3,5)

PANELS

- PANEL, FLUSH
- PANEL, SURFACE
- CONTROL PANEL (AS NOTED), FLUSH
- CONTROL PANEL (AS NOTED), SURFACE

POWER EQUIPMENT

- 1-PHASE MOTOR
- 3-PHASE MOTOR
- S_F FUSIBLE BOX COVER SWITCH
- ENCLOSED SWITCH, NON-FUSIBLE
- F ENCLOSED SWITCH, FUSIBLE
- CB ENCLOSED CIRCUIT BREAKER
- MANUAL MOTOR STARTER
- P MANUAL MOTOR STARTER WITH PILOT LIGHT
- MAGNETIC MOTOR STARTER
- COMBINATION DISCONNECT & MAGNETIC MOTOR STARTER
- T SMALL TRANSFORMER
- VFD VARIABLE FREQUENCY DRIVE
- PUSHBUTTON
- UP/DOWN PUSHBUTTON
- UP/DOWN/STOP PUSHBUTTON

RECEPTACLES AND OUTLETS

- DUPLEX RECEPTACLE
- HORIZONTAL DUPLEX RECEPTACLE
- DOUBLE DUPLEX (QUAD) RECEPTACLE
- DUPLEX RECEPTACLE ABOVE COUNTERTOP OR TOGGLE SWITCH HEIGHT WHERE NO COUNTER IS PRESENT
- DOUBLE DUPLEX (QUAD) RECEPTACLE ABOVE COUNTERTOP OR TOGGLE SWITCH HEIGHT WHERE NO COUNTER IS PRESENT
- GROUND FAULT CIRCUIT INTERRUPTER (GFCI) DUPLEX RECEPTACLE
- HORIZONTAL GFCI DUPLEX RECEPTACLE
- DOUBLE DUPLEX (QUAD) GFCI RECEPTACLE
- GFCI DUPLEX RECEPTACLE ABOVE COUNTERTOP OR TOGGLE SWITCH HEIGHT WHERE NO COUNTER IS PRESENT
- DOUBLE DUPLEX (QUAD) GFCI RECEPTACLE ABOVE COUNTERTOP OR TOGGLE SWITCH HEIGHT WHERE NO COUNTER IS PRESENT
- $_{WP}$ GFCI/ WEATHERPROOF DUPLEX RECEPTACLE
- SINGLE RECEPTACLE
- SPECIAL OUTLET OR EQUIPMENT CONNECTION (AS NOTED)

LIGHT FIXTURES

- LIGHT, CEILING
- LIGHT, CEILING
- LIGHT, WALL
- EXIT SIGN, CEILING
- EXIT SIGN, WALL
- EXIT SIGN WITH DIRECTIONAL ARROW, CEILING
- EXIT SIGN WITH DIRECTIONAL ARROW, WALL
- EMERGENCY LIGHTING UNIT
- TRACK LIGHT FIXTURE
- EMERGENCY LIGHT FIXTURE
- LIGHT FIXTURE DIRECTIONAL AIMING INDICATOR
- NL NIGHT LIGHT

SWITCHES

- S SWITCH, SINGLE POLE
- S_2 SWITCH, DOUBLE POLE
- S_3 SWITCH, THREE WAY
- S_4 SWITCH, FOUR WAY
- S_K SWITCH, KEY OPERATED
- S_P SWITCH, WITH PILOT LIGHT
- S_{WP} SWITCH, WEATHERPROOF
- S_X SWITCH, EXPLOSIONPROOF
- S_D SWITCH, DIMMER
- S_{TS} SWITCH, SPRING WOUND, INTERVAL TIME SWITCH
- S_{DT} SWITCH, DIGITAL INTERVAL TIME SWITCH
- S_{LV} SWITCH, POWER LIMITED LOW VOLTAGE PUSH BUTTON
- LV POWER LIMITED LOW VOLTAGE TOUCHSCREEN LIGHTING CONTROL
- MT MULTI-TECHNOLOGY CEILING OCCUPANCY SENSOR
- US ULTRASONIC CEILING OCCUPANCY SENSOR
- PI PASSIVE INFRARED CEILING OCCUPANCY SENSOR
- S1 SINGLE POLE WALL OCCUPANCY SENSOR
- S2 TWO POLE WALL OCCUPANCY SENSOR
- SD COMBINATION WALL OCCUPANCY SENSOR AND DIMMER
- DL DAYLIGHT SENSOR
- TC TIMECLOCK
- PC PHOTOCELL
- PP POWER PACK
- C CONTACTOR
- LCP LIGHTING CONTROL PANEL
- LRP LIGHTING RELAY PANEL
- ALCR AUTOMATIC LOAD CONTROL RELAY (LIGHTING)

BRANCH CIRCUIT WIRING CHART

FEEDER CONDUCTOR SIZES SHOWN ON THESE BID DOCUMENTS HAVE BEEN SELECTED TO MAINTAIN LESS THAN 2% VOLTAGE DROP AT POTENTIAL FULL LOAD CONDITION (80% OF CIRCUIT SIZE) PER ANTICIPATED ROUTING AND CONDUCTOR LENGTH. BRANCH CIRCUIT CONDUCTORS SHALL BE SIZED TO MAINTAIN LESS THAN 3% VOLTAGE DROP FROM PANELBOARD TO LOAD BASED UPON 60% OF CIRCUIT SIZE LOAD CONDITIONS. THE FOLLOWING CHART REPRESENTS WIRE SIZES FOR A 20 AMP CIRCUIT BASED UPON CIRCUIT LENGTH IN ORDER TO MAINTAIN LESS THAN 3% VOLTAGE DROP FOR A 12 AMP LOAD. CONTRACTOR SHALL USE THIS CHART FOR BIDDING AND INSTALLATION GUIDELINES. FOR KNOWN CIRCUITS WITH LARGER LOAD CONDITIONS, CONTRACTOR SHALL ADJUST ACCORDINGLY. GROUND CONDUCTOR SIZES SHALL BE INCREASED SAME AS CIRCUIT CONDUCTORS, PER NEC. ADJUST RACEWAY SIZES ACCORDINGLY.

	BRANCH CIRCUIT CONDUCTOR LENGTH FOR 20 AMP CIRCUIT TO MAINTAIN LESS THAN 3% VOLTAGE DROP AT 12 AMP LOAD. ADJUST AS KNOWN CONDITIONS REQUIRE.					
WIRE SIZE	120V-1P	208V-1P	208V-3P	277V-1P	480V-3P	CONDUCTOR LENGTHS INDICATED ARE TO THE FIRST DEVICE (BUT MAINTAIN MAXIMUM 5% VOLTAGE DROP TO THE LAST DEVICE FOR KNOWN LOADS).
#12	0'-80'	0'-140'	0'-160'	0'-185'	0'-375'	
#10	81'-135'	141'-230'	161'-270'	186'-310'	376'-620'	
#8	136'-200'	231'-350'	271'-410'	311'-470'	621'-940'	
#6	201'-315'	351'-550'	411'-635'	471'-735'	941'-1475'	

GENERAL NOTES:

1. 120 VOLT CIRCUITS SHALL UTILIZE SEPARATE INDEPENDENT NEUTRAL CONDUCTORS. DO NOT SHARE NEUTRALS.
2. CONTRACTOR SHALL COORDINATE WITH ALL TRADES. NO ADDITIONAL COMPENSATION WILL BE ALLOWED FOR INCORRECT WORK, OR FOR INFRINGEMENT UPON OTHERS' WORK, DUE TO A LACK OF COORDINATION.
3. DEVICES IN GENERAL SHALL BE CENTERED IN WALL SPACE IN WHICH THEY ARE INSTALLED OR THEY SHALL BE SPACED SYMMETRICALLY (FOR EXAMPLE, CENTER DEVICES WHEN MOUNTED ON FACE OF COLUMNS).
4. COORDINATE AND VERIFY LOCATIONS OF DEVICES WITH BLOCK COURSING, FINISH MATERIALS, CASEWORK, ETC. PRIOR TO ROUGH-IN.
5. WIRING SHALL BE MINIMUM #12 AWG IN 3/4" EMT CONDUIT UNLESS OTHERWISE NOTED OR REQUIRED.
6. WHERE SURFACE CONDUIT OR EMT IS PERMITTED, DO NOT USE CONDUIT HANGERS LESS THAN 8-FEET AFF. USE ONE- OR TWO-HOLE STRAPS SO THAT NO SHARP EDGES PROTRUDE FROM THE WALL.
7. EXISTING CONCEALED RACEWAYS AND DEVICE BOXES MAY BE REUSED IN PLACE IF DEEMED CODE COMPLIANT AND IN GOOD CONDITION. CONTRACTOR IS RESPONSIBLE FOR VERIFICATION.
8. A MAXIMUM OF THREE SINGLE-PHASE CIRCUITS SHALL BE INSTALLED IN A SINGLE CONDUIT.
9. WARRANTIES REFERED TO ON THE DRAWINGS AND SPECIFICATIONS SHALL BEGIN AT THE DATE OF SUBSTANTIAL COMPLETION AT THE END OF THE PROJECT.
10. COORDINATE CORE DRILLING WITH STRUCTURAL ENGINEER.
11. UNLESS NOTED OTHERWISE, JUNCTION BOXES AND PULL BOXES SHALL BE LISTED AND LABELLED BY A NATIONALLY RECOGNIZED TESTING LABORATORY.
12. CONTRACTOR SHALL VERIFY ALL EXISTING UTILITY LOCATIONS, BOTH PUBLIC AND PRIVATE, IN AREAS OF WORK PRIOR TO BEGINNING WORK.
13. CONTRACTOR SHALL PROVIDE, AND BE RESPONSIBLE FOR A GEOTECHNICAL ANALYSIS AND REPORT AT ALL POLE LOCATIONS - SUBMIT COPY OF REPORT TO OWNER AND ENGINEER PRIOR TO BEGINNING WORK.
14. CONTRACTOR SHALL PROVIDE, AND BE RESPONSIBLE FOR, STRUCTURAL ENGINEERED CONCRETE POLE FOUNDATIONS AND BASES FOR GENERAL PARKING LOT LIGHT FIXTURES ('FC').
15. REFER TO EXTERIOR ATHLETIC LIGHTING SPECIFICATIONS FOR INSTALLATION REQUIREMENTS, INCLUDING FOUNDATIONS AND GROUNDING.
16. PROVIDE GRASS SOD (OR MATCH EXISTING CONDITIONS) AT ALL DISTURBED LOCATIONS OUTSIDE OF THE GENERAL PARKING LOT SCOPE OF WORK.

GENERAL NOTES - DEMOLITION:

1. FIELD VERIFY EXISTING CONDITIONS PRIOR TO BEGINNING WORK. THESE DRAWINGS DO NOT SHOW ALL REQUIRED DEMOLITION WORK. SOME CONDITIONS MAY HAVE BEEN CONCEALED DURING FIELD SURVEYS.
2. DEVICES AND EQUIPMENT SHOWN DASHED WITH HEAVY LINE WEIGHT ON DEMOLITION DRAWINGS SHALL BE REMOVED AS NOTED.
3. DISPOSAL OF DEMOLISHED MATERIALS SHALL COMPLY WITH LOCAL, STATE, AND FEDERAL REGULATIONS.
4. CONTRACTOR SHALL PROTECT EXISTING OWNER FACILITIES THAT ARE TO REMAIN DURING CONSTRUCTION. ANY FACILITIES DAMAGED OR DISCONNECTED BY CONTRACTOR SHALL BE IMMEDIATELY RESTORED TO PREVIOUS CONDITION.
5. OWNER SHALL HAVE "RIGHT OF FIRST REFUSAL" FOR DEMOLISHED ITEMS. CONTRACTOR SHALL COORDINATE WITH OWNER PRIOR TO BEGINNING WORK TO DETERMINE WHAT ITEMS THE OWNER MAY BE INTERESTED IN KEEPING. CONTRACTOR SHALL CAREFULLY REMOVE SUCH ITEMS AND DELIVER TO OWNER'S DESIGNATED STORAGE AREA. FOR ITEMS DEEMED OBSOLETE BY THE OWNER, CONTRACTOR SHALL IMMEDIATELY REMOVE SUCH ITEMS FROM THE PREMISES, UNLESS OTHERWISE NOTED.
6. COORDINATE SCHEDULING OF DEMOLITION WORK WITH OWNER AND TRADES.

D&A #25051

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Hamilton Southeastern Schools

CERTIFIED BY:

JOSEPH PAUL SMITH REGISTERED No. 12200363 STATE OF INDIANA PROFESSIONAL ENGINEER

03/12/2026

REVISIONS:

NO.	DESCRIPTION	DATE
1	ADDENDUM #1	03/12/2026

PROJECT DESCRIPTION:

HAMILTON SOUTHEASTERN SCHOOLS
HAMILTON SOUTHEASTERN HIGH SCHOOL - BUS LOT
IMPROVEMENTS
12499 OLIO ROAD
FISHERS, IN 46037

KEYPLAN

DRAWN BY: JPS	DESIGNED BY: JPS
SCALE: REFER TO DRAWING	CHECKED BY: DEW
DATE: 03/12/2026	JOB NO.: 25051

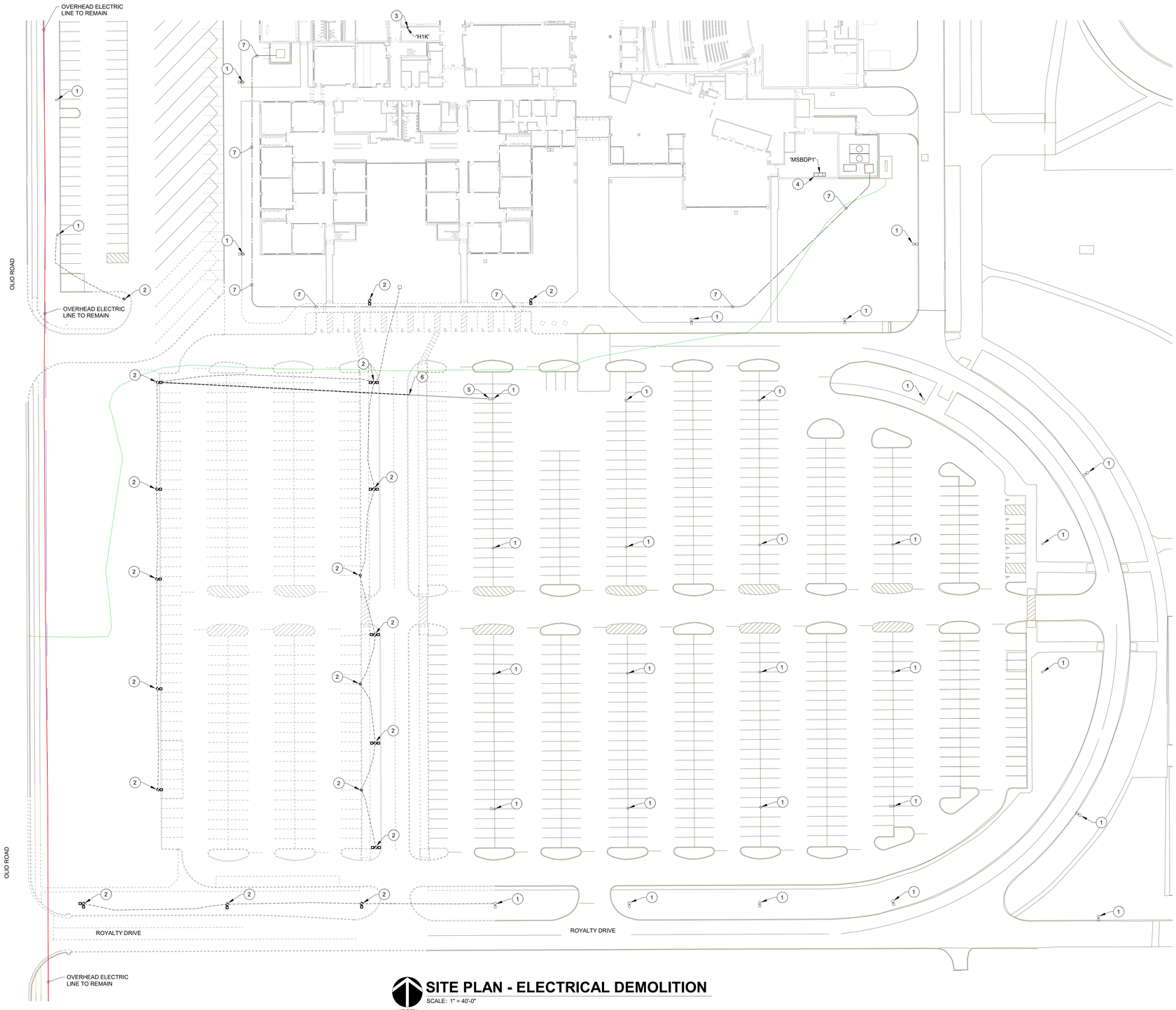
SHEET DESCRIPTION:

SYMBOLS, ABBREVIATIONS, & GENERAL NOTES - ELECTRICAL

SHEET NUMBER:

E001

PRINTED ON: 3/11/2026 5:06:22 PM



SITE PLAN - ELECTRICAL DEMOLITION

SCALE: 1" = 40'-0"

NORTH

0 10 20 40 80 120 160

1 2 3 4

DEMOLITION LEGEND:

- WORK TO BE REMOVED
- WORK TO REMAIN

GENERAL NOTES:

1. SEE E001 FOR GENERAL NOTES.

(#) PLAN NOTES:

1. POLE LIGHT TO REMAIN.
2. POLE LIGHT TO BE REMOVED.
3. PANELBOARD TO REMAIN.
4. SWITCHBOARD TO REMAIN.
5. POLE MOUNTED FIBER DELIVERY POINT (FDP) FOR EXTERIOR CAMERAS TO REMAIN.
6. REMOVE CONDUIT AND CABLING SERVING POLE MOUNTED CAMERA BACK TO THIS LOCATION. SEE T100 FOR NEW WORK.
7. DUKE ENERGY PRIMARY LOOP TO REMAIN. PROTECT DURING DEMOLITION.

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Joseph Paul Solta

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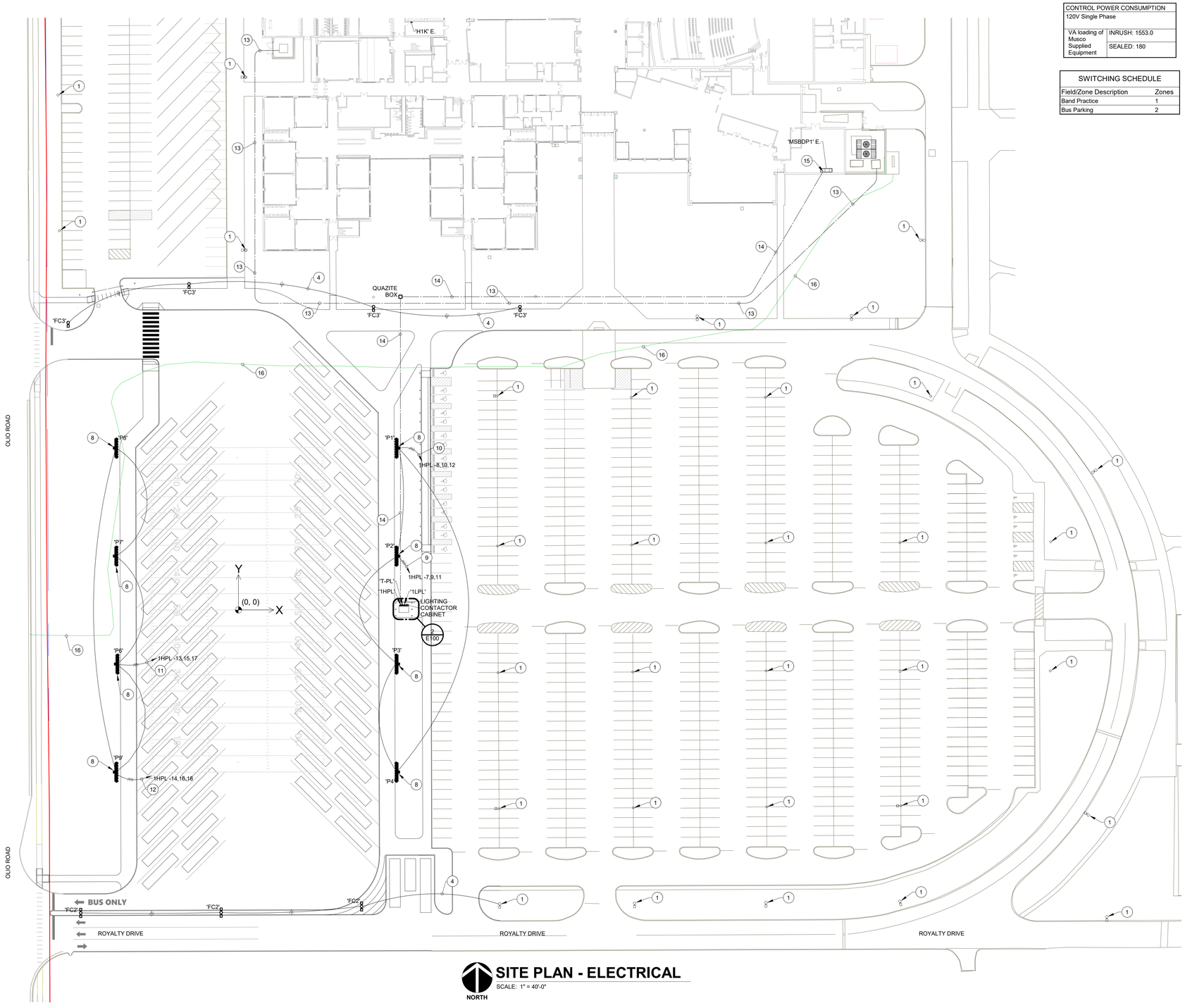
SHEET NUMBER:

ED100

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EXTERIOR LIGHT FIXTURE SCHEDULE

MARK	DESCRIPTION	MOUNTING	WATTS	CRI	COLOR	LUMENS	VOLTS	MANUFACTURER(S)	MARK
"P_"	BUS PARKING "SPORTSLIGHTING" FIXTURE.	POLE	<varies>	70	5700K	8992/HEAD	480V	MUSCO SPORTLIGHTS OR APPROVED EQUAL	"P_"
FC2	CAST ALUMINUM FIXTURE, POWDERCOATED FINISH, TYPE 2 DISTRIBUTION, NUMBER OF FIXTURE HEADS AS INDICATED, WET LOCATION LISTED, 25-FOOT TALL SQUARE NON-TAPERED 5" x 5" MIN, 7 GAUGE MIN, STEEL POLE, POWDERCOAT, FINISH TO BE SELECTED BY ARCHITECT FROM MANUFACTURER'S CATALOG OF STANDARD FINISHES.	POLE	75 W	70	4000K	10000/HEAD	120-277V	BEACON VIPER SERIES LITHONIA DSX SERIES MCGRAW EDISON GALLEON SERIES	FC2
FC3	CAST ALUMINUM FIXTURE, POWDERCOATED FINISH, TYPE 3 DISTRIBUTION, NUMBER OF FIXTURE HEADS AS INDICATED, WET LOCATION LISTED, 25-FOOT TALL SQUARE NON-TAPERED 5" x 5" MIN, 7 GAUGE MIN, STEEL POLE, POWDERCOAT, FINISH TO BE SELECTED BY ARCHITECT FROM MANUFACTURER'S CATALOG OF STANDARD FINISHES.	POLE	75 W	70	4000K	10000/HEAD	120-277V	BEACON VIPER SERIES LITHONIA DSX SERIES MCGRAW EDISON GALLEON SERIES	FC3



SITE PLAN - ELECTRICAL

SCALE: 1" = 40'-0"

NORTH

Control System Summary

Hamilton Southeastern Bus Lot / Musco #251528B

CONTROL POWER CONSUMPTION	
120V Single Phase	
VA loading of Musco Supplied Equipment	INRUSH: 1553.0
	SEALED: 180

SWITCHING SCHEDULE	
Field/Zone Description	Zones
Band Practice	1
Bus Parking	2

PANEL SUMMARY - LIGHTING CONTROLS AND CIRCUITING

CONTACTOR ID	LIGHT TYPE	POLE IDs	# OF FIXTURES	* FULL LOAD AMPS	PANEL ID & CIRCUIT POSITION	WIRING
C1	BAND PRACTICE	P1, P2, P3, P4	10	20.78	1HPL - 7,9,11	3 #8, 1 #8 GND, 1" SCH. 40 PVC
C2	BAND PRACTICE	P6, P7, P8, P9	12	23.2	1HPL - 13,15,17	3 #8, 1 #8 GND, 1" SCH. 40 PVC
C3	BUS PARKING	P1, P4	4	10.4	1HPL - 8,10,12	3 #10, 1 #10 GND, 1" SCH. 40 PVC
C4	BUS PARKING	P8, P9	4	10.4	1HPL - 14,16,18	3 #10, 1 #10 GND, 1" SCH. 40 PVC

NOTE: SIZE FOR 3% VOLTAGE DROP, MAXIMUM.
ADJUST WIRE SIZE AS NEEDED FOR ACTUAL WIRE LENGTHS.

BUS LOT MAIN "SPORTSLIGHTING" POLES

POLE	X	Y	LIGHT TYPE	# OF FIXTURES	* FULL LOAD AMPS	CONTACTOR SIZE (AMPS)	CONTACTOR ID
P1	+147'	+150'	BAND PRACTICE	1	2.6	30	C1
			BUS PARKING	2	5.2	30	C3
P2	+147'	+50'	BAND PRACTICE	4	7.79	30	C1
P3	+147'	-50'	BAND PRACTICE	4	7.79	30	C1
P4	+147'	-150'	BAND PRACTICE	1	2.6	30	C1
			BUS PARKING	2	5.2	30	C3
P6	-113'	-50'	BAND PRACTICE	5	9	30	C2
P7	-113'	+50'	BAND PRACTICE	5	9	30	C2
P8	-113'	+150'	BAND PRACTICE	1	2.6	30	C2
			BUS PARKING	2	5.2	30	C4
P9	-113'	-150'	BAND PRACTICE	1	2.6	30	C2
			BUS PARKING	2	5.2	30	C4

RENOVATION LEGEND:

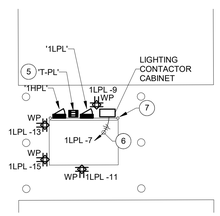
- WORK TO BE INSTALLED
- WORK TO REMAIN

GENERAL NOTES:

1. SEE E-001 FOR GENERAL NOTES.

(#) PLAN NOTES:

1. POLE LIGHT TO REMAIN.
2. WIRING UPSIZED FOR VOLTAGE DROP.
3. SEE TRANSFORMER GROUNDING DETAIL ON SHEET E401 FOR WIRE AND CONDUIT SIZE.
4. EXTEND EXISTING CIRCUIT SERVING EXTERIOR POLE LIGHTING TO NEW POLES. 2 #6, 1 #6 GND, 1" C.
5. 15 kVA RESIN ENCAPSULATED TRANSFORMER IN NEMA 3R 304SS ENCLOSURE, (SQUARE D 15T2SS SERIES OR SIMILAR)
6. MUSCO LIGHTING CONTROL CABINET. PROVIDE 120V CIRCUIT FOR CONTROL.
7. PANELBOARDS, TRANSFORMER, AND CONTROL CABINET. REFER TO DETAIL ON E401. VERIFY EXACT LOCATION OF EQUIPMENT WITH OWNER.
8. PROVIDE "SPORTSLIGHTING" FIXTURES, POLE, AND FOUNDATION. PROVIDE A GROUND ROD AT EACH POLE AND GROUND TO POLE WITH #8 AWG.
9. PROVIDE CIRCUIT TO POLES P1, P2, P3, AND P4 FOR BAND PRACTICE LIGHTING. SEE PANEL SUMMARY ON THIS SHEET FOR ADDITIONAL INFORMATION.
10. PROVIDE CIRCUIT TO POLE P1 AND P4 FOR BUS PARKING LIGHTS. SEE PANEL SUMMARY ON THIS SHEET FOR ADDITIONAL INFORMATION.
11. PROVIDE CIRCUIT TO POLES P6, P7, P8, AND P9 FOR BAND PRACTICE LIGHTING. SEE PANEL SUMMARY ON THIS SHEET FOR ADDITIONAL INFORMATION.
12. PROVIDE CIRCUIT TO POLE P8 AND P9 FOR BUS PARKING LIGHTS. SEE PANEL SUMMARY ON THIS SHEET FOR ADDITIONAL INFORMATION.
13. EXISTING DUKE ENERGY PRIMARY LOOP TO REMAIN. PROTECT DURING CONSTRUCTION.
14. FEEDER ROUTE FOR PANEL '1HPL'. SEE E401 FOR WIRE AND CONDUIT SIZE.
15. PROVIDE 125A-3P BREAKER IN SPACE IN EXISTING SWITCHBOARD (GE SPECTRA SERIES SWITCHBOARD).
16. APPROXIMATE LOCATION OF EXISTING GAS LINE. PROTECT DURING CONSTRUCTION.



2 ENLARGED BAND TOWER - ELECTRICAL

SCALE: 1/8" = 1'-0"

0 10 20 40 80 120 160

1 2 3 4

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IMPROVEMENTS

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KEYPLAN

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SCALE: REFER TO DRAWING	CHECKED BY: DEW
DATE: 03/12/2026	JOB NO.: 25051

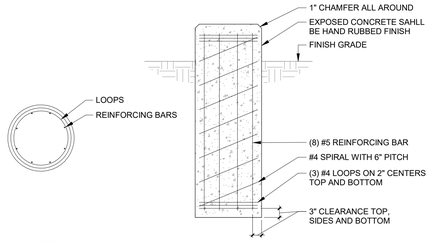
SHEET DESCRIPTION:

SITE PLAN - ELECTRICAL

SHEET NUMBER:

E100

PRINTED ON: 3/11/2026 5:06:26 PM

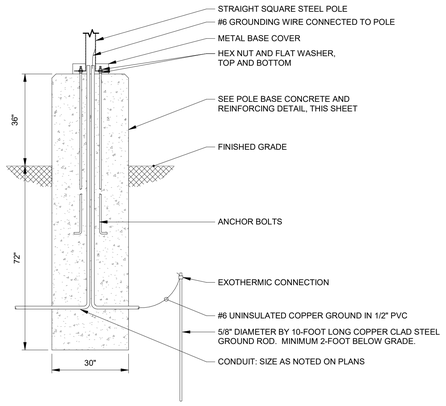


NOTES:

1. USE 4000 PSI 28 DAY STRENGTH CONCRETE FOR POLE BASE.
2. PLACE CONRETE THE SAME DAY BASE IS DRILLED.
3. USE SONOTUBE FORM ABOVE GRADE AND EXTEND TO 6" BELOW GRADE.
4. REFER TO "POLE BASE DETAIL" FOR DIMENSIONS.

D POLE BASE CONCRETE AND REINFORCING FOR 'FC' FIXTURES

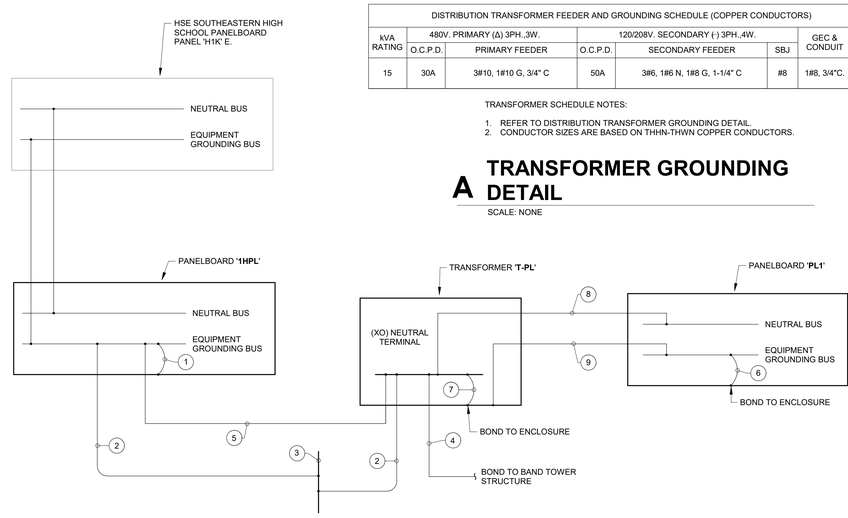
SCALE: NONE



C PARKING LOT POLE BASE DETAIL FOR 'FC' FIXTURES

SCALE: NONE

1. MAIN BONDING JUMPER
2. GROUNDING ELECTRODE CONDUCTOR: 6 AWG COPPER.
3. GROUND ROD - 5/8-INCH BY 10-FOOT COPPER-CLAD. TOP OF ROD TO BE 12-INCHES BELOW GRADE
4. SUPPLY-SIDE BONDING JUMPER (SSBJ). REFER TO "GEC AND CONDUIT" COLUMN IN TRANSFORMER FEEDER AND GROUNDING SCHEDULE FOR CONDUCTOR AND CONDUIT SIZE
5. EQUIPMENT GROUNDING CONDUCTOR. REFER TO "PRIMARY FEEDER" COLUMN IN TRANSFORMER FEEDER AND GROUNDING SCHEDULE FOR CONDUCTOR SIZE.
6. SUPPLY-SIDE BONDING JUMPER (SSBJ). REFER TO "GEC AND CONDUIT" COLUMN IN TRANSFORMER FEEDER AND GROUNDING SCHEDULE FOR CONDUCTOR AND CONDUIT SIZE.
7. SYSTEM BONDING JUMPER (SBJ). REFER TO "SBJ" COLUMN IN DISTRIBUTION TRANSFORMER FEEDER AND GROUNDING SCHEDULE.
8. GROUNDED (NEUTRAL) CONDUCTOR. REFER TO "SECONDARY FEEDER" COLUMN FOR CONDUCTOR SIZE.
9. SSBJ. REFER TO GROUNDING CONDUCTOR SIZE IN "SECONDARY FEEDER" COLUMN IN TRANSFORMER FEEDER AND GROUNDING SCHEDULE.



DISTRIBUTION TRANSFORMER FEEDER AND GROUNDING SCHEDULE (COPPER CONDUCTORS)							
kVA RATING	480V. PRIMARY (Δ) 3PH.,3W.		120/208V. SECONDARY (-) 3PH.,4W.			GEC & CONDUIT	kVA RATING
	O.C.P.D.	PRIMARY FEEDER	O.C.P.D.	SECONDARY FEEDER	SBJ		
15	30A	3#10, 1#10 G, 3/4" C	50A	3#6, 1#6 N, 1#8 G, 1-1/4" C	#8	1#8, 3/4"C.	15

TRANSFORMER SCHEDULE NOTES:

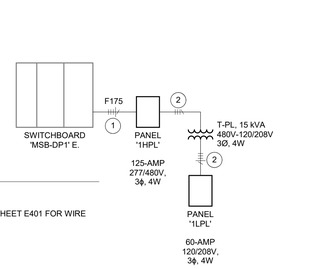
1. REFER TO DISTRIBUTION TRANSFORMER GROUNDING DETAIL.
2. CONDUCTOR SIZES ARE BASED ON THHN-THWN COPPER CONDUCTORS.

A TRANSFORMER GROUNDING DETAIL

SCALE: NONE

B GROUNDING DETAIL - BUS LOT PANELBOARDS

SCALE: NONE

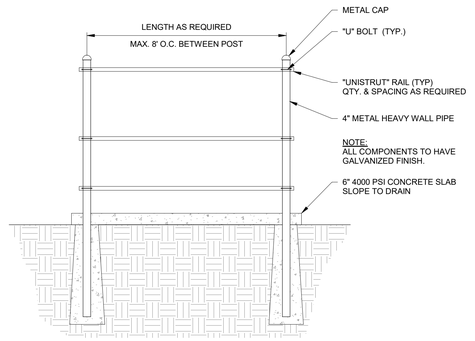


PLAN NOTES:

1. WIRING UPSIZED FOR VOLTAGE DROP.
2. SEE TRANSFORMER GROUNDING DETAIL ON SHEET E401 FOR WIRE AND CONDUIT SIZE.

F BUS LOT SINGLE-LINE DIAGRAM

SCALE: NONE



E TYPICAL EQUIPMENT SUPPORT RAIL

SCALE: NONE

1LPL	PANELBOARD SCHEDULE										
LOCATION :	SCCR (AMPS RMS SYMM): 35,000			SERVICE : 208Y/120V 3Φ 4-Wire+Ground			MAIN: MCB				
MOUNTING: SURFACE				NEMA: 3R			AMP: 50 A				

CKT	DESCRIPTION	NOTE	AMP	POLE	A	B	C	POLE	AMP	NOTE	DESCRIPTION	CKT
1	SPARE		20 A	1	0 / 0			1	20 A		SPARE	2
3	SPARE		20 A	1		0 / 0		1	20 A		SPARE	4
5	SPARE		20 A	1			0 / 0	1	20 A		SPARE	6
7	MUSCO LIGHTING - CONTROL CABINET		20 A	1	180 / 0			1	20 A		SPARE	8
9	NORTH RECEPT - BAND TOWER		20 A	1		360 / 0		1	20 A		SPARE	10
11	SOUTH RECEPT - BAND TOWER		20 A	1			360 / 0	1	20 A		SPARE	12
13	WEST RECEPT - BAND TOWER		20 A	1	360 / 0			1	20 A		SPARE	14
15	WEST RECEPT - BAND TOWER		20 A	1		360 / 0		1	20 A		SPARE	16
17	SPARE		20 A	1			0 / 0	1	20 A		SPARE	18
19	SPARE		20 A	1	0 / 0							20
21	SPARE		20 A	1		0 / 0		3	20 A		SURGE PROTECTION DEVICE (SPD)	22
23	SPARE		20 A	1			0 / 0					24
				TOTALS :	540 VA	720 VA	360 VA					

TOTAL CONNECTED LOAD (VA) : 1620 VA — TOTAL CONNECTED LOAD (AMPS) : 4 A

REMARKS:

NOTES:

1HPL	PANELBOARD SCHEDULE										
LOCATION :	SCCR (AMPS RMS SYMM): 35,000			SERVICE : 480Y/277V 3Φ 4-Wire+Ground			MAIN: MLO				
MOUNTING: SURFACE				NEMA: 3R			AMP: 125 A				

CKT	DESCRIPTION	NOTE	AMP	POLE	A	B	C	POLE	AMP	NOTE	DESCRIPTION	CKT
1	SPACE		--	1	0 / 0			1	--		SPACE	2
3	SPACE		--	1		0 / 0		1	--		SPACE	4
5	SPACE		--	1			0 / 0	1	--		SPACE	6
7	BAND PRACTICE - EAST POLES P1, P2, P3, P4		30 A	3	5756 / 2881							8
9						5756 / 2881		3	30 A		BUS LOT - EAST POLES P1, P4	10
11							5756 / 2881					12
13	BAND PRACTICE - WEST POLES P6, P7, P8, P9		30 A	3	6426 / 2881							14
15						6426 / 2881		3	30 A		BUS LOT - WEST POLES P6, P9	16
17							6426 / 2881					18
19	SPARE		30 A	3	0 / 0							20
21						0 / 0		3	30 A		SPARE	22
23							0 / 0					24
25	SPARE		30 A	3	0 / 0							26
27						0 / 0		3	30 A		SPARE	28
29							0 / 0					30
31	TRANSFORMER 'T-PL' PANELBOARD '1LPL'		30 A	3	540 / 0							32
33						720 / 0		3	20 A		SURGE PROTECTION DEVICE (SPD)	34
35							360 / 0					36
				TOTALS :	18484 VA	18664 VA	18304 VA					

TOTAL CONNECTED LOAD (VA) : 55452 VA — TOTAL CONNECTED LOAD (AMPS) : 67 A

REMARKS:

NOTES:

D&A #25051
R.E. Dimond and Associates, Inc.
Consulting Engineers
732 North Capitol Avenue
Indianapolis, IN 46204
Phone: (317) 634-4672
Fax: (317) 638-8725

Hamilton Southeastern Schools

CERTIFIED BY:
JOSEPH PAUL SOLTA REGISTERED No. 12200363 STATE OF INDIANA PROFESSIONAL ENGINEER
03/12/2026

REVISIONS:

NO.	DESCRIPTION	DATE
1	ADDENDUM #1	03/12/2026

PROJECT DESCRIPTION:
HAMILTON SOUTHEASTERN SCHOOLS
HAMILTON SOUTHEASTERN HIGH SCHOOL - BUS LOT IMPROVEMENTS
12499 OLIO ROAD
FISHERS, IN 46037

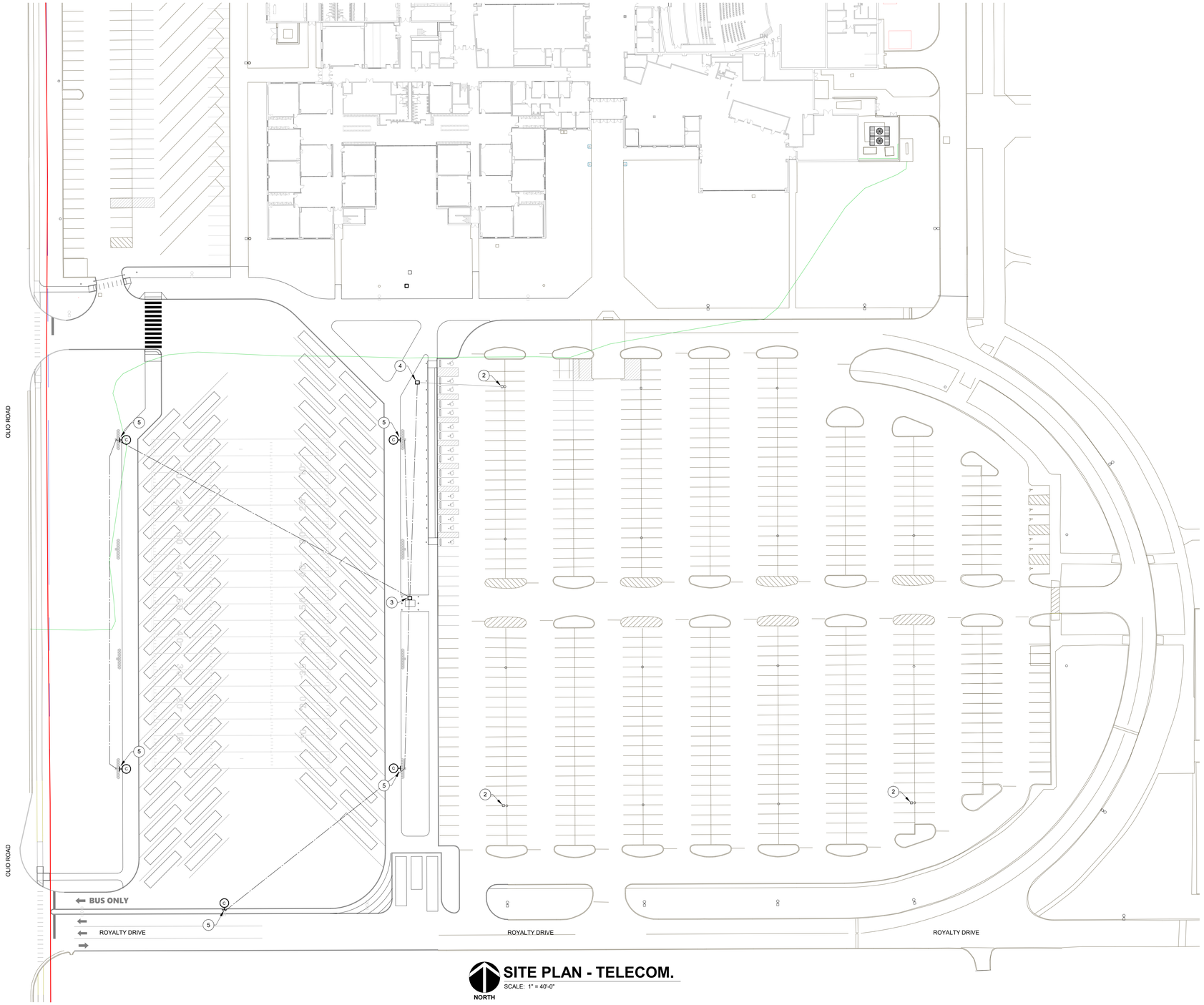
KEYPLAN

DRAWN BY: JPS	DESIGNED BY: JPS
SCALE: REFER TO DRAWING	CHECKED BY: DEW
DATE: 03/12/2026	JOB NO.: 25051

SHEET DESCRIPTION:
DETAILS AND SCHEDULES - ELECTRICAL

SHEET NUMBER:
E401

PRINTED ON: 3/11/2026 5:06:27 PM



SITE PLAN - TELECOM.

SCALE: 1" = 40'-0"

RENOVATION LEGEND:

- WORK TO BE INSTALLED
- WORK TO REMAIN

GENERAL NOTES:

1. SEE E-001 FOR GENERAL NOTES.

(#) PLAN NOTES:

1. EXISTING POLE LIGHT TO REMAIN.
2. EXISTING POLE MOUNTED FIBER DELIVERY POINT (FDP) FOR EXTERIOR CAMERAS TO REMAIN.
3. FIBER DELIVERY POINT (FDP) FOR NEW EXTERIOR POLE MOUNTED CAMERAS TO BE MOUNTED TO BAND TOWER. INTERCEPT CONDUIT AND EXTEND 2-INCH SCH. 40 PVC.
4. QUAZITE BOX (24"L, 36"W, 24" D).
5. 1-1/2-INCH SCH. 40 PVC CONDUIT. STUB UP IN BASE OF "SPORTSLIGHTING" POLE FOR SECURITY CAMERA CABLING. SECURITY CAMERA PROVIDED BY OWNER.

0 10 20 40 80 120 160
1 2 3 4

D&A #25051

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03/12/2026

REVISIONS:

NO.	DESCRIPTION	DATE
1	ADDENDUM #1	03/12/2026

PROJECT DESCRIPTION:

HAMILTON SOUTHEASTERN SCHOOLS
HAMILTON SOUTHEASTERN HIGH SCHOOL - BUS LOT IMPROVEMENTS
12499 OLIO ROAD
FISHERS, IN 46037

KEYPLAN

DRAWN BY:	DESIGNED BY:
JPS	JPS
SCALE: REFER TO DRAWING	CHECKED BY: DEW
DATE: 03/12/2026	JOB NO.: 25051

SHEET DESCRIPTION:

SITE PLAN - TELECOM.

SHEET NUMBER:

T100

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