

DOCUMENT 000101 - PROJECT TITLE PAGE

PROJECT MANUAL VOLUME 1 –

Linton-Stockton – Paving Projects

801 1st Street NE
Linton, Indiana

Architect Project No. 17-23



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END OF DOCUMENT 000101

COVER PAGE

INDEX

NOTICE TO BIDDERS (x4)

INSTRUCTIONS TO BIDDERS

BID FORM (x4)

AGREEMENT

GENERAL CONDITIONS

SUPPLEMENTARY GENERAL CONDITIONS AND SPECIAL CONDITIONS

FORM 96

G705- LIST OF SUBCONTRACTORS

GEO-TECH REPORT

DIVISION 00 – BIDDING AND CONTRACTING REQUIREMENTS

000101 PROJECT TITLE PAGE

000107 SEALS PAGE

000115 LIST OF DRAWING SHEETS (x4)

DIVISION 01 – GENERAL REQUIREMENTS

011000 SUMMARY

012500 SUBSTITUTION PROCEDURES

012600 CONTRACT MODIFICATION PROCEDURES

012900 PAYMENT PROCEDURES

014000 QUALITY REQUIREMENTS

015000 TEMPORARY FACILITIES AND CONTROLS

016000 PRODUCT REQUIREMENTS

017000 EXECUTION & CLOSEOUT PROCEDURES

DIVISION 03- CONCRETE

033000 CAST-IN-PLACE CONCRETE

DIVISION 31 – EARTHWORK

311000 SITE CLEARING

312000 EARTHMOVING (SITE)

312200 GRADING

312316 EXCAVATION

312316.13 TRENCHING

312323 BACKFILLING

DIVISION 32 – EXTERIOR IMPROVEMENTS

321216 ASPHALT PAVING

329200 TURF AND GRASSES

329202 RESTORATION OF SURFACES

END OF INDEX TO SPECIFICATIONS

NOTICE TO BIDDERS

Notice is hereby given that the Linton-Stockton School Corporation will receive sealed bids for the listed items. Said bids will be received until **2:00PM (local time) on Monday, April 16, 2018** at the administration office located at 801 1st Street NE, Linton, IN 47441 at which time bids will be publicly opened.

Linton-Stockton School Corporation - Sports Support Facility

801 1st Street NE, Linton IN 47441

1. Bid Package No.1- Site/Paving - Elementary Staff Parking Lot

Drawings & Specifications will be available on April 2, 2018 and may be obtained from:

- Myszak + Palmer Office - 903 Broadway Street, Vincennes IN 47591 (812)-886-0350 (Download)
- MACO -Evansville Blue - 600 Court Street, Evansville, IN 47708 (812) 464-8108 (Purchase)

A voluntary pre-bid meeting will be held at the administration building at 10:00 am on April 6, 2018. All bidders are encouraged to attend.

All bids must be submitted on prescribed State Board of Accounts Bid Form 96, which includes the completed execution of a non-collusion affidavit.

Bid Security: Bidders shall include with their bid, a bid deposit in the amount of 5% of the total bid in form of a bank draft, certified check, money order, or bid bond.

After an award has been made to the successful bidder(s), the bid securities will be returned within thirty (30) days. The bid security of the lowest acceptable bidder will be returned on request after the School Corporation has made an award to the successful bidder and if satisfactory Payment and Performance Bonds have been delivered to the Linton-Stockton School Corporation.

The successful bidder will be required to furnish a satisfactory Payment and Performance Bond in the sum equal to the full amount of the Contract.

The Linton-Stockton School Corporation reserves the right to reject any or all bids presented and waives technicalities as to procedures and to award a contract on the bid that, in its judgement, is the most advantageous to the Linton-Stockton School Corporation.

Please advertise April 2, 2018 and April 9, 2018.

NOTICE TO BIDDERS

Notice is hereby given that the Linton-Stockton School Corporation will receive sealed bids for the listed items. Said bids will be received until **2:00PM (local time) on Monday, April 16, 2018** at the administration office located at 801 1st Street NE, Linton, IN 47441 at which time bids will be publicly opened.

Linton-Stockton School Corporation - Sports Support Facility

801 1st Street NE, Linton IN 47441

1. Bid Package No.1- Site/Paving - North Parking Area

Drawings & Specifications will be available on April 2, 2018 and may be obtained from:

- Myszak + Palmer Office - 903 Broadway Street, Vincennes IN 47591 (812)-886-0350 (Download)
- MACO -Evansville Blue - 600 Court Street, Evansville, IN 47708 (812) 464-8108 (Purchase)

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After an award has been made to the successful bidder(s), the bid securities will be returned within thirty (30) days. The bid security of the lowest acceptable bidder will be returned on request after the School Corporation has made an award to the successful bidder and if satisfactory Payment and Performance Bonds have been delivered to the Linton-Stockton School Corporation.

The successful bidder will be required to furnish a satisfactory Payment and Performance Bond in the sum equal to the full amount of the Contract.

The Linton-Stockton School Corporation reserves the right to reject any or all bids presented and waives technicalities as to procedures and to award a contract on the bid that, in its judgement, is the most advantageous to the Linton-Stockton School Corporation.

Please advertise April 2, 2018 and April 9, 2018.

NOTICE TO BIDDERS

Notice is hereby given that the Linton-Stockton School Corporation will receive sealed bids for the listed items. Said bids will be received until **2:00PM (local time) on Monday, April 16, 2018** at the administration office located at 801 1st Street NE, Linton, IN 47441 at which time bids will be publicly opened.

Linton-Stockton School Corporation - Sports Support Facility

801 1st Street NE, Linton IN 47441

1. Bid Package No.1- Site/Paving - Senior Parking Lot

Drawings & Specifications will be available on April 2, 2018 and may be obtained from:

- Myszak + Palmer Office - 903 Broadway Street, Vincennes IN 47591 (812)-886-0350 (Download)
- MACO -Evansville Blue - 600 Court Street, Evansville, IN 47708 (812) 464-8108 (Purchase)

A voluntary pre-bid meeting will be held at the administration building at 10:00 am on April 6, 2018. All bidders are encouraged to attend.

All bids must be submitted on prescribed State Board of Accounts Bid Form 96, which includes the completed execution of a non-collusion affidavit.

Bid Security: Bidders shall include with their bid, a bid deposit in the amount of 5% of the total bid in form of a bank draft, certified check, money order, or bid bond.

After an award has been made to the successful bidder(s), the bid securities will be returned within thirty (30) days. The bid security of the lowest acceptable bidder will be returned on request after the School Corporation has made an award to the successful bidder and if satisfactory Payment and Performance Bonds have been delivered to the Linton-Stockton School Corporation.

The successful bidder will be required to furnish a satisfactory Payment and Performance Bond in the sum equal to the full amount of the Contract.

The Linton-Stockton School Corporation reserves the right to reject any or all bids presented and waives technicalities as to procedures and to award a contract on the bid that, in its judgement, is the most advantageous to the Linton-Stockton School Corporation.

Please advertise April 2, 2018 and April 9, 2018.

NOTICE TO BIDDERS

Notice is hereby given that the Linton-Stockton School Corporation will receive sealed bids for the listed items. Said bids will be received until **2:00PM (local time) on Monday, April 16, 2018** at the administration office located at 801 1st Street NE, Linton, IN 47441 at which time bids will be publicly opened.

Linton-Stockton School Corporation - Sports Support Facility

801 1st Street NE, Linton IN 47441

1. Bid Package No.1- Site/Paving - Tennis Softball Parking Lot

Drawings & Specifications will be available on April 2, 2018 and may be obtained from:

- Myszak + Palmer Office - 903 Broadway Street, Vincennes IN 47591 (812)-886-0350 (Download)
- MACO -Evansville Blue - 600 Court Street, Evansville, IN 47708 (812) 464-8108 (Purchase)

A voluntary pre-bid meeting will be held at the administration building at 10:00 am on April 6, 2018. All bidders are encouraged to attend.

All bids must be submitted on prescribed State Board of Accounts Bid Form 96, which includes the completed execution of a non-collusion affidavit.

Bid Security: Bidders shall include with their bid, a bid deposit in the amount of 5% of the total bid in form of a bank draft, certified check, money order, or bid bond.

After an award has been made to the successful bidder(s), the bid securities will be returned within thirty (30) days. The bid security of the lowest acceptable bidder will be returned on request after the School Corporation has made an award to the successful bidder and if satisfactory Payment and Performance Bonds have been delivered to the Linton-Stockton School Corporation.

The successful bidder will be required to furnish a satisfactory Payment and Performance Bond in the sum equal to the full amount of the Contract.

The Linton-Stockton School Corporation reserves the right to reject any or all bids presented and waives technicalities as to procedures and to award a contract on the bid that, in its judgement, is the most advantageous to the Linton-Stockton School Corporation.

Please advertise April 2, 2018 and April 9, 2018.

INSTRUCTIONS TO BIDDERS**GENERAL****A. Definitions and Communications**

1. All definitions set forth in the General Conditions of the Contract for Construction, AIA Document A201 are applicable to these Instructions to Bidders.
2. All communications for the administration of the contract shall be as set forth in the General Conditions and, in general, shall be through the Architect.

B. Bidding Documents

1. The bidding documents are the bidding and contract requirements, the specifications, the drawings and any addenda issued prior to receipt of bids.
2. Documents are on file and may be examined or obtained for bidding purposes as stated in the Notice to Bidders.
3. Documents used for bidding purposes shall remain the property of the Architect, and shall be returned to the Architect as stated in the Notice to Bidders.

C Addenda During Bidding

1. Any additional information required by the bidders, revisions in the work, changes or additions, discrepancies in the bidding documents, or clarifications will be in the form of addenda written and issued by the Architect to all prime bidders of record as of the date of such addenda.
2. All addenda issued prior to the time and date set for termination of bidding shall become a part of the bidding documents and bidders shall list by number and date on the form of proposal, all addenda which have been received by him prior to submittal of his bid. The lump sum proposal amount shall include all work described by all such addenda. It shall be the bidder's responsibility to determine that he has received all addenda, since no extra costs will be allowed by failure of the bidder to do so.
3. Any bidder in doubt as to the true meaning of any part of the bidding documents may submit, no later than ten (10) days prior to the date set for receipt of bids, a written request to the Architect for an interpretation thereof. All interpretations of the bidding documents will be made by an addendum. No addendums will be issued less than three days prior to bid.
4. No oral, telephonic, telegraphic or fax instructions of information shall be

binding on the Owner, Architect, or bidder unless confirmed by an addendum.

D. Substitutions and Approvals During Bidding

1. Whenever products or materials are specified as “Standards” or they are otherwise named, approval of other equal quality products shall be obtained by requesting in writing and presenting for evaluation, such product or material, to the Architect, no later than ten (10) days prior to date set for receipt of bids. Submittals circumventing the above time frame will not be processed. Substitutions will be considered from Prime Bidders only.
 - a. If approval is granted, product or material will be added by addendum.
 - b. No direct reply will be made to any requests for changes, but any requested changes approved by the Architect will be stated in an addendum issued to all Prime Bidders.
 - c. Issuance of bidding documents does not constitute approval of products, materials, or subcontractors.
2. Related requirements described elsewhere:
 - a. Section 016000, “Product Requirements.”

E. Bidder’s Representation

1. Each bidder, by making his bid, represents that he has read and understands the bidding documents.
2. Each bidder, by making his bid, represents that he has visited the site and familiarized himself with the local conditions under which the work is to be performed.
 - a. No additional costs of any type will be allowed by the failure of the bidder to avail himself of the privilege of a complete and thorough, on site inspection.
3. Each bidder, by making his bid, represents that he is properly licensed and has previous experience of the nature of the work he is bidding.

F. Bid Security

1. Provide bid security in the amount of five percent (5%) of bid, including all add alternates, made payable to the Owner. Security must be in the form of a Bid Bond AIA Document A310, and insurance company comparable form, or a certified check. Surety must be authorized to do business in the State of Indiana. Bid security shall be the bidder’s guarantee that said

bidder will, if a contract is awarded to said bidder, execute within ten (10) days of acceptance of his bid, a contract for the work bid upon.

- a. The bid securities (**certified checks only**) of all unsuccessful bidders will be returned promptly after an award has been made, or in the event that all bids are rejected. The bid security of the successful bidder will be returned when the contract is executed. If the successful Contractor refuses to enter into a Contract with the Owner he may have to forfeit his bid security.

G. Preparation of Bids

1. Bids shall be submitted in duplicate on the enclosed **Bid Forms and State Form 96**.
2. Bids shall be completely and correctly filled out using ink or typewriter, with signatures in ink.
 - a. Prices shall be stated both in figures and in writing and in the event of a discrepancy between the writing and the figures, the written amount shall govern.
3. Bids shall be signed personally by the Bidder, by a partner or a duly authorized officer for a corporation, and shall give the bidder's business address and telephone number.
 - a. Certified copies of resolutions or power of attorney authorizing the various individuals to sign the bid shall be enclosed with the bid.
4. Any interlineations, alteration, or erasure will be grounds for rejection of the bid. Bids shall contain no recapitulation of the work to be done.
5. Bids shall be based on the materials, construction, equipment and methods named or described in the specifications and on the drawings, and any addenda issued prior to receipt of bids.
6. Bids shall be accompanied by the following supplemental documents, all properly signed and notarized.
 - a. Bid Security
7. All bidders shall submit to the Owner, on AIA Form G805, a complete list of subcontractors, furnishing and/or installing materials and products specified on this project. The list shall be complete with names, addresses, city, state and zip codes. Failure to complete this list may result in the rejection of the bid.
8. No oral, telephonic, telegraphic or fax bids will be accepted.
9. Submission of voluntary alternate may be grounds for rejection of bid.

H. Bid Submittal

1. Proposals shall be sealed in an opaque envelope marked with the bidder's name and business address, and bearing the following caption:

Proposal for: Linton-Stockton Paving Projects

- a. ELEMENTARY STAFF PARKING LOT
 - a. Proposals shall be addressed and delivered to: 801 1st Street NE, Linton IN 47441
- b. NORTH PARKING LOT
 - a. Proposals shall be addressed and delivered to: 801 1st Street NE, Linton IN 47441
- c. SENIOR STAFF PARKING LOT
 - a. Proposals shall be addressed and delivered to: 801 1st Street NE, Linton IN 47441
- d. TENNIS/SOFTBALL STAFF PARKING LOT
 - a. Proposals shall be addressed and delivered to: 801 1st Street NE, Linton IN 47441

I. Modification of Bids

1. Modification of bids already submitted will be accepted by letter or telegram if received by the Owner prior to the date and hour set for receipt of bids.

J. Withdrawal of Bids

1. Bids may be withdrawn at any time prior to the scheduled time for receipt of bids.
 - a. Withdrawn bids may not be resubmitted.
 - b. Bids shall not be withdrawn for a period of sixty (60) days after the receipt of bids without the consent of the Owner.

K. Taxes, Permits, Inspections, Etc.

1. All bid amounts are not to include the cost of state and local taxes. The cost of all required permits and inspections as required by governing agencies shall be borne by the Contractor. The General Building Permit will be secured by the Contractor

L. Insurance

1. **Workers Compensation:** Statutory Limits as required by state of domicile. Employer's liability limits of \$500,000 each accident, \$500,000 disease each employee, \$500,000 disease policy limit.
If Workers Compensation and employers liability insurance is obtained through a self insured fund, state government, or an association, a certificate of insurance must be issued to owner.

General Liability: Limit of \$1,000,000 per occurrence and \$2,000,000 general aggregate, including products and completed operations.

Property: If the contractor brings tools, equipment, or materials on the property, evidence of property coverage must be provided to the owner.

Automobile Liability: If Contractor brings automobiles, trucks, or any other equipment that moves over roads, owner must have evidence of automobile coverage with a minimum of \$1,000,000 combined single limit covering bodily injury and property damage, and coverage for uninsured and under insured motorist for owned, hired, and non-owned automobiles.

Umbrella Liability: A minimum limit of \$1,000,000.

M. Non- Discrimination

Pursuant to IC-22-9-1-10 the contractor shall not discriminate against any employee or applicant for employment, to be employed in the performance of this contract.

N. Payment Bond

This project will require a Performance/Payment Bond per IC-36-1-12-13.1

O. Compliance with Indiana Code

All contractors shall comply with required Indiana Code requirements as required by the State of Indiana.

P. Notice of Award

Upon submittal of all required documentation a formal 'Notice of Award "shall be sent to the successful Bidder.

Q. Retainage

Retainage for this project shall be 5% until all work is satisfactorily completed.

R. Pre-Bid Meeting

A pre-bid meeting shall be held at the administrative building on April 6th 2018 at 10:00 pm, local time, for all interested bidders. Attendance is not mandatory but highly recommended.

S. Liquidated Damages

Liquidated damages of \$500.00 per calendar day may be assessed if construction is not complete by November 30,2018.

BID FORM FOR LUMP SUM CONTRACT

Proposal of _____
(hereinafter called the "Bidder"), a corporation organized and existing under the laws of the
State of _____, a partnership, or an individual doing business as _____
_____ (cross out two of the above) to Linton-Stockton
School Corporation (hereinafter called the "Owner").

TO: Linton – Stockton School Corporation

The Bidder, in compliance with your invitation for bids for the ELEMENTARY STAFF PARKING LOT, having examined the plans and specifications with related documents and the site of the proposed work, and being familiar with all of the conditions surrounding the construction of the proposed project, including the availability of materials and labor, hereby proposes to furnish all labor, materials, supplies, and supervision, and to set forth therein, and at the prices stated below. These prices are to cover all expenses incurred in performing the work required under the Contract Documents, of which this proposal is a part.

Bidder acknowledges receipt of the following addenda:

Addendum No.	Date
_____	_____
_____	_____
_____	_____
_____	_____

Bidder understands that the Owner reserves the right to reject any or all bids and to waive any informalities in bidding.

The bidder agrees that this bid shall be good and may not be withdrawn for a period of 60 calendar days after the scheduled closing time for receiving bids.

Upon receipt of written notice of the acceptance of this bid, Bidder will execute the final contract attached within 10 days.

The Contractor, and Subcontractors, if any, shall not discriminate against any employee, or applicant for employment, or any matter directly or indirectly related to employment, because of race, color, religion, sex, age, national origin or ancestry. Breach of this covenant may be regarded as a material breach of the contract.

All Subcontractors are subject to the approval of the Owner. Contractors must fill out completely the List of Subcontractors (AIA Form G805) included herein. Failure to submit this list may be cause for rejection of the bidder's proposal.

Respectfully submitted by:

(Signature & Title)

(Company Name)

(Address)

(Corporate Seal)

BID FORM FOR COMPLETE CONSTRUCTION

Bidder agrees to furnish all labor and materials as per plans, specifications, and related documents. Base bid to include all site and paving work for the Elementary Staff Parking Lot.

FOR THE SUM OF

_____ DOLLARS
(\$ _____)

NOTE: General Contractor must include form G805 "list of Subcontractors" with this bid form, or bid may be rejected.

BID FORM FOR LUMP SUM CONTRACT

Proposal of _____
(hereinafter called the "Bidder"), a corporation organized and existing under the laws of the
State of _____, a partnership, or an individual doing business as _____
_____ (cross out two of the above) to Linton-Stockton
School Corporation (hereinafter called the "Owner").

TO: Linton – Stockton School Corporation

The Bidder, in compliance with your invitation for bids for the **NORTH PARKING LOT**, having examined the plans and specifications with related documents and the site of the proposed work, and being familiar with all of the conditions surrounding the construction of the proposed project, including the availability of materials and labor, hereby proposes to furnish all labor, materials, supplies, and supervision, and to set forth therein, and at the prices stated below. These prices are to cover all expenses incurred in performing the work required under the Contract Documents, of which this proposal is a part.

Bidder acknowledges receipt of the following addenda:

Addendum No.	Date
_____	_____
_____	_____
_____	_____
_____	_____

Bidder understands that the Owner reserves the right to reject any or all bids and to waive any informalities in bidding.

The bidder agrees that this bid shall be good and may not be withdrawn for a period of 60 calendar days after the scheduled closing time for receiving bids.

Upon receipt of written notice of the acceptance of this bid, Bidder will execute the final contract attached within 10 days.

The Contractor, and Subcontractors, if any, shall not discriminate against any employee, or applicant for employment, or any matter directly or indirectly related to employment, because of race, color, religion, sex, age, national origin or ancestry. Breach of this covenant may be regarded as a material breach of the contract.

All Subcontractors are subject to the approval of the Owner. Contractors must fill out completely the List of Subcontractors (AIA Form G805) included herein. Failure to submit this list may be cause for rejection of the bidder's proposal.

Respectfully submitted by:

(Signature & Title)

(Company Name)

(Address)

(Corporate Seal)

BID FORM FOR COMPLETE CONSTRUCTION

Bidder agrees to furnish all labor and materials as per plans, specifications, and related documents. Base bid to include all site and paving work for the North Parking Lot.

FOR THE SUM OF

_____ DOLLARS
(\$ _____)

NOTE: General Contractor must include form G805 "list of Subcontractors" with this bid form, or bid may be rejected.

BID FORM FOR LUMP SUM CONTRACT

Proposal of _____
(hereinafter called the "Bidder"), a corporation organized and existing under the laws of the
State of _____, a partnership, or an individual doing business as _____
_____ (cross out two of the above) to Linton-Stockton
School Corporation (hereinafter called the "Owner").

TO: Linton – Stockton School Corporation

The Bidder, in compliance with your invitation for bids for the **SENIOR PARKING LOT**, having examined the plans and specifications with related documents and the site of the proposed work, and being familiar with all of the conditions surrounding the construction of the proposed project, including the availability of materials and labor, hereby proposes to furnish all labor, materials, supplies, and supervision, and to set forth therein, and at the prices stated below. These prices are to cover all expenses incurred in performing the work required under the Contract Documents, of which this proposal is a part.

Bidder acknowledges receipt of the following addenda:

Addendum No.	Date
_____	_____
_____	_____
_____	_____
_____	_____

Bidder understands that the Owner reserves the right to reject any or all bids and to waive any informalities in bidding.

The bidder agrees that this bid shall be good and may not be withdrawn for a period of 60 calendar days after the scheduled closing time for receiving bids.

Upon receipt of written notice of the acceptance of this bid, Bidder will execute the final contract attached within 10 days.

The Contractor, and Subcontractors, if any, shall not discriminate against any employee, or applicant for employment, or any matter directly or indirectly related to employment, because of race, color, religion, sex, age, national origin or ancestry. Breach of this covenant may be regarded as a material breach of the contract.

All Subcontractors are subject to the approval of the Owner. Contractors must fill out completely the List of Subcontractors (AIA Form G805) included herein. Failure to submit this list may be cause for rejection of the bidder's proposal.

Respectfully submitted by:

(Signature & Title)

(Company Name)

(Address)

(Corporate Seal)

BID FORM FOR COMPLETE CONSTRUCTION

Bidder agrees to furnish all labor and materials as per plans, specifications, and related documents. Base bid to include all site and paving work for the Senior Parking Lot.

FOR THE SUM OF

_____ DOLLARS
(\$ _____)

NOTE: General Contractor must include form G805 "list of Subcontractors" with this bid form, or bid may be rejected.

BID FORM FOR LUMP SUM CONTRACT

Proposal of _____
(hereinafter called the "Bidder"), a corporation organized and existing under the laws of the
State of _____, a partnership, or an individual doing business as _____
_____ (cross out two of the above) to Linton-Stockton
School Corporation (hereinafter called the "Owner").

TO: Linton – Stockton School Corporation

The Bidder, in compliance with your invitation for bids for the **TENNIS/SOFTBALL PARKING LOT**, having examined the plans and specifications with related documents and the site of the proposed work, and being familiar with all of the conditions surrounding the construction of the proposed project, including the availability of materials and labor, hereby proposes to furnish all labor, materials, supplies, and supervision, and to set forth therein, and at the prices stated below. These prices are to cover all expenses incurred in performing the work required under the Contract Documents, of which this proposal is a part.

Bidder acknowledges receipt of the following addenda:

Addendum No.	Date
_____	_____
_____	_____
_____	_____
_____	_____

Bidder understands that the Owner reserves the right to reject any or all bids and to waive any informalities in bidding.

The bidder agrees that this bid shall be good and may not be withdrawn for a period of 60 calendar days after the scheduled closing time for receiving bids.

Upon receipt of written notice of the acceptance of this bid, Bidder will execute the final contract attached within 10 days.

The Contractor, and Subcontractors, if any, shall not discriminate against any employee, or applicant for employment, or any matter directly or indirectly related to employment, because of race, color, religion, sex, age, national origin or ancestry. Breach of this covenant may be regarded as a material breach of the contract.

All Subcontractors are subject to the approval of the Owner. Contractors must fill out completely the List of Subcontractors (AIA Form G805) included herein. Failure to submit this list may be cause for rejection of the bidder's proposal.

Respectfully submitted by:

(Signature & Title)

(Company Name)

(Address)

(Corporate Seal)

BID FORM FOR COMPLETE CONSTRUCTION

Bidder agrees to furnish all labor and materials as per plans, specifications, and related documents. Base bid to include all site and paving work for the Tennis/Softball Parking Lot.

FOR THE SUM OF

_____ DOLLARS
(\$_____)

NOTE: General Contractor must include form G805 "list of Subcontractors" with this bid form, or bid may be rejected.

AGREEMENT

I. GENERAL

A. Description

1. The Agreement shall be the Standard Form of Agreement Between Owner and Contractor, AIA Document A101, 2017 Edition, a copy of which is on file and may be examined at the offices of the Owner and the Architect, and which when executed, will become a part of the successful bidder.

GENERAL CONDITIONS

I. GENERAL

A. Description

1. The General Conditions for this project are the “General Conditions of the Contract for Construction”, AIA Document A201, 1997 Edition. A copy of which is included by reference.

**SUPPLEMENTAL GENERAL CONDITIONS
AND SPECIAL CONDITIONS****1. CONTRACTOR'S AND SUBCONTRACTOR'S PUBLIC LIABILITY, VEHICLE LIABILITY AND PROPERTY DAMAGE INSURANCE**

As required under Article 11 of the General Conditions, the Contractor's Public Liability Insurance and Vehicle Liability Insurance shall be in an amount not less than \$1,000,000 for injuries, including accidental death, to any one person, in an amount not less than \$1,000,000 on account of one accident, and Contractor's Property Damage Insurance in an amount not less than \$1,000,000.

The Contractor shall either (1) require each of his subcontractors to procure and to maintain during the life of his subcontract, Subcontractor's Public Liability and Property Damage of the type and in the same amount as specified in the preceding paragraph, or (2) insure the activities of his subcontractors in his own policy.

2. BUILDERS RISK INSURANCE

Builders' Risk Insurance shall be provided by the Owner.

3. CONNECTION TO OTHER WORK

The contractor shall verify all utility companies' policies regarding meter installations., taps, etc. and shall be responsible for making all arrangements and scheduling of work in conjunction with said connection. They shall, unless otherwise noted, assume all costs arising for this connection, of their portion of said work.

4. PREPARATION OF WORK

The Owner does not in any way agree to prepare the building or site for the reception of the Contractor's work further than is specifically mentioned in the Specifications. Each Contractor shall bear full responsibility for the expense of cutting, repairing, excavating, backfilling, etc., necessary for installing the work on the premises or in the cutting, fitting, and patching required in attaching it to the same, except in circumstances as may be provided in the Contract Documents.

5. PROTECTION OF WORK

Each Contractor shall assume full responsibility for protection of his work until acceptance by the Owner. He shall also take all precautions to prevent damage to existing equipment, property or structures which might be caused by him. In cases where items are damaged, removed, or disturbed by the Contractor, they shall be replaced, repaired, or compensated for in a manner approved by the Architect.

7. QUALITY OF MATERIAL

All material shall be new unless specified or noted otherwise.

8. SAFETY

The General Contractor shall be responsible in enforcing safety precautions and shall provide all barricades, signs, lights, and other necessary safeguards.

9. ESSENTIAL ITEMS

Should an item that is essential to the intent of the Contract be omitted from the Plans and Specifications, it shall be called to the Architect/Engineer's attention prior to submission of the Contractor's bid. Failure to do so shall not relieve the Contractor from fulfilling the intent of the Contract.

10. CONFLICTS AND DISCREPANCIES

Should any discrepancies, omissions, ambiguities, or conflicts be discovered, they shall be brought to the attention of the Architect/Engineer for interpretation or clarification. Unless otherwise clarified, the larger quantity and/or better-quality material shall be furnished.

It is the intent of the Contract Documents (plans, specifications, general conditions, special and supplemental conditions, addenda, etc.) that all individual elements of said documents are to be used to the collective end that a beneficial project shall be constructed for the Owner. No one individual part or section of the Contract documents shall have controlling authority over the others. All interpretations shall be made by the Architect/Engineer.

11. SUBSTITUTION

Should a substitution of equipment or material be desired by the Contractor, he must receive written approval 10 days prior to bidding from the Architect. He shall be held responsible for the completeness of the equipment, its proper fit in available space, and any change required in other contracts.

12. WARRANTIES

Each bidder is hereby notified that upon being awarded a construction contract, the Contractor shall provide to the Owner in writing, a one-year warranty on all materials and labor. The one-year warranty term shall begin with the date of established substantial completion.

Any product warranty extending beyond this period shall be honored by the Contractor. Contractor shall provide the labor required to install such products for the duration of the product warranty.

13. Americans with Disabilities Act

The Americans with Disabilities Act (ADA) (42 U.S.C. 12101] et. seq.) and the regulations thereunder (28 CFR 35.130) prohibit discrimination against persons with disabilities by the State, whether directly or through contractual arrangements, in the provisions of any aid, benefit or service.

14. Lien Waiver

Construction shall be monitored to assure that necessary contractor's affidavits and waivers of mechanics liens are obtained prior to release of funds to contractors and subcontractors.

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ARCHITECTURE • DEVELOPMENT

Form No. 96 (Revised 2005)

Form No. 96 (Revised 2005)

BID OF

(Contractor Name)

(Address)

FOR
PUBLIC WORKS PROJECTS
OF

Filed: _____, _____

Action taken:

CONTRACTOR'S BID FOR PUBLIC WORK – FORM 96

PART I

(To be completed for all bids. Please type or print)

Date: _____

1. Governmental Unit (Owner): _____

2. County : _____

3. Bidder (Firm): _____

Address: _____

City/State: _____

4. Telephone Number: _____

5. Agent of Bidder (if applicable): _____

Pursuant to notices given, the undersigned offers to furnish labor and/or material necessary to complete the public works project of _____

(Governmental Unit) in accordance with plans and specifications prepared by _____

_____ and dated _____ for the sum of

_____ \$ _____

The undersigned further agrees to furnish a bond or certified check with this bid for an amount specified in the notice of the letting. If alternative bids apply, the undersigned submits a proposal for each in accordance with the notice. Any addendums attached will be specifically referenced at the applicable page.

If additional units of material included in the contract are needed, the cost of units must be the same as that shown in the original contract if accepted by the governmental unit. If the bid is to be awarded on a unit basis, the itemization of the units shall be shown on a separate attachment.

The contractor and his subcontractors, if any, shall not discriminate against or intimidate any employee, or applicant for employment, to be employed in the performance of this contract, with respect to any matter directly or indirectly related to employment because of race, religion, color, sex, national origin or ancestry. Breach of this covenant may be regarded as a material breach of the contract.

CERTIFICATION OF USE OF UNITED STATES STEEL PRODUCTS

(If applicable)

I, the undersigned bidder or agent as a contractor on a public works project, understand my statutory obligation to use steel products made in the United States (I.C. 5-16-8-2). I hereby certify that I and all subcontractors employed by me for this project will use U.S. steel products on this project if awarded. I understand that violations hereunder may result in forfeiture of contractual payments.

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Form No. 96 (Revised 2005)

ACCEPTANCE

The above bid is accepted this _____ day of __, _____ subject to the following conditions: _____

Contracting Authority Members:

_____	_____
_____	_____
_____	_____

PART II

(For projects of \$100,000 or more – IC 36-1-12-4)

Governmental Unit: _____

Bidder (Firm) _____

Date: _____

These statements to be submitted under oath by each bidder with and as a part of his bid. Attach additional pages for each section as needed.

SECTION I EXPERIENCE QUESTIONNAIRE

1. What public works projects has your organization completed for the period of one (1) year prior to the date of the current bid?

Contract Amount	Class of Work	Completion Date	Name and Address of Owner

2. What public works projects are now in process of construction by your organization?

Contract Amount	Class of Work	Expected Completion Date	Name and Address of Owner

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3. Have you ever failed to complete any work awarded to you? _____ If so, where and why?

4. List references from private firms for which you have performed work.

SECTION II PLAN AND EQUIPMENT QUESTIONNAIRE

1. Explain your plan or layout for performing proposed work. (Examples could include a narrative of when you could begin work, complete the project, number of workers, etc. and any other information which you believe would enable the governmental unit to consider your bid.)
2. Please list the names and addresses of all subcontractors (i.e. persons or firms outside your own firm who have performed part of the work) that you have used on public works projects during the past five (5) years along with a brief description of the work done by each subcontractor.
3. If you intend to sublet any portion of the work, state the name and address of each subcontractor, equipment to be used by the subcontractor, and whether you will require a bond. However, if you are unable to currently provide a listing, please understand a listing must be provided prior to contract approval. Until the completion of the proposed project, you are under a continuing obligation to immediately notify the governmental unit in the event that you subsequently determine that you will use a subcontractor on the proposed project.
4. What equipment do you have available to use for the proposed project? Any equipment to be used by subcontractors may also be required to be listed by the governmental unit.
5. Have you entered into contracts or received offers for all materials which substantiate the prices used in preparing your proposal? If not, please explain the rationale used which would corroborate the prices listed.

SECTION III CONTRACTOR'S FINANCIAL STATEMENT

Attachment of bidder's financial statement is mandatory. Any bid submitted without said financial statement as required by statute shall thereby be rendered invalid. The financial statement provided hereunder to the governing body awarding the contract must be specific enough in detail so that said governing body can make a proper determination of the bidder's capability for completing the project if awarded.

Form No. 96 (Revised 2005)

SECTION IV CONTRACTOR'S NON – COLLUSION AFFIDAVIT

The undersigned bidder or agent, being duly sworn on oath, says that he has not, nor has any other member, representative, or agent of the firm, company, corporation or partnership represented by him, entered into any combination, collusion or agreement with any person relative to the price to be bid by anyone at such letting nor to prevent any person from bidding nor to include anyone to refrain from bidding, and that this bid is made without reference to any other bid and without any agreement, understanding or combination with any other person in reference to such bidding.

He further says that no person or persons, firms, or corporation has, have or will receive directly or indirectly, any rebate, fee, gift, commission or thing of value on account of such sale.

SECTION V OATH AND AFFIRMATION

I HEREBY AFFIRM UNDER THE PENALTIES FOR PERJURY THAT THE FACTS AND INFORMATION CONTAINED IN THE FOREGOING BID FOR PUBLIC WORKS ARE TRUE AND CORRECT.

Dated at _____ this _____ day of _____, _____

(Name of Organization)

By _____
(Title of Person Signing)

ACKNOWLEDGEMENT

STATE OF _____)
) ss
COUNTY OF _____)

Before me, a Notary Public, personally appeared the above-named _____ and
swore that the statements contained in the foregoing document are true and correct.

Subscribed and sworn to before me this _____ day of _____, _____.

Notary Public

My Commission Expires: _____

County of Residence: _____



AIA[®] Document G705[™] – 2001

List of Subcontractors

PROJECT: *(Name and address)*

DATE:

TO ARCHITECT: *(Name and address)*

ARCHITECT'S PROJECT NUMBER:

FROM CONTRACTOR: *(Name and address)*

CONTRACTOR'S PROJECT NUMBER:

(List Subcontractors and others proposed to be employed on the above Project as required by the bidding documents.)

Work/Firm Name

Address/Phone

Superintendent



**ENGINEERS •
DRILLERS**



GEOTECHNICAL STUDY

**PROJECT NAME:
NEW SPORTS
SUPPORT FACILITY**

**PROJECT ADDRESS:
10 "H" STREET NORTHEAST
LINTON, IN 47441**

PREPARED FOR:

**LINTON-STOCKTON
SCHOOL CORPORATION
801 1st. STREET NORTHEAST
LINTON, IN 47441**

PREPARED BY:

**NOBLE ENGINEERING
CONSULTANTS
123 EAST RAILROAD
STREET FLORA, IL 62839
(618) 662-5800**

JANUARY 09, 2017



123 E. Railroad St. Flora, IL 62839

Ph: 618-662-5800 www.nbleng.com

Linton-Stockton School Corp.
801 1st Street NE
Linton, IN 47441

Attn: Mr. Nick Karazsia, Superintendent

JANUARY 9, 2017

RE: GEOTECHNICAL EXPLORATION REPORT
PROPOSED NEW SPORTS SUPPORT FACILITY
10 "H" STREET NORTHEAST
LINTON, IN 47441

Dear Mr. Karazsia:

We have completed the geotechnical exploration for the proposed sports support facility at 10 "H" Street NE Linton, IN. The purpose of this study was to obtain soil information from the site and provide recommendations pertinent to the design and construction of the proposed structure. This report presents the results of our field exploration, laboratory testing, foundation recommendations and construction considerations.

We appreciate the opportunity to provide professional geotechnical engineering services during this phase of your project. Please contact me with any questions.

Respectfully,

Noble Engineering Consultants

Eric E. Seals, P.E.

President

1. PROJECT DESCRIPTION

1.1 INTRODUCTION

We understand the project consists of a proposed single story concrete masonry block with approximately 7,500 sf in plan area. There are no below grade walls planned for the project.

We further understand that three separate paved areas are planned.

1.2 SCOPE OF SERVICES

1. The performance of two soil borings up to 15 feet below existing grade at the proposed building location and five soil borings up to 10 feet below existing grade at the proposed paved areas.
2. The performance of basic laboratory tests as required to classify soil.
3. Perform an engineering analysis of the subsurface conditions as related to the design and construction of the proposed structure.
4. Provide a written geotechnical report to include the following:
 - Subsurface profile presented in 8 ½" by 11" boring log format
 - Summary of field and laboratory testing results
 - Recommended building foundation type including soil properties, allowable soil bearing pressures, estimated differential and total settlement and anticipated bearing depths for foundation design. Below grade wall recommendations
 - Earthwork aspects of foundation construction

The report has been prepared under the direction of a Registered Professional Engineer in the state of Indiana in accordance with generally accepted standards and procedures in the practice of geotechnical engineering. In the event of changes in the design or location of the structure, or in the concept of the project, the conclusions and recommendations contained in this report shall not be considered valid unless the changes are reviewed, and the conclusions and recommendation are modified or confirmed in writing by Noble Engineering Consultants.

2. PROCEDURES

2.1 FIELD EXPLORATION

The number, location and depth of the borings for this study were determined by Myszak & Palmer in conjunction with Noble Engineering Consultants. The borings were located in the field by Noble Engineering. The field exploration was conducted by Noble Engineering Consultants on December 26, 2017. The approximate boring locations are shown on the boring location plan included as Figure 1.

The soil borings were performed with a truck mounted rotary type drill rig using 2-1/4" ID continuous flight hollow stem augers to advance the boreholes to sampling depths. Representative soil samples were obtained by means of the split barrel sampling procedures at 2½ foot intervals in the upper 10 feet and at 5 foot intervals to the boring termination, in general conformance with ASTM Standard D1586. The number of blows required to drive the sampler 12 inches with a 140 pound hammer falling 30 inches, after an initial seating of 6 inches, is termed the Standard Penetration Test (N) value. The N-values are recorded on the attached boring logs.



Image 1: View of boring B-2

Water level observations and measurements were made in the boreholes during, and at completion of the drilling operations. The water level observations are shown on the respective boring logs. The samples collected from the split barrel sampling procedures were placed in sealed bags and subsequently delivered to our laboratory for further testing and classification.

During the field operation, the drill crew maintained a log of the subsurface conditions, including changes in stratigraphy and observed groundwater level information. After completion of the drilling operations and obtaining the necessary groundwater information, the boreholes were backfilled with soil cuttings.

2.2 LABORATORY TESTING

The laboratory testing program included visual engineering classification of the recovered samples and hand penetrometer tests on representative soil samples. The soil samples were visually classified by a geotechnical engineer based upon texture and plasticity in general conformance with the Unified Soil Classification System. The results of the laboratory tests are indicated on the boring logs at the depth the samples were obtained. The boring logs are attached to this report.

In the hand penetrometer test, the unconfined compressive strength (Q_p) of a soil sample is estimated to the nearest $\frac{1}{4}$ ton per square foot (tsf) by measuring the resistance to the soil sample to penetration by a small, calibrated, spring loaded cylinder. The maximum limit of the hand penetrometer is $4\frac{1}{2}$ tons per square foot (tsf); values above this are designated $4\frac{1}{2}+$ tsf.

A geotechnical engineer grouped the various soil types into major zones noted on the boring logs. For more detail regarding the soil conditions at a particular location, please refer to the individual boring logs.

3. RESULTS

3.1 SITE CONDITIONS

The property in the area of the site consists of an existing lawn and crushed rock surfaced areas for the proposed paved areas. Surface water runoff direction was not apparent but appeared to slope away from the project areas except the area of B-1 which contained ice. The areas traversed by the rig indicate the surface condition across the site is mostly firm, however the subgrade was likely frozen at the time of our exploration.

3.2 SOIL CONDITIONS

The subsurface investigation consisted of the drilling of seven test borings designated as B-1 through B-7. The surface consisted of about 4 inches of topsoil or about 0.8 to 1.4 feet of crushed rock. Stiff to very stiff silty clay was generally encountered below the surface materials except at B-2 and B-3 which contained possible fill to about 1.5 feet below existing grade and boring B-7 which encountered fill to about 4 feet below existing grade. Boring B-6 contained possible fill to about 4 feet.

The silty clay had an average N value of 11 blows per foot (bpf) and had an estimated unconfined compressive strength ranging from 1.0 to 2.1 tons per square foot (tsf).

The soils were primarily brown mottled gray and the silt clay soils are classified as CL. The soils classification is determined by the Unified Soil Classification system, a classification chart is attached to this report.

3.3 GROUNDWATER CONDITIONS

Groundwater level observations were made while drilling and at completion at each boring. Groundwater was not encountered during or at the completion of the drilling operations. Dry borehole cave occurred at the completion of drilling.

Due to the relatively short period of time the borehole remained open, the water level observations in the borehole may not be representative of the groundwater level at the site.

We estimate the long-term groundwater level is at or below our explored depth.

The prevailing hydrostatic groundwater level should be expected to fluctuate throughout the years, based on variations in precipitation, evaporation, surface run-off and other related hydrogeological factors. The groundwater levels discussed herein, and indicated on the boring log; represent the conditions at the time the measurements were obtained. Please refer to the Construction Considerations section in this report for recommendations for handling groundwater during construction.

4. ANALYSES AND RECOMMENDATIONS

Based on the soil boring information obtained during this exploration and our understanding of the proposed construction as mentioned in this report, we present the following geotechnical recommendations related to construction of the proposed structure. Our analysis has resulted in recommendations which are discussed in the following sections. If any of our assumptions or understandings are not correct, or if conditions during construction are observed to be significantly different than those encountered during the site exploration, we should be contacted immediately, so we may re-evaluate our recommendations, as necessary.

4.1 Engineered Fill Placement and Compaction

Engineered fill placed beneath the building area should be placed in lifts not exceeding 9-inches in loose thickness and be compacted to a minimum of 95 percent maximum dry density as determined in accordance with the Modified Proctor Method, ASTM D1557.

Engineered fill placed for general site grading should consist of suitable material, defined herein as an approved, environmentally clean material, free of lumps, frozen soil, wood, topsoil or other deleterious material, with a maximum particle size of 6-inches.

Based on the available soil boring information, it appears the existing near surface soils could contain fill, therefore we recommend the onsite soils not be used as engineered fill. We recommend engineered fill be imported and the onsite soils be used only in landscape areas.

We recommend the engineered fill soils be placed at moisture contents within 2 percent of the optimum moisture content as determined in accordance with Modified Proctor Method.

Fill placed for general site grading, and not under or within the influence of any structures or roads, may be onsite soils. Fill in these general site grading areas need only be compacted to the degree it is stable under construction equipment.

4.2 FOUNDATIONS

We understand shallow spread footings are planned to support the proposed structure. The soils encountered at the expected bearing elevation are classified as very stiff to stiff silty clay. We recommend a seismic site classification of "D" be used for this site. The following recommendations are given for the foundation systems.

4.2.1 Shallow Spread Footings

Spread footing type foundations are recommended for support of the proposed structure. The footings should be constructed **through any fill and bear on the stiff to very stiff silty clay soils.** We anticipate suitable bearing soil to be encountered at the design frost depth of 30 inches below existing grade.

We recommend an allowable soil bearing pressure of 2,900 psf be used to size the foundations bearing on stiff to very stiff silty clay. We anticipate total settlement to be less than 1" with differential settlement of about half the total settlement.

Exterior footings should extend to at least 30" below finished exterior grades for frost protection. The footing excavations should be excavated to neat lines with concrete being placed directly against cut faces. Care should be taken to excavate the foundation sidewalls vertical to reduce the likelihood of frost heave of the foundation along outward sloping foundation walls. The specifications should require concrete placement on the same day that footing excavations are made, in order to maintain the natural moisture content of the bearing soil.

4.2.3 Slab-On-Grade Construction

For the design and construction of slabs-on-grade for the proposed structures, **we recommend any fill, unstable, loose, soft or organic materials revealed during stripping and proofrolling be removed.** Over excavated areas must be replaced with engineered fill as discussed in section 4.1. All slab-on-grade areas should be thoroughly compacted with a compactor prior to slab construction.

After subgrade preparation has been completed, we recommend a minimum of 6 inches of free draining, granular fill material with less than 5% passing the No. 200 sieve, be placed below the slab-on-grade to act as a capillary cutoff and facilitate fine grading. A vapor barrier should also be used below the floor slab. For proper subgrade preparation we recommend a modulus of subgrade reaction (K) equal to 125 pci be used in design.

The considerations regarding proper slab finishing and curing and its effects on slab curling as discussed in ACI 302 should be reviewed and conveyed to the contractor. The slab-on-grade should be isolated from the foundation elements so as not to induce shear cracks due to settlement of the foundations.

4.3 **PAVEMENTS**

Fill was encountered at some of the proposed pavement boring locations. The fill materials did not appear to be deleterious however, placing any structure including paved areas on uncontrolled fill is at risk to excessive settlement. We recommend the fill encountered in these areas be removed and replaced with compacted engineered fill.

The following pavement sections are considered typical for the general area and are not based upon specific California Bearing Ratio test results or specific soil sampling. Site specific loading conditions or traffic patterns were not provided for our analysis.

Two pavement section alternatives have been provided and are labeled light duty and heavy duty. The light duty would consist of typical automobile traffic while heavy duty would consist of typical automobile traffic as well as limited heavy truck traffic such as delivery trucks, buses and waste removal trucks.

Material	Light Duty Section	Heavy Duty Section
Asphalt Surface(inches)	1 ½	1½
Asphalt Binder (inches)	1½	2
Aggregate Base (inches)	6	9
Concrete (inches)	5	7
Base for Concrete (inches)	6	6

4.4 CONSTRUCTION CONSIDERATIONS

We recommend that the site work be performed during the summer months following a warm and dry period to reduce the possibility of undercutting and replacement. We recommend all site preparation, including the work of stripping, backfilling, proofrolling, engineered fill placement and foundation excavations prior to placement of concrete on this site should be observed by a Noble representative performing an appropriate number and type of tests, to verify the work is being performed as recommended and according to the project construction documents. All soils that become loosened or softened in the subgrade or foundation excavation areas should be removed prior to placing concrete or engineered fill.

We do not anticipate groundwater will be encountered in the foundation excavations for this project. However, perched water may be encountered and we recommend the contractor be prepared to handle such limited water conditions. Surface drainage control for the proposed construction can likely be achieved through the use of localized dewatering, such as a sump and pump system. If the soils encountered at the excavation depth are wet or saturated, a layer of crushed aggregate may need to be placed to allow for a stable bottom. Engineered fill should not be placed on wet soils.

Accumulation or runoff water at the base of foundation excavations or areas receiving compacted fill should be promptly removed. Concrete should be placed shortly after foundations bearing surfaces are prepared and compacted. Exposure can cause loosening of the bearing soils.

5. GENERAL COMMENTS

This report has been prepared in accordance with generally accepted geotechnical engineering practices to aid in the evaluation of this property and to assist the engineer in the design of this project. In the event of changes in the design criteria or location of the structures, the conclusions and recommendations contained in this report shall not be considered valid unless the changes are reviewed and the conclusions of this report are modified or approved in writing by our office.

The analyses and recommendations submitted in this report are based upon the data obtained from the soil borings performed within the proposed building area at the approximate locations indicated on the appended soil boring location plan. This report does not reflect variations which may occur between the borings and the actual structure locations. The nature and extent of variations may not become evident until the time of construction. If significant variations then become evident, it may be necessary for us to re-evaluate the recommendations of this report. We recommend that the contractor specifications include the following phrase.

"The contractor will, upon becoming aware of subsurface or latent physical conditions differing from those disclosed by the original soil exploration work, promptly notify the owner verbally to permit verification of the conditions, and in writing, as to the nature of the differing conditions. No claim by the contractor for any conditions differing from those anticipated in the plans and specifications and disclosed by the soil studies will be allowed unless the contractor has so notified the owner, verbally and in writing, as required above, of such differing conditions."

In the process of obtaining and testing samples and preparing this report, procedures are followed that represent reasonably accepted practice in the field of soil and foundation engineering. Specifically, field logs are prepared during the drilling and sampling operations that describe field occurrences, sampling, locations, and other information. However, the samples obtained in the field are frequently subjected to testing and reclassification in the laboratory and differences may exist between the field logs and final logs. Our recommendations are based upon the content of the final logs and the information contained herein. This report does not address any environmental concerns.

This report has been prepared for the exclusive use of Linton-Stockton School Corporation for the specific application to the proposed sports support facility construction to be located at 10 "H" Street NE Linton, IN 47441.

We trust this report will allow you to proceed with design of the proposed foundations.

Sincerely,

NOBLE ENGINEERING CONSULTANTS

Eric E. Seals, P.E.

President



Attachments:

Boring Location Plan, Figure 1

Site Map, Figure 2

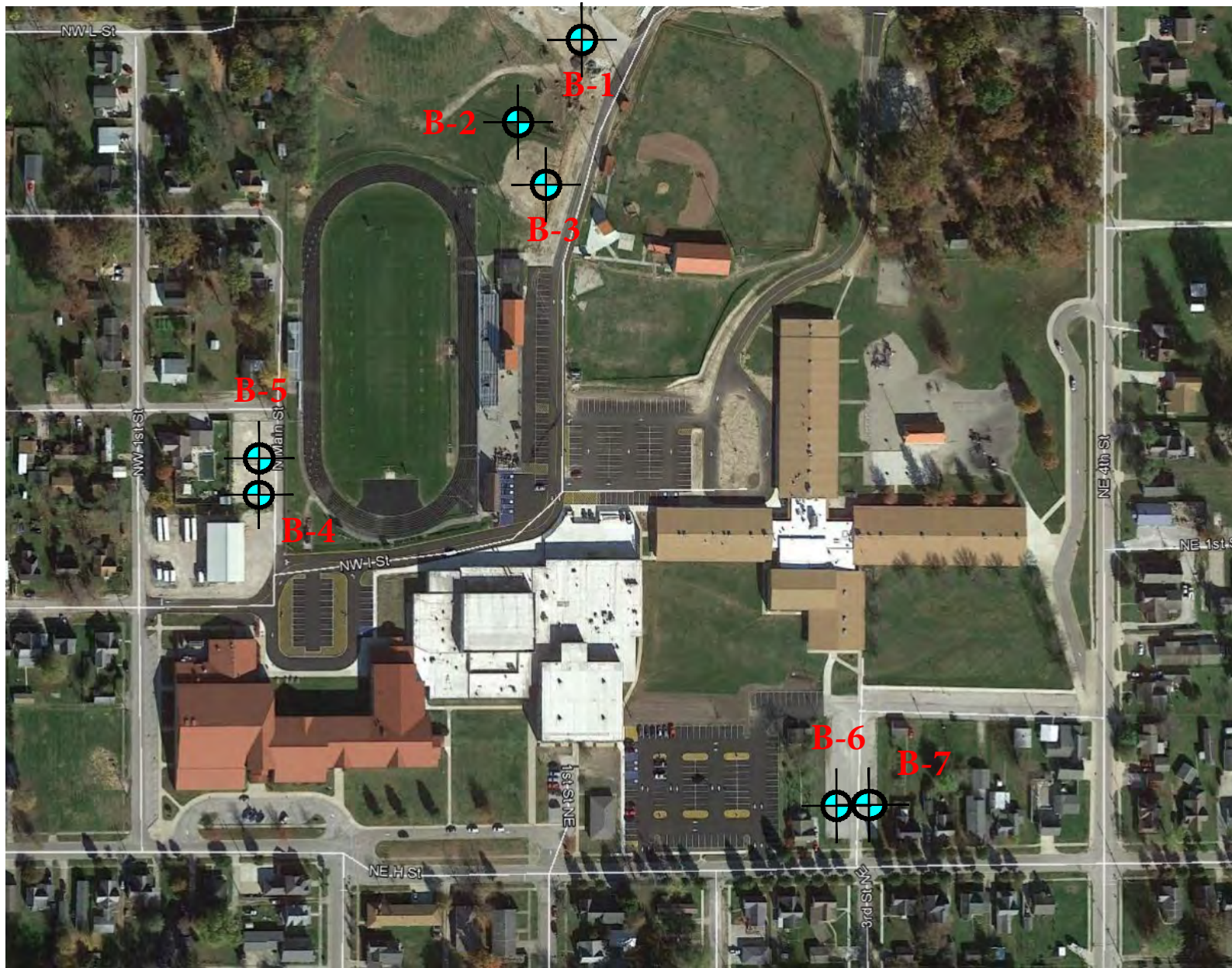
Boring Logs B-1 through B-7

Soil Classification

Legend Sheet

FIGURE I

BORING LOCATION PLAN



NOT TO SCALE

CONSULTANT



123 East Railroad Street
Flora, IL 62839

CLIENT



LINTON-STOCKTON
SCHOOL CORP.

GEOTECHNICAL STUDY

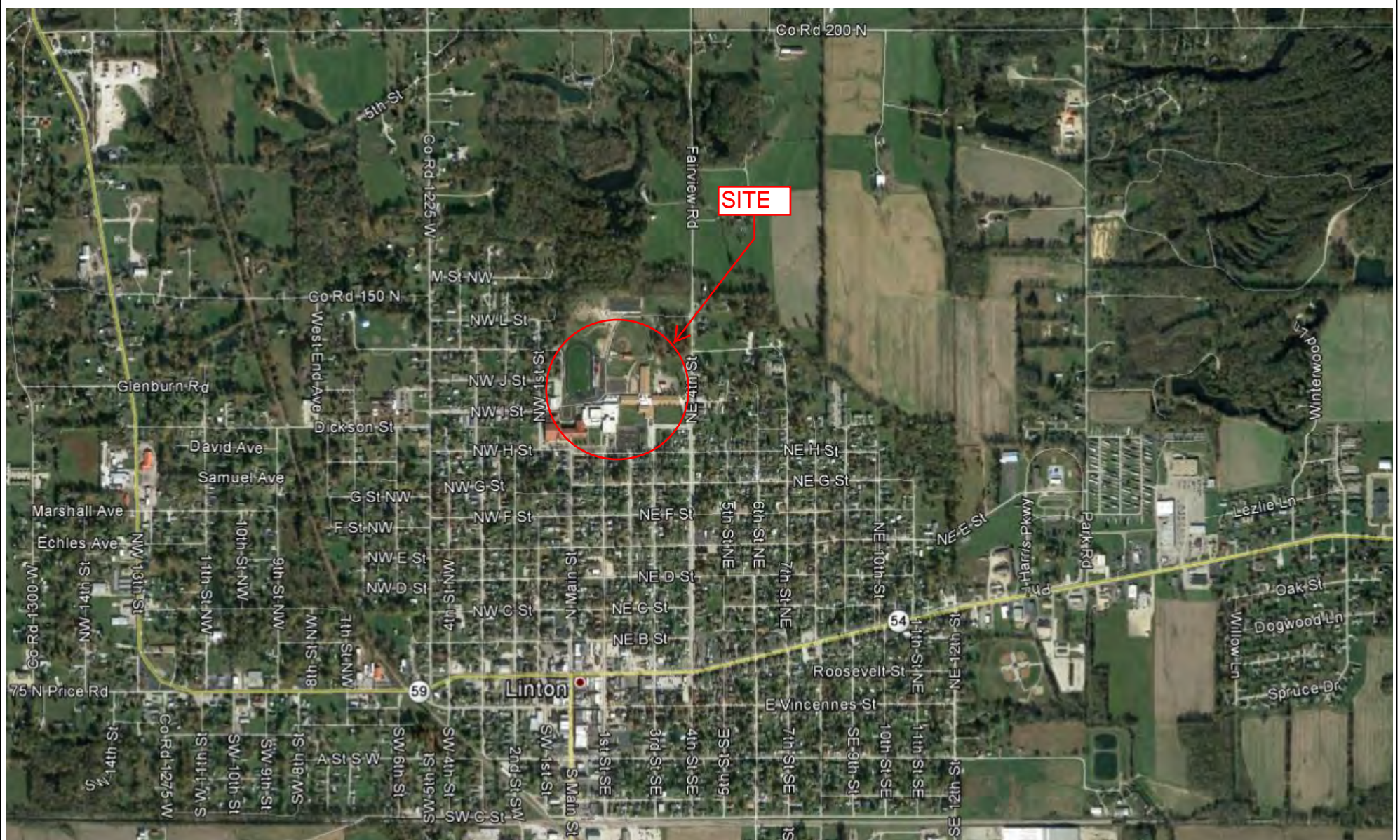
FIGURE 1

SITE: NEW SPORTS SUPPORT FACILITY

BORING LOCATION PLAN

FIGURE II

SITE MAP



NOT TO SCALE



123 East Railroad Street
Flora, IL 62839



**LINTON-STOCKTON
SCHOOL CORP.**

GEOTECHNICAL STUDY

FIGURE 1

SITE: NEW SPORTS SUPPORT FACILITY

SITE LOCATION MAP

NOBLE			Project: New Sports Support Facility		BORING No. B-1		water level reading		
ENGINEERING CONSULTANTS			Project No.: MYZ2018A		Sheet No. 1 of 1		1st encounter: Dry		
Client: Myszak & Palmer			Weather: Overcast		Temperature: 10's		water level reading		
Driller: Noble Engineering Consultants			Date Start: 12-26-17		Surface Elevation: NA		@completion: dry cave		
Location: Linton, IN			Date Finished: 12-26-17		Driller: Tony Schocker		Backfill: soil cuttings		
Depth:	Sample No.	Sample Depth	N-Value	Blow Count	Recovery (%)	Qp (tsf)	Soil Description	Unified Soil Class.	Elev.
1							0.0'-1.1' Crushed Rock FILL		
2	SS-1	1.0'-2.5'	8	3-4-4	100	1.0		FILL	
3									
4	SS-2	3.5'-5.0'	12	2-6-6	100	1.1		CL	
5									
6	SS-3	6.0'-7.5'	11	3-5-6	100	1.9	1.1'-10.0' SILTY CLAY, trace gravel, stiff, brown mottled gray	CL	
7									
8									
9	SS-4	8.5'-10.0'	12	3-5-7	100	1.9		CL	
10									
11									
12									
13									
14									
15									
16									
17									
18									
19									
20									
21									
22									
23									
24									
25									
26									
27									
28									
29									
Drilling Method: HSA (2-1/4" id)					Comments				
Depth: 0' to 10.0'									
Drill Rig: Mobile B-47									
Sampling: split-spoon									
Procedure: ASTM D1586									

NOBLE			Project: New Sports Support Facility				BORING No. B-2	water level reading	
ENGINEERING CONSULTANTS			Project No.: MYZ2018A				Sheet No. 1 of 1	1st encounter: Dry	
Client: Myszak & Palmer			Weather: Overcast				Temperature: 10's	water level reading	
Driller: Noble Engineering Consultants			Date Start: 12-26-17				Surface Elevation: NA	@completion: dry cave	
Location: Linton, IN			Date Finished: 12-26-17				Driller: Tony Schocker	Backfill: soil cuttings	
Depth:	Sample No.	Sample Depth	N-Value	Blow Count	Recovery (%)	Qp (tsf)	Soil Description	Unified Soil Class.	Elev.
1							0.0'-0.3' Topsoil		
2	SS-1	1.0'-2.5'	12	3-5-7	100	-	0.3'-1.1' Silt, Clay, Possible Fill, trace gravel, stiff, brown	Possible Fill	
3									
4	SS-2	3.5'-5.0'	19	3-8-11	100	2.1		CL	
5									
6	SS-3	6.0'-7.5'	17	4-7-10	100	2.0		CL	
7									
8									
9	SS-4	8.5'-10.0'	11	3-5-6	100	1.8	1.1'-15.0' SILTY CLAY, trace to some sand, v. stiff to stiff below 7.5', brown mottled gray	CL	
10									
11									
12									
13									
14	SS-5	13.5'-15.0'	12	3-6-6	100	1.8		CL	
15									
16									
17									
18									
19									
20									
21									
22									
23									
24									
25									
26									
27									
28									
29									
Drilling Method: HSA (2-1/4" id)							Comments		
Depth: 0' to 15.0'									
Drill Rig: Mobile B-47									
Sampling: split-spoon									
Procedure: ASTM D1586									

NOBLE			Project: New Sports Support Facility				BORING No. B-3		water level reading	
ENGINEERING CONSULTANTS			Project No.: MYZ2018A				Sheet No. 1 of 1		1st encounter: Dry	
Client: Myszak & Palmer			Weather: Overcast				Temperature: 10's		water level reading	
Driller: Noble Engineering Consultants			Date Start: 12-26-17				Surface Elevation: NA		@completion: dry cave	
Location: Linton, IN			Date Finished: 12-26-17				Driller: Tony Schocker		Backfill: soil cuttings	
Depth:	Sample No.	Sample Depth	N-Value	Blow Count	Recovery (%)	Qp (tsf)	Soil Description		Unified Soil Class.	Elev.
1							0.0'-0.4' Topsoil			
2	SS-1	1.0'-2.5'	10	3-4-6	100	1.5	0.4'-1.5' Silt, Clay, Possible Fill, trace gravel, stiff, brown		Possible Fill	
3										
4	SS-2	3.5'-5.0'	11	3-5-6	100	1.8			CL	
5										
6	SS-3	6.0'-7.5'	10	2-5-5	100	1.8			CL	
7										
8										
9	SS-4	8.5'-10.0'	11	2-5-6	100	1.9	1.5'-15.0' SILTY CLAY, trace to some sand, stiff, brown mottled gray		CL	
10										
11										
12										
13										
14	SS-5	13.5'-15.0'	11	3-5-6	100	1.8			CL	
15										
16										
17										
18										
19										
20										
21										
22										
23										
24										
25										
26										
27										
28										
29										
Drilling Method: HSA (2-1/4" id)							Comments			
Depth: 0' to 15.0'										
Drill Rig: Mobile B-47										
Sampling: split-spoon										
Procedure: ASTM D1586										

NOBLE			Project: New Sports Support Facility		BORING No. B-4		water level reading		
ENGINEERING CONSULTANTS			Project No.: MYZ2018A		Sheet No. 1 of 1		1st encounter: Dry		
Client: Myszak & Palmer			Weather: Overcast		Temperature: 10's		water level reading		
Driller: Noble Engineering Consultants			Date Start: 12-26-17		Surface Elevation: NA		@completion: dry cave		
Location: Linton, IN			Date Finished: 12-26-17		Driller: Tony Schocker		Backfill: soil cuttings		
Depth:	Sample No.	Sample Depth	N-Value	Blow Count	Recovery (%)	Qp (tsf)	Soil Description	Unified Soil Class.	Elev.
1							0.0'-1.2' Crushed Rock FILL		
2	SS-1	1.0'-2.5'	10	3-4-6	60	1.7		FILL	
3									
4	SS-2	3.5'-5.0'	13	3-6-7	100	1.9		CL	
5									
6	SS-3	6.0'-7.5'	10	2-5-5	100	1.8	1.2'-10.0' SILTY CLAY, trace gravel, stiff, brown mottled gray	CL	
7									
8									
9	SS-4	8.5'-10.0'	11	2-5-6	100	1.9		CL	
10									
11									
12									
13									
14									
15									
16									
17									
18									
19									
20									
21									
22									
23									
24									
25									
26									
27									
28									
29									
Drilling Method: HSA (2-1/4" id)					Comments				
Depth: 0' to 10.0'									
Drill Rig: Mobile B-47									
Sampling: split-spoon									
Procedure: ASTM D1586									

NOBLE

Project: New Sports
Support Facility

BORING No. B-5

water level reading

ENGINEERING CONSULTANTS

Project No.: MYZ2018A

Sheet No. 1 of 1

1st encounter: Dry

Client: Myszak & Palmer

Weather: Overcast

Temperature: 10's

water level reading

Driller: Noble Engineering Consultants

Date Start: 12-26-17

Surface Elevation: NA

@completion: dry cave

Location: Linton, IN

Date Finished: 12-26-17

Driller: Tony Schocker

Backfill: soil cuttings

Depth:	Sample No.	Sample Depth	N-Value	Blow Count	Recovery (%)	Qp (tsf)	Soil Description	Unified Soil Class.	Elev.
1							0.0'-1.4' Crushed Rock FILL		
2	SS-1	1.0'-2.5'	11	3-5-6	100	1.6		FILL	
3									
4	SS-2	3.5'-5.0'	13	3-6-7	100	1.7		CL	
5									
6	SS-3	6.0'-7.5'	10	3-5-7	100	1.7	1.4'-10.0' SILTY CLAY, trace gravel, stiff, brown mottled gray	CL	
7									
8									
9	SS-4	8.5'-10.0'	11	3-5-6	100	1.8		CL	
10									
11									
12									
13									
14									
15									
16									
17									
18									
19									
20									
21									
22									
23									
24									
25									
26									
27									
28									
29									
Drilling Method: HSA (2-1/4" id)						Comments			
Depth: 0' to 10.0'									
Drill Rig: Mobile B-47									
Sampling: split-spoon									
Procedure: ASTM D1586									

NOBLE				Project: New Sports Support Facility			BORING No. B-6		water level reading	
ENGINEERING CONSULTANTS				Project No.: MYZ2018A			Sheet No. 1 of 1		1st encounter: Dry	
Client: Myszak & Palmer				Weather: Overcast			Temperature: 10's		water level reading	
Driller: Noble Engineering Consultants				Date Start: 12-26-17			Surface Elevation: NA		@completion: dry cave	
Location: Linton, IN				Date Finished: 12-26-17			Driller: Tony Schocker		Backfill: soil cuttings	
Depth:	Sample No.	Sample Depth	N-Value	Blow Count	Recovery (%)	Qp (tsf)	Soil Description		Unified Soil Class.	Elev.
1							0.0'-0.9' Crushed Rock FILL			
2	SS-1	1.0'-2.5'	9	3-4-5	70	1.1	0.9'-4.2' Silt, Clay, Etc. Possible Fill, stiff, brown		POSSIBLE FILL	
3										
4	SS-2	3.5'-5.0'	6	2-3-3	70	1.0			CL	
5										
6	SS-3	6.0'-7.5'	7	3-3-4	100	1.0	4.2'-10.0' SILTY CLAY, trace gravel, stiff, brown mottled gray		CL	
7										
8										
9	SS-4	8.5'-10.0'	8	3-4-4	100	1.1			CL	
10										
11										
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25										
26										
27										
28										
29										
Drilling Method: HSA (2-1/4" id)						Comments				
Depth: 0' to 10.0'										
Drill Rig: Mobile B-47										
Sampling: split-spoon										
Procedure: ASTM D1586										

NOBLE			Project: New Sports Support Facility		BORING No. B-7		water level reading		
ENGINEERING CONSULTANTS			Project No.: MYZ2018A		Sheet No. 1 of 1		1st encounter: Dry		
Client: Myszak & Palmer			Weather: Overcast		Temperature: 10's		water level reading		
Driller: Noble Engineering Consultants			Date Start: 12-26-17		Surface Elevation: NA		@completion: dry cave		
Location: Linton, IN			Date Finished: 12-26-17		Driller: Tony Schocker		Backfill: soil cuttings		
Depth:	Sample No.	Sample Depth	N-Value	Blow Count	Recovery (%)	Qp (tsf)	Soil Description	Unified Soil Class.	Elev.
1							0.0'-0.8' Crushed Rock FILL		
2	SS-1	1.0'-2.5'	8	2-3-5	50	-	0.8'-4.0' silt, clay, organics, masonry, FILL	FILL	
3									
4	SS-2	3.5'-5.0'	6	2-3-3	100	-		CL	
5									
6	SS-3	6.0'-7.5'	9	3-4-5	100	1.3	4.0'-10.0' SILTY CLAY, trace gravel, stiff, brown mottled gray	CL	
7									
8									
9	SS-4	8.5'-10.0'	10	3-5-5	100	1.5		CL	
10									
11									
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28									
29									
Drilling Method: HSA (2-1/4" id)					Comments				
Depth: 0' to 10.0'									
Drill Rig: Mobile B-47									
Sampling: split-spoon									
Procedure: ASTM D1586									

NOBLE ENGINEERING CONSULTANTS			CLASSIFICATION CHART		
MAJOR DIVISIONS			SYMBOLS		TYPICAL DESCRIPTIONS
			GRAPH	LETTER	
COARSE GRAINED SOILS MORE THAN 50% OF MATERIAL RETAINED ON NO. 200 SIEVE SIZE	GRAVEL AND GRAVELLY SOILS MORE THAN 50% OF COARSE FRACTION RETAINED ON NO. 4 SIEVE	CLEAN GRAVELS WITH LESS THAN 5% FINES		GW	WELL-GRADED GRAVELS, GRAVEL SAND MIXTURES, LITTLE OR NO FINES
				GP	POORLY GRADED GRAVELS, GRAVEL SAND MIXTURES, LITTLE OR NO FINES
		GRAVELS WITH MORE THAN 12% FINES		GM	SILTY GRAVELS, GRAVEL-SAND-SILT MIXTURES
				GC	CLAYEY GRAVELS, GRAVEL-SAND-CLAY MIXTURES
	SAND AND SANDY SOILS MORE THAN 50% OF COARSE FRACTION PASSING NO. 4 SIEVE	CLEAN SANDS WITH LESS THAN 5% FINES		SW	WELL-GRADED SANDS, GRAVELLY SANDS, LITTLE OR NO FINES
				SP	POORLY-GRADED SANDS, GRAVELLY SAND, LITTLE OR NO FINES
		SANDS WITH MORE THAN 12% FINES		SM	SILTY-SANDS, SAND-SILT MIXTURES
				SC	CLAYEY SANDS, SAND-CLAY MIXTURES
FINE GRAINED SOILS MORE THAN 50% OF MATERIAL PASSING NO. 200 SIEVE SIZE	SILTS AND CLAYS LIQUID LIMIT LESS THAN 50		ML	INORGANIC SILTS AND VERY FINE SANDS, ROCK FLOUR, SILTY OR CLAYEY FINE SANDS OR CLAYEY SILTS WITH SLIGHT PLASTICITY	
			CL	INORGANIC CLAYS OF LOW TO MEDIUM PLASTICITY, GRAVELLY CLAYS, SANDY CLAYS, SILTY CLAYS, LEAN CLAYS	
			OL	ORGANIC SILTS AND ORGANIC SILTY CLAYS OF LOW PLASTICITY	
		SILTS AND CLAYS LIQUID LIMIT GREATER THAN 50		MH	INORGANIC SILTS, MICACEOUS OR DIATOMACEOUS FINE SAND OR SILTY SOILS
				CH	INORGANIC CLAYS OF HIGH PLASTICITY
				OH	ORGANIC CLAYS OF MEDIUM TO HIGH PLASTICITY, ORGANIC SILTS
	HIGHLY ORGANIC SOILS			PT	PEAT, HUMUS, SWAMP SOILS WITH HIGH ORGANIC CONTENTS
	ROCK				CONSOLIDATED MATERIAL GENERALLY REQUIRING SPECIAL EQUIPMENT TO REMOVE
	FILL				MAN-MADE FILL MATERIAL

NOBLE ENGINEERING CONSULTANTS		LEGEND FOR SOIL DESCRIPTION	
GRANULAR SOIL (Coarser than No. 200 sieve)			
DESCRIPTIVE TERM		GRAIN SIZE	
coarse – c medium – m fine – f		SAND No. 4 Sieve to No. 10 Sieve No. 10 Sieve to No. 40 Sieve No. 40 Sieve to No. 200	GRAVEL 3" – 3/4" 3/4" – 3/16"
COBBLES BOULDERS			3" to 6" 6" +
GRADATION DESIGNATIONS fine, f medium to fine, m-f medium, m coarse to medium, c-m coarse, c coarse to fine, c-f		PROPORTIONS OF COMPONENT Less than 10% coarse and medium Less than 10% coarse Less than 10% coarse and fine Less than 10% fine Less than 10% medium and fine All greater than 10%	
RELATIVE DENSITY Very Loose Loose Medium Dense Dense Very Dense Extremely Dense		"N" VALUE (BLOWS/FT) 0 to 4 5 to 9 10 to 29 30 to 49 50 to 79 Over 80	
COHESIVE SOIL (Finer than No. 200 Sieve)			
DESCRIPTION Silt Clayey Silt Silt & Clay Clay & Silt Silty Clay Clay		PLASTICITY INDEX 0 – 1 2 – 5 6 – 10 11 – 20 21 – 40 greater than 40	PLASTICITY none slight low medium high very high
SOIL CONSISTENCY Very Soft Soft Medium Stiff Very Stiff Hard		UNCONFINED COMPRESSIVE STRENGTH (tsf) Less than 0.25 0.25 to 0.49 0.50 to 0.99 1.00 to 1.99 2.00 to 3.99 Greater than 4.00	
PROPORTION			
DESCRIPTIVE TERM trace Trace to Some some and		PERCENT OF SAMPLE BY WEIGHT Less than 10% 10 - 19 20 - 34 35 – 50	
COLOR			
Blue – blue Blk – black Bwn – brown Gn – green		Gy – gray Or – orange Rd – red Tn – tan	Wh – white Yl – yellow Lgt – light Dk – dark
SAMPLE NOTATION			
S – Split Spoon Soil Sample U – Undisturbed Tube Sample C – Core Sample B – Bulk Soil Sample NR – No Recovery of Sample AR - Auger Refusal		WOC – Weight of Casing WOR – Weight of Rods WOH – Weight of Hammer PPR – Compressive strength based on pocket penetrometer TV – Shear Strength (tsf) based on torvane	

DOCUMENT 000101 - PROJECT TITLE PAGE

PROJECT MANUAL VOLUME 1 –

Linton-Stockton – Paving Projects

801 1st Street NE
Linton, Indiana

Architect Project No. 17-23



Myszak+Palmer, Inc.
903 Broadway Street
Vincennes, Indiana 47591
Phone: 812.886.0350
Fax: 812.886.0790
Web Site: www.myszakpalmer.com
Issued: April 2018

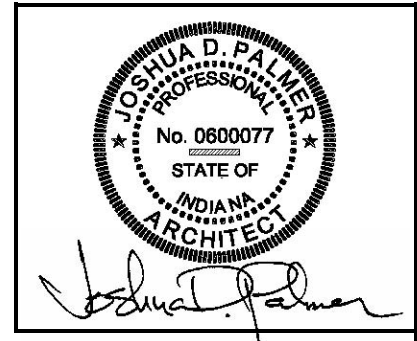
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END OF DOCUMENT 000101

DOCUMENT 000107 - SEALS PAGE

1.1 DESIGN PROFESSIONALS OF RECORD

ARCHITECT Joshua D. Palmer
AR10600077
Specifications as listed
In Project Manual



CIVIL Erik Heinz
PE10606123
Specifications as listed
In Project Manual



DRAWING INDEX	
A0.0	COVER PAGE
C1.0	ELEMENTARY STAFF PARKING LOT - PLAN
C1.1	ELEMENTARY STAFF PARKING LOT - DETAILS

DRAWING INDEX	
A0.0	COVER PAGE
C1.0	NORTH PARKING LOT - PLAN
C1.1	NORTH PARKING LOT - DETAILS

DRAWING INDEX	
A0.0	COVER PAGE
C1.0	SENIOR PARKING LOT - PLAN
C1.1	SENIOR PARKING LOT - DETAILS

DRAWING INDEX

A0.0	COVER PAGE
C1.0	TENNIS/SOFTBALL PARKING LOT - PLAN
C1.1	TENNIS/SOFTBALL PARKING LOT - DETAILS

SECTION 011000 - SUMMARY

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

- A. Section Includes:
 - 1. Project information.
 - 2. Work covered by Contract Documents.
 - 3. Work by Owner (if applicable).
 - 4. Work under separate contracts.
 - 5. Owner-furnished products.
 - 6. Access to site.
 - 7. Work restrictions.
 - 8. Specification and drawing conventions.
 - 9. Miscellaneous provisions.
- B. Related Requirements:
 - 1. Section 015000 "Temporary Facilities and Controls" for limitations and procedures governing temporary use of Owner's facilities.

1.3 PROJECT INFORMATION

- A. Project Identification: Project 17-23 Linton-Stockton – Paving Projects
 - 1. Project Location: 801 1st Street NE, Linton, IN 47441
 - a. Elementary Staff Parking Lot
 - b. Senior Parking Lot
 - c. Tennis-Softball Parking Lot
 - d. North Parking Lot
- B. Owner: Linton Stockton School Corporation; 801 1st Street NE, Linton, IN 47441
- C. Owner's Representative: Ralph Witty, School Board Member
- D. Architect: Myszak +Palmer Inc. 903 Broadway Street, Vincennes, IN 47591, (812) 886-0350.
- E. Architect's Consultants: The Architect has retained the following design professionals who have prepared designated portions of the Contract Documents:
 - 1. Civil Engineer - Erik Heinz, Heinz Associates, LLC, 3252 W 500 N, Jasper, Indiana 47546; Telephone: (812) 634-9338.

1.4 WORK COVERED BY CONTRACT DOCUMENTS

- A. The Work of Project is defined by the Contract Documents and consists of the following:
 - 1. Work consists of Site/Paving work for several parking lots on the Linton-Stockton School Campus.
 - a. Elementary Parking Lot
 - b. Senior Parking Lot
 - c. Tennis-Softball Parking Lot
 - d. North Parking Lot
- B. Type of Contract:
 - 1. The projects will be constructed individually under four contracts, Contracts for General Construction.

1.5 ACCESS TO SITE

- A. General: Contractor shall have full use of Project site for construction operations during construction period. Contractor's use of Project site is limited only by Owner's right to perform work or to retain other contractors on portions of Project.
- B. Use of Site: Limit use of Project site to areas within the Contract limits indicated. Do not disturb portions of Project site beyond areas in which the Work is indicated.

1.6 WORK RESTRICTIONS

- A. Work Restrictions, General: Comply with restrictions on construction operations.
 - 1. Comply with limitations on use of public streets and with other requirements of authorities having jurisdiction.
- B. On-Site Work Hours: Limit work to normal business working hours Monday through Friday, unless otherwise indicated.
 - 1. Weekend Hours: Weekend hours may be approved if schedule dictates.
 - 2. Early Morning Hours: No restriction
- C. Existing Utility Interruptions: Do not interrupt utilities serving facilities occupied by Owner or others unless permitted under the following conditions and then only after providing temporary utility services according to requirements indicated:
 - 1. Notify Architect not less than two days in advance of proposed utility interruptions.
 - 2. Obtain Architect's written permission before proceeding with utility interruptions.
- D. Nonsmoking Building: Smoking is not permitted on project site or school property
- E. Controlled Substances: Use of tobacco products and other controlled substances on Project site is not permitted.

1.7 SPECIFICATION AND DRAWING CONVENTIONS

- A. Specification Content: The Specifications use certain conventions for the style of language and the intended meaning of certain terms, words, and phrases when used in particular situations. These conventions are as follows:
 - 1. Imperative mood and streamlined language are generally used in the Specifications. The words "shall," "shall be," or "shall comply with," depending on the context, are implied where a colon (:) is used within a sentence or phrase.
 - 2. Specification requirements are to be performed by Contractor unless specifically stated otherwise.
- B. Division 01 General Requirements: Requirements of Sections in Division 01 apply to the Work of all Sections in the Specifications.
- C. Drawing Coordination: Requirements for materials and products identified on Drawings are described in detail in the Specifications. One or more of the following are used on Drawings to identify materials and products:
 - 1. Terminology: Materials and products are identified by the typical generic terms used in the individual Specifications Sections.
 - 2. Abbreviations: Materials and products are identified by abbreviations
 - 3. Keynoting: Materials and products are identified by reference keynotes referencing Specification Section numbers found in this Project Manual.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION (Not Used)

END OF SECTION 011000

SECTION 012500 - SUBSTITUTION PROCEDURES

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

- A. Section includes administrative and procedural requirements for substitutions.
- B. Related Requirements:
- C.
 - 1. Section 016000 "Product Requirements" for requirements for submitting comparable product submittals for products by listed manufacturers.

1.3 DEFINITIONS

- A. Substitutions: Changes in products, materials, equipment, and methods of construction from those required by the Contract Documents and proposed by Contractor.
 - 1. Substitutions for Cause: Changes proposed by Contractor that are required due to changed Project conditions, such as unavailability of product, regulatory changes, or unavailability of required warranty terms.
 - 2. Substitutions for Convenience: Changes proposed by Contractor or Owner that are not required in order to meet other Project requirements but may offer advantage to Contractor or Owner.

1.4 ACTION SUBMITTALS

- A. Substitution Requests: Submit three copies of each request for consideration. Identify product or fabrication or installation method to be replaced. Include Specification Section number and title and Drawing numbers and titles.
 - 1. Substitution Request Form: Use M+P Form 13.1A.
 - 2. Documentation: Show compliance with requirements for substitutions and the following, as applicable:
 - a. Statement indicating why specified product or fabrication or installation cannot be provided, if applicable.
 - b. Coordination information, including a list of changes or revisions needed to other parts of the Work and to construction performed by Owner and separate contractors, that will be necessary to accommodate proposed substitution.

- c. Detailed comparison of significant qualities of proposed substitution with those of the Work specified. Include annotated copy of applicable Specification Section. Significant qualities may include attributes such as performance, weight, size, durability, visual effect, sustainable design characteristics, warranties, and specific features and requirements indicated. Indicate deviations, if any, from the Work specified.
 - d. Product Data, including drawings and descriptions of products and fabrication and installation procedures.
 - e. Samples, where applicable or requested.
 - f. Certificates and qualification data, where applicable or requested.
 - g. List of similar installations for completed projects with project names and addresses and names and addresses of architects and owners.
 - h. Material test reports from a qualified testing agency indicating and interpreting test results for compliance with requirements indicated.
 - i. Research reports evidencing compliance with building code in effect for Project, from ICC-ES.
 - j. Detailed comparison of Contractor's construction schedule using proposed substitution with products specified for the Work, including effect on the overall Contract Time. If specified product or method of construction cannot be provided within the Contract Time, include letter from manufacturer, on manufacturer's letterhead, stating date of receipt of purchase order, lack of availability, or delays in delivery.
 - k. Cost information, including a proposal of change, if any, in the Contract Sum.
 - l. Contractor's certification that proposed substitution complies with requirements in the Contract Documents except as indicated in substitution request, is compatible with related materials, and is appropriate for applications indicated.
 - m. Contractor's waiver of rights to additional payment or time that may subsequently become necessary because of failure of proposed substitution to produce indicated results.
3. Architect's Action: If necessary, Architect will request additional information or documentation for evaluation within seven (7) days of receipt of a request for substitution. Architect will notify Contractor of acceptance or rejection of proposed substitution within fifteen (15) days of receipt of request, or seven (7) days of receipt of additional information or documentation, whichever is later.
- a. Forms of Acceptance: Change Order, Construction Change Directive, or Architect's Supplemental Instructions for minor changes in the Work.
 - b. Use product specified if Architect does not issue a decision on use of a proposed substitution within time allocated.

1.5 QUALITY ASSURANCE

- A. Compatibility of Substitutions: Investigate and document compatibility of proposed substitution with related products and materials. Engage a qualified testing agency to perform compatibility tests recommended by manufacturers.

1.6 PROCEDURES

- A. Coordination: Revise or adjust affected work as necessary to integrate work of the approved substitutions.

PART 2 - PRODUCTS

2.1 SUBSTITUTIONS

- A. Substitutions for Cause: Submit requests for substitution immediately on discovery of need for change, but not later than fifteen (15) days prior to time required for preparation and review of related submittals.
 - 1. Conditions: Architect will consider Contractor's request for substitution when the following conditions are satisfied. If the following conditions are not satisfied, Architect will return requests without action, except to record noncompliance with these requirements:
 - a. Requested substitution is consistent with the Contract Documents and will produce indicated results.
 - b. Requested substitution provides sustainable design characteristics that specified product provided.
 - c. Substitution request is fully documented and properly submitted.
 - d. Requested substitution will not adversely affect Contractor's construction schedule.
 - e. Requested substitution has received necessary approvals of authorities having jurisdiction.
 - f. Requested substitution is compatible with other portions of the Work.
 - g. Requested substitution has been coordinated with other portions of the Work.
 - h. Requested substitution provides specified warranty.
 - i. If requested substitution involves more than one contractor, requested substitution has been coordinated with other portions of the Work, is uniform and consistent, is compatible with other products, and is acceptable to all contractors involved.
- B. Substitutions for Convenience: Not allowed, unless approved by Architect.
- C. Substitutions for Convenience: Architect will consider requests for substitution if received within sixty (60) days after commencement of the Work. Requests received after that time may be considered or rejected at discretion of Architect.
 - 1. Conditions: Architect will consider Contractor's request for substitution when the following conditions are satisfied. If the following conditions are not satisfied, Architect will return requests without action, except to record noncompliance with these requirements:
 - a. Requested substitution offers Owner a substantial advantage in cost, time, energy conservation, or other considerations, after deducting additional responsibilities Owner must assume. Owner's additional responsibilities may include compensation to Architect for redesign and evaluation services, increased cost of other construction by Owner, and similar considerations.

- b. Requested substitution does not require extensive revisions to the Contract Documents.
- c. Requested substitution is consistent with the Contract Documents and will produce indicated results.
- d. Requested substitution provides sustainable design characteristics that specified product provided.
- e. Substitution request is fully documented and properly submitted.
- f. Requested substitution will not adversely affect Contractor's construction schedule.
- g. Requested substitution has received necessary approvals of authorities having jurisdiction.
- h. Requested substitution is compatible with other portions of the Work.
- i. Requested substitution has been coordinated with other portions of the Work.
- j. Requested substitution provides specified warranty.
- k. If requested substitution involves more than one contractor, requested substitution has been coordinated with other portions of the Work, is uniform and consistent, is compatible with other products, and is acceptable to all contractors involved.

PART 3 - EXECUTION (Not Used)

END OF SECTION 012500

SECTION 012600 - CONTRACT MODIFICATION PROCEDURES

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

- A. Section includes administrative and procedural requirements for handling and processing Contract modifications.
- B. Related Requirements:
 - 1. Section 012500 "Substitution Procedures" for administrative procedures for handling requests for substitutions made after the Contract award.

1.3 MINOR CHANGES IN THE WORK

- A. Architect will issue supplemental instructions authorizing minor changes in the Work, not involving adjustment to the Contract Sum or the Contract Time, on AIA Document G710, "Architect's Supplemental Instructions." form.

1.4 PROPOSAL REQUESTS

- A. Owner-Initiated Proposal Requests: Architect will issue a detailed description of proposed changes in the Work that may require adjustment to the Contract Sum or the Contract Time. If necessary, the description will include supplemental or revised Drawings and Specifications.
 - 1. Work Change Proposal Requests issued by Architect are not instructions either to stop work in progress or to execute the proposed change.
 - 2. Within time specified in Proposal Request or 20 days, when not otherwise specified, after receipt of Proposal Request, submit a quotation estimating cost adjustments to the Contract Sum and the Contract Time necessary to execute the change.
 - a. Include a list of quantities of products required or eliminated and unit costs, with total amount of purchases and credits to be made. If requested, furnish survey data to substantiate quantities.
 - b. Indicate applicable taxes, delivery charges, equipment rental, and amounts of trade discounts.
 - c. Include costs of labor and supervision directly attributable to the change.
 - d. Include an updated Contractor's construction schedule that indicates the effect of the change, including, but not limited to, changes in activity

duration, start and finish times, and activity relationship. Use available total float before requesting an extension of the Contract Time.

- e. Quotation Form: Use AIA G709 "Work Changes Proposal Request".
- B. Contractor-Initiated Proposals: If latent or changed conditions require modifications to the Contract, Contractor may initiate a claim by submitting a request for a change to Architect.
 - 1. Include a statement outlining reasons for the change and the effect of the change on the Work. Provide a complete description of the proposed change. Indicate the effect of the proposed change on the Contract Sum and the Contract Time.
 - 2. Include a list of quantities of products required or eliminated and unit costs, with total amount of purchases and credits to be made. If requested, furnish survey data to substantiate quantities.
 - 3. Indicate applicable taxes, delivery charges, equipment rental, and amounts of trade discounts.
 - 4. Include costs of labor and supervision directly attributable to the change.
 - 5. Include an updated Contractor's construction schedule that indicates the effect of the change, including, but not limited to, changes in activity duration, start and finish times, and activity relationship. Use available total float before requesting an extension of the Contract Time.
 - 6. Comply with requirements in Section 012500 "Substitution Procedures" if the proposed change requires substitution of one product or system for product or system specified.
 - 7. Proposal Request Form: Use AIA G709 "Work Changes Proposal Request".

1.5 CHANGE ORDER PROCEDURES

- A. On Owner's approval of a Work Changes Proposal Request, Architect will issue a Change Order for signatures of Owner and Contractor on AIA Document G701, form included in Project Manual.

1.6 CONSTRUCTION CHANGE DIRECTIVE

- A. Construction Change Directive: Architect may issue a Construction Change Directive on AIA Document G714, form included in Project Manual. Construction Change Directive instructs Contractor to proceed with a change in the Work, for subsequent inclusion in a Change Order.
 - 1. Construction Change Directive contains a complete description of change in the Work. It also designates method to be followed to determine change in the Contract Sum or the Contract Time.
- B. Documentation: Maintain detailed records on a time and material basis of work required by the Construction Change Directive.
 - 1. After completion of change, submit an itemized account and supporting data necessary to substantiate cost and time adjustments to the Contract.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION (Not Used)

END OF SECTION 012600

SECTION 012900 - PAYMENT PROCEDURES

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

- A. Section includes administrative and procedural requirements necessary to prepare and process Applications for Payment.

1.3 DEFINITIONS

- A. Schedule of Values: A statement furnished by Contractor allocating portions of the Contract Sum to various portions of the Work and used as the basis for reviewing Contractor's Applications for Payment.

1.4 SCHEDULE OF VALUES

- A. Coordination: Coordinate preparation of the schedule of values with preparation of Contractor's construction schedule
 1. Coordinate line items in the schedule of values with other required administrative forms and schedules, including the following:
 - a. Application for Payment forms with continuation sheets.
 - b. Submittal schedule.
 - c. Items required to be indicated as separate activities in Contractor's construction schedule.
 2. Submit the schedule of values to Architect at earliest possible date, but no later than seven (7) days before the date scheduled for submittal of initial Applications for Payment.
 3. Sub schedules for Separate Elements of Work: Where the Contractor's construction schedule defines separate elements of the Work, provide sub schedules showing values coordinated with each element.
 4. Sub schedules for Separate Design Contracts: Where the Owner has retained design professionals under separate contracts who will each provide certification of payment requests, provide sub schedules showing values coordinated with the scope of each design services contract as described in Section 011000 "Summary."

- B. Format and Content: Use Project Manual table of contents as a guide to establish line items for the schedule of values. Provide at least one-line item for each Specification Section.
1. Identification: Include the following Project identification on the schedule of values:
 - a. Project name and location.
 - b. Name of Architect.
 - c. Architect's project number.
 - d. Contractor's name and address.
 - e. Date of submittal.
 2. Arrange schedule of values consistent with format of AIA Document G703.
 3. Arrange the schedule of values in tabular form with separate columns to indicate the following for each item listed:
 - a. Related Specification Section or Division.
 - b. Description of the Work.
 - c. Name of subcontractor.
 - d. Name of manufacturer or fabricator.
 - e. Name of supplier.
 - f. Change Orders (numbers) that affect value.
 - g. Dollar value of the following, as a percentage of the Contract Sum to nearest one-hundredth percent, adjusted to total 100 percent.
 - 1) Labor.
 - 2) Materials.
 - 3) Equipment.
 4. Provide a breakdown of the Contract Sum in enough detail to facilitate continued evaluation of Applications for Payment and progress reports. Coordinate with Project Manual table of contents. Provide multiple line items for principal subcontract amounts in excess of five (5) percent of the Contract Sum.
 - a. Include separate line items under Contractor and subcontracts Project closeout requirements in an amount totaling five (5) percent of the Contract Sum and subcontract amount.
 5. Round amounts to nearest whole dollar; total shall equal the Contract Sum.
 6. Provide a separate line item in the schedule of values for each part of the Work where Applications for Payment may include materials or equipment purchased or fabricated and stored, but not yet installed.
 - a. Differentiate between items stored on-site and items stored off-site. If required, include evidence of insurance.
 7. Provide separate line items in the schedule of values for initial cost of materials, for each subsequent stage of completion, and for total installed value of that part of the Work.
 8. Allowances: Provide a separate line item in the schedule of values for each allowance. Show line-item value of unit-cost allowances, as a product of the unit cost, multiplied by measured quantity. Use information indicated in the Contract Documents to determine quantities.
 9. Purchase Contracts: Provide a separate line item in the schedule of values for each purchase contract. Show line-item value of purchase contract. Indicate owner payments or deposits, if any, and balance to be paid by Contractor.
 10. Each item in the schedule of values and Applications for Payment shall be complete. Include total cost and proportionate share of general overhead and profit for each item.

- a. Temporary facilities and other major cost items that are not direct cost of actual work-in-place may be shown either as separate line items in the schedule of values or distributed as general overhead expense, at Contractor's option.
11. Schedule Updating: Update and resubmit the schedule of values before the next Applications for Payment when Change Orders or Construction Change Directives result in a change in the Contract Sum.

1.5 APPLICATIONS FOR PAYMENT

- A. Each Application for Payment following the initial Application for Payment shall be consistent with previous applications and payments as certified by Architect and paid for by Owner.
 1. Initial Application for Payment, Application for Payment at time of Substantial Completion, and final Application for Payment involve additional requirements.
- B. Payment Application Times: The date for each progress payment is indicated in the Agreement between Owner and Contractor. The period of construction work covered by each Application for Payment is the period indicated in the Agreement.
- C. Payment Application Times: Submit Application for Payment to Architect by the first day of the month. The period covered by each Application for Payment is one month, ending on the last day of the month.
 1. Submit draft copy of Application for Payment seven (7) days prior to due date for review by Architect.
- D. Application for Payment Forms: Use AIA Document G702 and AIA Document G703 as form for Applications for Payment.
- E. Application for Payment Forms: Use forms provided by Owner for Applications for Payment.
- F. Application for Payment Forms: Use forms acceptable to Architect and Owner for Applications for Payment. Submit forms for approval with initial submittal of schedule of values.
- G. Application Preparation: Complete every entry on form. Notarize and execute by a person authorized to sign legal documents on behalf of Contractor. Architect will return incomplete applications without action.
 1. Entries shall match data on the schedule of values and Contractor's construction schedule. Use updated schedules if revisions were made.
 2. Include amounts for work completed following previous Application for Payment, whether or not payment has been received. Include only amounts for work completed at time of Application for Payment.
 3. Include amounts of Change Orders and Construction Change Directives issued before last day of construction period covered by application.
 4. Indicate separate amounts for work being carried out under Owner-requested project acceleration.

- H. **Stored Materials:** Include in Application for Payment amounts applied for materials or equipment purchased or fabricated and stored, but not yet installed. Differentiate between items stored on-site and items stored off-site.
1. Provide certificate of insurance, evidence of transfer of title to Owner, and consent of surety to payment, for stored materials.
 2. Provide supporting documentation that verifies amount requested, such as paid invoices. Match amount requested with amounts indicated on documentation; do not include overhead and profit on stored materials.
 3. Provide summary documentation for stored materials indicating the following:
 - a. Value of materials previously stored and remaining stored as of date of previous Applications for Payment.
 - b. Value of previously stored materials put in place after date of previous Application for Payment and on or before date of current Application for Payment.
 - c. Value of materials stored since date of previous Application for Payment and remaining stored as of date of current Application for Payment.
- I. **Transmittal:** Submit three (3) signed and notarized original copies of each Application for Payment to Architect by a method ensuring receipt within 24 hours. One copy shall include waivers of lien and similar attachments if required.
1. Transmit each copy with a transmittal form listing attachments and recording appropriate information about application.
- J. **Waivers of Mechanic's Lien:** With each Application for Payment, submit waivers of mechanic's lien from entities lawfully entitled to file a mechanic's lien arising out of the Contract and related to the Work covered by the payment.
1. Submit partial waivers on each item for amount requested in previous application, after deduction for retainage, on each item.
 2. When an application shows completion of an item, submit conditional final or full waivers.
 3. Owner reserves the right to designate which entities involved in the Work must submit waivers.
 4. **Waiver Forms:** Submit executed waivers of lien on forms acceptable to Owner.
- K. **Waivers of Mechanic's Lien:** With each Application for Payment, submit waivers of mechanic's liens from subcontractors, sub-subcontractors, and suppliers for construction period covered by the previous application.
1. Submit partial waivers on each item for amount requested in previous application, after deduction for retainage, on each item.
 2. When an application shows completion of an item, submit conditional final or full waivers.
 3. Owner reserves the right to designate which entities involved in the Work must submit waivers.
 4. Submit final Application for Payment with or preceded by conditional final waivers from every entity involved with performance of the Work covered by the application who is lawfully entitled to a lien.
 5. **Waiver Forms:** Submit executed waivers of lien on forms, acceptable to Owner.
- L. **Initial Application for Payment:** Administrative actions and submittals that must precede or coincide with submittal of first Application for Payment include the following:
1. List of subcontractors.

2. Schedule of values.
 3. Contractor's construction schedule (preliminary if not final).
 4. Products list (preliminary if not final).
 5. Schedule of unit prices.
 6. Submittal schedule (preliminary if not final).
 7. List of Contractor's staff assignments.
 8. List of Contractor's principal consultants.
 9. Copies of building permits.
 10. Copies of authorizations and licenses from authorities having jurisdiction for performance of the Work.
 11. Initial progress report.
 12. Report of preconstruction conference.
 13. Certificates of insurance and insurance policies.
 14. Performance and payment bonds.
 15. Data needed to acquire Owner's insurance.
- M. Application for Payment at Substantial Completion: After Architect issues the Certificate of Substantial Completion, submit an Application for Payment showing 100 percent completion for portion of the Work claimed as substantially complete.
1. Include documentation supporting claim that the Work is substantially complete and a statement showing an accounting of changes to the Contract Sum.
 2. This application shall reflect Certificate(s) of Substantial Completion issued previously for Owner occupancy of designated portions of the Work.
- N. Final Payment Application: After completing Project closeout requirements, submit final Application for Payment with releases and supporting documentation not previously submitted and accepted, including, but not limited, to the following:
1. Evidence of completion of Project closeout requirements.
 2. Insurance certificates for products and completed operations where required and proof that taxes, fees, and similar obligations were paid.
 3. Updated final statement, accounting for final changes to the Contract Sum.
 4. AIA Document G706, "Contractor's Affidavit of Payment of Debts and Claims."
 5. AIA Document G706A, "Contractor's Affidavit of Release of Liens."
 6. AIA Document G707, "Consent of Surety to Final Payment."
 7. Evidence that claims have been settled.
 8. Final meter readings for utilities, a measured record of stored fuel, and similar data as of date of Substantial Completion or when Owner took possession of and assumed responsibility for corresponding elements of the Work.
 9. Final liquidated damages settlement statement.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION (Not Used)

END OF SECTION 012900

SECTION 014000 - QUALITY REQUIREMENTS

PART 1 - GENERAL

1.1 SECTION REQUIREMENTS

- A. Testing and inspecting services are required to verify compliance with requirements specified or indicated. These services do not relieve Contractor of responsibility for compliance with the Contract Document requirements.
- B. Referenced Standards: If compliance with two or more standards is specified and the standards establish different or conflicting requirements, comply with the most stringent requirement. Refer uncertainties to Architect for a decision.
- C. Minimum Quantity or Quality Levels: The quantity or quality level shown or specified shall be the minimum. The actual installation may exceed the minimum within reasonable limits. Indicated numeric values are minimum or maximum, as appropriate, for the context of requirements. Refer uncertainties to Architect for a decision.
- D. Contractor's Statement of Responsibility: When required by authorities having jurisdiction, submit copy of written statement of responsibility sent to authorities having jurisdiction before starting work on the following systems:
 - 1. Seismic-force-resisting system, designated seismic system, or component listed in the designated seismic system quality-assurance plan prepared by Architect.
 - 2. Main wind-force-resisting system or a wind-resisting component listed in the wind-force-resisting system quality-assurance plan prepared by Architect.
- E. Test and Inspection Reports: Prepare and submit certified written reports specified in other Sections. Include the following:
 - 1. Date of issue.
 - 2. Project title and number.
 - 3. Name, address, and telephone number of testing agency.
 - 4. Dates and locations of samples and tests or inspections.
 - 5. Names of individuals making tests and inspections.
 - 6. Description of the Work and test and inspection method.
 - 7. Identification of product and Specification Section.
 - 8. Complete test or inspection data.
 - 9. Test and inspection results and an interpretation of test results.
 - 10. Record of temperature and weather conditions at time of sample taking and testing and inspecting.
 - 11. Comments or professional opinion on whether tested or inspected Work complies with the Contract Document requirements.
 - 12. Name and signature of laboratory inspector.
 - 13. Recommendations on retesting and reinspecting.

- F. Permits, Licenses, and Certificates: For Owner's records, submit copies of permits, licenses, certifications, inspection reports, notices, receipts for fee payments, and similar documents, established for compliance with standards and regulations bearing on performance of the Work.
- G. Professional Engineer Qualifications: A professional engineer who is legally qualified to practice in jurisdiction where Project is located and who is experienced in providing engineering services of the kind indicated.
- H. Testing Agency Qualifications: An independent agency with the experience and capability to conduct testing and inspecting indicated; and where required by authorities having jurisdiction, that is acceptable to authorities.
- I. Retesting/Reinspecting: Regardless of whether original tests or inspections were Contractor's responsibility, provide quality-control services, including retesting and reinspecting, for construction that replaced Work that failed to comply with the Contract Documents.
- J. Testing Agency Responsibilities: Cooperate with Architect and Contractor in performance of duties. Provide qualified personnel to perform required tests and inspections.
 - 1. Notify Architect and Contractor of irregularities or deficiencies in the Work observed during performance of its services.
 - 2. Do not release, revoke, alter, or increase requirements of the Contract Documents or approve or accept any portion of the Work.
 - 3. Do not perform any duties of Contractor.
- K. Associated Services: Cooperate with testing agencies and provide reasonable auxiliary services as requested. Provide the following:
 - 1. Access to the Work.
 - 2. Incidental labor and facilities necessary to facilitate tests and inspections.
 - 3. Adequate quantities of representative samples of materials that require testing and inspecting. Assist agency in obtaining samples.
 - 4. Facilities for storage and field curing of test samples.
 - 5. Security and protection for samples and for testing and inspecting equipment.
- L. Coordination: Coordinate sequence of activities to accommodate required quality-assurance and -control services with a minimum of delay and to avoid necessity of removing and replacing construction to accommodate testing and inspecting.
 - 1. Schedule times for tests, inspections, obtaining samples, and similar activities.
- M. Special Tests and Inspections: Owner will engage a qualified testing agency to conduct special tests and inspections required by authorities having jurisdiction.
- N. Special Tests and Inspections: Conducted by a qualified testing agency as required by authorities having jurisdiction, as indicated in individual Specification Sections.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION

3.1 REPAIR AND PROTECTION

- A. General: On completion of testing, inspecting, sample taking, and similar services, repair damaged construction and restore substrates and finishes.
- B. Repair and protection are Contractor's responsibility, regardless of the assignment of responsibility for quality-control services.

END OF SECTION 014000

SECTION 015000 - TEMPORARY FACILITIES AND CONTROLS

PART 1 - GENERAL

1.1 SUMMARY

- A. Section includes requirements for temporary utilities, support facilities, and security and protection facilities.
- B. Related Requirements:
 - 1. Division 01 Section "Summary" for work restrictions and limitations on utility interruptions.

1.2 USE CHARGES

- A. General: Installation and removal of and use charges for temporary facilities shall be included in the General Contract Sum unless otherwise indicated. Allow other entities to use temporary services and facilities without cost, including, but not limited to, Owner's construction forces, Architect, occupants of Project, testing agencies, and authorities having jurisdiction.
- B. Water and Sewer Service from Existing System: Water from Owner's existing water system is available for use without metering and without payment of use charges. Provide connections and extensions of services as required for construction operations.
- C. Electric Power Service from Existing System: Electric power from Owner's existing system is available for use without metering and without payment of use charges. Provide connections and extensions of services as required for construction operations.

1.3 INFORMATIONAL SUBMITTALS

- A. Site Plan: Show temporary facilities, utility hookups, staging areas, and parking areas for construction personnel.
- B. Erosion- and Sedimentation-Control Plan: Show compliance with requirements of EPA Construction General Permit or authorities having jurisdiction, whichever is more stringent.
- C. Fire-Safety Program: Show compliance with requirements of NFPA 241 and authorities having jurisdiction. Indicate Contractor personnel responsible for management of fire prevention program.

1.4 QUALITY ASSURANCE

- A. Electric Service: Comply with NECA, NEMA, and UL standards and regulations for temporary electric service. Install service to comply with NFPA 70.
- B. Tests and Inspections: Arrange for authorities having jurisdiction to test and inspect each temporary utility before use. Obtain required certifications and permits.
- C. Accessible Temporary Egress: Comply with applicable provisions in the U.S. Architectural & Transportation Barriers Compliance Board's ADA-ABA Accessibility Guidelines and ICC/ANSI A117.1.

1.5 PROJECT CONDITIONS

- A. Temporary Use of Permanent Facilities: Engage Installer of each permanent service to assume responsibility for operation, maintenance, and protection of each permanent service during its use as a construction facility before Owner's acceptance, regardless of previously assigned responsibilities.

PART 2 - PRODUCTS

2.1 MATERIALS

- A. Portable Chain-Link Fencing: (Enclosing New Entrance/s) Minimum 2-inch, 0.148-inch- thick, galvanized-steel, chain-link fabric fencing; minimum 6 feet high with galvanized-steel pipe posts; minimum 2-3/8-inch- OD line posts and 2-7/8-inch- OD corner and pull posts, with 1-5/8-inch- OD top and bottom rails. Provide galvanized-steel bases for supporting posts.
- B. Wood Enclosure Fence: Plywood, 6 feet high, framed with four 2-by-4-inch rails, with preservative-treated wood posts spaced not more than 8 feet apart.

2.2 EQUIPMENT

- A. Fire Extinguishers: Portable, UL rated; with class and extinguishing agent as required by locations and classes of fire exposures.

PART 3 - EXECUTION

3.1 INSTALLATION, GENERAL

- A. Locate facilities where they will serve Project adequately and result in minimum interference with performance of the Work. Relocate and modify facilities as required by progress of the Work.
 - 1. Locate facilities to limit site disturbance as specified in Division 01 Section "Summary."

- B. Provide each facility ready for use when needed to avoid delay. Do not remove until facilities are no longer needed or are replaced by authorized use of completed permanent facilities.

3.2 TEMPORARY UTILITY INSTALLATION

- A. General: Install temporary service or connect to existing service.
 - 1. Arrange with utility company, Owner, and existing users for time when service can be interrupted, if necessary, to make connections for temporary services.
- B. Sewers and Drainage: Provide temporary utilities to remove effluent lawfully.
 - 1. Connect temporary sewers to municipal system as directed by authorities having jurisdiction.
- C. Water Service: Install water service and distribution piping in sizes and pressures adequate for construction.
- D. Water Service: Connect to Owner's existing water service facilities. Clean and maintain water service facilities in a condition acceptable to Owner. At Substantial Completion, restore these facilities to condition existing before initial use.
- E. Sanitary Facilities: Provide temporary toilets, wash facilities, and drinking water for use of construction personnel. Comply with requirements of authorities having jurisdiction for type, number, location, operation, and maintenance of fixtures and facilities.
 - 1. Toilets: Use of Owner's existing toilet facilities will be permitted, as long as facilities are cleaned and maintained in a condition acceptable to Owner. At Substantial Completion, restore these facilities to condition existing before initial use.
- F. Heating and Cooling: Provide temporary heating and cooling required by construction activities for curing or drying of completed installations or for protecting installed construction from adverse effects of low temperatures or high humidity. Select equipment that will not have a harmful effect on completed installations or elements being installed.
- G. Ventilation and Humidity Control: Provide temporary ventilation required by construction activities for curing or drying of completed installations or for protecting installed construction from adverse effects of high humidity. Select equipment that will not have a harmful effect on completed installations or elements being installed. Coordinate ventilation requirements to produce ambient condition required and minimize energy consumption.
- H. Electric Power Service: Connect to Owner's existing electric power service. Maintain equipment in a condition acceptable to Owner.
- I. Electric Power Service: Provide electric power service and distribution system of sufficient size, capacity, and power characteristics required for construction operations.
 - 1. Install electric power service underground unless otherwise indicated.
 - 2. Connect temporary service to Owner's existing power source, as directed by Owner.

- J. Lighting: Provide temporary lighting with local switching that provides adequate illumination for construction operations, observations, inspections, and traffic conditions.
 - 1. Install and operate temporary lighting that fulfills security and protection requirements without operating entire system.

3.3 SUPPORT FACILITIES INSTALLATION

- A. Temporary Roads and Paved Areas: Construct and maintain temporary roads and paved areas adequate for construction operations. Locate temporary roads and paved areas within construction limits indicated on Drawings.
 - 1. Provide dust-control treatment that is nonpolluting and nontracking. Reapply treatment as required to minimize dust.
- B. Temporary Use of Permanent Roads and Paved Areas: Locate temporary roads and paved areas in same location as permanent roads and paved areas. Construct and maintain temporary roads and paved areas adequate for construction operations. Extend temporary roads and paved areas, within construction limits indicated, as necessary for construction operations.
 - 1. Coordinate elevations of temporary roads and paved areas with permanent roads and paved areas.
 - 2. Prepare subgrade and install subbase and base for temporary roads and paved areas according to Division 31 Section "Earth Moving."
 - 3. Recondition base after temporary use, including removing contaminated material, regrading, proofrolling, compacting, and testing.
 - 4. Delay installation of final course of permanent hot-mix asphalt pavement until immediately before Substantial Completion. Repair hot-mix asphalt base-course pavement before installation of final course according to Division 32 Section "Asphalt Paving."
- C. Traffic Controls: Comply with requirements of authorities having jurisdiction.
 - 1. Protect existing site improvements to remain including curbs, pavement, and utilities.
 - 2. Maintain access for fire-fighting equipment and access to fire hydrants.
- D. Parking: Use designated areas of Owner's existing parking areas for construction personnel.
- E. Dewatering Facilities and Drains: Comply with requirements of authorities having jurisdiction. Maintain Project site, excavations, and construction free of water.
 - 1. Dispose of rainwater in a lawful manner that will not result in flooding Project or adjoining properties or endanger permanent Work or temporary facilities.
 - 2. Remove snow and ice as required to minimize accumulations.
- F. Project Signs: Provide Project signs as indicated. Unauthorized signs are not permitted.
 - 1. Identification Signs: Provide Project identification signs as indicated on Drawings.
 - 2. Temporary Signs: Provide other signs as indicated and as required to inform public and individuals seeking entrance to Project.

- a. Provide temporary, directional signs for construction personnel and visitors.
- 3. Maintain and touchup signs so they are legible at all times.
- G. Waste Disposal Facilities: Comply with requirements specified in Division 01 Section "Construction Waste Management and Disposal."
- H. Waste Disposal Facilities: Provide waste-collection containers in sizes adequate to handle waste from construction operations. Comply with requirements of authorities having jurisdiction. Comply with progress cleaning requirements in Division 01 Section "Execution."
- I. Lifts and Hoists: Provide facilities necessary for hoisting materials and personnel.
 - 1. Truck cranes and similar devices used for hoisting materials are considered "tools and equipment" and not temporary facilities.

3.4 INSTALLATION

- A. Protection of Existing Facilities: Protect existing vegetation, equipment, structures, utilities, and other improvements at Project site and on adjacent properties, except those indicated to be removed or altered. Repair damage to existing facilities.
- B. Environmental Protection: Provide protection, operate temporary facilities, and conduct construction as required to comply with environmental regulations and that minimize possible air, waterway, and subsoil contamination or pollution or other undesirable effects.
- C. Temporary Erosion and Sedimentation Control: Comply with requirements of 2003 EPA Construction General Permit or authorities having jurisdiction, whichever is more stringent and requirements specified in Division 31 Section "Site Clearing."
- D. Temporary Erosion and Sedimentation Control: Provide measures to prevent soil erosion and discharge of soil-bearing water runoff and airborne dust to undisturbed areas and to adjacent properties and walkways, according to requirements of 2003 EPA Construction General Permit or authorities having jurisdiction, whichever is more stringent.
- E. Stormwater Control: Comply with requirements of authorities having jurisdiction. Provide barriers in and around excavations and subgrade construction to prevent flooding by runoff of stormwater from heavy rains.
- F. Tree and Plant Protection: Comply with requirements specified in Division 01 Section "Temporary Tree and Plant Protection."
- G. Tree and Plant Protection: Install temporary fencing located as indicated or outside the drip line of trees to protect vegetation from damage from construction operations. Protect tree root systems from damage, flooding, and erosion.
- H. Pest Control: Engage pest-control service to recommend practices to minimize attraction and harboring of rodents, roaches, and other pests and to perform extermination and control procedures at regular intervals so Project will be free of pests

and their residues at Substantial Completion. Perform control operations lawfully, using environmentally safe materials.

- I. Site Enclosure Fence: Before construction operations begin, furnish and install site enclosure fence in a manner that will prevent people and animals from easily entering site except by entrance gates.
 - 1. Extent of Fence: As required to enclose entire Project site or portion determined sufficient to accommodate construction operations.
 - 2. Maintain security by limiting number of keys and restricting distribution to authorized personnel. Furnish two sets of keys to Owner.
- J. Security Enclosure and Lockup: Install temporary enclosure around partially completed areas of construction. Provide lockable entrances to prevent unauthorized entrance, vandalism, theft, and similar violations of security. Lock entrances at end of each work day.
- K. Barricades, Warning Signs, and Lights: Comply with requirements of authorities having jurisdiction for erecting structurally adequate barricades, including warning signs and lighting.
- L. Temporary Egress: Maintain temporary egress from existing occupied facilities as indicated and as required by authorities having jurisdiction.
- M. Temporary Enclosures: Provide temporary enclosures for protection of construction, in progress and completed, from exposure, foul weather, other construction operations, and similar activities. Provide temporary weathertight enclosure for building exterior.
 - 1. Where heating or cooling is needed and permanent enclosure is not complete, insulate temporary enclosures.
- N. Temporary Partitions: Provide floor-to-ceiling dustproof partitions to limit dust and dirt migration and to separate areas occupied by Owner and tenants from fumes and noise.
 - 1. Construct dustproof partitions with gypsum wallboard with joints taped on occupied side, and fire-retardant-treated plywood on construction operations side.
 - 2. Construct dustproof partitions with two layers of 6-mil polyethylene sheet on each side. Cover floor with two layers of 6-mil polyethylene sheet, extending sheets 18 inches up the sidewalls. Overlap and tape full length of joints. Cover floor with fire-retardant-treated plywood.
 - a. Construct vestibule and airlock at each entrance through temporary partition with not less than 48 inches between doors. Maintain water-dampened foot mats in vestibule.
 - 3. Where fire-resistance-rated temporary partitions are indicated or are required by authorities having jurisdiction, construct partitions according to the rated assemblies.
 - 4. Insulate partitions to control noise transmission to occupied areas.
 - 5. Seal joints and perimeter. Equip partitions with gasketed dustproof doors and security locks where openings are required.
 - 6. Protect air-handling equipment.
 - 7. Provide walk-off mats at each entrance through temporary partition.

- O. Temporary Fire Protection: Install and maintain temporary fire-protection facilities of types needed to protect against reasonably predictable and controllable fire losses. Comply with NFPA 241; manage fire prevention program.
 - 1. Prohibit smoking in construction areas.
 - 2. Supervise welding operations, combustion-type temporary heating units, and similar sources of fire ignition according to requirements of authorities having jurisdiction.
 - 3. Develop and supervise an overall fire-prevention and -protection program for personnel at Project site. Review needs with local fire department and establish procedures to be followed. Instruct personnel in methods and procedures. Post warnings and information.
 - 4. Provide temporary standpipes and hoses for fire protection. Hang hoses with a warning sign stating that hoses are for fire-protection purposes only and are not to be removed. Match hose size with outlet size and equip with suitable nozzles.

3.5 OPERATION, TERMINATION, AND REMOVAL

- A. Supervision: Enforce strict discipline in use of temporary facilities. To minimize waste and abuse, limit availability of temporary facilities to essential and intended uses.
- B. Maintenance: Maintain facilities in good operating condition until removal.
 - 1. Maintain operation of temporary enclosures, heating, cooling, humidity control, ventilation, and similar facilities on a 24-hour basis where required to achieve indicated results and to avoid possibility of damage.
- C. Temporary Facility Changeover: Do not change over from using temporary security and protection facilities to permanent facilities until Substantial Completion.
- D. Termination and Removal: Remove each temporary facility when need for its service has ended, when it has been replaced by authorized use of a permanent facility, or no later than Substantial Completion. Complete or, if necessary, restore permanent construction that may have been delayed because of interference with temporary facility. Repair damaged Work, clean exposed surfaces, and replace construction that cannot be satisfactorily repaired.
 - 1. Materials and facilities that constitute temporary facilities are property of Contractor. Owner reserves right to take possession of Project identification signs.
 - 2. At Substantial Completion, repair, renovate, and clean permanent facilities used during construction period. Comply with final cleaning requirements specified in Division 01 Section "Closeout Procedures."

END OF SECTION 015000

SECTION 016000 - PRODUCT REQUIREMENTS

PART 1 - GENERAL

1.1 SECTION REQUIREMENTS

- A. The term "product" includes the terms "material," "equipment," "system," and terms of similar intent.
- B. Comparable Product Requests: Submit request for consideration of each comparable product. Identify product or fabrication or installation method to be replaced.
 - 1. Show compliance with requirements for comparable product requests.
 - 2. Architect will review the proposed product and notify Contractor of its acceptance or rejection.
- C. Basis-of-Design Product Specification Submittal: Show compliance with requirements.
- D. Compatibility of Options: If Contractor is given option of selecting between two or more products, select product compatible with products previously selected.
- E. Deliver, store, and handle products using means and methods that will prevent damage, deterioration, and loss, including theft. Comply with manufacturer's written instructions.
 - 1. Schedule delivery to minimize long-term storage at Project site and to prevent overcrowding of construction spaces.
 - 2. Deliver products to Project site in manufacturer's original sealed container or packaging, complete with labels and instructions for handling, storing, unpacking, protecting, and installing.
 - 3. Inspect products on delivery to ensure compliance with the Contract Documents and to ensure that products are undamaged and properly protected.
 - 4. Store materials in a manner that will not endanger Project structure.
 - 5. Store products that are subject to damage by the elements, under cover in a weathertight enclosure above ground, with ventilation adequate to prevent condensation.
- F. Warranties specified in other Sections shall be in addition to, and run concurrent with, other warranties required by the Contract Documents. Manufacturer's disclaimers and limitations on product warranties do not relieve Contractor of obligations under requirements of the Contract Documents.

PART 2 - PRODUCTS

2.1 PRODUCT SELECTION PROCEDURES

- A. Provide products that comply with the Contract Documents, are undamaged, and, unless otherwise indicated, are new at the time of installation.
 - 1. Provide products complete with accessories, trim, finish, and other devices and components needed for a complete installation and the intended use and effect.
 - 2. Where products are accompanied by the term "as selected," Architect will make selection.
 - 3. Descriptive, performance, and reference standard requirements in the Specifications establish salient characteristics of products.
- B. Where the following headings are used to list products or manufacturers, the Contractor's options for product selection are as follows:
 - 1. Products:
 - a. Where requirements include "one of the following," provide one of the products listed that complies with requirements.
 - b. Where requirements do not include "one of the following," provide one of the products listed that complies with requirements or a comparable product.
 - 2. Manufacturers:
 - a. Where requirements include "one of the following," provide a product that complies with requirements by one of the listed manufacturers.
 - b. Where requirements do not include "one of the following," provide a product that complies with requirements by one of the listed manufacturers or another manufacturer.
 - 3. Basis-of-Design Product: Provide the product named, or indicated on the Drawings, or a comparable product by one of the listed manufacturers.
- C. Where Specifications require "match Architect's sample," provide a product that complies with requirements and matches Architect's sample. Architect's decision will be final on whether a proposed product matches.
- D. Where Specifications include the phrase "as selected by Architect from manufacturer's full range" or similar phrase, select a product that complies with requirements. Architect will select color, gloss, pattern, density, or texture from manufacturer's product line that includes both standard and premium items.

2.2 COMPARABLE PRODUCTS

- A. Architect will consider Contractor's request for comparable product when the following conditions are satisfied:

1. Evidence that the proposed product does not require revisions to the Contract Documents, that it is consistent with the Contract Documents and will produce the indicated results, and that it is compatible with other portions of the Work.
2. Detailed comparison of significant qualities of proposed product with those named in the Specifications.
3. List of similar installations for completed projects, if requested.
4. Samples, if requested.

PART 3 - EXECUTION (Not Used)

END OF SECTION 016000

SECTION 017000 - EXECUTION AND CLOSEOUT REQUIREMENTS

PART 1 - GENERAL

1.1 EXECUTION REQUIREMENTS

- A. Certificates: Submit certificate signed by land surveyor certifying that location and elevation of improvements comply with requirements.
- B. Cutting and Patching:
 - 1. Structural Elements: When cutting and patching structural elements, notify Architect of locations and details of cutting and await directions from Architect before proceeding. Shore, brace, and support structural elements during cutting and patching.
 - 2. Operational Elements: Do not cut and patch operating elements and related components in a manner that results in reducing their capacity to perform as intended or that result in increased maintenance or decreased operational life or safety.
 - 3. Visual Elements: Do not cut and patch construction in a manner that results in visual evidence of cutting and patching. Do not cut and patch exposed construction in a manner that would, in Architect's opinion, reduce the building's aesthetic qualities.
- C. Manufacturer's Installation Instructions: Obtain and maintain on-site manufacturer's written recommendations and instructions for installation of products and equipment.

1.2 CLOSEOUT SUBMITTALS

- A. Contractor's List of Incomplete Items: Initial submittal at Substantial Completion.
- B. Certified List of Incomplete Items: Final submittal at Final Completion.
- C. Operation and Maintenance Data: Submit one copy of manual.
- D. PDF Electronic File: Assemble manual into a composite electronically indexed file. Submit on digital media.
- E. Record Drawings: Submit two hard copy set(s) of marked-up record prints. Submit PDF digital data file for owner/architect's records also.
- F. Record Product Data: Submit one paper copy and annotated PDF electronic files and directories of each submittal for the owner and architect's records.

1.3 SUBSTANTIAL COMPLETION PROCEDURES

- A. Prepare a list of items to be completed and corrected (punch list), the value of items on the list, and reasons why the Work is not complete.
- B. Submittals Prior to Substantial Completion: Before requesting Substantial Completion inspection, complete the following:
 - 1. Obtain and submit releases from authorities having jurisdiction permitting Owner unrestricted use of the Work and access to services and utilities. Include occupancy permits, operating certificates, and similar releases.
 - 2. Submit closeout submittals specified in other sections, including project record documents, operation and maintenance manuals, property surveys, similar final record information, warranties, workmanship bonds, maintenance service agreements, final certifications, and similar documents.
 - 3. Submit maintenance material submittals specified in other sections, including tools, spare parts, extra materials, and similar items, and deliver to location designated by Architect.
 - 4. Submit test/adjust/balance records.
 - 5. Submit changeover information related to Owner's occupancy, use, operation, and maintenance.
- C. Procedures Prior to Substantial Completion: Before requesting Substantial Completion inspection, complete the following:
 - 1. Advise Owner of pending insurance changeover requirements.
 - 2. Make final changeover of permanent locks and deliver keys to Owner.
 - 3. Complete startup and testing of systems and equipment.
 - 4. Perform preventive maintenance on equipment used prior to Substantial Completion.
 - 5. Advise Owner of changeover in heat and other utilities.
 - 6. Participate with Owner in conducting inspection and walkthrough with local emergency responders.
 - 7. Remove temporary facilities and controls.
 - 8. Complete final cleaning requirements, including touchup painting.
 - 9. Touch up and otherwise repair and restore marred exposed finishes to eliminate visual defects.
- D. Inspection: Submit a written request for inspection for Substantial Completion. On receipt of request, Architect will proceed with inspection or advise Contractor of unfulfilled requirements. Architect will prepare the Certificate of Substantial Completion after inspection or will advise Contractor of items that must be completed or corrected before certificate will be issued.

1.4 FINAL COMPLETION PROCEDURES

- A. Submittals Prior to Final Completion: Before requesting inspection for determining final completion, complete the following:
 - 1. Submit a final Application for Payment.

2. Submit certified copy of Architect's Substantial Completion inspection list of items to be completed or corrected (punch list), endorsed and dated by Architect. Certified copy of the list shall state that each item has been completed or otherwise resolved.
 3. Certificate of Insurance: Submit evidence of final, continuing insurance coverage complying with insurance requirements.
 4. Submit pest-control final inspection report.
- B. Submit a written request for final inspection for acceptance. On receipt of request, Architect will either proceed with inspection or notify Contractor of unfulfilled requirements. Architect will prepare final Certificate for Payment after inspection or will advise Contractor of items that must be completed or corrected before certificate will be issued.
1. Reinspection: Request reinspection when the Work identified in previous inspections as incomplete is completed or corrected.

PART 2 - PRODUCTS

2.1 MATERIALS

- A. In-Place Materials: Use materials for patching identical to in-place materials. For exposed surfaces, use materials that visually match in-place adjacent surfaces to the fullest extent possible.
- B. Cleaning Agents: Use cleaning materials and agents recommended by manufacturer or fabricator of the surface to be cleaned. Do not use cleaning agents that are potentially hazardous to health or property or that might damage finished surfaces.
 1. Use cleaning products that comply with Green Seal's GS-37, or if GS-37 is not applicable, use products that comply with the California Code of Regulations maximum allowable VOC levels.

2.2 OPERATION AND MAINTENANCE DOCUMENTATION

- A. Directory: Prepare a single, comprehensive directory of emergency, operation, and maintenance data and materials, listing items and their location to facilitate ready access to desired information.
- B. Organization: Unless otherwise indicated, organize manual into separate sections for each system and subsystem, and separate sections for each piece of equipment not part of a system.
- C. Organize data into three-ring binders with identification on front and spine of each binder, and envelopes for folded drawings. Include the following:
 1. Manufacturer's operation and maintenance documentation.
 2. Maintenance and service schedules.

3. Maintenance service contracts. Include name and telephone number of service agent.
4. Emergency instructions.
5. Spare parts list and local sources of maintenance materials.
6. Wiring diagrams.
7. Copies of warranties. Include procedures to follow and required notifications for warranty claims

2.3 RECORD DRAWINGS, AS-BUILT DRAWINGS

- A. Record Prints: Maintain a set of prints of the Contract Drawings and Shop Drawings, incorporating new and revised drawings as modifications are issued. Mark to show actual installation where installation varies from that shown originally. Accurately record information in an acceptable drawing technique.
 1. Identify and date each record Drawing; include the designation "PROJECT RECORD DRAWING" in a prominent location.
- B. Record Digital Data Files: Immediately before inspection for Certificate of Substantial Completion, review marked-up record prints with Architect. When authorized, prepare a full set of corrected digital data files of the Contract Drawings.
 1. Format: Same digital data software program, version, and operating system as the original Contract Drawings and Annotated PDF electronic file.

PART 3 - EXECUTION

3.1 EXAMINATION AND PREPARATION

- A. Existing Conditions: The existence and location of underground and other utilities and construction indicated as existing are not guaranteed. Before beginning sitework, investigate and verify the existence and location of underground utilities, mechanical and electrical systems, and other construction affecting the Work.
- B. Before proceeding with each component of the Work, examine substrates, areas, and conditions, with Installer or Applicator present where indicated, for compliance with requirements for installation tolerances and other conditions affecting performance.
 1. Verify compatibility with and suitability of substrates.
 2. Examine roughing-in for mechanical and electrical systems.
 3. Examine walls, floors, and roofs for suitable conditions.
- C. Proceed with installation only after unsatisfactory conditions have been corrected.
- D. Take field measurements as required to fit the Work properly. Where portions of the Work are indicated to fit to other construction, verify dimensions of other construction by field measurements before fabrication.

- E. Verify space requirements and dimensions of items shown diagrammatically on Drawings.

3.2 CONSTRUCTION LAYOUT AND FIELD ENGINEERING

- A. Before proceeding to lay out the Work, verify layout information shown on Drawings, in relation to the property survey and existing benchmarks.
- B. Engage a land surveyor to lay out the Work using accepted surveying practices.
- C. Engage a land surveyor to prepare a final property survey showing significant features (real property) for Project.
 - 1. At Substantial Completion, have the final property survey recorded by or with authorities having jurisdiction as the official "property survey."

3.3 INSTALLATION

- A. Locate the Work and components of the Work accurately, in correct alignment and elevation, as indicated.
 - 1. Make vertical work plumb and make horizontal work level.
 - 2. Conceal pipes, ducts, and wiring in finished areas unless otherwise indicated.
 - 3. Maintain minimum headroom clearance of 96 inches (2440 mm) in occupied spaces and 90 inches (2300 mm) in unoccupied spaces.
- B. Comply with manufacturer's written instructions and recommendations.
- C. Conduct construction operations so no part of the Work is subjected to damaging operations or loading in excess of that expected during normal conditions of occupancy.
- D. Templates: Obtain and distribute to the parties involved templates for work specified to be factory prepared and field installed.
- E. Attachment: Provide blocking and attachment plates and anchors and fasteners of adequate size and number to securely anchor each component in place. Where size and type of attachments are not indicated, verify size and type required for load conditions.
 - 1. Mounting Heights: Where mounting heights are not indicated, mount components at heights directed by Architect.
- F. Joints: Make joints of uniform width. Where joint locations in exposed work are not indicated, arrange joints for the best visual effect. Fit exposed connections together to form hairline joints.
- G. Use products, cleaners, and installation materials that are not considered hazardous.

3.4 CUTTING AND PATCHING

- A. Provide temporary support of work to be cut.
- B. Protection: Protect in-place construction during cutting and patching to prevent damage. Provide protection from adverse weather conditions for portions of Project that might be exposed during cutting and patching operations.
- C. Where existing services/systems are required to be removed, relocated, or abandoned, bypass such services/systems before cutting to minimize interruption to occupied areas.
- D. Cutting: Cut in-place construction using methods least likely to damage elements retained or adjoining construction.
 - 1. Cut holes and slots neatly to minimum size required, and with minimum disturbance of adjacent surfaces. Temporarily cover openings when not in use.
- E. Patch with durable seams that are as invisible as possible. Provide materials and comply with installation requirements specified in other Sections.
 - 1. Restore exposed finishes of patched areas and extend finish restoration into adjoining construction in a manner that will minimize evidence of patching and refinishing.
 - 2. Where walls or partitions that are removed extend one finished area into another, patch and repair floor and wall surfaces in the new space. Provide an even surface of uniform finish, color, texture, and appearance.
 - 3. Where patching occurs in a painted surface, prepare substrate and apply primer and intermediate paint coats appropriate for substrate over the patch, and apply final paint coat over entire unbroken surface containing the patch. Provide additional coats until patch blends with adjacent surfaces.

3.5 CLEANING

- A. Clean Project site and work areas daily, including common areas. Dispose of materials lawfully.
 - 1. Remove liquid spills promptly.
 - 2. Where dust would impair proper execution of the Work, broom-clean or vacuum the entire work area, as appropriate.
 - 3. Remove debris from concealed spaces before enclosing the space.
- B. Complete the following cleaning operations before requesting inspection for certification of Substantial Completion:
 - 1. Clean Project site, yard, and grounds, in areas disturbed by construction activities. Sweep paved areas; remove stains, spills, and foreign deposits. Rake grounds that are neither planted nor paved to a smooth, even-textured surface.
 - 2. Sweep paved areas broom clean. Remove spills, stains, and other foreign deposits.

3. Remove labels that are not permanent.
4. Clean transparent materials, including mirrors. Remove excess glazing compounds.
5. Clean exposed finishes to a dust-free condition, free of stains, films, and foreign substances. Sweep concrete floors broom clean.
6. Vacuum carpeted surfaces and wax resilient flooring.
7. Wipe surfaces of mechanical and electrical equipment. Remove excess lubrication and foreign substances. Clean plumbing fixtures. Clean light fixtures, lamps, globes, and reflectors.
8. Replace disposable air filters and clean permanent air filters. Clean exposed surfaces of diffusers, registers, and grills.

3.6 OPERATION AND MAINTENANCE MANUAL PREPARATION

- A. Operation and Maintenance Manuals: Assemble a complete set of operation and maintenance data indicating operation and maintenance of each system, subsystem, and piece of equipment not part of a system.
- B. Manufacturers' Data: Where manuals contain manufacturers' standard printed data, include only sheets pertinent to product or component installed. Mark each sheet to identify each product or component incorporated into the Work. If data include more than one item in a tabular format, identify each item using appropriate references from the Contract Documents. Identify data applicable to the Work and delete references to information not applicable.
 1. Prepare supplementary text if manufacturers' standard printed data are unavailable and where the information is necessary for proper operation and maintenance of equipment or systems.
- C. Drawings: Prepare drawings supplementing manufacturers' printed data to illustrate the relationship of component parts of equipment and systems and to illustrate control sequence and flow diagrams.

3.7 DEMONSTRATION AND TRAINING

- A. Engage qualified instructors to instruct Owner's personnel to adjust, operate, and maintain systems, subsystems, and equipment not part of a system. Include a detailed review of the following:
 1. Include instruction for basis of system design and operational requirements, review of documentation, emergency procedures, operations, adjustments, troubleshooting, maintenance, and repairs.

END OF SECTION 017000

SECTION 033000 - CAST-IN-PLACE CONCRETE

PART 1 - GENERAL

1.1 SECTION REQUIREMENTS

- A. Submittals: None.
- B. Ready-Mixed Concrete Producer Qualifications: ASTM C 94/C 94M.

PART 2 - PRODUCTS

2.1 PERFORMANCE REQUIREMENTS

- A. Comply with ACI 301, "Specification for Structural Concrete," and with ACI 117, "Specifications for Tolerances for Concrete Construction and Materials."

2.2 MATERIALS

- A. Reinforcing Bars: ASTM A 615/A 615M, Grade 60, deformed.
- B. Plain Steel Wire: ASTM A 82, as drawn.
- C. Plain-Steel Welded Wire Reinforcement: ASTM A 185, as drawn, flat sheet.
- D. Portland Cement: ASTM C 150, Type I or II.
- E. Fly Ash: ASTM C 618, Class C or F.
- F. Ground Granulated Blast-Furnace Slag: ASTM C 989, Grade 100 or 120.
- G. Silica Fume: ASTM C 1240, amorphous silica.
- H. Aggregates: ASTM C 33, coarse aggregate, graded. Maximum Coarse-Aggregate Size: 1-1/2 inches nominal.
- I. Air-Entraining Admixture: ASTM C 260.
- J. Chemical Admixtures: ASTM C 494. Do not use calcium chloride or admixtures containing calcium chloride.
- K. Moisture-Retaining Cover: ASTM C 171, polyethylene film or white burlap-polyethylene sheet.
- L. Clear, Waterborne, Membrane-Forming Curing and Sealing Compound: ASTM C 1315, Type I, Class A.

I. Products:

- a. BASF Construction Chemicals - Building Systems; Kure 1315.
- b. ChemMasters; Polyseal WB.
- c. Conspec by Dayton Superior; Sealcure 1315 WB.
- d. Edoco by Dayton Superior; Cureseal 1315 WB.
- e. Euclid Chemical Company (The), an RPM company; Super Diamond Clear VOX; LusterSeal WB 300.
- f. Kaufman Products, Inc.; Sure Cure 25 Emulsion.
- g. Lambert Corporation; UV Safe Seal.
- h. L&M Construction Chemicals, Inc.; Lumiseal WB Plus.
- i. Meadows, W. R., Inc.; Vocomp-30.
- j. Metalcrete Industries; Metcure 30.
- k. Right Pointe; Right Sheen WB30.
- l. Symons by Dayton Superior; Cure & Seal 31 Percent E.
- m. Vexcon Chemicals, Inc.; Vexcon Starseal 1315.

- M. Joint-Filler Strips: ASTM D 1751, asphalt-saturated cellulosic fiber, or ASTM D 1752, cork or self-expanding cork.

2.3 CONCRETE MIXTURES

- A. Prepare design mixtures, proportioned according to ACI 301.

B. Normal-Weight Concrete:

1. Minimum Compressive Strength: 4000 psi at 28 days.
2. Maximum Water-Cementitious Materials Ratio: 0.50.
3. Slump Limit:
 - a. Reinforced Foundations, Slabs, Beams, & Reinforced Walls: 6" max, 2.5" min
 - b. Plain Footings & Substructure Walls: 4.5" max, 1.5" min
 - c. Pavements & Walks: 4" max, 2" min
4. Air Content: Maintain within range permitted by ACI 301. Do not allow air content of floor slabs to receive troweled finishes to exceed 3 percent.
5. Use fly ash, pozzolan, ground granulated blast-furnace slag, and silica fume as needed to reduce the total amount of portland cement, which would otherwise be used, by not less than 40 percent.
6. For concrete exposed to deicing chemicals, limit use of fly ash to 25 percent replacement of portland cement by weight and granulated blast-furnace slag to 40 percent of portland cement by weight; silica fume to 10 percent of portland cement by weight.

- C. Measure, batch, mix, and deliver concrete according to ASTM C 94/C 94M.

1. When air temperature is above 90 deg F, reduce mixing and delivery time to 60 minutes.

PART 3 - EXECUTION

3.1 CONCRETING

- A. Construct formwork according to ACI 301 and maintain tolerances and surface irregularities within ACI 347R limits of Class A, 1/8 inch for concrete exposed to view and Class C, 1/2 inch for other concrete surfaces.
- B. Place vapor retarder on prepared subgrade, with joints lapped 6 inches and sealed.
- C. Comply with CRSI's "Manual of Standard Practice" for fabricating, placing, and supporting reinforcement.
- D. Install construction, isolation, and contraction joints where indicated. Install full-depth joint-filler strips at isolation joints.
- E. Place concrete in a continuous operation and consolidate using mechanical vibrating equipment.
- F. Protect concrete from physical damage, premature drying, and reduced strength due to hot or cold weather during mixing, placing, and curing.
- G. Formed Surface Finish: Smooth-formed finish for concrete exposed to view, coated, or covered by waterproofing or other direct-applied material; rough-formed finish elsewhere.
- H. Slab Finishes: Comply with ACI 302.1R for screeding, re-straightening, and finishing operations for concrete surfaces. Do not wet concrete surfaces. Provide the following finishes:
 - 1. Scratch finish for surfaces to receive mortar setting beds.
 - 2. Float finish for surfaces to receive waterproofing, roofing, or other direct-applied material.
 - 3. Troweled finish for floor surfaces and floors to receive floor coverings, paint, or other thin film-finish coatings.
 - 4. Trowel and fine-broom finish for surfaces to receive thin-set tile.
 - 5. Nonslip-broom finish to exterior concrete platforms, steps, and ramps.
- I. Cure formed surfaces by moisture curing for at least seven days.
- J. Begin curing concrete slabs after finishing. Apply membrane-forming curing and sealing compound to concrete.
- K. Polished Concrete Floor Treatment: Apply polished concrete finish system to cured and prepared slabs.
 - 1. Machine grind floor surfaces level and smooth.
 - 2. Apply penetrating liquid floor treatment according to manufacturer's written instructions.
 - 3. Continue polishing with progressively finer polishing pads to gloss level required.
 - 4. Neutralize and clean polished floor surfaces.
- L. Owner will engage a testing agency to perform field tests and to submit test reports.

SECTION 311000 - SITE CLEARING

PART 1 - GENERAL

1.1 SECTION REQUIREMENTS

- A. Traffic: Minimize interference with adjoining roads, streets, walks, and other adjacent occupied or used facilities during site-clearing operations.
- B. Salvageable Improvements: Carefully remove items indicated to be salvaged and store on Owner's premises where indicated.
- C. Utility Locator Service: Notify the Indiana One-Call system for area where Project is located before site clearing.
- D. Do not commence site clearing operations until temporary erosion- and sedimentation-control measures are in place.
- E. Soil Stripping, Handling, and Stockpiling: Perform only when the topsoil is dry or slightly moist.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION

3.1 PREPARATION

- A. Protect and maintain benchmarks and survey control points from disturbance.
- B. Locate and clearly flag trees and vegetation to remain or to be relocated.
- C. Protect remaining trees and shrubs from damage and maintain vegetation. Employ a licensed arborist to repair tree and shrub damage. Restore damaged vegetation. Replace damaged trees that cannot be restored to full growth, as determined by arborist.
- D. Do not store materials or equipment or permit excavation within drip line of remaining trees.
- E. Protect site improvements to remain from damage. Restore damaged improvements to condition existing before start of site clearing.
- F. Provide temporary erosion- and sedimentation-control measures to prevent soil erosion and discharge of soil-bearing water runoff or airborne dust to adjacent properties and walkways, according to project drawings.
- G. Locate, identify, disconnect, and seal or cap off utilities indicated to be removed.

- I. Arrange with utility companies to shut off indicated utilities.

3.2 SITE CLEARING

- A. Remove obstructions, trees, shrubs, grass, and other vegetation to permit installation of new construction. Removal includes digging out stumps and obstructions and grubbing roots.
 - I. Grind down stumps and remove roots, obstructions, and debris to a depth of 18 inches below exposed subgrade.
 2. Chip brush, branches, and trees and dispose of off-site.
- B. Strip topsoil. Remove sod and grass before stripping topsoil. Stockpile topsoil that will be reused in the Work.
 - I. Stockpile surplus topsoil to allow for re-spreading deeper topsoil.
- C. Remove existing above- and below-grade improvements as indicated and as necessary to facilitate new construction.
- D. Remove slabs, paving, curbs, gutters, and aggregate base as indicated.
 - I. Neatly saw-cut length of existing pavement to remain before removing existing pavement.
- E. Dispose of waste materials, including trash, debris, and excess topsoil, off Owner's property. Burning waste materials on-site is not permitted.
 - I. Separate recyclable materials produced during site clearing from other non-recyclable materials. Store or stockpile without intermixing with other materials and transport them to recycling facilities.

END OF SECTION 311000

SECTION 312000 - EARTH MOVING

PART 1 - GENERAL

1.1 SECTION REQUIREMENTS

- A. Unauthorized excavation consists of excavation below subgrade elevations or beyond indicated lines and dimensions without direction by Engineer. Unauthorized excavation, as well as remedial work directed by Engineer, shall be without additional compensation.
- B. Utility Locator Service: Notify Indiana One-Call system for area where Project is located before beginning earth moving operations.

PART 2 - PRODUCTS

2.1 MATERIALS

- A. Satisfactory Soil: ASTM D 2487 Soil Classification Groups GW, GP, GM, SW, SP, and SM; free of rock or gravel larger than 3 inches (75 mm) in any dimension, debris, waste, frozen materials, vegetation, or other deleterious matter.
- B. Unsatisfactory Soil: ASTM D 2487 Soil Classification Groups GC, SC, ML, MH, CL, CH, OL, OH, and PT.
- C. Backfill and Fill: Satisfactory soil materials.

PART 3 - EXECUTION

3.1 EARTHWORK

- A. Protect and maintain erosion and sedimentation controls during earth moving operations.
- B. Protect subgrades and foundation soils from freezing temperatures and frost. Remove temporary protection before placing subsequent materials.
- C. Prevent surface water and ground water from entering excavations, from ponding on prepared subgrades, and from flooding Project site and surrounding area.
- D. Explosives: Do not use explosives.
- E. Excavate to subgrade elevations regardless of character of materials and obstructions encountered.

- F. Excavate to subgrade elevations. Material to be excavated will be classified as earth and rock. Do not excavate rock until it has been classified and cross sectioned by Engineer. The Contract Sum will be adjusted for rock excavation according to unit prices included in the Contract Documents.
- G. Excavate for structures, building slabs, pavements, and walkways. Trim subgrades to required lines and grades.
- H. Utility Trenches: Excavate trenches to indicated slopes, lines, depths, and invert elevations.
 - I. Place, compact, and shape bedding course to provide continuous support for pipes and conduits over rock and other unyielding bearing surfaces and to fill unauthorized excavations.
- I. Grade areas to a smooth surface to cross sections, lines, and elevations indicated. Grade lawns, walkways, and unpaved subgrades to tolerances of plus or minus 1 inch and pavements and areas within building lines to plus or minus 1/2 inch (13 mm).
- J. Under pavements and walkways, place subbase course material on prepared subgrades and compact at optimum moisture content to required grades, lines, cross sections, and thicknesses.
- K. Under slabs-on-grade, place drainage course on prepared subgrade and compact to required cross section and thickness.
- L. Allow testing agency to inspect and test each subgrade and each fill or backfill layer and verify compliance with requirements.
- M. Remove surplus satisfactory soil and waste materials, including unsatisfactory soil, trash, and debris, and legally dispose of them off Owner's property.

END OF SECTION 312000

SECTION 312200 – GRADING

PART I - GENERAL

I.1 SECTION INCLUDES

- A. Removal of topsoil.
- B. Rough grading the site for site structures and building pads.
- C. Finish grading.

I.2 RELATED SECTIONS

- A. Section 31 1000 - Site Clearing.
- B. Section 31 2316 - Excavation.
- C. Section 31 2323 - Fill: Filling and compaction.
- D. Section 32 9219 - Seeding: Finish ground cover.
- E. Section 32 9300 - Plants: Topsoil in beds and pits.

I.3 SUBMITTALS

- A. Project Record Documents: Accurately record actual locations of utilities remaining by horizontal dimensions, elevations or inverts, and slope gradients.

I.4 PROJECT CONDITIONS

- A. Protect above- and below-grade utilities that remain.
- B. Protect plants, lawns, rock outcroppings, and other features to remain as a portion of final landscaping.
- C. Protect bench marks, survey control points, existing structures, fences, sidewalks, paving, and curbs from grading equipment and vehicular traffic.

PART 2 - PRODUCTS

2.1 MATERIALS

- A. Topsoil: Topsoil excavated on-site.
 - 1. Graded.
 - 2. Free of roots, rocks larger than 1/2 inch, subsoil, debris, large weeds and foreign matter.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Verify that survey bench mark and intended elevations for the Work are as indicated.

3.2 PREPARATION

- A. Identify required lines, levels, contours, and datum.
- B. Stake and flag locations of known utilities.
- C. Locate, identify, and protect utilities that remain, from damage.
- D. Notify utility company to remove and relocate utilities.

3.3 ROUGH GRADING

- A. Remove topsoil from areas to be further excavated, re-landscaped, or re-graded, without mixing with foreign materials.
- B. Do not remove topsoil when wet.
- C. Remove subsoil from areas to be further excavated, re-landscaped, or re-graded.
- D. Do not remove wet subsoil, unless it is subsequently processed to obtain optimum moisture content.
- E. When excavating through roots, perform work by hand and cut roots with sharp axe.
- F. See Section 31 2323 for filling procedures.
- G. Benching Slopes: Horizontally bench existing slopes greater than 1:4 to key fill material to slope for firm bearing.
- H. Stability: Replace damaged or displaced subsoil to same requirements as for specified fill.

3.4 SOIL REMOVAL

- A. Stockpile topsoil to be re-used on site; remove remainder from site.
- B. Stockpile subsoil to be re-used on site; remove remainder from site.
- C. Stockpiles: Use areas designated on site; pile depth not to exceed 8 feet; protect from erosion.

3.5 FINISH GRADING

- A. Before Finish Grading:
 - 1. Verify building and trench backfilling have been inspected.
 - 2. Verify subgrade has been contoured and compacted.
- B. Remove debris, roots, branches, stones, in excess of 1/2 inch in size. Remove soil contaminated with petroleum products.
- C. Where topsoil is to be placed, scarify surface to depth of 3 inches.
- D. In areas where vehicles or equipment have compacted soil, scarify surface to depth of 3 inches.
- E. Place topsoil in areas where seeding are indicated.
- F. Place topsoil where required to level finish grade.
- G. Place topsoil to the following compacted thicknesses:
 - 1. Areas to be Seeded with Grass: 6 inches.
 - 2. Shrub Beds: 18 inches.
 - 3. Flower Beds: 12 inches.
- H. Place topsoil during dry weather.
- I. Remove roots, weeds, rocks, and foreign material while spreading.
- J. Near plants spread topsoil manually to prevent damage.
- K. Fine grade topsoil to eliminate uneven areas and low spots. Maintain profiles and contour of subgrade.
- L. Lightly compact placed topsoil.

3.6 TOLERANCES

- A. Top Surface of Subgrade: Plus or minus 1/10 foot from required elevation.
- B. Top Surface of Finish Grade: Plus or minus 1/2 inch.

3.7 CLEANING AND PROTECTION

- A. Remove unused stockpiled topsoil and subsoil. Grade stockpile area to prevent standing water.
- B. Leave site clean and raked, ready to receive landscaping.

END OF SECTION 312200

SECTION 312316 – EXCAVATION

PART I - GENERAL

I.1 SUMMARY

A. Related Documents:

1. Drawings and general provisions of the Subcontract apply to this Section.
2. Review these documents for coordination with additional requirements and information that apply to work under this Section.

B. Section Includes:

1. Excavation for buildings and other structural foundations.
2. Excavation for roads and walkways.
3. Excavation for site structures and utilities.

C. Related Sections:

1. Division 01 Section "General Requirements."
2. Division 31 Section "Site Clearing".
3. Division 31 Section "Backfilling".

I.2 REFERENCES

A. General:

1. The following documents form part of the Specifications to the extent stated. Where differences exist between codes and standards, the one affording the greatest protection shall apply.
2. Unless otherwise noted, the referenced standard edition is the current one at the time of commencement of the Work.
3. Refer to Division 01 Section "General Requirements" for the list of applicable regulatory requirements.

B. 29CFR - OSHA Construction Standards:

1. Part 1926 - Safety and Health Regulations for Construction – Subpart P - Excavations

I.3 SUBMITTALS

A. Submit under provisions of Division 01 Section "General Requirements."

B. Shop Drawings: Submit a construction drainage plan showing the collection and disposal of surface and subsurface water that may be encountered in the course of construction.

- C. Shoring Plan: Before excavating 5 feet or more in depth, submit a shoring plan in accordance with the requirements in Division 01 Section "General Requirements."

I.4 PROJECT CONDITIONS

- I.5 Verify that survey benchmark and intended elevations for the Work are as indicated

PART 2 - PRODUCTS (NOT USED)

PART 3 - EXECUTION

3.1 PREPARATION

- A. Underpin adjacent structures and roads which may be damaged by excavation work, including utilities and pipe chases.
- B. Identify required lines, levels, contours, and datum.
- C. Prior to penetrating any ground surface, obtain "Permit to Penetrate or Excavate Surfaces at LBNL" in accordance with Division 01 Section "Environmental, Safety, and Health Procedures". Forty eight hours notice is normally required from when a permit is requested to when it is issued; the Subcontractor is responsible for scheduling the permit request to suit construction activities. Identify known underground, above ground, and aerial utilities. Stake and flag locations.
- D. Coordinate utility relocation or removal with the Project Manager.
- E. Protect above and below grade utilities which are to remain. Support exposed utilities as needed.
- F. Protect plant life, lawns, and other site features indicated to remain.
- G. Protect bench marks, existing structures, fences, sidewalks, paving, and curbs from excavation equipment and vehicular traffic.

3.2 EXCAVATION

- A. Excavate subsoil required to accommodate building foundations, slabs-on-grade, paving, utilities and site structures, construction operations. The maximum slope inclinations shall comply with OSHA.
- B. Excavate to working elevation for piling or caisson work.

- C. Machine slope banks to angle of repose or less, unless shored in accordance with the references cited in Divisions 01 Sections "General Requirements" and "Environmental, Safety, and Health Procedures".
- D. Excavation cut not to interfere with normal 45 degree bearing splay of foundations.
- E. Grade top perimeter of excavation to prevent surface water from draining into excavation.
- F. Hand trim excavation as needed. Remove loose matter.
- G. Remove lumped subsoil, boulders, and rock.
- H. Notify the Project Manager promptly in writing of unexpected subsurface conditions before such conditions are disturbed and stop affected work in area until notified to resume work.
- I. Correct unauthorized excavation at no extra cost to the University.
- J. Correct areas over-excavated by error with lean concrete with a minimum 28 day compressive strength of 1,500 psi or in accordance with Division 31 Section "Backfilling".
- K. Stockpile excavated material in area designated on site and remove excess material not being reused, from site. Cover stockpiled material to protect from rain. Take preventive measures to ensure that water containing soil from excavations or stockpiles does not enter storm drains.

3.3 FIELD QUALITY CONTROL

- A. Field inspection will be performed under provisions of Division 01 Section "Special Provisions."

3.4 PROTECTION

- A. Protect excavations by underpinning, sloping or shoring, as required to ensure life safety and protect property. Comply with applicable laws and standards.
- B. Protect the bottom of excavations and soil within the 45° degree bearing splay of existing foundations.

SECTION 312316.13 – TRENCHING

PART 1 - GENERAL

I.1 SUMMARY

- A. Section includes trenching provisions to govern respective portions of Division 23 work.
- B. Additional and other requirements, methods, and procedures for trenching required for particular systems are included in respective Sections. Specific requirements in respective specifications have precedence over general requirements in this Section.

I.2 REFERENCES

- A. Following documents form a part of this specification to the extent indicated herein:
 - 1. American Society of Testing Materials (ASTM).
 - a. D698 Standard Proctor Maximum Dry Density.
 - b. D2487 Classification of Soils for Engineering Purposes.
 - c. D2922 Density of Soil and Soil Aggregate in Place by Nuclear Methods (Shallow Depth).

I.3 PROJECT/SITE CONDITIONS

- A. Do not place frozen materials and do not place materials on a frozen or muddy surface.

PART 2 - PRODUCTS

2.1 BEDDING SAND

- A. No. 24, Class B sand in accordance with INDOTSS 903, certificate required.

2.2 UNDERGROUND PIPING IDENTIFICATION TAPE

- A. Tape: Polyethylene, 4 mil minimum thick, 3 inches wide with repeated black imprint, "CAUTION - (name of service)", a different distinctive fade resistant color for each service.
- B. Reference Products
 - 1. W.H. Brady, "Identoline".
 - 2. EMEDCO, "Underground Warning Tape".
 - 3. Services & Materials Co., "Underground Marking Tape".

PART 3 - EXECUTION**3.1 WORK**

- A. All trenching to be performed by the respective Contractor providing the installed materials.

3.2 EXAMINATION

- A. Before commencing work; verify requirements for, and coordinate operations with, the following:
 - 1. Installation of fences, including protective fencing for trees and plants.
 - 2. Demolition of miscellaneous structures.
 - 3. Clearing and grubbing.
 - 4. Stripping and disposal of sod, and stripping and stockpiling of topsoil.

3.3 PREPARATION

- A. Locate and mark all existing underground installations (utilities. etc.) in the area of operations.
- B. Lay out the various lines on the ground using stakes and flags. Coordinate locations with existing underground installations and other work of this Division and other Divisions. Do not proceed with excavating until layout is approved.
- C. Set line and grade stakes as required or specified in respective piping System Sections.

3.4 PROTECTION

- A. Shore and brace excavations as necessary to prevent cave-ins.
- B. Protection of Subgrade and Embankment.
 - 1. During construction, keep embankments and excavations shaped and drained. Maintain ditches and drains along' subgrade in such manner as to drain effectively at all times.
 - 2. Operate pumping equipment as required to keep excavation free of water and subgrades dry, firm, and undisturbed until permanent work has been approved by Architect.
 - 3. Storage or stockpiling of materials on finished subgrade will not be permitted.
 - 4. Erosion Control: Provide and perform erosion control as specified in Division I Section "Temporary Facilities" until permanent vegetation, structures and erosion control devices have been installed.
- C. Protection of Topsoil Areas: After placement of topsoil, protect these areas from heavy machinery. Topsoil compacted by heavy machinery shall be removed and replaced at no additional cost to Owner.

3.5 TRENCHING

A. Trenching in General.

1. Perform excavating of every description, and of whatever substances are encountered, to depths indicated or required.
2. Excavation: By open cut, unless indicated otherwise, except short sections of a trench may be tunneled if pipe can be safely and properly installed and backfill can be properly compacted in tunnel sections.
3. Sheet piling and Shoring: Placed as necessary for protection of work and safety of personnel.
4. Material Suitable for Backfill: During excavating, pile in an orderly manner a sufficient distance from banks of trench to avoid overloading and to prevent slides or cave-ins.
5. To prevent surface water from flowing into trenches or other excavations, perform grading as necessary.
6. Water Accumulating in Excavations: Remove by pumping or other acceptable methods.
7. Excavated Materials Not Required or Suitable for Backfill: Removed as waste materials.

B. Trench excavation.

1. Trench Width: As necessary for proper laying of pipe.
 - a. Width of Trenches at All Points Below Top of Pipes: Not be greater than outside diameter of pipe plus 24 inches, nor less than outside diameter of pipe plus 12 inches, to permit satisfactory jointing and thorough tamping of bedding material under and around pipe.
 - b. Sheet piling and Bracing: Where required, place within specified trench width.
 - c. Where Trench Widths are Exceeded: Provide stronger pipe or special installation procedures as directed without additional cost to Owner.
2. Banks of Pipe Trenches: As nearly vertical as practicable.
3. Bottom of Trenches: Accurately graded to provide a uniform surface for bedding at a depth not less than 1/3 the diameter of the pipe, 4 inches minimum, below bottom perimeter of pipe. Provide recesses in trench bottom to accommodate bells, joints, couplings, etc.
4. Stones: Remove as necessary to avoid point bearing.
5. Take care to not over excavate.
 - a. Except as specified for overexcavation due to wet, rocky or otherwise unstable material; backfill overdepths as specified for backfilling lower portion of trenches.
 - b. Wet or otherwise unstable material in bottom of trench that is incapable of properly supporting pipe shall be overexcavated to a depth to allow for construction of a stable pipe bedding.
 - c. When overexcavation is performed, backfill with a suitable material, compacted to a minimum of 4 inches below bottom and 4 inches on each side of pipe.

3.6 PAVEMENT REMOVAL AND REPLACEMENT

- A. Remove and replace sidewalks, drives, etc. where required, as a part of respective mechanical installation work. Replace removed paving to match existing, and meet City specifications.

- B. Pavement removal and replacement are governed by Division I Section “Cutting and Patching”.

3.7 BEDDING

- A. Deposit bedding sand in 6-inch maximum thickness layers in bottom of trench and compact to specified density with suitable tampers up to gradient of bottom of pipe.
- B. As pipe is placed on bedding, deposit additional bedding sand on both sides of pipe and compact up to a layer thickness equal to $1/3$ the diameter of pipe.

3.8 DISPOSITION OF WASTE MATERIALS

- A. Remove waste materials from site and dispose of in a lawful manner.

END OF SECTION 312316.13

SECTION 312323 – BACKFILLING

PART I - GENERAL

I.1 SUMMARY

A. Related Documents:

1. Drawings and general provisions of the Subcontract apply to this Section.
2. Review these documents for coordination with additional requirements and information that apply to work under this Section.

B. Section Includes:

1. Building perimeter and site structure backfilling.
2. Site filling and backfilling.
3. Fill under slabs-on-grade and/or paving.
4. Consolidation and compaction.
5. Fill for over-excavation.

C. Related Sections:

1. Division 01 Section "General Requirements."
2. Division 01 Section "Special Procedures."
3. Division 03 Section "Cast-in-Place Concrete."
4. Division 31 Section "Excavation".
5. Division 31 Section "Trenching".

I.2 REFERENCES

A. General:

1. The following documents form part of the Specifications to the extent stated. Where differences exist between codes and standards, the one affording the greatest protection shall apply.
2. Unless otherwise noted, the referenced standard edition is the current one at the time of commencement of the Work.
3. Refer to Division 01 Section "General Requirements" for the list of applicable regulatory requirements.

B. ASTM International:

1. ASTM C136 Method for Sieve Analysis of Fine and Coarse Aggregates
2. ASTM D2992 Test Method for Density of Soil in Place by Nuclear Methods
3. ASTM D1557 Standard Test Methods for Laboratory Compaction Characteristics of Soil Using Modified Effort (56,000 ft-lbf/ft³(2,700 kN-m/m³))

I.3 SUBMITTALS

- A. Submit under provisions of Division 01 Section "General Requirements."
- B. Submit a certified mix design and aggregate sieve analysis conforming with ASTM C136 for controlled density fill, if used.

PART 2 - PRODUCTS

2.1 FILL MATERIALS

- A. Type A - Coarse Stone, Crushed Rock or Gravel: Free of shale, clay, friable material, sand, debris; graded in accordance with the Engineer's recommendations and a cleanness value of 75 or greater.
- B. Type B - Class 2, Aggregate Base: Free of vegetable matter and other deleterious substances, and shall be of such nature that it can be compacted readily using water, tamping and rolling to form a firm, stable base.
- C. Type C - Pea Gravel: Washed, free of clay, shale, organic matter; graded in accordance with the Engineer's recommendations and have a cleanness value of 75 or greater.
- D. Type D - Sand: Natural river or bank sand; or washed sand free of silt, clay, loam, friable or soluble materials, or organic matter; graded in accordance with ASTM C136 and having a sand equivalent of 75.
- E. Type E - Imported Backfill: Nonexpansive soil, free of debris, organic material and clods or rocks larger than 4 inches with a liquid limit no greater than 40 and a plasticity index no greater than 15.
- F. Type F - Native Backfill: "As is", free of debris, organic material and clods or rocks larger than 4 inches.
- G. Water: Free of objectionable quantities of silt, oil, organic matter, alkali, or salts.
- H. Controlled Density Fill: Controlled density fill will be considered an acceptable alternative to Type E or F backfill at the Subcontractor's option.

2.2 CONTROLLED DENSITY FILL

- A. Controlled Density Fill Mix: Consisting of portland cement, fly ash, water, fine and coarse aggregate and an air entraining admixture. The proportions of the controlled density fill shall conform to the mix design. Controlled density fill shall have a 28 day unconfined compressive strength from a minimum of 50 psi to a maximum of 150 psi.

- B. Aggregates that produce the performance characteristics of the control density fill may be submitted for approval. The maximum size aggregate is 3/8-inch; the quantity of aggregate material passing a #200 sieve shall not exceed 12 percent.
- C. Air Content: Not to exceed 6 percent when measured in conformance with ASTM C231.

2.3 ACCESSORIES

- A. Geotextile Fabric: Mirafi, Exxon, or equal.

PART 3 - EXECUTION

3.1 PREPARATION

- A. Control dust throughout backfill operations.
- B. Compact subgrade to density requirements for subsequent backfill materials. Cut out soft areas of subgrade not capable of in situ compaction. Backfill with the type of material indicated on the Drawings and compact to density equal to or greater than requirements for subsequent backfill material.
- C. Prior to placement of aggregate base course material at paved areas, compact subsoil to 95 percent of its maximum dry density at optimum water content –1 percent + 3 percent in accordance with ASTM D1557 to the depth as indicated on the Drawings, but not less than 6 inch.

3.2 BACKFILLING

- A. Backfill areas to contours and elevations with specified materials.
- B. Systematically backfill by mechanical means. Do not backfill over porous, wet, or spongy subgrade surfaces.
- C. Place geotextile fabric as shown on the drawings.
- D. Type A, C or D Fill: Place and compact materials in continuous layers not exceeding 6 inch compacted depth.
- E. Type B Fill - Aggregate Base Class 2: Placement of aggregate base shall not proceed until the Subcontractor has obtained the Owner approval for compaction and grading of the subbase.
- F. Type E or F Fill: Place and compact material in continuous layers not exceeding 6 inch compacted depth under structures, roads or site structures, and eight inches compacted depth in other areas.
- G. Employ a placement method that does not disturb or damage foundation perimeter drainage or foundation waterproofing.

- H. Maintain moisture content of backfill materials within –1 percent to +3 percent of optimum to attain required compaction density.
- I. Slope grade away from building minimum two inches in 10 ft, unless noted otherwise.
- J. Make grade changes gradual. Blend slope into level areas.
- K. Remove surplus excavated materials from site.
- L. Leave fill material stockpile areas completely free of excess fill materials.

3.3 TOLERANCES

- A. Top Surface of Backfilling Under Paved Areas: The surface of the finished aggregate base at any point shall not vary more than 1/2-inch above or below the grade shown on the Drawings.

3.4 PROTECTION OF FINISHED WORK

- A. Protect finished work.
- B. Recompect fills subjected to vehicular traffic.

3.5 SCHEDULE (unless otherwise noted on the Drawings)

- A. One foot wide layer on exterior side of foundation walls, and behind retaining walls and over foundation perimeter drainage.
 - I. Filter fabric and Type A fill to subgrade elevation, compacted in six-inch lifts with each lift compacted to 95 percent.
- B. Below unpaved areas on exterior side of foundation walls, and behind retaining walls and over foundation perimeter drainage.
 - I. Type E or F fill to subgrade elevation compacted in six inch lifts with each lift compacted to 90%.
- C. Fill Under Grass Areas:
 - I. Type E or F fill, to 6 inch below finish grade, compacted in six inch lifts with each lift compacted to 90 percent.
- D. Fill Under Landscaped Areas:
 - I. Type E or F fill, to 12 inches below finish grade, compacted in six inch lifts with each lift compacted to 90%.
- E. Fill Under Asphalt or Concrete Paving:

- I. Type B fill, to subgrade elevation, compacted in six inch maximum lifts with each lift compacted to 95 percent.

END OF SECTION 312323

SECTION 321216 - ASPHALT PAVING

PART 1 - GENERAL

1.1 SECTION REQUIREMENTS

- A. Submittals: Product Data and hot-mix asphalt design mixes.

PART 2 - PRODUCTS

2.1 ASPHALT PAVING

- A. Regulatory Requirements: Comply with requirements of INDOT for asphalt paving work.
- B. Asphalt-Paving Publication: Comply with AI MS-22, "Construction of Hot Mix Asphalt Pavements," unless more stringent requirements are indicated.

2.2 MATERIALS

- A. Hot-Mix Asphalt: Dense, hot-laid, hot-mix asphalt plant mixes approved by authorities having jurisdiction.
 - 1. Base Course: #9 385#/SYD.
 - 2. Surface Course: #11 165#/SYD.
 - 3. Provide mixes with a history of satisfactory performance in geographical area where Project is located and complying with ASTM D 3515 for the following nominal, maximum aggregate sizes:
 - a. Base Course: 3-1/2 inch.
 - b. Surface Course: 1-1/2 inch.
- B. Tack Coat: ASTM D 977 emulsified asphalt, or ASTM D 2397 cationic emulsified asphalt, slow setting, diluted in water, of suitable grade and consistency for application.
- C. Pavement-Marking Paint: MPI #32 alkyd traffic marking paint.
 - 1. Color: White.
- D. Pavement-Marking Paint: MPI #97 latex traffic marking paint.
 - 1. Color: White.
- E. Wheel Stops: Precast, air-entrained concrete, 2500-psi minimum compressive strength, 4-1/2 inches high by 9 inches wide by 72 inches long. Provide chamfered corners and drainage slots on underside and holes for anchoring to substrate.

PART 3 - EXECUTION

3.1 PAVING

- A. Tack coat existing asphalt or concrete surfaces and allow tack coat to cure undisturbed.
- B. Place hot-mix asphalt to required grade, cross section, and thickness. Promptly correct surface irregularities in paving course.
 - I. Spread mix at minimum temperature of 250 deg F.
- C. 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 vibratory-plate compactors in areas inaccessible to rollers. Complete compaction before mix temperature cools to 185 deg F.
- D. Complete breakdown or initial rolling immediately after rolling joints and outside edge. Examine surface immediately after breakdown rolling for indicated crown, grade, and smoothness.
- E. 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 course has been uniformly compacted to 92 percent of reference maximum theoretical density according to ASTM D 2041.
- F. Finish roll paved surfaces to remove roller marks while hot-mix asphalt is still warm.
- G. While surface is being compacted and finished, trim edges of pavement to proper alignment. Bevel edges while asphalt is still hot; compact thoroughly.
- H. Remove and restore paved areas that are defective or contaminated.
- I. Allow paving to age for 30 days before starting pavement marking.
- J. Apply pavement-marking paint with mechanical equipment to a minimum wet film thickness of 15 mils.
- K. Install wheel stops in bed of adhesive as recommended by manufacturer.
- L. Securely attach wheel stops into pavement with two galvanized-steel dowels.

SECTION 329200 - TURF AND GRASSES

PART I - GENERAL

I.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

I.2 SUMMARY

- A. Section Includes:

- 1. Seeding.
- 2. Sodding.

- B. Related Sections:

- 1. Section 311000 "Site Clearing" for topsoil stripping and stockpiling.
- 2. Section 312000 "Earth Moving" for excavation, filling and backfilling, and rough grading.

I.3 DEFINITIONS

- A. Duff Layer: The surface layer of native topsoil that is composed of mostly decayed leaves, twigs, and detritus.
- B. Finish Grade: Elevation of finished surface of planting soil.
- C. Manufactured Topsoil: Soil produced off-site by homogeneously blending mineral soils or sand with stabilized organic soil amendments to produce topsoil or planting soil.
- D. Pesticide: A substance or mixture intended for preventing, destroying, repelling, or mitigating a pest. This includes insecticides, miticides, herbicides, fungicides, rodenticides, and molluscicides. It also includes substances or mixtures intended for use as a plant regulator, defoliant, or desiccant.
- E. Pests: Living organisms that occur where they are not desired or that cause damage to plants, animals, or people. These include insects, mites, grubs, mollusks (snails and slugs), rodents (gophers, moles, and mice), unwanted plants (weeds), fungi, bacteria, and viruses.
- F. Planting Soil: Standardized topsoil; existing, native surface topsoil; existing, in-place surface soil; imported topsoil; or manufactured topsoil that is modified with soil amendments and perhaps fertilizers to produce a soil mixture best for plant growth.
- G. Subgrade: Surface or elevation of subsoil remaining after excavation is complete, or top surface of a fill or backfill before planting soil is placed.

- H. Subsoil: All soil beneath the topsoil layer of the soil profile, and typified by the lack of organic matter and soil organisms.
- I. Surface Soil: Soil that is present at the top layer of the existing soil profile at the Project site. In undisturbed areas, the surface soil is typically topsoil, but in disturbed areas such as urban environments, the surface soil can be subsoil.

I.4 INFORMATIONAL SUBMITTALS

- A. Certification of Grass Seed: From seed vendor for each grass-seed monostand or mixture stating the botanical and common name, percentage by weight of each species and variety, and percentage of purity, germination, and weed seed. Include the year of production and date of packaging.
 - I. Certification of each seed mixture for turfgrass sod. Include identification of source and name and telephone number of supplier.
- B. Product Certificates: For fertilizers, from manufacturer.

I.5 DELIVERY, STORAGE, AND HANDLING

- A. Seed and Other Packaged Materials: Deliver packaged materials in original, unopened containers showing weight, certified analysis, name and address of manufacturer, and indication of conformance with state and federal laws, as applicable.
- B. Sod: Harvest, deliver, store, and handle sod according to requirements in "Specifications for Turfgrass Sod Materials" and "Specifications for Turfgrass Sod Transplanting and Installation" in TPI's "Guideline Specifications to Turfgrass Sodding." Deliver sod in time for planting within 24 hours of harvesting. Protect sod from breakage and drying.
- C. Bulk Materials:
 - 1. Do not dump or store bulk materials near structures, utilities, walkways and pavements, or on existing turf areas or plants.
 - 2. Provide erosion-control measures to prevent erosion or displacement of bulk materials, discharge of soil-bearing water runoff, and airborne dust reaching adjacent properties, water conveyance systems, or walkways.
 - 3. Accompany each delivery of bulk fertilizers, and soil amendments with appropriate certificates.

I.6 PROJECT CONDITIONS

- A. Planting Restrictions: Plant during the following periods. Coordinate planting periods with initial maintenance periods to provide required maintenance from date of planting completion.
 - I. Summer Planting: 7/28 – 8/15. (Sodding along Indianapolis Avenue improvements and Clark Hall lateral.)

2. Fall Planting: 10/1 – 11/28. (Seeding remaining disturbed areas. Note that all lawn areas that have been disturbed by 10/20 must be seeded by 10/31.)
- B. Weather Limitations: Proceed with planting only when existing and forecasted weather conditions permit planting to be performed when beneficial and optimum results may be obtained. Apply products during favorable weather conditions according to manufacturer's written instructions.

I.7 MAINTENANCE SERVICE

- A. Initial Turf Maintenance Service: Provide full maintenance by skilled employees of landscape installer. Maintain as required in Part 3. Begin maintenance immediately after each area is planted and continue until acceptable turf is established but for not less than the following periods:
 1. Seeded Turf: 60 days from date of planting completion.
 - a. When initial maintenance period has not elapsed before end of planting season, or if turf is not fully established, continue maintenance during next planting season.
 2. Sodded Turf: 30 days from date of planting completion.

PART 2 - PRODUCTS

2.1 SEED

- A. Grass Seed: Fresh, clean, dry, new-crop seed complying with AOSA's "Journal of Seed Technology; Rules for Testing Seeds" for purity and germination tolerances.

2.2 TURFGRASS SOD

- A. Turfgrass Sod: Certified, complying with "Specifications for Turfgrass Sod Materials" in TPI's "Guideline Specifications to Turfgrass Sodding." Furnish viable sod of uniform density, color, and texture, strongly rooted, and capable of vigorous growth and development when planted.

2.3 FERTILIZERS

- A. Commercial Fertilizer: Commercial-grade complete fertilizer of neutral character, consisting of fast- and slow-release nitrogen, 50 percent derived from natural organic sources of urea formaldehyde, phosphorous, and potassium in the following composition:
 1. Composition: 16 percent nitrogen, 28 percent phosphorous, and 12 percent potassium, by weight.

2.4 PLANTING SOILS

- A. Planting Soil: Existing, in-place surface soil. Verify suitability of existing surface soil to produce viable planting soil. Remove stones, roots, plants, sod, clods, clay lumps, pockets of coarse sand, concrete slurry, concrete layers or chunks, cement, plaster, building debris, and other extraneous materials harmful to plant growth.
- B. Planting Soil: Imported topsoil or manufactured topsoil from off-site sources. Obtain topsoil displaced from naturally well-drained construction or mining sites where topsoil occurs at least 4 inches deep; do not obtain from bogs or marshes.
 - I. Additional Properties of Imported Topsoil or Manufactured Topsoil: Screened and free of stones 1 inch or larger in any dimension; free of roots, plants, sod, clods, clay lumps, pockets of coarse sand, paint, paint washout, concrete slurry, concrete layers or chunks, cement, plaster, building debris, oils, gasoline, diesel fuel, paint thinner, turpentine, tar, roofing compound, acid, and other extraneous materials harmful to plant growth; free of obnoxious weeds and invasive plants including quackgrass, Johnsongrass, poison ivy, nutsedge, nimblewill, Canada thistle, bindweed, bentgrass, wild garlic, ground ivy, perennial sorrel, and brome grass; not infested with nematodes, grubs, other pests, pest eggs, or other undesirable organisms and disease-causing plant pathogens; friable and with sufficient structure to give good tilth and aeration. Continuous, air-filled, pore-space content on a volume/volume basis shall be at least 15 percent when moisture is present at field capacity. Soil shall have a field capacity of at least 15 percent on a dry weight basis.

2.5 MULCHES

- A. Straw Mulch: Provide air-dry, clean, mildew- and seed-free, salt hay or threshed straw of wheat, rye, oats, or barley.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Examine areas to be planted for compliance with requirements and other conditions affecting performance.
 - I. Verify that no foreign or deleterious material or liquid such as paint, paint washout, concrete slurry, concrete layers or chunks, cement, plaster, oils, gasoline, diesel fuel, paint thinner, turpentine, tar, roofing compound, or acid has been deposited in soil within a planting area.
 - 2. Do not mix or place soils and soil amendments in frozen, wet, or muddy conditions.
 - 3. Suspend soil spreading, grading, and tilling operations during periods of excessive soil moisture until the moisture content reaches acceptable levels to attain the required results.
 - 4. Uniformly moisten excessively dry soil that is not workable and which is too dusty.

- B. Proceed with installation only after unsatisfactory conditions have been corrected.
- C. If contamination by foreign or deleterious material or liquid is present in soil within a planting area, remove the soil and contamination as directed by Architect and replace with new planting soil.

3.2 PREPARATION

- A. Protect structures, utilities, sidewalks, pavements, and other facilities, trees, shrubs, and plantings from damage caused by planting operations.
 - 1. Protect adjacent and adjoining areas from hydro-seeding and hydro-mulching overspray.
 - 2. Protect grade stakes set by others until directed to remove them.
- B. Install erosion-control measures to prevent erosion or displacement of soils and discharge of soil-bearing water runoff or airborne dust to adjacent properties and walkways.

3.3 TURF AREA PREPARATION

- A. Limit turf subgrade preparation to areas to be planted.
- B. Newly Graded Subgrades: Loosen subgrade to a minimum depth of 6 inches. Remove stones larger than 1 inch in any dimension and sticks, roots, rubbish, and other extraneous matter and legally dispose of them off Owner's property.
 - 1. Spread planting soil to a depth of 6 inches but not less than required to meet finish grades after light rolling and natural settlement. Do not spread if planting soil or subgrade is frozen, muddy, or excessively wet.
 - a. Spread approximately 1/2 the thickness of planting soil over loosened subgrade. Mix thoroughly into top 2 inches of subgrade. Spread remainder of planting soil.
 - b. Reduce elevation of planting soil to allow for soil thickness of sod.
- C. Unchanged Subgrades: If turf is to be planted in areas unaltered or undisturbed by excavating, grading, or surface-soil stripping operations, prepare surface soil as follows:
 - 1. Remove existing grass, vegetation, and turf. Do not mix into surface soil.
 - 2. Loosen surface soil to a depth of at least 6 inches. Apply soil amendments and fertilizers according to planting soil mix proportions and mix thoroughly into top 6 inches of soil. Till soil to a homogeneous mixture of fine texture.
 - 3. Remove stones larger than 1 inches in any dimension and sticks, roots, trash, and other extraneous matter.
 - 4. Legally dispose of waste material, including grass, vegetation, and turf, off Owner's property.
- D. Finish Grading: Grade planting areas to a smooth, uniform surface plane with loose, uniformly fine texture. Grade to within plus or minus 1/2 inch of finish elevation. Roll and rake, remove

ridges, and fill depressions to meet finish grades. Limit finish grading to areas that can be planted in the immediate future.

- E. Moisten prepared area before planting if soil is dry. Water thoroughly and allow surface to dry before planting. Do not create muddy soil.
- F. Before planting, obtain Architect's acceptance of finish grading; restore planting areas if eroded or otherwise disturbed after finish grading.

3.4 SEEDING

- A. Sow seed with spreader or seeding machine. Do not broadcast or drop seed when wind velocity exceeds 5 mph. Evenly distribute seed by sowing equal quantities in two directions at right angles to each other.
 - 1. Do not use wet seed or seed that is moldy or otherwise damaged.
 - 2. Do not seed against existing trees. Limit extent of seed to outside edge of planting saucer.
- B. Sow seed at a total rate of 10 lb/1000 sq. ft.
- C. Sow fertilizer at a total rate of 150 lb/1 acre.
- D. Rake seed & fertilizer lightly into top 1/8 inch of soil, roll lightly, and water with fine spray.
- E. Protect seeded areas with slopes exceeding 1:4 with erosion-control blankets installed and stapled according to manufacturer's written instructions.
- F. Protect seeded areas with slopes not exceeding 1:6 by spreading straw mulch. Spread uniformly at a minimum rate of 4 tons/acre to form a continuous blanket 1-1/2 inches in loose thickness over seeded areas. Spread by hand, blower, or other suitable equipment.
- G. Anchor straw mulch by crimping into soil with suitable mechanical equipment.

3.5 SODDING

- A. Lay sod within 24 hours of harvesting. Do not lay sod if dormant or if ground is frozen or muddy.
- B. Lay sod to form a solid mass with tightly fitted joints. Butt ends and sides of sod; do not stretch or overlap. Stagger sod strips or pads to offset joints in adjacent courses. Avoid damage to subgrade or sod during installation. Tamp and roll lightly to ensure contact with subgrade, eliminate air pockets, and form a smooth surface. Work sifted soil or fine sand into minor cracks between pieces of sod; remove excess to avoid smothering sod and adjacent grass.
 - 1. Lay sod across angle of slopes exceeding 1:3.
 - 2. Anchor sod on slopes exceeding 1:6 with wood pegs spaced as recommended by sod manufacturer but not less than 2 anchors per sod strip to prevent slippage.

- C. Saturate sod with fine water spray within two hours of planting. During first week after planting, water daily or more frequently as necessary to maintain moist soil to a minimum depth of 1-1/2 inches below sod.

3.6 TURF RENOVATION

- A. Renovate existing turf.
- B. Renovate existing turf damaged by Contractor's operations, such as storage of materials or equipment and movement of vehicles.
 - 1. Reestablish turf where settlement or washouts occur or where minor re-grading is required.
 - 2. Install new planting soil as required.
- C. Remove sod and vegetation from diseased or unsatisfactory turf areas; do not bury in soil.
- D. Remove topsoil containing foreign materials such as oil drippings, fuel spills, stones, gravel, and other construction materials resulting from Contractor's operations, and replace with new planting soil.
- E. Mow, dethatch, core aerate, and rake existing turf.
- F. Remove weeds before seeding. Where weeds are extensive, apply selective herbicides as required. Do not use pre-emergence herbicides.
- G. Remove waste and foreign materials, including weeds, soil cores, grass, vegetation, and turf, and legally dispose of them off Owner's property.
- H. Till stripped, bare, and compacted areas thoroughly to a soil depth of 6 inches.
- I. Apply soil amendments and initial fertilizers required for establishing new turf and mix thoroughly into top 4 inches of existing soil. Install new planting soil to fill low spots and meet finish grades.
- J. Apply seed and protect with straw mulch as required for new turf.
- K. Water newly planted areas and keep moist until new turf is established.

3.7 TURF MAINTENANCE

- A. Maintain and establish turf by watering, fertilizing, weeding, mowing, trimming, replanting, and performing other operations as required to establish healthy, viable turf. Roll, re-grade, and replant bare or eroded areas and re-mulch to produce a uniformly smooth turf. Provide materials and installation the same as those used in the original installation.
 - I. Fill in as necessary soil subsidence that may occur because of settling or other processes. Replace materials and turf damaged or lost in areas of subsidence.

2. In areas where mulch has been disturbed by wind or maintenance operations, add new mulch and anchor as required to prevent displacement.
 3. Apply treatments as required to keep turf and soil free of pests and pathogens or disease. Use integrated pest management practices whenever possible to minimize the use of pesticides and reduce hazards.
- B. Watering: Install and maintain temporary piping, hoses, and turf-watering equipment to convey water from sources and to keep turf uniformly moist to a depth of 4 inches.
1. Schedule watering to prevent wilting, puddling, erosion, and displacement of seed or mulch. Lay out temporary watering system to avoid walking over muddy or newly planted areas.
 2. Water turf with fine spray at a minimum rate of 1 inch per week unless rainfall precipitation is adequate.

3.8 SATISFACTORY TURF

- A. Turf installations shall meet the following criteria as determined by Architect:
1. Satisfactory Seeded Turf: At end of maintenance period, a healthy, uniform, close stand of grass has been established, free of weeds and surface irregularities, with coverage exceeding 90 percent over any 10 sq. ft. and bare spots not exceeding 5 by 5 inches.
 2. Satisfactory Sodded Turf: At end of maintenance period, a healthy, well-rooted, even-colored, viable turf has been established, free of weeds, open joints, bare areas, and surface irregularities.
- B. Use specified materials to reestablish turf that does not comply with requirements and continue maintenance until turf is satisfactory.

3.9 CLEANUP AND PROTECTION

- A. Promptly remove soil and debris created by turf work from paved areas. Clean wheels of vehicles before leaving site to avoid tracking soil onto roads, walks, or other paved areas.
- B. Erect temporary fencing or barricades and warning signs as required to protect newly planted areas from traffic. Maintain fencing and barricades throughout initial maintenance period and remove after plantings are established.
- C. Remove non-degradable erosion-control measures after grass establishment period.

END OF SECTION 329200

SECTION 329202 – RESTORATION OF SURFACES

PART I - GENERAL

I.1 DESCRIPTION

- A. Restoration of surfaces shall include the removal of the existing surface, the disposal of the surplus material and the construction of new surfaces and adjusting all new and existing structures for proper grade prior to paving as indicated on the plans and/or as specified in these Specifications.

I.2 RESTORATION OF PAVED SURFACES

A. Restoration

- 1. After all excavations within the limits of paved surfaces have been properly backfilled, compacted and repaired, the paved surfaces shall be restored to a condition as good as or better than existed prior to the beginning of the work, in accordance with the following specifications.
- 2. State Paved Surfaces: Highways, streets and roads constructed and/or maintained by the Indiana Department of Transportation (INDOT), which are wholly or partially removed, damaged or disturbed by the Contractor's operations shall be restored to a condition as good as or better than existed prior to the beginning of the work. Such restoration shall be performed in accordance with the pertinent specifications and standards of the Indiana Department of Transportation, as applicable.
- 3. Other Paved Surfaces: Streets, alleys, sidewalks, driveways, curbs and gutters, not constructed or maintained by the Indiana Department of Transportation, but paved with asphalt, concrete, cinders, crushed stone, waterbound macadam, oil-bound macadam, or heterogenous paving materials, which are wholly or partially removed, damaged, or disturbed by the Contractor's operations, shall be restored with like or better materials, acceptable to the Engineer, to a condition as good as or better than existed prior to the beginning of the work, so that movement of traffic, both vehicular and pedestrian, through the restored way shall be as free, safe and unimpeded as before.

B. Temporary Surface

- 1. Temporary trench surfaces shall be installed and maintained in accordance with this specification. This temporary surface shall be maintained by the Contractor until the permanent pavement is placed. Before placing permanent pavement, all or parts of the temporary surface shall be removed, as necessary, and hauled from the site of the work.

PART 2 - PRODUCTS**2.1 TEMPORARY PAVEMENT REPLACEMENT**

- A. Trench surfaces of highly traveled streets and roads may be designated to receive a temporary pavement replacement of cold mixed bituminous pavement. This temporary pavement shall be of the thickness specified or shown on the plans and shall be surface mixture Class A or B prepared and placed in accordance with Section 403 - Cold Mixed Asphalt, CMA, Pavement of the latest edition of the INDOT Standard Specifications. Prime and tack coats shall not be required. All temporary pavement shall be maintained by the Contractor to proper grade so as not to impede the safe flow of traffic until the permanent pavement replacement is made.

2.2 PERMANENT PAVING

- A. Permanent paved surfaces shall be restored in accordance with "Roadways and Parking Areas" and the following requirements, unless otherwise set forth in the plans, the Special Provisions or Detailed Specifications; however, in all cases, the methods and materials of restoration shall meet the requirements of the INDOT, as applicable.

2.3 RESTORATION OF GROUND SURFACES

- A. All ground surfaces in public Rights-of-Way, easements and on private property that have been damaged or destroyed by the Contractor's operations shall be restored in accordance with the following specifications. All surplus material, rock, trees, shrubs, concrete pipe, asphalt, crushed stone, etc., not to be used in the Contractor's restoration operations shall be removed from the site and disposed of in an acceptable manner. All work, either sodding or seeding and mulching, shall be in accordance with WM-24, "Seeding and Sodding".

2.5 CLEAN UP

- A. Before final acceptance of the work, the Contractor shall satisfactorily clean all areas within the limits of his operations including the street surfaces, walks, gutters, fences, lawns, private property and structures, leaving them in as neat, clean and usable condition as originally found. He shall remove all machinery, tools, surplus materials, temporary buildings and other structures from the site of work. He shall also remove all organic matter and materials containing organic matter from all areas and places used by him during construction. All pipes, manholes, inlets, etc., shall be cleared of all scaffolding, sedimentation, debris, rubbish and dirt.
- B. Where the Contractor's operations have resulted in filling existing ditches, clogging existing culverts, damaging existing bridges, ground surfaces, sidewalks, driveways, etc., the Contractor shall re-ditch, clean culverts, repair or replace bridges, ground surfaces, sidewalks, driveways, etc. so as to return them to a condition as good as or better than existed prior to the beginning of his operations.

- C. The Contractor's cleanup operations, which include repair, restoration or replacement of ground surfaces and existing improvements and the removal of rock, shall be performed continuously during the construction operations.
- D. All cleanup and restoration shall be done to the approval of Linton Stockton School Corporation.