



**CITY OF NOVI CITY COUNCIL
JANUARY 22, 2024**

SUBJECT: Consideration of approval to award the construction contract to Underground Infrastructure Services, for the Distribution System Material Inventory Hydro Excavation project, using the Livonia contract (extended to MITN members, in the amount of \$261,712.

SUBMITTING DEPARTMENT: Department of Public Works, Engineering Division

EXPENDITURE REQUIRED	\$ 261,712
AMOUNT BUDGETED	\$ 415,000
APPROPRIATION REQUIRED	\$ 0
LINE ITEM NUMBER	592-536.00-816.056

BACKGROUND INFORMATION:

The Michigan Department of Environment, Great Lakes, and Energy (EGLE) is requiring all communities to complete a Distribution System Material Inventory (DSMI) to determine if any lead or galvanized water service lines exist in the system. If any exist, a plan must be put in place to replace a minimum of 5-percent per year. Staff recently completed a preliminary inventory, the first step in this process, and based on the information obtained staff does not believe any lead service lines exist. However, the complete DSMI is still required, which involves randomly selecting properties for physical verification of the water service line materials at three points (see figure), including the public portion of the line, the private portion of the line, and the interior portion of the line. A fourth verification point would be required if lead "goosenecks" were believed to be used at the connection to the main. The interior inspections are already underway, and this project will complete the exterior inspections required. Based on the number of water customers, 361 properties will be inspected.

Following the completion of the required inspections, the project will be documented and submitted to both the Environmental Protection Agency (EPA) and EGLE.

OHM assisted the Engineering Division with developing the plan for this project. Based on OHM's experiences and recommendation, staff has decided to utilize an existing contract for this work, which was publicly bid by the City of Livonia in May 2023. Five (5) bids were received at that time, and the City of Livonia awarded the contract to Underground Infrastructure Services (UIS). UIS has agreed to use the same unit prices for Novi's contract, and they are also able to meet the schedule requirements. Therefore, UIS is recommended in the best interest of the City. The award recommendation letter including the bid tabulation is attached.

The contractor will begin work after award and is anticipated to be substantially complete in June.

RECOMMENDED ACTION: Approval to award the construction contract to Underground Infrastructure Services, for the Distribution System Material Inventory Hydro Excavation project, using the Livonia contract (extended to MITN members), in the amount of \$261,712.

January 12, 2024

Ben Croy
City Engineer
City of Novi DPW
26300 Lee BeGole Dr
Novi, MI 48375

RE: Water DSMI Project Hydro-Excavation Exterior Inspections
Recommendation of Award

Dear Mr. Croy:

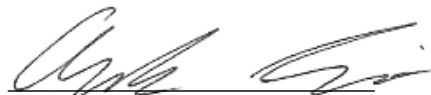
As you are aware, the Distribution System Material Inventory (DSMI) project has been underway since fall of 2023. Interior inspections of the selected homes are being completed and the next phase of the project is to secure a contractor to perform the exterior inspections via hydro-excavation.

Like the City of Novi, numerous other communities in the area are required by EGLE to perform drinking water service material inventories. The City of Livonia has already procured a hydro-excavation contractor through a competitive bidding process to complete the required exterior inspections. Underground Infrastructure Services (UIS) was the contractor selected through their bidding process. They been underway on the exterior inspections via hydro-excavations in Livonia since the summer of 2023. The City of Romulus and the City of Westland have also utilized the Livonia bid to award contracts to UIS to perform similar hydro-excavation inspections in their respective communities. Similarly, UIS has agreed to hold their unit prices from the Livonia material inventory project and carry them over to a new contract with the City of Novi. OHM believes that the unit prices provided by UIS are very competitive for the nature of the work.

OHM has been working with UIS on the Livonia project. They have communicated well with City staff and OHM in a manner that keeps both parties informed and the project moving at an appropriate pace. They have assisted in collecting service line material information and pay item tracking through a GIS based online application known as "Field Maps" and have proven they are competent in recording accurate data within the application. Based on our experience with UIS, we feel they are capable of completing the excavations for the exterior portion of the inspections well and in a timely manner. Therefore, we recommend award of this contract to Underground Infrastructure Services, Inc. in the amount of **\$261,712.00** per the unit prices established by the Livonia bid. If approved, UIS is ready to execute a contract with the City of Novi and begin the work next month.

If you have any questions, please do not hesitate to call me at (248) 751-3103.

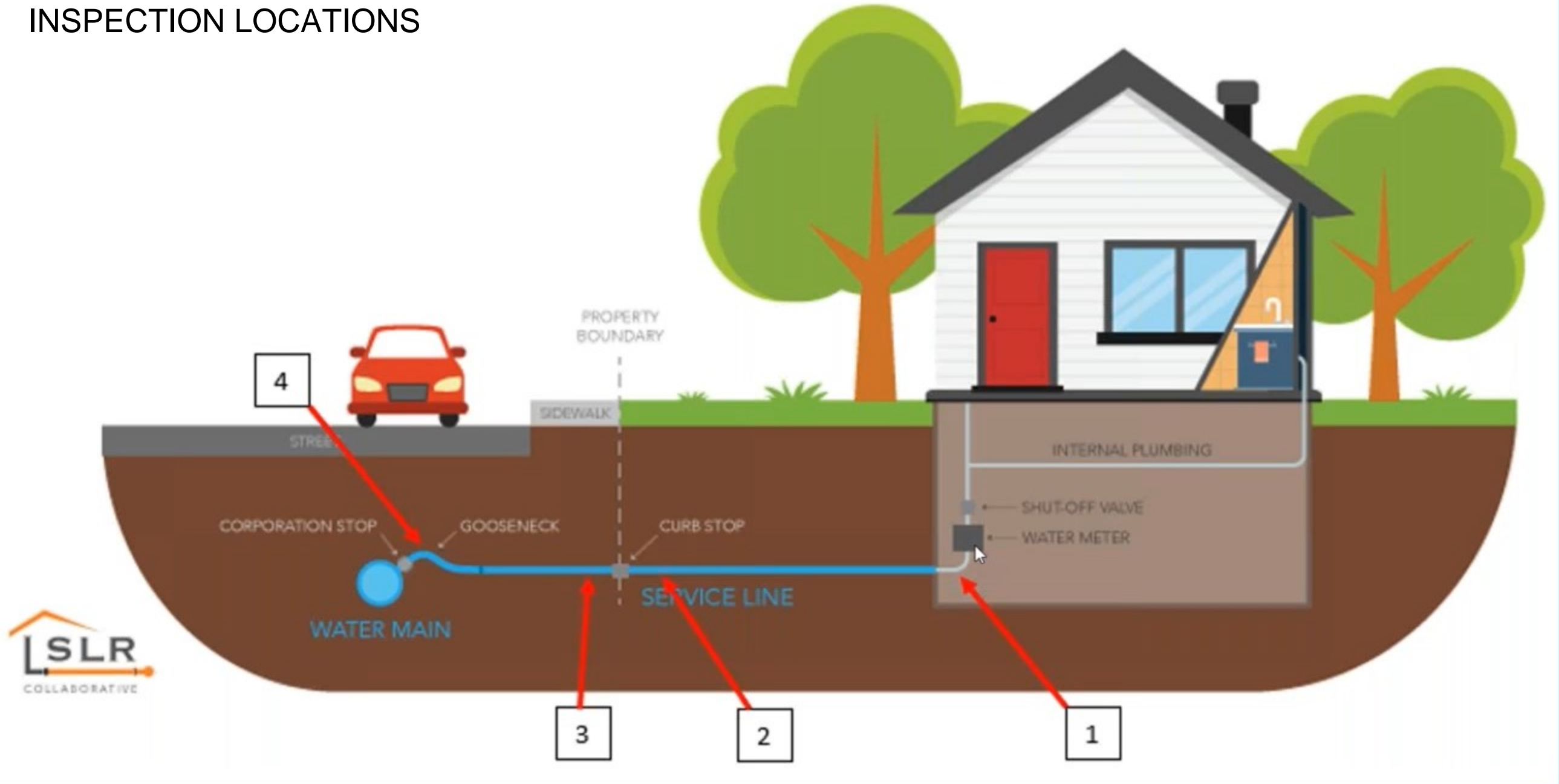
Sincerely,
OHM Advisors



Andrew Cousino, P.E.
Project Manager

cc: Jeff Herczeg, Director of Public Works
Aaron Staup, Construction Engineer
Tim Juidici, OHM

INSPECTION LOCATIONS



Tabulation of Bids Received on 5/23/2023
Hydro Excavation (Livonia DWAM Grant)

City of Livonia, Wayne County, Michigan
 OHM Job No.: 0090-22-0010

ML Chartier Excavating, Inc Scott Kicinski	Underground Infrastructure Services Michelle Young
9195 Marine City Highway Fair Haven, Michigan 48023	12119 Levan Road Livonia, Michigan 48150

L J Inc Matthew Valley	Rouge Industrial Services* Scott Gilliam	D-Angelo Brothers Vincent D'Angelo
6359 Miller Rd Swartz Creek, Michigan	1250 Fox Chase Rd Bloomfield Hills, Michigan	PO Box 531330 Livonia, Michigan 48167

Item #	Description	Est. Quantity		Unit		Unit	
				Price	Amount	Price	Amount
1	Maintaining Traffic	1	LSum	\$ 18,460.00	\$ 18,460.00	\$ 27,500.00	\$ 27,500.00
2	Hydro-Excavation, 0 to 2 ft Diameter	548	Ea	\$ 253.50	\$ 138,918.00	\$ 203.00	\$ 111,244.00
3	Hydro-Excavation, 2 to 6 ft Diameter	146	Ea	\$ 258.50	\$ 37,741.00	\$ 205.00	\$ 29,930.00
4	Hydro-Excavation, 6 ft Diameter and Greater	36	Ea	\$ 263.50	\$ 9,486.00	\$ 220.00	\$ 7,920.00
5	Pavt, Rem, Modified	315	Syd	\$ 10.00	\$ 3,150.00	\$ 25.00	\$ 7,875.00
6	Sidewalk, Rem	67	Syd	\$ 10.00	\$ 670.00	\$ 25.00	\$ 1,675.00
7	Maintenance Gravel	10	Ton	\$ 15.50	\$ 155.00	\$ 50.00	\$ 500.00
8	Aggregate Base, 4 inch, Modified	165	Syd	\$ 5.90	\$ 973.50	\$ 35.00	\$ 5,775.00
9	Aggregate Base, 8 inch, Modified	150	Syd	\$ 11.70	\$ 1,755.00	\$ 35.00	\$ 5,250.00
10	HMA, Hand Patching	25	Ton	\$ 122.00	\$ 3,050.00	\$ 200.00	\$ 5,000.00
11	HMA, 13A	35	Ton	\$ 122.00	\$ 4,270.00	\$ 250.00	\$ 8,750.00
12	Concrete Sidewalk Replacement, 4 inch Thick	600	Sft	\$ 7.00	\$ 4,200.00	\$ 8.00	\$ 4,800.00
13	Concrete Replacement, 6 inch Thick	550	Sft	\$ 10.00	\$ 5,500.00	\$ 15.00	\$ 8,250.00
14	Concrete Replacement, 9 inch Thick	300	Sft	\$ 15.00	\$ 4,500.00	\$ 20.00	\$ 6,000.00
15	Surface Restoration, Seeding	1120	Syd	\$ 9.90	\$ 11,088.00	\$ 16.00	\$ 17,920.00
16	Surface Restoration, Sodding	160	Syd	\$ 49.40	\$ 7,904.00	\$ 28.00	\$ 4,480.00
TOTAL BID :				\$ 251,820.50		\$ 252,869.00	

Notes: *No Bid Bond included

	Difference	\$ (1,048.50)
	% Difference	-0.4164%
Ordinance 3.04.140.(F) - Livonia Based Firm	1% Equalization Credit	\$ (2,528.69)
		\$ 251,820.50
		\$ 250,340.31

Unit		Unit		Unit	
Price	Amount	Price	Amount	Price	Amount
\$ 25,000.00	\$ 25,000.00	\$ 10,000.00	\$ 10,000.00	\$ 21,888.00	\$ 21,888.00
\$ 325.00	\$ 178,100.00	\$ 372.00	\$ 203,856.00	\$ 575.00	\$ 315,100.00
\$ 500.00	\$ 73,000.00	\$ 391.00	\$ 57,086.00	\$ 576.00	\$ 84,096.00
\$ 1,200.00	\$ 43,200.00	\$ 1,099.00	\$ 39,564.00	\$ 575.00	\$ 20,700.00
\$ 4.00	\$ 1,260.00	\$ 120.00	\$ 37,800.00	\$ 20.00	\$ 6,300.00
\$ 5.00	\$ 335.00	\$ 115.00	\$ 7,705.00	\$ 20.00	\$ 1,340.00
\$ 50.00	\$ 500.00	\$ 82.00	\$ 820.00	\$ 25.00	\$ 250.00
\$ 25.00	\$ 4,125.00	\$ 53.00	\$ 8,745.00	\$ 20.00	\$ 3,300.00
\$ 35.00	\$ 5,250.00	\$ 70.00	\$ 10,500.00	\$ 20.00	\$ 3,000.00
\$ 700.00	\$ 17,500.00	\$ 190.00	\$ 4,750.00	\$ 350.00	\$ 8,750.00
\$ 600.00	\$ 21,000.00	\$ 90.00	\$ 3,150.00	\$ 350.00	\$ 12,250.00
\$ 8.00	\$ 4,800.00	\$ 12.00	\$ 7,200.00	\$ 9.00	\$ 5,400.00
\$ 9.00	\$ 4,950.00	\$ 13.00	\$ 7,150.00	\$ 10.00	\$ 5,500.00
\$ 11.00	\$ 3,300.00	\$ 14.00	\$ 4,200.00	\$ 15.00	\$ 4,500.00
\$ 5.00	\$ 5,600.00	\$ 10.00	\$ 11,200.00	\$ 18.00	\$ 20,160.00
\$ 25.00	\$ 4,000.00	\$ 40.00	\$ 6,400.00	\$ 20.00	\$ 3,200.00
	\$ 391,920.00		\$ 420,126.00		\$ 515,734.00

PROJECT MANUAL



Project Owner:

City of Novi
Department of Public Works
Engineering Division
26300 Lee BeGole Drive
Novi, Michigan 48375
(248) 347-0454

Design Engineer:

OHM Advisors
2365 Pontiac Road, Suite 201
Auburn Hills, Michigan 48326
(248) 751-3100

TABLE OF CONTENTS

The Contract Documents consists of two parts as follows:

PART I BIDDING REQUIREMENTS, CONTRACT FORMS, AND CONTRACT CONDITIONS

PART II SPECIFICATIONS

This Table of Contents lists the main divisions of Parts I and II.

PART I CONTRACT DOCUMENTS

<u>Title</u>	<u>Page</u>
Instructions to Bidders	4
Bidder’s Qualification and Experience Statement	9
Bid.....	14
Notice of Award.....	17
Agreement.....	18
Performance Bond	22
Payment Bond.....	26
Maintenance & Guarantee Bond.....	28
Notice to Proceed.....	30
General Conditions	31
Supplementary General Conditions	72

PART II SPECIFICATIONS

Earthwork.....	83
Restoration	93

Special Provisions:

Utility Coordination Clause	104
Maintaining Traffic.....	105
Pavement Removal	109
Hydro-Excavation	110



Aggregate Base Courses 112

Marshall Hot Mix Asphalt Mixture 113

Concrete Sidewalk and Driveway Replacement 120

Surface Restoration 121

Appendices:

A: Address List and Project Map



INSTRUCTIONS TO BIDDERS

DEFINED TERMS

Terms used in these Instructions to Bidders will have the meanings indicated in the General Conditions and the Supplementary Conditions.

COPIES OF BIDDING DOCUMENTS

Complete sets of Bidding Documents must be used in preparing Bids; neither the OWNER nor ENGINEER assumes any responsibility for errors or misinterpretation resulting from the use of incomplete sets of Bidding Documents. OWNER and ENGINEER, in making copies of Bidding Documents available on the above terms, do so only for the purpose of obtaining Bids on the Work and do not confer a license or grant for any other use.

QUALIFICATIONS OF BIDDER

To demonstrate Bidder's qualifications to perform the Work, the OWNER requires the Bidder to furnish all of the applicable information on the enclosed Bidder's Qualification and Experience Statement. The aforementioned statement must be submitted with the sealed Bid at the time of the Bid Opening.

EXAMINATION OF THE CONTRACT DOCUMENTS

Before submitting a Bid, each Bidder should:

- a. Examine the Contract Documents (including any Addenda and the other related data identified in the Bidding Documents) thoroughly;
- b. Visit the site to become familiar with local conditions that may in any manner affect performance of the Work;
- c. Become familiar with Federal, State, and local laws, ordinances, rules and regulations affecting performance of the work; and
- d. Carefully correlate his observations with the requirements of the Contract Documents.

Where information concerning existing conditions, including subsurface conditions, is provided in the Contract Documents, such information is provided for the convenience of the Bidder and not as a guarantee of conditions. The Bidder shall be satisfied as to the sufficiency and representativity of such data and shall make all investigations necessary so that the Bid shall be based upon knowledge and estimation of conditions to be met. The Bidder shall make all the investigations necessary to become adequately informed regarding the availability of all facilities which will be required to perform the work.

Submission of a Bid will constitute an incontrovertible representation by the Bidder that Bidder has complied with all the requirements of this Section.

PRE-BID CONFERENCE

A pre-bid conference will not be held for this project.



INTERPRETATION OF CONTRACT DOCUMENTS

All questions about the meaning or intent of the Contract Documents shall be submitted to the ENGINEER in writing. Replies will be issued by Addenda and mailed or delivered to all parties recorded by the ENGINEER as having received the Bidding Documents. Questions received less than seven (7) days prior to the date of opening of Bids will not be answered. Only those questions that are answered by formal written Addenda will be binding. Oral and other interpretations or clarifications will be without legal effect.

ADDENDA

Addenda may be issued to clarify, correct, or change the Bidding Documents as deemed by OWNER or ENGINEER. Any addenda issued during the time of bidding or forming a part of the Contract Documents shall be included in the Bid and shall be made a part of the Contract Documents. Receipt of each Addendum shall be acknowledged in the Bid.

BID SECURITY

A Bid must be accompanied by Bid security made payable to OWNER in an amount of 5% of Bidder's maximum Bid price. The required security must be in the form of a certified or bank cashier's check made payable to the City of Novi or a Bid bond by a surety licensed to conduct business in the State of Michigan and named in the current list of "Surety Companies Acceptable on Federal Bonds" as published in the Federal Register by the Audit Staff Bureau of Accounts, U.S. Treasury Department. Attorneys-in-fact who execute the Bid Security or Bid Bond on behalf of the Surety shall affix to the bond a certified and copy of the power of attorney. The Bid security of the successful Bidder will be retained until the Agreement has been executed and the successful bidder has furnished the required Contract security, whereupon Bid Security will be returned. If Bidder fails to execute and deliver the Agreement and furnish the required Contract security within ten days of receipt of the Notice of Award, OWNER may annul the Notice of Award and the Bid security of that Bidder will be forfeited. The Bid Security of any Bidder whom OWNER believes to have a reasonable chance of receiving the Award may be retained by the OWNER until the earlier of the seven (7) days after the effective date of the Agreement or 120 days after the Bid opening. Bid Security of other Bidders will be returned within seven (7) days of the Bid opening.

CONTRACT TIME

The number of days allowed for the Completion of Work (the Contract Time) is set forth in the Bid and will be included in the executed Agreement. Any provisions for liquidated damages are set forth in the Contract Documents.

SUBSTITUTE AND "OR EQUAL" ITEMS

The Contract, if awarded, will be on the basis of materials and equipment specified or described in the Bidding Documents without consideration of possible substitute or "or equal" items. Whenever materials or equipment are specified or described in the Bidding Documents by using the name of one or more Suppliers, the Bid shall be based on providing the materials or equipment of one of the Suppliers named. Whenever it is specified or described in the Bidding Documents that a substitute or an "or equal" item of material may be furnished or used by CONTRACTOR if acceptable to ENGINEER, application for such acceptance will not be considered by ENGINEER until after the Effective Date of the Agreement.



SUBCONTRACTOR, SUPPLIERS AND OTHERS

The Bidder to whom an Award is made will not be entitled to additional compensation or extension of Contract Time by reason of failure to fully understand all Subcontractor or Supplier quotations.

The Bidder is responsible for all coordination between Subcontractors and Suppliers during bidding and construction so that work is completed for the Contract Price and within the Contract Time.

PREPARATION OF BID

The Bid form is included with the Bidding Documents. Additional copies may be obtained from ENGINEER. All blanks on the Bid form shall be completed by printing in ink or by typewriter and the Bid signed. A Bid price shall be indicated for each unit price item listed therein, or the words “no Bid”, “No Change”, or “Not Applicable” entered. In case of discrepancy between the Total Amount Bid and the summation of the products of item quantity and unit price, unit prices shall govern.

Alterations to prices or amounts already entered on the Bid form may be made only by crossing out the price or amount in ink and entering the new price or amount above or below the voided price or amount in ink, with the change initialed and dated by the Bidder in ink.

The Bid shall contain an acknowledgement of receipt of all Addenda, the numbers of which shall be filled in on the Bid form.

Alternate Bids will not be considered unless expressly requested by the OWNER or ENGINEER. Oral Bids will not be considered. A conditional Bid or conditions attached to Bids shall have no force or effect.

Each prospective Bidder is furnished one copy of the Bidding Documents with one separate unbound copy of the Bid form. The unbound copy of the Bid form is to be completed and submitted with the Bid security and the Qualifications and Experience Statement.

Bid forms with facsimile or other electronically transmitted signatures will not be considered.

REQUIREMENTS FOR SIGNING BIDS

A Bid that has not been signed by the individual authorized to do so shall have attached thereto a Power of Attorney evidencing authority to sign the Bid in the name of the person for whom it is signed.

Bids that are signed by a partnership shall be signed by all of the partners or by an Attorney-in-Fact. If signed by an Attorney-in-Fact, there shall be attached to the Bid a Power of Attorney evidencing authority to sign the Bid, executed by the partners.

Bids that are signed for a corporation shall have the correct corporate name thereof and the signatures of the president or other authorized officers of the corporation manually written below the corporate name following the word “By.” If such a Bid is manually signed by an officer other than the president of the corporation, a certified resolution of the Board of Directors evidencing the authority of such official to sign the Bid shall be attached to it. Such a Bid shall also bear the attested signature of the secretary of the corporation and the impression of the corporate seal.



MODIFICATION OR WITHDRAWAL OF BIDS

Any Bidder may withdraw its Bid, either personally or by written request, at any time prior to the scheduled time for Bid Opening. If, within 24 hours after Bids are opened, any Bidder files a duly signed, written notice with OWNER and promptly thereafter demonstrated to the reasonable satisfaction of OWNER that there was a material and substantial mistake in the preparation of its Bid, that Bidder may withdraw its Bid and the Bid security will be returned. Thereafter, if the Work is rebid, that Bidder will be disqualified from further bidding on the Work. No withdrawal of a Bid shall be permitted on account of mistake or any other reason after the expiration of this 24-hour period.

AWARD OF CONTRACT

The OWNER reserves the right to accept any Bid or alternate and award the Contract to other than the lowest bidder; to waive any irregularities or informalities, or both; to reject any or all Bids; and in general to make the award of the Contract in any manner deemed by the OWNER, in its sole discretion, to be in the best interests of the OWNER.

More than one Bid for the same Work from an individual or entity under the same or different names will not be considered. Reasonable grounds for believing that any Bidder has an interest in more than one Bid for the Work may be cause for disqualification of the Bidder and the rejection of all Bids in which that Bidder has an interest.

Opening and reading the Bids shall not constitute the acceptance of a Bidder as qualified. The right is reserved by the OWNER to determine a Bidder's qualifications, either from the OWNER'S knowledge or from other sources.

Should the OWNER be unable to award the Contract within 120 calendar days following the opening of Bids, the OWNER reserves the right to award the Contract at a later date to the lowest qualified Bidder at its Bid price, providing said Bidder is willing to accept such award.

The OWNER further reserves the right to require the CONTRACTOR to schedule work in such a manner as to remain outside of those areas for which easements have not been obtained until such time as easements are obtained. The OWNER further reserves the right to add or delete items of work or entire sections of work for any reason whatsoever, including but not limited to, budgetary constraints or the inability to obtain necessary construction easements.

INSURANCE

The successful Bidder will be required to carry insurance in the amounts and kinds specified in the General Conditions, as may be modified by the Supplementary Conditions. Such insurance must be issued by companies and in a form satisfactory to the OWNER. Certificates of such insurance must be attached to each copy of the executed Contract Documents. These certificates shall contain a provision that coverages afforded under the policies will not be cancelled or materially changed unless at least thirty (30) days prior written notice has been given to the OWNER and ENGINEER, as evidenced by return receipt or registered or certified mail.

BONDS

The successful Bidder will be required to furnish for each set of executed Contract Documents and conformed copies thereof, original conformed performance bond, payment bond and maintenance and



guarantee bonds on the forms attached hereto a surety acceptable to the OWNER and meeting the requirements specified in the General Conditions, as may be modified by the Supplementary Conditions.

EXECUTION OF THE AGREEMENT

When the OWNER issues a Notice of Award to the successful Bidder, it will be accompanied by the required number of unsigned counterparts of the Agreement bound into the Project Manual with the other Contract Documents. Within ten (10) days thereafter, Successful Bidder shall sign and deliver the required number of counterparts of the Agreement and attached documents to the OWNER. Within ten (10) days thereafter, OWNER will deliver one fully signed counterpart to the Successful Bidder.

In case of failure to comply with this requirement, the Successful Bidder shall be considered to have abandoned all rights and interest in the Award and its Bond Security may be declared forfeited to the OWNER and the Contract may be awarded to another Bidder.



BIDDER’S QUALIFICATION AND EXPERIENCE STATEMENT

The OWNER will require supporting evidence regarding Bidder’s Qualifications and competency. The Bidder will be required to furnish all of the applicable information listed below, which must be submitted with the sealed Bid at the time of Bid Opening. The Qualifications and Experience Statement must be typewritten and signed in ink.

A fill-in-the blank version of this form is available for your convenience on the City of Novi’s website (www.cityofnovi.org) under Forms & Permits/Engineering.

QUALIFICATIONS AND EXPERIENCE STATEMENT

The undersigned certifies under oath that the information provided herein is true and sufficiently complete so as not to be misleading.

Submitted to: _____

Address: _____

Submitted by: _____

Name: _____

Address: _____

City, State, ZIP _____

Telephone Number: _____ Fax Number: _____

Principal Office: _____

Corporation: _____ Joint Venture: _____

Partnership: _____ Other: _____

Individual: _____

Name of Project: _____

Type of Work (file separate form for each classification of work):

Concrete: _____ Grading: _____

HMA: _____ Landscaping: _____

Other: _____ (Please Specify)



Organization

How many years has your organization been in business as a CONTRACTOR?

How many years has your organization been in business under its present business name?

Under what other business names has your organization operated?

If your organization is a corporation, answer the following:

Date of Incorporation: _____

State of Incorporation: _____

President's Name: _____

Vice President's Name: _____

Secretary's Name: _____

Treasurer's Name: _____

If your organization is a partnership, answer the following:

Date of Organization: _____

Type of Partnership: _____

Names of General Partners: _____

If your organization is individually owned, answer the following:

Date of Organization: _____

Name of OWNER: _____

If the form of your organization is other than those listed above, describe it and name the principals:



Licensing

List jurisdictional and trade categories in which your organization is legally qualified to do business, and indicate registration or license numbers, if applicable:

List jurisdiction in which your organization’s partnership or trade name is filed:

Experience

List the categories of work that your organization normally performs with its own forces:

On a separate sheet, list major construction projects your organization has in progress. List the name of project, owner, architect/engineer, contract amount, percent complete, and scheduled completion date.

On a separate sheet, list the major construction projects your organization has completed in the past five (5) years. List the name of the project, owner, architect/engineer, contract amount, date of completion, and percentage of the cost of the work performed with your own forces.

On a separate sheet, list the construction experience and present commitments of the key individuals of your organization who would be employed in the Work.

Claims and Suits

If the answer to any of the questions below is yes, please attach details.

Has your organization ever failed to complete any work awarded to it? _____

Are there any judgments, claims, arbitration proceedings or suits pending or outstanding against your organization or officers? _____



Has the City of Novi filed a claim on any contract within the prior three years which asserted that your organization:

1) failed to perform as required by the contract?

_____ YES _____NO

2) completed contracted work in an untimely manner causing delays and interference;

_____ YES _____NO

3) lacked financial resources and the ability to satisfactorily perform the contract or provide the services or supplies;

_____ YES _____NO

4) exhibited poor quality of performance or completed work under the contract;

_____ YES _____NO

5) failed to comply with laws and ordinances relating to the contract performance;

_____ YES _____NO

6) defaulted on its quotations or prices;

_____ YES _____NO

References

Entity	Contact Name	Phone
<i>Trade References</i>		
1.		
2.		
3.		
<i>Bank References</i>		
1.		
2.		
3.		
<i>Surety</i>		



Name of Bonding Company: _____

Name of Bonding Agent: _____

Address of Bonding Agent: _____

SUBMITTED on _____
Date*

BY: _____
Name of Bidder*

Signature

Name and Title of Signatory*

*Typed or printed in ink.

_____ being duly sworn deposes and says that the information provided herein is true and sufficiently complete so as not to be misleading.

Subscribed and sworn before me this _____ day of _____ 20____.

Notary Public: _____

My Commission Expires: _____

IF THIS INFORMATION IS NOT SUBMITTED WITH THE SEALED BID AT THE TIME OF BID, THE BID WILL BE CONSIDERED INCOMPLETE.



**STATEMENT OF QUALIFICATIONS
PROJECT REFERENCES**

List similar projects completed within the last (5) years:

Project Title: City of Ecorse Water Service Material Investigation Program

Client: City of Ecorse / AEW Engineering

Contact Person: Ashley Carpenter Phone: 586-329-8557

Contract Amount: \$ 263,719.00

Start Date: April 2022 Completion Date: August 2022

Project Description: 461 Addresses to hydro excavate near stop box to determine pipe material of service. Provide restoration once completed

Project Title: Village of St. Charles - Hydro excavation Service Line Material Exploration

Client: Village of St. Charles / Spicer Engineering

Contact Person: Mitchel Jacquain Phone: 989-326-1348

Contract Amount: \$ 93,932.00

Start Date: March 2022 Completion Date: April 2023

Project Description: 174 Addresses to hydro excavate at water shut off to determine material of water service. Provide restoration once completed

STATEMENT OF QUALIFICATIONS
PROJECT REFERENCES

Project Title: City of Center Line Water Distribution System Material Inventory

Client: City of Center Line / AEW Engineering

Contact Person: Paul Guinnane Phone: 586-855-9576

Contract Amount: \$ 270,950.00

Start Date: January 2023 Completion Date: May 2023

Project Description: 335 Addresses to hydro excavate at water stop box to determined service line materials. Restoration performed when completed.

Project Title: City of Plainwell Water Distribution System Material Inventory

Client: City of Plainwell / FAV Engineering

Contact Person: Jeff Wingard Phone: 269-373-7518

Contract Amount: \$ 217,050.00

Start Date: July 2022 Completion Date: October 2022

Project Description: 278 Addresses to hydro excavate at water shut off to determine service line material. Restoration of site when complete

Form Completed by: Michael Hagan
Name

Michael Hagan
Signature

5/22/23
Date

STATEMENT OF QUALIFICATIONS

Bidder must answer all questions. If more space is needed to complete a question, attach a separate sheet. Bidder may submit any additional information.

Name: Underground Infrastructure Services

Address: 12119 Levan Rd. Phone: 248-938-5020
Livonia, MI 48150

Number of years operating under your present name: 2 years

Pre-qualified by MDOT to bid on projects of this magnitude and type of work?

(circle one) YES NO Pre-qualification Number N/A

General nature of work performed by your company: Hydro excavation and directional drilling

Background and experience of the principal members of your organization including officers: Please see attached documents

Major equipment available for this contract: please see attached fleet list.

David Weber

Title and responsibilities

David Weber is the Project Manager for Underground Infrastructure Services (UIS) and is responsible for overseeing the management of all water service projects

David is a part of the Management team and facilitates the communication and execution of specification for the field crews to ensure all projects are completed to the client's expectations in a timely, safe, and proficient manner.

Experience

As project manager David is responsible to review the specifications of the RFP, scheduling, communicating and tracking the completion of water service projects. This entails the entire project, everything from initial jobsite walks, customer meetings, coordination of miss dig tickets, scheduling of field work, traffic control and final deliverables.

David assist on coordination with our subcontractors and well as ensuring all necessary materials are available for the work to be performed.

Prior to project management, David spent time in the field on the Hydro Excavation crews performing material investigation projects to verify pipe materials and find lead service lines in Metro- Detroit.

Professional training

- Bachelors– Michigan State University
- Site Management, Site Safety and Leadership training scheme
- Confined Space Certified
- Hydro Excavation Operator Training

Representative Contracts

- City of Detroit Department of Water and Sewer – Underground Utility Services
- DSMI Hydro Excavation projects – Center Line, St Clair Shore, Brighton, Grosse Pointe

Mike Hagan

Title and responsibilities

Mike Hagan is the Director of Operations for Underground Infrastructure Services (UIS) / Pipetek Infrastructure Services and is responsible for overseeing overall operations, field personal, scheduling of projects, field work and management of projects.

Mike is a part of the Management team and facilitates the communication and scheduling of resources between field crews and the Client to ensure all projects are completed to the client's specifications in a timely, safe, and proficient manner.

Experience

Mike is a civil engineer who has been performing sewer inspections sewer cleaning, hydro excavation, directional drilling, water service systems, data processing, project management, and day-to-day operations for UIS/Pipetek. In this time, he has operated various sewer inspection equipment, processed client data, and has managed a variety of projects; inspecting, cleaning, and rehabilitating unground infrastructures to Client's standards. Mike has also overseen and performed a number of water service distribution projects completing directional drilling, utility locating, hydro excavation and inspection of the infrastructure.

Mike also spent several years working as a reservoir characterization field engineer in the Oil & Gas Industry acquiring data for the exploration and production of hydrocarbons. Gaining additional knowledge and experience in project management, construction projects and site safety.

Professional training

- Bachelor of Science in Civil Engineering – Michigan State University
- PACP/MACP/LACP – NASSCO Coding and Software
- Site Management, Site Safety and Leadership training scheme
- Confined Space Certified
- HAZWOPER 40 Hr. Certified
- Operator Training

Representative Contracts

- City of Detroit Department of Water and Sewer
- DSMI Hydro Excavation projects – Big Rapids, St Charles, Ecorse, Roscommon, Plainwell, Brighton
- Consumers Energy & DTE Energy
- Inliner Solutions -- Pipe rehabilitation

Kyle Dehne

Title and responsibilities

Kyle Dehne is the Vice President of Operations for Duke's, overseeing the Pipetek Infrastructure Services and Underground Infrastructure Services Divisions. He is responsible for all facets of the organization, particularly client satisfaction and project execution.

Kyle will work directly with the team and client to ensure adherence to the guidelines/timelines of the projects, and in turn help complete the project in such a manner to exceed the customer's expectations.

Experience

Kyle has over fifteen (15) years' experience within the underground infrastructure industry at manager, general manager and director level.

Kyle has overseen a variety of underground contracts with service offering of the following: directional drilling, hydro excavation, water distribution systems, sewer CCTV and cleaning, multi-sensor inspections, sewer rehabilitation projects, flow rate monitoring and data collection.

Professional training

- Bachelor and Master's Degree – Grand Valley State University
- PACP/MACP/LACP – NASSCO Coding
- Site Management safety training scheme
- Confined Space Training
- Operator Training
- Data Collection Software Training
- Member of the Cross Bore Safety Association
- Member of NASSCO – National Association of Sewer Service Companies
- Member of the American Gas Association

Representative Contracts

- City of Detroit
- City of Toronto
- City of Southfield
- City of Warren
- Inliner Solutions – Sewer Rehabilitation



UIS (Underground Infrastructure Services) Fleet List

Hydro Excavation Equipment

Fleet #	Vehicle	Model	Equipment	VIN / SERIAL	Year
MI-H1-21	Hydro Excavation Unit	Kenworth T880	Truvac HXX, 27" PD Vacuum, 12 yrd Debris, 1200 Gal Water, 800,000 BTU Cold Weather Package	1NKZ44EX8NJ491210	2021
MI-H2-21	Hydro Excavation Unit	Kenworth T880	Truvac HXX, 27" PD Vacuum, 12 yrd Debris, 1200 Gal Water, 800,000 BTU Cold Weather Package	1NKZ44EX9NJ491216	2021
MI-H3-22	Hydro Excavation Unit	Kenworth T880	Truvac HXX, 27" PD Vacuum, 12 yrd Debris, 1200 Gal Water, 800,000 BTU Cold Weather Package	1NKZ44EXPJ219735	2022
MI-H4-22	Hydro Excavation Unit	Western Star	Truvac HXX, 18" PD Vacuum, Air & Water Package, 12 yrd Debris, 1200 Gal Water, 800,000 BTU Cold Weather Package	5KKHAYDV5NPNK5815	2022
MI-H5-31	Hydro Excavation Unit	Kenworth T880	Ramvac HX-12, 18" HG Vacuum, 12 yrd Debris, 1300 Gal Water, 800,000 BTU Cold Weather Package	1NKZXPXIMJ407003	2021

Directional Drilling Equipment

Fleet #	Vehicle	Equipment	VIN / SERIAL	Year
	Directional Drill	Toro DD4045 drill - 500' of 2.375" pipe		2013
	Directional Drill	Ditch Witch JT9 - 300' of 1.6" pipe	CMWJT9XXEF0000095	2015
	Mixing Tanks	2x 1000 Gallon Vermeer MX240		
	Mixing Tank	1000 Gallon Mixing Tank		
	Mixing Tank	300 Gallon Straitline SL300	4L5ST141XPF064489	2023
	Reel Trailer	2023 B&B 3.5T Reel Trailer	4Z1HD2028S046117	2018
	Load Trailer	2018 Gatormade Trailer - JT9		
	Load Trailer	2023 Load Trailer - Toro	4ZEPP3023P1279182	2023

Support Equipment

Fleet #	Vehicle	Model	Equipment	VIN / SERIAL	Year
MI-U1-21	Support Vehicle	Ram 2500	Support Vehicle	3C6UR5CIXMG503472	2021
MI-U2-21	Support Vehicle	Ram 2500	Support Vehicle	3C6UR5CJOMG512021	2021
MI-U3-04	Support Vehicle	Ford 550	Dump Truck	1FDAF56574EC05117	2004
MI-U4-19	Support Vehicle	Ram 1500	Support Vehicle	1C6SRFBT4KN892078	2019
MI-U5-01	Support Vehicle	Chevy	Dump Truck	3GBK34F01M102398	2001
MI-U6-17	Support Vehicle	Ram 2500	Support Vehicle	3C6UR5CJ2HGS30798	2017
MI-U7-22	Support Vehicle	Ram 1500	Support Vehicle	1C6SRFFT4NN412085	2022
MI-U8-20	Support Vehicle	Ram 2500	Support Vehicle	3C6UR5HJSLG275047	2020
MI-U9-07	Support Vehicle	Freightliner M2	Support Vehicle	1FVHC5CV67HUS9239	2007
MI-U10-21	Support Vehicle	Ram 2500	Support Vehicle	3C6UR5DJ3MG508754	2021
MI-U11-19	Support Vehicle	Ram 1500	Support Vehicle	1C6SRFHT4KN896719	2019
MI-U12-20	Support Vehicle	Ram 2500	Support Vehicle	3C6UR5CJ4LG252401	2020

MI-D1	Dump Trailer		12' Hydraulic Dump Trailer - 12,500 LBS	3EUD81025N1004947	2022
MI-D2	Dump Trailer		8' Hydraulic Dump Trailer - 12,500 LBS	3EUD81023N1004946	2022
MI-D3	Dump Trailer		8' Hydraulic Dump Trailer - 12,500 LBS	58CB1DB24PC002656	2023
MI-D4	Dump Trailer		14' Hydraulic Dump Trailer - 12,500 LBS	4PSD71420F1230421	2015
MI-D5	Dump Trailer		12' Hydraulic Dump Trailer - 12,500 LBS	56WBU1220PE033278	2023

MI-E1	Excavator		Bobcat E35 excavator		2022
MI-E2	Excavator		Doosan DX35-5 excavator		2020

SUBCONTRACTOR LIST

ITEM

NAME, ADDRESS & PHONE # OF CONTRACTOR

HMA Paving

Phone: _____

Concrete

Phone: _____

Underground

Phone: _____

Restoration Items

Phone: _____

Other (Specify)

Traffic Control
Your Traffic Control LLC
5433 Dixie Highway #247 Waterford, MI 48329
Phone: *917-690-4095*

BID
for
Novi’s Distribution System Material Investigation (DSMI)

Bid of _____ hereinafter called Bidder, organized and existing under the laws of or a resident of the State of Michigan, doing business as _____*.

Insert as applicable: “a corporation”, “a partnership” or “an individual”.

TO THE CITY OF NOVI, MICHIGAN, hereinafter called OWNER:

The undersigned as Bidder hereby declares: that this Bid is made in good faith without fraud or collusion with any person or persons bidding on the same Contract; that the Bidder has read and examined the Instructions to Bidders, Bid, General Conditions, Supplementary Conditions, Agreement, Forms of Bond, and Specifications, as prepared by the ENGINEER, and understands all of the same; that the Bidder of its representative has made personal investigation at the site and has become fully familiar with regard to the conditions to be met in the execution of this Contract, and the undersigned proposes to furnish all labor, materials, tools, power, transportation, and construction equipment necessary for the construction of the Project and performing related work in full accordance with the aforesaid Contract Documents, including any and all Addenda officially issued, their receipt of which is hereby acknowledged:

Addendum No.	Addendum Date
_____	_____
_____	_____
_____	_____

The Contract will be awarded to the lowest responsive, responsible Bidder based on the unit prices for all Work specified.

The Bidder agrees to complete the Project for the following unit prices:

Item No.	Item Description	Qty	Unit	Unit Price	Total Price
Category 1 – All					
1	Maintaining Traffic	1.00	LSUM	\$ <u>\$27,500.00</u>	\$ <u>\$27,500.00</u>
2	Sidewalk, Rem	147.00	Syd	\$ <u>\$25.00</u>	\$ <u>\$3,675.00</u>
3	Pavt, Rem, Modified	488.00	Syd	\$ <u>\$25.00</u>	\$ <u>\$12,200.00</u>
4	Hydro-Excavation, 0 to 2 ft Diameter	551.00	Ea	\$ <u>\$203.00</u>	\$ <u>\$111,853.00</u>



Item No.	Item Description	Qty	Unit	Unit Price	Total Price
5	Hydro-Excavation, 2 to 6 ft diameter	62.00	Ea	\$ 205.00	\$ 12,710.00
6	Hydro-Excavation, 6 ft and greater diameter	31.00	Ea	\$ 220.00	\$ 6,820.00
7	Aggregate Base, 4 inch, Modified	189.00	Syd	\$ 35.00	\$ 6,615.00
8	Aggregate Base, 8 inch, Modified	167.00	Syd	\$ 35.00	\$ 5,845.00
9	Maintenance Gravel	30.00	Ton	\$ 50.00	\$ 1,500.00
10	Hand Patching	57.00	Ton	\$ 200.00	\$ 11,400.00
11	HMA, 13A	13.00	Ton	\$ 250.00	\$ 3,250.00
12	Concrete Sidewalk Replacement, 4 inch Thick	1200.00	Sft	\$ 8.00	\$ 9,600.00
13	Concrete Replacement, 6 inch Thick	1000.00	Sft	\$ 15.00	\$ 15,000.00
14	Concrete Replacement, 9 inch Thick	500.00	Sft	\$ 20.00	\$ 10,000.00
15	Surface Restoration, Seeding	1134.00	Syd	\$ 16.00	\$ 18,144.00
16	Surface Restoration, Sodding	200.00	Syd	\$ 28.00	\$ 5,600.00
Total Bid Amount (ITEM 1-16 incl):					\$ 261,712

If the foregoing Bid shall be accepted by the OWNER, the undersigned agrees to enter into the attached form of Agreement within ten (10) days after receiving notice of such acceptance, will furnish the OWNER satisfactory bonds and certificates of insurance coverage, and will complete the Project, at the price and within the time stated in this Bid.

The undersigned further agrees that if the foregoing Bid shall be accepted, work will commence immediately after the Contract has been awarded, the Agreement executed, and a Notice to Proceed received. **The undersigned shall complete the Work with Substantial Completion of all zones by May 24, 2024 and Final Completion, including restoration and all punch list items, by June 21, 2024.**

The undersigned attaches hereto its Bid security, as required by the Instructions to Bidders. The undersigned agrees that in case it shall fail to fulfill its obligations under the foregoing Bid, and/or shall fail to furnish bonds, as specified, the OWNER may, at its option determine that the undersigned has abandoned its rights and interests in such Contract and that its Bid security accompanying its Bid; has been forfeited to the said OWNER, but otherwise the Bid security shall be returned to the undersigned upon the execution of the Contract and the acceptance of the bonds.

The undersigned also agrees that for each and every calendar day that he may be in default of Substantial Completion of the Work, within the time specified in this Bid, the OWNER will suffer a damage of ONE



thousand dollars (\$1000.00) per day, and said OWNER shall be compensated therefore at the rate as liquidated damages in accordance with the Agreement.

In submitting this Bid, it is understood that the right is reserved by the OWNER to accept any bid, to reject any or all Bids, and to waive irregularities in bidding in the interest of the OWNER.

SUBMITTED on _____
Date*

BY: _____
Name of Bidder*

Street*

Signature

City, State, ZIP*

Name and Title of Signatory*

Telephone Number*

Facsimile Number*

*Typed or printed in ink.



NOTICE OF AWARD

Dated:

TO:

CONTRACT: Novi Distribution System Material Investigation

You are notified that your Bid dated _____ for the above Contract has been considered. You are the Successful Bidder and have been awarded a Contract for the Novi Distribution System Material Investigation (DSMI).

The Contract Price is _____ Dollars and Cents (\$_____). Seven copies of the proposed Contract Documents as identified in the Agreement accompany this Notice of Award.

You must comply with the following conditions within ten (10) days of the date of this Notice of Award, which is by _____.

1. Deliver to OHM Advisors seven (7) fully executed counterparts of the Contract Documents which accompany this Notice of Award, each of which must bear your signature at the designated location.
2. Deliver with the executed Contract Documents the Contract security (bonds) as specified in the Instructions to Bidders, the General Conditions, and the Supplementary Conditions.
3. Deliver with the executed Contract Documents the insurance documents as specified in the General Conditions and the Supplementary Conditions.

Failure to comply with these conditions within the time specified will entitle the OWNER to consider your Bid in default, to annul this Notice of Award, and to declare your Bid security forfeited.

Within ten (10) days after you comply with the above conditions, the OWNER will return to you one fully executed counterpart of the Contract Documents.

CITY OF NOVI

(Authorized Signature)

Ben Croy, City Engineer

(Name and Title)



AGREEMENT

Novi Distribution System Material Investigation (DSMI)

THIS AGREEMENT, made as of the _____ day of _____, 20____, by and between the City of Novi (hereinafter call OWNER) and _____ (hereinafter called CONTRACTOR).

WITNESSETH, that whereas the OWNER intends to construct the City of Novi Distribution System Material Investigation Project hereinafter called the Project, in accordance with the Specifications and other Contract Documents prepared by OHM Advisors hereinafter called the ENGINEER.

NOW, THEREFORE, the OWNER and CONTRACTOR for the consideration hereinafter set forth, agree as follows:

1. The CONTRACTOR shall furnish all materials, supplies, machinery, equipment, tools, superintendence, labor, insurance, and other accessories necessary to perform and complete in a workmanlike manner, all work required for the construction of the Project, in strict compliance with the Contract Documents herein mentioned, which are hereby made a part of the Contract, including the following Addenda:

Addendum No.	Addendum Date
_____	_____
_____	_____
_____	_____

2. The OWNER shall have the exclusive ability to set the date of commencement of the Work and performance under this Contract. The CONTRACTOR shall begin work under this Contract on a date to be specified in a written Notice to Proceed personally delivered, facsimiled, or mailed, first class postage prepaid to CONTRACTOR. **The undersigned shall complete the Work with Substantial Completion of all zones by May 24, 2024 and Final Completion, including restoration and all punch list items, by June 21, 2024** as subject to extensions of time granted under the General Conditions.

It is mutually understood and agreed that time is of the essence of this Contract. In the event of delay in completion of the Work beyond the period herein prescribed, or beyond the period to which said time shall be extended by the OWNER in accordance with the General Conditions of the Contract, the OWNER will experience damages, and therefore must be compensated for such delay. Inasmuch as the amount of such damage will be extremely difficult to ascertain, the CONTRACTOR agrees to compensate the OWNER in the sum of ONE thousand dollars (\$1000.00) for each calendar day that the actual time of completion of the Work extends beyond the agreed dates for completion, which sum is hereby fixed by the parties as the liquidated damages that the OWNER will suffer by reason of such delay and default, and not as a penalty; and the OWNER shall have the right to deduct and retain the amount of such liquidated damages from any monies otherwise due or becoming due to the CONTRACTOR under this Contract.



3. The OWNER shall pay the CONTRACTOR for completion of the Work in accordance with the Contract Documents, in current funds at the unit prices state in the CONTRACTOR's Bid.
4. On or before the first Saturday of the month, the CONTRACTOR shall submit to the ENGINEER in writing a state of work completed during the previous month, for which he is requesting payment. Such statement shall be subject to verification and interpretation by the ENGINEER, whose decision as to completed quantities of work and payment therefore shall be final.

The ENGINEER shall certify in writing to the OWNER the payments due the CONTRACTOR under the terms of the Contract. In this certificate, the ENGINEER shall include 90 percent of the value as estimated by the ENGINEER, of the work done, less the aggregate of the previous payments.

The OWNER shall place the request before the City Council for approval on the first available warrant of the following month and, upon approval of the same, shall pay to the CONTRACTOR, as partial payment under this Contract, the amount of such certificate, less that retainage permitted pursuant to Michigan Public Act 524 of 1980, as amended. Prior to the disbursement of any progress payment or final payment, the CONTRACTOR must provide the OWNER with waivers of lien and sworn statements as set forth in the General Conditions. The OWNER may reserve and retain out such partial payment a sum sufficient to meet any undischarged obligations of the CONTRACTOR for labor and materials incorporated in the work, or any other sums as provided for in the Contract Documents.

Neither the ENGINEER nor the OWNER shall have any liability to the Contract if the ENGINEER fails to certify the CONTRACTOR'S work on a timely basis fails to verify the full 90% value of the work in place; or for any other error in such certification.

All material and work covered by partial payment made shall thereupon become the sole property of the OWNER, but this provision shall not be construed as relieving the CONTRACTOR from the sole responsibility for the care and protection of materials and work upon which payment have been made or the restoration of any damaged work, or as a waiver of the right of the OWNER to require fulfillment of all terms of the contract.

5. Upon written receipt of written notice that the work is ready for final inspection and acceptance, the ENGINEER shall promptly make such inspection, and when he finds the work acceptable under the Contract and the Contract fully performed, the ENGINEER shall promptly issue a final certificate, over his signature, stating that the work provided for in the Contract has been completed and is acceptable by him under the terms and conditions thereof and the entire balance found to be due the CONTRACTOR, including the retained percentage, shall be paid to the CONTRACTOR by the OWNER within 30 days after the date of said final certificate, providing the documents/certificates submitted are acceptable to the reviewing department of the City of Novi. Before issuance of a final certificate, the Contractor shall submit an affidavit to the ENGINEER that all payrolls, materials bills, and or the indebtedness connected with the work have been paid. The CONTRACTOR shall provide written consent from his project surety approving the release of final payment to the CONTRACTOR. All payments based on progress certificates shall be subject to correction the final pay estimate.

The acceptance by the CONTRACTOR of the last payment based on the final pay estimate shall operate as and shall be a release to the OWNER and agents thereof, from any and all claims and



any liability to the CONTRACTOR for anything done or furnished for, or relating to the Work, or for any act or neglect of the OWNER, its officers, employees and representatives relating to or affecting the work.

6. The Contract Documents consist of the following:
 - a. Bidding Requirements, including Instructions to Bidders, and Bidder's Qualification and Experience Statement
 - b. Notice of Award.
 - c. This Agreement.
 - d. Performance Bond.
 - e. Payment Bond.
 - f. General Conditions.
 - g. Supplementary General Conditions
 - h. Specifications as listed in the table of contents of this project manual.
 - i. Project Maps
 - j. The following may be blank or excluded until on or after the Effective Date of the Agreement:
 - i. Notice to Proceed
 - ii. Field Orders
 - iii. Work Change Directives
 - iv. Change Orders
 - v. Maintenance & Guarantee Bond

There are no contract documents other than those listed above. The Contract Documents may only be amended modified or supplemented as provided in the General Conditions.

7. All Work shall be done under the observation of the ENGINEER. The ENGINEER shall decide any and all questions which may arise as to the quality and acceptability of materials furnished, work performed, rate of progress of work, interpretation of Specifications, and all questions as to the acceptable fulfillment of the Contract on the part of the CONTRACTOR.
8. This Agreement and all of the covenants hereof shall inure to the benefit of and be binding upon the OWNER and CONTRACTOR respectively and its partners, successors, assigns and legal representatives. Neither the OWNER nor the CONTRACTOR shall have the right to assign, transfer or sublet his interests or obligations hereunder without written consent of the other party.

IN WITNESSETH WHEREOF, the parties hereto have caused this instrument to be executed in seven (7) original counterparts and the day and year first written above.

CONTRACTOR:

OWNER:

Name of CONTRACTOR*

City of Novi

By: _____
Signature

Justin Fischer, Mayor

[Name and Title of Signatory]*

Cortney Hanson, City Clerk

Attest: _____

Attest: _____

Signed on: _____, 20____
Date*

Signed on: _____, 20____
Effective Date of Agreement*

Address for giving notices:

Address for giving notices:

(Street)*

45175 W. Ten Mile Rd.

(City, State and ZIP)*

Novi, Michigan 48375

Designated Representative:

Designated Representative:

(Name*)

Ben Croy, PE

(Title*)

City Engineer

(Street*)

26300 Lee BeGole Dr.

(City, State, and ZIP*)

Novi, Michigan 48375

(Telephone Number*)

(248) 735-5640

(Facsimile*)

(248) 735-5659

*Typed or printed in ink



PERFORMANCE BOND

KNOW ALL MEN BY THESE PRESENTS THAT _____
as Principal, hereinafter called the CONTRACTOR, and _____

_____ as Surety, hereinafter called Surety, and held and firmly bound unto

CITY OF NOVI, MICHIGAN

as Obligee, hereinafter called the OWNER, in the amount of _____ Dollars (\$ _____)

for the payment of which the CONTRACTOR and SURETY bind themselves, their heirs, executors, administrators, successors and assigns, jointly and severally, firmly by these presents.

WHEREAS, the CONTRACTOR has been awarded a Contract by the OWNER for the construction of

Novi Distribution System Material Investigation

in accordance with Specifications prepared by Orchard, Hiltz & McCliment Inc. (OHM Advisors) Job No. 0163-23-0040, which award was conditioned on the CONTRACTOR providing this Performance Bond and which Contract upon being fully executed by the OWNER and the CONTRACTOR shall by reference automatically be made a part hereof, and is hereinafter referred to as "the Contract."

NOW, THEREFORE, THE CONDITION OF THIS OBLIGATION is such that, if the CONTRACTOR shall promptly and faithfully perform said Contract, in accordance with the terms and conditions of the Contract, then the CONTRACTOR and SURETY shall have no further obligation under this bond; otherwise it shall remain in full force and effect, subject, however, to the following conditions.

1. The SURETY hereby waives notice of any alteration or extension of time under the Contract made by the OWNER.

2. SURETY'S obligation under this Performance Bond shall arise after the OWNER has declared a CONTRACTOR Default as defined below, formally terminated the Contract or the CONTRACTOR'S right to complete the Contract, and notified the SURETY of the OWNER'S claim under this Performance Bond.

3. When the OWNER has satisfied the conditions of Paragraph 2 above, the SURETY shall, at the SURETY'S sole cost and expense, undertake one or more of the following actions:

a. Arrange for the CONTRACTOR to perform and complete the Contract; provided, however, that the SURETY may not proceed with this option, except upon the express written consent of the OWNER, which consent may be withheld by the OWNER for any reason; or

b. Perform and complete the Contract itself, through qualified CONTRACTORS who are acceptable to the OWNER, through a contract between the SURETY and qualified CONTRACTORS, performance and completion of which shall be undertaken in strict accordance with the terms and conditions of the Contract, including (but not limited to) time for completion; or



c. Tender payment to the OWNER in the amount of all losses incurred by the OWNER as a result of the CONTRACTOR Default, as determined by the OWNER, for which the SURETY is liable to the OWNER, including all costs of completion of the Contract and all consequential losses, costs, and expenses incurred by the OWNER as a result of the CONTRACTOR Default, and including all unpaid fees or payments owed to the OWNER by the CONTRACTOR under the Contract, except that SURETY'S payment under this option shall in no event exceed the limit of the Bond Amount. The SURETY may not proceed with this option, in lieu of the options set forth in paragraphs (a) or (b) above, except upon the express written consent of the OWNER, which consent may be withheld by the OWNER for any reason.

4. The SURETY shall proceed under Paragraph 3, above, within fourteen (14) business days after notice from the OWNER to the SURETY of the CONTRACTOR Default, of the formal termination of the Contract or the CONTRACTOR'S right to complete the Contract, and of the OWNER'S intention to have SURETY complete the Contract, except that SURETY shall proceed within twenty-four (24) hours after notice where the notice states that immediate action by SURETY is necessary to safeguard life or property.

5. If SURETY fails to proceed in accordance with Paragraphs 3 and 4, above, then SURETY shall be deemed to be in default on this Performance Bond three (3) business days after receipt of written notice from OWNER to SURETY demanding that SURETY perform its obligations under this Performance Bond. Thereafter, if notice to SURETY is without effect, OWNER shall be entitled to enforce any legal or equitable remedies available to OWNER, including completion of the Contract by CONTRACTORS of its own choosing or OWNER'S employees or agents, and CONTRACTOR and SURETY shall, jointly and severally, be liable for all costs of such completion and all consequential losses, costs, and expenses so incurred (including all unpaid fees and expenses owed to the OWNER by the CONTRACTOR as a result of the CONTRACTOR'S default).

6. After OWNER has terminated the Contract or the CONTRACTOR'S right to complete the Contract, and if SURETY is proceeding under subparagraphs 3(a) or 3(b) above, then the responsibilities of SURETY to the OWNER shall not be greater than those of the CONTRACTOR under the Contract, and the responsibilities of the OWNER to the SURETY shall not be greater than those of the OWNER under the Contract. SURETY shall be obligated to the limit of Bond Amount as set forth on the front page; subject, however, to a commitment by the OWNER for payment to the SURETY of the Balance of the Contract Price in mitigation of costs and damages on the Contract. SURETY shall be obligated, without duplication, for:

a. The responsibilities of CONTRACTOR for correction of defective or unsuitable work and performance and completion of the Contract.

b. Additional legal, design professional, and delay costs incurred by the OWNER as a result of the CONTRACTOR'S Default, and as a result of SURETY'S actions or failures to act under Paragraph 5, above;

c. Liquidated damages as specified in the Contract, or, if no liquidated damages are specified in the Contract, actual damages and consequential damages incurred by the OWNER as a result of delayed performance or nonperformance of Contract by the CONTRACTOR or the SURETY; and

d. Payment of all unpaid and due and owing fees or payments owed to the OWNER under the Contract at the time of the CONTRACTOR Default.



7. To the extent of payment to the SURETY of the Balance of the Contract Price, SURETY shall defend, indemnify, and hold harmless OWNER from all claims, suits, causes of actions, and demands (including all costs of litigation and a reasonable attorney's fee), which are brought against the OWNER by the CONTRACTOR or by any other party and which arise from or by reason of payment to the SURETY the Balance of the Contract Price.

8. All notices to SURETY or CONTRACTOR shall be mailed or delivered to the respective addresses shown on the signature page. In the event of a change in address of SURETY or CONTRACTOR, such party shall promptly provide notice to the OWNER and the other party, with such notice to include the Contract number and this Performance Bond number.

9. Any provision of this Performance Bond that conflicts with the statutory or legal requirements of Michigan Public Act 213 of 1963 shall be deemed deleted here from and the provisions of such statutory or other legal requirements shall be deemed incorporated herein.

10. The law controlling the interpretation or enforcement of this Performance Bond shall be Michigan law.

11. Definitions

a. Balance of the Contract Price: The total amount payable by the OWNER to the CONTRACTOR under the Contract after all proper adjustments have been made, including change orders and credits due the OWNER, reduced by all valid and proper payments made to or on behalf of the CONTRACTOR under the Contract and reduced further by all direct costs and expenses incurred by the OWNER as a result of the CONTRACTOR Default, including costs of additional supervision or inspection by OWNER of the CONTRACTOR'S work under the Contract and fees and expenses paid to consultants or others hired by the OWNER for purposes of monitoring or investigating the CONTRACTOR'S work under the Contract.

b. Contract: The agreement between the OWNER and the CONTRACTOR identified on the front page.

c. CONTRACTOR Default: "CONTRACTOR Default" shall mean the failure or refusal of the CONTRACTOR, after written notice from the OWNER, to cure or remedy, or commence to cure or remedy, a violation of the contract within the time for such cure or remedy under the Contract. "CONTRACTOR Default" shall also mean the occurrence of an "event of default" or a "termination for cause" as those or similar terms are defined or provided for in the Contract's terms, conditions, and provisions.

Signed and Sealed This _____ day of _____, 20_____

In the Presence of:

WITNESS

Principal

Title



WITNESS

Surety

Title

Address of Surety

Bond No.

City

Zip Code



PAYMENT BOND

KNOW ALL MEN BY THESE PRESENTS that _____

as Principal, hereinafter called the CONTRACTOR, and _____

_____ as SURETY, hereinafter called Surety, are held and firmly bound unto

CITY OF NOVI, MICHIGAN

as Obligee, hereinafter called the OWNER, for the use and benefit of claimants hereinbelow defined, in the amount of _____

_____ Dollars (\$ _____)

(Amount shall be shown in both words and figures).

for the Payment of which the CONTRACTOR and SURETY bind themselves, their heirs, executors, administrators, successors and assigns, jointly and severally, firmly by these presents.

WHEREAS, CONTRACTOR has been awarded a Contract by the OWNER for the construction of

Novi Distribution System Material Investigation

in accordance with Specifications prepared by Orchard, Hiltz & McCliment Inc. (OHM Advisors) Job No. 0163-23-0040, which award was conditioned on the CONTRACTOR providing this Payment Bond and which Contract upon being fully executed by the OWNER and the CONTRACTOR shall be referenced automatically be made a part hereof and is hereinafter referred to as "the Contract."

NOW, THEREFORE, THE CONDITION OF THIS OBLIGATION is such that if the CONTRACTOR shall promptly make payment to all claimants as hereinafter defined, for all labor, material, and equipment used or reasonably required for use in the performance of the Contract, then this obligation shall be null and void; otherwise it shall remain in full force and effect, subject, however to the following conditions:

A. A claimant is defined as one having a direct contract with the CONTRACTOR or with a SUBCONTRACTOR of the CONTRACTOR for labor, material, or both, used or reasonably required for use in the performance of the Contract, labor and material being construed to include that part of water, gas, power, light, heat, oil, gasoline, telephone service, or rental of equipment directly applicable to the Contract.

B. The above named CONTRACTOR and SURETY hereby jointly and severally agree with the OWNER that every claimant as herein defined, who has not been Paid in full before the expiration of a period of ninety (90) days after the date on which the last of such claimant's work or labor was done or performed, or materials were furnished by such claimant, may sue on this bond for the use of such claimant, prosecute the suit to final judgment for such sum or sums as may be justly due claimant,



and have execution thereon. The OWNER shall not be liable for the payment of any costs or expenses of any such suit.

C. SURETY'S obligation to pay a Claimant under this Payment Bond is conditioned on the Claimant providing notice of, perfecting, and prosecuting its claim in compliance with the requirements of Michigan Public Act No. 213 of 1963, as amended, and other applicable Michigan law. Any provision of this Payment Bond that conflicts with the statutory or legal requirements set forth in Michigan Public Act 213 of 1963 shall be deemed deleted herefrom, and the provisions of such statutory or other legal requirements shall be deemed incorporated herein.

At least sixty (60) days prior written notice shall be given to the OWNER by the SURETY of any intention to cancel, replace, or materially alter this bond, such notice to be given by registered mail to the OWNER and Principal.

Signed and Sealed this _____ day of _____, 20____.

In the Presence of:

WITNESS

Principal

Title

WITNESS

Surety

Title

Address of Surety

Bond No.

City

Zip Code



MAINTENANCE AND GUARANTEE BOND

KNOW ALL MEN BY THESE PRESENTS, that we _____
hereinafter called the "Principal", and _____

_____ hereinafter called the "Surety," are held and firmly bound unto

CITY OF NOVI, MICHIGAN

Hereinafter called the "OWNER," as Obligee, for the just and full sum of _____

_____ Dollars (\$))
for the payment whereof, well and truly to be made, we bind ourselves, our heirs, executors, administrators, successors, and assigns, jointly and severally, firmly by these presents.

WHEREAS, the above named Principal was awarded a Contract by the OWNER dated the _____ day of _____, for the construction of

City of Novi Distribution System Material Investigation

AND WHEREAS, this Contract was awarded upon the express condition that the Principal would furnish a *one* (1) year Maintenance Bond from the date of formal acceptance by the City Council to repair or replace any deficiencies in Labor or Material;

AND WHEREAS, the Principal warrants the workmanship and all materials used in the construction installation, and completion of said project to be of good quality and constructed and completed in a workmanlike manner in accordance with the standards, specifications and requirements of the said job;

NOW, THEREFORE, the condition of this obligation is such that if the above Principal shall replace such defective material and shall repair all defects due to defective workmanship and/or materials that shall occur on or before one (1) year of final acceptance by OWNER through resolution of the City Council, then this obligation shall be void, otherwise to be and remain in full force, effect and virtue.

If the Principal does not correct defects reported in writing by the OWNER to the Principal and Surety by repair or replacement as directed by the OWNER within the time required, which shall not be less than seven (7) days from service of the notice, the OWNER shall have the right to perform or secure the performance of the corrections, with all costs and expenses in doing so, including an administrative fee equal to twenty-five percent (25%) of the repair costs, charged to and to be received from the Principal or Surety.

Emergency repairs that are necessary to protect life and property may be undertaken by the OWNER immediately and without advance notice to the Principal and Surety, with the cost and expense of the repair, plus the administrative fee, to be charged to and received from the Principal and Surety.



Any repairs the OWNER may perform as provided in this Bond may be by OWNER employees, agents, or independent CONTRACTORS. The OWNER shall not be required to utilize competitive bidding unless otherwise required by applicable law, with labor cost and expense charges when OWNER employees are utilized to be based on the hourly cost to the OWNER of the employee(s) performing the repair.

It is further condition of this Bond that the Principal and Surety shall fully indemnify, defend, and hold the OWNER, its agents and other working on the OWNER'S behalf, harmless from all claims for damages or injuries to persons or property arising from or related to defects in work or materials, the correction of which are covered and guaranteed by this Bond, including claims arising under the worker's compensation laws of the State of Michigan.

Signed and Sealed this _____ day of _____, 20____.

In the Presence of:

WITNESS

Principal

Title

Surety

Title

Address of Surety

Bond No.

City

Zip Code



NOTICE TO PROCEED

Dated:

TO:

CONTRACT: Novi Distribution System Material Investigation

In accordance with the terms and conditions in the Contract Documents, you are hereby notified to commence work on the referenced project on _____, 20____. The date of Substantial Completion of the project is _____, 20____, with Final Project Completion by _____, 20_____.

It is the responsibility of the CONTRACTOR to meet the schedule as set forth and in accordance with terms and conditions of the Contract. Failure to comply with the schedule will result in the enforcement of liquidated damages as stated in the Contract.

The consulting ENGINEER for the City of Novi, OHM Advisors will be contacting you to coordinate a pre-construction conference.

CITY OF NOVI

(Authorized Signature)

Ben Croy, City Engineer

(Name and Title)



This document has important legal consequences; consultation with an attorney is encouraged with respect to its use or modification. This document should be adapted to the particular circumstances of the contemplated Project and the Controlling Law.

STANDARD GENERAL CONDITIONS OF THE CONSTRUCTION CONTRACT

Prepared by

ENGINEERS JOINT CONTRACT DOCUMENTS COMMITTEE

and

Issued and Published Jointly By



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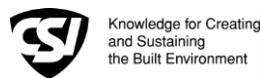
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The Associated General Contractors of America



Construction Specifications Institute

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American Society of Civil Engineers
1801 Alexander Bell Drive, Reston, VA 20191-4400

These General Conditions have been prepared for use with the Suggested Forms of Agreement Between Owner and Contractor Nos. C-520 or C-525 (2002 Editions). Their provisions are interrelated and a change in one may necessitate a change in the other. Comments concerning their usage are contained in the EJCDC Construction Documents, General and Instructions (No. C-001) (2002 Edition). For guidance in the preparation of Supplementary Conditions, see Guide to the Preparation of Supplementary Conditions (No. C-800) (2002 Edition).

TABLE OF CONTENTS

Page

ARTICLE 1 - DEFINITIONS AND TERMINOLOGY	6
1.01 <i>Defined Terms</i>	6
1.02 <i>Terminology</i>	8
ARTICLE 2 - PRELIMINARY MATTERS	9
2.01 <i>Delivery of Bonds and Evidence of Insurance</i>	9
2.02 <i>Copies of Documents</i>	9
2.03 <i>Commencement of Contract Times; Notice to Proceed</i>	9
2.04 <i>Starting the Work</i>	9
2.05 <i>Before Starting Construction</i>	9
2.06 <i>Preconstruction Conference</i>	9
2.07 <i>Initial Acceptance of Schedules</i>	9
ARTICLE 3 - CONTRACT DOCUMENTS: INTENT, AMENDING, REUSE	10
3.01 <i>Intent</i>	10
3.02 <i>Reference Standards</i>	10
3.03 <i>Reporting and Resolving Discrepancies</i>	10
3.04 <i>Amending and Supplementing Contract Documents</i>	11
3.05 <i>Reuse of Documents</i>	11
3.06 <i>Electronic Data</i>	11
ARTICLE 4 - AVAILABILITY OF LANDS; SUBSURFACE AND PHYSICAL CONDITIONS; HAZARDOUS ENVIRONMENTAL CONDITIONS; REFERENCE POINTS	11
4.01 <i>Availability of Lands</i>	11
4.02 <i>Subsurface and Physical Conditions</i>	12
4.03 <i>Differing Subsurface or Physical Conditions</i>	12
4.04 <i>Underground Facilities</i>	13
4.05 <i>Reference Points</i>	13
4.06 <i>Hazardous Environmental Condition at Site</i>	13
ARTICLE 5 - BONDS AND INSURANCE	14
5.01 <i>Performance, Payment, and Other Bonds</i>	14
5.02 <i>Licensed Sureties and Insurers</i>	15
5.03 <i>Certificates of Insurance</i>	15
5.04 <i>Contractor's Liability Insurance</i>	15
5.05 <i>Owner's Liability Insurance</i>	16
5.06 <i>Property Insurance</i>	16
5.07 <i>Waiver of Rights</i>	17
5.08 <i>Receipt and Application of Insurance Proceeds</i>	17
5.09 <i>Acceptance of Bonds and Insurance; Option to Replace</i>	17
5.10 <i>Partial Utilization, Acknowledgment of Property Insurer</i>	18
ARTICLE 6 - CONTRACTOR'S RESPONSIBILITIES	18
6.01 <i>Supervision and Superintendence</i>	18
6.02 <i>Labor; Working Hours</i>	18
6.03 <i>Services, Materials, and Equipment</i>	18
6.04 <i>Progress Schedule</i>	18
6.05 <i>Substitutes and "Or-Equals"</i>	19
6.06 <i>Concerning Subcontractors, Suppliers, and Others</i>	20
6.07 <i>Patent Fees and Royalties</i>	21
6.08 <i>Permits</i>	21
6.09 <i>Laws and Regulations</i>	21
6.10 <i>Taxes</i>	22
6.11 <i>Use of Site and Other Areas</i>	22
6.12 <i>Record Documents</i>	22
6.13 <i>Safety and Protection</i>	22
6.14 <i>Safety Representative</i>	23
6.15 <i>Hazard Communication Programs</i>	23

6.16	<i>Emergencies</i>	23
6.17	<i>Shop Drawings and Samples</i>	23
6.18	<i>Continuing the Work</i>	24
6.19	<i>Contractor’s General Warranty and Guarantee</i>	24
6.20	<i>Indemnification</i>	24
6.21	<i>Delegation of Professional Design Services</i>	25
ARTICLE 7 - OTHER WORK AT THE SITE		25
7.01	<i>Related Work at Site</i>	25
7.02	<i>Coordination</i>	26
7.03	<i>Legal Relationships</i>	26
ARTICLE 8 - OWNER’S RESPONSIBILITIES		26
8.01	<i>Communications to Contractor</i>	26
8.02	<i>Replacement of Engineer</i>	26
8.03	<i>Furnish Data</i>	26
8.04	<i>Pay When Due</i>	26
8.05	<i>Lands and Easements; Reports and Tests</i>	26
8.06	<i>Insurance</i>	26
8.07	<i>Change Orders</i>	26
8.08	<i>Inspections, Tests, and Approvals</i>	26
8.09	<i>Limitations on Owner’s Responsibilities</i>	27
8.10	<i>Undisclosed Hazardous Environmental Condition</i>	27
8.11	<i>Evidence of Financial Arrangements</i>	27
ARTICLE 9 - ENGINEER’S STATUS DURING CONSTRUCTION.....		27
9.01	<i>Owner’s Representative</i>	27
9.02	<i>Visits to Site</i>	27
9.03	<i>Project Representative</i>	27
9.04	<i>Authorized Variations in Work</i>	27
9.05	<i>Rejecting Defective Work</i>	27
9.06	<i>Shop Drawings, Change Orders and Payments</i>	28
9.07	<i>Determinations for Unit Price Work</i>	28
9.08	<i>Decisions on Requirements of Contract Documents and Acceptability of Work</i>	28
9.09	<i>Limitations on Engineer’s Authority and Responsibilities</i>	28
ARTICLE 10 - CHANGES IN THE WORK; CLAIMS		28
10.01	<i>Authorized Changes in the Work</i>	28
10.02	<i>Unauthorized Changes in the Work</i>	29
10.03	<i>Execution of Change Orders</i>	29
10.04	<i>Notification to Surety</i>	29
10.05	<i>Claims</i>	29
ARTICLE 11 - COST OF THE WORK; ALLOWANCES; UNIT PRICE WORK.....		30
11.01	<i>Cost of the Work</i>	30
11.02	<i>Allowances</i>	31
11.03	<i>Unit Price Work</i>	31
ARTICLE 12 - CHANGE OF CONTRACT PRICE; CHANGE OF CONTRACT TIMES		32
12.01	<i>Change of Contract Price</i>	32
12.02	<i>Change of Contract Times</i>	33
12.03	<i>Delays</i>	33
ARTICLE 13 - TESTS AND INSPECTIONS; CORRECTION, REMOVAL OR ACCEPTANCE OF DEFECTIVE WORK.....		33
13.01	<i>Notice of Defects</i>	33
13.02	<i>Access to Work</i>	33
13.03	<i>Tests and Inspections</i>	33
13.04	<i>Uncovering Work</i>	34
13.05	<i>Owner May Stop the Work</i>	34
13.06	<i>Correction or Removal of Defective Work</i>	34
13.07	<i>Correction Period</i>	34
13.08	<i>Acceptance of Defective Work</i>	35
13.09	<i>Owner May Correct Defective Work</i>	35
ARTICLE 14 - PAYMENTS TO CONTRACTOR AND COMPLETION		36
14.01	<i>Schedule of Values</i>	36
14.02	<i>Progress Payments</i>	36
14.03	<i>Contractor’s Warranty of Title</i>	37
14.04	<i>Substantial Completion</i>	37

14.05	<i>Partial Utilization</i>	38
14.06	<i>Final Inspection</i>	38
14.07	<i>Final Payment</i>	38
14.08	<i>Final Completion Delayed</i>	39
14.09	<i>Waiver of Claims</i>	39
ARTICLE 15 - SUSPENSION OF WORK AND TERMINATION		39
15.01	<i>Owner May Suspend Work</i>	39
15.02	<i>Owner May Terminate for Cause</i>	39
15.03	<i>Owner May Terminate For Convenience</i>	40
15.04	<i>Contractor May Stop Work or Terminate</i>	40
ARTICLE 16 - DISPUTE RESOLUTION		41
16.01	<i>Methods and Procedures</i>	41
ARTICLE 17 - MISCELLANEOUS		41
17.01	<i>Giving Notice</i>	41
17.02	<i>Computation of Times</i>	41
17.03	<i>Cumulative Remedies</i>	41
17.04	<i>Survival of Obligations</i>	41
17.05	<i>Controlling Law</i>	41
17.06	<i>Headings</i>	41

GENERAL CONDITIONS

ARTICLE 1 - DEFINITIONS AND TERMINOLOGY

1.01 *Defined Terms*

A. Wherever used in the Bidding Requirements or Contract Documents and printed with initial capital letters, the terms listed below will have the meanings indicated which are applicable to both the singular and plural thereof. In addition to terms specifically defined, terms with initial capital letters in the Contract Documents include references to identified articles and paragraphs, and the titles of other documents or forms.

1. *Addenda*--Written or graphic instruments issued prior to the opening of Bids which clarify, correct, or change the Bidding Requirements or the proposed Contract Documents.

2. *Agreement*--The written instrument which is evidence of the agreement between Owner and Contractor covering the Work.

3. *Application for Payment*--The form acceptable to Engineer which is to be used by Contractor during the course of the Work in requesting progress or final payments and which is to be accompanied by such supporting documentation as is required by the Contract Documents.

4. *Asbestos*--Any material that contains more than one percent asbestos and is friable or is releasing asbestos fibers into the air above current action levels established by the United States Occupational Safety and Health Administration.

5. *Bid*--The offer or proposal of a Bidder submitted on the prescribed form setting forth the prices for the Work to be performed.

6. *Bidder*--The individual or entity who submits a Bid directly to Owner.

7. *Bidding Documents*--The Bidding Requirements and the proposed Contract Documents (including all Addenda).

8. *Bidding Requirements*--The Advertisement or Invitation to Bid, Instructions to Bidders, bid security of acceptable form, if any, and the Bid Form with any supplements.

9. *Change Order*--A document recommended by Engineer which is signed by Contractor and Owner and authorizes an addition, deletion, or revision in the Work or an adjustment in the Contract Price or the Contract Times, issued on or after the Effective Date of the Agreement.

10. *Claim*--A demand or assertion by Owner or Contractor seeking an adjustment of Contract Price or Contract Times, or both, or other relief with respect to the terms of the Contract. A demand for money or services by a third party is not a Claim.

11. *Contract*--The entire and integrated written agreement between the Owner and Contractor concerning the Work. The Contract supersedes prior negotiations, representations, or agreements, whether written or oral.

12. *Contract Documents*-- Those items so designated in the Agreement. Only printed or hard copies of the items listed in the Agreement are Contract Documents. Approved Shop Drawings, other Contractor's submittals, and the reports and drawings of subsurface and physical conditions are not Contract Documents.

13. *Contract Price*--The moneys payable by Owner to Contractor for completion of the Work in accordance with the Contract Documents as stated in the Agreement (subject to the provisions of Paragraph 11.03 in the case of Unit Price Work).

14. *Contract Times*--The number of days or the dates stated in the Agreement to: (i) achieve Milestones, if any, (ii) achieve Substantial Completion; and (iii) complete the Work so that it is ready for final payment as evidenced by Engineer's written recommendation of final payment.

15. *Contractor*--The individual or entity with whom Owner has entered into the Agreement.

16. *Cost of the Work*--See Paragraph 11.01.A for definition.

17. *Drawings*--That part of the Contract Documents prepared or approved by Engineer which graphically shows the scope, extent, and character of the Work to be performed by Contractor. Shop Drawings and other Contractor submittals are not Drawings as so defined.

18. *Effective Date of the Agreement*--The date indicated in the Agreement on which it becomes effective, but if no such date is indicated, it means the date on which the Agreement is signed and delivered by the last of the two parties to sign and deliver.

19. *Engineer*--The individual or entity named as such in the Agreement.

20. *Field Order*--A written order issued by Engineer which requires minor changes in the Work but which does not involve a change in the Contract Price or the Contract Times.

21. *General Requirements*--Sections of Division 1 of the Specifications. The General Requirements pertain to all sections of the Specifications.

22. *Hazardous Environmental Condition*--The presence at the Site of Asbestos, PCBs, Petroleum, Hazardous Waste, or Radioactive Material in such quantities or circumstances that may present a substantial danger to persons or property exposed thereto in connection with the Work.

23. *Hazardous Waste*--The term Hazardous Waste shall have the meaning provided in Section 1004 of the Solid Waste Disposal Act (42 USC Section 6903) as amended from time to time.

24. *Laws and Regulations; Laws or Regulations*--Any and all applicable laws, rules, regulations, ordinances, codes, and orders of any and all governmental bodies, agencies, authorities, and courts having jurisdiction.

25. *Liens*--Charges, security interests, or encumbrances upon Project funds, real property, or personal property.

26. *Milestone*--A principal event specified in the Contract Documents relating to an intermediate completion date or time prior to Substantial Completion of all the Work.

27. *Notice of Award*--The written notice by Owner to the Successful Bidder stating that upon timely compliance by the Successful Bidder with the conditions precedent listed therein, Owner will sign and deliver the Agreement.

28. *Notice to Proceed*--A written notice given by Owner to Contractor fixing the date on which the Contract Times will commence to run and on which Contractor shall start to perform the Work under the Contract Documents.

29. *Owner*--The individual or entity with whom Contractor has entered into the Agreement and for whom the Work is to be performed.

30. *PCBs*--Polychlorinated biphenyls.

31. *Petroleum*--Petroleum, including crude oil or any fraction thereof which is liquid at standard conditions of temperature and pressure (60 degrees Fahrenheit and 14.7 pounds per square inch absolute), such as oil, petroleum, fuel oil, oil sludge, oil refuse, gasoline, kerosene, and oil mixed with other non-Hazardous Waste and crude oils.

32. *Progress Schedule*--A schedule, prepared and maintained by Contractor, describing the sequence and duration of the activities comprising the Contractor's plan to accomplish the Work within the Contract Times.

33. *Project*--The total construction of which the Work to be performed under the Contract Documents may be the whole, or a part.

34. *Project Manual*--The bound documentary information prepared for bidding and constructing the Work. A listing of the contents of the Project Manual, which may be bound in one or more volumes, is contained in the table(s) of contents.

35. *Radioactive Material*--Source, special nuclear, or byproduct material as defined by the Atomic Energy Act of 1954 (42 USC Section 2011 et seq.) as amended from time to time.

36. *Related Entity* -- An officer, director, partner, employee, agent, consultant, or subcontractor.

37. *Resident Project Representative*--The authorized representative of Engineer who may be assigned to the Site or any part thereof.

38. *Samples*--Physical examples of materials, equipment, or workmanship that are representative of some portion of the Work and which establish the standards by which such portion of the Work will be judged.

39. *Schedule of Submittals*--A schedule, prepared and maintained by Contractor, of required submittals and the time requirements to support scheduled performance of related construction activities.

40. *Schedule of Values*--A schedule, prepared and maintained by Contractor, allocating portions of the Contract Price to various portions of the Work and used as the basis for reviewing Contractor's Applications for Payment.

41. *Shop Drawings*--All drawings, diagrams, illustrations, schedules, and other data or information which are specifically prepared or assembled by or for Contractor and submitted by Contractor to illustrate some portion of the Work.

42. *Site*--Lands or areas indicated in the Contract Documents as being furnished by Owner upon which the Work is to be performed, including rights-of-way and easements for access thereto, and such other lands furnished by Owner which are designated for the use of Contractor.

43. *Specifications*--That part of the Contract Documents consisting of written requirements for materials, equipment, systems, standards and workmanship as applied to the Work, and certain

administrative requirements and procedural matters applicable thereto.

44. *Subcontractor*--An individual or entity having a direct contract with Contractor or with any other Subcontractor for the performance of a part of the Work at the Site.

45. *Substantial Completion*--The time at which the Work (or a specified part thereof) has progressed to the point where, in the opinion of Engineer, the Work (or a specified part thereof) is sufficiently complete, in accordance with the Contract Documents, so that the Work (or a specified part thereof) can be utilized for the purposes for which it is intended. The terms "substantially complete" and "substantially completed" as applied to all or part of the Work refer to Substantial Completion thereof.

46. *Successful Bidder*--The Bidder submitting a responsive Bid to whom Owner makes an award.

47. *Supplementary Conditions*--That part of the Contract Documents which amends or supplements these General Conditions.

48. *Supplier*--A manufacturer, fabricator, supplier, distributor, materialman, or vendor having a direct contract with Contractor or with any Subcontractor to furnish materials or equipment to be incorporated in the Work by Contractor or any Subcontractor.

49. *Underground Facilities*--All underground pipelines, conduits, ducts, cables, wires, manholes, vaults, tanks, tunnels, or other such facilities or attachments, and any encasements containing such facilities, including those that convey electricity, gases, steam, liquid petroleum products, telephone or other communications, cable television, water, wastewater, storm water, other liquids or chemicals, or traffic or other control systems.

50. *Unit Price Work*--Work to be paid for on the basis of unit prices.

51. *Work*--The entire construction or the various separately identifiable parts thereof required to be provided under the Contract Documents. Work includes and is the result of performing or providing all labor, services, and documentation necessary to produce such construction, and furnishing, installing, and incorporating all materials and equipment into such construction, all as required by the Contract Documents.

52. *Work Change Directive*--A written statement to Contractor issued on or after the Effective Date of the Agreement and signed by Owner and recommended by Engineer ordering an addition, deletion, or revision in the Work, or responding to differing or unforeseen subsurface or physical conditions under which the Work is to be performed or to emergencies. A Work Change Directive will not change the Contract Price or the Contract Times

but is evidence that the parties expect that the change ordered or documented by a Work Change Directive will be incorporated in a subsequently issued Change Order following negotiations by the parties as to its effect, if any, on the Contract Price or Contract Times.

1.02 Terminology

A. The following words or terms are not defined but, when used in the Bidding Requirements or Contract Documents, have the following meaning.

B. Intent of Certain Terms or Adjectives

1. The Contract Documents include the terms "as allowed," "as approved," "as ordered," "as directed" or terms of like effect or import to authorize an exercise of professional judgment by Engineer. In addition, the adjectives "reasonable," "suitable," "acceptable," "proper," "satisfactory," or adjectives of like effect or import are used to describe an action or determination of Engineer as to the Work. It is intended that such exercise of professional judgment, action or determination will be solely to evaluate, in general, the Work for compliance with the requirements of and information in the Contract Documents and conformance with the design concept of the completed Project as a functioning whole as shown or indicated in the Contract Documents (unless there is a specific statement indicating otherwise). The use of any such term or adjective is not intended to and shall not be effective to assign to Engineer any duty or authority to supervise or direct the performance of the Work or any duty or authority to undertake responsibility contrary to the provisions of Paragraph 9.09 or any other provision of the Contract Documents.

C. Day

1. The word "day" means a calendar day of 24 hours measured from midnight to the next midnight.

D. Defective

1. The word "defective," when modifying the word "Work," refers to Work that is unsatisfactory, faulty, or deficient in that it:

- a. does not conform to the Contract Documents, or
- b. does not meet the requirements of any applicable inspection, reference standard, test, or approval referred to in the Contract Documents, or
- c. has been damaged prior to Engineer's - recommendation of final payment (unless responsibility for the protection thereof has been assumed by Owner at Substantial Completion in accordance with Paragraph 14.04 or 14.05).

E. Furnish, Install, Perform, Provide

1. The word “furnish,” when used in connection with services, materials, or equipment, shall mean to supply and deliver said services, materials, or equipment to the Site (or some other specified location) ready for use or installation and in usable or operable condition.

2. The word “install,” when used in connection with services, materials, or equipment, shall mean to put into use or place in final position said services, materials, or equipment complete and ready for intended use.

3. The words “perform” or “provide,” when used in connection with services, materials, or equipment, shall mean to furnish and install said services, materials, or equipment complete and ready for intended use.

4. When “furnish,” “install,” “perform,” or “provide” is not used in connection with services, materials, or equipment in a context clearly requiring an obligation of Contractor, “provide” is implied.

F. Unless stated otherwise in the Contract Documents, words or phrases which have a well-known technical or construction industry or trade meaning are used in the Contract Documents in accordance with such recognized meaning.

ARTICLE 2 - PRELIMINARY MATTERS

2.01 *Delivery of Bonds and Evidence of Insurance*

A. When Contractor delivers the executed counterparts of the Agreement to Owner, Contractor shall also deliver to Owner such bonds as Contractor may be required to furnish.

B. *Evidence of Insurance:* Before any Work at the Site is started, Contractor and Owner shall each deliver to the other, with copies to each additional insured identified in the Supplementary Conditions, certificates of insurance (and other evidence of insurance which either of them or any additional insured may reasonably request) which Contractor and Owner respectively are required to purchase and maintain in accordance with Article 5.

2.02 *Copies of Documents*

A. Owner shall furnish to Contractor up to ten printed or hard copies of the Drawings and Project Manual. Additional copies will be furnished upon request at the cost of reproduction.

2.03 *Commencement of Contract Times; Notice to Proceed*

A. The Contract Times will commence to run on the thirtieth day after the Effective Date of the Agreement

or, if a Notice to Proceed is given, on the day indicated in the Notice to Proceed. A Notice to Proceed may be given at any time within 30 days after the Effective Date of the Agreement. In no event will the Contract Times commence to run later than the sixtieth day after the day of Bid opening or the thirtieth day after the Effective Date of the Agreement, whichever date is earlier.

2.04 *Starting the Work*

A. Contractor shall start to perform the Work on the date when the Contract Times commence to run. No Work shall be done at the Site prior to the date on which the Contract Times commence to run.

2.05 *Before Starting Construction*

A. *Preliminary Schedules:* Within 10 days after the Effective Date of the Agreement (unless otherwise specified in the General Requirements), Contractor shall submit to Engineer for timely review:

1. a preliminary Progress Schedule; indicating the times (numbers of days or dates) for starting and completing the various stages of the Work, including any Milestones specified in the Contract Documents;

2. a preliminary Schedule of Submittals; and

3. a preliminary Schedule of Values for all of the Work which includes quantities and prices of items which when added together equal the Contract Price and subdivides the Work into component parts in sufficient detail to serve as the basis for progress payments during performance of the Work. Such prices will include an appropriate amount of overhead and profit applicable to each item of Work.

2.06 *Preconstruction Conference*

A. Before any Work at the Site is started, a conference attended by Owner, Contractor, Engineer, and others as appropriate will be held to establish a working understanding among the parties as to the Work and to discuss the schedules referred to in Paragraph 2.05.A, procedures for handling Shop Drawings and other submittals, processing Applications for Payment, and maintaining required records.

2.07 *Initial Acceptance of Schedules*

A. At least 10 days before submission of the first Application for Payment a conference attended by Contractor, Engineer, and others as appropriate will be held to review for acceptability to Engineer as provided below the schedules submitted in accordance with Paragraph 2.05.A. Contractor shall have an additional 10 days to make corrections and adjustments and to complete and resubmit the schedules. No progress payment shall be made to Contractor until acceptable schedules are submitted to Engineer.

1. The Progress Schedule will be acceptable to Engineer if it provides an orderly progression of the Work to completion within the Contract Times. Such acceptance will not impose on Engineer responsibility for the Progress Schedule, for sequencing, scheduling, or progress of the Work nor interfere with or relieve Contractor from Contractor's full responsibility therefor.

2. Contractor's Schedule of Submittals will be acceptable to Engineer if it provides a workable arrangement for reviewing and processing the required submittals.

3. Contractor's Schedule of Values will be acceptable to Engineer as to form and substance if it provides a reasonable allocation of the Contract Price to component parts of the Work.

ARTICLE 3 - CONTRACT DOCUMENTS: INTENT, AMENDING, REUSE

3.01 *Intent*

A. The Contract Documents are complementary; what is required by one is as binding as if required by all.

B. It is the intent of the Contract Documents to describe a functionally complete Project (or part thereof) to be constructed in accordance with the Contract Documents. Any labor, documentation, services, materials, or equipment that may reasonably be inferred from the Contract Documents or from prevailing custom or trade usage as being required to produce the intended result will be provided whether or not specifically called for at no additional cost to Owner.

C. Clarifications and interpretations of the Contract Documents shall be issued by Engineer as provided in Article 9.

3.02 *Reference Standards*

A. Standards, Specifications, Codes, Laws, and Regulations

1. Reference to standards, specifications, manuals, or codes of any technical society, organization, or association, or to Laws or Regulations, whether such reference be specific or by implication, shall mean the standard, specification, manual, code, or Laws or Regulations in effect at the time of opening of Bids (or on the Effective Date of the Agreement if there were no Bids), except as may be otherwise specifically stated in the Contract Documents.

2. No provision of any such standard, specification, manual or code, or any instruction of a Supplier shall be effective to change the duties or

responsibilities of Owner, Contractor, or Engineer, or any of their subcontractors, consultants, agents, or employees from those set forth in the Contract Documents. No such provision or instruction shall be effective to assign to Owner, or Engineer, or any of, their Related Entities, any duty or authority to supervise or direct the performance of the Work or any duty or authority to undertake responsibility inconsistent with the provisions of the Contract Documents.

3.03 *Reporting and Resolving Discrepancies*

A. Reporting Discrepancies

1. *Contractor's Review of Contract Documents Before Starting Work:* Before undertaking each part of the Work, Contractor shall carefully study and compare the Contract Documents and check and verify pertinent figures therein and all applicable field measurements. Contractor shall promptly report in writing to Engineer any conflict, error, ambiguity, or discrepancy which Contractor may discover and shall obtain a written interpretation or clarification from Engineer before proceeding with any Work affected thereby.

2. *Contractor's Review of Contract Documents During Performance of Work:* If, during the performance of the Work, Contractor discovers any conflict, error, ambiguity, or discrepancy within the Contract Documents or between the Contract Documents and any provision of any Law or Regulation applicable to the performance of the Work or of any standard, specification, manual or code, or of any instruction of any Supplier, Contractor shall promptly report it to Engineer in writing. Contractor shall not proceed with the Work affected thereby (except in an emergency as required by Paragraph 6.16.A) until an amendment or supplement to the Contract Documents has been issued by one of the methods indicated in Paragraph 3.04.

3. Contractor shall not be liable to Owner or Engineer for failure to report any conflict, error, ambiguity, or discrepancy in the Contract Documents unless Contractor knew or reasonably should have known thereof.

B. Resolving Discrepancies

1. Except as may be otherwise specifically stated in the Contract Documents, the provisions of the Contract Documents shall take precedence in resolving any conflict, error, ambiguity, or discrepancy between the provisions of the Contract Documents and:

a. the provisions of any standard, specification, manual, code, or instruction (whether or not specifically incorporated by reference in the Contract Documents); or

b. the provisions of any Laws or Regulations applicable to the performance of the Work

(unless such an interpretation of the provisions of the Contract Documents would result in violation of such Law or Regulation).

3.04 *Amending and Supplementing Contract Documents*

A. The Contract Documents may be amended to provide for additions, deletions, and revisions in the Work or to modify the terms and conditions thereof by either a Change Order or a Work Change Directive.

B. The requirements of the Contract Documents may be supplemented, and minor variations and deviations in the Work may be authorized, by one or more of the following ways:

1. A Field Order;

2. Engineer's approval of a Shop Drawing or Sample; (Subject to the provisions of Paragraph 6.17.D.3); or

3. Engineer's written interpretation or clarification.

3.05 *Reuse of Documents*

A. Contractor and any Subcontractor or Supplier or other individual or entity performing or furnishing all of the Work under a direct or indirect contract with Contractor, shall not:

1. have or acquire any title to or ownership rights in any of the Drawings, Specifications, or other documents (or copies of any thereof) prepared by or bearing the seal of Engineer or Engineer's consultants, including electronic media editions; or

2. reuse any of such Drawings, Specifications, other documents, or copies thereof on extensions of the Project or any other project without written consent of Owner and Engineer and specific written verification or adaption by Engineer.

B. The prohibition of this Paragraph 3.05 will survive final payment, or termination of the Contract. Nothing herein shall preclude Contractor from retaining copies of the Contract Documents for record purposes.

3.06 *Electronic Data*

A. Copies of data furnished by Owner or Engineer to Contractor or Contractor to Owner or Engineer that may be relied upon are limited to the printed copies (also known as hard copies). Files in electronic media format of text, data, graphics, or other types are furnished only for the convenience of the receiving party. Any conclusion or information obtained or derived from such electronic files will be at the user's

sole risk. If there is a discrepancy between the electronic files and the hard copies, the hard copies govern.

B. Because data stored in electronic media format can deteriorate or be modified inadvertently or otherwise without authorization of the data's creator, the party receiving electronic files agrees that it will perform acceptance tests or procedures within 60 days, after which the receiving party shall be deemed to have accepted the data thus transferred. Any errors detected within the 60-day acceptance period will be corrected by the transferring party..

C. When transferring documents in electronic media format, the transferring party makes no representations as to long term compatibility, usability, or readability of documents resulting from the use of software application packages, operating systems, or computer hardware differing from those used by the data's creator.

ARTICLE 4 - AVAILABILITY OF LANDS; SUBSURFACE AND PHYSICAL CONDITIONS; HAZARDOUS ENVIRONMENTAL CONDITIONS; REFERENCE POINTS

4.01 *Availability of Lands*

A. Owner shall furnish the Site. Owner shall notify Contractor of any encumbrances or restrictions not of general application but specifically related to use of the Site with which Contractor must comply in performing the Work. Owner will obtain in a timely manner and pay for easements for permanent structures or permanent changes in existing facilities. If Contractor and Owner are unable to agree on entitlement to or on the amount or extent, if any, of any adjustment in the Contract Price or Contract Times, or both, as a result of any delay in Owner's furnishing the Site or a part thereof, Contractor may make a Claim therefor as provided in Paragraph 10.05.

B. Upon reasonable written request, Owner shall furnish Contractor with a current statement of record legal title and legal description of the lands upon which the Work is to be performed and Owner's interest therein as necessary for giving notice of or filing a mechanic's or construction lien against such lands in accordance with applicable Laws and Regulations.

C. Contractor shall provide for all additional lands and access thereto that may be required for temporary construction facilities or storage of materials and equipment.

4.02 *Subsurface and Physical Conditions*

A. *Reports and Drawings*: The Supplementary Conditions identify:

1. those reports of explorations and tests of subsurface conditions at or contiguous to the Site that Engineer has used in preparing the Contract Documents; and

2. those drawings of physical conditions in or relating to existing surface or subsurface structures at or contiguous to the Site (except Underground Facilities) that Engineer has used in preparing the Contract Documents.

B. *Limited Reliance by Contractor on Technical Data Authorized*: Contractor may rely upon the general accuracy of the "technical data" contained in such reports and drawings, but such reports and drawings are not Contract Documents. Such "technical data" is identified in the Supplementary Conditions. Except for such reliance on such "technical data," Contractor may not rely upon or make any claim against Owner or Engineer, or any of their Related Entities with respect to:

1. the completeness of such reports and drawings for Contractor's purposes, including, but not limited to, any aspects of the means, methods, techniques, sequences, and procedures of construction to be employed by Contractor, and safety precautions and programs incident thereto; or

2. other data, interpretations, opinions, and information contained in such reports or shown or indicated in such drawings; or

3. any Contractor interpretation of or conclusion drawn from any "technical data" or any such other data, interpretations, opinions, or information.

4.03 *Differing Subsurface or Physical Conditions*

A. *Notice*: If Contractor believes that any subsurface or physical condition at or contiguous to the Site that is uncovered or revealed either:

1. is of such a nature as to establish that any "technical data" on which Contractor is entitled to rely as provided in Paragraph 4.02 is materially inaccurate; or

2. is of such a nature as to require a change in the Contract Documents; or

3. differs materially from that shown or indicated in the Contract Documents; or

4. is of an unusual nature, and differs materially from conditions ordinarily encountered and generally recognized as inherent in work of the character provided for in the Contract Documents;

then Contractor shall, promptly after becoming aware thereof and before further disturbing the subsurface or physical conditions or performing any Work in connection therewith (except in an emergency as required by Paragraph 6.16.A), notify Owner and Engineer in writing about such condition. Contractor shall not further disturb such condition or perform any Work in connection therewith (except as aforesaid) until receipt of written order to do so.

B. *Engineer's Review*: After receipt of written notice as required by Paragraph 4.03.A, Engineer will promptly review the pertinent condition, determine the necessity of Owner's obtaining additional exploration or tests with respect thereto, and advise Owner in writing (with a copy to Contractor) of Engineer's findings and conclusions.

C. Possible Price and Times Adjustments

1. The Contract Price or the Contract Times, or both, will be equitably adjusted to the extent that the existence of such differing subsurface or physical condition causes an increase or decrease in Contractor's cost of, or time required for, performance of the Work; subject, however, to the following:

a. such condition must meet any one or more of the categories described in Paragraph 4.03.A; and

b. with respect to Work that is paid for on a Unit Price Basis, any adjustment in Contract Price will be subject to the provisions of Paragraphs 9.07 and 11.03.

2. Contractor shall not be entitled to any adjustment in the Contract Price or Contract Times if:

a. Contractor knew of the existence of such conditions at the time Contractor made a final commitment to Owner with respect to Contract Price and Contract Times by the submission of a Bid or becoming bound under a negotiated contract; or

b. the existence of such condition could reasonably have been discovered or revealed as a result of any examination, investigation, exploration, test, or study of the Site and contiguous areas required by the Bidding Requirements or Contract Documents to be conducted by or for Contractor prior to Contractor's making such final commitment; or

c. Contractor failed to give the written notice as required by Paragraph 4.03.A.

3. If Owner and Contractor are unable to agree on entitlement to or on the amount or extent, if any, of any adjustment in the Contract Price or Contract Times, or both, a Claim may be made therefor as provided in Paragraph 10.05. However, Owner and Engineer, and any of their Related Entities shall not be liable to Contractor for any claims, costs, losses, or damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) sustained by Contractor on or in connection with any other project or anticipated project.

4.04 *Underground Facilities*

A. *Shown or Indicated:* The information and data shown or indicated in the Contract Documents with respect to existing Underground Facilities at or contiguous to the Site is based on information and data furnished to Owner or Engineer by the owners of such Underground Facilities, including Owner, or by others. Unless it is otherwise expressly provided in the Supplementary Conditions:

1. Owner and Engineer shall not be responsible for the accuracy or completeness of any such information or data; and

2. the cost of all of the following will be included in the Contract Price, and Contractor shall have full responsibility for:

a. reviewing and checking all such information and data,

b. locating all Underground Facilities shown or indicated in the Contract Documents,

c. coordination of the Work with the owners of such Underground Facilities, including Owner, during construction, and

d. the safety and protection of all such Underground Facilities and repairing any damage thereto resulting from the Work.

B. *Not Shown or Indicated*

1. If an Underground Facility is uncovered or revealed at or contiguous to the Site which was not shown or indicated, or not shown or indicated with reasonable accuracy in the Contract Documents, Contractor shall, promptly after becoming aware thereof and before further disturbing conditions affected thereby or performing any Work in connection therewith (except in an emergency as required by Paragraph 6.16.A), identify the owner of such Underground Facility and give written notice to that owner and to Owner and Engineer. Engineer will

promptly review the Underground Facility and determine the extent, if any, to which a change is required in the Contract Documents to reflect and document the consequences of the existence or location of the Underground Facility. During such time, Contractor shall be responsible for the safety and protection of such Underground Facility.

2. If Engineer concludes that a change in the Contract Documents is required, a Work Change Directive or a Change Order will be issued to reflect and document such consequences. An equitable adjustment shall be made in the Contract Price or Contract Times, or both, to the extent that they are attributable to the existence or location of any Underground Facility that was not shown or indicated or not shown or indicated with reasonable accuracy in the Contract Documents and that Contractor did not know of and could not reasonably have been expected to be aware of or to have anticipated. If Owner and Contractor are unable to agree on entitlement to or on the amount or extent, if any, of any such adjustment in Contract Price or Contract Times, Owner or Contractor may make a Claim therefor as provided in Paragraph 10.05.

4.05 *Reference Points*

A. Owner shall provide engineering surveys to establish reference points for construction which in Engineer's judgment are necessary to enable Contractor to proceed with the Work. Contractor shall be responsible for laying out the Work, shall protect and preserve the established reference points and property monuments, and shall make no changes or relocations without the prior written approval of Owner. Contractor shall report to Engineer whenever any reference point or property monument is lost or destroyed or requires relocation because of necessary changes in grades or locations, and shall be responsible for the accurate replacement or relocation of such reference points or property monuments by professionally qualified personnel.

4.06 *Hazardous Environmental Condition at Site*

A. *Reports and Drawings:* Reference is made to the Supplementary Conditions for the identification of those reports and drawings relating to a Hazardous Environmental Condition identified at the Site, if any, that have been utilized by the Engineer in the preparation of the Contract Documents.

B. *Limited Reliance by Contractor on Technical Data Authorized:* Contractor may rely upon the general accuracy of the "technical data" contained in such reports and drawings, but such reports and drawings are not Contract Documents. Such "technical data" is identified in the Supplementary Conditions. Except for such reliance on such "technical data," Contractor may not rely upon or make any claim against Owner or Engineer, or any of their Related Entities with respect to:

1. the completeness of such reports and drawings for Contractor's purposes, including, but not limited to, any aspects of the means, methods, techniques, sequences and procedures of construction to be employed by Contractor and safety precautions and programs incident thereto; or

2. other data, interpretations, opinions and information contained in such reports or shown or indicated in such drawings; or

3. any Contractor interpretation of or conclusion drawn from any "technical data" or any such other data, interpretations, opinions or information.

C. Contractor shall not be responsible for any Hazardous Environmental Condition uncovered or revealed at the Site which was not shown or indicated in Drawings or Specifications or identified in the Contract Documents to be within the scope of the Work. Contractor shall be responsible for a Hazardous Environmental Condition created with any materials brought to the Site by Contractor, Subcontractors, Suppliers, or anyone else for whom Contractor is responsible.

D. If Contractor encounters a Hazardous Environmental Condition or if Contractor or anyone for whom Contractor is responsible creates a Hazardous Environmental Condition, Contractor shall immediately: (i) secure or otherwise isolate such condition; (ii) stop all Work in connection with such condition and in any area affected thereby (except in an emergency as required by Paragraph 6.16.A); and (iii) notify Owner and Engineer (and promptly thereafter confirm such notice in writing). Owner shall promptly consult with Engineer concerning the necessity for Owner to retain a qualified expert to evaluate such condition or take corrective action, if any.

E. Contractor shall not be required to resume Work in connection with such condition or in any affected area until after Owner has obtained any required permits related thereto and delivered to Contractor written notice: (i) specifying that such condition and any affected area is or has been rendered safe for the resumption of Work; or (ii) specifying any special conditions under which such Work may be resumed safely. If Owner and Contractor cannot agree as to entitlement to or on the amount or extent, if any, of any adjustment in Contract Price or Contract Times, or both, as a result of such Work stoppage or such special conditions under which Work is agreed to be resumed by Contractor, either party may make a Claim therefor as provided in Paragraph 10.05.

F. If after receipt of such written notice Contractor does not agree to resume such Work based on a reasonable belief it is unsafe, or does not agree to resume such Work under such special conditions, then Owner may order the portion of the Work that is in the area affected by such condition to be deleted from the Work. If Owner and Contractor cannot agree as to

entitlement to or on the amount or extent, if any, of an adjustment in Contract Price or Contract Times as a result of deleting such portion of the Work, then either party may make a Claim therefor as provided in Paragraph 10.05. Owner may have such deleted portion of the Work performed by Owner's own forces or others in accordance with Article 7.

G. To the fullest extent permitted by Laws and Regulations, Owner shall indemnify and hold harmless Contractor, Subcontractors, and Engineer, and the officers, directors, partners, employees, agents, consultants, and subcontractors of each and any of them from and against all claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) arising out of or relating to a Hazardous Environmental Condition, provided that such Hazardous Environmental Condition: (i) was not shown or indicated in the Drawings or Specifications or identified in the Contract Documents to be included within the scope of the Work, and (ii) was not created by Contractor or by anyone for whom Contractor is responsible. Nothing in this Paragraph 4.06. G shall obligate Owner to indemnify any individual or entity from and against the consequences of that individual's or entity's own negligence.

H. To the fullest extent permitted by Laws and Regulations, Contractor shall indemnify and hold harmless Owner and Engineer, and the officers, directors, partners, employees, agents, consultants, and subcontractors of each and any of them from and against all claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) arising out of or relating to a Hazardous Environmental Condition created by Contractor or by anyone for whom Contractor is responsible. Nothing in this Paragraph 4.06.H shall obligate Contractor to indemnify any individual or entity from and against the consequences of that individual's or entity's own negligence.

I. The provisions of Paragraphs 4.02, 4.03, and 4.04 do not apply to a Hazardous Environmental Condition uncovered or revealed at the Site.

ARTICLE 5 - BONDS AND INSURANCE

5.01 *Performance, Payment, and Other Bonds*

A. Contractor shall furnish performance and payment bonds, each in an amount at least equal to the Contract Price as security for the faithful performance and payment of all of Contractor's obligations under the Contract Documents. These bonds shall remain in effect until one year after the date when final payment becomes due or until completion of the correction period specified

in Paragraph 13.07, whichever is later, except as provided otherwise by Laws or Regulations or by the Contract Documents. Contractor shall also furnish such other bonds as are required by the Contract Documents.

B. All bonds shall be in the form prescribed by the Contract Documents except as provided otherwise by Laws or Regulations, and shall be executed by such sureties as are named in the current list of "Companies Holding Certificates of Authority as Acceptable Sureties on Federal Bonds and as Acceptable Reinsuring Companies" as published in Circular 570 (amended) by the Financial Management Service, Surety Bond Branch, U.S. Department of the Treasury. All bonds signed by an agent must be accompanied by a certified copy of the agent's authority to act.

C. If the surety on any bond furnished by Contractor is declared bankrupt or becomes insolvent or its right to do business is terminated in any state where any part of the Project is located or it ceases to meet the requirements of Paragraph 5.01.B, Contractor shall promptly notify Owner and Engineer and shall, within 20 days after the event giving rise to such notification, provide another bond and surety, both of which shall comply with the requirements of Paragraphs 5.01.B and 5.02.

5.02 *Licensed Sureties and Insurers*

A. All bonds and insurance required by the Contract Documents to be purchased and maintained by Owner or Contractor shall be obtained from surety or insurance companies that are duly licensed or authorized in the jurisdiction in which the Project is located to issue bonds or insurance policies for the limits and coverages so required. Such surety and insurance companies shall also meet such additional requirements and qualifications as may be provided in the Supplementary Conditions.

5.03 *Certificates of Insurance*

A. Contractor shall deliver to Owner, with copies to each additional insured identified in the Supplementary Conditions, certificates of insurance (and other evidence of insurance requested by Owner or any other additional insured) which Contractor is required to purchase and maintain.

B. Owner shall deliver to Contractor, with copies to each additional insured identified in the Supplementary Conditions, certificates of insurance (and other evidence of insurance requested by Contractor or any other additional insured) which Owner is required to purchase and maintain.

5.04 *Contractor's Liability Insurance*

A. Contractor shall purchase and maintain such liability and other insurance as is appropriate for the Work being performed and as will provide protection

from claims set forth below which may arise out of or result from Contractor's performance of the Work and Contractor's other obligations under the Contract Documents, whether it is to be performed by Contractor, any Subcontractor or Supplier, or by anyone directly or indirectly employed by any of them to perform any of the Work, or by anyone for whose acts any of them may be liable:

1. claims under workers' compensation, disability benefits, and other similar employee benefit acts;

2. claims for damages because of bodily injury, occupational sickness or disease, or death of Contractor's employees;

3. claims for damages because of bodily injury, sickness or disease, or death of any person other than Contractor's employees;

4. claims for damages insured by reasonably available personal injury liability coverage which are sustained:

a. by any person as a result of an offense directly or indirectly related to the employment of such person by Contractor, or

b. by any other person for any other reason;

5. claims for damages, other than to the Work itself, because of injury to or destruction of tangible property wherever located, including loss of use resulting therefrom; and

6. claims for damages because of bodily injury or death of any person or property damage arising out of the ownership, maintenance or use of any motor vehicle.

B. The policies of insurance required by this Paragraph 5.04 shall:

1. with respect to insurance required by Paragraphs 5.04.A.3 through 5.04.A.6 inclusive, include as additional insured (subject to any customary exclusion regarding professional liability) Owner and Engineer, and any other individuals or entities identified in the Supplementary Conditions, all of whom shall be listed as additional insureds, and include coverage for the respective officers, directors, partners, employees, agents, consultants and subcontractors of each and any of all such additional insureds, and the insurance afforded to these additional insureds shall provide primary coverage for all claims covered thereby;

2. include at least the specific coverages and be written for not less than the limits of liability provided in the Supplementary Conditions or required by Laws or Regulations, whichever is greater;

3. include completed operations insurance;

4. include contractual liability insurance covering Contractor's indemnity obligations under Paragraphs 6.11 and 6.20;

5. contain a provision or endorsement that the coverage afforded will not be canceled, materially changed or renewal refused until at least 30 days prior written notice has been given to Owner and Contractor and to each other additional insured identified in the Supplementary Conditions to whom a certificate of insurance has been issued (and the certificates of insurance furnished by the Contractor pursuant to Paragraph 5.03 will so provide);

6. remain in effect at least until final payment and at all times thereafter when Contractor may be correcting, removing, or replacing defective Work in accordance with Paragraph 13.07; and

7. with respect to completed operations insurance, and any insurance coverage written on a claims-made basis, remain in effect for at least two years after final payment.

a. Contractor shall furnish Owner and each other additional insured identified in the Supplementary Conditions, to whom a certificate of insurance has been issued, evidence satisfactory to Owner and any such additional insured of continuation of such insurance at final payment and one year thereafter.

5.05 *Owner's Liability Insurance*

A. In addition to the insurance required to be provided by Contractor under Paragraph 5.04, Owner, at Owner's option, may purchase and maintain at Owner's expense Owner's own liability insurance as will protect Owner against claims which may arise from operations under the Contract Documents.

5.06 *Property Insurance*

A. Unless otherwise provided in the Supplementary Conditions, Owner shall purchase and maintain property insurance upon the Work at the Site in the amount of the full replacement cost thereof (subject to such deductible amounts as may be provided in the Supplementary Conditions or required by Laws and Regulations). This insurance shall:

1. include the interests of Owner, Contractor, Subcontractors, and Engineer, and any other individuals or entities identified in the Supplementary Conditions, and the officers, directors, partners, employees, agents, consultants and subcontractors of each and any of them, each of whom is deemed to have an insurable interest and shall be listed as an insured or additional insured;

2. be written on a Builder's Risk "all-risk" or open peril or special causes of loss policy form that shall at least include insurance for physical loss or damage to the Work, temporary buildings, false work, and materials and equipment in transit, and shall insure against at least the following perils or causes of loss: fire, lightning, extended coverage, theft, vandalism and malicious mischief, earthquake, collapse, debris removal, demolition occasioned by enforcement of Laws and Regulations, water damage, (other than caused by flood) and such other perils or causes of loss as may be specifically required by the Supplementary Conditions;

3. include expenses incurred in the repair or replacement of any insured property (including but not limited to fees and charges of engineers and architects);

4. cover materials and equipment stored at the Site or at another location that was agreed to in writing by Owner prior to being incorporated in the Work, provided that such materials and equipment have been included in an Application for Payment recommended by Engineer;

5. allow for partial utilization of the Work by Owner;

6. include testing and startup; and

7. be maintained in effect until final payment is made unless otherwise agreed to in writing by Owner, Contractor, and Engineer with 30 days written notice to each other additional insured to whom a certificate of insurance has been issued.

B. Owner shall purchase and maintain such boiler and machinery insurance or additional property insurance as may be required by the Supplementary Conditions or Laws and Regulations which will include the interests of Owner, Contractor, Subcontractors, and Engineer, and any other individuals or entities identified in the Supplementary Conditions, and the officers, directors, partners, employees, agents, consultants and subcontractors of each and any of them, each of whom is deemed to have an insurable interest and shall be listed as an insured or additional insured.

C. All the policies of insurance (and the certificates or other evidence thereof) required to be purchased and maintained in accordance with Paragraph 5.06 will contain a provision or endorsement that the coverage afforded will not be canceled or materially changed or renewal refused until at least 30 days prior written notice has been given to Owner and Contractor and to each other additional insured to whom a certificate of insurance has been issued and will contain waiver provisions in accordance with Paragraph 5.07.

D. Owner shall not be responsible for purchasing and maintaining any property insurance specified in this Paragraph 5.06 to protect the interests of Contractor, Subcontractors, or others in the Work to the extent of any

deductible amounts that are identified in the Supplementary Conditions. The risk of loss within such identified deductible amount will be borne by Contractor, Subcontractors, or others suffering any such loss, and if any of them wishes property insurance coverage within the limits of such amounts, each may purchase and maintain it at the purchaser's own expense.

E. If Contractor requests in writing that other special insurance be included in the property insurance policies provided under Paragraph 5.06, Owner shall, if possible, include such insurance, and the cost thereof will be charged to Contractor by appropriate Change Order. Prior to commencement of the Work at the Site, Owner shall in writing advise Contractor whether or not such other insurance has been procured by Owner.

5.07 *Waiver of Rights*

A. Owner and Contractor intend that all policies purchased in accordance with Paragraph 5.06 will protect Owner, Contractor, Subcontractors, and Engineer, and all other individuals or entities identified in the Supplementary Conditions to be listed as insureds or additional insureds (and the officers, directors, partners, employees, agents, consultants and subcontractors of each and any of them) in such policies and will provide primary coverage for all losses and damages caused by the perils or causes of loss covered thereby. All such policies shall contain provisions to the effect that in the event of payment of any loss or damage the insurers will have no rights of recovery against any of the insureds or additional insureds thereunder. Owner and Contractor waive all rights against each other and their respective officers, directors, partners, employees, agents, consultants and subcontractors of each and any of them for all losses and damages caused by, arising out of or resulting from any of the perils or causes of loss covered by such policies and any other property insurance applicable to the Work; and, in addition, waive all such rights against Subcontractors, and Engineer, and all other individuals or entities identified in the Supplementary Conditions to be listed as insured or additional insured (and the officers, directors, partners, employees, agents, consultants and subcontractors of each and any of them) under such policies for losses and damages so caused. None of the above waivers shall extend to the rights that any party making such waiver may have to the proceeds of insurance held by Owner as trustee or otherwise payable under any policy so issued.

B. Owner waives all rights against Contractor, Subcontractors, and Engineer, and the officers, directors, partners, employees, agents, consultants and subcontractors of each and any of them for:

1. loss due to business interruption, loss of use, or other consequential loss extending beyond direct physical loss or damage to Owner's property or the Work caused by, arising out of, or resulting from fire or other perils whether or not insured by Owner; and

2. loss or damage to the completed Project or part thereof caused by, arising out of, or resulting from fire or other insured peril or cause of loss covered by any property insurance maintained on the completed Project or part thereof by Owner during partial utilization pursuant to Paragraph 14.05, after Substantial Completion pursuant to Paragraph 14.04, or after final payment pursuant to Paragraph 14.07.

C. Any insurance policy maintained by Owner covering any loss, damage or consequential loss referred to in Paragraph 5.07.B shall contain provisions to the effect that in the event of payment of any such loss, damage, or consequential loss, the insurers will have no rights of recovery against Contractor, Subcontractors, or Engineer, and the officers, directors, partners, employees, agents, consultants and subcontractors of each and any of them.

5.08 *Receipt and Application of Insurance Proceeds*

A. Any insured loss under the policies of insurance required by Paragraph 5.06 will be adjusted with Owner and made payable to Owner as fiduciary for the insureds, as their interests may appear, subject to the requirements of any applicable mortgage clause and of Paragraph 5.08.B. Owner shall deposit in a separate account any money so received and shall distribute it in accordance with such agreement as the parties in interest may reach. If no other special agreement is reached, the damaged Work shall be repaired or replaced, the moneys so received applied on account thereof, and the Work and the cost thereof covered by an appropriate Change Order .

B. Owner as fiduciary shall have power to adjust and settle any loss with the insurers unless one of the parties in interest shall object in writing within 15 days after the occurrence of loss to Owner's exercise of this power. If such objection be made, Owner as fiduciary shall make settlement with the insurers in accordance with such agreement as the parties in interest may reach. If no such agreement among the parties in interest is reached, Owner as fiduciary shall adjust and settle the loss with the insurers and, if required in writing by any party in interest, Owner as fiduciary shall give bond for the proper performance of such duties.

5.09 *Acceptance of Bonds and Insurance; Option to Replace*

A. If either Owner or Contractor has any objection to the coverage afforded by or other provisions of the bonds or insurance required to be purchased and maintained by the other party in accordance with Article 5 on the basis of non-conformance with the Contract

Documents, the objecting party shall so notify the other party in writing within 10 days after receipt of the certificates (or other evidence requested) required by Paragraph 2.01.B. Owner and Contractor shall each provide to the other such additional information in respect of insurance provided as the other may reasonably request. If either party does not purchase or maintain all of the bonds and insurance required of such party by the Contract Documents, such party shall notify the other party in writing of such failure to purchase prior to the start of the Work, or of such failure to maintain prior to any change in the required coverage. Without prejudice to any other right or remedy, the other party may elect to obtain equivalent bonds or insurance to protect such other party's interests at the expense of the party who was required to provide such coverage, and a Change Order shall be issued to adjust the Contract Price accordingly.

5.10 *Partial Utilization, Acknowledgment of Property Insurer*

A. If Owner finds it necessary to occupy or use a portion or portions of the Work prior to Substantial Completion of all the Work as provided in Paragraph 14.05, no such use or occupancy shall commence before the insurers providing the property insurance pursuant to Paragraph 5.06 have acknowledged notice thereof and in writing effected any changes in coverage necessitated thereby. The insurers providing the property insurance shall consent by endorsement on the policy or policies, but the property insurance shall not be canceled or permitted to lapse on account of any such partial use or occupancy.

ARTICLE 6 - CONTRACTOR'S RESPONSIBILITIES

6.01 *Supervision and Superintendence*

A. Contractor shall supervise, inspect, and direct the Work competently and efficiently, devoting such attention thereto and applying such skills and expertise as may be necessary to perform the Work in accordance with the Contract Documents. Contractor shall be solely responsible for the means, methods, techniques, sequences, and procedures of construction. Contractor shall not be responsible for the negligence of Owner or Engineer in the design or specification of a specific means, method, technique, sequence, or procedure of construction which is shown or indicated in and expressly required by the Contract Documents.

B. At all times during the progress of the Work, Contractor shall assign a competent resident superintendent who shall not be replaced without written notice to Owner and Engineer except under extraordinary circumstances. The superintendent will be Contractor's representative at the Site and shall have authority to act on behalf of Contractor. All communications given to or

received from the superintendent shall be binding on Contractor.

6.02 *Labor; Working Hours*

A. Contractor shall provide competent, suitably qualified personnel to survey and lay out the Work and perform construction as required by the Contract Documents. Contractor shall at all times maintain good discipline and order at the Site.

B. Except as otherwise required for the safety or protection of persons or the Work or property at the Site or adjacent thereto, and except as otherwise stated in the Contract Documents, all Work at the Site shall be performed during regular working hours. Contractor will not permit the performance of Work on a Saturday, Sunday, or any legal holiday without Owner's written consent (which will not be unreasonably withheld) given after prior written notice to Engineer.

6.03 *Services, Materials, and Equipment*

A. Unless otherwise specified in the Contract Documents, Contractor shall provide and assume full responsibility for all services, materials, equipment, labor, transportation, construction equipment and machinery, tools, appliances, fuel, power, light, heat, telephone, water, sanitary facilities, temporary facilities, and all other facilities and incidentals necessary for the performance, testing, start-up, and completion of the Work.

B. All materials and equipment incorporated into the Work shall be as specified or, if not specified, shall be of good quality and new, except as otherwise provided in the Contract Documents. All special warranties and guarantees required by the Specifications shall expressly run to the benefit of Owner. If required by Engineer, Contractor shall furnish satisfactory evidence (including reports of required tests) as to the source, kind, and quality of materials and equipment.

C. All materials and equipment shall be stored, applied, installed, connected, erected, protected, used, cleaned, and conditioned in accordance with instructions of the applicable Supplier, except as otherwise may be provided in the Contract Documents.

6.04 *Progress Schedule*

A. Contractor shall adhere to the Progress Schedule established in accordance with Paragraph 2.07 as it may be adjusted from time to time as provided below.

1. Contractor shall submit to Engineer for acceptance (to the extent indicated in Paragraph 2.07) proposed adjustments in the Progress Schedule that will not result in changing the Contract Times. Such adjustments will comply with any provisions of the General Requirements applicable thereto.

2. Proposed adjustments in the Progress Schedule that will change the Contract Times shall be submitted in accordance with the requirements of Article 12. Adjustments in Contract Times may only be made by a Change Order.

6.05 *Substitutes and "Or-Equals"*

A. Whenever an item of material or equipment is specified or described in the Contract Documents by using the name of a proprietary item or the name of a particular Supplier, the specification or description is intended to establish the type, function, appearance, and quality required. Unless the specification or description contains or is followed by words reading that no like, equivalent, or "or-equal" item or no substitution is permitted, other items of material or equipment or material or equipment of other Suppliers may be submitted to Engineer for review under the circumstances described below.

1. *"Or-Equal" Items:* If in Engineer's sole discretion an item of material or equipment proposed by Contractor is functionally equal to that named and sufficiently similar so that no change in related Work will be required, it may be considered by Engineer as an "or-equal" item, in which case review and approval of the proposed item may, in Engineer's sole discretion, be accomplished without compliance with some or all of the requirements for approval of proposed substitute items. For the purposes of this Paragraph 6.05.A.1, a proposed item of material or equipment will be considered functionally equal to an item so named if:

a. in the exercise of reasonable judgment Engineer determines that:

1) it is at least equal in materials of construction, quality, durability, appearance, strength, and design characteristics;

2) it will reliably perform at least equally well the function and achieve the results imposed by the design concept of the completed Project as a functioning whole,

3) it has a proven record of performance and availability of responsive service; and

b. Contractor certifies that, if approved and incorporated into the Work:

1) there will be no increase in cost to the Owner or increase in Contract Times, and

2) it will conform substantially to the detailed requirements of the item named in the Contract Documents.

2. Substitute Items

a. If in Engineer's sole discretion an item of material or equipment proposed by Contractor does not qualify as an "or-equal" item under Paragraph 6.05.A.1, it will be considered a proposed substitute item.

b. Contractor shall submit sufficient information as provided below to allow Engineer to determine that the item of material or equipment proposed is essentially equivalent to that named and an acceptable substitute therefor. Requests for review of proposed substitute items of material or equipment will not be accepted by Engineer from anyone other than Contractor.

c. The requirements for review by Engineer will be as set forth in Paragraph 6.05.A.2.d, as supplemented in the General Requirements and as Engineer may decide is appropriate under the circumstances.

d. Contractor shall make written application to Engineer for review of a proposed substitute item of material or equipment that Contractor seeks to furnish or use. The application:

1) shall certify that the proposed substitute item will:

a) perform adequately the functions and achieve the results called for by the general design,

b) be similar in substance to that specified, and

c) be suited to the same use as that specified;

2) will state:

a) the extent, if any, to which the use of the proposed substitute item will prejudice Contractor's achievement of Substantial Completion on time;

b) whether or not use of the proposed substitute item in the Work will require a change in any of the Contract Documents (or in the provisions of any other direct contract with Owner for other work on the Project) to adapt the design to the proposed substitute item; and

c) whether or not incorporation or use of the proposed substitute item in connection with the Work is subject to payment of any license fee or royalty;

3) will identify:

a) all variations of the proposed substitute item from that specified, and

b) available engineering, sales, maintenance, repair, and replacement services;

4) and shall contain an itemized estimate of all costs or credits that will result directly or indirectly from use of such substitute item, including costs of redesign and claims of other contractors affected by any resulting change,

B. Substitute Construction Methods or Procedures: If a specific means, method, technique, sequence, or procedure of construction is expressly required by the Contract Documents, Contractor may furnish or utilize a substitute means, method, technique, sequence, or procedure of construction approved by Engineer. Contractor shall submit sufficient information to allow Engineer, in Engineer's sole discretion, to determine that the substitute proposed is equivalent to that expressly called for by the Contract Documents. The requirements for review by Engineer will be similar to those provided in Paragraph 6.05.A.2.

C. Engineer's Evaluation: Engineer will be allowed a reasonable time within which to evaluate each proposal or submittal made pursuant to Paragraphs 6.05.A and 6.05.B. Engineer may require Contractor to furnish additional data about the proposed substitute item. Engineer will be the sole judge of acceptability. No "or equal" or substitute will be ordered, installed or utilized until Engineer's review is complete, which will be evidenced by either a Change Order for a substitute or an approved Shop Drawing for an "or equal." Engineer will advise Contractor in writing of any negative determination.

D. Special Guarantee: Owner may require Contractor to furnish at Contractor's expense a special performance guarantee or other surety with respect to any substitute.

E. Engineer's Cost Reimbursement: Engineer will record Engineer's costs in evaluating a substitute proposed or submitted by Contractor pursuant to Paragraphs 6.05.A.2 and 6.05.B. Whether or not Engineer approves a substitute item so proposed or submitted by Contractor, Contractor shall reimburse Owner for the charges of Engineer for evaluating each such proposed substitute. Contractor shall also reimburse Owner for the charges of Engineer for making changes in the Contract

Documents (or in the provisions of any other direct contract with Owner) resulting from the acceptance of each proposed substitute.

F. Contractor's Expense: Contractor shall provide all data in support of any proposed substitute or "or-equal" at Contractor's expense.

6.06 Concerning Subcontractors, Suppliers, and Others

A. Contractor shall not employ any Subcontractor, Supplier, or other individual or entity (including those acceptable to Owner as indicated in Paragraph 6.06.B), whether initially or as a replacement, against whom Owner may have reasonable objection. Contractor shall not be required to employ any Subcontractor, Supplier, or other individual or entity to furnish or perform any of the Work against whom Contractor has reasonable objection.

B. If the Supplementary Conditions require the identity of certain Subcontractors, Suppliers, or other individuals or entities to be submitted to Owner in advance for acceptance by Owner by a specified date prior to the Effective Date of the Agreement, and if Contractor has submitted a list thereof in accordance with the Supplementary Conditions, Owner's acceptance (either in writing or by failing to make written objection thereto by the date indicated for acceptance or objection in the Bidding Documents or the Contract Documents) of any such Subcontractor, Supplier, or other individual or entity so identified may be revoked on the basis of reasonable objection after due investigation. Contractor shall submit an acceptable replacement for the rejected Subcontractor, Supplier, or other individual or entity, and the Contract Price will be adjusted by the difference in the cost occasioned by such replacement, and an appropriate Change Order will be issued. No acceptance by Owner of any such Subcontractor, Supplier, or other individual or entity, whether initially or as a replacement, shall constitute a waiver of any right of Owner or Engineer to reject defective Work.

C. Contractor shall be fully responsible to Owner and Engineer for all acts and omissions of the Subcontractors, Suppliers, and other individuals or entities performing or furnishing any of the Work just as Contractor is responsible for Contractor's own acts and omissions. Nothing in the Contract Documents:

1. shall create for the benefit of any such Subcontractor, Supplier, or other individual or entity any contractual relationship between Owner or Engineer and any such Subcontractor, Supplier or other individual or entity, nor

2. shall anything in the Contract Documents create any obligation on the part of Owner or Engineer to pay or to see to the payment of any moneys due any such Subcontractor, Supplier, or other individual

or entity except as may otherwise be required by Laws and Regulations.

D. Contractor shall be solely responsible for scheduling and coordinating the Work of Subcontractors, Suppliers, and other individuals or entities performing or furnishing any of the Work under a direct or indirect contract with Contractor.

E. Contractor shall require all Subcontractors, Suppliers, and such other individuals or entities performing or furnishing any of the Work to communicate with Engineer through Contractor.

F. The divisions and sections of the Specifications and the identifications of any Drawings shall not control Contractor in dividing the Work among Subcontractors or Suppliers or delineating the Work to be performed by any specific trade.

G. All Work performed for Contractor by a Subcontractor or Supplier will be pursuant to an appropriate agreement between Contractor and the Subcontractor or Supplier which specifically binds the Subcontractor or Supplier to the applicable terms and conditions of the Contract Documents for the benefit of Owner and Engineer. Whenever any such agreement is with a Subcontractor or Supplier who is listed as an additional insured on the property insurance provided in Paragraph 5.06, the agreement between the Contractor and the Subcontractor or Supplier will contain provisions whereby the Subcontractor or Supplier waives all rights against Owner, Contractor, and Engineer, and all other individuals or entities identified in the Supplementary Conditions to be listed as insureds or additional insureds (and the officers, directors, partners, employees, agents, consultants and subcontractors of each and any of them) for all losses and damages caused by, arising out of, relating to, or resulting from any of the perils or causes of loss covered by such policies and any other property insurance applicable to the Work. If the insurers on any such policies require separate waiver forms to be signed by any Subcontractor or Supplier, Contractor will obtain the same.

6.07 *Patent Fees and Royalties*

A. Contractor shall pay all license fees and royalties and assume all costs incident to the use in the performance of the Work or the incorporation in the Work of any invention, design, process, product, or device which is the subject of patent rights or copyrights held by others. If a particular invention, design, process, product, or device is specified in the Contract Documents for use in the performance of the Work and if to the actual knowledge of Owner or Engineer its use is subject to patent rights or copyrights calling for the payment of any license fee or royalty to others, the existence of such rights shall be disclosed by Owner in the Contract Documents.

B. To the fullest extent permitted by Laws and Regulations, Contractor shall indemnify and hold harmless Owner and Engineer, and the officers, directors, partners, employees, agents, consultants and subcontractors of each and any of them from and against all claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) arising out of or relating to any infringement of patent rights or copyrights incident to the use in the performance of the Work or resulting from the incorporation in the Work of any invention, design, process, product, or device not specified in the Contract Documents.

6.08 *Permits*

A. Unless otherwise provided in the Supplementary Conditions, Contractor shall obtain and pay for all construction permits and licenses. Owner shall assist Contractor, when necessary, in obtaining such permits and licenses. Contractor shall pay all governmental charges and inspection fees necessary for the prosecution of the Work which are applicable at the time of opening of Bids, or, if there are no Bids, on the Effective Date of the Agreement. Owner shall pay all charges of utility owners for connections for providing permanent service to the Work.

6.09 *Laws and Regulations*

A. Contractor shall give all notices required by and shall comply with all Laws and Regulations applicable to the performance of the Work. Except where otherwise expressly required by applicable Laws and Regulations, neither Owner nor Engineer shall be responsible for monitoring Contractor's compliance with any Laws or Regulations.

B. If Contractor performs any Work knowing or having reason to know that it is contrary to Laws or Regulations, Contractor shall bear all claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) arising out of or relating to such Work. However, it shall not be Contractor's primary responsibility to make certain that the Specifications and Drawings are in accordance with Laws and Regulations, but this shall not relieve Contractor of Contractor's obligations under Paragraph 3.03.

C. Changes in Laws or Regulations not known at the time of opening of Bids (or, on the Effective Date of the Agreement if there were no Bids) having an effect on the cost or time of performance of the Work shall be the subject of an adjustment in Contract Price or Contract Times. If Owner and Contractor are unable to agree on entitlement to or on the amount or extent, if any, of any such adjustment, a Claim may be made therefor as provided in Paragraph 10.05.

6.10 *Taxes*

A. Contractor shall pay all sales, consumer, use, and other similar taxes required to be paid by Contractor in accordance with the Laws and Regulations of the place of the Project which are applicable during the performance of the Work.

6.11 *Use of Site and Other Areas*

A. Limitation on Use of Site and Other Areas

1. Contractor shall confine construction equipment, the storage of materials and equipment, and the operations of workers to the Site and other areas permitted by Laws and Regulations, and shall not unreasonably encumber the Site and other areas with construction equipment or other materials or equipment. Contractor shall assume full responsibility for any damage to any such land or area, or to the owner or occupant thereof, or of any adjacent land or areas resulting from the performance of the Work.

2. Should any claim be made by any such owner or occupant because of the performance of the Work, Contractor shall promptly settle with such other party by negotiation or otherwise resolve the claim by arbitration or other dispute resolution proceeding or at law.

3. To the fullest extent permitted by Laws and Regulations, Contractor shall indemnify and hold harmless Owner and Engineer, and the officers, directors, partners, employees, agents, consultants and subcontractors of each and any of them from and against all claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) arising out of or relating to any claim or action, legal or equitable, brought by any such owner or occupant against Owner, Engineer, or any other party indemnified hereunder to the extent caused by or based upon Contractor's performance of the Work.

B. Removal of Debris During Performance of the Work: During the progress of the Work Contractor shall keep the Site and other areas free from accumulations of waste materials, rubbish, and other debris. Removal and disposal of such waste materials, rubbish, and other debris shall conform to applicable Laws and Regulations.

C. Cleaning: Prior to Substantial Completion of the Work Contractor shall clean the Site and the Work and make it ready for utilization by Owner. At the completion of the Work Contractor shall remove from the Site all tools, appliances, construction equipment and machinery, and surplus materials and shall restore to original condition all property not designated for alteration by the Contract Documents.

D. Loading Structures: Contractor shall not load nor permit any part of any structure to be loaded in any manner that will endanger the structure, nor shall Contractor subject any part of the Work or adjacent property to stresses or pressures that will endanger it.

6.12 *Record Documents*

A. Contractor shall maintain in a safe place at the Site one record copy of all Drawings, Specifications, Addenda, Change Orders, Work Change Directives, Field Orders, and written interpretations and clarifications in good order and annotated to show changes made during construction. These record documents together with all approved Samples and a counterpart of all approved Shop Drawings will be available to Engineer for reference. Upon completion of the Work, these record documents, Samples, and Shop Drawings will be delivered to Engineer for Owner.

6.13 *Safety and Protection*

A. Contractor shall be solely responsible for initiating, maintaining and supervising all safety precautions and programs in connection with the Work. Contractor shall take all necessary precautions for the safety of, and shall provide the necessary protection to prevent damage, injury or loss to:

1. all persons on the Site or who may be affected by the Work;

2. all the Work and materials and equipment to be incorporated therein, whether in storage on or off the Site; and

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

B. Contractor shall comply with all applicable Laws and Regulations relating to the safety of persons or property, or to the protection of persons or property from damage, injury, or loss; and shall erect and maintain all necessary safeguards for such safety and protection. Contractor shall notify owners of adjacent property and of Underground Facilities and other utility owners when prosecution of the Work may affect them, and shall cooperate with them in the protection, removal, relocation, and replacement of their property.

C. All damage, injury, or loss to any property referred to in Paragraph 6.13.A.2 or 6.13.A.3 caused, directly or indirectly, in whole or in part, by Contractor, any Subcontractor, Supplier, or any other individual or entity directly or indirectly employed by any of them to perform any of the Work, or anyone for whose acts any of them may be liable, shall be remedied by Contractor (except damage or loss attributable to the fault of Draw-

ings or Specifications or to the acts or omissions of Owner or Engineer or , or anyone employed by any of them, or anyone for whose acts any of them may be liable, and not attributable, directly or indirectly, in whole or in part, to the fault or negligence of Contractor or any Subcontractor, Supplier, or other individual or entity directly or indirectly employed by any of them).

D. Contractor's duties and responsibilities for safety and for protection of the Work shall continue until such time as all the Work is completed and Engineer has issued a notice to Owner and Contractor in accordance with Paragraph 14.07.B that the Work is acceptable (except as otherwise expressly provided in connection with Substantial Completion).

6.14 *Safety Representative*

A. Contractor shall designate a qualified and experienced safety representative at the Site whose duties and responsibilities shall be the prevention of accidents and the maintaining and supervising of safety precautions and programs.

6.15 *Hazard Communication Programs*

A. Contractor shall be responsible for coordinating any exchange of material safety data sheets or other hazard communication information required to be made available to or exchanged between or among employers at the Site in accordance with Laws or Regulations.

6.16 *Emergencies*

A. In emergencies affecting the safety or protection of persons or the Work or property at the Site or adjacent thereto, Contractor is obligated to act to prevent threatened damage, injury, or loss. Contractor shall give Engineer prompt written notice if Contractor believes that any significant changes in the Work or variations from the Contract Documents have been caused thereby or are required as a result thereof. If Engineer determines that a change in the Contract Documents is required because of the action taken by Contractor in response to such an emergency, a Work Change Directive or Change Order will be issued.

6.17 *Shop Drawings and Samples*

A. Contractor shall submit Shop Drawings and Samples to Engineer for review and approval in accordance with the acceptable Schedule of Submittals (as required by Paragraph 2.07). Each submittal will be identified as Engineer may require.

1. Shop Drawings

a. Submit number of copies specified in the General Requirements.

b. Data shown on the Shop Drawings will be complete with respect to quantities, dimensions, specified performance and design criteria, materials, and similar data to show Engineer the services, materials, and equipment Contractor proposes to provide and to enable Engineer to review the information for the limited purposes required by Paragraph 6.17.D.

2. *Samples*: Contractor shall also submit Samples to Engineer for review and approval in accordance with the acceptable schedule of Shop Drawings and Sample submittals.

a. Submit number of Samples specified in the Specifications.

b. Clearly identify each Sample as to material, Supplier, pertinent data such as catalog numbers, the use for which intended and other data as Engineer may require to enable Engineer to review the submittal for the limited purposes required by Paragraph 6.17.D.

B. Where a Shop Drawing or Sample is required by the Contract Documents or the Schedule of Submittals , any related Work performed prior to Engineer's review and approval of the pertinent submittal will be at the sole expense and responsibility of Contractor.

C. Submittal Procedures

1. Before submitting each Shop Drawing or Sample, Contractor shall have determined and verified:

a. all field measurements, quantities, dimensions, specified performance and design criteria, installation requirements, materials, catalog numbers, and similar information with respect thereto;

b. the suitability of all materials with respect to intended use, fabrication, shipping, handling, storage, assembly, and installation pertaining to the performance of the Work;

c. all information relative to Contractor's responsibilities for means, methods, techniques, sequences, and procedures of construction, and safety precautions and programs incident thereto; and

d. shall also have reviewed and coordinated each Shop Drawing or Sample with other Shop Drawings and Samples and with the requirements of the Work and the Contract Documents.

2. Each submittal shall bear a stamp or specific written certification that Contractor has satisfied Contractor's obligations under the Contract Documents

with respect to Contractor's review and approval of that submittal.

3. With each submittal, Contractor shall give Engineer specific written notice of any variations, that the Shop Drawing or Sample may have from the requirements of the Contract Documents. This notice shall be both a written communication separate from the Shop Drawing's or Sample Submittal; and, in addition, by a specific notation made on each Shop Drawing or Sample submitted to Engineer for review and approval of each such variation.

D. Engineer's Review

1. Engineer will provide timely review of Shop Drawings and Samples in accordance with the Schedule of Submittals acceptable to Engineer. Engineer's review and approval will be only to determine if the items covered by the submittals will, after installation or incorporation in the Work, conform to the information given in the Contract Documents and be compatible with the design concept of the completed Project as a functioning whole as indicated by the Contract Documents.

2. Engineer's review and approval will not extend to means, methods, techniques, sequences, or procedures of construction (except where a particular means, method, technique, sequence, or procedure of construction is specifically and expressly called for by the Contract Documents) or to safety precautions or programs incident thereto. The review and approval of a separate item as such will not indicate approval of the assembly in which the item functions.

3. Engineer's review and approval shall not relieve Contractor from responsibility for any variation from the requirements of the Contract Documents unless Contractor has complied with the requirements of Paragraph 6.17.C.3 and Engineer has given written approval of each such variation by specific written notation thereof incorporated in or accompanying the Shop Drawing or Sample. Engineer's review and approval shall not relieve Contractor from responsibility for complying with the requirements of Paragraph 6.17.C.1.

E. Resubmittal Procedures

1. Contractor shall make corrections required by Engineer and shall return the required number of corrected copies of Shop Drawings and submit, as required, new Samples for review and approval. Contractor shall direct specific attention in writing to revisions other than the corrections called for by Engineer on previous submittals.

6.18 Continuing the Work

A. Contractor shall carry on the Work and adhere to the Progress Schedule during all disputes or

disagreements with Owner. No Work shall be delayed or postponed pending resolution of any disputes or disagreements, except as permitted by Paragraph 15.04 or as Owner and Contractor may otherwise agree in writing.

6.19 Contractor's General Warranty and Guarantee

A. Contractor warrants and guarantees to Owner that all Work will be in accordance with the Contract Documents and will not be defective. Engineer and its Related Entities shall be entitled to rely on representation of Contractor's warranty and guarantee.

B. Contractor's warranty and guarantee hereunder excludes defects or damage caused by:

1. abuse, modification, or improper maintenance or operation by persons other than Contractor, Subcontractors, Suppliers, or any other individual or entity for whom Contractor is responsible; or

2. normal wear and tear under normal usage.

C. Contractor's obligation to perform and complete the Work in accordance with the Contract Documents shall be absolute. None of the following will constitute an acceptance of Work that is not in accordance with the Contract Documents or a release of Contractor's obligation to perform the Work in accordance with the Contract Documents:

1. observations by Engineer;

2. recommendation by Engineer or payment by Owner of any progress or final payment;

3. the issuance of a certificate of Substantial Completion by Engineer or any payment related thereto by Owner;

4. use or occupancy of the Work or any part thereof by Owner;

5. any review and approval of a Shop Drawing or Sample submittal or the issuance of a notice of acceptability by Engineer;

6. any inspection, test, or approval by others; or

7. any correction of defective Work by Owner.

6.20 Indemnification

A. To the fullest extent permitted by Laws and Regulations, Contractor shall indemnify and hold harmless Owner and Engineer, and the officers, directors, partners, employees, agents, consultants and subcontractors of each and any of them from and against all claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or

arbitration or other dispute resolution costs) arising out of or relating to the performance of the Work, provided that any such claim, cost, loss, or damage is attributable to bodily injury, sickness, disease, or death, or to injury to or destruction of tangible property (other than the Work itself), including the loss of use resulting therefrom but only to the extent caused by any negligent act or omission of Contractor, any Subcontractor, any Supplier, or any individual or entity directly or indirectly employed by any of them to perform any of the Work or anyone for whose acts any of them may be liable .

B. In any and all claims against Owner or Engineer or any of their respective consultants, agents, officers, directors, partners, or employees by any employee (or the survivor or personal representative of such employee) of Contractor, any Subcontractor, any Supplier, or any individual or entity directly or indirectly employed by any of them to perform any of the Work, or anyone for whose acts any of them may be liable, the indemnification obligation under Paragraph 6.20.A shall not be limited in any way by any limitation on the amount or type of damages, compensation, or benefits payable by or for Contractor or any such Subcontractor, Supplier, or other individual or entity under workers' compensation acts, disability benefit acts, or other employee benefit acts.

C. The indemnification obligations of Contractor under Paragraph 6.20.A shall not extend to the liability of Engineer and Engineer's officers, directors, partners, employees, agents, consultants and subcontractors arising out of:

1. the preparation or approval of, or the failure to prepare or approve, maps, Drawings, opinions, reports, surveys, Change Orders, designs, or Specifications; or
2. giving directions or instructions, or failing to give them, if that is the primary cause of the injury or damage.

6.21 *Delegation of Professional Design Services*

A. Contractor will not be required to provide professional design services unless such services are specifically required by the Contract Documents for a portion of the Work or unless such services are required to carry out Contractor's responsibilities for construction means, methods, techniques, sequences and procedures. Contractor shall not be required to provide professional services in violation of applicable law.

B. If professional design services or certifications by a design professional related to systems, materials or equipment are specifically required of Contractor by the Contract Documents, Owner and Engineer will specify all performance and design criteria that such services must satisfy. Contractor shall cause such services or certifications to be provided by a properly licensed professional, whose signature and seal

shall appear on all drawings, calculations, specifications, certifications, Shop Drawings and other submittals prepared by such professional. Shop Drawings and other submittals related to the Work designed or certified by such professional, if prepared by others, shall bear such professional's written approval when submitted to Engineer.

C. Owner and Engineer shall be entitled to rely upon the adequacy, accuracy and completeness of the services, certifications or approvals performed by such design professionals, provided Owner and Engineer have specified to Contractor all performance and design criteria that such services must satisfy.

D. Pursuant to this Paragraph 6.21, Engineer's review and approval of design calculations and design drawings will be only for the limited purpose of checking for conformance with performance and design criteria given and the design concept expressed in the Contract Documents. Engineer's review and approval of Shop Drawings and other submittals (except design calculations and design drawings) will be only for the purpose stated in Paragraph 6.17.D.1.

E. Contractor shall not be responsible for the adequacy of the performance or design criteria required by the Contract Documents.

ARTICLE 7 - OTHER WORK AT THE SITE

7.01 *Related Work at Site*

A. Owner may perform other work related to the Project at the Site with Owner's employees, or via other direct contracts therefor, or have other work performed by utility owners. If such other work is not noted in the Contract Documents, then:

1. written notice thereof will be given to Contractor prior to starting any such other work; and
2. if Owner and Contractor are unable to agree on entitlement to or on the amount or extent, if any, of any adjustment in the Contract Price or Contract Times that should be allowed as a result of such other work, a Claim may be made therefor as provided in Paragraph 10.05.

B. Contractor shall afford each other contractor who is a party to such a direct contract, each utility owner and Owner, if Owner is performing other work with Owner's employees, proper and safe access to the Site, a reasonable opportunity for the introduction and storage of materials and equipment and the execution of such other work, and shall properly coordinate the Work with theirs. Contractor shall do all cutting, fitting, and patching of the Work that may be required to properly connect or otherwise make its several parts come together and

properly integrate with such other work. Contractor shall not endanger any work of others by cutting, excavating, or otherwise altering their work and will only cut or alter their work with the written consent of Engineer and the others whose work will be affected. The duties and responsibilities of Contractor under this Paragraph are for the benefit of such utility owners and other contractors to the extent that there are comparable provisions for the benefit of Contractor in said direct contracts between Owner and such utility owners and other contractors.

C. If the proper execution or results of any part of Contractor's Work depends upon work performed by others under this Article 7, Contractor shall inspect such other work and promptly report to Engineer in writing any delays, defects, or deficiencies in such other work that render it unavailable or unsuitable for the proper execution and results of Contractor's Work. Contractor's failure to so report will constitute an acceptance of such other work as fit and proper for integration with Contractor's Work except for latent defects and deficiencies in such other work.

7.02 *Coordination*

A. If Owner intends to contract with others for the performance of other work on the Project at the Site, the following will be set forth in Supplementary Conditions:

1. the individual or entity who will have authority and responsibility for coordination of the activities among the various contractors will be identified;

2. the specific matters to be covered by such authority and responsibility will be itemized; and

3. the extent of such authority and responsibilities will be provided.

B. Unless otherwise provided in the Supplementary Conditions, Owner shall have sole authority and responsibility for such coordination.

7.03 *Legal Relationships*

A. Paragraphs 7.01.A and 7.02 are not applicable for utilities not under the control of Owner.

B. Each other direct contract of Owner under Paragraph 7.01.A shall provide that the other contractor is liable to Owner and Contractor for the reasonable direct delay and disruption costs incurred by Contractor as a result of the other contractor's actions or inactions.

C. Contractor shall be liable to Owner and any other contractor for the reasonable direct delay and disruption costs incurred by such other contractor as a result of Contractor's action or inactions.

ARTICLE 8 - OWNER'S RESPONSIBILITIES

8.01 *Communications to Contractor*

A. Except as otherwise provided in these General Conditions, Owner shall issue all communications to Contractor through Engineer.

8.02 *Replacement of Engineer*

A. In case of termination of the employment of Engineer, Owner shall appoint an engineer to whom Contractor makes no reasonable objection, whose status under the Contract Documents shall be that of the former Engineer.

8.03 *Furnish Data*

A. Owner shall promptly furnish the data required of Owner under the Contract Documents.

8.04 *Pay When Due*

A. Owner shall make payments to Contractor when they are due as provided in Paragraphs 14.02.C and 14.07.C.

8.05 *Lands and Easements; Reports and Tests*

A. Owner's duties in respect of providing lands and easements and providing engineering surveys to establish reference points are set forth in Paragraphs 4.01 and 4.05. Paragraph 4.02 refers to Owner's identifying and making available to Contractor copies of reports of explorations and tests of subsurface conditions and drawings of physical conditions in or relating to existing surface or subsurface structures at or contiguous to the Site that have been utilized by Engineer in preparing the Contract Documents.

8.06 *Insurance*

A. Owner's responsibilities, if any, in respect of purchasing and maintaining liability and property insurance are set forth in Article 5.

8.07 *Change Orders*

A. Owner is obligated to execute Change Orders as indicated in Paragraph 10.03.

8.08 *Inspections, Tests, and Approvals*

A. Owner's responsibility in respect to certain inspections, tests, and approvals is set forth in Paragraph 13.03.B.

8.09 *Limitations on Owner's Responsibilities*

A. The Owner shall not supervise, direct, or have control or authority over, nor be responsible for, Contractor's means, methods, techniques, sequences, or procedures of construction, or the safety precautions and programs incident thereto, or for any failure of Contractor to comply with Laws and Regulations applicable to the performance of the Work. Owner will not be responsible for Contractor's failure to perform the Work in accordance with the Contract Documents.

8.10 *Undisclosed Hazardous Environmental Condition*

A. Owner's responsibility in respect to an undisclosed Hazardous Environmental Condition is set forth in Paragraph 4.06.

8.11 *Evidence of Financial Arrangements*

A. If and to the extent Owner has agreed to furnish Contractor reasonable evidence that financial arrangements have been made to satisfy Owner's obligations under the Contract Documents, Owner's responsibility in respect thereof will be as set forth in the Supplementary Conditions.

ARTICLE 9 - ENGINEER'S STATUS DURING CONSTRUCTION

9.01 *Owner's Representative*

A. Engineer will be Owner's representative during the construction period. The duties and responsibilities and the limitations of authority of Engineer as Owner's representative during construction are set forth in the Contract Documents and will not be changed without written consent of Owner and Engineer.

9.02 *Visits to Site*

A. Engineer will make visits to the Site at intervals appropriate to the various stages of construction as Engineer deems necessary in order to observe as an experienced and qualified design professional the progress that has been made and the quality of the various aspects of Contractor's executed Work. Based on information obtained during such visits and observations, Engineer, for the benefit of Owner, will determine, in general, if the Work is proceeding in accordance with the Contract Documents. Engineer will not be required to make exhaustive or continuous inspections on the Site to check the quality or quantity of the Work. Engineer's efforts will be directed toward providing for Owner a greater degree of confidence that the completed Work will conform generally to the Contract Documents. On the basis of such visits and observations, Engineer will keep

Owner informed of the progress of the Work and will endeavor to guard Owner against defective Work.

B. Engineer's visits and observations are subject to all the limitations on Engineer's authority and responsibility set forth in Paragraph 9.09. Particularly, but without limitation, during or as a result of Engineer's visits or observations of Contractor's Work Engineer will not supervise, direct, control, or have authority over or be responsible for Contractor's means, methods, techniques, sequences, or procedures of construction, or the safety precautions and programs incident thereto, or for any failure of Contractor to comply with Laws and Regulations applicable to the performance of the Work.

9.03 *Project Representative*

A. If Owner and Engineer agree, Engineer will furnish a Resident Project Representative to assist Engineer in providing more extensive observation of the Work. The authority and responsibilities of any such Resident Project Representative and assistants will be as provided in the Supplementary Conditions, and limitations on the responsibilities thereof will be as provided in Paragraph 9.09. If Owner designates another representative or agent to represent Owner at the Site who is not Engineer's consultant, agent or employee, the responsibilities and authority and limitations thereon of such other individual or entity will be as provided in the Supplementary Conditions.

9.04 *Authorized Variations in Work*

A. Engineer may authorize minor variations in the Work from the requirements of the Contract Documents which do not involve an adjustment in the Contract Price or the Contract Times and are compatible with the design concept of the completed Project as a functioning whole as indicated by the Contract Documents. These may be accomplished by a Field Order and will be binding on Owner and also on Contractor, who shall perform the Work involved promptly. If Owner or Contractor believes that a Field Order justifies an adjustment in the Contract Price or Contract Times, or both, and the parties are unable to agree on entitlement to or on the amount or extent, if any, of any such adjustment, a Claim may be made therefor as provided in Paragraph 10.05.

9.05 *Rejecting Defective Work*

A. Engineer will have authority to reject Work which Engineer believes to be defective, or that Engineer believes will not produce a completed Project that conforms to the Contract Documents or that will prejudice the integrity of the design concept of the completed Project as a functioning whole as indicated by the Contract Documents. Engineer will also have authority to require special inspection or testing of the Work as provided in Paragraph 13.04, whether or not the Work is fabricated, installed, or completed.

9.06 *Shop Drawings, Change Orders and Payments*

A. In connection with Engineer's authority, and limitations thereof, as to Shop Drawings and Samples, see Paragraph 6.17.

B. In connection with Engineer's authority, and limitations thereof, as to design calculations and design drawings submitted in response to a delegation of professional design services, if any, see Paragraph 6.21.

C. In connection with Engineer's authority as to Change Orders, see Articles 10, 11, and 12.

D. In connection with Engineer's authority as to Applications for Payment, see Article 14.

9.07 *Determinations for Unit Price Work*

A. Engineer will determine the actual quantities and classifications of Unit Price Work performed by Contractor. Engineer will review with Contractor the Engineer's preliminary determinations on such matters before rendering a written decision thereon (by recommendation of an Application for Payment or otherwise). Engineer's written decision thereon will be final and binding (except as modified by Engineer to reflect changed factual conditions or more accurate data) upon Owner and Contractor, subject to the provisions of Paragraph 10.05.

9.08 *Decisions on Requirements of Contract Documents and Acceptability of Work*

A. Engineer will be the initial interpreter of the requirements of the Contract Documents and judge of the acceptability of the Work thereunder. All matters in question and other matters between Owner and Contractor arising prior to the date final payment is due relating to the acceptability of the Work, and the interpretation of the requirements of the Contract Documents pertaining to the performance of the Work, will be referred initially to Engineer in writing within 30 days of the event giving rise to the question

B. Engineer will, with reasonable promptness, render a written decision on the issue referred. If Owner or Contractor believe that any such decision entitles them to an adjustment in the Contract Price or Contract Times or both, a Claim may be made under Paragraph 10.05. The date of Engineer's decision shall be the date of the event giving rise to the issues referenced for the purposes of Paragraph 10.05.B.

C. Engineer's written decision on the issue referred will be final and binding on Owner and Contractor, subject to the provisions of Paragraph 10.05.

D. When functioning as interpreter and judge under this Paragraph 9.08, Engineer will not show

partiality to Owner or Contractor and will not be liable in connection with any interpretation or decision rendered in good faith in such capacity.

9.09 *Limitations on Engineer's Authority and Responsibilities*

A. Neither Engineer's authority or responsibility under this Article 9 or under any other provision of the Contract Documents nor any decision made by Engineer in good faith either to exercise or not exercise such authority or responsibility or the undertaking, exercise, or performance of any authority or responsibility by Engineer shall create, impose, or give rise to any duty in contract, tort, or otherwise owed by Engineer to Contractor, any Subcontractor, any Supplier, any other individual or entity, or to any surety for or employee or agent of any of them.

B. Engineer will not supervise, direct, control, or have authority over or be responsible for Contractor's means, methods, techniques, sequences, or procedures of construction, or the safety precautions and programs incident thereto, or for any failure of Contractor to comply with Laws and Regulations applicable to the performance of the Work. Engineer will not be responsible for Contractor's failure to perform the Work in accordance with the Contract Documents.

C. Engineer will not be responsible for the acts or omissions of Contractor or of any Subcontractor, any Supplier, or of any other individual or entity performing any of the Work.

D. Engineer's review of the final Application for Payment and accompanying documentation and all maintenance and operating instructions, schedules, guarantees, bonds, certificates of inspection, tests and approvals, and other documentation required to be delivered by Paragraph 14.07.A will only be to determine generally that their content complies with the requirements of, and in the case of certificates of inspections, tests, and approvals that the results certified indicate compliance with the Contract Documents.

E. The limitations upon authority and responsibility set forth in this Paragraph 9.09 shall also apply to, the Resident Project Representative, if any, and assistants, if any.

ARTICLE 10 - CHANGES IN THE WORK; CLAIMS

10.01 *Authorized Changes in the Work*

A. Without invalidating the Contract and without notice to any surety, Owner may, at any time or from time to time, order additions, deletions, or revisions in the Work by a Change Order, or a Work Change Directive. Upon receipt of any such document, Contractor shall

promptly proceed with the Work involved which will be performed under the applicable conditions of the Contract Documents (except as otherwise specifically provided).

B. If Owner and Contractor are unable to agree on entitlement to, or on the amount or extent, if any, of an adjustment in the Contract Price or Contract Times, or both, that should be allowed as a result of a Work Change Directive, a Claim may be made therefor as provided in Paragraph 10.05.

10.02 *Unauthorized Changes in the Work*

A. Contractor shall not be entitled to an increase in the Contract Price or an extension of the Contract Times with respect to any work performed that is not required by the Contract Documents as amended, modified, or supplemented as provided in Paragraph 3.04, except in the case of an emergency as provided in Paragraph 6.16 or in the case of uncovering Work as provided in Paragraph 13.04.B.

10.03 *Execution of Change Orders*

A. Owner and Contractor shall execute appropriate Change Orders recommended by Engineer covering:

1. changes in the Work which are: (i) ordered by Owner pursuant to Paragraph 10.01.A, (ii) required because of acceptance of defective Work under Paragraph 13.08.A or Owner's correction of defective Work under Paragraph 13.09, or (iii) agreed to by the parties;

2. changes in the Contract Price or Contract Times which are agreed to by the parties, including any undisputed sum or amount of time for Work actually performed in accordance with a Work Change Directive; and

3. changes in the Contract Price or Contract Times which embody the substance of any written decision rendered by Engineer pursuant to Paragraph 10.05; provided that, in lieu of executing any such Change Order, an appeal may be taken from any such decision in accordance with the provisions of the Contract Documents and applicable Laws and Regulations, but during any such appeal, Contractor shall carry on the Work and adhere to the Progress Schedule as provided in Paragraph 6.18.A.

10.04 *Notification to Surety*

A. If notice of any change affecting the general scope of the Work or the provisions of the Contract Documents (including, but not limited to, Contract Price or Contract Times) is required by the provisions of any bond to be given to a surety, the giving of any such notice will be Contractor's responsibility. The amount of each applicable bond will be adjusted to reflect the effect of any such change.

10.05 *Claims*

A. *Engineer's Decision Required:* All Claims, except those waived pursuant to Paragraph 14.09, shall be referred to the Engineer for decision. A decision by Engineer shall be required as a condition precedent to any exercise by Owner or Contractor of any rights or remedies either may otherwise have under the Contract Documents or by Laws and Regulations in respect of such Claims.

B. *Notice:* Written notice stating the general nature of each Claim, shall be delivered by the claimant to Engineer and the other party to the Contract promptly (but in no event later than 30 days) after the start of the event giving rise thereto. The responsibility to substantiate a Claim shall rest with the party making the Claim. Notice of the amount or extent of the Claim, with supporting data shall be delivered to the Engineer and the other party to the Contract within 60 days after the start of such event (unless Engineer allows additional time for claimant to submit additional or more accurate data in support of such Claim). A Claim for an adjustment in Contract Price shall be prepared in accordance with the provisions of Paragraph 12.01.B. A Claim for an adjustment in Contract Time shall be prepared in accordance with the provisions of Paragraph 12.02.B. Each Claim shall be accompanied by claimant's written statement that the adjustment claimed is the entire adjustment to which the claimant believes it is entitled as a result of said event. The opposing party shall submit any response to Engineer and the claimant within 30 days after receipt of the claimant's last submittal (unless Engineer allows additional time).

C. *Engineer's Action:* Engineer will review each Claim and, within 30 days after receipt of the last submittal of the claimant or the last submittal of the opposing party, if any, take one of the following actions in writing:

1. deny the Claim in whole or in part,

2. approve the Claim, or

3. notify the parties that the Engineer is unable to resolve the Claim if, in the Engineer's sole discretion, it would be inappropriate for the Engineer to do so. For purposes of further resolution of the Claim, such notice shall be deemed a denial.

D. In the event that Engineer does not take action on a Claim within said 30 days, the Claim shall be deemed denied.

E. Engineer's written action under Paragraph 10.05.C or denial pursuant to Paragraphs 10.05.C.3 or 10.05.D will be final and binding upon Owner and Contractor, unless Owner or Contractor invoke the dispute resolution procedure set forth in Article 16 within 30 days of such action or denial.

F. No Claim for an adjustment in Contract Price or Contract Times will be valid if not submitted in accordance with this Paragraph 10.05.

ARTICLE 11 - COST OF THE WORK;
ALLOWANCES; UNIT PRICE WORK

11.01 *Cost of the Work*

A. *Costs Included:* The term Cost of the Work means the sum of all costs, except those excluded in Paragraph 11.01.B, necessarily incurred and paid by Contractor in the proper performance of the Work. When the value of any Work covered by a Change Order or when a Claim for an adjustment in Contract Price is determined on the basis of Cost of the Work, the costs to be reimbursed to Contractor will be only those additional or incremental costs required because of the change in the Work or because of the event giving rise to the Claim. Except as otherwise may be agreed to in writing by Owner, such costs shall be in amounts no higher than those prevailing in the locality of the Project, shall include only the following items, and shall not include any of the costs itemized in Paragraph 11.01.B.

1. Payroll costs for employees in the direct employ of Contractor in the performance of the Work under schedules of job classifications agreed upon by Owner and Contractor. Such employees shall include, without limitation, superintendents, foremen, and other personnel employed full time at the Site. Payroll costs for employees not employed full time on the Work shall be apportioned on the basis of their time spent on the Work. Payroll costs shall include, but not be limited to, salaries and wages plus the cost of fringe benefits, which shall include social security contributions, unemployment, excise, and payroll taxes, workers' compensation, health and retirement benefits, bonuses, sick leave, vacation and holiday pay applicable thereto. The expenses of performing Work outside of regular working hours, on Saturday, Sunday, or legal holidays, shall be included in the above to the extent authorized by Owner.

2. Cost of all materials and equipment furnished and incorporated in the Work, including costs of transportation and storage thereof, and Suppliers' field services required in connection therewith. All cash discounts shall accrue to Contractor unless Owner deposits funds with Contractor with which to make payments, in which case the cash discounts shall accrue to Owner. All trade discounts, rebates and refunds and returns from sale of surplus materials and equipment shall accrue to Owner, and Contractor shall make provisions so that they may be obtained.

3. Payments made by Contractor to Subcontractors for Work performed by Subcontractors. If required by Owner, Contractor shall obtain competitive bids from subcontractors acceptable to Owner and

Contractor and shall deliver such bids to Owner, who will then determine, with the advice of Engineer, which bids, if any, will be acceptable. If any subcontract provides that the Subcontractor is to be paid on the basis of Cost of the Work plus a fee, the Subcontractor's Cost of the Work and fee shall be determined in the same manner as Contractor's Cost of the Work and fee as provided in this Paragraph 11.01.

4. Costs of special consultants (including but not limited to Engineers, architects, testing laboratories, surveyors, attorneys, and accountants) employed for services specifically related to the Work.

5. Supplemental costs including the following:

a. The proportion of necessary transportation, travel, and subsistence expenses of Contractor's employees incurred in discharge of duties connected with the Work.

b. Cost, including transportation and maintenance, of all materials, supplies, equipment, machinery, appliances, office, and temporary facilities at the Site, and hand tools not owned by the workers, which are consumed in the performance of the Work, and cost, less market value, of such items used but not consumed which remain the property of Contractor.

c. Rentals of all construction equipment and machinery, and the parts thereof whether rented from Contractor or others in accordance with rental agreements approved by Owner with the advice of Engineer, and the costs of transportation, loading, unloading, assembly, dismantling, and removal thereof. All such costs shall be in accordance with the terms of said rental agreements. The rental of any such equipment, machinery, or parts shall cease when the use thereof is no longer necessary for the Work.

d. Sales, consumer, use, and other similar taxes related to the Work, and for which Contractor is liable, imposed by Laws and Regulations.

e. Deposits lost for causes other than negligence of Contractor, any Subcontractor, or anyone directly or indirectly employed by any of them or for whose acts any of them may be liable, and royalty payments and fees for permits and licenses.

f. Losses and damages (and related expenses) caused by damage to the Work, not compensated by insurance or otherwise, sustained by Contractor in connection with the performance of the Work (except losses and damages within the deductible amounts of property insurance established in accordance with Paragraph 5.06.D), provided such losses and damages have

resulted from causes other than the negligence of Contractor, any Subcontractor, or anyone directly or indirectly employed by any of them or for whose acts any of them may be liable. Such losses shall include settlements made with the written consent and approval of Owner. No such losses, damages, and expenses shall be included in the Cost of the Work for the purpose of determining Contractor's fee.

g. The cost of utilities, fuel, and sanitary facilities at the Site.

h. Minor expenses such as telegrams, long distance telephone calls, telephone service at the Site, expresses, and similar petty cash items in connection with the Work.

i. The costs of premiums for all bonds and insurance Contractor is required by the Contract Documents to purchase and maintain.

B. Costs Excluded: The term Cost of the Work shall not include any of the following items:

1. Payroll costs and other compensation of Contractor's officers, executives, principals (of partnerships and sole proprietorships), general managers, safety managers, engineers, architects, estimators, attorneys, auditors, accountants, purchasing and contracting agents, expeditors, timekeepers, clerks, and other personnel employed by Contractor, whether at the Site or in Contractor's principal or branch office for general administration of the Work and not specifically included in the agreed upon schedule of job classifications referred to in Paragraph 11.01.A.1 or specifically covered by Paragraph 11.01.A.4, all of which are to be considered administrative costs covered by the Contractor's fee.

2. Expenses of Contractor's principal and branch offices other than Contractor's office at the Site.

3. Any part of Contractor's capital expenses, including interest on Contractor's capital employed for the Work and charges against Contractor for delinquent payments.

4. Costs due to the negligence of Contractor, any Subcontractor, or anyone directly or indirectly employed by any of them or for whose acts any of them may be liable, including but not limited to, the correction of defective Work, disposal of materials or equipment wrongly supplied, and making good any damage to property.

5. Other overhead or general expense costs of any kind and the costs of any item not specifically and expressly included in Paragraphs 11.01.A and 11.01.B.

C. Contractor's Fee: When all the Work is performed on the basis of cost-plus, Contractor's fee shall

be determined as set forth in the Agreement. When the value of any Work covered by a Change Order or when a Claim for an adjustment in Contract Price is determined on the basis of Cost of the Work, Contractor's fee shall be determined as set forth in Paragraph 12.01.C.

D. Documentation: Whenever the Cost of the Work for any purpose is to be determined pursuant to Paragraphs 11.01.A and 11.01.B, Contractor will establish and maintain records thereof in accordance with generally accepted accounting practices and submit in a form acceptable to Engineer an itemized cost breakdown together with supporting data.

11.02 Allowances

A. It is understood that Contractor has included in the Contract Price all allowances so named in the Contract Documents and shall cause the Work so covered to be performed for such sums and by such persons or entities as may be acceptable to Owner and Engineer.

B. Cash Allowances

1. Contractor agrees that:

a. the cash allowances include the cost to Contractor (less any applicable trade discounts) of materials and equipment required by the allowances to be delivered at the Site, and all applicable taxes; and

b. Contractor's costs for unloading and handling on the Site, labor, installation, overhead, profit, and other expenses contemplated for the cash allowances have been included in the Contract Price and not in the allowances, and no demand for additional payment on account of any of the foregoing will be valid.

C. Contingency Allowance

1. Contractor agrees that a contingency allowance, if any, is for the sole use of Owner to cover unanticipated costs.

D. Prior to final payment, an appropriate Change Order will be issued as recommended by Engineer to reflect actual amounts due Contractor on account of Work covered by allowances, and the Contract Price shall be correspondingly adjusted.

11.03 Unit Price Work

A. Where the Contract Documents provide that all or part of the Work is to be Unit Price Work, initially the Contract Price will be deemed to include for all Unit Price Work an amount equal to the sum of the unit price for each separately identified item of Unit Price Work times the estimated quantity of each item as indicated in the Agreement.

B. The estimated quantities of items of Unit Price Work are not guaranteed and are solely for the purpose of comparison of Bids and determining an initial Contract Price. Determinations of the actual quantities and classifications of Unit Price Work performed by Contractor will be made by Engineer subject to the provisions of Paragraph 9.07.

C. Each unit price will be deemed to include an amount considered by Contractor to be adequate to cover Contractor's overhead and profit for each separately identified item.

D. Owner or Contractor may make a Claim for an adjustment in the Contract Price in accordance with Paragraph 10.05 if:

1. the quantity of any item of Unit Price Work performed by Contractor differs materially and significantly from the estimated quantity of such item indicated in the Agreement; and

2. there is no corresponding adjustment with respect any other item of Work; and

3. Contractor believes that Contractor is entitled to an increase in Contract Price as a result of having incurred additional expense or Owner believes that Owner is entitled to a decrease in Contract Price and the parties are unable to agree as to the amount of any such increase or decrease.

ARTICLE 12 - CHANGE OF CONTRACT PRICE; CHANGE OF CONTRACT TIMES

12.01 *Change of Contract Price*

A. The Contract Price may only be changed by a Change Order. Any Claim for an adjustment in the Contract Price shall be based on written notice submitted by the party making the Claim to the Engineer and the other party to the Contract in accordance with the provisions of Paragraph 10.05.

B. The value of any Work covered by a Change Order or of any Claim for an adjustment in the Contract Price will be determined as follows:

1. where the Work involved is covered by unit prices contained in the Contract Documents, by application of such unit prices to the quantities of the items involved (subject to the provisions of Paragraph 11.03); or

2. where the Work involved is not covered by unit prices contained in the Contract Documents, by a mutually agreed lump sum (which may include an

allowance for overhead and profit not necessarily in accordance with Paragraph 12.01.C.2); or

3. where the Work involved is not covered by unit prices contained in the Contract Documents and agreement to a lump sum is not reached under Paragraph 12.01.B.2, on the basis of the Cost of the Work (determined as provided in Paragraph 11.01) plus a Contractor's fee for overhead and profit (determined as provided in Paragraph 12.01.C).

C. *Contractor's Fee:* The Contractor's fee for overhead and profit shall be determined as follows:

1. a mutually acceptable fixed fee; or

2. if a fixed fee is not agreed upon, then a fee based on the following percentages of the various portions of the Cost of the Work:

a. for costs incurred under Paragraphs 11.01.A.1 and 11.01.A.2, the Contractor's fee shall be 15 percent;

b. for costs incurred under Paragraph 11.01.A.3, the Contractor's fee shall be five percent;

c. where one or more tiers of subcontracts are on the basis of Cost of the Work plus a fee and no fixed fee is agreed upon, the intent of Paragraph 12.01.C.2.a is that the Subcontractor who actually performs the Work, at whatever tier, will be paid a fee of 15 percent of the costs incurred by such Subcontractor under Paragraphs 11.01.A.1 and 11.01.A.2 and that any higher tier Subcontractor and Contractor will each be paid a fee of five percent of the amount paid to the next lower tier Subcontractor;

d. no fee shall be payable on the basis of costs itemized under Paragraphs 11.01.A.4, 11.01.A.5, and 11.01.B;

e. the amount of credit to be allowed by Contractor to Owner for any change which results in a net decrease in cost will be the amount of the actual net decrease in cost plus a deduction in Contractor's fee by an amount equal to five percent of such net decrease; and

f. when both additions and credits are involved in any one change, the adjustment in Contractor's fee shall be computed on the basis of the net change in accordance with Paragraphs 12.01.C.2.a through 12.01.C.2.e, inclusive.

12.02 *Change of Contract Times*

A. The Contract Times may only be changed by a Change Order. Any Claim for an adjustment in the Contract Times shall be based on written notice submitted

by the party making the Claim to the Engineer and the other party to the Contract in accordance with the provisions of Paragraph 10.05.

B. Any adjustment of the Contract Times covered by a Change Order or any Claim for an adjustment in the Contract Times will be determined in accordance with the provisions of this Article 12.

12.03 *Delays*

A. Where Contractor is prevented from completing any part of the Work within the Contract Times due to delay beyond the control of Contractor, the Contract Times will be extended in an amount equal to the time lost due to such delay if a Claim is made therefor as provided in Paragraph 12.02.A. Delays beyond the control of Contractor shall include, but not be limited to, acts or neglect by Owner, acts or neglect of utility owners or other contractors performing other work as contemplated by Article 7, fires, floods, epidemics, abnormal weather conditions, or acts of God.

B. If Owner, Engineer, or other contractors or utility owners performing other work for Owner as contemplated by Article 7, or anyone for whom Owner is responsible, delays, disrupts, or interferes with the performance or progress of the Work, then Contractor shall be entitled to an equitable adjustment in the Contract Price or the Contract Times, or both. Contractor's entitlement to an adjustment of the Contract Times is conditioned on such adjustment being essential to Contractor's ability to complete the Work within the Contract Times.

C. If Contractor is delayed in the performance or progress of the Work by fire, flood, epidemic, abnormal weather conditions, acts of God, acts or failures to act of utility owners not under the control of Owner, or other causes not the fault of and beyond control of Owner and Contractor, then Contractor shall be entitled to an equitable adjustment in Contract Times, if such adjustment is essential to Contractor's ability to complete the Work within the Contract Times. Such an adjustment shall be Contractor's sole and exclusive remedy for the delays described in this Paragraph 12.03.C.

D. Owner, Engineer and the Related Entities of each of them shall not be liable to Contractor for any claims, costs, losses, or damages (including but not limited to all fees and charges of Engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) sustained by Contractor on or in connection with any other project or anticipated project.

E. Contractor shall not be entitled to an adjustment in Contract Price or Contract Times for delays within the control of Contractor. Delays attributable to and within the control of a Subcontractor or Supplier shall be deemed to be delays within the control of Contractor.

ARTICLE 13 - TESTS AND INSPECTIONS; CORRECTION, REMOVAL OR ACCEPTANCE OF DEFECTIVE WORK

13.01 *Notice of Defects*

A. Prompt notice of all defective Work of which Owner or Engineer has actual knowledge will be given to Contractor. All defective Work may be rejected, corrected, or accepted as provided in this Article 13.

13.02 *Access to Work*

A. Owner, Engineer, their consultants and other representatives and personnel of Owner, independent testing laboratories, and governmental agencies with jurisdictional interests will have access to the Site and the Work at reasonable times for their observation, inspecting, and testing. Contractor shall provide them proper and safe conditions for such access and advise them of Contractor's Site safety procedures and programs so that they may comply therewith as applicable.

13.03 *Tests and Inspections*

A. Contractor shall give Engineer timely notice of readiness of the Work for all required inspections, tests, or approvals and shall cooperate with inspection and testing personnel to facilitate required inspections or tests.

B. Owner shall employ and pay for the services of an independent testing laboratory to perform all inspections, tests, or approvals required by the Contract Documents except:

1. for inspections, tests, or approvals covered by Paragraphs 13.03.C and 13.03.D below;

2. that costs incurred in connection with tests or inspections conducted pursuant to Paragraph 13.04.B shall be paid as provided in said Paragraph 13.04.C; and

3. as otherwise specifically provided in the Contract Documents.

C. If Laws or Regulations of any public body having jurisdiction require any Work (or part thereof) specifically to be inspected, tested, or approved by an employee or other representative of such public body, Contractor shall assume full responsibility for arranging and obtaining such inspections, tests, or approvals, pay all costs in connection therewith, and furnish Engineer the required certificates of inspection or approval.

D. Contractor shall be responsible for arranging and obtaining and shall pay all costs in connection with any inspections, tests, or approvals required for Owner's and Engineer's acceptance of materials or equipment to

be incorporated in the Work; or acceptance of materials, mix designs, or equipment submitted for approval prior to Contractor's purchase thereof for incorporation in the Work. Such inspections, tests, or approvals shall be performed by organizations acceptable to Owner and Engineer.

E. If any Work (or the work of others) that is to be inspected, tested, or approved is covered by Contractor without written concurrence of Engineer, it must, if requested by Engineer, be uncovered for observation.

F. Uncovering Work as provided in Paragraph 13.03.E shall be at Contractor's expense unless Contractor has given Engineer timely notice of Contractor's intention to cover the same and Engineer has not acted with reasonable promptness in response to such notice.

13.04 *Uncovering Work*

A. If any Work is covered contrary to the written request of Engineer, it must, if requested by Engineer, be uncovered for Engineer's observation and replaced at Contractor's expense.

B. If Engineer considers it necessary or advisable that covered Work be observed by Engineer or inspected or tested by others, Contractor, at Engineer's request, shall uncover, expose, or otherwise make available for observation, inspection, or testing as Engineer may require, that portion of the Work in question, furnishing all necessary labor, material, and equipment.

C. If it is found that the uncovered Work is defective, Contractor shall pay all claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) arising out of or relating to such uncovering, exposure, observation, inspection, and testing, and of satisfactory replacement or reconstruction (including but not limited to all costs of repair or replacement of work of others); and Owner shall be entitled to an appropriate decrease in the Contract Price. If the parties are unable to agree as to the amount thereof, Owner may make a Claim therefor as provided in Paragraph 10.05.

D. If, the uncovered Work is not found to be defective, Contractor shall be allowed an increase in the Contract Price or an extension of the Contract Times, or both, directly attributable to such uncovering, exposure, observation, inspection, testing, replacement, and reconstruction. If the parties are unable to agree as to the amount or extent thereof, Contractor may make a Claim therefor as provided in Paragraph 10.05.

13.05 *Owner May Stop the Work*

A. If the Work is defective, or Contractor fails to supply sufficient skilled workers or suitable materials or equipment, or fails to perform the Work in such a way that the completed Work will conform to the Contract Documents, Owner may order Contractor to stop the Work, or any portion thereof, until the cause for such order has been eliminated; however, this right of Owner to stop the Work shall not give rise to any duty on the part of Owner to exercise this right for the benefit of Contractor, any Subcontractor, any Supplier, any other individual or entity, or any surety for, or employee or agent of any of them.

13.06 *Correction or Removal of Defective Work*

A. Promptly after receipt of notice, Contractor shall correct all defective Work, whether or not fabricated, installed, or completed, or, if the Work has been rejected by Engineer, remove it from the Project and replace it with Work that is not defective. Contractor shall pay all claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) arising out of or relating to such correction or removal (including but not limited to all costs of repair or replacement of work of others).

B. When correcting defective Work under the terms of this Paragraph 13.06 or Paragraph 13.07, Contractor shall take no action that would void or otherwise impair Owner's special warranty and guarantee, if any, on said Work.

13.07 *Correction Period*

A. If within one year after the date of Substantial Completion (or such longer period of time as may be prescribed by the terms of any applicable special guarantee required by the Contract Documents) or by any specific provision of the Contract Documents, any Work is found to be defective, or if the repair of any damages to the land or areas made available for Contractor's use by Owner or permitted by Laws and Regulations as contemplated in Paragraph 6.11.A is found to be defective, Contractor shall promptly, without cost to Owner and in accordance with Owner's written instructions:

1. repair such defective land or areas; or
2. correct such defective Work; or
3. if the defective Work has been rejected by Owner, remove it from the Project and replace it with Work that is not defective, and
4. satisfactorily correct or repair or remove and replace any damage to other Work, to the work of others or other land or areas resulting therefrom.

B. If Contractor does not promptly comply with the terms of Owner's written instructions, or in an emergency where delay would cause serious risk of loss or damage, Owner may have the defective Work corrected or repaired or may have the rejected Work removed and replaced. All claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) arising out of or relating to such correction or repair or such removal and replacement (including but not limited to all costs of repair or replacement of work of others) will be paid by Contractor.

C. In special circumstances where a particular item of equipment is placed in continuous service before Substantial Completion of all the Work, the correction period for that item may start to run from an earlier date if so provided in the Specifications .

D. Where defective Work (and damage to other Work resulting therefrom) has been corrected or removed and replaced under this Paragraph 13.07, the correction period hereunder with respect to such Work will be extended for an additional period of one year after such correction or removal and replacement has been satisfactorily completed.

E. Contractor's obligations under this Paragraph 13.07 are in addition to any other obligation or warranty. The provisions of this Paragraph 13.07 shall not be construed as a substitute for or a waiver of the provisions of any applicable statute of limitation or repose.

13.08 *Acceptance of Defective Work*

A. If, instead of requiring correction or removal and replacement of defective Work, Owner (and, prior to Engineer's recommendation of final payment, Engineer) prefers to accept it, Owner may do so. Contractor shall pay all claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) attributable to Owner's evaluation of and determination to accept such defective Work (such costs to be approved by Engineer as to reasonableness) and the diminished value of the Work to the extent not otherwise paid by Contractor pursuant to this sentence. If any such acceptance occurs prior to Engineer's recommendation of final payment, a Change Order will be issued incorporating the necessary revisions in the Contract Documents with respect to the Work, and Owner shall be entitled to an appropriate decrease in the Contract Price, reflecting the diminished value of Work so accepted. If the parties are unable to agree as to the amount thereof, Owner may make a Claim therefor as provided in Paragraph 10.05. If the acceptance occurs after such recommendation, an appropriate amount will be paid by Contractor to Owner.

13.09 *Owner May Correct Defective Work*

A. If Contractor fails within a reasonable time after written notice from Engineer to correct defective Work or to remove and replace rejected Work as required by Engineer in accordance with Paragraph 13.06.A, or if Contractor fails to perform the Work in accordance with the Contract Documents, or if Contractor fails to comply with any other provision of the Contract Documents, Owner may, after seven days written notice to Contractor, correct or remedy any such deficiency.

B. In exercising the rights and remedies under this Paragraph 13.09, Owner shall proceed expeditiously. In connection with such corrective or remedial action, Owner may exclude Contractor from all or part of the Site, take possession of all or part of the Work and suspend Contractor's services related thereto, take possession of Contractor's tools, appliances, construction equipment and machinery at the Site, and incorporate in the Work all materials and equipment stored at the Site or for which Owner has paid Contractor but which are stored elsewhere. Contractor shall allow Owner, Owner's representatives, agents and employees, Owner's other contractors, and Engineer and Engineer's consultants access to the Site to enable Owner to exercise the rights and remedies under this Paragraph.

C. All claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) incurred or sustained by Owner in exercising the rights and remedies under this Paragraph 13.09 will be charged against Contractor, and a Change Order will be issued incorporating the necessary revisions in the Contract Documents with respect to the Work; and Owner shall be entitled to an appropriate decrease in the Contract Price. If the parties are unable to agree as to the amount of the adjustment, Owner may make a Claim therefor as provided in Paragraph 10.05. Such claims, costs, losses and damages will include but not be limited to all costs of repair, or replacement of work of others destroyed or damaged by correction, removal, or replacement of Contractor's defective Work.

D. Contractor shall not be allowed an extension of the Contract Times because of any delay in the performance of the Work attributable to the exercise by Owner of Owner's rights and remedies under this Paragraph 13.09.

ARTICLE 14 - PAYMENTS TO CONTRACTOR AND COMPLETION

14.01 *Schedule of Values*

A. The Schedule of Values established as provided in Paragraph 2.07.A will serve as the basis for progress

payments and will be incorporated into a form of Application for Payment acceptable to Engineer. Progress payments on account of Unit Price Work will be based on the number of units completed.

14.02 *Progress Payments*

A. Applications for Payments

1. At least 20 days before the date established in the Agreement for each progress payment (but not more often than once a month), Contractor shall submit to Engineer for review an Application for Payment filled out and signed by Contractor covering the Work completed as of the date of the Application and accompanied by such supporting documentation as is required by the Contract Documents. If payment is requested on the basis of materials and equipment not incorporated in the Work but delivered and suitably stored at the Site or at another location agreed to in writing, the Application for Payment shall also be accompanied by a bill of sale, invoice, or other documentation warranting that Owner has received the materials and equipment free and clear of all Liens and evidence that the materials and equipment are covered by appropriate property insurance or other arrangements to protect Owner's interest therein, all of which must be satisfactory to Owner.

2. Beginning with the second Application for Payment, each Application shall include an affidavit of Contractor stating that all previous progress payments received on account of the Work have been applied on account to discharge Contractor's legitimate obligations associated with prior Applications for Payment.

3. The amount of retainage with respect to progress payments will be as stipulated in the Agreement.

B. *Review of Applications*

1. Engineer will, within 10 days after receipt of each Application for Payment, either indicate in writing a recommendation of payment and present the Application to Owner or return the Application to Contractor indicating in writing Engineer's reasons for refusing to recommend payment. In the latter case, Contractor may make the necessary corrections and resubmit the Application.

2. Engineer's recommendation of any payment requested in an Application for Payment will constitute a representation by Engineer to Owner, based on Engineer's observations on the Site of the executed Work as an experienced and qualified design professional and on Engineer's review of the Application for Payment and the accompanying data and schedules, that to the best of Engineer's knowledge, information and belief:

a. the Work has progressed to the point indicated;

b. the quality of the Work is generally in accordance with the Contract Documents (subject to an evaluation of the Work as a functioning whole prior to or upon Substantial Completion, to the results of any subsequent tests called for in the Contract Documents, to a final determination of quantities and classifications for Unit Price Work under Paragraph 9.07, and to any other qualifications stated in the recommendation); and

c. the conditions precedent to Contractor's being entitled to such payment appear to have been fulfilled in so far as it is Engineer's responsibility to observe the Work.

3. By recommending any such payment Engineer will not thereby be deemed to have represented that:

a. inspections made to check the quality or the quantity of the Work as it has been performed have been exhaustive, extended to every aspect of the Work in progress, or involved detailed inspections of the Work beyond the responsibilities specifically assigned to Engineer in the Contract Documents; or

b. that there may not be other matters or issues between the parties that might entitle Contractor to be paid additionally by Owner or entitle Owner to withhold payment to Contractor.

4. Neither Engineer's review of Contractor's Work for the purposes of recommending payments nor Engineer's recommendation of any payment, including final payment, will impose responsibility on Engineer:

a. to supervise, direct, or control the Work, or

b. for the means, methods, techniques, sequences, or procedures of construction, or the safety precautions and programs incident thereto, or

c. for Contractor's failure to comply with Laws and Regulations applicable to Contractor's performance of the Work, or

d. to make any examination to ascertain how or for what purposes Contractor has used the moneys paid on account of the Contract Price, or

e. to determine that title to any of the Work, materials, or equipment has passed to Owner free and clear of any Liens.

5. Engineer may refuse to recommend the whole or any part of any payment if, in Engineer's opinion, it would be incorrect to make the representations to Owner stated in Paragraph 14.02.B.2. Engineer may also refuse to recommend any such payment or, because of subsequently discovered evidence or the results of subsequent

inspections or tests, revise or revoke any such payment recommendation previously made, to such extent as may be necessary in Engineer's opinion to protect Owner from loss because:

- a. the Work is defective, or completed Work has been damaged, requiring correction or replacement;
- b. the Contract Price has been reduced by Change Orders;
- c. Owner has been required to correct defective Work or complete Work in accordance with Paragraph 13.09; or
- d. Engineer has actual knowledge of the occurrence of any of the events enumerated in Paragraph 15.02.A.

C. Payment Becomes Due

1. Ten days after presentation of the Application for Payment to Owner with Engineer's recommendation, the amount recommended will (subject to the provisions of Paragraph 14.02.D) become due, and when due will be paid by Owner to Contractor.

D. Reduction in Payment

1. Owner may refuse to make payment of the full amount recommended by Engineer because:

- a. claims have been made against Owner on account of Contractor's performance or furnishing of the Work;
- b. Liens have been filed in connection with the Work, except where Contractor has delivered a specific bond satisfactory to Owner to secure the satisfaction and discharge of such Liens;
- c. there are other items entitling Owner to a set-off against the amount recommended; or
- d. Owner has actual knowledge of the occurrence of any of the events enumerated in Paragraphs 14.02.B.5.a through 14.02.B.5.c or Paragraph 15.02.A.

2. If Owner refuses to make payment of the full amount recommended by Engineer, Owner will give Contractor immediate written notice (with a copy to Engineer) stating the reasons for such action and promptly pay Contractor any amount remaining after deduction of the amount so withheld. Owner shall promptly pay Contractor the amount so withheld, or any adjustment thereto agreed to by Owner and Contractor, when Contractor corrects to Owner's satisfaction the reasons for such action.

3. If it is subsequently determined that Owner's refusal of payment was not justified, the amount wrongfully withheld shall be treated as an amount due as determined by Paragraph 14.02.C.1.

14.03 Contractor's Warranty of Title

A. Contractor warrants and guarantees that title to all Work, materials, and equipment covered by any Application for Payment, whether incorporated in the Project or not, will pass to Owner no later than the time of payment free and clear of all Liens.

14.04 Substantial Completion

A. When Contractor considers the entire Work ready for its intended use Contractor shall notify Owner and Engineer in writing that the entire Work is substantially complete (except for items specifically listed by Contractor as incomplete) and request that Engineer issue a certificate of Substantial Completion.

B. Promptly after Contractor's notification, , Owner, Contractor, and Engineer shall make an inspection of the Work to determine the status of completion. If Engineer does not consider the Work substantially complete, Engineer will notify Contractor in writing giving the reasons therefor.

C. If Engineer considers the Work substantially complete, Engineer will deliver to Owner a tentative certificate of Substantial Completion which shall fix the date of Substantial Completion. There shall be attached to the certificate a tentative list of items to be completed or corrected before final payment. Owner shall have seven days after receipt of the tentative certificate during which to make written objection to Engineer as to any provisions of the certificate or attached list. If, after considering such objections, Engineer concludes that the Work is not substantially complete, Engineer will within 14 days after submission of the tentative certificate to Owner notify Contractor in writing, stating the reasons therefor. If, after consideration of Owner's objections, Engineer considers the Work substantially complete, Engineer will within said 14 days execute and deliver to Owner and Contractor a definitive certificate of Substantial Completion (with a revised tentative list of items to be completed or corrected) reflecting such changes from the tentative certificate as Engineer believes justified after consideration of any objections from Owner.

D. At the time of delivery of the tentative certificate of Substantial Completion, Engineer will deliver to Owner and Contractor a written recommendation as to division of responsibilities pending final payment between Owner and Contractor with respect to security, operation, safety, and protection of the Work, maintenance, heat, utilities, insurance, and warranties and guarantees. Unless Owner and Contractor agree otherwise in writing and so inform Engineer in writing prior to Engineer's issuing the definitive certificate of Substantial

Completion, Engineer's aforesaid recommendation will be binding on Owner and Contractor until final payment.

E. Owner shall have the right to exclude Contractor from the Site after the date of Substantial Completion subject to allowing Contractor reasonable access to complete or correct items on the tentative list.

14.05 *Partial Utilization*

A. Prior to Substantial Completion of all the Work, Owner may use or occupy any substantially completed part of the Work which has specifically been identified in the Contract Documents, or which Owner, Engineer, and Contractor agree constitutes a separately functioning and usable part of the Work that can be used by Owner for its intended purpose without significant interference with Contractor's performance of the remainder of the Work, subject to the following conditions.

1. Owner at any time may request Contractor in writing to permit Owner to use or occupy any such part of the Work which Owner believes to be ready for its intended use and substantially complete. If and when Contractor agrees that such part of the Work is substantially complete, Contractor will certify to Owner and Engineer that such part of the Work is substantially complete and request Engineer to issue a certificate of Substantial Completion for that part of the Work.

2. Contractor at any time may notify Owner and Engineer in writing that Contractor considers any such part of the Work ready for its intended use and substantially complete and request Engineer to issue a certificate of Substantial Completion for that part of the Work.

3. Within a reasonable time after either such request, Owner, Contractor, and Engineer shall make an inspection of that part of the Work to determine its status of completion. If Engineer does not consider that part of the Work to be substantially complete, Engineer will notify Owner and Contractor in writing giving the reasons therefor. If Engineer considers that part of the Work to be substantially complete, the provisions of Paragraph 14.04 will apply with respect to certification of Substantial Completion of that part of the Work and the division of responsibility in respect thereof and access thereto.

4. No use or occupancy or separate operation of part of the Work may occur prior to compliance with the requirements of Paragraph 5.10 regarding property insurance.

14.06 *Final Inspection*

A. Upon written notice from Contractor that the entire Work or an agreed portion thereof is complete, Engineer will promptly make a final inspection with Owner and Contractor and will notify Contractor in writing of all particulars in which this inspection reveals

that the Work is incomplete or defective. Contractor shall immediately take such measures as are necessary to complete such Work or remedy such deficiencies.

14.07 *Final Payment*

A. Application for Payment

1. After Contractor has, in the opinion of Engineer, satisfactorily completed all corrections identified during the final inspection and has delivered, in accordance with the Contract Documents, all maintenance and operating instructions, schedules, guarantees, bonds, certificates or other evidence of insurance certificates of inspection, marked-up record documents (as provided in Paragraph 6.12), and other documents, Contractor may make application for final payment following the procedure for progress payments.

2. The final Application for Payment shall be accompanied (except as previously delivered) by:

a. all documentation called for in the Contract Documents, including but not limited to the evidence of insurance required by Paragraph 5.04.B.7;

b. consent of the surety, if any, to final payment;

c. a list of all Claims against Owner that Contractor believes are unsettled; and

d. complete and legally effective releases or waivers (satisfactory to Owner) of all Lien rights arising out of or Liens filed in connection with the Work.

3. In lieu of the releases or waivers of Liens specified in Paragraph 14.07.A.2 and as approved by Owner, Contractor may furnish receipts or releases in full and an affidavit of Contractor that: (i) the releases and receipts include all labor, services, material, and equipment for which a Lien could be filed; and (ii) all payrolls, material and equipment bills, and other indebtedness connected with the Work for which Owner or Owner's property might in any way be responsible have been paid or otherwise satisfied. If any Subcontractor or Supplier fails to furnish such a release or receipt in full, Contractor may furnish a bond or other collateral satisfactory to Owner to indemnify Owner against any Lien.

B. *Engineer's Review of Application and Acceptance*

1. If, on the basis of Engineer's observation of the Work during construction and final inspection, and Engineer's review of the final Application for Payment and accompanying documentation as required by the Contract Documents, Engineer is satisfied that the Work has been completed and Contractor's other obligations

under the Contract Documents have been fulfilled, Engineer will, within ten days after receipt of the final Application for Payment, indicate in writing Engineer's recommendation of payment and present the Application for Payment to Owner for payment. At the same time Engineer will also give written notice to Owner and Contractor that the Work is acceptable subject to the provisions of Paragraph 14.09. Otherwise, Engineer will return the Application for Payment to Contractor, indicating in writing the reasons for refusing to recommend final payment, in which case Contractor shall make the necessary corrections and resubmit the Application for Payment.

C. Payment Becomes Due

1. Thirty days after the presentation to Owner of the Application for Payment and accompanying documentation, the amount recommended by Engineer, less any sum Owner is entitled to set off against Engineer's recommendation, including but not limited to liquidated damages, will become due and , will be paid by Owner to Contractor.

14.08 *Final Completion Delayed*

A. If, through no fault of Contractor, final completion of the Work is significantly delayed, and if Engineer so confirms, Owner shall, upon receipt of Contractor's final Application for Payment (for Work fully completed and accepted) and recommendation of Engineer, and without terminating the Contract, make payment of the balance due for that portion of the Work fully completed and accepted. If the remaining balance to be held by Owner for Work not fully completed or corrected is less than the retainage stipulated in the Agreement, and if bonds have been furnished as required in Paragraph 5.01, the written consent of the surety to the payment of the balance due for that portion of the Work fully completed and accepted shall be submitted by Contractor to Engineer with the Application for such payment. Such payment shall be made under the terms and conditions governing final payment, except that it shall not constitute a waiver of Claims.

14.09 *Waiver of Claims*

A. The making and acceptance of final payment will constitute:

1. a waiver of all Claims by Owner against Contractor, except Claims arising from unsettled Liens, from defective Work appearing after final inspection pursuant to Paragraph 14.06, from failure to comply with the Contract Documents or the terms of any special guarantees specified therein, or from Contractor's continuing obligations under the Contract Documents; and

2. a waiver of all Claims by Contractor against Owner other than those previously made in accordance

with the requirements herein and expressly acknowledged by Owner in writing as still unsettled.

ARTICLE 15 - SUSPENSION OF WORK AND TERMINATION

15.01 *Owner May Suspend Work*

A. At any time and without cause, Owner may suspend the Work or any portion thereof for a period of not more than 90 consecutive days by notice in writing to Contractor and Engineer which will fix the date on which Work will be resumed. Contractor shall resume the Work on the date so fixed. Contractor shall be granted an adjustment in the Contract Price or an extension of the Contract Times, or both, directly attributable to any such suspension if Contractor makes a Claim therefor as provided in Paragraph 10.05.

15.02 *Owner May Terminate for Cause*

A. The occurrence of any one or more of the following events will justify termination for cause:

1. Contractor's persistent failure to perform the Work in accordance with the Contract Documents (including, but not limited to, failure to supply sufficient skilled workers or suitable materials or equipment or failure to adhere to the Progress Schedule established under Paragraph 2.07 as adjusted from time to time pursuant to Paragraph 6.04);

2. Contractor's disregard of Laws or Regulations of any public body having jurisdiction;

3. Contractor's disregard of the authority of Engineer; or

4. Contractor's violation in any substantial way of any provisions of the Contract Documents.

B. If one or more of the events identified in Paragraph 15.02.A occur, Owner may, after giving Contractor (and surety) seven days written notice of its intent to terminate the services of Contractor:

1. exclude Contractor from the Site, and take possession of the Work and of all Contractor's tools, appliances, construction equipment, and machinery at the Site, and use the same to the full extent they could be used by Contractor (without liability to Contractor for trespass or conversion),

2. incorporate in the Work all materials and equipment stored at the Site or for which Owner has paid Contractor but which are stored elsewhere, and

3. complete the Work as Owner may deem expedient.

C. If Owner proceeds as provided in Paragraph 15.02.B, Contractor shall not be entitled to receive any further payment until the Work is completed. If the unpaid balance of the Contract Price exceeds all claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) sustained by Owner arising out of or relating to completing the Work, such excess will be paid to Contractor. If such claims, costs, losses, and damages exceed such unpaid balance, Contractor shall pay the difference to Owner. Such claims, costs, losses, and damages incurred by Owner will be reviewed by Engineer as to their reasonableness and, when so approved by Engineer, incorporated in a Change Order. When exercising any rights or remedies under this Paragraph Owner shall not be required to obtain the lowest price for the Work performed.

D. Notwithstanding Paragraphs 15.02.B and 15.02.C, Contractor's services will not be terminated if Contractor begins within seven days of receipt of notice of intent to terminate to correct its failure to perform and proceeds diligently to cure such failure within no more than 30 days of receipt of said notice.

E. Where Contractor's services have been so terminated by Owner, the termination will not affect any rights or remedies of Owner against Contractor then existing or which may thereafter accrue. Any retention or payment of moneys due Contractor by Owner will not release Contractor from liability.

F. If and to the extent that Contractor has provided a performance bond under the provisions of Paragraph 5.01.A, the termination procedures of that bond shall supersede the provisions of Paragraphs 15.02.B, and 15.02.C.

15.03 *Owner May Terminate For Convenience*

A. Upon seven days written notice to Contractor and Engineer, Owner may, without cause and without prejudice to any other right or remedy of Owner, terminate the Contract. In such case, Contractor shall be paid for (without duplication of any items):

1. completed and acceptable Work executed in accordance with the Contract Documents prior to the effective date of termination, including fair and reasonable sums for overhead and profit on such Work;

2. expenses sustained prior to the effective date of termination in performing services and furnishing labor, materials, or equipment as required by the Contract Documents in connection with uncompleted Work, plus fair and reasonable sums for overhead and profit on such expenses;

3. all claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) incurred in settlement of terminated contracts with Subcontractors, Suppliers, and others; and

4. reasonable expenses directly attributable to termination.

B. Contractor shall not be paid on account of loss of anticipated profits or revenue or other economic loss arising out of or resulting from such termination.

15.04 *Contractor May Stop Work or Terminate*

A. If, through no act or fault of Contractor, (i) the Work is suspended for more than 90 consecutive days by Owner or under an order of court or other public authority, or (ii) Engineer fails to act on any Application for Payment within 30 days after it is submitted, or (iii) Owner fails for 30 days to pay Contractor any sum finally determined to be due, then Contractor may, upon seven days written notice to Owner and Engineer, and provided Owner or Engineer do not remedy such suspension or failure within that time, terminate the Contract and recover from Owner payment on the same terms as provided in Paragraph 15.03.

B. In lieu of terminating the Contract and without prejudice to any other right or remedy, if Engineer has failed to act on an Application for Payment within 30 days after it is submitted, or Owner has failed for 30 days to pay Contractor any sum finally determined to be due, Contractor may, seven days after written notice to Owner and Engineer, stop the Work until payment is made of all such amounts due Contractor, including interest thereon. The provisions of this Paragraph 15.04 are not intended to preclude Contractor from making a Claim under Paragraph 10.05 for an adjustment in Contract Price or Contract Times or otherwise for expenses or damage directly attributable to Contractor's stopping the Work as permitted by this Paragraph.

ARTICLE 16 - DISPUTE RESOLUTION

16.01 *Methods and Procedures*

A. Either Owner or Contractor may request mediation of any Claim submitted to Engineer for a decision under Paragraph 10.05 before such decision becomes final and binding. The mediation will be

governed by the Construction Industry Mediation Rules of the American Arbitration Association in effect as of the Effective Date of the Agreement. The request for mediation shall be submitted in writing to the American Arbitration Association and the other party to the Contract. Timely submission of the request shall stay the effect of Paragraph 10.05.E.

B. Owner and Contractor shall participate in the mediation process in good faith. The process shall be concluded within 60 days of filing of the request. The date of termination of the mediation shall be determined by application of the mediation rules referenced above.

C. If the Claim is not resolved by mediation, Engineer's action under Paragraph 10.05.C or a denial pursuant to Paragraphs 10.05.C.3 or 10.05.D shall become final and binding 30 days after termination of the mediation unless, within that time period, Owner or Contractor:

1. elects in writing to invoke any dispute resolution process provided for in the Supplementary Conditions, or

2. agrees with the other party to submit the Claim to another dispute resolution process, or

3. gives written notice to the other party of their intent to submit the Claim to a court of competent jurisdiction.

ARTICLE 17 - MISCELLANEOUS

17.01 *Giving Notice*

A. Whenever any provision of the Contract Documents requires the giving of written notice, it will be deemed to have been validly given if:

1. delivered in person to the individual or to a member of the firm or to an officer of the corporation for whom it is intended, or

2. delivered at or sent by registered or certified mail, postage prepaid, to the last business address known to the giver of the notice.

17.02 *Computation of Times*

A. When any period of time is referred to in the Contract Documents by days, it will be computed to exclude the first and include the last day of such period. If the last day of any such period falls on a Saturday or Sunday or on a day made a legal holiday by the law of the applicable jurisdiction, such day will be omitted from the computation.

17.03 *Cumulative Remedies*

A. The duties and obligations imposed by these General Conditions and the rights and remedies available hereunder to the parties hereto are in addition to, and are not to be construed in any way as a limitation of, any rights and remedies available to any or all of them which are otherwise imposed or available by Laws or Regulations, by special warranty or guarantee, or by other provisions of the Contract Documents. The provisions of this Paragraph will be as effective as if repeated specifically in the Contract Documents in connection with each particular duty, obligation, right, and remedy to which they apply.

17.04 *Survival of Obligations*

A. All representations, indemnifications, warranties, and guarantees made in, required by, or given in accordance with the Contract Documents, as well as all continuing obligations indicated in the Contract Documents, will survive final payment, completion, and acceptance of the Work or termination or completion of the Contract or termination of the services of Contractor.

17.05 *Controlling Law*

A. This Contract is to be governed by the law of the state in which the Project is located.

17.06 *Headings*

A. Article and paragraph headings are inserted for convenience only and do not constitute parts of these General Conditions.

SUPPLEMENTARY GENERAL CONDITIONS

These Supplementary Conditions amend or supplement the General Conditions and other provisions of the Contract Documents as indicated below. All provisions which are not so amended or supplemented remain in full force and effect.

The terms used in these Supplementary General Conditions will have the meanings indicated in the General Conditions. Additional terms used in these Supplementary Conditions have the meanings indicated below, which are applicable to both the singular and plural thereof.

Article 1 – Definitions And Terminology

SC-1.01 Defined Terms

Delete the period at the end of paragraph 1.01.A and add the following language:

; except where the terms “Architect,” “Engineer,” and “Contractor” are preceded by an adjective, the term shall then be understood to refer to the entity describe by the combination of the two words.

SC-1.01.A.19 Engineer

Delete paragraph 1.01.A.19 in its entirety and insert the following in its place:

19. Engineer/Architect – The individual or entity named as Engineer or Architect in the Agreement.

SC-1.01 Defined Terms

Add the following new paragraphs immediately after paragraph 1.01.A.52:

- 53. Architect – The individual or entity named as Architect or ENGINEER in the Agreement
- 54. General CONTRACTOR – The CONTRACTOR as defined in Paragraph 1.01.A.15
- 55. Manufacturer – An individual or entity that manufactures, assembles or fabricates products.
- 56. Products – Systems, materials, manufactured units, equipment, components and accessories used in the Work.
- 57. Engineer’s Consultant – OHM Advisors

Article 2 - Preliminary Matters

SC-2.01 Delivery of Bonds and Certificates of Insurance

Delete paragraph 2.01.A in its entirety and insert the following paragraph(s) in its place:

- A. When Contractor delivers the executed Agreements to Owner, Contactor shall also deliver to Owner, with copies to each additional insured identified herein, certificates of insurance (and other evidence of insurance which Owner or any additional insure may reasonably request) which Contractor is required to purchase and maintain in accordance with Article 5.

When Contractor delivers the executed Agreements to Owner, Contractor shall also deliver to Owner such Bonds as Contractor may be required to furnish in accordance with Article 5. Facsimile, telegraphic, oral or other electronically transmitted Bond will not be considered. Attorneys-in-fact who execute the Bonds on behalf of the Surety shall affix the each Bond a certified and current copy of the power of attorney.

SC-2.02 Copies of Documents: Delete the last sentence of 2.02.A and add the following:

Additional copies of the Project Manual and drawings may be obtained from Owner on the following basis:

Each set of Project Manual and drawings \$55.00 each.

SC-2.03 Commencement of Contract Times; Notice to Proceed

Amend the third sentence of paragraph 2.03.A to read as follows:

In no event will the Contract Times commence to run later than the 120th day after the day of Bid Opening or the 30th day after the Effective Date of the Agreement, whichever date is earlier.

SC-2.05 Before Starting Construction:

Delete 2.05.A.1 and .3 and replace with the following (changes to the original text are identified by underlining):

- A. Preliminary Schedules: Within 10 days after the Effective Date of the Agreement (unless otherwise specified in the General Requirements), the Contractor shall submit to the Engineer for timely review;
1. a preliminary Progress Schedule indicating the times (number of days or dates) for starting and completing the various stages of the Work, including any Milestones specified in the Contract Documents, identifying the critical path for completing the Work, and identifying when all Subcontractors will be utilized, and taking into consideration any limitations on Working Hours;
 3. a preliminary schedule of values for all of the Work, subdivided into component parts in sufficient detail to serve as the basis for progress payments during construction. The schedule of values shall be broken out by trade and split between materials and labor. Prices shall include an appropriate amount of overhead and profit applicable to each item of Work.

Article 3 - Contract Documents: Intent, Amending, Reuse

SC-3.04 Amending and Supplementing Contract Documents

Delete paragraph 3.04.A in its entirety and replace it with the following:

- A. The intent of the Contract Documents is to include all information necessary for the proper execution and completion of the Work by Contractor. The Contract Documents

are complementary, and what is required by one shall be as binding as if required by all. In cases of disagreement, the following order of precedence shall govern (top item receiving priority of interpretation):

- Signed Agreement
- Addendum to the Contract Documents
- Supplementary General Conditions
- General Conditions
- Other Bidding Requirements and Contract Forms
- Special Provisions to the Standard Technical Specifications
- Special Specifications
- Standard Technical Specifications
- Drawings (figured dimensions shall govern over scaled dimensions)
- Project Safety Manual, if applicable

Add the following new paragraph immediately after paragraph 3.04.B:

- B. Owner shall be entitled to deduct from the Contract Price amounts paid to Engineer for Engineer to evaluate and respond to Contractor's requests for information, where such information was available to Contractor from a careful study and comparison of the Contract Documents, field conditions, other Owner-provided information, Contractor-prepared coordination drawings, or prior Project correspondence or documentation.

Article 4 - Availability Of Lands; Subsurface And Physical Conditions; Hazardous Environmental Conditions; Reference Points

SC-4.03 Differing Subsurface or Physical Conditions:

Add the following paragraph 5 to 4.03.A:

- 5. If a public line and/or customer service line is damaged by Contractor, Contractor shall give verbal notice within one (1) hour and written notice within 24 hours to the Owner and Engineer.

SC-4.04 Underground Facilities:

Add the following paragraph C to 4.04:

- C. For protection of underground utilities, the Contractor shall contact "Miss Dig" at 1-800-482-7171 or 811 a minimum of three (3) working days prior to excavating. This does not relieve the Contractor of the responsibility of notifying utility owners who may not be part of the "Miss Dig" alert system.

Article 5 - Bonds and Insurance

SC-5.02 Licensed Sureties and Insurers

Add the following new paragraphs B and C immediately after paragraph 5.02.A:

- B. All Bonds and insurance required by the Contract Documents to be purchased and maintained by Contractor shall be obtained from surety or insurance companies that are authorized to transact business in Michigan and are classified at not lower than the following:
 - 1. Best's Key Rating Guide, current edition:
 - a. Rating Classification: A-
 - b. Financial Size Category: Class V
- C. OWNER may require the surety to obtain reinsurance for any portion of the risk that exceeds 10% of the surety's capital and surplus. For bonds exceeding \$100,000, the surety must also hold a certificate of authority from the U.S. Secretary of the Treasury or have obtained reinsurance from a reinsurer that is authorized as a reinsurer in Michigan and holds a certificate of authority from the U.S. Secretary of the Treasury.

SC-5.03 Certificates of Insurance

Delete paragraph 5.03 in its entirety.

SC-5.04 Contractor's Liability Insurance

Add the following to the end of paragraph 5.04.B.1:

Additional insureds under this paragraph shall include the following:

- a. City of Novi, and its City Council, employees and agents;
- b. OHM Advisors and its owners, agents, and employees

Delete paragraph 5.04.B.6 in its entirety and insert the following in its place:

- 6. remain in effect at least until the end of the correction period and at all times thereafter when Contractor may be correcting removing or replacing defective Work in accordance with paragraph 13.07; and

Amend paragraph 5.04.B.7 by striking out the following words:

and any insurance coverage written on a claims-made basis

Add the following new paragraphs immediately after paragraph 5.04.B.7:

- 8. not be written on a claims-made basis
- 9. be issued by insurers who endorse the policies to reflect that, in the event of payment of any loss or damages, subrogation rights under these Contract Documents will be waived by the insurer with respect to claims against Owner or Engineer.

Add the following new paragraphs immediately after paragraph 5.04.B:

- C. The limits of liability for the insurance required by paragraph 5.04 of the General Conditions shall provide coverage for not less than the following amounts or greater required by Laws or Regulations:
 - 1. Workers' Compensation, and related coverage under paragraphs 5.04.A.1 and A.2 of the General Conditions:

- a. State: Statutory
 - b. Employer's Liability: \$100,000 Each accident
\$500,000 Disease – Policy Limit
\$100,000 Disease – Each Employee
2. Contractor's General Liability under paragraph 5.04.A.3 through A.6 of the General Conditions, which shall included completed operations and product liability coverage and eliminate any exclusion with respect to property under the care, custody and control of Contractor:
- a. General Aggregate \$2,000,000
 - b. Each Occurrence
(Bodily Injury and Property Damage)\$1,000,000
 - c. Property Damage liability insurance shall provide Explosion, Collapse and Underground (XCU) coverage where applicable.
 - d. Contractual liability coverage shall be included in accordance with paragraph 5.04.B.4 of the General Conditions.
3. Automobile Liability under paragraph 5.04.A.6 of the General Conditions (including hired and non-owned vehicles):
- a. Bodily Injury:
 - Each Person \$1,000,000
 - Each Accident \$1,000,000
 - b. Property Damage:
 - Each Accident \$1,000,000
 - c. Combined Single Limit:
 - Each Accident \$1,000,000
 - d. MCS 90 Endorsement on Vehicle Insurance: Statutory
4. Provide Umbrella Liability coverage under the following conditions, providing coverage for not less than the indicated amounts:
- a. The carrier shall agree to the underlying policies
 - b. Coverage shall be at least as broad as that in the covered policies
 - c. Shall cover Contractor's Liability Insurance and Automobile Liability Insurance
 - d. Coverage Limit:
 - Each Occurrence: \$3,000,000
 - Products Completed Operations Aggregate \$3,000,000
 - Other Aggregate \$3,000,000
- Limits are for the term of the program. Products Completed Operations Aggregate limits apply as a single limit for the full term.
5. Provide Owner's and Contractor's Protective (OCP) Liability Insurance in the principal name of Owner to protect against claims for damages because of bodily injury or death, and for property damage caused by the Contractor,

Subcontractors, and anyone engaged, employed, or contracted with on their behalf, including coverage for costs of defense from all such claims, with limits of liability for bodily injury including death not less than \$1,000,000 per occurrence and \$3,000,000 aggregate limit. Limits of liability for property damage shall not be less than \$1,000,000 per occurrence and \$3,000,000 aggregate limit. The named insured shall be Owner, its city council members, individual employees and agents, the Engineer and its owners, agents, and employees. The City must be provided copies of the actual policies of insurance described in the certificate and the OCP binder.

SC-5.06 Property Insurance

Add the following language at the end of paragraph 5.06.A.1:

Additional insureds under this paragraph shall include the following:

- a. OHM Advisors

Add the following language immediately after paragraph 5.06.A.2

and shall also include flood, start-up and testing, offsite storage, and boiler and machinery insurance;

Add the following new paragraph immediately after paragraph 5.06.A.7:

8. be issued by an insurer who endorses the policy to reflect that, in the event of payment of any loss or damages, subrogation rights under these Contract Documents will be waived by the insurer with respect to claims against the Owner of Engineer.

Delete paragraph 5.06.B in its entirety and insert the following in its place:

B. Coverage for boiler and machinery insurance shall be provided as part of the property insurance required by paragraph 5.06.A.

SC-5.07 Waiver of Rights

Delete paragraph 5.07.B in its entirety.

Delete paragraph 5.07.C in its entirety

SC-5.09 Acceptance of Bonds and Insurance; Option to Replace

Amend the first sentence of paragraph 5.09.A to read as follows after words “in writing:”

within 10 days after the receipt of the bonds and certificates (or other evidence requested) required by paragraph 2.01.

Article 6 – Contractor’s Responsibilities

SC-6.06 Concerning Subcontractors, Suppliers and Others

Add the following sentence at the end of paragraph 6.06C:

Owner or Engineer may furnish to any such Subcontractor, Supplier or other individual or entity, to the extent practicable, information about amounts paid to Contractor on account of Work performed for Contractor by a particular Subcontractor, Supplier, or other individual or entity.

Add the following subsection H:

- H. Contractor shall pay each Subcontractor under this Contract for satisfactory performance of its contract no later than ten (10) Calendar Days from the Contractor's receipt of payment from Owner. Contractor shall return retainage payments to each Subcontractor within 10 Calendar Days after the Subcontractor's work is satisfactorily completed. Any delay or postponement of payment from the above referenced time frame may occur only for good cause following written approval from Owner.

SC-6.08 Permits

Add the following language at the end of paragraph 6.08.A:

Additional provisions regarding permits and licenses are included in the General Requirements.

SC-6.09 Laws and Regulations

Delete the last sentence of paragraph 6.09 B.

SC-6.14 Safety Representative

Add the following language to the end of paragraph 6.14 A:

At a minimum, the safety representative will be certified in personal protective equipment, hazard communication, demolition and blasting, excavation, hand and power tools, welding and cutting, cranes, derricks, hoists, conveyors, scaffolding, confined space, CPR and first aid.

Add the following subsection B:

- B. In the event there is an accident involving injury to any individual or damage to any property on or near the Work, Contractor shall provide to Owner and Engineer verbal notification within one hour and written notification within twenty-four hours of the event and shall be responsible for recording the location of the event and the circumstances surrounding the event through photographs, interviewing witnesses, obtaining medical reports, police accident reports and other documentation that describes the event. Copies of such documentation shall be provided to Owner and Engineer, within forty-eight hours of the event.

Article 10 – Changes In The Work

SC-10.03 Execution of Change Orders

Add the following new paragraph 4 after 10.03 A.3:

4. upon receipt of a change order, Contractor shall promptly proceed with the change in the Work involved.

SC-10.05 Claims

Amend Paragraph 10.05.E to state as follows:

E. Engineer's written action under Paragraph 10.05C or denial pursuant to 10.05.C.3 or 10.05 D will be final. Notwithstanding any applicable statute of limitations, a party giving written notice to the other party of its intent to submit the Claim to a court of competent jurisdiction shall commence an action on the Claim within one year of giving such notice. Failure to do so shall result in the Claim being time barred and Engineer's action or denial shall become final and binding.

Article 11 – Cost of the Work; Cash Allowances; Unit Price Work

SC-11.03 Unit Price Work

Delete paragraph 11.03.D.1 in its entirety and insert the following in its place:

1. the total cost of a particular item of Unit Price Work amounts to 10% or more of the Contract Price and the variation in the quantity of that particular item of Unit Price Work performed by Contractor differs by more than 25% from the estimated quantity of such item indicated in the Agreement; and

Article 12 – Change of Contract Price; Change of Contract Times

SC-12.01 Change in Contract Price

Amend paragraphs 12.01.B.2 and 12.01.B.3 by adding the following words after the term "lump sum:"

or unit price

Article 14 – Payments to the Contractor and Completion

SC-14.02.A Applications for Payment

Add the following paragraph immediately after paragraph 14.02.A.3:

4. Contractor shall indicate on the Application for Payment the amounts which are due to Owner from Contractor in accordance with the Contract Documents and which amounts Owner may deduct from the progress payment.

SC-14.02.B Review of Applications

Add the following new paragraphs immediately after paragraph 14.02.B.5.d:

- e. Contractor has incurred liability for other costs in accordance with Contract Documents
- f. of Contractor's failure to maintain record documents in accordance with paragraph 6.12.

SC-14.02 Reduction in Payment

Add the following paragraph immediately after paragraph 14.02.D.1.d:

- e. Contractor fails to maintain weekly payroll reports or fails to provide copies in a timely manner upon request of Owner.

SC-14.04 Substantial Completion

Add the following language at the beginning of paragraph 14.04.C:

Except as otherwise provided in paragraphs 14.04.F and G,

Add the following paragraphs 14.04.F and G:

- F. For water and sewer lines construction, Substantial Completion means that the Work, including all testing and disinfection, have been completed and accepted and the line(s) placed into service otherwise a certificate of Substantial Completion will not be issued. Work that remains after Substantial Completion may include the final pavement of roadways, adjustment of structures to final grade and landscaping. The Engineer will issue a notice specifying what portion of the Work is partially completed for the purpose of payment and what Work remains to be done on the portion being accepted as Substantially Complete. This subsection 14.04.F changes the 1.01.45 General Conditions definition of Substantial Completion.
- G. For roadway construction or reconstruction, Substantial Completion means that the Work, including the final surface course, all permanent traffic control devices (pavement markings, signs, etc.), punch list items, and final cleanup has been completed, accepted, and placed into service, and, any traffic signal or street lighting conduit that has been installed, lowered or relocated must be inspected for usability by, and must have received written approval from, the City's Department of Public Works, as well as having been completed, accepted, and placed into service otherwise a certificate of Substantial Completion will not be issued. Work that remains after Substantial Completion includes final clean up and the posting of financial guarantees. The Engineer will issue a notice specifying what portion of the Work is partially completed for the purpose of payment and what Work remains to be done on the portion being accepted as Substantially Complete. This subsection 14.04.F changes the 1.01.45 General Conditions definition of Substantial Completion.

Article 15 – Suspension of Work and Termination

SC-15.02 Owner may Terminate for Cause

Add the following new paragraph immediately after paragraph 15.02.A.4:

5. Contractor has filed a bankruptcy petition and neither Contractor nor trustee has either assumed or rejected this Contract within 30 days after the filing of the bankruptcy petition;

Article 16 – Dispute Resolution

Add the following new paragraph 16.01D:

D. Notwithstanding any applicable statute of limitations, a party giving notice under paragraph SC-16.01.C.3 Shall commence an action on the Claim within one year of giving such notice. Failure to do so shall result in the Claim being time barred and Engineer's action or denial shall become final and binding.

Article 17 - Miscellaneous

Add new subsection 17.07

SC-17.07 Owner's Right to Audit:

- A. Records means all records generated by or on behalf of Contractor and each Subcontractor and Supplier of Contractor, whether paper, electronic, or other media, which are in any way related to performance of or compliance with this Contract, including, without limitation: accounting records; written policies and procedures; subcontract files (including proposals of successful and unsuccessful bidders, bid recaps, etc.); original estimates and estimating work sheets; correspondence; change order files (including documentation covering negotiated settlements); back charge logs and supporting documentation; general ledger entries detailing cash and trade discounts earned, insurance rebates and dividends; lump sum agreements between Contractor and any Subcontractor or Supplier; records necessary to evaluate: Contract compliance, Change Order pricing, and any Claim submitted by Contractor or any of its payees; and any other Contractor record that may substantiate any charge related to this Contract.
- B. Contractor shall allow Owner's agent or its authorized representative to inspect, audit, or reproduce, or all three, all Records generated by or on behalf of Contractor and each Subcontractor and Supplier, upon Owner's written request. Further, Contractor shall allow Owner's agent or authorized representative to interview any of Contractor's employees, all Subcontractors and all Suppliers, and all their respective employees.
- C. Contractor shall retain all its Records, and require all its Subcontractors and Suppliers to retain their respective Records, during this Contract and for three years after final payment, until all audit and litigation matters that Owner has brought to the attention of Contractor are resolved, or longer if required by law, whichever is longer. Owner's right to inspect, audit, or reproduce Records, or interview employees of Contractor or its respective Subcontractors or Suppliers exists during this Contract, and for three years after final payment, until all audit and litigation matters that Owner has brought to Contractor's attention are resolved, or longer if required by law, whichever is longer, and at no cost to Owner, either from Contractor or any of its Subcontractors or Suppliers that may furnish Records or make employees available for interviewing.
- D. Contractor must provide sufficient and accessible facilities during its normal business hours for Owner to inspect, audit, or reproduce Records, or all three, and to interview any person about the Records.

- E. Contractor shall insert these requirements in each written contract between Contractor and any Subcontractor or Supplier and require each Subcontractor and Supplier to comply with these provisions.

END OF DOCUMENT

EARTHWORK

Table of Contents

General

1. Scope of Work
2. MDOT

Materials

3. Bedding
4. Backfill
5. Stone Refill
6. Embankment

Construction

7. Clearing
8. Tree Removal
9. Stump Removal
10. Pavement Cuts
11. Classification of Excavation
12. Roadway Earthwork
13. Methods of Excavation in Earth
14. Trench Excavation
15. Transport of Native Materials Offsite
16. Stone Refill for Trench Undercut
17. Excavation & Trench Dewatering
18. Diverting Existing Sewers
19. Sheet piling, Bracing & Shoring
20. Sheet piling Left in Place
21. Crossing Existing Structures/Pipes
22. Tunneling Trees
23. Backfilling
24. Placing and Compacting Embankment
25. Disposal of Excavated Material
26. Final Cleanup & Grading
27. Contractor Safety Requirements

GENERAL

1. SCOPE OF WORK

This work shall be subject to the General Conditions and the General Specifications. The work shall include furnishing of labor, materials, tools, equipment, accessories, and services necessary for completing the excavation and backfilling for the items as shown on the contract drawings and/or as herein required. This also includes trenching, trench or subgrade undercutting, roadway earthwork, complete and continual drainage of excavation, sheeting, bracing, and shoring of sides of the excavation, backfilling around structures and over pipelines, and the disposal of excess excavated material.

2. MDOT

References to Michigan Department of Transportation (MDOT) Specifications shall pertain to the 2020 Standard Specifications for Construction, or the most recent publishing of these Standard Specifications.

MATERIALS

3. BEDDING

- A. Sand shall be a sharp, clean sand free of lumps of clay or debris with 100 percent passing a 3/8-inch sieve and less than 10 percent loss by wash.
- B. Granular material shall meet the requirements of Section 902.07 of the MDOT Standard Specifications for Construction for Granular Material Class II and Class III.
- C. Pea gravel shall be unwashed and shall be from 1/4-inch to 5/8-inch in size.
- D. Bedding material shall be provided from offsite unless the trench passes through a well-defined strata of sand or gravel. Bedding material shall be subject to the approval of the ENGINEER.
- E. Stone material shall meet the requirements of Section 902.03 of the MDOT Standard Specifications for Construction for 6A crushed Coarse Aggregate or approved equal.

4. BACKFILL

A. Job Excavated Backfill

Job excavated backfill shall be defined as material excavated from the site that is free from frozen earth, boulders, rocks, stones larger than 3-inch in size, debris, blue and gray clay, and organic material.

B. Granular Backfill

Granular backfill shall be defined as sharp sand, gravel, or crushed stone that is free from lumps of clay and soft or flaky material and shall conform to the latest MDOT Specification for Granular Material Class II or III. Granular backfill shall be used for fill work located under or within the influence of roadway surfaces. The Owner's standard details shall dictate which type of granular material (class II or III) is required for the project.

Material excavated from the trench may be used as granular backfill when, in the opinion of the ENGINEER, it meets the granular backfill grading requirements.

5. STONE REFILL

Stone refill shall consist of natural gravel, slag, or crushed gravel that is equivalent in gradation to MDOT 6A unless otherwise called for in the plan details.

6. EMBANKMENT

Embankment material shall consist of sound earth as described in Section 205.03H of the MDOT Standard Specifications for Construction.

CONSTRUCTION

7. CLEARING

Prior to the start of construction, the CONTRACTOR shall verify the limits of trees and other items that are to be saved. The CONTRACTOR shall then clear the site or trench excavation area of all remaining trees, brush, and other miscellaneous items that are not to be saved.

8. TREE REMOVAL

Where called for on the plans, the CONTRACTOR shall remove trees, including stump and main roots, and dispose of all associated foliage and debris offsite. Trees less than six (6) inch diameter shall be removed where required by the Work as incidental to the Contract. The CONTRACTOR shall abide by any easement agreements regarding the tree removal work and wood ownership.

9. STUMP REMOVAL

Where called for on the plans, the CONTRACTOR shall remove existing stumps, including main roots (two (2) inch diameter and larger), dispose of all associated debris offsite, and backfill the void with suitable material.

10. PAVEMENT CUTS

Where a trench must be cut through pavement, driveway, or sidewalk, particular care shall be taken to avoid unnecessary damage to adjoining areas of the pavement, driveway or sidewalk. All cuts through existing surfaces shall be made full-depth with a concrete saw. Cuts in concrete pavement shall be made parallel with longitudinal and transverse construction or contraction joints.

Saw cuts in concrete pavement shall not be nearer than five feet (5'-0") to a transverse joint, to the centerline of pavement, or to the edge of pavement or curb, i.e., no existing or replacement pavement shall be less than five feet (5'-0") in width. If the damaged pavement or surfacing is nearer than five feet (5'-0") to a joint or centerline of pavement, or to edge of pavement, surfacing or curb, removal and replacement shall be extended to said joint, centerline, edge of pavement, surfacing, or curb. These same requirements shall apply to the saw cutting and replacement of concrete driveways.

If a square or block of sidewalk is cut, broken, or cracked, the entire square or block shall be removed and replaced.

11. CLASSIFICATION OF EXCAVATION

Earth, as a name for excavated material, shall include all glacial deposits whether cemented or not, except solid boulders one-half cubic yard or more in volume. It shall also include all alluvial deposits and

material of every kind that can be excavated with equal facility by the equipment and means typically used for earth excavation.

Peat, as a name for excavated material, shall include all unstable organic soils such as peat, muck, marl, and underlying very soft clay.

Rock, as a name for excavated material, shall include pre-glacial solid ledge rock that can be removed most practically by blasting, barring or wedging, or by some other standard method of quarrying solid rock. It shall also include solid boulders of one-half cubic yard or more in volume as well as existing concrete, masonry with mortar joints, or other existing structural work that can be excavated practically only by methods of quarrying solid rock. It shall not include fragile, friable, or disintegrated materials of any kind that can be excavated by equipment and means used for earth excavation.

12. ROADWAY EARTHWORK

Roadway earthwork shall be performed in accordance with the construction methods that are described in Section 205 of the MDOT Standard Specifications for Construction unless otherwise called for in the plan notes, details, or supplemental specifications.

13. METHODS OF EXCAVATION IN EARTH

All excavation shall be by open cut from the surface, except in special cases where boring/jacking under pavement or structures may be required, or where boring/jacking under the root system will be required for tree root protection. All excavation shall be made in such a manner and to such depth, length, and width as will give ample room for building the structures, bracing, sheeting and supporting the sides of the excavation, pumping and drainage of ground water and sewage which may be encountered, and removal of all materials excavated. Special care shall be taken so that the soil below the bottom of structures to be built shall be left undisturbed so that a firm bed will be provided for construction. Any voids shall be backfilled with suitable granular material and shall be properly compacted.

14. TRENCH EXCAVATION

A. General

Excavation shall be of sufficient width and depth to provide adequate room for construction and installation of the work to the lines, grades and dimensions called for on the plans. Unless otherwise called for on the OWNER's standard details, the width of a trench from the invert to a height twelve (12) inches above the top of the pipe barrel shall be indicated as follows:

Pipe Size	Maximum Trench Width
4" through 12"	30"
Larger than 12"	O.D. + 24"

If the maximum trench width as specified above is exceeded, unless otherwise shown on the drawings, the CONTRACTOR shall install, at their expense, such concrete cradling or other bedding as is approved by the ENGINEER, to support the added load of the backfill.

Where trench excavation is in granular material, the last six (6) inches of trench depth shall be carefully excavated and trimmed by hand to the exact elevation and contour of pipe. Where trench excavation is in

rock or clay soil, the trench bottom shall be undercut a minimum of four (4) inches below the final elevation of pipe. The bedding material as hereinafter specified shall be placed and compacted to the underside of the pipe.

Excavation for structures shall be made to the outside lines and surfaces of such structures wherever it is practicable to build directly against the sides and bottoms of excavations. In such cases, care shall be taken not to disturb the original foundation or backing. Final trimming shall be done by hand just before construction of the structure. If excess excavation is made, or the material becomes disturbed so as to require removal beyond the prescribed limits, the resulting space shall be refilled with bedding, as specified hereinafter, and solidly machine tamped into place to 95 percent of maximum unit weight before the construction work proceeds.

Excavation for structures shall be extended sufficiently beyond the limits of the structure to provide ample room for form construction and other construction methods to be followed, wherever necessary.

B. Bedding

Where the subgrade below the bottom of the pipe is disturbed during the construction, the space shall be refilled with sand or pea gravel bedding material solidly tamped to form a firm foundation for the pipe. Sand or pea gravel bedding material shall be extended to one (1) foot above the pipe, except that the bedding shall be exclusively pea gravel to the springline for pipe 36-inch and greater in diameter.

C. Amount of Trench Opening

Not more than 50 feet of trench shall be open at one time in advance of the pipe unless permitted by the ENGINEER. The length of street that may be occupied by the construction work at any one time shall be subject to the direction of the ENGINEER and will be based on requirements of the use of the street by the public. No more than 600 consecutive feet of street length shall be occupied at one time, and vehicle traffic through the street shall not be entirely stopped without permission of the ENGINEER.

After placement of the utility line, the Contractor shall backfill the trench promptly in order to minimize the length of open trench and avoid any unsafe conditions.

15. TRANSPORT OF NATIVE MATERIALS OFFSITE

If the CONTRACTOR encounters good materials (sand, gravel, topsoil, etc.) during the course of construction, the CONTRACTOR shall not be allowed to transport these materials offsite without the written approval of the ENGINEER. Wherever possible, suitable native sands and gravels shall be used as backfill rather than transporting them offsite and replacing them with non-native materials of a lesser quality.

16. STONE REFILL FOR TRENCH UNDERCUT

In locations where soil at the bottom of trench is unstable, the CONTRACTOR shall excavate (undercut) below the trench bottom and place stone refill as called for in the Materials Section of this specification.

17. EXCAVATION & TRENCH DEWATERING

The CONTRACTOR shall maintain any excavation or trench free of water during construction of any structures and/or pipelines. Water accumulated due to rainfall or runoff and minor groundwater inflow that can be controlled through the use of portable trash, submersible or positive displacement pumps shall be considered normally expected and anticipated conditions associated with underground construction. This effort will be considered incidental to the cost of construction and will not be reimbursable at the unit price bid for dewatering in the proposal.

The required use of deep wells and/or well points to lower and maintain a reduction in the groundwater elevation below the trench bottom shall be subject to approval of the ENGINEER and shall constitute a reimbursable expense for trench or excavation dewatering. If a pay item for dewatering is included in the Bid Form, then the CONTRACTOR would receive payment for this work based upon the unit bid price. If there are no provisions in the contract for payment for dewatering (i.e. bid item or incidental to other pay items), then the CONTRACTOR shall submit a detailed estimate of the additional cost. Upon acceptance of the CONTRACTOR's estimate, the ENGINEER shall issue a change order. The CONTRACTOR must demonstrate that a continuous effort is required to control hydrostatic pressure in the construction area in order to claim compensation for dewatering.

The CONTRACTOR shall take adequate precautions to control the discharge of dewatering pumps so as to prevent soil erosion or sedimentation of drainage ditches, structures, storm sewers, culverts, natural drainage courses, ponds, lakes or wetlands.

The CONTRACTOR shall insure that discharge from any dewatering operations has a suitable outlet and that it will not cause any damage to adjacent dwellings or property. Water and discharge hoses shall be placed and/or controlled so as to prevent a hazard to pedestrians or motor vehicles passing in the vicinity of the construction site.

Electric pumps shall have suitable power supply appurtenances meeting NEC requirements and properly fused and grounded to prevent electrical shock hazards to on-site personnel.

Internal combustion engine driven pumps, if operated 24 hours per day, shall have adequate exhaust silencers in good repair to muffle engine noise to an acceptable level for the area where located.

18. DIVERTING EXISTING SEWERS

Where existing sewers or drains are encountered in the Work, adequate provision shall be made for diverting flow in the existing sewers so that the excavation will be kept dry during the progress of the construction work. Upon completion of the construction work, the existing sewers shall be restored or otherwise provided with an adequate outlet as directed by the ENGINEER.

19. SHEETING, BRACING & SHORING

Where required to properly support the surfaces of excavations to protect the construction work, adjacent work or workers, sheeting, bracing and shoring shall be provided. If the ENGINEER is of the opinion that at any point sufficient or proper supports have not been provided, they may order such additional supports at the expense of the CONTRACTOR, but neither the placing of such additional supports by the order of the ENGINEER nor failure of the ENGINEER to order such additional supports placed shall release the CONTRACTOR from responsibility for the sufficiency of such supports and the integrity of the Work. In removing the sheeting and bracing after the construction has been completed, special care shall be taken

to prevent any caving of the sides of the excavation and injury to the completed work or to the adjacent property.

20. SHEETING LEFT IN PLACE

Sheeting, bracing and shoring shall not be left in place after completion of the work except as required by the ENGINEER. Where sheeting, bracing, and shoring must be left in place in order to protect the work, adjacent structures, or property, it shall be cut off or left not less than two (2) feet below the established surface grade. If sheeting, shoring or bracing must be left in place, then it shall be paid for at the contract unit bid price that is shown on the Bid Form. If a pay item was not included on the Bid Form, then a work order shall be negotiated.

21. CROSSING EXISTING STRUCTURES/PIPES

During construction, it may be necessary to cross under certain sewers, drains, culverts, water lines, gas lines, electric conduits and other underground structures. Every effort shall be made to prevent damage to such structures. Wherever such structures are disturbed or broken, they shall be restored to good condition. Specified granular backfill shall be placed as described in Section 23, Backfilling. MDOT Grade S3 concrete shall be utilized where directed by the ENGINEER at no additional cost to the project. Either granular backfill or concrete shall be brought to the spring line of the higher utility.

22. TUNNELING TREES

Trees eight (8) inches in diameter or less will require a minimum tunnel length of eight (8) feet. Trees over eight (8) inches in diameter, measured four (4) feet above the ground surface, will require a minimum tunnel length equal to one foot for each inch of tree diameter.

Trees shall be tunneled whenever any portion of an excavation approaches within a distance equal to one-half the required tunnel length except as otherwise noted on the plans.

Tunneling under trees may be accomplished by one of the following methods:

- a. Boring and jacking casing pipe along with placement of a carrier pipe.
- b. Boring and jacking sewer pipe or water main without a casing pipe.
- c. Jacking sewer pipe or water main without boring and without a casing pipe.

Plan notes or existing field conditions shall indicate which method may be used for the tree tunneling work.

23. BACKFILLING

A. General

Backfilling shall include all work required as hereinafter specified. The placement of various pipe, including bedding and building of structures, shall be completed prior to backfilling.

Where called for on the plans, the CONTRACTOR shall backfill trenches and/or other excavations with suitable excavated material (not including gray or blue clay) replaced into the trench or excavation and compacted to not less than 95 percent of maximum unit weight as determined at existing moisture content

during backfilling. Compaction shall be provided by means of suitable mechanical compaction equipment.

If the moisture content of cohesive backfill material exceeds the optimum moisture content for maximum density by more than three percent (3%), the CONTRACTOR shall dry the material to meet the foregoing moisture content limitation or provide, at their own expense, MDOT Granular Material Class III. No sloppy or wet backfill will be allowed.

Maximum unit weight will be determined by current methods of Test for Compaction and Density of Soil, AASHTO Designation T-180 or by the Cone Density Method developed by MDOT, as the material may require.

The ENGINEER shall make compaction tests at all locations requiring granular backfill.

Any depression resulting from settlement of any backfill prior to the date of final payment for all work under this contract shall be brought to the proper grade and surface and made to match the adjacent surface.

B. Materials

Bedding, excavated backfill, and granular backfill shall conform to the requirements that were previously described in Parts 3 and 4 of this specification.

C. Compaction

Backfill material shall be placed in layers not to exceed 12 inches in thickness unless the CONTRACTOR can demonstrate to the satisfaction of the ENGINEER that they can consistently attain the specified density on thicker lifts.

Specified compaction shall be obtained with the use of a bulldozer, sheepsfoot roller, mechanical tamper or other similar and effective equipment. Specified compaction means not less than 95 percent (not average 95 percent) of maximum unit weight when tested in accordance with current MDOT Specifications.

If excavated material is not suitable to obtain 95 percent minimum compaction, the CONTRACTOR shall, at their expense, remove unsuitable materials or add granular materials, or both, to obtain ninety-five percent (95%) minimum compaction as specified.

Compaction tests will be made by a representative of the OWNER and paid for by the OWNER, unless otherwise specified in the Contract Documents.

D. Backfilling Trenches

Bedding

The type of bedding required is shown on the detail drawings.

Bedding shall be worked under the haunches of the pipe to provide firm continuous support.

Bedding placed on the sides of and above the pipe shall be compacted by machine tamping to not less than ninety-five percent (95%) of maximum unit weight in layers not exceeding 12 inches in depth.

Trench or Excavated Area

All trenches in paved streets, shoulders, traveled roadways, parking areas and driveways shall be backfilled with suitable excavated backfill or granular backfill, as shown on the drawings from one (1) foot above top of pipe up to the required subgrade elevation which will allow for placement of the required gravel base and/or pavement surface. The approved excavated backfill or granular backfill shall be placed and thoroughly and uniformly compacted by machine tamping to the specified compaction. With the approval of the ENGINEER, water jetting may be accepted in lieu of tamping for granular backfill only.

Specified compaction shall be required of the entire trench when the edge of trench is within three (3) feet of edge of pavement. On road crossings, specified compaction shall extend ten (10) feet beyond the edge of pavement for paved roadways with gravel shoulders or shall extend three (3) feet beyond the back of curb for roadways with curb.

Trenches under concrete sidewalks and bike paths shall be backfilled from one foot above top of pipe to a level four (4) inches below finished grade of the sidewalk with approved suitable excavated backfill or granular backfill and compacted to ninety-five percent (95%) maximum density.

Trenches not in paved streets, shoulders, traveled roadways, parking areas, driveways or under sidewalks, shall be backfilled from one (1) foot above the top of the pipe up to the ground surface (except as noted under the Restoration Specification) with suitable excavated backfill and shall require compaction equal to adjacent undisturbed earth.

Wherever gas mains, water mains, sewers, or other utilities are located in the trench area, granular backfill shall be used for backfill from bottom of the trench up to the springline of the pipes. Granular backfill shall be placed across the full trench width and extend far enough either side of the existing pipe to allow specified compaction so as to thoroughly support the pipe within the trench area.

E. Backfilling Around Structures

As soon as practicable after concrete structures have set, forms and debris shall be removed and the surface of the concrete pointed. After the structure has been checked and approved, the excavated area around the structure shall be backfilled up to specified subgrade with granular material or suitable excavated material as called for on the drawings for the adjacent trench. The fill shall be thoroughly compacted by machine tamping. No large boulders or masonry shall be placed in backfill. No backfill will be placed against manhole walls within 48 hours after the plaster coat has been applied to the outside of the walls nor shall backfill be placed about concrete structures until concrete has attained at least 75 percent of its design strength and approval of the ENGINEER has been obtained.

24. PLACING AND COMPACTING EMBANKMENT

Embankment material for fill work shall be placed and compacted in accordance with Section 2.05.03H of the MDOT Standard Specification for Construction.

25. DISPOSAL OF EXCAVATED MATERIAL

After all suitable excavated material has been used on site, the CONTRACTOR shall be responsible for properly removing and disposing of the excess.

The CONTRACTOR shall also be responsible for disposing of all other excavated materials that are unsuitable for use as fill or backfill. Unsuitable materials may include, but are not limited to, broken concrete, asphalt, rock, stone, and other related debris. The CONTRACTOR shall be required to obtain a disposal areas and permits and shall receive no additional compensation for this disposal work.

Surplus or unsuitable material shall not be disposed of either temporarily or permanently beyond the plan grading limit line or across any wetland or flood plain unless the plans provide for such placement.

Any agreements that the CONTRACTOR makes with local residents concerning the placement of fill on private property shall be the sole responsibility of the CONTRACTOR. The OWNER will not become involved with any such agreements and will not be liable for damages that the CONTRACTOR may cause to private property.

Placement of fill on private property may require that the resident or CONTRACTOR obtain a grading permit or fill permit from the OWNER.

26. FINAL CLEANUP & GRADING

Upon completion of the construction, and before final payment is made, the CONTRACTOR shall restore the working area to as clean a condition as existed before operations were started. The CONTRACTOR shall go over the entire line and refill any place that may have settled. The CONTRACTOR shall then re-grade and put in shape all backfilled trenches, all fills that may have been made from excess excavated materials, and all other areas that may have been disturbed through all operations.

27. CONTRACTOR SAFETY REQUIREMENTS

The excavation and trenching operations shall be conducted by the CONTRACTOR in a manner that will provide safe working conditions for all persons on the site who may be affected by the Work. The CONTRACTOR shall also conduct operations in a manner that will protect adjacent property from damage.

Trench sides shall be either cut back to the slope as necessitated by soil and ground water conditions which will provide stable sides or supporting systems shall be installed that are capable of restraining the earth sides from movement. A qualified employee of the CONTRACTOR shall design the trench supporting systems.

The CONTRACTOR shall employ, at all times at the site of the work, a qualified person who will be responsible for the safety of both the work and workmen, and who will make all the decisions relevant to the stability of trenches, the adequacy of any and all protective devices, proper operation of equipment, and all other matters related to safety.

The CONTRACTOR shall not store, along and adjacent to the trench, excavated material, heavy equipment, backfill materials, sewer pipe, or other construction materials which may impose too great a load on the earth and cause displacement or caving of the earth. The CONTRACTOR shall, at all times, provide a safe means of emergency exit from all trench excavations.

End of Section

RESTORATION

Table of Contents

General

1. Scope of Work
2. Shop drawings
3. MDOT Standards

-

Materials

4. Aggregate
5. Bituminous Surface, Leveling, & Base Courses
6. Concrete Pavement, Sidewalks, Curb & Gutter
7. Topsoil
8. Seed & Fertilizer
9. Mulch & Mulch Blankets
10. Sod
11. Fencing
12. Trees & Shrubs
13. Timber Posts
14. Traffic Signs & Posts

-

Construction

15. Pavement Striping
16. Pavement Restoration
17. Turf Establishment
18. Fencing
19. Guardrail
20. Tree & Shrub Planting
21. Mailboxes
22. Traffic Signs & Posts
23. Permanent Pavement Striping
24. Drainage Structures, Culverts, & Ditches
25. Progress of Final Restoration

GENERAL

1. SCOPE OF WORK

This work shall be subject to conditions of the General Conditions, General Specifications and include the furnishing of labor, materials, tools, accessories, equipment and services necessary for restoration of the surfaces shown on the Contract drawings and/or as herein required.

This work shall include replacement of all permanent type roadway surfaces, concrete sidewalks, curb and gutters, driveways, trees, culverts, fences, ditches, and miscellaneous items damaged or removed due to construction. Disposal of excess or unsuitable materials shall be considered as part of the restoration work. All such work shall be in accordance with the best modern practice, the OWNER's standards, and as specified herein.

Prior to performing work under this section, the CONTRACTOR shall submit to the ENGINEER for approval their construction methods and design mixes, sieve analysis and/or certification of compliance with the 2020 Michigan Department of Transportation (MDOT) Standard Specifications for Construction, or current edition of these standards, except where otherwise noted. No permanent surface restoration shall be performed until all underground work has been approved.

In the event that these specifications conflict with those of the OWNER or the controlling agency, the more stringent requirements shall govern.

2. SHOP DRAWINGS

When required by the ENGINEER, shop drawings shall be furnished as prescribed under the General Conditions.

Before the CONTRACTOR orders any restoration materials that they are proposing to use as substitutes for specified items, they shall submit details of the substitutes to the ENGINEER for consideration and approval.

3. MDOT STANDARDS

References to the Michigan Department of Transportation (MDOT) Specifications shall pertain to the 2020 Standard Specifications for Construction, or the most recent publishing of these standards.

MATERIALS

4. AGGREGATE

a. Gravel Approaches and Roads

Natural aggregate shall be used for gravel approach (driveways) and road restoration and shall meet the requirements of MDOT 21AA or 22A as shown in Table 902-1 of the MDOT Standard Specifications for Construction.

b. Shoulders

Natural aggregate shall be used for shoulders and shall meet the requirements of MDOT 21AA, 22A, or 23A as shown in Table 902-1 of the MDOT Standard Specifications for Construction.

c. Base Course

Natural aggregate shall be used for base course construction and shall meet the requirements of MDOT 21A, 21AA, or 22A as shown in Tables 902-1 and 902-2 of the MDOT Standard Specifications for Construction.

5. HOT MIX ASPHALT SURFACE, LEVELING, & BASE COURSES

Hot mix asphalt materials used for pavement construction shall meet the requirements of section 501.02 of the MDOT Standard Specifications for Construction or the requirements of the controlling agency as called for on the construction plans.

6. CONCRETE PAVEMENT, SIDEWALKS, CURB & GUTTER

Concrete used for pavement, sidewalk, and curb and gutter construction shall meet the requirements of MDOT grade P1 concrete or the requirements of the controlling agency as called for on the construction plans. MDOT grade P-NC may also be used where circumstances require the use of a high-early strength concrete. Refer to Table 601-2 of the MDOT Standard Specifications for Construction.

7. TOPSOIL

Topsoil shall be screened and shall consist of loose, black-colored soil that is suitable for the growth of grass seed or sod. The topsoil shall be obtained from the upper layer of an existing fertile soil and be free of limbs, twigs, rocks, stones, muck, roots, debris, etc. and containing organic matter rich in nutrients with negligible clay content.

Topsoil shall meet the following requirements:

- a. The pH range shall be from 6.0 to 7.5. Topsoil outside of this range shall be amended by the addition of pH adjusters as approved by the ENGINEER.
- b. The organic matter content shall range between 2% and 6% (by dry sample weight).
- c. The soil texture shall be a sandy loam, silt loam, or loam where the sand, silt, and clay contents (by dry sample weight) fall within the following ranges:

Sand..... 40% to 65%
 Silt..... 25% to 60%
 Clay..... 5% to 15%

- d. The gradation shall be as follows:

Sieve Designation	% Passing
1 inch screen	100
0.25 inch screen	97 - 100
No. 10 U.S.S. mesh sieve	95 - 100
No. 140 U.S.S. mesh sieve	15 - 35

- e. The soil salinity as measured by the electrical conductivity of a saturated soil sample shall not exceed 2dS/m (decisiemens/meter).
- f. Topsoil samples may be taken from stockpiles by the ENGINEER for submission to a testing laboratory. Topsoil that does not meet the required specifications shall be removed from the project

site by the CONTRACTOR and shall be replaced with suitable topsoil that meets the testing requirements.

8. SEED & FERTILIZER

Seed and fertilizer shall meet the following requirements:

Table R-1

Location	Seeding* Requirement	Fertilizer Requirement
Maintained Lawn Areas	MDOT Type THM Mix (20% Perennial Rye, 30% Kentucky Blue, 50% Red Fescue) applied at 220 lbs./acre	MDOT Class A, 228 lbs./acre
Fields, Slopes & Ditch Banks, Etc.	MDOT Type THV Mix (30% Perennial Rye, 15% Kentucky Blue, 45% Red Fescue, 10% Fults Salt) applied at 220 lbs./acre	MDOT Class B, 120 lbs./acre

* percent mixture proportions by weight

All grass seeding shall meet the requirements for purity and germination as called for in the MDOT Standard Specifications for Construction Table 917-1 for Seed Mixtures. Seed shall be delivered in durable containers which show the manufacturer’s name, lot number, weight, contents, purity, and germination. Although Table R-1 lists only two typical seeding mixtures, other seeding mixtures shown in MDOT Tables 816-1 and 917-1 may be used where approved by the ENGINEER.

9. MULCH & MULCH BLANKETS

Mulch and mulch blankets shall meet the following requirements:

- a. Loose Mulch. Mulching material shall consist of any straw or marsh hay in an air-dry condition. Hay in an air-dried condition will be permitted only when straw mulch or marsh hay is unavailable. Mulch materials shall be undamaged, rot free, clean, substantially free of weed seed and other objectionable foreign matter.
- b. Mulch Blankets (for moderate runoff condition). Mulch Blankets shall be one of the following or an approved equal:
 - S1 Erosion Control Blanket –
BonTerra America
 - Contech ERO-MAT -
Contech Construction Products
 - Erosion Control Blanket DS-75 –
North American Green
- c. High Velocity Mulch Blankets (for medium to heavy runoff condition). High velocity mulch blankets shall be one of the following or an approved equal:

S2 Erosion Control Blanket –
BonTerra America

Contech High Velocity ERO-MAT –
Contech Construction Products

ECS High Impact Excelsior Blanket –
Erosion Control Systems, Inc.

ECS High Velocity Straw Mat –
Erosion Control Systems, Inc.

Erosion Control Blanket DS-150 –
North American Green

10. SOD

Sod shall meet the requirements of Section 917.13 of MDOT Standard Specifications for Construction. The CONTRACTOR shall keep the sod watered until a vigorous growth is established.

Sod must be an upland mineral soil sod. Sod must be grown on loam soils. Sod grown on peat is not acceptable for use.

11. FENCING

Chain link and woven wire fence materials shall meet the requirements of Section 907 of MDOT Standard Specifications for Construction. Chain link fabric shall be as called for on the construction drawings (aluminum-coated, zinc-coated, or vinyl-coated). Fences made of other materials (wood board, split rail, iron, etc.) shall be replaced in kind or as called for on the construction drawings. In this case, fence materials and construction methods shall meet the applicable standards of ASTM.

12. TREES & SHRUBS

Trees and shrubs shall be quality, nursery-grown stock with adequate root growth (balled and burlapped). Nursery stock shall meet the standards of the current edition of the American Standard for Nursery Stock as published by the American Association of Nurserymen, as well as the standards of Section 917 of the MDOT Standard Specifications for Construction.

13. TIMBER POSTS

Timber used for fence, guide, guard and mailbox posts shall meet the requirements of Section 912.08 of the MDOT Standard Specifications for Construction.

14. TRAFFIC SIGNS & POSTS

Traffic and street signs that are removed or damaged shall be replaced in kind. The materials used for such sign and post replacements shall meet the applicable standards of Section 919 of the MDOT Standard Specifications for Construction.

15. PAVEMENT STRIPING

Pavement striping materials shall meet the requirements shown in Section 920 of the MDOT Standard Specifications for Construction.

CONSTRUCTION

16. PAVEMENT RESTORATION

The aggregate and pavement thicknesses shown in the following sections are intended to be a guideline for minimum thicknesses. Thicker sections may be required depending upon the requirements of the OWNER or the controlling agency. All pavements shall be restored to the elevation and section that existed prior to construction.

a. Gravel Shoulders and Approaches

Gravel shoulders and approaches shall be constructed as described in Section 307.03 of the MDOT Standard Specifications for Construction.

Gravel shoulder restoration shall consist of placement and compaction of MDOT 21AA limestone or MDOT 22A gravel on a suitable subgrade to form a minimum six (6) inch thick section. The 21AA limestone or 22A gravel shall be compacted to a minimum density of ninety-eight (98) percent of the maximum unit weight. The restored shoulder width shall match the existing width.

Restoration of gravel approaches shall consist of placement and compaction of MDOT 21AA limestone or MDOT 22A gravel on a suitable subgrade as called for on the plans to form a minimum six (6) inch thick section. The 21AA limestone or 22A gravel shall be compacted to a minimum density of ninety-eight (98) percent unit of the maximum unit weight. The restored approach width shall match the existing width.

b. Gravel Roads

Restoration of gravel roads shall consist of placement and compaction of MDOT 21AA limestone, MDOT 22A gravel, or MDOT 23A gravel as called for in the plan details to form a minimum eight (8) inch thick section. The restored road width shall match the existing road width. Gravel roads shall be constructed as described in Section 306.03 of the MDOT Standard Specifications for Construction.

c. Aggregate Base Courses

Aggregate base courses shall be placed and compacted to the thickness and width as called for on the plan details and as described in Section 302.03 of the MDOT Standard Specifications for Construction. Unless otherwise indicated in the Supplemental Specifications, aggregate base courses shall be compacted to a minimum density of ninety-eight (98) percent of the maximum unit weight.

d. Sawcutting

All pavement, curb and gutter, and sidewalk removals shall be accomplished by sawcutting with a power-driven concrete saw. Sawcutting shall be full depth for all pavements (concrete, bituminous, concrete with bituminous overlay).

In bituminous pavement, sawcut lines shall be parallel with or perpendicular to the direction of vehicle travel.

In concrete pavement, sawcut lines shall be cut parallel with pavement joints. Sawcuts shall not be nearer than five (5) feet to a transverse joint, to the center of pavement, or to the edge of pavement such that no existing or replacement pavement section shall be less than five (5) feet in width. If the proposed sawcut is nearer than five (5) feet to a joint or centerline of a pavement, then removal and replacement shall be extended to said joint or centerline.

If an integral concrete curb is to be removed, then the minimum removal width shall be eighteen (18) inches.

e. Hot Mix Asphalt (HMA) Pavement

Hot mix asphalt pavements shall be constructed in accordance with the plan details and Section 501 of the MDOT Standard Specifications for Construction. Where new asphalt pavement is to adjoin existing asphalt pavement, a two (2) foot wide butt joint shall be constructed. A bond coat shall be applied to the existing pavement surface. Unless otherwise called for in the plan details, the following sections shall apply as a minimum:

Bike paths:	3" HMA over 4" 21AA aggregate base (with soil sterilant application)
Residential driveways:	3" HMA over 6" 21AA aggregate base
Commercial driveways:	4" HMA over 8" 21AA aggregate base; or 8" asphalt
Residential streets:	4" HMA over 8" 21AA aggregate base; or 8" asphalt
Collector road:	9" HMA over 6" 21AA aggregate base

The laboratory density of HMA pavement shall be determined by the Marshall Procedure ASTM D-1559 using 50 blows on each of the specimens as the compactive effort. One set of three (3) specimens shall be made on the first day of placement and on subsequent days as determined by the ENGINEER.

The measurement of field-compacted density shall be done with a nuclear gage. The percent of compaction obtained shall be determined by dividing the field-compacted density by the laboratory density and multiplying the result by 100. Unless otherwise indicated in the plan details or Supplemental Specifications, all HMA pavements shall be compacted to a minimum calculated density of 97%.

Density tests shall be taken on the completed pavement at a frequency of one test every 500 linear feet of paving lane, except for the last unit which will be 500 linear feet, plus any fractional unit less than 250 feet in length, or will be a fractional unit of 250 feet or more in length. Miscellaneous areas such as intersections, crossovers and widening lanes less than 250 feet long will be tested as directed by the ENGINEER.

f. Concrete Pavement

Concrete pavements shall be constructed in accordance with the plan details as well as Sections 602 and 801 of the MDOT Standard Specifications for Construction. Where new concrete pavement is to be anchored to old pavement, dowel bars and lane ties shall be installed in accordance with MDOT Standard Plans. Joints shall be installed in the new concrete pavement to match existing joint types and locations.

Reinforcing steel shall be similar to that in the existing pavement and shall provide the same cross sectional area of reinforcement per foot as the existing pavement. Unless otherwise called for in the plan details, the following sections shall apply as a minimum:

Residential driveways:	6" non-reinforced concrete over 4" sand base
Commercial driveways:	8" non-reinforced concrete over 4" sand base
Residential streets:	8" non-reinforced concrete over 6" sand base
Collector road:	9" non-reinforced concrete over 6" sand base

g. Concrete Sidewalk and Ramps

Concrete sidewalks and ramps shall be constructed in accordance with the plan details and Section 803 of the MDOT Standard Specifications for Construction. Unless otherwise called for in the plan details, the following sections shall apply as a minimum:

Sidewalks:	4" concrete over 4" sand base
Sidewalks (at residential drive crossing):	6" concrete over 4" sand base
Sidewalks (at commercial drive crossing):	8" concrete over 4" sand base
Sidewalk ramps:	4" concrete over 4" sand base

h. Concrete Curb and Gutter

Concrete curb and gutter shall be constructed in accordance with plan details and Section 802 of the MDOT Standard Specifications for Construction.

17. TURF ESTABLISHMENT

The CONTRACTOR shall furnish and place topsoil, seed, or sod, and fertilizer for all areas that were disturbed during construction. Seed and sod shall be installed in accordance with the seasonal limitations that are described in section 816.03 of the MDOT Standard Specifications for Construction unless directed otherwise by the ENGINEER.

a. Topsoil

Unless otherwise called for on the plans, a minimum of three (3) inches of topsoil shall be placed for areas that are to be restored with seeding or sodding. Topsoil shall be placed on a prepared earth bed in accordance with Section 816.03A of the MDOT Standard Specifications for Construction.

The existing earth bed shall be graded such that the placement of topsoil and sod will meet the final plan grades.

b. Seed

Seeding shall be sown in accordance with Section 816.03C of the MDOT Standard Specifications for Construction. The application rate for the seeding shall be as shown in the table in part 8 of the Materials Section.

c. Mulch and Mulch Blankets

Mulch and mulch blankets shall be placed over seeded areas as called for in Section 816.03E through H of the MDOT Standard Specifications for Construction. If mulch blankets must be secured to a slope, then biodegradable netting and biodegradable earth staples shall be used.

Mulch anchoring shall be considered as incidental to mulch placement unless a pay item for mulch anchoring has been included in the Bid Form.

d. Sod

Sod shall be placed in accordance with Section 816.03D of the MDOT Standard Specifications for Construction.

A sod cutter shall be used to establish a smooth vertical edge when new sod is to abut existing sod.

e. Fertilizer

Fertilizer shall be placed in accordance with Section 816.03B of the MDOT Standard Specifications for Construction. The application rate for the fertilizer shall be as shown in table in Part 8 of the Materials Section.

f. Watering and Maintenance

It is the responsibility of the CONTRACTOR to regularly water new seed and sod in order to establish a dense lawn of permanent grasses that is free from mounds and depressions. Any portion of a sodded area that "browns-out" or does not firmly knit to the soil base, or any portion of a seeded area that fails to show a uniform germination, shall be resodded or reseeded. Such resodding or reseeding shall be at the CONTRACTOR's expense and shall continue until a dense lawn is established.

Watering seed and sod shall be considered as incidental to the turf establishment work unless a pay item for water has been included in the Bid Form.

18. FENCING

Prior to the start of any fence restoration work, the CONTRACTOR shall verify that the line and grade are correct.

a. Removing and Replacing Existing Fences

Fences shall be removed and replaced or shall be removed as indicated on the Plans or as directed by the ENGINEER. If any of the existing material is damaged or destroyed, the CONTRACTOR shall replace the material at their own expense. Replacement fence material shall be of a condition comparable to that which existed prior to construction.

After the fence removal or relocation operations are complete, all surplus material shall be removed and disposed of by the CONTRACTOR at their own expense unless otherwise called for on the Contract Documents.

Any holes or voids resulting from the fence post removal operation shall be backfilled with a suitable material, as approved by the ENGINEER.

b. Placing New Fence

Woven wire and chain link fencing shall be installed in accordance with Sections 808.03A and D of the MDOT Standard Specifications for Construction. If called for on the plans, a top rail shall be used in place of tension wire for the chain link fence construction. Other fence types (timber, boulders, decorative rock, etc.) shall be constructed in accordance with plan details.

19. GUARDRAIL

Guardrail shall be placed in accordance with Section 807 of the MDOT Standard Specifications for Construction. Guardrail design shall be approved by the ENGINEER and shall conform to the current applicable standards of the agency that has jurisdiction of the right-of-way.

Any holes or voids resulting from the guardrail post removal operation shall be backfilled with a suitable material, approved by the ENGINEER.

20. TREE & SHRUB PLANTING

Trees and shrubs shall be planted in accordance with Section 815 of the MDOT Standard Specifications for Construction. Nursery stock shall conform to the standards shown in the American Standard for Nursery Stock (ANSI Z60.1-1996).

Watering and cultivating trees and shrubs during the establishment period shall be considered as incidental to the tree and shrub planting work unless a pay item for watering and cultivating has been included in the Bid Form.

21. MAILBOXES

Where mailbox post replacement is called for on the plans, new mailbox posts shall be furnished and installed in accordance with Section 807 of the MDOT Standard Specifications for Construction and the plan details.

22. TRAFFIC SIGNS & POSTS

Placement of traffic signs and posts shall be done in accordance with the applicable Sections in 810 of the MDOT Standard Specification for Construction, the current edition of the Michigan Manual of Uniform Traffic Control Devices, and the plan details.

23. PERMANENT PAVEMENT STRIPING

Permanent pavement striping shall be placed in accordance with the plan details and Section 811 of the MDOT Standard Specifications for Construction.

24. DRAINAGE STRUCTURES, CULVERTS, & DITCHES

As part of restoration, the CONTRACTOR shall be responsible for cleaning out all drainage structures, culverts, and ditches that are located within the area of construction. All ditches shall be restored such that drainage will flow freely. The cost of this work shall be considered as incidental to the project.

25. PROGRESS OF FINAL RESTORATION

If in the judgement of the OWNER, adequate site restoration efforts are not being expended, including but not limited to, roadway, driveway and drainage maintenance, removal of surplus materials, restoration of all signs, mail boxes and like items, then the OWNER will take the necessary steps to perform such restoration and shall charge the CONTRACTOR for all of the costs until proper order is restored.

End of Section

CITY OF NOVI
SPECIAL PROVISION
FOR
UTILITY COORDINATION CLAUSE

OHM: ALB

1 OF 2

12/19/2023

The existing utilities listed below, and shown on the plans, represent the best information available. This information does not relieve the Contractor of the responsibility to be satisfied as to its accuracy and the location of the existing utilities.

For protection of underground utilities and the conformance with Public Acts 173 & 174, 2013, the contractor shall dial 1-800-482-7171 a minimum of three full working days, excluding Saturdays, Sundays, and Holidays prior to beginning each excavation in areas where public utilities have not been previously located. Members will thus be routinely notified. This does not relieve the contractor of the responsibility of notifying the utility owners who may not be a part of the "MISS DIG" alert system.

Sanitary & Water – City of Novi, DPW:

Scott Roselle
26300 Lee BeGole Dr
Novi, MI 48375
Phone: 248.735.5661
Email: sroselle@cityofnovi.org

Fire – City of Novi Fire Department:

John Martin
Fire Chief
45125 Ten Mile Road
Novi, MI 48174
Phone: 248.347.0504

School – Novi School District:

Marcus Isabell
2111 Pontiac Lake Rd
Waterford, MI 48328
Phone: 248.209.2456

Traffic Signals – RCOC Oakland County:

Ahmad Jawad
31001 Lahser Rd
Beverly Hills, MI 48025
Phone: 248.858.7250

Michigan Department of Transportation:

Andrea L. Jones
MDOT - Taylor TSC
Utility and Permit Technician
6510 Telegraph Road
Taylor, MI 48180
Phone: 313.375.2402
Fax: 313.295.0822
Email: jonesan@michigan.gov

Telephone – AT&T:

Sharon Warren
550 S Maple Rd, Floor 2
Ann Arbor, MI 48103
Phone: 734.730.8025

Electric - DTE

Deon Jones
One Energy Plaza – 518 SB
Detroit, MI 48226
Phone: 734.968.0566

Gas – Consumers Energy:

Chris Schneider
11801 Farmington Rd
Livonia, MI 48150
Phone: 734.513.6277

CITY OF NOVI
SPECIAL PROVISION
FOR
MAINTAINING TRAFFIC

OHM: IO/KK

1 OF 4

03/14/2023

GENERAL ITEMS

The Contractor shall maintain traffic throughout the project in accordance to in accordance with Section 104.07, 104.11, and 812 of the Michigan Department of Transportation's 2020 Standard Specifications for Construction, the 2012 Michigan Manual on Uniform Traffic Control Devices, and any supplemental specifications in this proposal.

- a. Cleaning Adjacent Streets and Sidewalks:** Dirt, mud, construction materials, or other debris deposited on public sidewalks or streets as the result of spilling, tracking on the wheels of trucks or construction equipment, or by other actions of the Contractor, his employees, or his subcontractors shall be immediately removed by the Contractor.
- b. Notification:** The Contractor shall notify the Engineer, local police department, local fire department, and other emergency response units at least **7 business days** before implementing any lane closures or major traffic shifts.

CONSTRUCTION INFLUENCE AREA (CIA)

The CIA shall include the right of way and properties, as well as any locations necessary for construction signing.

The Contractor shall notify the Engineer and property owners a minimum of 48 hours in advance of driveway work / closure. The Contractor shall maintain driveway access throughout the entire project during investigation. Driveways that are to be removed and replaced shall be maintained with Maintenance Gravel and shall be constructed as part width.

The City of Novi maintenance crews and/or Contract Maintenance Agencies may perform maintenance work within or adjacent to the Construction Influence Area (CIA). The Maintenance Division of the City of Novi and/or Contract Maintenance Agency will coordinate their operations with the Engineer to minimize the interference to the Contractor. No additional payment will be made to the Contractor for the joint use of the traffic control items.

TRAFFIC RESTRICTIONS

General Restrictions:

No work shall be performed on holiday periods as defined by the Engineer. No work shall be performed on Sundays, unless otherwise approved by the City's Engineer.

The minimum traveled lane width shall be 10-foot during the Construction.

All lane closures shall originate from the same side of the roadway. No conflicting lane closures shall

be permitted. The Contractor shall not be permitted to switch from the right lane to left lane and vice-versa unless with the approval of the Engineer.

The Contractor shall maintain safe and reasonable access to all businesses, homes, and streets at all times. Changes or adjustments in the signing provided may be necessary as determined by the Engineer.

Contractor shall backfill any site investigation pothole(s), and/or trench(es) prior to the end of the workday, no open pothole(s) and/or trench(es) will be allowed overnight.

Traffic shall be maintained in accordance to the following MDOT Maintaining Traffic Typical while impacting traffic within MDOT ROW:

- WZD-100-a
- WZD-125-e
- M0020a
- M0040a
- M0110a
- M0140a
- 122-NFW-SHL-(R)
- 200-FW-SHL-(R)
- 137-CLT-SHIFT-OLC

All local noise and dust control ordinances shall apply to this project.

TRAFFIC CONTROL DEVICES

a. General

All traffic control devices and their usage shall conform to the Michigan Manual of Uniform Traffic Control Devices (MMUTCD), 2012 version, the 2020 Michigan Department of Transportation Standard Specifications for Construction, and as specified herein.

The Contractor shall furnish, place, and maintain signs, barricades, channelizing devices, lights, and minor traffic control devices within the CIA and, upon completion of the work, remove these items from the project.

When lane closures are in place, the Contractor shall completely cover all conflicting warning, regulatory, and guide signs. The sign covers shall be in accordance with section 812.03 of the 2020 Standard Specifications for Construction

During construction, access to all businesses and residential drives shall be maintained, unless otherwise noted for a specific drive on the plans. The Contractor may close driveways where a business has multiple access points, and as approved by the Engineer.

The Contractor shall place W20-1 signs (ROAD WORK AHEAD) on all crossroads within the project limits.

Payment for all equipment, labor, materials and traffic control materials required to cover temporary signs shall be considered to be included in payment for **Traffic Control** as a Lump Sum

Temporary signs, which are to remain in place for 30 days or more, shall be installed on permanent post mounts as directed by the Engineer. All other signs may be installed on portable supports.

When signs or traffic signal heads for this project are to be covered, they shall be covered in accordance with Section 812.03 of the 2020 Standard Specifications for Construction and applicable details therein except as noted above.

All traffic control devices moved to facilitate to Contractor's operation shall be replaced at the end of the workday. The Contractor shall routinely maintain the traffic control devices including, but not limited to proper placement, weighted with sandbags, cleaning for reflectivity, and replacing damaged devices. The Contractor shall be responsible for protecting the work area and shall supply the necessary traffic control devices apart from those called for on the plans to delineate the work area from adjacent property. The Contractor shall store materials and equipment in a location approved by the Engineer.

The Contractor will replace any damaged signs, barrels, and/or barricades as directed by the Engineer. Any damaged or inadequate traffic control devices shall be replaced at no additional cost to the Owner.

b. Temporary Signs

All diamond-shaped warning signs shall be 48" x 48" mounted at a 7' minimum bottom height unless otherwise specified in the details.

All construction signs that are to be left in place overnight shall be fluorescent orange prismatic sheeting per ASTM D 4956 Type VII sign material per Section 922 of the 2020 MDOT Standard Specifications for Construction, as directed by the Engineer.

All signs placed shall be of **good quality** as determined by the Engineer. Signs determined by the Engineer to be defective or of poor quality shall be removed and replaced by the Contractor. Failure to remove and replace defective or poor-quality signs shall result in stoppage of work.

All signs shown on the details or plans shall be considered to be included in payment for **Maintaining Traffic** as a Lump Sum.

c. Channelizing Devices

Lighted Arrow, Type C shall be used when closing a traffic lane or where called for on the typicals and plans. Place the *Lighted Arrow, Type C* as near to the start of the taper as possible.

Channelizing devices shall be plastic drums with high intensity sheeting and be of **good quality**. Barricades determined by the Engineer to be defective or of poor quality shall be removed and replaced by the Contractor. No intermixing of different types of channelizing devices will be allowed.

Channelizing Devices shall be placed in accordance with the MDOT typical details included within the drawing set and the MMUTCD. Plastic drum spacing shall be as per MDOT typical M0020a.

d. Type III Barricades shall be 8 feet wide x 5 feet high

Placement of lighted Type III barricades shall be as directed by the Engineer and/or as shown on the maintaining traffic typical. Type III barricades shall be double sided and be of **good quality** as determined by the Engineer. Barricades determined by the Engineer to be defective or of poor quality shall be removed and replaced by the Contractor. Failure to remove and replace defective or poor-quality channelizing devices shall result in stoppage of work.

MEASUREMENT AND PAYMENT

The completed work for maintaining traffic will be paid for as **Maintaining Traffic** in a Lump Sum:

Contract Item (Pay Item)	Pay Unit
Maintaining Traffic	Lump Sum

Payment for **Maintaining Traffic** shall be Lump Sum. Unit prices include furnishing all labor, material, and equipment needed to provide the maintenance of traffic devices required to accomplish this work. The Contractor shall provide the construction inspector with all tickets for traffic control devices upon delivery for project records. Traffic control devices that are relocated to different locations within the project areas will be considered incidental to the traffic control cost. The contract lump sum price shall be payment in full for all labor, materials, and equipment necessary to furnish, install, and maintain all signs, cones, barricades, flagging, etc. as required by the Michigan Manual of Uniform Traffic Control Devices, the Supplemental Specifications, and the Wayne County Department of Public Services (WCDPS). Removal of any temporary signs or other traffic control equipment upon completion of the project shall be considered as incidental to the traffic maintenance and control work.

Any additional cost for maintaining traffic will be borne by the Contractor. Measure and pay for these devices in accordance with Section 812.04 of MDOT 2020 Standard Specifications for Construction, unless otherwise specified.

- a. Delays in construction and coordination of the operations due to traffic maintenance conflicts with other construction projects will be considered as a basis for extension of contract time but will not be considered a basis for extra compensation for suspensions of work, idled equipment, or labor.
- b. Any signs desired by the Contractor that are approved by the Engineer but not required by the Engineer may be placed and removed by the Contractor at the Contractor's expense.

Any measures required to maintain traffic are included in unit prices for **Maintaining Traffic**. Temporary signs, arrow boards, channelizing devices, traffic regulator control, and barricades will not be paid for separately. **Maintenance Gravel** will be paid for separately and is under the "Aggregate Base Courses" Special Provision for this project.

Payment for **Maintenance Gravel** includes installation of a temporary aggregate base course at locations directed by the Engineer in order to maintain vehicle and pedestrian traffic. The Engineer will measure **Maintenance Gravel** by the Ton based on certified scale weight tickets.

CITY OF NOVI
SPECIAL PROVISION
FOR
PAVEMENT REMOVAL

OHM: SJM/GT/KK

1 of 1

04/04/2023

a. Description. The work to remove the existing pavement and sidewalks as shown on the plans shall be done in accordance with Section 204, Removing Miscellaneous Structures and Materials, of the 2020 Michigan Department of Transportation Standard Specifications for Construction except as modified herein.

b. Materials and Construction Methods. Pavt, Rem, Modified shall include removing all existing roadway and driveway pavements regardless of depth or various types of materials as shown on the plans in accordance with Sections 204.02 and 204.03 of the 2020 Michigan Department of Transportation Standard Specifications for Construction, and as directed by the Engineer.

c. Measurement and Payment. The completed work for **Pavt, Rem, Modified** will be paid for at the contract unit price for the following:

Contract Items (Pay Items)	Pay Unit
Pavt, Rem, Modified.....	Square Yard
Sidewalk, Rem	Square Yard

Pavt, Rem, Modified and **Sidewalk, Rem** will be measured regardless of depth or material in its original position by the unit square yard and paid for at the contract unit price per square yard, which price shall be payment in full for all labor, materials, and equipment needed to accomplish this work. This also shall include curbs that are being removed in conjunction with pavement removal. Payment for this contract item includes sawcutting, demolishing, and removing pavement and sidewalk as required, as well as disposing of materials.

CITY OF NOVI
SPECIAL PROVISION
FOR
HYDRO-EXCAVATION

OHM:TMR/ALB

Page 1 of 2

12/21/2023

DESCRIPTION

This work consists of excavating site investigation “potholes” using the method of hydro-excavation at designated locations along existing water service lines to expose the line and determine the service line size and material type. This work shall be completed where shown on the Contract Documents, or as directed by the Engineer. Work shall be in accordance with Section 205 of the MDOT 2020 Standard Specifications for Construction.

MATERIALS

Backfill: Granular Material, Class II, III – Section 902

CONSTRUCTION

Q. Hydro-Excavation. Contractor is responsible for locating the curb stop box. Remove existing soils, debris and materials within site investigation pothole area using pressurized water. Use an air conveyance or vacuum system to remove or transfer soils, debris and materials into an isolated tank.

Excavate a pothole using hydro-excavation methods at the site investigation locations identified in the Contract Documents, or as directed by the Engineer in the field. Each service line investigation requires a minimum of two potholes, one on each side of the curb stop. One pothole must be performed on the public side of the curb stop, between the curb stop and the watermain. The other pothole must be performed on the private side of the curb stop, between the curb stop and the house or business. Each pothole will be a minimum distance of 18-inches from the curb stop.

Limit the hydro-excavation pothole area to the minimum size required to access the existing water service line. The service line depths are anticipated to be a maximum of 6 feet deep. The approximate limits of hydro-excavation pothole are estimated to be 2 feet in diameter at each location. Unearth and make visible the existing water service line, then identify and document the size (diameter) and material type of the line.

If the pothole is performed in a lawn area, carefully remove the existing sod, then preserve and protect the sod for re-installation after backfill operations area complete. If the pothole is performed in an area with concrete or HMA pavement, remove the pavement in accordance with the applicable specifications.

Minimize earth disturbance at the pothole site. Preserve and protect existing items such as structures, utilities, pavements, landscape plantings, adjacent lawns, trees, shrubs, and fences during hydro-excavation work. Protect roots from landscape plantings from exposure. Relocate site for pothole as necessary to avoid damage to adjacent items, as approved by the Engineer. Repair damage caused to any existing item not specified for removal at no additional cost to Owner.

If a large object (utilities, boulders, vaults, roots, etc.) is encountered during hydro-excavation and the object cannot be removed using standard hydro-excavation and vacuum extraction methods, obtain approval from the Engineer to relocate the pothole or increase the size of the pothole, to avoid the object.

1. **Backfill of the pothole.** Once the hydro-excavation and identification of the water service line is complete, obtain approval from the Engineer to place backfill. Immediately place and compact backfill material in lifts within the entire depth of the pothole. In lawn areas, complete backfill to bottom of sod.

CITY OF NOVI
SPECIAL PROVISION
FOR
HYDRO-EXCAVATION

OHM:TMR/ALB

Page 2 of 2

12/21/2023

- 2. Restoration of pothole site.** Once backfill is complete, restore the pothole site.
- a. **Lawn areas.** Reinstall the existing sod. Install the sod to match the grade of the adjacent lawn areas. If the Engineer determines that the sod is damaged or unsuitable to be reinstalled, restore the area with topsoil, seed, fertilizer and mulch.

If the Engineer determines that any adjacent lawn areas were disturbed during the hydro-excavation operations, restore the area by eliminating any ruts in the existing lawn, and restore with topsoil, seed, fertilizer and mulch. Perform restoration with topsoil, seed, fertilizer and mulch in accordance with the Special Provision for Turf Establishment. Any restoration required, in addition to reinstalling the sod plug, will be performed at no additional cost to the Owner.
 - b. **Paved areas.** Replace the pavement section in accordance with the applicable specifications.

MEASUREMENT AND PAYMENT

<u>Pay Item</u>	<u>Pay Unit</u>
Hydro-Excavation, 0 to 2 ft diameter.....	Each
Hydro-Excavation, 2 ft to 6 ft diameter.....	Each
Hydro-Excavation, 6 ft diameter and Greater.....	Each

The Engineer will measure Pay Items for **Hydro-Excavation, X to X Feet** per-each pothole site investigation performed. The limits for each item are as follows:

- Hydro-Excavation, 0 to 2 ft:** Pothole up to 2 feet in diameter, and up to 8 feet in depth
- Hydro-Excavation, 2 ft to 6 ft:** Pothole greater than 2 feet in diameter, up to 12 feet in depth
- Hydro-Excavation, 6 ft and Greater:** Pothole greater than 6 feet in diameter, up to 20 feet in depth

A majority of the potholes for site investigations are expected to be 2 ft in diameter and less. **If a pothole larger than 2 feet in diameter is deemed necessary to investigate the water service line, obtain approval from the Engineer prior to commencement.** Payment will not be made for unauthorized Hydro-Excavation locations greater than 2 feet, without prior approval from the Engineer.

The unit prices include removing and preserving the existing sod, performing the hydro-excavation and removing the existing material above the existing water service line, identifying the size and type of the water service line, backfilling and compacting the excavated area to the limits specified, and reinstalling the existing sod. The unit prices include furnishing all associated labor, materials, equipment, and appurtenances required to complete the work as specified.

Concrete and HMA pavement removals and replacements will be paid for separately. Removal of the aggregate and sand bases beneath existing pavements is included in the unit prices for **Hydro-Excavation.**

Additional turf restoration will not be paid for separately, unless directed and approved by the Engineer.

CITY OF NOVI
SPECIAL PROVISION
FOR
AGGREGATE BASE COURSES

OHM: RRH/GAT/KK
04/04/2023

1 of 1

a. Description. This work shall be done in accordance with Section 302, Aggregate Base Courses, of the Michigan Department of Transportation 2020 Standard Specifications for Construction except as herein provided.

b. Materials. Dense-Graded Aggregate material for **Aggregate Base, _ inch, Modified** and for **Maintenance Gravel** shall meet the requirements specified in Section 902, Table 902-1 and 902-2 except that the material shall be 21AA limestone aggregate. No Crushed Concrete or Plastic Fines shall be allowed.

c. Procedure. The six-inch maximum layer restriction in section 302 of the Standard Specifications for Construction has been deleted. Construct a test strip at the start of base work. Compact all layers to a uniform depth of not more than 10 inches ($\pm \frac{3}{4}$ inch). If the total plan base thickness exceeds 10 inches, construct the base in layers of equal thickness. The compaction specifications are revised as follows: The compaction specification shall be a minimum of 95 percent of the maximum dry density of the material based on the Modified Proctor (ASTM D1557) under hot mix asphalt pavement and concrete pavement. Secure the Engineer's approval for the method of placement and compaction before continuing.

If the acceptable method is substantially modified, the Engineer may require another test strip to confirm compliance with the specification. The Engineer may remove a portion later when conducting density testing to assure the compaction requirements are being met full-depth.

d. Measurement and Payment. The completed work as measured for **AGGREGATE BASE COURSES** will be paid for at the contract unit price for the following:

Contract Items (Pay Items)	Pay Unit
Maintenance Gravel	Tons
Aggregate Base, _ inch, Modified	Square Yard

Payment for **Aggregate Base Courses** will be measured and paid for by the square yard for the required thickness in inches, and as specified above, which will be considered as payment in full for labor, materials, and equipment needed to accomplish this work.

Maintenance Gravel shall be the method of payment for maintenance aggregate as required by Engineer and paid for by the Ton. It shall be used as directed by the Engineer.

The Contractor shall provide the construction inspector with all tickets for **Aggregate Base Courses** upon delivery for project records.

CITY OF NOVI
SPECIAL PROVISION
FOR
MARSHALL HOT MIX ASPHALT MIXTURE

LIVONIA: KM/KK

1 of 7

04/21/2023

a. Description. Furnish hot mix asphalt mixture, designed using Marshall Mixture Design Methods, according to the requirements of the 2020 MDOT Standard Specifications for Construction except as modified by this special provision.

b. Mix Design. The Contractor shall submit the mix designs to the City Engineer or representative 2 weeks prior to production for evaluation according to MDOT’s Hot Mix Asphalt Procedures Manual and this Special Provision. Use a 50 blow Marshall hammer when compacting mixtures for the development of the Marshall mix designs.

c. Recycled Asphalt Pavement (RAP). The contractor may substitute Reclaimed Pavement (RAP) for a portion of the new materials required to produce the HMA mixture. The mix will be limited to a maximum of 10.0% and 30.0% use of RAP when used for the wearing course and underlying course respectively. The underlying course is defined as any course placed below the wearing course. The mixture will be designed and produced to meet all the criteria herein.

d. Materials. Table 1 provides the mix design criteria and production requirements and Table 2 provides the required aggregate properties for the mix design criteria and production. The Contractor is to use aggregates of the highest quality available to meet the minimum specifications.

TABLE 1: Master Range for Mixture & Production Requirements

PARAMETER	Mixture No.
	13A
Air Void, %	3.00- 5.00
VMA (min) (a)	14.0 *
VFA	65-82
Fines to Binder Ratio (max) (b)	1.2
Flow (0.01 inch)	8-16
Stability (min), lbs	900
(a) VMA calculated using Gsb of the combined aggregates. (b) Ratio of the weight of aggregate passing the No. 200 sieve to total asphalt binder content by weight; including fines and binder contributed by RAP. * VMA min will be 14.50 when used as a wearing course.	

TABLE 2: Master Range for Aggregate Properties

PARAMETER	Mixture No.
	13A
1 ½ inch	-
1 inch	-
¾ inch	100
½ inch	75-95
3/8 inch	60-90
No.4	45-80
No. 8	30-65
No. 16	20-50
No. 30	15-40
No. 50	10-25
No. 100	5-15
No. 200	3-6
Crushed (min), % (MTM 117)	60
Soft Particle (max), % (a)	8.0
Angularity Index (min) (b)	3.0
L.A. Abrasion (max), % loss (c)	40
Sand Ratio (d)	50
<p>(a) The sum of the shale, siltstone, structurally weak, and clay-ironstone particles must not exceed 8.0 percent for aggregates used in top course. The sum of the shale, siltstone, structurally weak, and clay-ironstone particles must not exceed 12.0 percent for aggregates used in base and leveling course.</p> <p>(b) The fine aggregates angularity of blended aggregates, determined by MTM 18, must meet the minimum requirement. In mixtures containing RAP, the required minimum fine aggregate angularity must be met by the virgin material. NAA fine aggregate angularity must be reported for information only and must include the fine material contributed by RAP if present in the mixture.</p> <p>(c) Los Angeles abrasion maximum loss must be met for the composite mixture, however, each individual aggregate must be less than 50.</p> <p>(d) Sand Ratio for 13A no more than 50% of the material passing the No. 4 sieve is allowed to pass the No. 30 Sieve.</p> <p>(e) The Aggregate wear index for all mixes shall be 260 min as determined by Michigan Test Method (MTM) 112-04.</p>	

e. Mixture. The Contractor will be required to produce the mixture within the tolerances listed for Table 3 as outlined in this Special Provision.

In cases of non-conformance with any of the requirements as specified herein and if, in the Engineer's judgment, the non-conforming mixture warrants, the Contractor shall remove and replace it with a mixture conforming to the specification requirements at his own expense. If in the opinion of the Engineer the non-conforming mixture can remain in place, the City will exercise a reduction in payment in accordance with this Special Provision as outlined in HMA Paving Mixtures.

TABLE 3: Tolerances from Proposed Gradings and Assigned Bitumen Content (Percent)

	Range No.	Sieve 1/2"	Sieve 3/8"	Sieve No. 4	Sieve No. 8	Sieve No.30	Sieve No. 200	Assigned Bitumen
13A	1	± 5	± 5	± 5	± 5	± 4	+1.0,-1.5	-0.3,+0.4
	2	± 8	± 8	± 8	± 7	± 6	-2.0,-2.5	-0.5,+0.6

Mixtures Analysis Data: The Contractor, at least two (2) weeks prior to production, shall submit to the City's representative, for the Engineer's approval, a test report containing the following data:

1. The extracted aggregate gradation and asphalt content of the RAP stockpile (minimum one [1] test per 1000 Tons of RAP).
2. Average crushed content and aggregate type (gravel, slag, limestone, etc.) in the RAP stockpile (minimum one [1] test per 1000 Tons of RAP).
3. The blended Aggregate Wear Index (AWI) for all Top Course Hot Mix Asphalt Mixtures (HMA).
4. The "Proposed Grading" of the final blend of RAP and virgin aggregates.
5. The "Proposed Asphalt Content" of the mixture.
6. The type of asphalt cement to be added to the mixture.
7. The bulk specific gravities of all aggregates, including those within the RAP mixture.
8. Crushed content, fine aggregate angularity (as determined per ASTM C-1252-06), LA Abrasion, and soft particles for all virgin aggregates.

e. Construction Methods.

Sampling of Hot-Mix Asphalt (HMA) Mixtures

Representative's samples of HMA mixtures will be obtained from producers plant or project site. Samples obtained at producer's plant will be obtained by producer's personnel under the supervision of the City's representative. Samples obtained at project site will be obtained by the C

ity's representative. Samples will be obtained in a manner to achieve a representative portion of the HMA mixture as determined by the City.

Laboratory and field testing of HMA mixtures is to be performed as expeditiously as sample temperatures allow. No mixture conditioning is required for plant produced HMA mixtures.

Bond Coat: The following rates of Bond Coat shall be used unless otherwise called for on the plans or directed by the Engineer.

1. **0.10-gal/sq. yd.** shall be applied over all existing pavements and pavement surfaces.
2. **0.05-gal/sq. yd.** shall be applied between subsequent HMA Mixture courses and over Concrete Base Course Pavements to be resurfaced.

Compaction of HMA Mixtures: The compaction of HMA Base, Binder, Leveling, and Top courses placed directly on an aggregate base shall be as described in Section 501 of the 2020 MDOT Standard Specifications for Construction.

Compaction of HMA Top Courses, excluding any mixture placed directly on an aggregate base, shall be as specified herein. These requirements take precedence over any conflicts with the requirements of the 2020 MDOT Standard Specifications for Construction.

Laboratory Density: The laboratory density shall be determined by the Marshall Procedure ASTM D 1559 using 50 blows on each end of the specimen as the compactive effort. The temperature of the asphalt specimen at the time of compaction shall be 275° F unless otherwise specified. One set of three (3) specimens shall be made on the first day of placement and on subsequent days as determined by the Engineer.

Measurement of Compaction: The measurement of field-compacted density shall be done with a nuclear gauge. The percent of compaction obtained shall be determined by dividing the field-compacted density by the laboratory density and multiplying the result by 100.

Procedure: The Engineer will furnish a nuclear gauge with an operator to monitor the Contractor's rolling operation to establish a compaction procedure that will aid in obtaining the specified density.

For Mainline HMA Top Course: Density tests shall be taken on the compacted pavement at a frequency of one test every 500 lineal feet of paving lane, except for the last unit which will be 500 lineal feet plus any fractional unit less than 250 lineal feet in length or which will be a fractional unit 250 lineal feet or more, in length. Miscellaneous areas such as intersections, crossovers and widened lanes less than 250 lineal feet will be tested at the discretion of the Engineer.

Nuclear density tests will be taken on a random basis longitudinally within each unit and transversely within each unit. Tests will be taken at the discretion of the Engineer in areas that have received the least amount of compactive effort.

Individual tests failing to meet 97 percent of the laboratory density will be penalized in accordance with the schedule below.

Compaction Density Tests: When individual density tests fail to meet 97.0 percent of laboratory density on the completed paving lane, two (2) additional tests will be taken in the 500 lineal feet unit. The two (2) additional tests will be taken a minimum of 50 feet each way from the original test.

The average of the three (3) tests will be used to base the penalty and compute an adjusted contract price in accordance with the following schedule:

Test Results	Adjusted Price
97.0%+	100%
96.0% to 96.9%	95%
95.0% to 95.9%	90%
94.0% to 94.9%	85%
93.0% to 93.9%	50%
Less than 93.0%	No Payment or Removal as directed by the Engineer

The tonnage to be penalized will be computed by the Engineer based on the nominal plan thickness, length of unit, width of paving lane, and yield factor as shown on the plans.

HMA Paving Mixtures Subject to Rejection of Penalty

Definitions:

Confirmed Ignition or Extraction Test- The initial ignition or extraction test result fails to meet Range No. 1, Range No. 2, or the Master Range and the laboratory ignition or extraction retest result of the same sample also fails to meet the Range No. 1, Range No. 2, or Master Range.

Consecutive Ignition or Extraction Tests- Two or more ignition or extraction tests run on the same asphalt mix (e.g., HMA Base) but representing separate samples (e.g., first sample tested a.m., second sample tested p.m., and the third sample tested a.m. the following day of production) from the same plant for the same project.

Initial Ignition or Extraction Test- The first ignition or extraction test run on a sample of asphalt mix.

Non-Conforming Mixture - Asphalt mixture which fails to meet the Range No. 1, Range No. 2, or Master Range as defined in this special provision.

Non-Conforming Test- The initial ignition or extraction test fails to meet Range No. 1, Range No. 2, or the Master Range and the laboratory ignition or extraction retest of the same sample is found within Range No. 1 and the Master Range on the same sample.

Range No.1- If, on two consecutive ignition or extraction tests of the same mixture, the asphalt binder content or the aggregate gradation on the same sieve, exceeds the uniformity tolerance of Range No. 1 (See Table 3) but meets the Master Range and the uniformity tolerance of Range No. 2, the mixture shall be rejected. If, in the Engineer's judgment, the non-conforming mixture warrants removal, the contractor shall remove and replace the non-conforming mixture at his/her expense. If, in the Engineer's judgment, the non-conforming

mixture can remain in place, the contract unit price for the non-conforming mixture shall be reduced in accordance with the following schedule:

<u>Non-conforming Item</u>	<u>Reduction</u>
Asphalt Binder (minus)	10%
Asphalt Binder (Plus).....	5%
Each Sieve	5%

The total accumulated reduction shall not exceed 20 percent for material outside Range No. 1 and within Range No. 2 and the Master Range.

Range No. 2 and Master Range- If any item in a confirmed ignition or extraction test as previously defined fails to conform to the Range No. 2 (See Table 3) tolerance or the Maser Range (includes the minimum crushed content requirement); and if, in the Engineer's judgment, the non-conforming mixture warrants removal, the Contractor shall remove the non-conforming mixture and replace it with a mixture conforming to specification requirements at his/her expense. If, in the judgment of the Engineer, the non-conforming mixture can remain in place, the contract unit price for these mixtures shall be decreased by 10 percent for each item up to a maximum of 20 percent when there is more than one non-conforming item.

If a second consecutive test still indicates the items to be outside the Master Range or Range No. 2 tolerance, shipping to the project shall be stopped until corrections have been demonstrated to have been made. Payment for the accepted mixture, including the material represented by the first test, will be decreased by 20 percent of the contract unit price for those mixtures outside Range No. 2 but within the Master Range; and will be decreased by 20 percent of the contact price for those mixtures outside of the Maser Range.

Marshall Requirements- If any one test does not exhibit characteristics conducive to a non-yielding, stable, and serviceable pavement (e.g., low stability, low VMA, high or low air voids) the pavement shall be removed and replaced with the material conforming to specification requirements at the Contractor's expense.

If, in the Engineer's judgment, the non-conforming mixture can remain in place, the contract unit price for the non-conforming mixture shall be reduced in accordance with the following schedule:

<u>Non-Conforming Item</u>	<u>Reduction</u>
a. *0.1% to 0.5% below the minimum VMA requirement	5%
b. *0.6% to 1.0% below the minimum VMA requirement	10%
c. 1.1% to 1.5% below the minimum VMA requirement	15%
d. 1.6% to 2.0% below the minimum VMA requirement	25%
e. 2.1% to 2.5% below the minimum VMA requirement	50%

<u>Non-Conforming Item</u>	<u>Reduction</u>
f. *0.1% to 0.3% below the Air Void requirement	5%
g. *0.4% to 0.6% below the Air Void requirement	10%
h. 0.7% to 0.9% below the Air Void requirement	15%
i. 1.0% to 1.2% below the Air Void requirement	25%
j. 1.3% to 1.4% below the Air Void requirement	50%
k. *0.1% to 0.6% above the Air Void requirement	5%
l. *0.7% to 1.1% above the Air Void requirement	10%
m. 1.2% to 1.5 % above the Air Void requirement	15%
n. 1.6% to 1.8% above the Air Void requirement	15%
o. 1.9% to 2.0% above the Air Void requirement	25%
p. *Low stability greater than 5% below requirement	10%
q. Low stability greater than 15% below requirement	25%
r. *Not meeting the Flow requirement	10%

The above reductions shall be cumulative.

*Two consecutive tests will be required in order to implement this reduction. Consecutive tests may be performed on the same day of consecutive days of production of the same material.

f. Measurement and Payment. The completed work for as measured for HMA pavements will be paid for at the contract unit price for the following:

Contract Item (Pay Item)	Pay Unit
Hand Patching	Tons
HMA, 13A	Tons
HMA Approach	Tons

All HMA Mixtures will be measured by amount of actual tonnage placed. The pay items will be based on the type of mixture being specified, and/or specifications related to the course of pavement being placed (for either top, leveling, or base courses) in conformance with MDOT Specifications. The Contract unit price will be payment in full for all materials, labor, and equipment required to complete the work as specified and detailed, or to match existing cross section. Certified weight tickets shall also be provided to the Engineer.

Bond Coat SS-1h will not be paid for separately but shall be included in the HMA mixture being placed. See HMA Application chart for bond application rates.

CITY OF NOVI
SPECIAL PROVISION
FOR
CONCRETE SIDEWALK AND DRIVEWAY REPLACEMENT

OHM:TMR

Page 1 of 1

12/21/2023

DESCRIPTION

This work shall consist of removing and replacing concrete sidewalks or driveways at locations where pavement removal is required to complete water service lead site investigations. This work shall only be completed where shown in the Contract Documents, or as directed by the Engineer. Work shall be in accordance with Sections 204, 601, 602, 801 and 803 of the MDOT 2020 Standard Specifications for Construction and MDOT Standard Plan R-29 Series for Concrete Driveway and Sidewalk details.

MATERIALS

Sand Base: Granular Class II – Section 902
Concrete: Grade P1, 3500 PSI, Air Entrained – Section 601
Curing Materials: Section 903
Joint Materials: Section 914

CONSTRUCTION

Sawcut, remove and dispose of existing concrete driveway or sidewalk pavement. Only remove the area required to perform the hydro-excavation site investigations. If adjacent concrete is deteriorated, remove the existing concrete to the nearest existing pavement joint. The limits for removal are as specified on the plans or as directed by the Engineer in the field. Pavement replacement areas must be approved by the Engineer prior to removal.

Place a minimum of 4" of sand base material compacted in place to 95% Maximum Density below all areas requiring new concrete placement. Place concrete to the thickness required to match existing adjacent pavement section. Hand broom finish new concrete to match existing adjacent pavement and apply curing compound. Protect new concrete until hardened to prevent damage from foot traffic or vandalism.

Concrete driveways shall be part width constructed where possible to allow access at all times. Work shall be performed in accordance with Subsections 801 and 803.

MEASUREMENT AND PAYMENT

<u>Pay Item</u>	<u>Pay Unit</u>
Concrete Replacement, 4 inch thick.....	Square Foot
Concrete Replacement, 6 inch thick.....	Square Foot

The Engineer will measure **Concrete Replacement, X inch thick** in-place by the square foot, measured at the perimeter of the replacement area by length and width. The Engineer will determine the thickness of the concrete pavement replacement by measuring the thickness of the removed pavement, along the exposed face of the sawcut area. The thickness will be determined to the nearest inch. Pavement up to 4 inches in thickness will be paid as **Concrete Replacement, 4 inch thick**. Pavement greater than 4 inches and up to 6 inches in thickness will be paid as **Concrete Replacement, 6 inch thick**.

The unit price for these pay items includes sawcutting and removing the existing sidewalk or driveway concrete pavement, regardless of the thickness of existing pavement. The unit prices include placement and compaction of the sand base, placement of concrete of the required thickness, and finishing and protecting the new concrete.

The unit prices include furnishing all associated labor, materials, equipment, and appurtenances required to complete the work as specified.

CITY OF NOVI
SPECIAL PROVISION
FOR
SURFACE RESTORATION

OHM: SJM/KK

1 OF 3

04/04/2023

a. Description. This work consists of preparing all areas designated for surface restoration by the Engineer, and applying topsoil, fertilizer, seed, and mulch to those areas.

b. Materials. The materials and application rates specified in Sections 816 and 917 of the Michigan Department of Transportation 2020 Standard Specifications for Construction apply unless modified by this special provision or otherwise directed by the Engineer.

Materials included in Surface Restoration, Seeding:

1. Overburden Removal
2. Seeding, Mixture THM (Turf Loamy to Heavy)
3. Fertilizer, Chemical Nutrient, Class A
4. Topsoil Surface, Furn, 3 inch
5. Mulch Blanket shall be used on this project adjacent to the roadway and on steep slopes as required by the Engineer without credit for tucks, overlaps or wasted material. Mulch and Mulch Anchoring shall be used on flat slopes on the project.
6. Water, Seeding

Materials included in Surface Restoration, Sodding:

1. Overburden Removal
2. Topsoil Surface, Furn, 2 inch
3. Sodding
4. Water, Sodding

Furnished topsoil must be screened and free of stones larger than 1 inch in diameter and other debris. The topsoil shall consist of black-colored soil that is suitable for the growth of grass seed or sod. The topsoil shall be obtained from the upper layer of an existing fertile soil and be free of limbs, twigs, rocks, muck, roots, and debris, etc. and containing organic matter rich in nutrients with negligible clay content.

Top Soil shall meet the following requirements:

1. The pH range shall be from 6.0 to 7.5. Topsoil outside of this range shall be amended by the addition of pH adjusters as approved by the Engineer.
2. The organic matter content shall range between 2% and 6% (by dry sample weight).
3. The soil texture shall be a sandy loam, silt loam, or loam where the sand, silt, and clay contents (by dry sample) fall with the following ranges:

Sand- 40% to 65%

Silt- 25% to 60%
Clay- 5% to 15%

4. The gradation shall be as follows:

Sieve Designation	% Passing
1 inch screen	100
0.25 inch screen	97-100
No. 10 U.S.S. mesh sieve	95-100
No. 140 U.S.S. mesh sieve	15-35

5. The soil salinity as measured by the electrical conductivity of a saturated soil sample shall not exceed 2 dS/m (decisiemens/meter).

6. Topsoil samples may be taken from stockpiles by the Engineer for submission to a testing laboratory. Topsoil that does not meet the required specifications shall be removed from the project site by the Contractor and shall be replaced with suitable topsoil that meets the testing requirements.

c. Construction. Begin this work as soon as possible after final grading of the areas designated for turf establishment but no later than the maximum time frames stated in Subsection 208.03 of the standard specifications. It may be necessary, as directed by the Engineer, to place materials by hand. This restoration work along the street shall be completed within two weeks of placing the water main for that street.

Failure to complete the surface restoration within two weeks may result in a negative contract price adjustment. After five calendar days of the Engineer's notification, the Contractor will be assessed \$500 per day for every day until the restoration is considered satisfactorily complete by the Engineer.

Failure to remove debris, sewer spoils, and/or stock piles within the time two weeks will not be considered satisfactorily complete and will subject to the above noted liquidated damages.

Prior to placing topsoil, shape and compact all areas to be seeded. Place topsoil to the minimum depth indicated above, to meet proposed finished grade. If the area being restored requires more than the minimum depth of topsoil to meet finished grade, this additional depth must be filled using topsoil or, at the Contractor's option, embankment. Furnishing and placing this additional material is included in this item of work.

If an area washes out after this work has been properly completed and approved by the Engineer, make the required corrections to prevent future washouts and replace the topsoil, fertilizer, seed and mulch. This replacement shall be paid for as extra work.

If an area washes out for reasons attributable to the Contractor's activity or failure to take proper precautions, replacement shall be at the Contractor's expense.

Prior to placing topsoil, shape and compact all areas to be sodded. Place topsoil to the minimum depth indicated above, to meet proposed finished grade. If the area being restored requires more than the minimum depth of topsoil to meet finished grade, this additional depth must be filled using topsoil or, at the Contractor's option, embankment. Furnishing and placing

this additional material is included in this item of work.

All areas disturbed by the Contractor and/or his Subcontractor beyond the normal construction limits of this project shall be sodded or seeded as directed by the Engineer. No additional payment or compensation will be allowed for this activity.

Water sodded and seeded areas per section 816.03 of the 2020 MDOT Standard Specifications for Construction. Five (5) additional watering applications shall be included in this cost as directed by the Engineer. The application rate for the additional watering shall follow section 816.03 of the 2020 MDOT Standard Specifications for Construction. This watering is in addition to the watering detailed in section 816.03 of the 2020 MDOT Standard Specifications for Construction. No additional payment for watering shall be considered and shall be included in the pay items **Surface Restoration, Seeding** and **Surface Restoration, Sodding**.

d. Measurement and Payment. The completed work as measured shall be paid for at the contract unit price for the following contract items (pay items).

Contract Items (Pay Items) Unit	Pay
Surface Restoration, Seeding.....	Square Yard
Surface Restoration, Sodding.....	Square Yard

Payment for **Surface Restoration, Seeding** shall include all materials, equipment, and labor required to complete the work as described.

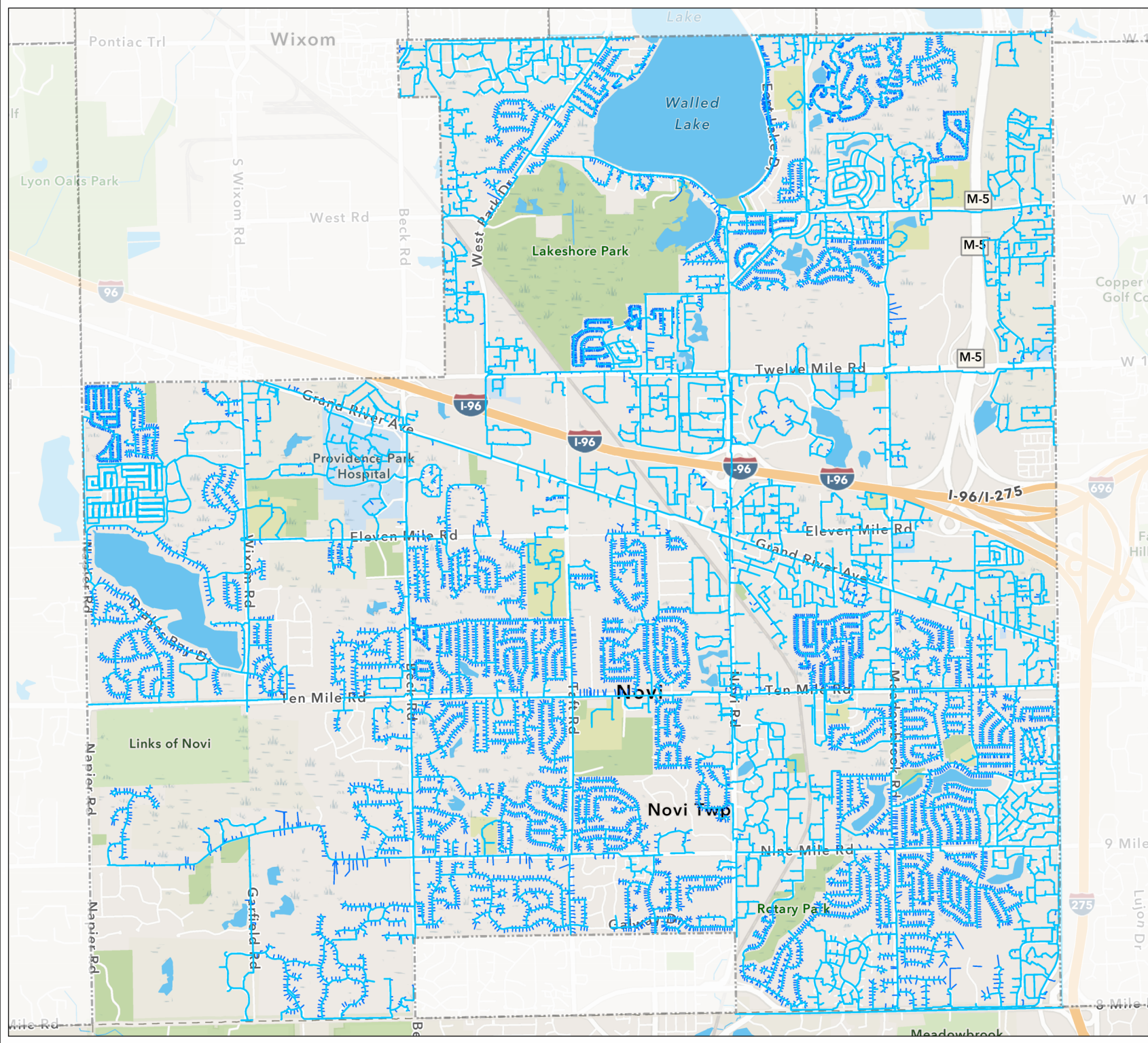
Payment for **Surface Restoration, Sodding** shall include all materials, equipment, and labor required to complete the work as described.

**Appendix A:
Address List and Project Map**

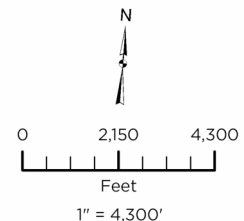


Water Main & Service Leads

City of Novi



- Water Main
- Water Service Lateral
- City of Novi



Source: Data provided by City of Novi and Oakland County. OHM Advisors does not warrant the accuracy of the data and/or the map. This document is intended to depict the approximate spatial location of the mapped features within the Community and all use is strictly at the user's own risk.

Coordinate System: NAD 1983 StatePlane Michigan South FIPS 2113 Feet Intl

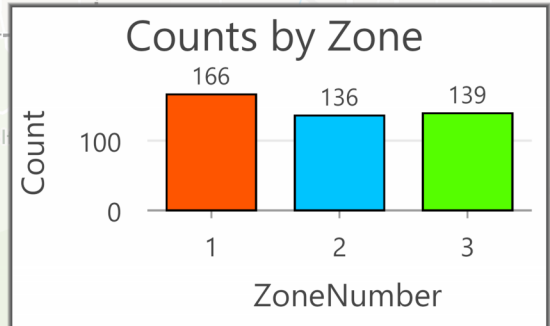
Map Published: October 6, 2023





DSMI Sample Selection

City of Novi



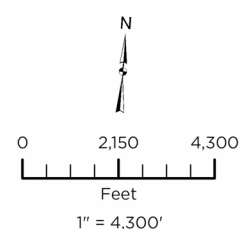
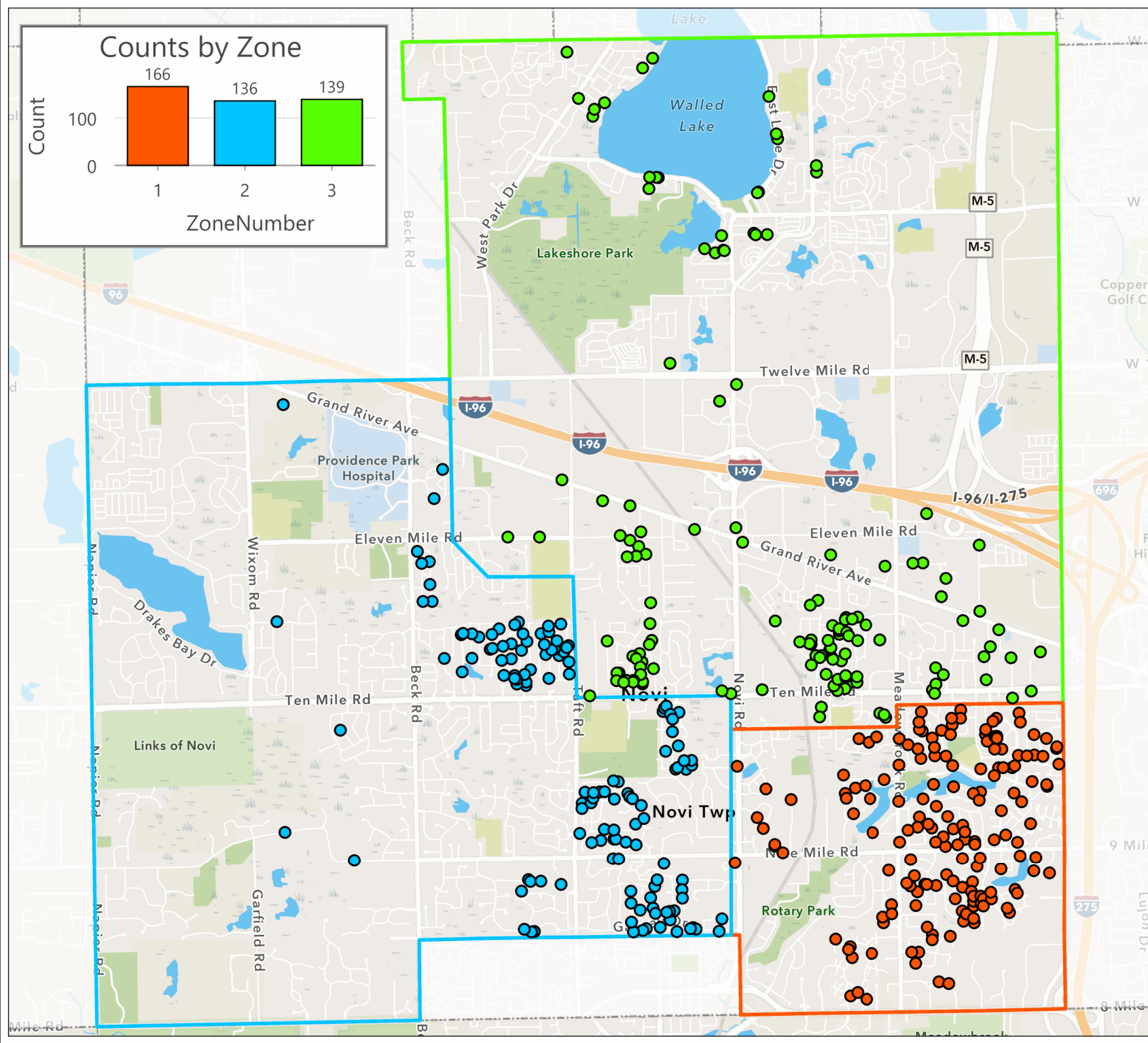
CSB by Zones

Zone

- 1
- 2
- 3

DSMI Zones

- 1
- 2
- 3
- City of Novi



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Coordinate System: NAD 1983 StatePlane Michigan South FIPS 2113 Feet Intl

Map Published: October 6, 2023



Object ID	Location	Parcel Number	Associated Building Date
3406	24339 PINECREST DR	50-22-23-451-014	1969
988	22308 NORTH HILLS CT	50-22-34-201-008	1974
13084	23595 STONEHENGE BLVD	50-22-25-276-089	1978
13473	21244 GLEN HAVEN CIR E	50-22-35-427-028	1977
5307	24923 WHITE PLAINS DR	50-22-21-426-003	1987
4940	24740 VENICE DR	50-22-21-329-015	1989
11445	39940 BURTON CT	50-22-25-204-018	1978
3648	24300 KINGS POINTE DR	50-22-23-476-016	1975
2173	41274 BEACON RD	50-22-36-302-002	1986
2646	21642 CLOVER LN	50-22-36-177-003	1979
3188	41481 CHATTMAN DR	50-22-26-430-004	1967
15163	39711 GRAND RIVER AVE	50-22-24-476-025	1986
4344	24763 CHRISTINA LN	50-22-22-329-008	1979
11671	23418 CRANBROOKE DR	50-22-25-254-015	1976
12620	45235 COURTVIEW TRL	50-22-27-302-013	1989
11273	22724 SHADOW PINE WAY	50-22-25-353-006	1970
5378	45483 EMERALD FOREST DR	50-22-21-426-022	1988
10075	22759 HESLIP DR	50-22-26-326-014	1979
1056	43589 GALWAY DR	50-22-34-280-009	1970
4143	45151 YORKSHIRE DR	50-22-22-302-016	1986
2739	40245 LADENE LN	50-22-36-252-022	1984
3767	41875 CHERRYHILL RD	50-22-23-403-009	1978
2616	22035 GREENTREE RD	50-22-36-129-016	1978
3690	41836 CHERRYHILL RD	50-22-23-427-001	1978
159	25600 STRATH HAVEN DR	50-22-21-152-014	1964
11457	24040 NILAN DR	50-22-25-205-006	1980
8568	48220 NINE MILE RD	50-22-29-400-009	1976
12416	23583 HIGH-MEADOW DR	50-22-27-205-038	1984
10196	27775 NOVI RD	50-22-15-200-104	1980
12467	45069 HUNTINGCROSS DR	50-22-27-355-023	1986
1784	22191 ANTLER DR	50-22-35-277-003	1989
950	43922 GALWAY DR	50-22-34-251-031	1977
13120	39613 VILLAGE WOOD LN	50-22-25-427-002	1977
5157	45771 CIDERMILL RD	50-22-21-458-014	1987
3808	41895 PARK RIDGE RD	50-22-23-430-002	1976
9361	47066 MANHATTAN CIR	50-22-16-300-054	-
8188	248 LINHART ST	50-22-11-106-008	1985
11423	40531 VILLAGE OAKS RD	50-22-25-330-009	1972
11991	23260 ENNISHORE DR	50-22-26-429-003	1968
2841	41126 VILLAGE LAKE RD	50-22-25-301-014	1972
2227	41273 BEACON RD	50-22-36-303-007	1987
3391	42017 LOGANBERRY RDG S	50-22-23-451-031	1974
4312	44468 SUSSEX DR	50-22-22-328-002	1979
248	45750 ELEVEN MILE RD	50-22-16-451-022	-
2774	21931 SUNFLOWER RD	50-22-36-251-011	1979
1028	22060 CENTER ST	50-22-34-128-001	1976
4241	25735 BUCKMINSTER DR	50-22-22-127-010	1987
3645	24264 KINGS POINTE DR	50-22-23-476-019	1975
13053	24557 BASHIAN DR	50-22-24-451-245	1973
863	44849 GALWAY DR	50-22-34-179-003	1974
4272	25146 BUCKMINSTER DR	50-22-22-179-012	1985
8600	49075 NINE MILE RD	50-22-29-376-014	1974
12026	41555 TAMARA DR	50-22-26-231-011	1958
2651	21854 ARBOR LN	50-22-36-177-008	1978
9303	23705 N ROCKLEDGE BLVD	50-22-25-276-066	1978
5102	24691 SIMMONS DR	50-22-21-451-028	1986
184	25865 SIERRA DR	50-22-21-102-011	1965
13341	23950 Chipmunk Trl	50-22-26-201-005	-
9597	23063 Sagebrush	50-22-26-300-014	1987
3764	41925 CHERRYHILL RD	50-22-23-403-006	1978

10311	41290 VINCENTI CT	50-22-24-100-037	1985
10302	41123 JO DR	50-22-24-100-061	1987
11606	23544 VALLEY STARR RD	50-22-25-207-012	1976
12680	45300 WHITE PINES DR	50-22-27-304-023	1989
3262	23401 DUCHESS CT	50-22-27-253-011	1981
2996	23440 W LE BOST DR	50-22-25-151-014	1972
5214	24922 SARAH FLYNN DR	50-22-21-328-004	1988
3584	42495 PARK RIDGE RD	50-22-23-327-019	1973
1270	45953 GALWAY DR	50-22-33-253-005	1984
13266	31100 WESTGATE BLVD	50-22-03-101-006	-
11775	41056 HOLLYDALE	50-22-25-151-035	1971
11233	22493 BROOK FOREST RD	50-22-25-355-026	1971
11575	40311 OAK TREE RD	50-22-25-251-006	1975
11125	22699 DEERFIELD RD	50-22-25-376-015	1972
11342	23105 HEATHERBRAE WAY	50-22-25-301-020	1972
5049	24406 SURFSIDE RD	50-22-21-453-003	1983
11612	23569 LONDONDERRY DR	50-22-25-207-023	1975
8160	177 LINHART ST	50-22-11-104-013	1985
12049	41766 SYCAMORE DR	50-22-26-276-015	1972
2368	22040 CASCADE DR	50-22-36-103-022	1983
12536	44898 ROUNDVIEW DR	50-22-27-327-001	1987
5183	24777 SARAH FLYNN DR	50-22-21-327-011	1988
3492	24541 HAMPTON CT	50-22-23-404-016	1971
12340	44124 WINTHROP DR	50-22-27-252-024	1984
11951	22835 ENNISHORE DR	50-22-26-403-024	1967
4232	25998 PETROS BLVD	50-22-22-127-001	1979
11206	40437 OAKWOOD DR	50-22-25-380-012	1973
11811	41007 MOORINGSIDE DR	50-22-25-105-006	1956
2954	40905 TEN MILE RD	50-22-25-102-004	1968
2159	41272 LLEWELYN CT	50-22-36-376-003	1986
9874	41180 BRIDGE ST	50-22-13-351-024	1989
9717	24064 Chipmunk Trl	50-22-26-201-005	-
8748	1361 EAST LAKE DR	50-22-02-328-004	-
2523	22157 SHADYBROOK DR	50-22-36-127-039	1978
3678	24780 KINGS POINTE DR	50-22-23-431-007	1978
12250	23981 HARVEST DR	50-22-27-202-015	1984
2418	22014 S HEATHERBRAE WAY	50-22-36-104-003	1983
1308	22010 WORCESTER DR	50-22-33-226-007	1988
9329	39772 VILLAGE WOOD CIR	50-22-25-426-044	1977
9592	23160 Sagebrush	50-22-26-300-014	1987
5272	24934 PORTSMOUTH AVE	50-22-21-477-012	1987
2655	21958 ARBOR LN	50-22-36-177-012	1978
268	26040 LANNYS RD	50-22-15-378-005	1963
12244	23990 HICKORY GROVE LN	50-22-27-202-009	1983
2696	40078 SANDPOINT WAY	50-22-36-202-019	1983
8933	1733 EAST LAKE DR	50-22-02-357-005	-
2510	40528 LADENE LN	50-22-36-127-025	1978
12255	23887 HARVEST DR	50-22-27-202-020	1983
5118	24479 RIVERVIEW LN	50-22-21-452-025	1987
14076	1331 WEST LAKE DR	50-22-03-204-017	-
3270	44685 DUNBARTON DR	50-22-27-377-012	1986
2177	40872 COVENTRY RD	50-22-36-326-003	1986
9557	23401 Haggerty Rd	50-22-25-276-083	-
5208	24778 SARAH FLYNN DR	50-22-21-328-010	1988
12494	45152 DUNBARTON DR	50-22-27-352-005	1985
11163	22582 WINFIELD RD	50-22-25-378-009	1972
3513	24730 APPLE CREST DR	50-22-23-329-014	1972
4116	44798 YORKSHIRE DR	50-22-22-377-017	1984
11160	22532 WINFIELD RD	50-22-25-378-012	1972
2737	40217 LADENE LN	50-22-36-252-024	1984
12525	44547 MIDWAY DR	50-22-27-327-015	1987

9964	42100 GRAND RIVER AVE	50-22-23-226-038	1987
9349	47212 MANHATTAN CIR	50-22-16-300-054	-
4049	24294 JAMESTOWNE RD	50-22-22-378-024	1983
12274	23854 HARVEST DR	50-22-27-205-014	1984
9473	25430 Fountain Park Dr W	50-22-23-251-020	-
12	24235 NOVI RD	50-22-22-400-014	1969
4091	24383 JAMESTOWNE RD	50-22-22-377-032	1981
5098	24635 SIMMONS DR	50-22-21-451-032	1986
12538	44942 ROUNDVIEW DR	50-22-27-303-016	1987
11572	40225 OAK TREE RD	50-22-25-251-009	1975
868	21659 BEDFORD DR	50-22-34-176-025	1975
3010	23790 MAUDELEA CIR	50-22-25-131-009	1958
2477	40451 MILL ROAD CT E	50-22-36-126-010	1978
12508	44607 MIDWAY DR	50-22-27-378-002	1987
4319	24790 CHRISTINA LN	50-22-22-330-006	1979
11252	22460 HEATHERBRAE WAY	50-22-25-355-013	1971
13122	39533 VILLAGE WOOD LN	50-22-25-430-011	1977
9318	23555 MEETINGHALL LN	50-22-25-276-169	1978
5647	24960 DELMONT DR	50-22-20-152-027	1977
11722	23716 E LE BOST DR	50-22-25-126-013	1956
2830	22452 MEADOWBROOK RD	50-22-25-351-013	1971
3760	42035 RIDGE RD W	50-22-23-403-012	1978
3458	42040 LOGANBERRY RDG N	50-22-23-404-022	1969
8830	914 LEMAY ST	50-22-03-451-007	-
10269	25220 TRANS X RD	50-22-23-151-034	1986
12025	41615 TAMARA DR	50-22-26-231-010	1958
9052	175 PICKFORD ST	50-22-03-153-044	-
4110	44807 HUNTINGTON RD	50-22-22-377-015	1984
11518	40325 GUILFORD RD	50-22-25-253-013	1973
3288	44477 MIDWAY DR	50-22-27-327-007	1987
11153	22617 WINFIELD RD	50-22-25-377-022	1972
2777	22033 SUNFLOWER RD	50-22-36-251-008	1985
4304	44649 COPLAND LN	50-22-22-128-002	1979
3476	24536 KNOLLWOOD DR	50-22-23-404-018	1971
2594	21705 CLOVER LN	50-22-36-178-020	1978
8928	1729 EAST LAKE DR	50-22-02-357-006	-
13518	23066 BALCOMBE DR	50-22-26-403-005	1970
11913	23645 RIPPLECREEK RD	50-22-25-126-040	1960
8628	25722 SEELEY RD	50-22-24-201-013	1958
5280	24922 WHITE PLAINS DR	50-22-21-476-025	1987
2379	21735 SIEGAL DR	50-22-36-151-011	1985
8721	2290 AUSTIN DR	50-22-10-227-017	1940
9529	30164 Warley Ct	50-22-02-400-014	-
5223	24758 PORTSMOUTH AVE	50-22-21-479-001	1987
2464	22352 MILL RD	50-22-36-126-023	1978
9859	20872 GLEN HAVEN CIR W	50-22-35-453-012	1978
3449	24287 HAMPTON HILL RD	50-22-23-453-019	1969
11837	41098 S MCMAHON CIR	50-22-25-104-013	1955
5038	24334 FAIRWAY HILLS DR	50-22-21-453-014	1986
4085	24555 JAMESTOWNE RD	50-22-22-377-026	1983
9983	43317 GRAND RIVER AVE	50-22-23-102-018	1977
11213	40645 OAKWOOD DR	50-22-25-380-005	1973
12373	44845 HUNTINGCROSS DR	50-22-27-379-004	1986
11297	22665 SHADOW PINE WAY	50-22-25-352-024	1970
12375	44924 HUNTINGCROSS DR	50-22-27-354-004	1985
8877	817 SOUTH LAKE DR	50-22-03-453-001	1940
1014	21776 CUMBERLAND DR	50-22-34-251-011	1977
11659	39895 SQUIRE DR	50-22-25-254-001	1975
11217	40755 OAKWOOD DR	50-22-25-380-001	1973
1113	45045 NINE MILE RD	50-22-34-101-006	1972
1316	22230 WORCESTER DR	50-22-33-201-014	1987

2156	41288 LLEWELYN RD	50-22-36-351-007	1965
3485	42230 PARK RIDGE RD	50-22-23-401-002	1971
897	21755 CENTER ST	50-22-34-177-037	1974
1025	22006 CENTER ST	50-22-34-128-004	1975
13034	24681 OLDE ORCHARD ST	50-22-24-451-311	1973
9406	22667 Strawberry Ct	50-22-25-400-019	-
11541	40308 GUILFORD RD	50-22-25-252-028	1975
13101	23535 N ROCKLEDGE BLVD	50-22-25-276-186	1978
8695	121 AUSTIN DR	50-22-10-278-010	-
11396	40676 VILLAGE OAKS RD	50-22-25-329-009	1977
11729	23548 E LE BOST DR	50-22-25-126-024	1973
12374	44950 HUNTINGCROSS DR	50-22-27-354-003	1987
12619	45267 COURTVIEW TRL	50-22-27-302-011	1988
11390	22811 BROOK FOREST RD	50-22-25-302-015	1971
5042	24390 FAIRWAY HILLS DR	50-22-21-453-010	1983
2837	23132 MEADOWBROOK RD	50-22-25-301-003	1978
9413	22123 Solomon Blvd	50-22-36-200-023	1985
163	GLAMORGAN DR	50-22-21-152-011	-
915	21758 WOODSIDE CT	50-22-34-177-013	1974
2951	24400 BORDERHILL RD	50-22-24-376-007	1956
8178	192 LINHART ST	50-22-11-106-002	1979
2355	21922 SIEGAL DR	50-22-36-103-035	1979
5241	24889 SUTHERLAND DR	50-22-21-476-004	1986
2363	22145 SIEGAL CT	50-22-36-103-027	1978
4095	44604 YORKSHIRE DR	50-22-22-377-024	1984
15068	42900 W NINE MILE RD	50-22-26-376-020	1978
12351	44781 HUNTINGCROSS DR	50-22-27-380-009	1986
12674	44410 MIDWAY DR	50-22-27-305-005	1988
957	43939 GALWAY DR	50-22-34-253-007	1977
13059	24381 BASHIAN DR	50-22-24-451-398	1973
3424	24303 KNOLLWOOD DR	50-22-23-452-019	1971
11829	41081 S MCMAHON CIR	50-22-25-105-037	1955
9104	1951 WEST LAKE DR	50-22-03-155-001	-
11772	40944 HOLLYDALE	50-22-25-151-042	1956
3791	41919 RIDGE RD E	50-22-23-410-006	1976
12676	44422 MIDWAY DR	50-22-27-305-003	1988
9430	39870 CROSSWINDS DR	50-22-36-226-205	1985
5040	24362 FAIRWAY HILLS DR	50-22-21-453-012	1983
12475	22481 ALTON CT	50-22-27-355-014	1984
9556	23449 Haggerty Rd	50-22-25-276-083	-
2579	22135 CLOVER LN	50-22-36-128-013	1978
2272	41043 TODD LN	50-22-36-153-013	1984
9036	45322 TEN MILE RD	50-22-22-301-048	1955
203	25870 STRATH HAVEN DR	50-22-21-102-004	1971
12269	23756 HARVEST CT	50-22-27-205-009	1984
3617	24535 PARK RIDGE CT	50-22-23-377-006	1978
190	25711 STRATH HAVEN DR	50-22-21-151-010	1965
1725	41529 FAWN TRL	50-22-35-278-009	1988
4857	24487 VENICE DR	50-22-21-376-007	1989
13188	22625 WOOLSEY DR	50-22-25-460-010	1977
11767	23138 W LE BOST DR	50-22-25-152-016	1972
1723	41505 FAWN TRL	50-22-35-278-011	1988
13480	42159 PELLSTON DR	50-22-35-401-023	1978
3601	42323 PARK RIDGE RD	50-22-23-451-033	1972
860	44755 GALWAY DR	50-22-34-180-001	1974
14066	113 FAYWOOD ST	50-22-03-130-010	-
10180	26100 NOVI RD	50-22-14-351-045	1981
982	21660 CENTER ST	50-22-34-252-002	1977
2661	21965 SUNRISE BLVD	50-22-36-177-018	1978
11988	23206 ENNISHORE DR	50-22-26-429-006	1968
858	44711 GALWAY DR	50-22-34-180-003	1974

245	44620 ELEVEN MILE RD	50-22-15-376-021	1988
3248	41551 TAMARA DR	50-22-26-231-012	1957
9330	23072 CRANBROOKE LN	50-22-25-407-001	1977
951	43890 GALWAY DR	50-22-34-251-032	1977
13515	23277 BALCOMBE DR	50-22-26-402-001	1968
3759	42051 RIDGE RD W	50-22-23-403-013	1978
3516	24766 APPLE CREST DR	50-22-23-329-011	1973
7540	2416 SHAWOOD DR	50-22-10-228-020	1976
1114	22351 CONNEMARA DR	50-22-34-101-007	1958
12243	23890 HICKORY GROVE LN	50-22-27-202-008	1983
2994	41152 HOLLYDALE	50-22-25-151-029	1973
891	21865 CENTER ST	50-22-34-177-031	1974
936	44250 GALWAY DR	50-22-34-251-017	1976
4050	24316 JAMESTOWNE RD	50-22-22-378-023	1984
2644	21602 CLOVER LN	50-22-36-177-001	1979
3486	42210 PARK RIDGE RD	50-22-23-401-001	1971
12388	23488 HIGH-MEADOW DR	50-22-27-252-006	1981
1349	22207 WORCESTER DR	50-22-33-202-002	1988
11585	23593 VALLEY STARR RD	50-22-25-206-011	1975
3494	24610 HIGHLANDS DR	50-22-23-407-012	1972
4058	24490 JAMESTOWNE RD	50-22-22-378-015	1980
5141	24973 FAIRWAY HILLS DR	50-22-21-457-011	1987
9955	40890 GRAND RIVER AVE	50-22-24-100-012	1974
7511	2270 CROWN DR	50-22-10-277-025	-
11260	22655 HEATHERBRAE WAY	50-22-25-353-021	1970
3747	42021 CHERRYHILL RD	50-22-23-402-004	1976
4088	24447 JAMESTOWNE RD	50-22-22-377-029	1984
2698	40014 SANDPOINT WAY	50-22-36-202-021	1986
5304	45583 FALMOUTH AVE	50-22-21-480-001	1987
2636	22005 ARBOR LN	50-22-36-176-019	1978
10248	43400 TEN MILE RD	50-22-22-400-017	1987
8777	1349 EAST LAKE DR	50-22-02-177-014	1989
2967	23650 MEADOWBROOK RD	50-22-25-101-015	1956
5374	45547 EMERALD FOREST DR	50-22-21-426-026	1988
9942	40380 GRAND RIVER AVE	50-22-24-401-001	1978
4067	24582 JAMESTOWNE RD	50-22-22-329-016	1989
1352	22141 WORCESTER DR	50-22-33-277-017	1988
5088	24560 SIMMONS DR	50-22-21-452-015	1986
9559	23525 Haggerty Rd	50-22-25-276-083	-
12065	41678 SYCAMORE DR	50-22-26-276-019	1968
5131	45754 CIDERMILL RD	50-22-21-460-001	1987
2675	21930 SUNRISE BLVD	50-22-36-251-004	1978
4776	24430 REDWING DR	50-22-21-351-001	1989
9487	24889 Meadowbrook Rd	50-22-23-426-018	-
3785	41898 RIDGE RD E	50-22-23-403-021	1978
1277	46036 GALWAY DR	50-22-33-251-008	1983
535	43610 SERENITY DR	50-22-34-251-035	1989
8878	1015 SOUTH LAKE DR	50-22-03-380-008	-
68	48735 GRAND RIVER AVE	50-22-17-101-014	1978
10016	45500 GRAND RIVER AVE	50-22-16-426-005	-
3441	24336 KNOLLWOOD DR	50-22-23-453-008	1970
9479	25441 Fountain Park Dr W	50-22-23-251-020	-
11964	23094 GILBAR DR	50-22-26-428-003	1968
4098	44724 YORKSHIRE DR	50-22-22-377-021	1983
8740	1250 EAST LAKE DR	50-22-02-151-016	1930
12672	22820 WAYCROFT DR	50-22-27-305-008	1987
1269	45911 GALWAY DR	50-22-33-253-006	1983
10117	25715 MEADOWBROOK RD	50-22-23-226-020	1986
14402	42970 TEN MILE RD	50-22-23-351-013	1986
2653	21906 ARBOR LN	50-22-36-177-010	1978
2218	41379 CARRIAGE HILL DR	50-22-36-305-001	1983

530	43570 SERENITY DR	50-22-34-201-033	1989
10329	43000 NINE MILE RD	50-22-26-300-006	1987
2604	21936 CLOVER LN	50-22-36-129-004	1978
11587	23617 VALLEY STARR RD	50-22-25-206-009	1975
10198	27800 NOVI RD	50-22-14-100-063	1988
13519	23034 BALCOMBE DR	50-22-26-403-007	1969
5366	45611 FREEMONT DR	50-22-21-426-034	1988
2395	21978 MERIDIAN LN	50-22-36-105-015	1983
5244	24919 PORTSMOUTH AVE	50-22-21-476-001	1987
11183	22512 SHERIDAN DR	50-22-25-379-012	1972
4973	24292 SIMMONS DR	50-22-21-456-007	1985
12242	23850 HICKORY GROVE LN	50-22-27-202-007	1983
11897	40649 ROCKHILL LN	50-22-25-131-001	1958
11598	23670 VALLEY STARR RD	50-22-25-207-004	1976
876	21935 BEDFORD DR	50-22-34-176-015	1975
4064	44550 CONCORD DR	50-22-22-329-019	1988
10230	39575 TEN MILE RD	50-22-25-226-016	1984
2929	24280 CORAL LN	50-22-24-353-014	1955
4908	24707 PICARA DR	50-22-21-330-020	1989
9067	119 PICKFORD ST	50-22-03-153-030	1979
5275	24935 PORTSMOUTH AVE	50-22-21-476-030	1987
4871	24739 VENICE DR	50-22-21-331-015	1989
1013	21792 CUMBERLAND DR	50-22-34-251-010	1976
12335	23467 DUCHESS CT	50-22-27-253-014	1983
3394	42053 LOGANBERRY RDG S	50-22-23-451-028	1972
2345	22013 S HEATHERBRAE WAY	50-22-36-103-011	1978
3387	24236 HAMPTON HILL RD	50-22-23-454-022	1971
12004	22663 PENTONRISE CT	50-22-26-476-016	1972
11895	40591 ROCKHILL LN	50-22-25-131-004	1958
9444	22076 EDGEWATER	50-22-36-226-141	1985
533	43594 SERENITY DR	50-22-34-201-030	1989
3260	44013 WINTHROP DR	50-22-27-253-024	1980
10307	41216 VINCENTI CT	50-22-24-100-035	1979
2927	40930 TEN MILE RD	50-22-24-353-011	1955
4120	44751 YORKSHIRE DR	50-22-22-379-003	1986
10014	45033 GRAND RIVER AVE	50-22-15-351-025	1985
2787	21832 SUNRISE BLVD	50-22-36-251-029	1988
11596	23694 VALLEY STARR RD	50-22-25-207-002	1975
11361	40422 VILLAGE WOOD RD	50-22-25-401-005	1972
872	21847 BEDFORD DR	50-22-34-176-019	1976
12486	45392 DUNBARTON DR	50-22-27-351-001	1979
2664	21869 SUNRISE BLVD	50-22-36-177-021	1978
13154	22909 TALFORD ST	50-22-25-408-016	1977
9526	30050 Warley Ct	50-22-02-400-014	-
4972	24278 SIMMONS DR	50-22-21-456-008	1985
11356	23283 WILLOWBROOK DR	50-22-25-328-002	1972
3477	24524 KNOLLWOOD DR	50-22-23-404-019	1971
1787	22155 ANTLER DR	50-22-35-277-006	1988
12496	45060 DUNBARTON DR	50-22-27-352-008	1979
5265	24822 PORTSMOUTH AVE	50-22-21-477-006	1986
1011	21820 CUMBERLAND DR	50-22-34-251-008	1976
3697	41920 CHERRYHILL RD	50-22-23-409-018	1978
4916	24724 NAPLES DR	50-22-21-330-006	1989
11733	40740 VILLAGE WOOD RD	50-22-25-176-004	1972
2207	41272 COVENTRY RD	50-22-36-305-009	1979
12660	45346 COURTVIEW TRL	50-22-27-301-013	1989
2888	40421 GUILFORD RD	50-22-25-253-007	1974
13048	24682 BASHIAN DR	50-22-24-451-058	1973
13300	21206 GLEN HAVEN CIR W	50-22-35-402-062	1985
1795	41438 REINDEER DR	50-22-35-227-006	1989
2937	24460 MILLSTREAM LN	50-22-24-354-004	1955

9306	23500 WOODSHIRE CT	50-22-25-276-155	1978
8876	811 SOUTH LAKE DR	50-22-03-453-002	1957

ALTERNATES

4102	44605 YORKSHIRE DR	50-22-22-379-007	1981
895	21781 CENTER ST	50-22-34-177-035	1974
12325	44157 WINTHROP DR	50-22-27-251-021	1983
9864	20909 GLEN HAVEN CIR E	50-22-35-453-040	1979
15035	43646 WESTRIDGE LN	50-22-34-279-004	1968
9382	22502 MANSION CT	50-22-25-400-019	-
12590	44780 FORD WAY DR	50-22-27-306-005	1987
9832	42178 PELLSTON DR	50-22-35-426-145	1978
9791	20854 GLEN HAVEN CIR E	50-22-35-476-022	1977
249	46216 ELEVEN MILE RD	50-22-16-451-053	1975
12408	23444 GREENING DR	50-22-27-253-008	1984
2799	22616 HEATHERBRAE WAY	50-22-25-355-007	1970
13214	22443 CRANBROOKE DR	50-22-25-455-004	1977
143	47269 SIERRA DR	50-22-21-101-012	1966
9998	43963 GRAND RIVER	50-22-15-477-001	1950
9953	40575 GRAND RIVER AVE	50-22-24-326-024	1957
3538	24741 APPLE CREST DR	50-22-23-328-037	1973
8624	23455 NOVI RD	50-22-27-276-012	-
4301	25865 PETROS BLVD	50-22-22-128-005	1981
11626	23560 LONDONDERRY DR	50-22-25-208-008	1975
11128	22601 DEERFIELD RD	50-22-25-376-020	1972
13177	22813 RENFORD DR	50-22-25-456-001	1977
1346	22146 DALEVIEW DR	50-22-33-202-005	1988
11625	23576 LONDONDERRY DR	50-22-25-208-007	1975
4925	24562 NAPLES DR	50-22-21-330-015	1989
11868	24018 GLENRIDGE CT	50-22-25-128-018	1957
10333	43000 NINE MILE RD	50-22-26-300-006	1987
4978	24362 SIMMONS DR	50-22-21-456-002	1985
2471	22480 MILL RD	50-22-36-126-016	1978
11522	40389 GUILFORD RD	50-22-25-253-009	1974
4245	25945 BUCKMINSTER DR	50-22-22-127-014	1979
13325	23326 Portage Way	50-22-26-101-014	-
5295	24747 WHITE PLAINS DR	50-22-21-480-010	1987
5060	24373 FAIRWAY HILLS DR	50-22-21-455-003	1983
13479	21392 GLEN HAVEN CIR E	50-22-35-426-113	1977
5310	24969 AVON CT	50-22-21-426-006	1987
9049	SOUTH LAKE CT	50-22-03-153-023	1957/1988
2556	21664 SHADYBROOK DR	50-22-36-178-003	1978
4111	44831 HUNTINGTON RD	50-22-22-377-016	1984
1079	22347 CHELSEA LN	50-22-34-226-025	1987
4990	24467 SURFSIDE RD	50-22-21-451-003	1984
9937	40245 GRAND RIVER AVE	50-22-24-451-006	-
5350	25054 DAVENPORT AVE	50-22-21-427-026	1988
2430	22236 CASCADE DR	50-22-36-102-002	1979
5030	24401 BONNIEBROOK DR	50-22-21-453-027	1984
4330	24470 CHRISTINA LN	50-22-22-330-017	1979
11322	22603 CHESTNUT TREE WAY	50-22-25-351-024	1970
5064	24473 FAIRWAY HILLS DR	50-22-21-455-020	1986
3547	42352 PARK RIDGE RD	50-22-23-328-024	1972
11843	41103 N MCMAHON CIR	50-22-25-104-005	1956
9424	22300 PONDVIEW DR	50-22-36-226-061	1985
12611	45355 WHITE PINES DR	50-22-27-302-003	1987
12578	44486 MIDWAY DR	50-22-27-329-005	1988
5107	24648 FAIRWAY HILLS DR	50-22-21-451-023	1986
2987	23360 MEADOWBROOK RD	50-22-25-153-009	1975
3736	24737 UPLAND HILL DR	50-22-23-407-024	1976
12579	44492 MIDWAY DR	50-22-27-329-006	1988

2216	41337 CARRIAGE HILL DR	50-22-36-305-003	1984
5372	45565 FREEMONT DR	50-22-21-426-028	1988
973	21625 WELCH RD	50-22-34-252-013	1976
3386	24248 HAMPTON HILL RD	50-22-23-454-021	1970
10008	44485 GRAND RIVER AVE	50-22-15-376-008	1970
11404	40492 VILLAGE OAKS RD	50-22-25-329-020	1976
12035	41845 BORCHART DR	50-22-26-276-025	1962
3450	24299 HAMPTON HILL RD	50-22-23-453-018	1969
3757	42077 RIDGE RD W	50-22-23-403-015	1977
10287	44150 Twelve Mile Rd	50-22-10-452-010	-
2592	21757 CLOVER LN	50-22-36-178-018	1978
11427	23132 HEATHERWOODE DR	50-22-25-404-003	1972
2367	41320 SINGH BLVD	50-22-36-103-023	1978
8694	121 AUSTIN DR	50-22-10-278-010	1930
9418	22202 Solomon Blvd	50-22-36-200-023	1985
2999	40958 MALOTT DR	50-22-25-105-050	1956
23	23953 WOODHAM RD	50-22-29-203-014	1958



COMPLETE DISTRIBUTION SYSTEM MATERIALS INVENTORY OVERVIEW

Complete Distribution System Materials Inventory (CDSMI) Overview

Requirements

2018 revisions to the Michigan Safe Drinking Water Act, 1976 PA 399, as amended, requires that water supplies develop and maintain a CDSMI. Pursuant to Rule 325.11604(c)(ii), a CDSMI must be submitted to the Michigan Department of Environment, Great Lakes, and Energy (EGLE) by January 1, 2025.

Purpose

The purpose of the CDSMI is to characterize, record, and maintain a comprehensive inventory of distribution system materials, including service line materials on both public and private property. Maintenance of an accurate inventory of distribution materials supports effective asset management planning, lead service line replacement efforts, and notification of those served by a lead service line.

Goals of the CDSMI

1. Characterize and document distribution system materials, including service line materials on both public and private property.
2. Demonstrate through physical verification that the inventory is accurate (the scope of field verification will vary based on number of unknown service lines and reliability of records).
3. Demonstrate effective data management systems and data maintenance procedures are in place and consistently implemented. If you do not have a data management system or maintenance procedures, they should be developed.
4. Inform residents served by a lead service line.
5. Support ongoing asset management and service line replacement efforts.

Developing Your CDSMI

Organize and Review Existing Records

An early step in the CDSMI process should include a thorough review of existing records. A comprehensive review and organization of records will help identify what information is available and where gaps exist. Much of this should have been done when developing the Preliminary Distribution System Materials Inventory that was due to EGLE by January 1, 2020.

Evaluate Existing and/or Create an Inventory Tracking System and Procedures

Water supplies must develop and maintain a system for tracking distribution system materials, including service line materials on both public and private property. Tracking systems can include advanced data systems, spreadsheets, GIS software, or other methods that are sufficient to maintain the inventory. Supplies should also create and/or review existing procedures that establish how the inventory will be maintained.

Conduct Physical Verification of Service Line Materials

Most water supplies must conduct some physical verification of service lines materials in their distribution system. The extent of minimum physical verification efforts will depend on water supply size and knowledge of service line materials.

Evaluate Results of Physical Verification

After conducting the physical verification in the previous step, supplies should compare pre-verification records with the field-verified findings to assess reliability of existing records. If the verification confirms existing records are reliable, a water supply may feel confident moving forward with finalizing their CDSMI based on those records. However, supplies that find the reliability of records to be mixed or unreliable may need to conduct additional physical verification.

Conduct Additional Verification of Service Line Materials or Other Distribution System Components, as/if Needed

As noted above, supplies that find existing records to be unreliable may need to conduct additional verifications. Next steps will be supply-specific. For example, a supply finding some types of records to be reliable while others are not may require additional verification targeted to problem areas. Those with broadly unreliable records may require significant additional work.

Update and/or Expand Records to Develop the CDSMI

Supplies should use the information gained above to build-out their CDSMI. Some supplies may wish to use techniques such as predictive modeling to assist with this effort. Supplies may need assistance if using such methods.

Report to EGLE

By January 1, 2025, supplies must submit a CDSMI to EGLE. The form and manner of submittal will be communicated by EGLE in separate guidance.

Maintain Your Inventory and Submit Five-Year Updates

CDSMIs should be maintained on an ongoing basis. An updated inventory must be submitted to EGLE every five years.

****Remember to Notify the Public****

Owners and occupants of buildings served by a service line containing lead or presumed to contain lead must be notified within 30 days of determination. Owners and occupants of buildings where service line materials cannot be determined must be notified of the potential for lead.

For more information, visit Michigan.gov/LCR.